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THE BUILDER

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FOR THE

Architect, Engineer, Archæologist, Constructor, & Art-Lover,

CONDUCTED BY

GEORGE GODWIN, F.R.S., F.S.A.

Honorary Member of various Societies; Author of "History in Ruins," "Town Swamps and Social Bridges," "Another Blow for Life," &c.

"Every man's proper mansion-house, and home, being the theater of his hospitality, the seate of selfe-fruition, the comfortablest part of his own life, the noblest of his sonne's inheritance, a kinde of private princedome, nay, to the possessors thereof, an epitome of the whole world, may well deserve, by these attributes, according to the degree of the master, to be decently and delightfully adorned."

"Architecture can want no commendation, where there are noble men, or noble mindes."——SIR HENRY WOTTON.

"Our English word To BUILD is the Anglo-Saxon Býlðan, to confirm, to establish, to make firm and sure and fast, to consolidate, to strengthen; and is applicable to all other things as well as to dwelling-places."——DIVERSIONS OF PURLEY.

"Art shows us man as he can by no other means be made known. Art gives us 'nobler loves and nobler cares,'—furnishing objects by the contemplation of which we are taught and exalted,—and so are ultimately led to seek beauty in its highest form, which is GOODNESS."

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The BUILDER

A Ride round Jerusalem.

LIVING in Jerusalem, one fine October morning, the chaplain of the English church, who is something of an archæologist, and who espouses what is called the Protestant theory with regard to the Holy Sepulchre, proposed that we should join a party who were about to undertake a ride round the walls of the city. This kind offer we joyfully accepted; the more readily since, amongst the number of equestrians, were Mr. L., who has published his views on the Holy sites, and the chaplain of H.M.S. *Mars*, whose acquaintance we had made at Beyrout, and who had lately arrived from Juffa with a party of middies and three sailors, the latter anxious to be baptized at Jerusalem, as they had never before been admitted into the fold of the Anglican Church. The middies and sailors accompanied us, so that we formed a numerous cavalcade, and also a merry one; for the jolly tars, being unaccustomed to "get on board" of a horse, found that, when doubled up by short Turkish stirrups, their "sea legs" were of no avail: so they rolled about in a "groggy" manner, especially when we got fairly "under way" in a brisk gallop; and the horses being equally unaccustomed to be ridden in a seaman-like manner, or to be steered by means of the rudder, did their best to rid themselves of their unusual burdens. Thus the mutual efforts of horses and men to right one another added not a little to the general mirthfulness of the party, the sailors enjoying the fun most of all.

Going out through the Jaffa gate, we turned to the north, skirting the walls as far as the corner where stood the tower Psephinus. The exact position of this tower, which was so important a feature in the siege by Titus, is disputed. Within the walls at this point there are the crumbling ruins of an octagonal tower, built of stone and brickwork, intermingled. It is just possible that this may have been the lofty Psephinus from the summit of which the besieger looked down upon the besieged city beneath him.

Passing between the Old and New Jerusalem, at the north-west corner, we continued to follow the line of the Damascus Gate, which is the most ornamented of any in the city. It consists of a wide entrance, surmounted by a flat arch, relieved by a pointed arch above, between two flanking towers. All that is visible is of Saracenic workmanship. The gate was rebuilt in 1542, and is surmounted by battlements of the unpleasing form common to buildings of that style and period. The foundations are, however, of a much earlier period, and go far to prove that the present was the original line of wall. At this point we diverged to the north, passing amidst a grove of olive-trees—which spring out of the otherwise barren soil, on the north side of the city—in the direction of the tombs of the kings. These sepulchres might easily be passed without being observed, as they are situated at the bottom of a sort of quarry. They are about three quarters of a mile from the gate. Upon descending into the quarry, which is really a square chamber, cut regularly in the rock, an opening of considerable width is seen in the west face. It is decorated by a Roman Doric cornice and frieze. There were formerly two columns, evidently for ornament and not for support, beneath this entablature, but they have long since disappeared. The maiden's-hair fern grows in great luxuriance on the face of the rock, wreathing the sculpture, and breaking the long straight line of the cornice, and thereby adding to the picturesque beauty of the spot.

On entering we found ourselves in a chamber 39 ft. by 18 ft., and from it we entered other smaller chambers, with *loculi* and stone benches for the reception of bodies. The entrance was closed by a stone, which was *rolled* into its place, in a simple and ingenious manner.

Le Brun, who was here in 1695, gives the following description of the tombs:—"We enter first by an arcade cut in the rock, and find ourselves in a large square chamber of moderate height, the walls of which are formed by the rock itself. On the left hand we see a gallery sustained by several columns, which is ornamented in many places by foliage cut in the rock. At the end of the gallery there is an opening which can be passed only by stooping. By it we enter a large square chamber, which has several small doorways leading to five or six other rooms. . . . . In these chambers the bodies were placed upon tables 2 ft. or 3 ft. high, cut in the rock." He counted fifty *loculi*. The number of bodies which evidently were placed here show that this was not, as some maintain, the sepulchre of Helen, queen of the Adiabene. In Le Brun's time it was believed to be the tomb of King Manasses, Amram his son, and Josias his grandson; but this is an erroneous theory, as the decoration is late Roman, while Josias flourished in the year 600 B.C. M. de Sauley removed a sarcophagus from this place, and with great difficulty transported it to the coast. It is now placed in the Louvre, and passes for a specimen of early Jewish art, though probably it is of the date of the Roman period.

By some writers on the topography of Jerusalem it is maintained that these are the Royal Caverns mentioned by Josephus; they, assuming that it was impossible that the walls, as they stand at present, even with the addition of Mount Zion *extra muros*, and Mount Ophel, could not have contained the immense population quoted by Josephus as 100,000, assert that the third wall—that of Herod Agrippa inclosed all the ground between this spot and the city, and that these are the Royal Caverns by which it passed. There are many objections to this theory: first, the fact that traces of an old probably a third wall, are found at the Damascus Gate; secondly, these tombs would not have been called caverns; thirdly, the caverns themselves exist in the line of the third wall; fourthly, there are signs of this extensive district having been built upon. There are no traces of the line of the wall itself; nor are there any of those fragments of pottery which we have invariably remarked even on the sites of cities that had ceased to exist long before the date of the siege of Jerusalem.

Crossing the upper part of the valley of Jehoshaphat, somewhere near the spot where it was filled up by Titus in order to facilitate his approach to the walls, we mounted the sides of Mount Scopus, where was placed the first camp of the emperor, and whence he had a complete view of the city, and could easily perceive the weakest points in its fortifications. From this point we galloped along the ridge to the summit of the Mount of Olives, where tradition fixes the site of the Ascension of our Lord. The Empress Helena built a church here, which, after undergoing certain vicissitudes, was rebuilt by the Crusaders. It was like the Dome of the Rock, octagonal in plan. The outer walls of the octagon have been destroyed, and the bases of columns at the angles alone remain to mark its original size; but in the centre is a small octagonal structure, with columns at the angles, which, from their capitals and mouldings, are evidently thirteenth century work. It is surmounted by a dome of the Mahometan period. This too, like the Dome of the Rock, is built over a stone, upon the upper surface of which are rude impressions of feet, believed, by the superstí-

tious, to be those of our Saviour, made at the moment of the ascension. This stone is an object of veneration to Christians and Mahometans alike, and the former are actually allowed to perform mass within the building on Ascension-day,—this being the only Mahometan shrine in existence in which such a privilege is granted. The sheikh who has charge of the mosque conducted us into the gallery of a small minaret attached to the building, from which we enjoyed a panorama, which, for interest and also for a sort of wild beauty, and for rich colouring, is unequalled in the world.

At our feet lay the steep slope of the mountain, dotted with gnarled olive-trees, whose foliage, agitated by the breeze, showed that silver shimmer which is peculiar to them. Amidst them a square plot, surrounded by white walls, and full of flowering shrubs, marked the position of the Garden of Gethsemane. At the foot of a mountain lay the long straight Valley of Jehoshaphat, which, on the left-hand, narrowed to a ravine,—actually paved with the tombstones of generations of the tribes of Israel who came to lay their bones in their beloved city. Immediately in front of us, beyond the valley, on the summit of a ridge ran the east wall of the Haram inclosure, with the walled up Golden Gateway conspicuously prominent, and St. Stephen's Gate beyond. We looked down into the inclosure, containing the green Dome of the Rock, of elegant form, and the long Mosque of the Aksab, and could see the Mahometans walking about amongst the trees, or performing their devotions at the kohbbets. The city beyond sloped down towards us, so that, amid the mass of white flat-topped houses, we could distinguish the dome and tower of the Church of the Holy Sepulchre, the English church, and the immense Armenian convent in its neighbourhood; while, beyond, we caught a glimpse of the citadel and the town of David. On the right our range of vision was bounded by the rugged sides of Scopus and of the mountain upon the side of which Jerusalem stands; while, on our left, looking over the desolate Hill of Evil Counsel, we saw a wild and barren tract of country trending down to the south-east, and beyond it the light-blue water of the Dead Sea, and the valley of the Jordan, both bounded by a wall of jagged mountain of a delicate rose purple. These were the mountains of Moab, from which Moses beheld the Land of Promise—that on which we stood—then rich and fertile, now stony, barren, burnt up, and destitute of trees!

From the Mount of Olives we rode to Bethany, where we visited the tomb of Lazarus, which is not like the usual tomb in the rock, but is several feet below the surface of the ground, and is reached by a steep staircase. There are no architectural features about it by which its date can be ascertained; but it is one of the least authenticated of the holy sites.

Returning to Jerusalem, we wound round the foot of the Mount of Olives, and descended into the Valley of Jehoshaphat, passing by the tomb of the Virgin, which is situated exactly in the centre of it. This is a subterranean church, without an internal feature of interest, but possessing an external door of thirteenth century Gothic, and in very good style. Ascending the rather steep bridle-path which leads to St. Stephen's Gate, we fortunately entered it before sunset, at which time it is closed.

SOMETHING OF WINDSOR.

THAT Windsor Castle is Windsor, is even truer than that Paris is France. Oxford University is not more Oxford than the Castle is Windsor. Ramsgate and Margate are not more obliged to the presence of "Old Ocean" for their name and position; Lutton is not more dependent on its straw hats, or Coventry on the ribbons that trim them, than is the town of Windsor on the Castle of Windsor. In short, Windsor Castle is Windsor. It has received all that it has, and must receive all that it can ever expect to have, from its connexion with that magnificent pile and the presence of its royal occupants. A purely rural district, possessing no commercial resources or manufacturing capabilities, Windsor must always remain but a royal residence, and, as a consequence, an important military station; and its growth cannot be other than comparatively slow; while it can never expect to become a very large or populous city. The causes likely to prevent the town from ever assuming great proportions, in addition to its being an essentially agricultural district, are, the fact that it is a royal residence, all but surrounded by extensive and splendid parks, which are not encroachable, at least for building purposes; and also because Windsor offers no special attraction in a health point of view. It cannot compete, that is to say, with a score of other more fashionable resorts in England. Abundantly blessed, as is well known, with all the qualities which constitute perfect landscape,—hill, dale, wood and water, beauty, variety, and extent,—there are many spots less favoured in this respect than Windsor, which are, nevertheless, better adapted for places of permanent residence. It is less healthful than beautiful. Charming as a panoramic view or a summer landscape, taken all the year round, the prevailing atmosphere of Windsor is humid, and the soil damp. It is subject to the chilly and enervating exhalations characteristic of all flat localities, without possessing the dry and invigorating breezes of mountainous ones. Whether, as old John Stow suggests, Windsor derived its name from the fact that the *wind is sore* and the air subtle and piercing there, we cannot say; certain it is, however, that the experience of the medical men of the place goes to prove that rheumatism, low fevers, and complaints of the respiratory organs are by no means rare among the population. There has been many a "raw rheumatic day" in Windsor since that on which Sir Hugh Evans and Dr. Caius went out to that hostile encounter near Frogmore, which fortunately, however, did not take place.*

The population of Windsor has increased very gradually. Three hundred years ago (about 1555) the town contained 1,000 inhabitants; according to the census of 1861, the population amounted to 12,000, and this number included the village of Clewer, the two regiments of horse and foot in garrison,† and something like 300 persons attached to the Castle. But if Windsor has not made rapid strides in its population, the comparison of one or two facts connected with its past and present history will show what wonderful advancement it has made as regards domestic arrangements and social comforts. Let us take an illustration suggested by this happy season of the year. During a recent week there was roasted, in the kitchen of Windsor Castle—one of the largest and most complete kitchens in the world—the time-honoured baron of beef, for her Majesty's Christmas dinner. The royal baron this year weighed ten stone, occupied seven hours in roasting, and was despatched in a case 6 ft. long to grace the royal board at Osborne on Christmas-day. There is a report in the archives of Windsor, to the effect, that Queen Victoria's greatest predecessor, Elizabeth, used to complain that her dinner was cold when brought on the table, in explanation of which it was stated, that the bakehouse was so far from the Castle that it was impossible the provision could be placed hot on the royal board. The bakehouse was situated in Peascod-street—a quarter of a mile distant at least! How great the changes that have taken place since Windsor was "not past halfe a day's journey" from London;‡—since the days of Edward I., when Queen Eleanor was wont to journey to the metropolis by water, her Majesty being an indifferent "horsewoman," and the roads impassable by the cumbrous vehicles in which even royalty was then obliged to travel?§ In the days of the Henrys, the natural soil, rammed down and strewn with rushes, deposits of fish-bones, fragments of meat, and all sorts of filth, formed the only floor of which even the baron's home could boast; and as a special piece of regal luxury, Henry III. ordered a room on the ground floor of Windsor Castle to be "boarded like a ship." Coming back to Queen Elizabeth's reign, there is a report for the year 1580, in which it is stated "that the maids of honour desired to have their chambers ceiled, and the partition that is of boards to be made higher, for that the servants looked over." And about the same time it is said that certain young noblemen and gentlemen were guilty of similar indecorous behaviour, being fond of peeping over these boards, to the great annoyance of the ladies when at their toilet, whereat Her Majesty was highly displeased, and severely reproved them. Moreover, it seems that the chamber for the squires of the body was "ruinous and cold," and required to be "ceiled overhead, and boarded underfoot;" and that some part of the Castle was so much out of repair that the rain beat in!

It is not more curious than instructive to note the state of things in Scotland about the same period. There was even a greater lack of personal comfort among the nobility in that country than in England. The late Earl of Buchan, in his "Antiquarian Researches," gives the following rare piece of information, which at least shows linen to have been a scarce commodity in the days of James VI. In the archives of the Mar family, under a section dedicated to antique costume, it is stated that "the royal charge (James) continuing under the nurture of his *governante*, the Dowager Countess of Mar (as towards his mouth and ordering of his person), had, in the dead of night, been seized with a colic. The ladies of honour were all summoned from their warm beds to attend his heeniss; when, as was remarked, none of the ladies had any shifts, except the auld Countess of Mar, her ladyship being tender (sickly)." Alongside of this fact, this other fact is not without interest. When our gracious Sovereign is at Windsor, twenty-four baskets, averaging 150 lb. weight each, or something like a ton and a half, of solid linen, are sent daily "to the wash," the which operation is performed by a steam-engine, and thirty-four servants, with a manager at their head.

But even so late as "when George III. was King," Windsor was a very different place from what it now is. We give one incident as an illustration. The old gaol of Windsor, which stood in St. Alban's-street, opposite to the Castle-gates, his Majesty ordered to be removed, and a new prison built in another part of the town,—Farmer George, it would appear, having been terribly annoyed by the prisoners, who were in the habit of looking at him through the bars of their cells as he came down from the Castle, and crying "God save the King! We wish your Majesty would let us out." Little more than half a century has elapsed since then, yet fancy such an incident occurring to good Queen Victoria!

It may not be out of place here to state that the Castle contains seventeen state apartments; forty-eight rooms, comprising the kitchen, pastry, confectionery, vegetable, and other store-rooms; seventy-nine bed-rooms; sixty-five sitting-rooms; and rooms containing 231 beds for servants. The length of passages is about 1,700 yards; and there are fourteen furnaces in different parts of the building connected with the heating apparatus. Fourteen furnaces, and poor Queen Bess could not get fire enough to cook her dinner, which probably consisted of a dish of baked lampreys!

If Windsor itself has not lengthened its cords in the same marvellous manner as some other English towns, it has done much of late years to strengthen its stakes. From the mean little town it once was, with its score or two of cottages of a single room, without division of stories, built of clay or timber, in some cases possessing a chimney, but as often having only an aperture in the roof for the escape of the smoke, and with its few shops, little better than sheds, Windsor has grown into the well-built place of wealth and importance we now find it. There are still in the more immediate vicinity of the Castle,—in Church-lane, Thames-street, and Peascod-street,—many buildings which give an antiquated look to the town, reminding the visitor of the last of the Stuarts, or the first of the Georges. "There are here and there," says Stoughton, in his interesting History of Windsor, "still remaining in Windsor portions of houses which belong to the seventeenth century. The Duke's Head [an inn in Peascod-street] is said to have been the house of Villiers Duke of Buckingham. Behind the shop of Mr. Lester, confectioner, in High-street, there is a staircase of the time of the Stuarts, if not earlier. The Free School, near the church, the bank, and a house close to the bridge, are said to have been designed by Sir C. Wren. The last contains some beautiful wood carving, attributed to Grinling Gibbons." But the old tenements, with their angled gables to the front—the fronts themselves projecting and off the perpendicular, their white plaster or wooden walls, their small square windows, with lozenge-shaped panes, and

* "Merry Wives of Windsor," act iii., sc. 1.

† Without wishing to reflect on the conduct of our military, it may be said that a place the population of which shows every sixth or seventh man to be a soldier is not likely to become a favourite family residence.

‡ The journey may now be accomplished within half an hour.

§ Situations have undergone a complete inversion. To judge from the evidence adduced before the Commissioners of Sewage at Richmond the other day, the river Thames will soon be as dry as "the remainder biscuit after a voyage." At present it is often difficult to float a boat from Twickenham to Richmond.

their red tiles tinted, rather than covered, with green moss, are gradually giving place to pale brick and blue-tiled houses of modern shape, and more comfortable and commodious construction.

Of the Windsor shops of the present day, it will be sufficient to say that they would not suffer by comparison with London establishments generally. It is within the last ten or fifteen years that the most marked improvements have taken place at Windsor; from the date, in fact, of the Act of Parliament for the improvement of the town. One of the earliest and most decided steps taken towards this end was the removal, about 1852, of a number of unsightly houses, which stood in the Castle-ditch, on the eastern side of Thames-street, which had been so long a reproach to the royal burgh.* Since then the town has been gradually extending in the only direction available for extension—that is, towards the west, in the direction of the village of Clewer. A cluster of houses known as Clarence-villas, and another called Osborne-villas, are very good examples of the modern suburban villa. The latest erection of this kind here is a handsome Gothic villa belonging to Mr. Darvill, solicitor, Windsor. The grounds surrounding the house have been laid out with great taste. On the opposite side of Clewer-road, a new street called Bexley-street is a fair specimen of the better class of working men's houses. A row of about thirty new houses is in course of erection in Oxford-road, at the back of Bexley-street. These houses are built of the usual pale bricks, with blue tile roof, and contain two flats of four rooms, at the rather high rent of 14*l.* a year. They have small garden-plots in front, and cellarage, &c., behind, and are altogether neat and snug-looking. But, as was observed to us, these houses are all very well for tradesmen and skilled mechanics, but they are too dear for the poorer classes. What is greatly wanted in Windsor are some houses at a rent of about 8*l.* Indeed, further inspection convinced us that something really ought to be done to provide more habitable accommodation for the poor of Windsor. Directly opposite these new erections there is a colony of hovels whose wretchedness it would be difficult to parallel anywhere. This group of tenements is said to be the worst part of Windsor; and, for the sake of our species, we earnestly trust that it may be so. Some of these hovels are two stories high, and are built of wood; others are one story, and are patched and mended like hawkers' tents. The locality, which may be called the New-cut of Windsor, is inhabited by that class of persons which is supposed to give most trouble to the police. It is the resort of the worst class of prostitutes, and the lowest characters of soldiers; and it may afford some notion of the misery, degradation, and filth of Oxford-road to state that as many as six and seven persons of both sexes have been found huddled together in one of these apartments; and that, while there is scarcely one of the tenements that is not tottering to the ground, a whole batch of them was recently condemned by the authorities. It is worthy of remark, that the next building to these miserable dwellings is a not inelegant Ragged School, adjoining which is a bran new, thriving public-house. It is not less suggestive that the landlord of these hovels, lately deceased, we believe, made a fortune by the vulgar but seemingly profitable profession of rag-gathering. Bier-lane (ominous title for such a neighbourhood), a short street running from Thames-street to the river, and almost overshadowed by the walls of the castle, though a decided improvement on Oxford-road, contains several overcrowded and wretched houses. The Wesleyan Methodists of the town appear to have taken alarm at this neighbourhood. At all events, they deserted their chapel in this lane, and betook themselves to a more congenial spot to worship. The dwellers in Sodom have done their best to revenge the slur by riddling its windows with missiles, and throwing dirt and obloquy generally on the sacred edifice. What a despised, forgotten, and utterly hopeless aspect the poor chapel wears.

These, and such like dwellings must shortly be still more overcrowded, and as a matter of course, rendered still more wretched, unless something be done. Certain extensive improvements, we understand, are in contemplation in connexion with the Infantry Barracks, and these alterations, we are assured, will eject some 200 poor families from their houses in Spring-gardens, in the rear of the barracks. There are no suitable houses provided for them. Whither are they to go? What is to become of them?

In connexion with the new buildings at Windsor, may be mentioned the St. Andrew Convalescent Hospital, now in course of erection at Clewer. The benevolent characteristics of this institution, the foundation-stone of which was laid by the Bishop of Oxford in July last, are, "that it will provide careful nursing and medical attendance for invalids who have been discharged from the ordinary hospitals, or are disqualified from admission to them; while, as far as possible, employment will be sought for patients who on their recovery may require such assistance, and in cases of incurable disease a quiet home will be secured during the remainder of life." The new hospital stands in a meadow off Dedworth-road, and opposite to the House of Mercy, both institutions being under one management. The building is of Gothic architecture; it is nearly devoid of ornament, but will have a rather elegant and imposing appearance when finished. It is built of brick, with freestone facings, and will consist of two stories, and an attic story.

The following are the principal features of the hospital internally. It will contain two chief wards; one for male, the other for female patients. The male ward will measure 88 ft. by 25 ft. by 16 ft., with 24 ft. additional for bath and sick rooms; the female ward will be 100 ft. by 25 ft. by 16 ft. The male and female dining-halls will be of the same dimensions, namely, 33 ft. by 25 ft. by 13 ft. 6 in., and both halls will have groined ceilings. The kitchen and cooking arrangements will be complete in every way: a kitchen and kitchen store, each 24 ft. by 20 ft.; larder, 10 ft. 9 in. by 10 ft.; dairy, 14 ft. by 8 ft.; a scullery, 20 ft. by 18 ft. 6 in. An apartment under this scullery is to be devoted to a night school. There will be a chapel attached to the hospital, measuring 58 ft. by 25 ft. and 34 ft. high, with open timber roof; also a mortuary chapel, 17 ft. by 9 ft.; a sacristy, 12 ft. by 7 ft.; and a surgery, 14 ft. by 10 ft. Commodious rooms are to be provided for the sisters, the chaplain, and the surgeon. The entire length of the building is 208 ft.; the length to the roof, 52 ft.; from roof to eaves, 32 ft.; giving a total height of 84 ft. The front entrance is to be adorned with a small belfry, a clock, and an effigy of St. Andrew, the patron saint of the hospital. The building is designed by Mr. Henry Woodyer, architect; and built by Messrs. Wheeler, Brothers, of Reading,—the same who planned and erected the House of Mercy. St. Andrew's Hospital will afford accommodation for about fifty inmates; and will be ready for occupation against Christmas next. The estimated cost is 12,000*l.*

A proposed new church at Eton Wick also calls for a word of notice. The present school-room accommodation being found insufficient to meet the spiritual wants of the parish, a movement has been set on foot for the erection of a suitable church, capable of seating 200 persons. The cost of the building is estimated at not less than 1,200*l.* Of this sum the residents of Eton Wick, the majority of whom belong to the labouring classes, have promised contributions to the amount of 70*l.*; and a further sum of 700*l.* has been promised by the inhabitants of the parish at large. But as yet the site has not been determined upon, nor the architect selected.

There is nothing with which Windsor appears to be so well supplied as inns and public-houses, and yet it is a curious thing about the place that there is always a public-house in course of erection in it. So soon as one "public" is completed another is begun. They spring up here, there, and everywhere, with mushroom-like rapidity. Within the last few months a couple of gin-palaces, of the real London pattern, have been erected within a stone's throw of each other; a third "public" was about to be added to already well-stocked Eton; while we counted, we think, eight or ten public-houses whose taps could not have run more than the twelve months. It appears from the town records that, about the year 1660, there were upwards of seventy public-houses in Windsor. This extraordinary number has received considerable additions since then. In Peascod-street alone, a street numbering not more than fifty houses on either side, there are no fewer than fourteen inns and public-houses, besides an extensive brewery. We question if there be another town in the kingdom that can show a similar result, Chatham or Woolwich probably excepted. Windsor generally, and Peascod-street particularly, from a "public" point of view, would be a very "happy subject" for the pen of the moralist. We commend the subject to the consideration of the United Kingdom Alliance.

* It was on this occasion that an ancient sallyport leading from the Castle, and extending, it is believed, to Burnham Abbey, a distance of three miles—passing under the Thames in its course—was discovered. This subterraneous passage, which is cut through the chalk-rock on which the Castle is built, is about 6 ft. wide, and 10 ft. high. The sides are built of sound masonry, and arched over with massive stonework.

THE PREVENTION OF STRIKES.

IN our volume just now concluded,* we have set forth at considerable length M. Leclaire's co-operative movement. We continue the account of the regulations.

When, at the place where works are in hand, the architect or proprietor demands the head of the firm, the foreman is to offer himself, explaining the difficulty of his principal being disengaged at the moment, and that the works might be retarded. If accepted, he answers to the questions, and avoids being indiscreet.

"He takes note, in his book, of the new orders that may be given him, unless the persons prefer to write them themselves.

If the orders relate to different specialities, and if the foremen of these specialities are at the place, he transmits them to them immediately: otherwise, he informs the head-quarters thereof.

He ought to execute as many specimens as are demanded of him: he ought not to recoil before any expenses in order to content the persons. If his opinion be demanded, he ought to express it with reserve and propriety.

Finally, he promises only that which it is possible to keep to: for, nothing is more hurtful, and gives a worse opinion of oneself and of the concern that one represents, than a lack of truth: better worth while to finish a day in advance, than an hour in delay."

When workmen of other trades are behindhand, so as to hinder prosecution of the painter's work, the foreman is to make the architect or proprietor aware of the fact. Similarly, he ought to inform them should he see necessity for such other workmen—to effect some urgent reparation. And the rules enjoin, in the relations, that there should be no manifestation of conceit or self-love.

Having remarked that by habit, usage, and even taste, persons commissioning work prefer to make their arrangements with the head of the establishment; that these usages should be respected; and that to speak, see, and act, only from the principal, is something more than good taste, M. Leclaire says that the foreman should execute no work but to orders of the owner of the premises, the architect, or the principal: or, should any of the sub-tenants desire the execution of works, he is not to proceed without written orders from those parties, and without having informed his principal. When there are changes in work in course of execution, involving the disappearance of work already executed, the foreman is to make a note of the thing suppressed. He is to act similarly as regards important preparatory work concealed by the work of the finishing. Otherwise, or should he omit the notes referred to, explanation is to be given to the principal.

When, for economy, the foreman is asked to use size where there should be oil, he is to get a written memorandum from the client.

The following clauses relate to the foreman's duty in connexion with measurement. When the works would require that more than one day should be spent on this measurement, the measurer should have notice long in advance; but the foreman ought never to wait for the completion of the works: he ought to get measured, the portions finished of them, as they are finished. For a work likely to occupy little time, he is to give notice to the measurer at once, explaining that after a certain day he will no longer be on the spot; whilst, in the case of a work of very slight importance, measurement may be made before it is finished, or even on commencing. The "*Article*" then says,—

"If, in an excess of zeal, the foreman should make a declaration to the measurer, of some works executed otherwise than they really are, and if he counts works that he has not executed, he will be dismissed. One has seen foremen, little scrupulous, lose in carousals time which it would have been their duty to spend in work, and then enter into a transaction with their conscience, in causing to be measured works that they had not executed.

The concern, thought they, thus would not suffer any prejudicial effect, since it regained from one side what it lost from the other."

Every foreman having no shame in resorting to such expedients, is to be dismissed immediately.

* See p. 922, and *ante*.

Next there are several "*Articles*" relating to the setting men to work, and the precautions to be taken. After mentioning that the foreman should, before everything, look to the tools, cords, and ladders,—and in case of defects in them, take measures which we have already referred to,—and after enjoining the precaution of placing a man to turn passengers off the footway (or when works are in progress next the public street), it is pointed out that in distributing the work, the foreman should give to each one enough for the day, so as not to be called upon oftener than necessary to sacrifice his own time. In work on which more particularly there could be loss of time, the foreman is to choose preferably those who belong to the "*Sociétés de Secours Mutuels*," or to the *noyau* or staff; since these always acquit themselves better than new comers. Under ordinary circumstances, the foreman ought to isolate his men, and arrange that each one have the same amount of work; thus his *surveillance* will be simplified, and he will be able to appreciate the men deserving to belong to the staff. The first care of the foreman is to be to avoid all chatter that might distract him from his administrative measures,—these latter being complicated enough to exact all his attention. He ought;—1. To manage so as to avoid every sort of blunder, and not to allow his people to lose a single minute: for example, he will have his colours mixed a day or two in advance, and he will foresee the place that each man should occupy as soon as he has achieved a particular duty; 2. To avoid executing first, works which ought to be done at the end: and 3. Being well penetrated with the sense of his duties, to be first upon the breach, and to give the example of assiduity in work: otherwise he cannot aspire to a moral influence upon the workmen that he directs. A note adds:—

"The foreman does not ignore that in the absence of the head of the establishment, the eyes are fixed upon him: that he is often the mark of criticism, and sometimes also the object of flattery: he knows also that there are presumptuous workmen, who to give themselves an air of importance, criticise everything, and are incapable of doing anything better than that which they blame; others who have the way of flattering the foreman, as in order to interest him in their favour,—when they have no other object than to employ a part of their day in insignificant babbling, and to laugh at the expense of those who listen to them. The foreman therefore cannot put himself too much on his guard against the presuming, the babblers, and the lazy-bodies, who employ often all the means possible to compromise him."

Then follow "*Articles*" relating to the care of the tools and materials. They are of course applicable immediately to painters' work; but they are worth mentioning. It having been observed that, although cleanliness is indispensable for preserving tools, an expenditure of time in polishing them would be ridiculous,—particular directions are given, such as that on each occasion of emptying a vessel containing oil-colour, a little turpentine should be put in, and the vessel should be wiped; otherwise, the colour drying in the vessel, much time will be required to clean it. Or the pot can be cleaned by rubbing with cinders, sand, or earth. Wooden buckets are not to be left without water; and nothing is to be put in them which has a drying tendency. On the approach of frost, buckets, tubs, water-colours, and everything likely to get frozen, are to be taken into the cellar.

In winter, when, during rain or thaw, walls are covered with moisture, so that good painting cannot be done, works are temporarily suspended; but the foreman is to remain at his post, having made arrangements with the workmen for presenting themselves every morning to ascertain if the humidity has ceased.

M. Leclaire observes that, if it is of the highest importance not to fall short of any of his rules, there would be disorder and general confusion if the foremen swerved from certain indispensable arrangements which are the subject of "*Articles*" following. The first of these "*Articles*" mentions that on the printed sheets used in corresponding with the head-quarters, there are instructions which each one should read and apply himself to; otherwise he would be considered as trifling, and fulfilling ill his mission. When the foreman has some report or demand to make, he is desired to read with the greatest attention the "*Articles*,"—a recapitulation of all that precedes. His reports and demands are enumerated as;—1. The giving previous notice if he wants men immediately, and indispensably, and the stating the number of them; 2. if he have too many men, the giving notice of the day when they will be disposable (indicating the number of them, and the names), but never sending men for orders without having announced in advance their disposability; 3. If, at need, he would be able to find employment for men (stating the number, and for how long); 4. If he could spare some men at need, and for how long (stating the number and the names); 5. If he wants a marbler, line-drawer, letterer, paper-sizer, rubber or polisher [*frotteur*], stone-colourer, glazier, gilder, varnisher, "*enduiseur*," measurer, (zinc-letters on fronts that have to be repainted, being to be removed only by the letterer); 6. If he have disposable tools, to indicate the nature and number of them; 7. If he wants materials, whether immediately, or shortly; 8. What day he will be able to finish his works; 9. What day it will be necessary to send the measurer to him,—giving notice several days in advance; 10. If his implements should be removed for him, to indicate the day and hour; and 11. To arrange so that his demands and reports of every kind reach head-quarters before noon, so that they may be attended to on the following day. When the foreman expects to have men disposable from the Saturday, Sunday, Monday, and even Tuesday, he ought to give notice at the office in the day of Friday, in order that arrangements be made to set people at liberty, should there be encumbrance; this being the more necessary, as the workman can get an engagement when the week is commencing, more readily than he can when it is advanced. To act otherwise, says the "*Règlement*," is to derogate from the principle that in an establishment, well managed, one ought never to set workmen at liberty except on the Saturday, unless under exceptional circumstances. Each year, on the 15th February, stock is taken of the tools and materials of each "*atelier*," or place of work. The foremen have notice of this from the 8th of the month; and they are expected to take an exact and detailed list of everything, beyond the contents of their own basket, of the nature of tools, ladders and ladder-steps, hand-carts, bottles, &c. All these things are to be collected and put in order,—that the list be checked by those charged with the stock-taking; and the foremen are, as much as possible, to avoid making demands from the warehouse during three or four days about this time, or are to assure themselves that the material or thing is not counted twice. The first day of hiring of any workmen, the foreman to whom they are sent, has to report to the office their attendance, with the name and address of each. Every Friday before the pay-day, the foreman asks each workman under his orders, for the note of his day-time; and the foreman posts it to the office, in an envelope, with the "*feuille d'atelier*," or shop-paper, mentioned in a previous "*Article*." He transmits these papers so that they may arrive at the office by one o'clock at the latest. Should it happen on the Friday, that a workman, present in the morning, absent himself afterwards, the foreman writes immediately to the office, posting his letter as the clock strikes the hour when the man should arrive. The "*feuille d'atelier*" is returned to the foreman on the Saturday night. He carries forward the Saturday to the Monday inclusively, and gets another *feuille* in place, on the Monday evening.

There is a class of works described as "*travaux par enlevage*," or such as have to be done, as in some offices and warehouses, by night, or at holiday-time. The foreman is directed to make himself acquainted with these, some days in advance, and confer with the head of the establishment as to the materials and men required, and the course to be pursued in order to finish in the allotted time. When works of the character are to be executed in a single day or night, the whole of the men are taken from some work in progress, or from several works. Tools are delivered to the men; and they are responsible for these till they return them on the following morning.

When no more than ten men are at work at the same place, a single foreman and an assistant are sufficient for the direction and the preparation of colours; but when there are more than ten men, groups, of at most ten men each group, are formed; there is a foreman to each; and each man obeys his foreman alone. There is however a foreman over all, to take in the "*ensemble*" of the business. Should certain work be behind-hand, and requiring one or two more men, the principal foreman has to address himself to one of the other foremen, in order to get the men from one group to put them to another, and,—

". . . . . in order that there may be no confusion, he respects with the greatest care the principle of authority: he displaces no man; the chief of the group that has too many men, designates those whom he can dispense with; nevertheless, each foreman of a group is bound, on his side, to conform to the demand of the principal foreman."

When the importance of the case requires, the principal foreman visits the works before commencement, with the foremen of groups, and concerts with them the course to be taken. Ladders are placed, and colours mixed, in such cases, before the arrival of the general body of men. Each foreman of a group keeps a list of his own men, and hands it to the principal foreman; the list kept by the latter, however, is that from which the accounts at head-quarters are made out.

The concluding portion of the "*Règlement*," relating still more immediately than what has preceded, to painters' work,—and having for its object to point out the modes of proceeding for economy of time in the execution of works, and the production of the best result, would not furnish us with much matter bearing *immediately* upon the subject of these articles. M. Leclaire reverts to the effects of competition in the reduction of prices below those for which good work can be done; and says that workmen, so often the instruments of fraud, know well that if certain contractors have recourse to the great reductions that they make, and yet realise profits, it is only because such parties employ inferior materials and unlawful means. Probity being the rule of conduct of his own establishment,—and since only by good employment of time, and a great amount of business, can it arrive at some results,—he says, it is then indispensable that all the persons attached to the concern do their duty, and gain the wages that they receive. He truly says,—

"We have so many more titles to exact perfection in work, and a conscientious employment of time, that the intelligent and laborious workmen who settle in the establishment, and who grow old there, are the object of regards that they will not meet with everywhere."

In case of accident, help is afforded to the wounded: in case of mutilation, pensions are granted; and pensions for old age are given to those who have acquired rights, by their stability in the establishment. Respecting the part referred to, of the system of the concern, as well as the results in character and habits of the workmen, we have, however, given ample particulars. M. Leclaire, at the end of the "*Règlement*," expresses hope that the workmen and *employés* will comprehend that their dignity is engaged with that of their chief, and repeats that they ought to conduct themselves so as to merit the consideration of persons giving their confidence. And this result has been produced. The "*Règlement*," as we have said, contains much information on the manner of executing painters' work,—not omitting explanation of means by which saving to the contractor may be effected; and as a copy is handed to each person having relations with the establishment, the confidence is not accorded without some means of judging whether it be deserved.

OLD ABERDEEN.

BYRON'S HOUSE.

WITH reference to our recent notices of Aberdeen, we have received several communications, but find no occasion in consequence to retract any of our observations. In speaking of the condition of a town, we cannot expect to please everybody, and do not try to do so. "A Student of King's College" writes to thank us for our "well-timed remarks;" but he regrets that we should have altogether passed by the consideration of this ancient town, with its college and cathedral. Some of the information he has been kind enough to furnish we make room for below; adding here, by way of explanation, that it was not our object to give a long historical or descriptive account of the place. We have, however, drawn upon our notes and recollection for some additional particulars of a city which (notwithstanding its backslidings), we have already said, must always be a source of pride and gratification to its inhabitants.

In our last articles, we spoke of New Aberdeen; we shall now make a few remarks on Old Aberdeen, which, our readers will remember, we described as being a separate town, with distinct charters and privileges, as well as local government.

The town of Old Aberdeen stands about a mile and a half north of New Aberdeen, close to the right bank of the Don, on the road to Peterhead

and Fraserburgh. It has a curious antique and rustic appearance, presenting a strange contrast to its younger and more flourishing contemporary; its environs (which are, for the most part, profusely adorned with gardens) have an air of solitude and repose; and this with its ancient ecclesiastical buildings put us something in mind of a Mediæval Spanish town, like Seville or Toledo. The approach over the Don is very picturesque. The river flows through a deep, narrow, rocky bed, surmounted with exuberant foliage; and it is spanned at a distance of about three-quarters of a mile from the sea by the famous old Bridge of Don (or Brig o' Balgownie, as it should properly be styled), one of the most ancient and remarkable bridges in the north of Scotland.

This romantic structure consists of one Gothic arch built over the narrowest part of the river, and resting on a rock at each end. It is 66 ft. 10 in. wide at the bottom, and 34½ ft. high above the surface of the river. The water underneath is 19½ ft. deep at low tide. In Gordon's description of Aberdeen, published in 1661, we find the following: "No man can certainly tell who built the old bridge of Don. The common and most probable report is that the renowned Prince Robert Bruce, king of Scotland, at such a time as he banished Bishop Henry Cheyne (he was connected with the Cumin faction, and had sworn fealty to Edward I., king of England; but he was restored by Bruce, and proved loyal ever afterwards) from his see, and drove him out of Scotland, did command to sequestrate the bishop's yearly revenue, to be employed in pious uses, and that this bridge (which is lyke to be true) was built with a part of that revenue." Sir Alexander Hay, lord clerk register, by a charter, dated February 1st, 1605, granted to the council and community certain annuities to answer as a fund for defraying the expense of repairing and otherwise supporting the bridge. In that charter he particularly mentions that the bridge was the work of the renowned and illustrious King Robert Bruce, and that he learned this from certain annals to which he had access. Of course, you will see from this that any part which Bishop Cheyne had in the erection, if ever he had any, was quite involuntary. On a buttress at the south-east corner of the bridge there is a tablet bearing the arms of Hay.

We shall add here that this "Brig o' Balgownie," as it is called, is celebrated by Lord Byron in the tenth canto of "Don Juan," in lines which must be familiar to our readers, but which will bear repetition:—

"And 'Auld Lang Syne' brings Scotland one and all,
Scotch plaids, Scotch snoods, the blue hills and clear streams,
The Dee, the Don, Balgownie's brig's black wall,*
All my boy feelings—all my gentler dreams!"

Several streets, courts, and closes in Old Aberdeen challenge our attention by their singular and ancient features; and also by their want of cleanliness and ventilation. The town-house is a very plain granite building, erected towards the close of the last century. The Trades Hospital, built on the site of the Maturine Convent, was founded in 1533, by Bishop Dunbar. There are no remains left of the bishop's palace. Indeed, the only buildings deserving of the least study are now reduced to two in number; viz., King's College and the old cathedral.

The buildings of King's College stand at a little distance from the town, and are conspicuous from the appearance of the square tower, which springs at the summit into the form of an imperial crown, surmounted by a cross. The original gurgoyles have, it should seem, disappeared, and the rain-water is now carried off by a series of ugly leaden conductors, one of which spoils the look of the front elevation, by passing at an irregular angle above the dial of the clock. The buildings occupy the sides of a spacious quadrangle, and have recently undergone extensive additions and repairs: hence, of course, there are plenty of confusion and mixtures both of style and material. All the older parts are built of granite, with either round-headed or sharp Early English arches; while the restored portions have fronts of polished sandstone, and florid Perpendicular windows. The chapel, as it stands at present, consists of the choir merely of the old college church, with a modern timber roof; and it still possesses some interesting specimens of carved black oak in the prebendary's stalls and surrounding screen, which are said to be superior to anything else of the kind in Scotland. But the ancient decorations, both of this building and of the common hall, have been sadly disfigured by the modern improvements. The library,—which is, we believe, a valuable collection,—occupies the nave of the old church, but no proper preparation seems to have been made for the books; and the space is quite inadequate. We may add, that a recommendation was made in the report of the University Commissioners of 1838, that King's College and Marischal College should be united, so as to constitute one university of Aberdeen; and this recommendation was carried into effect by the Act of 1858.

The cathedral of Old Aberdeen (or, as it is now legally intituled, the parish church of Old St. Machar) has been so frequently described and delineated that most of our readers must retain a vivid conception of its character. But we quote our correspondent's remarks on its history. "As it stands it resembles the long, low, dark-looking hull of a stranded ship; and this metaphor, alas! although rude, will serve to describe its stormy history. It is the third church which has been erected on that site. Designed by a Bishop Alexander Kyninmunde, who succeeded to the ecclesiastical see in the year 1357, the work must have proceeded very slowly, for it was only 9 ft. high at his death in 1381. Fifty years later Bishop Lichtoun laid the foundation of the great spire, on the east end, and of the two towers on the west end; and Bishop Lindsay, his successor, completed the roof of the nave about 1445. Elphinston, the most celebrated of the Aberdeen bishops, whose tomb is still pointed out on the floor of the chapel in King's College, succeeded to the see in 1484, and prosecuted the works with great zeal; and finally, Gavin Dunbar, the wit and the poet, who became bishop in 1518, succeeded at length in getting the venerable church completed. But it was not destined to remain longer than forty years entire. The Reformation came, and the iconoclasts, with their iron hammers, and the sequestrators of the episcopal revenues, and the rest of the "instruments of the Lord's vengeance," and did their work on the granite cathedral! It is now, like many another stately ecclesiastical edifice, transformed into a parish kirk; but even this process has not altogether succeeded in destroying its simple architectural beauty, nor its historical and ecclesiological interest."

We proceed, however. Before leaving Old Aberdeen (of which we had only time to take a very limited view) we must note a remarkable fact, viz., that the burgh has no debt on its head. The New Aberdeen people are wicked enough to say that the reason is obvious it has very little property of its own, and hence it has no credit! This question, however, which has two or three sides, is too important to be discussed at present. In returning from Old Aberdeen, *via* the mouth of the Don, we pass the very handsome new bridge which has been erected from the surplus funds of the old bridge we have mentioned. Then we cross the Old Town (or Aulton) links—obviously the ancient bed of the river, which are, it is proposed, to be irrigated under the new sewage scheme for the drainage of Aberdeen. We also pass by the Militia Barracks, which, oddly enough, we mistook for a prison, until we inquired about the real character of the buildings. Not far off we observed a powder magazine, which may be said to lie in dangerous proximity to these barracks—although, perhaps, if no militia were quartered there at the time, its explosion might do no harm!

On our way from the Old Town links to the New Town pier we notice the curious little fisher "toun" of Fittie, or Foot-dee, consisting of two squares of wretched cottages, which are inhabited by a race of fishermen and their families, who dwell apart and intermarry with each other, and are in all respects a peculiar people, even among the Aberdonians. Generally speaking, the villages near Aberdeen are quite as strange to the English eye as those of Savoy or Switzerland. The grey granite houses, rough-cast or half dressed, the high pitch of the triangular roofs, the dormer windows, and peculiarly fashioned chimneys,—these and other features give them a decidedly foreign aspect, which is greatly enhanced by the *patois* of the inhabitants. Of all the provincial dialects, indeed, into which the lusty and exuberant Anglo-Saxon speech is divided, the colloquial Aberdeenshire is alike the most barbarous and unintelligible.

The last thing we did before leaving Aberdeen, was to make a pilgrimage to that house in Broad-street in which Byron and his mother resided during a certain period of his boyhood. It is at this moment occupied by Mr. Rennie, a letterpress printer, who courteously showed us over the rooms. Strange mutation! that the residence of the youthful "George Gordon Byron Dominus," as he was grandiloquently styled at the grammar school of Aberdeen, should now be converted into a printing-office, — that his mother's drawing-room should now be transformed into a case-room,—and that a Columbian press should be the sole tenant of his dark and solitary bedroom! Yet not so strange, some transcendental philosopher might say, when we reflect on the prodigious quantity of valuable copy which the poet supplied to the printers in his lifetime!

"Shades of the dead! do we not hear your voices?"

There can be no doubt about the identity of the premises, for the name of Byron's mother appears on the first roll of police ratepayers which was ever made up in Aberdeen (*i. e.*, in the year 1799), in connexion with this very house, although she could not have been the tenant for more than a year or two. Broad-street at that time was one of the best streets in the town. The shops were occupied by the principal merchants, and the floors above by the most fashionable people. Even yet the fine old ashlar fronts and antique window cornices have something of a noble and aristocratic air; although it must be said the present tenants belong to a lower grade of society.

The house itself cannot be more than a century old. It must have been built at least subsequently to the house opposite, which bears the date on the upper course of one of its end walls 1762. We enter by a tolerably wide passage to a common staircase; and, mounting the timber steps by the aid of a heavy old-fashioned mahogany rail with balusters of the same material, we arrive at the first floor, which was the house of Mrs. Captain Byron. This floor consists of seven apartments. The drawing-room, which has a suite of three windows, looks into Broad-street,—at that time, doubtless, a fashionable promenade, like Union-street in our day; and the parlour at the back looks into the court-yard of Marischal College. But the view from the parlour is interrupted and the light obstructed by the old church of the Grey Friars, the antique Gothic window of which stands about 10 ft. distant only from the wall of Byron's house. Both of these rooms, we guessed, are about 24 ft. by 12 ft. by 9 ft.,—well finished in the interior, having double facie mouldings in the doors and windows, moulded surbases, and good plaster cornices! which is more than we can say of some of the newer houses in the town. The ceilings, it will be seen, are very low, and it is worth observing that the house must have been planned without the slightest provision for a cistern, a sink, or a water-closet. Indeed, there was, in the shape of water supply, nothing but a few pump-wells in Aberdeen when the house was built.

But our interest in this Aberdeen House culminates in the small centre apartment that is still pointed out as the bed-room of the youthful poet, which we enter from the right-hand side of the long dark lobby. This bed-room is 12 ft. by 9 ft. and 9 ft.; and, being destitute of windows, it is "interlighted," as our American cousins would say, in the first place, by a fanlight above the door into the before-mentioned dark lobby; and, secondly, by a sort of aperture, 14 in. by 10 in., cut in a sloping direction upwards through the angle of the wall, which, for want of a better term, we must denominate a "skew skylight," after the manner of the Scottish builders. This opening in the wall might have been originally intended for a chimney, or it might have been an after-thought of the designer to meet the difficulty of lighting a dark room; but, at all events, it has only been partially successful. It is uncommonly like the window of a cellar or a dungeon; in fact, the Bastile, as Delaroche's picture shows us, was lighted upon such a principle.

The present proprietor of the property is a Dr. Birnie, who went to school with Byron, and has himself some local reputation as a poet. He has, at least, published a volume of miscellaneous poetry. We had the curiosity to inquire of our civil typographer whether he had many visitors. "No," he replied; "they get more at the Comb works or the Granite works." Now and then a humble pilgrim came, as we did.

* The "black wall" refers to an ancient poetical legend of the bridge, which is quoted in Moore's life, in a note to this passage.

Thackeray had called during his stay in Aberdeen, while lecturing on the four Georges; and uncovered his noble head at the shrine of a loftier genius. One irrepressible enthusiast of the name of Potts, and his wife, took possession of the premises a whole afternoon, in order as they intended to have an impromptu poem printed off on the spot to the memory of Byron. But the muse was unpropitious: the genius of the place was inexorable; and the threnody of the illustrious Potts, for aught we know, still germinates in the bosom of the events which are possible!

In conclusion, we commend this house of Byron's, together with other haunts of his youthful footsteps (such as the farmhouse at Ballatrich, in Deeside), to the attention of the Spalding Club. They might do worse things, we think, than illustrate and preserve such "scenes of my childhood." Who can tell how that gloomy cell may have influenced the power and turned away the tendencies of that brilliant imagination! What dreams! — what horrid nightmares may not have occurred in that illlighted and ill-ventilated apartment! Some future biographer of the illustrious poet will doubtless found a psychological theory on our observations. A clever casuist might, perhaps, discover some relation between Byron's ethics and the Aberdeen morality. But who shall tell us of the circumstances which produced on his mind such indelible traces of sadness and misanthropy, or as he himself describes:—

"The furrows of long thought and dried up tears,
Which ebbing, leave a sterile track behind."*

We, at all events, will not pretend to solve the mystery, and so for the present we must say,—"Adieu, dear heart of Aberdeen!"

WEXFORD LUNATIC ASYLUM.

IRELAND.

Not by any means the least important of those buildings which the benevolence and forethought of our country magnates have provided throughout the length and breadth of the land for the reception and care of those in whom the lamp of reason is dimmed, is situated, as indeed the majority of these district asylums are situated, on the choicest spot in the vicinity of Enniscorthy, commanding a view or views of considerable extent up and down the Slaney; a river highly favoured in scenery, and extending for miles across a beautiful undulating country, terminated by a range of hills in the distance, which has clothed them "with its azure hue," of which Mount Leinster, Kilteely (celebrated for good granite), and Scallop Gap, form a part. At a short distance from the rear of the new building a capital view may be obtained of the once famed Vinegar Hill, known yet by a low tower which caps it.

The asylum of which we have now especially to speak, occupies an elevated position, and is set back about 250 yards from the Wexford-road, and lies parallel with that road and the River Slaney.

It is intended to lay out the ground in front in terraces and slopes, as has been done in most instances of the kind.

The total length of the building is 630 ft.; which comprises a main or centre block, 124 ft. long, containing the physician's residence and offices, board-room, the chapel, the dining-hall, housekeeper's room, and other accommodation that may be common to all classes and sexes of the patients, of whom there will be about 280.

A male wing to the east, and a female wing to the west, each exceeding 232 ft., and containing, on each of three floors, a day-room or a dormitory for thirty-six patients, 34 ft. by 27 ft.; one for fifteen patients, 23 ft. by 34 ft.; and cells, 9 ft. by 7 ft., to correspond.

The convalescent patients are placed near the centre building, and the violent patients at the extreme end.

The ends of the wings may be described as T-shaped; the building extending to the rear forms the infirmary for each sex; that extending to the front, 60 ft., is appropriated to day-rooms and residences, stretching over 248 ft. from front to rear.

To the rear of the central block, which projects 81 ft. is placed the kitchen building, with its usual laundry and other offices; also a recreation and dining hall, measuring 62 ft. by 29 ft. and about 36 ft. high to a waggon-headed ceiling. This room is well calculated to answer as a concert-hall, a purpose which at intervals it is likely to serve.

The kitchen is 30 ft. by 21 ft., and of good height. Close to the kitchens are a small farmyard and offices, and over 100 ft. of a low building occupied as workshops for tailors, shoemakers, carpenters, smiths, &c., and a coal-shed. A tall and well-formed chimney-shaft carries off the smoke for the kitchen, laundry, &c.

The heights of the ceilings are 12 ft., and there are three floors in height.

Fresh air will be supplied to the cells mainly from the corridors, in a manner moderated in extremes of temperature through openings a few feet overhead, filled with perforated zinc. The foul or vitiated air is conveyed from each cell through a flue in the *internal* wall to a trunk running along in the roof, through which it is conveyed to the central tower, induced thither by rarefaction; in addition the windows throughout will be made to open up and down, the pivot sashes being, it is thought with reason, abandonod.

The heating will be altogether by means of fireplaces, most of the cells being provided with them as well as the day-rooms, dormitories, &c.

Great facilities exist, and are taken advantage of, for the water supply. A tank at the top of each of five lofty towers will be kept constantly full, and will command any part of the building where water may be required.

These towers will form a landmark for miles around. A tower in each wing of 112 ft. altitude; in the centre building, two 100 ft. each, and one of 90 ft. These heights, coupled with the effect of the materials of which they and the buildings are composed, cannot fail to place the design high in the list of erections of a like kind in the kingdom. The decoration, composed of contrastive colours mainly, in the brick and stone, is of a bold kind. There is no timidity observable here; a little would have been salutary: the stone is of granite, and is quarried at Kilteely before named. It is more workable than *Dalkey* granite; it would, in fact, suit well for polished work in chimney-pieces, &c.

White Paisley bricks are used in panels, and form the chief dressings to the doors and windows, and are the chief vehicle of ornament, most of which is of a serrated character. The body of the work is composed of red bricks, made on the ground and in a field adjoining the asylum premises. The bricks are compressed and kiln-burnt. A large number has recently been used in the construction of a tunnel for the Dublin and Wexford railway. It is expected that the works of the lunatic asylum will be completed and ready for occupation in April, 1866.

The total cost may be stated as about 40,000*l*. The architects are Messrs. Farrell & Bell; and the contractor is Mr. Patrick Kerr. Mr. Bergin is clerk of the works.

* Childe Harold, canto iii. 3.

ILLUMINATED DRAWINGS.

Mr. Henry Shaw is exhibiting, in Piccadilly, copies by himself of eighty-nine illuminated drawings, dated from the earliest examples remaining to us up to the sixteenth century, when the art of illumination was superseded by engravings on wood. The finest specimens from well-known volumes, mostly prepared for royal or noble individuals, have been selected, and the copies are of the most exquisite character, and represent an enormous amount of labour, patience, and skill. The earliest date from the reign of Charles le Chauve, the successor of Charlemagne, of which period there are several exquisite works. The B from the well-known Psalter belonging to the Society of Antiquaries is given. This is a wonderful specimen of interlacing, and a remarkably fine example of the art of the thirteenth century. In drawings of a later date, including miniature figures, Mr. Shaw is not less equal to his task. We quite agree with him, that whether we regard the ancient illuminations in their almost infinite variety, as an assemblage of all that is most graceful in design and gorgeous in colouring, or as illustrations of the history, the manners, and the customs of our ancestors, in their religious, their military, and their civil affairs, their pictorial truth must always make them highly valuable.

THE LATE MR. ALAN STEVENSON.

This gentleman, who has recently died, was the eldest son of the late Robert Stevenson, the well-known civil engineer and author of the Bell Rock Lighthouse. Mr. Alan Stevenson was born at Edinburgh in 1807. He acted for years as engineer to the commissioners of northern lighthouses, and during his connexion with the board he introduced many improvements in the Dioptric system of illumination, and erected numerous lighthouses on the coasts, including the renowned Skerryvore, in the Atlantic. The mental tension caused by the responsibilities and difficulties of this work, acting upon his sensitive and unsparing nature, was the main cause of a sudden shattering of his nervous system, which, in 1852, made it necessary for him to withdraw absolutely and finally from his profession and the world. Mr. Stevenson was a Fellow of the Scottish Royal Society, a member of the Institution of Civil Engineers; and had medals presented to him by the Emperor of Russia and the Kings of Prussia and Holland, in acknowledgment of his great merits in lighthouse engineering. His most important printed work was his "Account of the Skerryvore Lighthouse, with Notes on the Illumination of Lighthouses" (4to. A. & C. Black, 1848). He was also author of a "Biographical Sketch of the late Robert Stevenson" (Blackwood, 1861); "History, Construction, and Illumination of Lighthouses" (Weale, London, 1850). He was a contributor to the "Encyclopædia Britannica" and the "Edinburgh Philosophical Journal."

HORACE WALPOLE AND ADAM THE ARCHITECT.

A correspondent sends us the following as a copy of an autograph letter from Horace Walpole to Mr. Adam, architect, exhibited with other MSS. at the Industrial Exhibition, Glasgow, by Mr. J. Wyllie Guild:—

"Mr. Walpole has sent Mr. Adam the two books, and hopes at his leisure he will think of the ceiling and chimney-piece. The ceiling is to be taken from the plate 165 of St. Paul's, the circular window.

The chimney from the shrine of Edward the Confessor, at Westminster.

The diameter of the room is 22 ft. The enclosed little end is for the bed, which Mr. Walpole begs to have drawn out too. He is just going to Bath, and will call on Mr. Adam as soon as he returns."

THE CAPITAL OF ITALY.

Listening to what is said about Florence outside, one might suppose that sweeping innovation had destroyed every attraction, once so potent over the minds of artists, lovers of antiquity, and observers of national life at this centre. Not one item of these rumours do we find confirmed by realities, except indeed what belongs to other interests, the increased average in the expenses of every day; but as to the exterior, the general distinguishing features of this beautiful city, very little alteration has taken place since the dawn of 1865; none that affects the artistic or monumental aspects, from whatever noted point of view we contemplate the fair scene,—from the bridges on the height of S. Miniato, along the quays of the Lung' Arno, or in the piazza "della Signoria," overshadowed by the noble old palace and Orcagna's loggia; while in the piazza Santa Croce we welcome a new feature in the colossal presence of Dante's statue, by the sculptor Pazzi, the monument inaugurated with such honours, which we are sorry to see still half-concealed by scaffolding, its lofty basement entirely so; and on the adjacent church we have to observe one new detail in the renovated façade, the fine reliefs by Dupré, illustrating the story and worship of the Cross, now occupying the tympana of the portals, instead of the mere chiaroscuro designs from those originals left in their place till the beginning of the year.

If, after such false alarms, the newly-arrived visitor may exercise only agreeable impressions, he may soon perhaps yield to another mood, and chime in with the complaints now current as to the tardiness of promised improvement, and the insignificant fulfilment hitherto of purposes undertaken for such great results as have been long expected. In the way of building, opening new street lines, throwing up suburbs, and demolishing useless structures, little indeed

has been done that at once arrests the eye; and the Florentines, satirical as of old, do not spare their sarcasm on the subject of such manifest short-comings; observing, that at this historic centre it has always been the usual thing to talk much and perform little. The only works for enlargement of the civic quarters now in conspicuous progress are on the wide level space, once left to private gardens and enclosures, between the gates S. Gallo and Pinti, at the northern boundary, where houses of some pretension, mostly stonework, are rising, so as to form a system of rectilinear streets, crossing at right angles, and shut in along one limit, by the fortifying walls, which, however, are ultimately to be taken down. On the southern side, beyond the Porta Romana, we notice a suburb of neat and cheerful dwellings, mostly new, but as yet little inhabited; and beyond two other gates, north and westward, have been constructed a few of the houses in wood and iron, for the poorer class, undertaken by contractors, who promised to prepare, by a given time, between 100 and 200 houses of this humbler description, all to be built of wood and iron, brought from England. For the entire undertaking of the civic enlargement the magistracy, rather more than a year ago, voted to contract a loan of thirty million francs, and it is now reported (but this we cannot guarantee) that the loan has been an absolute failure owing to the hesitations of capitalists, who doubt whether Florence will remain permanently possessed of her present high position. We believe many partake of this doubt, but it is necessary to receive with much reserve the vague and discouraging rumours of an opposition party, still rather numerous here.

Complaints have been heard against the magistracy for not requiring that English company, known under the name Creswall, to accelerate their proceedings in fulfilment of their pledged task of opening new street-lines, and demolishing the ancient walls wherever they would abut against the termini of those streets, as long since planned; but the quasi-official *Nazione* has published a sufficient answer, for the credit of those contractors, to the effect that, questions being still pendant before the council of state as to expropriations, with a view to opening a boulevard, and to the removal of the custom-house limits as far as the stream Mugnone and the railway lines (which stream and railway run parallel to each other, north of the city walls, at a distance the one of about 150 mètres, the other about 300 mètres), the English company cannot accomplish its undertaking till decisions be passed, but will not fail to do so speedily on the result. That cincture of castellated walls, voted useless, which, raised towards the end of the thirteenth century, is actually in the greater part of the sixteenth century, and retains still its Mediæval gateways, is to this day left intact in its entire extent; for the most part without claims to the picturesque or imposing, excepting on the southern side, where its square towers and high turrets are ruinous, presenting an aspect venerably antique.

The city's population is reported for the new year as 120,000,—a notable progress, contrasted with what it was under the Medici and Lorraine governments: in 1551, 60,773; in 1745, 73,517; in 1838, 99,698.

As to classic art-centres, we are glad to attest the continuance of the same good arrangements as formerly; the splendid halls of the Pitti being open to the public at the same hours daily, now that palace has become the royal residence; and so likewise the Uffizi, now that the senate assemble in the same wing of Vasari's great buildings with the halls containing the greatest masterpieces of art and the Magliabecchiana library. As to the last-named museum, we notice but one change, in the removal, from the compartment of antique and modern bronzes, of the contents of one chamber, transferred to the new Mediæval museum at the Pretorio,—*alias* Bargello Palace. The only conspicuous buildings for government uses that are completely new, are those now in progress of erection, and but slowly, for the ministry of war and that of public works; two other ministerial departments being located at convents,—a sign of the times significant of the dangers now threatening the religious orders in the Italian kingdom.

We have attended one of the public sessions of the Senate, held in a great hall within the Uffizi buildings, which has been a scene of strange vicissitudes. First destined by Cosimo I. as a court theatre, and the first *locale* expressly appropriated to theatric exhibitions in Florence, it was inaugurated, in 1585, by the performance of a comedy before the Medici count in honour of the marriage of Cosimo's daughter with Cesare D'Este (the Grand Duke Francis being then on the Tuscan throne); and here were acted for the first time several of those somewhat ponderous Italian comedies now rarely to be seen in print, never on the stage; among others, the "Fiera" by the great Michelangelo, the performance of which extended over five successive evenings in the carnival of 1618. In this hall, now destined for nobler purposes, met the deputies of the first Tuscan Parliament on constitutional principles, in the June of 1848, when, though seventy-six had been elected, only sixty-three attended to represent the emancipated nation. After the annihilation of that short-lived constitution by a perfidious policy, since so signally finished, this interior became a *Corte Regia*, or chief tribunal of justice. It now contains seats for 300 senators (considerably above the actual number), and is provided with two galleries, supported on light pilasters, giving a semicircular form to the extremity, opposite the president's table and ministerial benches; a raised platform, in the place of the former stage, occupying the centre of the opposite side, with five tables for the president and secretaries, over which hangs a full-length picture of the king, in general's uniform; and near it, at one side, the scene is overlooked by a high-placed bust of Charles Albert. Two-arched loggie, lateral to the platform, hung on the inside with crimson silk, and supported by gilt pilasters, are destined for the diplomatic corps, and members of the royal family, or other specially-distinguished auditors. The senators' seats rise from the central level in six tiers on each side, divided by screen-work, hung with crimson; and in the midst is a table for the stenographic reporters. For its new appropriation this entire interior has been re-decorated with fresco-painting, profuse gilding, and silk or damask hangings, in a style sumptuous but tasteful; only, indeed (as it struck us), too gaily magnificent, too much reminding of the Medician Court Theatre, or State ball-room, for the gravity of a senate-house to have here its suitable indication. Arabesque and allegoric paintings, brightly tinted and gracefully designed, cover the upper wall-surface; flat pilasters, with Corinthian capitals, all richly ornate with gilt stucco-work, dividing these walls at intervals. On the lofty ceiling appears the name *Italia*, in a central compartment surrounded by winged genii. At the four sides are stately allegoric figures of Virtues, with attendant genii; and around extends a gorgeous frieze of emblazonments, those of all the communes in the United Italian Kingdom. The hall is sufficiently lighted by large windows, on the eastern side, and the official hours are sensibly ordered, the senators meeting at one p.m., so as usually to get through business before night-fall. On the occasion we attended, all the ministers were present, but not more than perhaps seventy to eighty senators, of whose number several were for the first time introduced, to take the constitutional oath before the president's table.

In all that has hitherto been done to adapt Florence to her new destinies, we may testify to the principle of reverential regard for every interest of art and antiquity; but, not being blind to exceptions, we cannot help noticing with regret the altered front of the old mansion where lived and died the poetess every Englishman must be proud of; Mrs. Browning's "Casa Guidi Windows" being no longer arched, lofty, and quaint, in the genuine Florentine style, as when the illustrious lady wrote of what she thence beheld. But the affectingly-appropriate tablet to her memory still tells its story on those walls; and we are glad to see this usage of honouring the meritorious dead still kept up. Three or four such tablets, referrible to the last twelve months, arrest attention; one placed by the guild of Florentine printers to Bernardo Cennini, born 1414, who, having heard of the great discovery of the day in Germany, invented and himself fabricated types similar to those first used in the north, and here printed with faultless correctness several works in Latin and Italian. *Apropos* of the press, we may mention one curious proof of the developments late circumstances have brought forth here; the veteran head of a large establishment having told us he remembers when there were only four presses in Florence, the number at present being more than one hundred! Amidst the multifarious signs how quickly life's pulses are beating at this centre, still is the local physiognomy distinguished by that union of the monumental past with the highly-civilized present, long this city's peculiar charm and glory. We may be startled by the frequent sound of indescribable dialects, scarce resembling the soft Italian, in cafés or restaurants; but Tuscan good breeding and good humour still give the predominant tone; and we are, not less than formerly, inclined to acquiesce in the paraphrase of the national proverb,—"See Naples and die,"—as "See Florence and live!"

WOMAN AND THE ARTS.*

IT is not my purpose, on such an occasion and in such a presence, to allude to the peculiar aptitude of the female for the study and practice of the fine arts. In fact, this is unnecessary for the character of woman, her position in the order of nature, her intellectural faculties, her susceptibilities, and the influence she has exercised throughout all ages, have been the theme, illustrated by numerous types, of a very able and interesting volume by Mademoiselle de Marechal Girard,† in which, with earnest zeal, she vindicates the pretensions of her sex.

But as we are now entering upon a new career of our school, with enlarged means of study and a wider scope of instruction, I trust that I may be permitted to allude to some of those processes of intellectual thought and practical application of study, which must at periods occupy the attention of the art scholar. I hope that I may not be found to assume too high a range of subject, or to inculcate aspirations beyond the class of art which it may be supposed that our students will follow in the schools, or be called upon to realise in the actual practice of after-life. But we must all remember that the loftier the aim the nobler the results. It will be found that the more sound and thorough the elementary ground-work of the artists' studies, and the purer the examples placed before them for instruction, the higher and happier will be the effects produced, the easier will difficulties be overcome in the stern realities of the future, and the sounder will be the principles upon which art will be followed up. Whatever, therefore, the ultimate aim of our pupils may be, whether in pure art or art as applied to manufactures and commerce, the earliest elementary principles must be the same. They consist in the knowledge of the best forms, the power to draw the most difficult objects, the faculty to seize expression, the knowledge of perspective, light and shade, and a full appreciation of colour in all its tones and modifications of harmony and contrast. But the first and foremost and most necessary is a complete mastery of the pencil, the power of drawing accurately and intelligently every object. The highest faculty is that of artistic invention, which brings into play many of the most powerful faculties of the mind, and is not a mere casual effort, but calls forth perception, attention, memory, abstraction, reasoning, imagination, judgment, and taste. And these not merely in the higher idealities of the historical or landscape painter: but (unconsciously perhaps) more or less, yet still to a certain degree, in those of less pretension, such as the design of a pattern, of an ornament, or of a lighter object of mere decoration, in each and all must those faculties be cultivated.

Shakspeare thus defines the province of poetry:—

> "As imagination bodies forth
> The forms of things unknown; the poet's pen
> Turns them to shapes, and gives to airy nothings
> A local habitation and a name."

But art has a very different aim. It is the privilege and glory of the artist to transfer upon the paper, the canvas, or the wall, or to embody in marble, brick, or stone, not "the form of things unknown," but of objects already existing in nature, selecting those which are most noble and sublime, or most graceful and well proportioned. Whatever in expression is tender or full of feeling or passion; whatever in colour may be of soberest tone or most brilliant hue, combined and grouped in contrast or graceful harmony, recalling emotions and impressions already existing in the mind, are here brought together to produce delight, admiration, wonder, pity, or sympathy, as the subject may inspire,—with the like effect as poetry, but not by the same means.

* "An Address by Professor Donaldson, Ph. D., at the Female School of Art, on the occasion of Opening New Galleries," on Wednesday evening last.

† "Les Femmes." 8vo. Paris, 1860.

There are many aids to conception, called by the intellectual men of the Continent *sources of inspiration*, which it is most desirable for all artists habitually and systematically to cultivate. I trust I may be pardoned if I venture to allude to these, and to call special attention to a few as tending at once to suggest to the mind new ideas, to enlarge our sphere of enjoyment, and calculated to make every action of our life a source of pleasure and instruction combined. There is an old saying of a Greek philosopher, "*that nothing is in the mind, which has not been previously presented to the senses.*" We see, therefore, how important it is to be able to appreciate the sensations produced by objects on the senses, and to analyse and account for them. We ought not to be satisfied, for instance, with mere generalization when we look upon an historical subject and say how fine, or on regarding a pleasing landscape and exclaim how charming the view. Far otherwise was it with that keen observer of nature, the poet Cowper; and when wandering in the fields you should, either in your memory or by a sketch, be able to reproduce the impressions he so graphically conveys in his poem of the "Sofa," when describing a Dutch-like landscape on the banks of the Ouse.

"Here Ouse slow winding through a level plain
Of spacious meads with cattle sprinkled o'er,
Conducts the eye along its sinuous course
Delighted. There, lost rooted in their bank,
Stand, never overlook'd, our favourite elms,
That screen the herd-man's solitary hut;
While far beyond, and overthwart the stream
That, as with molten grass, inlays the vale,
The sloping land recedes into the clouds;
Displaying on its varied sides the grace
Of hedge-row beauties numberless, square tower,
Tall spire, from which the sound of cheerful bell
Just undulates upon the listening ear,
Groves, heaths, and smoking villages remote.
Scenes must be beautiful, which daily viewed
Please daily, and whose novelty survives
Long knowledge and the scrutiny of years.
Praise justly due to those that I describe."

Cowper's Task, part i.

This description is a perfect picture. One feels as if one could sketch the elms, and tower and spire, and gently gliding waters. Now, how many localities are there in the immediate neighbourhood of London, which might give similar subjects to your pencil, on Hampstead Heath, Regent's Park, or the banks of its lakes, or among its trees and cattle; in Hyde Park, or Battersea, or Victoria; on the banks of the Thames, on Wimbledon, on Richmond-hill, or in the Botanic Gardens;—nay, in the homely scenes of Oxford-street and Piccadilly, and in the fields beyond Brompton, I have seen brilliant sunsets, that might well employ the pencil and glowing colours of a Claude or of a Turner.

A lively imagination, united to ready intuition, will eagerly seize such opportunities, and clothe every object with brilliant combinations, whether of form or colour, and thus offer to the mind endless pictures. Such a disposition, in regard to art, is endowed with peculiar aptitude for the apprehension of all objects suited to its purpose. Uniting feeling and invention to this gift, and you have the poetic organization of the complete artist, to be perfected by laborious study and a divine impulse towards perfection, irrepressible by difficulties, however great.

Books, again, cannot fail to be suggestive; not that the artist should read merely for that purpose, but be ready to seize any scene, any grouping, any incident or narrative into which the writer may have thrown his whole soul, and impressively described the action, which he may have deeply felt. The Old and New Testament above all abound, as you well know, with wondrous life-pictures full of pathos, emotion, grandeur, and movement: and none more so than the Song of Deborah when the Lord had discomfited Sisera before Barak. It is true the prophetess was moved by the Most High, and therefore it is the utterance of inspiration, and not the emanation of mere human genius; but so full is it of pictures as to be well worthy the artist's attention,—a sublime composition resplendent with great æsthetic beauties.

The Song of Deborah will carry away those with whom the ideal is their aim and glory: and the description of Cowper will touch those who love Nature in all her graceful simplicity.

And while I am upon the theme of the productions of our poets or historians, as suggesting subjects for the painter to illustrate, I feel the full effect of the just observation of Mr. Tom Taylor in his "Pictures with Words" illustrative of Birket Foster's pictures of English landscape, an exquisite volume of Dalziel's finest woodcuts, published by Routledge. He says, that, "pen and pencil will be found to work best together in a free way. The painter, as a rule, succeeds as ill in painting after the writer's description, as the writer, who tries to produce a picture in words after the painter. But picture may be set to poem, or poem to picture, as music is set to words, with an effect that enhances the enjoyment both of the one and the other."

And there is a class of reading which I would venture to recommend urgently to the student; that is, the biographies of the most eminent artists. How rich and instructive are Vasari's Lives. How graphic and interesting the eventful and phantastic autobiography of Benvenuto Cellini. How valuable the lessons to be learned from the sad story of Haydon, and the pleasing volumes of Leslie, and the discourses of Reynolds, and the lectures of Fuseli, Flaxman, and Westmacott. The perusal of such works keeps alive the sentiment of art in the mind, nerves the soul to high efforts, inspires it with generous sentiments, raises the study of art to an ennobling standard, and stimulates the student to earnest exertions to attain perfection, and rank with those of whom he reads. There is another class of literature, which, though of a more general nature, still deserves cultivation, as offering art productions seen not from a professional point of view, but as regarded by highly-cultivated minds in connexion with other objects of pursuit. I allude to such a work as Madame de Staël's "Corinne, ou l'Italie," noticed also by Professor Westmacott in a recent lecture. In this she pours forth, in fervid utterances, all the overflowings of an impassioned love of art, describing the scenery, manners, costume, and architecture,—the painting, sculpture, and literature of Italy, subjecting to a philosophical and scrutinising analysis all the powers and aims of genius, and the limits to which even the most intellectual must submit to be restricted.

Nor can I forbear to recommend to the attentive perusal of the students a work which doubtless is familiar to many present: I mean the letters of Mendelssohn Bartholdy, the eminent musician, one of the noblest characters as a man, among the first in rank as an artist (for music is a fine art), who paid the profoundest homage to the genius of those gone before, as Handel, Mozart, Beethoven, and others, and who did ample justice to the distinguished merit of his contemporaries, and to whom his own art was an object of the most ardent interest and pursuit. In addition to these high moral qualities, he was a most accomplished composer and performer, and no mean draughtsman. His perception of the beautiful in nature finds animated and unaffected expression in his letters, as he dwells on the scenes he passes through, the groups of men, women, and children he meets with on the way, and the productions of the most celebrated painters and sculptors, which he observes and studies with an original power of discrimination. His remarks on all works of art are striking, and his letters are full of scraps of bars, or portions of melody, or instances of counterpoint, that have arrested his attention, whether in the Miserere, which he heard in the Sistine Chapel, or on some casual occasion at the opera, or in the concert-room. These graphic formulæ remind one of the scraps of sketches with which an artist often renders his letters to his family or friends doubly interesting.

To give an instance of his happy facility of judicious observation and sound criticism of works in a sister art to his own, I must quote a passage:

"And so I am actually in Venice. Well, to-day I have seen the finest pictures in the world, and have at last personally made the acquaintance of a very admirable man, whom hitherto I only knew by name. I allude to a certain Signor Giorgione, an inimitable artist; and also to Pordenone, who paints the most noble portraits, both of himself and many of his simple scholars, in such a devout, faithful, and pious spirit, that you seem to converse with him, and to feel an affection for him. Who would not have been confused by all this? But if I am to speak of Titian, I must do so in a more reverent mood. Till now I never knew that he was the felicitous artist I have this day seen him to be. That he thoroughly enjoyed life, in all its beauty and fulness, the picture in Paris proves; but he has fathomed the depths of human sorrow, as well as the joys of Heaven. His glorious 'Entombment,' and also the 'Assumption,' fully evince this. How Mary floats on the cloud, while a waving movement seems to pervade the whole picture; how you see at a glance her very breathing, her awe and her piety, and, in short, a thousand feelings;—all words seem poor and common-place in comparison! The three angels, too, on the right of the picture are of the highest order of beauty;—pure serene loveliness, so unconscious, so bright, so seraphic. But no more of this, or I must perforce become poetical, or indeed am so already, and this does not at all suit me; but I certainly shall see it every day. I must, however, say a few words about the 'Entombment,' as you have the engraving. Look at it, and think of me. This picture represents the conclusion of a great tragedy. So still, so grand, and so acutely painful. Magdalene is supporting Mary, fearing she will die of anguish; she endeavours to lead her away, but looks round herself once more, evidently wishing to imprint this spectacle indelibly on her own heart, thinking that it is for the last time. It surpasses everything; and then the sorrowing John, who sympathises and suffers with Mary; and Joseph, who, absorbed in his piety, and occupied with the tomb, directs and conducts the whole. And Christ himself, lying there so tranquil, having endured to the end. Then the blaze of brilliant colour, and the gloomy mottled sky. It is a composition that speaks to my heart, and fills me with enthusiasm, and will never leave my memory."

But, again, suggestive ideas present themselves in the daily walks of life to the mind of those ready to seize and appropriate every object by which they are surrounded. If you visit the gardens of Kew, or the Crystal Palace, how much is to be learned there from the varied proportions, the tones and tints of trees and flowers, or the combinations in their tasteful disposition in the parterres, and the harmonies and contrasts of the groups of flowers as arranged in them. What an affluence of beauty in the forms and colours of the flowers and of the leaves, so that every thinking mind becomes aware how dependent the faculties are on all the circumstances of the natural objects by which we are encompassed. How noble the Victoria Regia with its gigantic leaf, and the other varieties of the lily, floating on the water's surface, and with their beauteous flowers. How graceful all the changes of the drooping fuschia. How rich in beautiful form as well as perfume the rose; and well has it been observed by Mr. J. J. Gurney:—"If there were no flowers, the powers of smell would afford little pleasure. If there were no colour, where would be the delights of vision? or, were nature clothed in scarlet instead of green, how soon would our sight be destroyed. All the graceful varieties of outline as well as colour are sources of gratification, and movement itself gives life and action to what would be senseless and dead. These and a thousand other examples afford clear evidence that the Almighty has framed this material world with the view to the happiness of its appointed inhabitants." It is the privilege of the artist to seize, select, and combine all these, as legitimate sources of pleasure and gratification to the refined mind.

The several Exhibitions also of works of art open every year, our national museums and private collections, if fruitfully visited, are so many endless sources of inspiration to the artist. We see what has been achieved by the giants in art: how they have idealised and rendered nature; the aspects under which she has presented herself to their minds; the means they have taken to interpret and represent her; the technical processes they have employed; the varied effects of light and shade; the glowing noontide sun, or the silvery hues of night, which they have adopted to bring home such scenes to the beholder, and produce new impressions. Above all may be quoted the galleries of the British Museum, which should be frequently visited by the art student. Its various treasures of antique art, its vases, its bronzes, its very models of burned clay, are all redolent with artistic power of the highest quality, and convey lessons of great value and suggestive thought. But if, in the presence of all these noble productions of man's genius the student feels oppressed by a sense of her own littleness, and considers it as a vain hope that she should ever rank with a Leonardo da Vinci, a Raffaelle, a Michelangelo, a Guido, a Luini, a Van Eck, a Rembrandt, or a Rubens, it should be remembered, that what has been attained may again be accomplished, and perhaps exceeded. The student should feel as the Alpine climber, who seeks to reach the tip-top pinnacle of Monte Rosa, the Wetterhorn, or Mont Blanc. So remote as he starts does the summit appear, that it almost seems a task beyond human strength.

Yet it has been attained before; and, as he conquers one height after another, crosses successive glaciers, and passes over the treacherous tracts of snow, each lower height conquered, each difficulty overcome, and each league traversed, exhausting as they may be, nerves him to fresh energy, and he suffers all cheerfully, that he may at length say, I have braved them, and seen the lower yet Titanic ranges at my feet, amid oceans of ice and snow, and have breathed the air higher than where even the eagle soars.

I may be pardoned, perhaps, ere I quit the subject of visiting exhibitions or collections of works of art, to allude to the *spirit* with which art students should avail themselves of such opportunities of improvement. My idea is, that the object of the student should be to discover the beauties, and not the defects, of the objects he has to contemplate. What the student wants is to improve his own taste and judgment, and to acquire knowledge in the perception of the successful efforts of others. By storing such impressions on the mind many suggestions are acquired, as also considerble experience and knowledge of technicalities. It is easy to discover the defects of an inferior performance: it is no easy task to discriminate the beauties of a high work of art, and to account for them. Give me the student who accumulates a series of noble types to emulate, and not the student who dwells on errors to be avoided. Good taste renders the latter unnecessary, but never supersedes the desirableness of the former.

Travel, again, affords many opportunities of perfecting one's taste and acquiring new ideas; and I hope that some generous lovers of art may endow our school with scholarships and exhibitions, to allow our students to travel and study, whether among the counties of England, in the picturesque scenery of Devonshire, or the lakes of Cumberland; the hills and valleys of Wales; among the lochs and wilds of Scottish scenery, or the terrible and graceful landscapes of Ireland, with its peasantry and their hovels; the castles and baronial halls, as well as the cathedrals and abbeys so profusely scattered throughout Great Britain. Nor need our students be limited to these, but seek also new impressions in the various manners, customs, costumes and scenery on the Continent, whether in the Alpine ranges of Switzerland or the Tyrol; in the plains of Lombardy or the lagunes of Venice; in the valley of the Arno with proud Florence rising from its banks, and backed by the Apennines; or in the holy city of the Seven Hills, Rome, rich in its treasure of art ancient and modern, begirt with its Campagna; or in laughing Naples, with its exquisite bay and Vesuvius and its sea-girt coast and aisles; Pompeii, Posilippo, and Gaeta, with all their wild and graceful associations of poetic lore. What artist can travel in such scenes, and not return rich in art memorials, sketches, and studies, if but endued with passion for the pursuit and with perseverance to increase his stores of reference. Intelligent travel thus disciplines the mind to accurate observation and habits of practical observation of objects, seen to purposes to which they may be applied. And thus shall observation become a habit and source of great delight from a sense of its usefulness. And all this will imperceptibly yet gradually induce a habit of industry and cheerful labour, so different from the sluggish torpor of the indifferent described by Herbert,—

> "All things are busy, only I
> Neither bring honey with the bees,
> Nor flowers to make that, nor the husbandry
> To water those."

The eloquent Bishop of Oxford, in a speech delivered recently at Manchester, on the occasion of the distribution of certificates to the successful competitors in the local examinations, justly remarked, that "the great temptation at this moment in education, as in everything else in this nation, is to forestal ultimate results by snatching at premature advantages. We see this," he said, "in our trade, in our manufactures, and in our literature. We see it, I think, everywhere in life, and we may be sure it is present in education too." I trust you will prove that it does not exist in this School of Art; that you will disdain any advantage, which may *not* be the result of dogged perseverance and hard study, and the real moulding, and training, and shaping of the powers for the future work you may be called upon to do. This alone will produce readiness, facility, and power, not a mere mechanical aptitude, but that judgment, that well-stored mind, that readiness of manipulation, that perfected innate grace of perception which prepare the head to conceive and the hand to execute. "Whatsoever thy hand findeth to do, do it with thy might;" and thus the complete and thorough mastery of one branch induces a power, which enables the artist readily to conquer others.

It is a healthy sign when we see the pupils eager, and preparing themselves for the great contests which are to result in the acquisitions of prizes. But there is one evil that is to be avoided even in these honourable competitions: that is, the attempt to attain a flashy style of execution. This may, in itself, be attractive to the general observer, but too often it is the mark of inherent weakness in some points, which distinguishes such work from that of the painstaking and really earnest student. The prizes gained in these tournaments of skill must never be the end of the aims of the artist. They are to be considered merely as testimonies of skill, perseverance, and hard work, proving that the hours, and days, and weeks, and months passed in real fag and study have not been in vain, but have resulted in a certain degree of success, whether positive or relative, and thus encourage her in the efforts to attain a higher degree of merit by continuous study. Success in the attainment of the highest prize, even that of the national medal, must be accepted merely as evidence of a certain position, not the highest, in artistic life. Continued practice and experience must lead to greater knowledge of form, a greater appreciation of contrast of light and shade or tones in colour, to a more refined conception in design, and a greater power of bringing together natural and artificial objects to contribute to the perfection of their conceptions. These competitive struggles will occur, not only in youth, but throughout life, with others of high attainments; and she who is content to remain satisfied with the success of girlish efforts, will soon be outstripped by the perseverance of those rising to more matured excellence by continued application to study. How soon the early elements of an art may become dulled and obscured is proved by the vocalist, who, in order to keep the voice in tone, and retain the most exquisite modulations in the organs, practises the *solfeggi* every day. We must also recollect, that these struggles for fame are not to be for the purpose of merely outstripping others, but to attain to the very highest attainable excellence, without reference to what your fellow-students may be able to do or have done, unless it be to bring home the conviction of what you yourselves ought to accomplish. Besides which, as life is a continuous struggle, the result of your studies here is of the utmost importance. The measure of your success, in after-life, may be taken by the position you hold among your fellow students upon quitting these halls of your studies. If you complete your term here, having achieved the greatest triumphs, the best assurance is offered that you will succeed in your future career. If, on the contrary, you leave with unimproved faculties, faulty drawing, imperfect notions of art, life, as an artist, will be a continuous struggle under difficulties, the natural consequence of neglected opportunities when young. Our ablest statesmen, our most distinguished lawyers and leading medical men and divines, are generally those who have been in the first class in Oxford, have carried off the senior wranglership of Cambridge, or the gold medals in the schools of surgery and medicine. Some, it is true, have redeemed time ill-spent; but it has been at the cost of labour that would have been more advantageously employed if it had not been required to regain the missed opportunities of the past.

Ladies,—Hitherto the studies of the pupils who have preceded you, and of some even now among you, have been most meritorious. In fact, they have procured for our school the enlightened patronage of the Queen, who holds out every encouragement for you and those after you to persevere. I hope you will feel how great a responsibility rests upon you; for on you depends the future progress to be made by this Institution in its mission of conveying a sound system of art-education. By great exertions the establishment is now provided with instructors, models, class-rooms, noble gallery, and everything necessary to enable the students to follow their studies with the utmost benefit. Prizes and rewards offer further encouragement. Upon your earnestness and energy, then, depends the triumphant realization of the earnest expectations of your Sovereign, and of the other friends of this important sphere of study for the female artist. Be determined, therefore, and hopeful; animated by a generous spirit of emulation, and encouraged by the wise and sound observation of Mendelssohn's father to his gifted son, when he says, "that no work begun in earnestness and followed up with great perseverance, can fail ultimately to command success:" and "feeling determined," as the son urges in his *Letter to Sebastian Hensel*, "to contemplate and to study nature most lovingly, most closely, most innately and inwardly all your life long."

THE CHURCH OF OR-SANMICHELE, FLORENCE.

NOT very long ago we gave a view of the Loggetta of the Bigallo, in Florence. This loggia, that had been hidden behind boarding for nigh 200 years, now forms one of the architectural attractions of the city.

Political progress and that of art do not always, in these days of utilitarianism, advance at the same rate.

A report prevailed at the beginning of the year, that the interesting structure called Or-Sanmichele was to be perverted to the use for which it was originally raised, namely, a corn-market. There exists in Florence a society for the protection of its architecture and works of art; this will, we hope, prevent, should the intention be carried out, any act of spoliation or disfigurement of this building—a most interesting specimen of Florentine Gothic. The history of the building, of which the engraving we give from a drawing made for us on the spot shows the western exterior, is this:—In 1284 the Commune of Florence, wishing to erect a corn-market, gave the commission to Arnolfo, the architect, who demolished the old church of San Michele, and erected on the spot an open building, consisting of simple brick piers supporting a roof. From the designs of Taddeo Gaddi, in 1337, these piers were covered with thick stonework, within and without, and over the roof were built two stories, for the storing away of grain. These two stories, in 1569, were converted, by Cosmo I., into repositories for the public archives, or into a legal record office.

An entrance was formed to these from the old "Archivio" (which had become too small for the purpose), by the covered gallery or passage, seen in the engraving. This mode of communication was a favourite one with the Florentines of old: witness the long gallery communicating between the Pitti Palace and Palazzo della Signoria.

To the exterior of one of the pilasters, was hung an image of the Virgin, much esteemed by the people, and when pestilence was decimating the Florentines in 1548, great faith was attached to the mediatorial powers of this nodding Virgin, and on the cessation of the plague, Andrea Orgagna was engaged by the community to construct the present elaborate tabernacle *inside* the building for the reception of the image, a work that occupied ten years in its completion, and cost 96,000 golden florins.

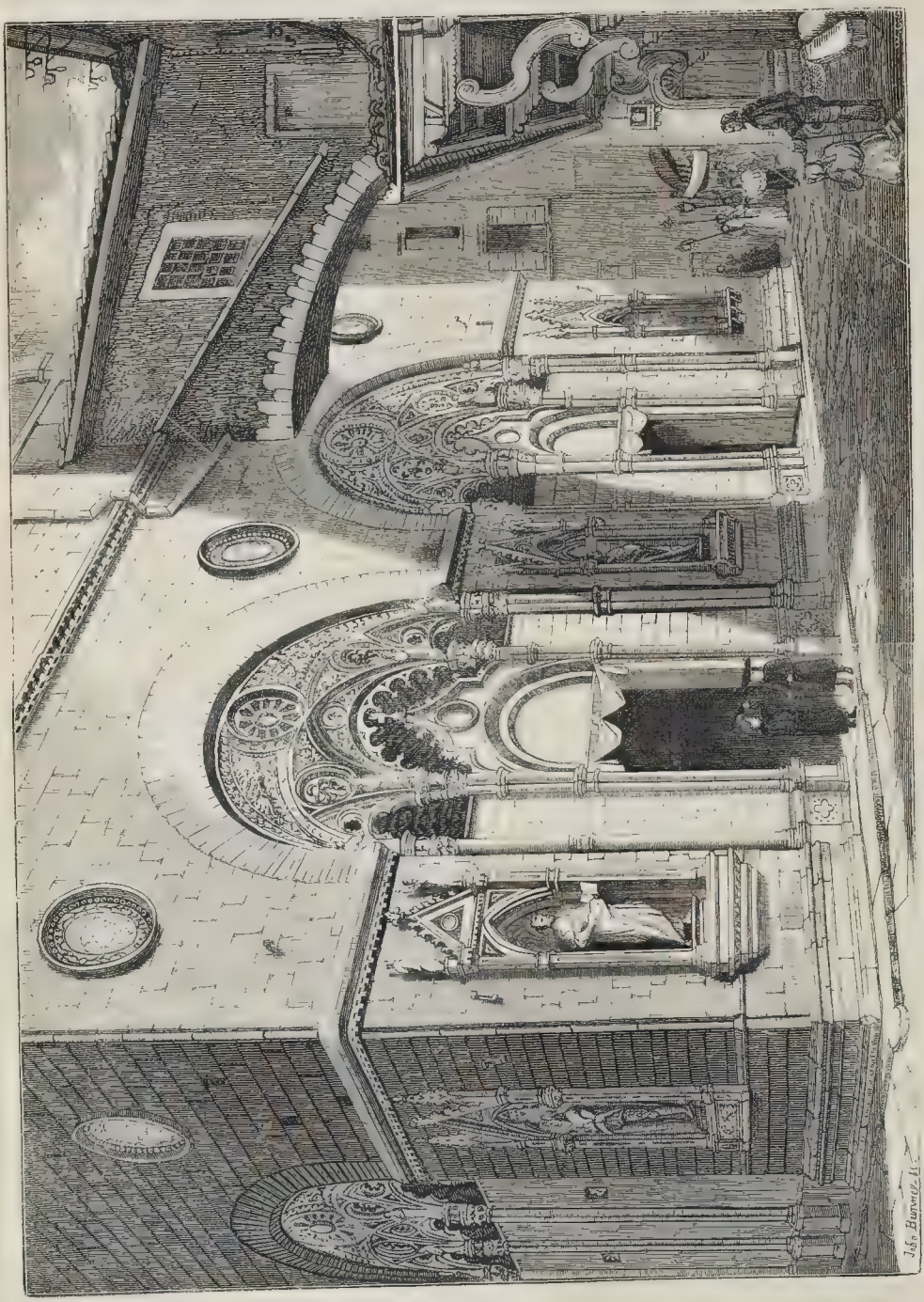
The open arcades were closed, and the building consecrated to ecclesiastical instead of commercial purposes.

The exterior is adorned with statues in arched niches, executed by the first sculptors of the time, at the expense of the different guilds of the city. Those seen in the view are, on the south side, that of St. Mark, so eulogised by Michelangelo, presented by the furriers; on each side of the entrance door, St. Eloy, by the blacksmiths, and St. Stephen, by the wool traders. The two former are the work of Nanni di Banco, the latter is by Ghiberti. That beyond, St. Matthew, also by Ghiberti, was raised at the expense of the money-changers.

The work on all the archivolts is of finely-cut leaves: on each side are sculptured heads protruding from the leaves. The capitals are of roses and leaves.

It was proposed that the tabernacle of Orgagna should be removed to a church opposite (formerly dedicated to San Michele, but in 1616, changing its title to that of San Carlo), and that the stonework between the grand piers of Taddeo Gaddi should be removed, leaving the open arcades as of old, the whole of the artistic work, which is in perfect preservation, being left entire.

The part of the church drawn is the west front, and doors with piazza, showing the roof over the door of the old residence of the captain brethren of Or-Sanmichele.



THE CHURCH OF OR-SANMICHELE, FLORENCE.



WAREHOUSEMEN AND CLERKS' SCHOOLS, RUSSELL HILL, NEAR THE CATERHAM JUNCTION ON THE LONDON AND BRIGHTON RAILWAY.—MR. J. G. BLAND, ARCHITECT.

WAREHOUSEMEN AND CLERKS' SCHOOLS.

THIS building, now nearly completed, is situated at Russell-hill, on a very elevated and healthy site, near the Caterham Junction, on the London and Brighton railway, to which it presents a frontage of about 280 ft. The foundation stone was laid by his Royal Highness the Prince of Wales, on the 11th day of July, 1863. The design was selected in competition.

The general effect of the building is striking and picturesque; the outline is much varied, with high-pitched roofs, dormers, and turrets. The materials used are red bricks, with blue and white brick strings, ornamentally disposed, and dressings of Bath stone. The roofs are covered with blue and green slates, in patterns.

The front comprises a centre building, four stories in height, with a lofty hipped-roof, surmounted by a clock turret; buildings on either side of two stories, serve to connect the centre with the wings, which are of three stories. The principal entrance is in the centre, through a deeply-moulded and carved archway, with shafted jambs, to a hall divided by arches, carried on polished granite columns.

The interior faces of the walls of the hall are furnished with red and white bricks, in patterns; a staircase of stone, with pierced stone parapet, leads to the Visitors' Gallery. The dining-hall is entered from the hall, by folding doors, opposite the principal entrance, and is a fine room, 70 ft. long and 30 ft. wide, with an open timber roof of high-pitch, and lighted by a large traceried window, of five lights in the gable end, and two light windows in the bays of the sides. The hall communicates with the kitchen by a door and hatch.

The right wing of the building is appropriated to the girls, and the left to the boys. In each case the ground floor is occupied by the school and class rooms, and the stories above by the dormitories. The two-story buildings between the centre and wings, contain the secretary's, matron's, assistant master's, waiting, and other rooms, on the ground floor.

The master's house is on the extreme left, and though communicating with the boys' corridors, is in every other respect a detached building. At the opposite end of the building is the mistress's room, in communication with the girls' schools, the matron's room being placed opposite a transverse corridor, leading to the kitchens, laundries, &c., the arrangement of the plan affords facility for the effectual supervision of each department by their respective heads. The kitchen buildings form two sides of a quadrangle, having the dining-hall and girls' wing on the other two sides, the space thus enclosed being occupied by a large swimming-bath, with glass roof. The whole of the building is heated by steam-pipes, in connexion with the boiler of a pumping-engine, on the basement floor.

Hot and cold baths are provided on each floor, in connexion with the respective dormitories, and the lavatories, water-closets, &c., have been arranged with great attention to convenience and cleanliness. Covered play-sheds are provided for the children of either sex.

The architect is Mr. J. G. Bland, of Birmingham; the builder, Mr. Parker, of Thrapstone. The carving has been executed by Mr. Smith, of Birmingham. The total cost of the building, including engine, pumps, heating apparatus, lodges, &c., will be about 19,000*l*.

The schools were founded eleven years since, for the purpose of maintaining, clothing, and educating the orphans of those engaged in *any* wholesale trade or manufacturing establishment of the United Kingdom.

At present there are ninety-five children in the Institution, who are lodged in three hired houses, at New-cross. It is hoped that they will be removed before Lady-day to their new home.

The building, which stands in the centre of 20 acres of land, will accommodate nearly 200 children, about 135 boys, and sixty girls.

Elections take place in May and November of each year, at which all subscribers are entitled to vote, the lowest rate of subscriptions being 10s. 6d. annually, or five guineas for a life membership.

The treasurer of the Institution is Mr. William Leaf; the chairman of the Board, Mr. Walford Greatorex; the honorary secretary, Mr. George Lawrence; and we will add, for the advantage of the charity, that the secretary, Mr. Henry White, has his offices at 5, Queen-street, Cheapside.

FIVE P.R.A.s.

"SIR JOSHUA," MR. WEST, SIR THOMAS LAWRENCE, SIR MARTIN ARCHER SHEE, AND SIR CHARLES LOCK EASTLAKE.

IN less than a ninety-nine years "crown and public" tenure of existence [1769-1866] *The* "Royal Academy of Arts" *in London* has had *five* presidents; 1. Sir Joshua Reynolds; 2. Benjamin West, who declined knighthood; 3. Sir Thomas Lawrence; 4. Sir Martin Archer Shee; 5. Sir Charles Lock Eastlake.

Of the *five*, it is not too much to foretell, that if not now, hereafter most certainly, the first will be held in critical estimation and Christie & Manson quotations as worth his *four* successors "rolled into one."

West's "Battle of La Hogue" and "Death of Wolfe" will preserve his name honourably in adopted art; which his "Christ healing the Sick" will *not* do. Some fifty portraits, male and female, and a few infantine groups, such as the Calmady children, will buoy up Lawrence from sinking into the valley of the shadow of forgetfulness.

The to be admired full-lengths of two great English soldiers, Sir Thomas Munro and Sir Thomas Picton, will tell to future students of art in all countries, what Sir Martin Archer Shee *was* in his strength; while

> "For his merits, would you know 'em,
> Once he wrote a pretty poem,"

as Byron sang of Rogers in envenomed and world-enduring verse.

Sir Joshua died (1792) in the sixty-ninth year of his age, and the twenty-third of his presidentship; Mr. West died (1820) in the eighty-second year of his age, and the twenty-eighth year of his presidentship; Sir Thomas Lawrence died (1830) in his sixty-first year and the tenth of his presidentship; Sir Martin Archer Shee died (1850) in his eighty-first year and the twentieth of his presidentship; and Sir Charles Lock Eastlake (whose recent death has led to these remarks) died in his seventy-second year and the *sixteenth* year of his presidentship.

The election of Reynolds to the chair of the Academy was unopposed, and received at once the approval of the king (George III.), to whose "protection," rather than encouragement, the Academy in a great degree was indebted for its charter, its existence, and its rooms for its schools, its discourses, its source of, and its great but still craving, wealth, *protected* exhibitions.

West's election (1792) to the chair, vacant by the death of Reynolds, was designed as a compliment to the royal founder of the Academy, and was accepted as such; though Fuseli did vote for Mrs. Mary Moser, on the plea that "one old woman was as good as another."

That the election (1820) of Lawrence to the chair, vacant by the death of West, would be gratifying to King George IV. was well known; the election of the future Sir Thomas was, therefore, without opposition.

When Lawrence died (7th of January, 1830), "Shee" (as Chantrey wrote in pencil to Allan Cunningham the same night) was "elected by a large majority." The names of the candidates willing or unwilling to be put in nomination, with the numbers of votes they received, merit reproduction at this juncture:—

Martin Archer Shee, esq.	18
Sir William Beechey, knt	6
David Wilkie, esq.	2
Thomas Phillips, esq.	1
A. W. Callcott, esq.	1

Collins was one of the two who voted for Wilkie.

At Shee's death (19th of August, 1850), Mr. Eastlake was put in nomination, elected, and knighted. Devonshire has thus given *two* presidents to the Royal Academy—its earliest and its latest.

The *five* presidents were in their divers and diverse ways, according to their taste and means, collectors of drawings, and occasionally of pictures, by great masters.

Sir Joshua possessed many fine drawings and a few good pictures, gathered by accident, or caprice, or choice: two or three of his purchases of "deceased masters" sustain the reputation of his skill as a judge, and would fully maintain his skill as a dealer. Mr. West was a collector (who of inborn and cultivated taste would not be who had money?); his little octagon Claude was one of the much-prized pictures of the poet Rogers.

Sir Thomas Lawrence's collection of drawings, by which he has been said, foolishly enough, to have crippled his fortunes, but maintained his taste, are known beyond Oxford. Sir Martin, less fortunate in his dealings with Queen Pecunia, or the Old Lady in Threadneedle-street, and fettered in this respect, though blest with a clever family, was obliged to resist the temptations of the sale-room. Sir Charles—"childless himself, and wanting heirs"—was enabled to indulge his tastes in purchases, that added to the attractions and enjoyments of the stone-faced mansion No. 7, Fitzroy-square.

As the travelling adviser of the trustees of the National Gallery, in the expenditure of the votes which parsimonious Chancellors of the Exchequer set apart in their annual budgets for "the Louvre of London," he was wisely cautious, inasmuch as in his Hounslow Heath fear of being Mr. Coninghamed, or Mr. Morris Moored, he confined his recommendatory purchases to Titians, and "thy loved Guido's air." In this he was harshly found fault with. "*Holbeins once a week, and Raffaelles once a fortnight,*" as a once well-known dealer was said to have offered to the Prince Regent's Marquis of Hertford, *cannot* be had.

"The paid-travelling Sir Charles" was, therefore obliged, by the task he undertook as a commercial agent in art (like Gerbier, Dalton, Sir Robert Strange, and a long &c.), to restrict himself to pretty little *quasi* "*Tits*" (as Jervas, the painter, spoke of Titian), and to heads, &c., by the Caracci school. His fearful Hans Holbein-mistake-purchase for the National Gallery was a blow to his credit for knowledge of a mighty master, from which his reputation as a judge—"a ripe one"—never recovered.

Clubs and circles, where artists most do congregate, talk with reverential decency and various certainty about "who is to be the new president."

That the Academy will cling to its custom of choosing a painter there cannot be a doubt; we may, therefore, it is remarked, at once reduce the number of candidates by the sculptors, architects, and engravers. We shall in this way exclude *eleven: six* sculptors,—Mr. Foley, Mr. Gibson, Mr. Marshall, Mr. M'Dowell, Mr. Weekes, and Mr. Westmacott; *three* architects,—Mr. Philip Hardwick, Mr. Sydney Smirke, and Mr. George Gilbert Scott; and *two* Academician engravers,—Mr. Cousins and Mr. Doo.

By this exclusion we reduce our candidates or "running" Royal Academicians who "are in the betting" to *thirty*. First, we are compelled to exclude the father of the forty, Abraham Cooper, esq. (his "Richard and Saladin" and "Cromwell at Marston Moor" were the delights of our *ladhood* and are pleasures in our *manhood*). Mr. Cooper is now in the forty-sixth year of his R.A. ship. *Then* we must exclude the once Captain Jones—a Wellington soldier and one of Chantrey's executors, elected a R.A. in 1820; *thirdly*, we must set aside Henry William Pickersgill, esq., who astonished the Iron Duke by his skill in his art and his Waterloo surprise question; and finally, we must, with Mediterranean and Drury-lane Theatre tears, "put" Clarkson Stanfield, of Hampstead-on-the-Heath, esq., aside, as a *thirty* years' and odd plumaged bird, his R.A.-ship dating from December, 1835.

"Great men have been," as Wordsworth sings, and "still are," as we assert, "among us."

Our next proceeding is to take up "Dorling's Correct List" for the forthcoming January meeting in the east wing of the National Gallery, in Trafalgar-square, London. Here, then—"presented" by order of the House of Commons and "other authorities" not so peremptory—is a chronologically arranged list of all the living painters elected into the *Arrayship* of Royal Academicians since "Stanfield of ours" was elected in 1835:—

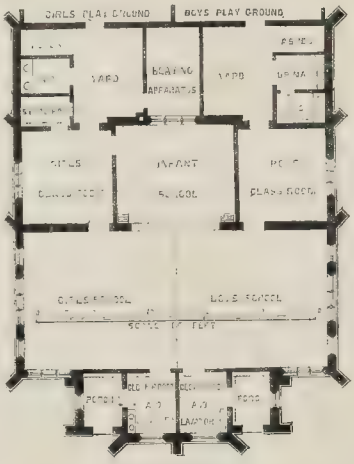
F. R. Lee.	E. M. Ward.
Daniel Maclise.	Alfred Elmore.
Solomon A. Hart.	F. R. Pickersgill.
John P. Knight.	John Philip.
Charles Landseer.	J. C. Hook.
Thomas Webster.	P. F. Poole.
J. R. Herbert.	William Boxall.
C. W. Cope.	J. E. Millais.
Thomas Creswick.	E. W. Cooke.
Richard Redgrave.	J. C. Horsley.
Frank Grant.	T. Faed.
W. P. Frith.	J. F. Lewis.

Alas! for the once favoured portrait-painters in the list, and we have *three* good ones,—Mr. Knight, Mr. Frank Grant, and Mr. Boxall;—though the late president gave capriciously, it was said, Mr. Boxall a precedence.

Alas! perhaps for landscape painters in the



CONGREGATIONAL SCHOOLS, LISCARD.—Mr. H. Vale, Architect.



Ground Plan.

list (representatives of Wilson, Gainsborough, and Turner), though we have Esquires F. R. Lee, Creswick, Redgrave, and E. W. Cooke (we had nearly called him "Ned").

Alas! for history (art above all, it is thought); and yet England can boast of Esquires Maclise, Hart, Charles Landseer, Herbert, Cope, E. M. Ward, and Alfred Elmore. Let skilled position in the world of art be the sole and soul-sustaining guide, and Maclise is the man.

Who then is to succeed to the George IV. chain and medallion given to President Lawrence and since worn by Sir Martin and Sir Charles? Who is the best after-dinner-first-before-the-first-Monday-in-May speaker?—neat, and to the point with toasts of "The Queen," "Church and State,"—

"Chiefs out of war and statesmen out of place,"—

"Literature," "Science," &c., &c.? Here the Academy is in want, we fear, of one like its late well-weighed, well-turned, and well-spoken-paragraphed president, Sir Martin Archer Shee.

Oddly enough, we have omitted one,—one to whom Sydney Smith said, "Is thy servant a dog?" when asked to sit. What if this were the man? We shall see.

Who Sir Charles's successor as president (who the *sixth* president) will be, may, after all, be determined by our ex-trustee architect, Mr. Philip Hardwick's "Decisions" *or* "Answers" before the late (1863) Parliamentary Commission of Inquiry into "*The present Position of the Royal Academy in relation to the Fine Arts*":—

1. "The Sovereign is the great prime-mover of the body of the Royal Academy."—*Q. & A.*, 1576.
2. "The Academy can do nothing without the sanction of the Sovereign."—*Q. & A.*, 1571.

Why, Mr. Able-Architect of Goldsmiths' Hall and Lincoln's Inn Hall, cannot the Royal protected and "housed" forty and odd refuse her Majesty's shilling a-piece from her subjects for admission to your (her) annual show, and a shilling or sixpence a-piece for your catalogue or bill of fare of what by public advertisements you invite us to? How would your funds have looked in Stock-Exchange Capel-court estimation without your entrance shillings and your contingent shilling catalogues, not acquired from sovereigns, but from subjects?

The name of Sir Charles Eastlake will be held in esteem and remembered in art.* As a very great man said of the Academy's first president, "Hail and farewell."

* A letter from Florence of the 27th ult. says:—"The remains of the late Sir Charles Eastlake, P.R.A., were to-day consigned to their last resting-place in the English cemetery here. Sir Charles, as you are aware, died at Pisa, after a tedious illness, but it was no doubt thought that this city had a prior right to be selected for the obsequies of one so intimately connected with the fine arts, &c., whose distinguished professional claims as well as his estimable personal character were so well known and so highly appreciated by the Florentine community, Italian as well as English. The body was brought at an early hour by railway from Pisa, and was accompanied by Lady Eastlake, Mrs. Romilly, and the Misses Horner, and was met at the station by many sympathising friends, who followed the body in a long *cortège* to the cemetery. The funeral service was very impressively performed by the Rev. Mr. Greene, British chaplain of Pisa, assisted by the Rev. Mr. Pendleton, chaplain at Florence. Among the many mourners present were the Hon. Mr. Elliot, her Majesty's Minister at Florence; the Rev. C. B. Elliot; Mr. Webster, R.A.; Mr. Archer Shee; Mr. Power, the American sculptor; Mr. Fuller; Mr. Kittowe; and many of the English residents and visitors, all anxious to manifest their respect for the late artist."

CONGREGATIONAL SCHOOLS, LISCARD, NEAR LIVERPOOL.

WE mentioned, in a recent number, the completion of these schools, built by Mr. Campbell, from the designs of Mr. Vale. We now give a view and plan, and may repeat, that they are of stone, finished with brick internally, and will accommodate 250 pupils. When thrown together as a lecture-room, they will seat about 400 persons. The cost, including boundary walls, was 1,200*l.*

ANNUAL REPORT OF THE METROPOLITAN BOARD OF WORKS.

THE Metropolitan Board have issued their annual report, which comprises two folio volumes, of 142 pages and 20 pages respectively. Most of their proceedings have already been noticed in the *Builder*, and the progress of their great works has been recorded; but we may briefly recapitulate a few of the chief points of progress at the date of the principal report,—31st of July, 1865.

The great feature of the report is the statement relative to the Thames Embankment and the progress the Board had made towards its completion. During the year the progress was considerable. The work, as our readers know, comprises the formation of a solid embankment from the Middlesex side of Westminster Bridge to the eastern boundary of the Inner Temple, and from thence on a viaduct to the western side of Blackfriars Bridge. The works from Westminster Bridge to the boundary of the Inner Temple were let in two contracts. The first contract comprised the formation of a granite-faced river-wall, about 3,740 ft. in length, with a portion of the low-level sewer and subway in connexion therewith; the extension of several of the main outlets to discharge into that sewer; in the construction of about 3,200 ft. of brick sewer for the interception of the smaller sewers and drains hitherto discharging on the foreshore, and the formation of new and commodious steamboat-piers and landing-places, in lieu of those interfered with by the embankment. Up to the date of the report about 263,000 cubic yards of material had been supplied for filling-in purposes. The works were undertaken by Mr. George Furness, for the sum of 520,000*l.*, and the approximate value of the materials and plant supplied, and of the work done, was 170,584*l.*; of this amount about 133,000*l.*, were due to the progress made since the last annual report.

The second contract embraced the formation of 1,970 ft. of granite-faced river wall, with a portion of the low-level sewer and subway, in continuation of the works included in the first contract; the extension of sewer outlets to discharge into the low-level sewer; the construction of about 2,440 ft. of brick sewer for the interception of the smaller sewers and drains discharging on the foreshore, and the foundation of a new steam-boat-pier and landing-stairs, in lieu of the Temple-pier. About 200,000 cubic yards of material had been supplied for filling in under the contract, which was let to Mr. A. W. Ritson, for the sum of 229,000*l.*, and up to the date of the report the approximate value of the materials and plant supplied and work executed, was 126,726*l.*, 100,000*l.* being in respect of the progress made during the past year. The contract for the remaining length, about 900 ft., of the embankment, from the Inner Temple to Blackfriars Bridge, had not yet been let, in consequence of the imperfect nature of the information which the Board had been able to obtain as to the intentions of the Metropolitan District (inner circle) Railway Company, relative to the construction of the portion of their line between these points. The Board had to acquire various properties, to enable them to carry out the works. The freehold and leasehold claims received amounted in the aggregate to 252,573*l.* 11s. 1d., and they were settled at 176,320*l.* 15s.

Street approaches to the Embankment were authorized by the Act,—one to communicate with Surrey, Norfolk, and Arundel streets, and another with Wellington-street, Waterloo Bridge. Also several short streets communicating with Villiers-street, Buckingham-street, and Cecil-street, and a new street from near George-street, Adelphi, to terminate by a junction with the east end of Whitehall-place, and another from the Embankment at Whitehall-stairs to Whitehall, opposite the Horse Guards. Increased facilities beyond those alluded to, however, must be provided; and it will be necessary to deviate very considerably from the plans described. The Board entertain the hope that the matter will be sufficiently advanced to enable them to apply to Parliament early next session for the requisite powers to construct approaches.

The works for the embankment of the southern side of the Thames, we may here also remind our readers, consist of the formation of a solid embankment from Westminster Bridge to Gun House-alley, near Vauxhall Bridge; the removal of a number of low-class dilapidated buildings; the formation of a roadway along the Embankment, of an average width of 60 ft., between Gun House-alley and Lambeth Suspension Bridge; the improvement of the river opposite the Millbank Penitentiary, and the formation of new streets in connexion with the same. In addition to these works it is proposed to improve the approaches to Palace New-road, to widen and improve a portion of Stangate and Palace New-road, from Stangate to Crozier-street, and to stop up portions of the latter thoroughfares, appropriating to the general improvement the portions of such streets stopped up. The contract for the Embankment and works has recently been let to Mr. William Webster, for the sum of 309,000*l.*; and the works will be rapidly pushed forward.

In continuation of the roadway on the northern Embankment, the Board are proceeding with the construction of the line of thoroughfare between Blackfriars Bridge and the Mansion House. The street will be 3,450 ft. long, and of an average width of 70 ft., and a subway for the reception of gas and water pipes, &c., similar to that in the Embankment, will be constructed throughout its entire length. During the past year the Board have been actively engaged in acquiring the various properties needed for this improvement, and they have dealt with claims amounting in the aggregate to 327,590*l.* 8s. 11d., for a sum of 288,991*l.* 10s. 6d.

With respect to the funds for defraying the cost of the northern and southern embankments of the river and the new street provided by means of the coal and wine duties, the sums received and expended by the Board on account of these works, up to the 25th of March last, are as follow:—

Receipts	£714,554 2 4
Expenditure	482,503 19 3
Balance in hand	231,562 19 3

The Board state that, in the line of Garrick-street, Covent-garden, which extends from the corner of King-street to the junction of St. Martin's-lane with Long-acre, all the building plots, with the exception of one, had been let on leases for eighty years.

Middle-row, Holborn, is to be removed, and the viaduct over the Fleet Valley is to be earnestly proceeded with; and a new line of street from Backchurch-lane to Leman-street, at its junction with Whitechapel High-street, is to be constructed, to provide additional means of communication between the Commercial-road and Whitechapel. Finsbury Park, for the formation of which 120 acres were purchased, situated on the north side of the Seven Sisters'-road, and extending from the Great Northern Railway on the west to the Green-lanes on the east, is to be proceeded with, the difficulties raised by the Edgware, Highgate, and London Railway Company having been removed. The Southwark Park, also, will shortly be commenced, the purchase of the land, after some delay, having been completed. The land is situated between Paradise-row, Rotherhithe, and the Deptford Lower-road, and consists of about 62 acres. The price to be paid for it is 56,500*l.*, or about 911*l.* per acre.

As to Messrs. Hope & Napier's scheme for the utilization of the sewage on the north side, the Board have reason to believe that the company will very shortly be formed, and their works for carrying the sewage be commenced and completed with all possible speed.

The Board have numerous other undertakings of a comparatively minor description on hand.

WORK OF ART PRESENTED BY THE QUEEN TO PRINCE VICTOR.

THIS baptismal gift has been nearly two years in hand. It was intended to have been presented on the first anniversary of the young prince's birth,—the 10th of March last; but the amount of artistic labour required for its completion caused the presentation to be delayed until now. The work consists of a statuette of the late Prince Consort in silver, and is 3 ft. 2½ in. in height. His Royal Highness is in a standing position, with gilt armour, copied from the figure upon the tomb of the Earl of Warwick in Warwick Cathedral. He is represented as Christian in the "Pilgrim's Progress," and around the plinth on which the figure stands is the verse from Timothy, "I have fought a good fight; I have finished my course; I have kept the faith." Behind the figure, and resting upon the stump of an oak, is the helmet of Christian. The shield of the prince rests against the stem, and near the tree are the white lilies of Purity, which are usually introduced into the pictures of the Pilgrim. Immediately beneath the plinth, and in front of the entablature of the pedestal, is the inscription:—"Given to Albert Victor Christian Edward, on the occasion of his baptism, by Victoria R., his grandmother and godmother, in memory of Albert, his beloved grandfather." In the panels are verses in keeping with the general idea.

Looking to the front of the work, a figure of Hope stands at the right side, one of Faith on the left; and behind, or in the third niche, is a group of Charity, each of oxydised silver. At the side of each figure and group there are lilies in enamel. Upon the frieze over the figure of Faith are the words, "Walk as he walked,—in Faith," the last word being inscribed beneath the figure. In the same manner, in connexion with the figure of Hope, are the words, "Strive as he strove,—in Hope;" and over the group of Charity, also in enamel, are the words, "Think as he thought,—in Charity." Over Faith there is a lily of Purity; over Hope, the water-lily, having reference to the baptism of the young prince; and over the group of Charity, and resting upon the top of the niche, there is the lily of the valley.

On the front panel, there is a figure of an infant boy looking up at a full-blown rose, which stands erect upon a perfect stem, with, beside it, a white lily; and immediately over the baby figures a bunch of snowdrops, emblematic of youth or spring. This entire group is enriched by the rose, thistle, and shamrock, tastefully introduced to form a background. The design throughout is Mediæval in character. Mr. E. H. Corbould was the designer. The figures have been modelled by Mr. W. Theed; and the work has been executed by Messrs. Elkington & Co. The inscriptions were written by the Queen herself, and the verses by Mrs. Prothero, the wife of the rector at Whippingham, near Osborne, in the Isle of Wight."

EDINBURGH NEW SHERIFF COURTS.

MANY of the Sheriff Courts in Scotland, built at the expense of the respective counties, having proved insufficient in point of accommodation for the increasing requirements caused by recent statutes, imposing additional duties on the local judges, an Act was passed 1860 (23 & 24 Victoria, cap. 79), whereby the Government undertook to disburse a moiety of the cost of providing the additional accommodation necessary. In no instance has the inconvenience from want of room been felt to a greater extent than in Edinburgh; witnesses have been kept waiting in lobbies till their evidence was called for, and the judges themselves have had to dispose of summary cases in the same undignified position.

Immediately upon the passing of the Act, steps were taken for the building of new courts; a site was fixed upon in the immediate vicinity, to the south of the County Buildings, facing George IV.'s Bridge, and Mr. David Bryce, R.S.A., was engaged as architect. That gentleman prepared a set of plans with French Gothic elevations; but these having been considered too expensive, he thereafter produced elevations in the Italian style, which were approved of, and the building is now completed, so far as the exterior is concerned. The locality is one of that peculiar nature which abounds in Edinburgh, necessitating much underbuilding owing to the difference of levels. There are four stories under the level of the bridge, one of which only is used in connexion with the Courts, the remainder being let as warehouses, which are separated from the superstructure by fire-proof vaulting. The principal façade towards the bridge is 124 ft. broad, and has two entrances, one on each flank, composed of Ionic porches; above these are two stories rising to a height of 60 ft. The windows are square-headed, those in the principal floor having triangular pedi-

ments, filled in with a radiating shell ornament; on either side are Corinthian columns supporting a dentilled cornice, which is surmounted by a balustrade having vases at the angles.

The centre part is of three stories, is 52 ft. in height, and is slightly recessed; the windows of the first story have panelled cells, and moulded architraves and cornices; and those of the second story have triangular-headed pediments, filled in with the nautilus-shell enrichment, and balustraded balconies in front. These two stories are separated by a moulded cornice, and the finishing cornice of this part of the structure has a bold projection, supported by trusses having panels between; and this cornice is also surmounted by a balustrade with vases on pedestals at the intervals between each window.

The detail, it will be observed, is of the most commonplace kind, but it is treated in a bold and effective manner; the structure is imposing and stately, but lacks that new element which is being infused into the Anglo-Italian style, and without which any new building is almost devoid of interest.

The interior is to be fitted up in a plain and substantial manner, and is to contain three court rooms, one for criminal trials, one for civil causes, and the third for bankruptcy examinations. Ample accommodation is also provided for the officials, solicitors, witnesses, &c.

By the opening up of the new thoroughfare of George IV.'s Bridge, the back of the County Buildings was exposed, presenting a very ugly appearance. Mr. Bryce has prepared a new elevation, which it is understood the Commissioners of Supply intend to carry out when the buildings come into their entire possession. It is also said, that the Faculty of Advocates propose to carry forward their library to the bridge. When these improvements are effected this locality, which has long had an unfinished and unsatisfactory appearance, will be one of the most attractive in the city.

On the opposite or west side of the bridge, Mr. Lawson, the late Lord Provost, had commenced the erection of a stately block of warehouses, but operations have been suspended owing to some objection by a neighbouring proprietor.

The new peal of bells placed in the tower of St. Giles's, has proved a complete failure; they are not in tune, and are so weak in tone that they are inaudible at the distance of a few hundred feet.

BUILDERS' CLERKS.

SIR,—After many resolves, hearing of the death of an old friend of mine, an estimating clerk, determines my desire to address you, and solicit your powerful aid in the formation of a Society for Builders' Clerks.

The *confidant* of employers,—the really practical medium between masters and men,—the man whose position through life is maintained by brainwork,—who is of unstained character,—whose stipend in many cases is small, and does not admit of much provision for the future,—is, I think, as worthy, if not more so, of assistance and an asylum in old age as many of the objects of charities so prominent in our own and other trades.

I have every belief, if started under careful management (and with the kind assistance of employers), of its success. What most will be required is co-operation amongst ourselves, and which, with spare time, energy, and a mite, shall not be wanting from PETO.

PROVINCIAL NEWS.

Taunton.—Efforts are again being made to demolish the unsightly structure situated in the centre of the town, and which satisfies the Tauntonians for the purpose of a market-house, with assembly rooms and corn exchange on each side. This movement has been set on foot before, but failed for want of a good plan to work by; but on the present occasion it is hoped it will be more successful. Several amounts have already been promised to purchase the old building.

Sunderland.—The erection of the new infirmary is at last about to be proceeded with. The tender of Mr. James Young for the erection has been accepted. The cost of the building will be much more than was at one time anticipated. Since the estimates of Mr. Potts, the architect, were first prepared, the labour market has gone up, at the same time that the working hours have been curtailed.

Dewsbury.—The corner stone of a new Masonic temple at Dewsbury has been laid. The building is to be of stone, and is situated in Stonefield-street, Halifax-road. It is from designs by Messrs. Kirk & Sons, Huddersfield and Dewsbury. The structure is Decorated in style, and is to be erected at a cost of about 700*l*.

Ware.—The Directors of the Ware Corn and Cattle Market Company have succeeded in obtaining extensive and eligible premises in the centre of the town for the erection of a market-hall, and for the purposes of a cattle market.

Dorchester.—The first section of the improvements contemplated in the Corn Exchange and General Markets has been completed. The contractor was Mr. Wellspring, of this town, and Mr. Hall, the architect. The vegetable market occupies the old site, and so do the country butchers', &c.; but while the place has been somewhat narrowed, there has been such a rearrangement of stalls that space appears to have been gained. There is an apse-like end joining the two, which is appropriated to poultry, and on the cap of the pier supporting the semicircular roof are being carved figures as emblems of the purposes to which the three sections are devoted—animals, poultry, and vegetables. The floor is paved with tiles diagonally.

RAILWAY MATTERS.

THE new Farringdon Station of the Metropolitan Railway and the extension line to Finsbury have been opened for traffic. The time occupied in running between Finsbury and the Great Western Railway at Bishop's-road is twenty-two minutes, calling at all the intermediate stations. There are to be four lines of rails on the extension line, two for the Metropolitan line proper, over which the trains now run, and which will be continued to Trinity-square, and there, by a junction with the District Metropolitan line, form a portion of the "Inner Circle" line on the narrow gauge. The other two lines are on the mixed gauge for the accommodation of the Great Western, Great Northern, and Midland Companies' traffic; but the mixed-gauge lines are not carried further at present than Aldersgate Station. They pass through the intended site of the goods stations of the Great Western and Metropolitan Railway Companies in Smithfield, the goods stations being on a level with the rail, and over the whole of which the new meat market is to be erected, on the level of the surrounding streets, which are to be 60 ft. wide. The goods stations underneath and market over them will cover several acres in Smithfield. The Chatham and Dover Railway Company can have access to the Smithfield Market, which might hereafter be extended to the Finsbury Station. The unfinished works are actively progressing under Mr. Kelk, the contractor. The permanent way has been constructed with steel rails, 84 lb. to the yard, laid on large rectangular creosoted cross sleepers, about 1 ft. 10 in. apart. Mr. J. Fowler is the engineer-in-chief, and Mr. T. Marr Johnson is the resident engineer. The new permanent Farringdon Station fronts Charles-street, a short distance to the north-east of the temporary station. It is a large station, lighted from an iron and glass roof, and has large booking-offices and refreshment-rooms. There is an exchange-gallery across the station, having stairs for enabling passengers to go from the Metropolitan trains to those of the Great Northern, and the London, Chatham, and Dover Railway Companies, and *vice versâ*. The station in Aldersgate-street has an iron and glass roof. The present terminal station is a temporary structure, close to Finsbury-pavement. The Farringdon-street and Ludgate Junctions of the Metropolitan and London, Chatham, and Dover Railways were thrown open for public traffic, under the supervision of Mr. M. Fenton, the general manager of the Metropolitan, and Mr. J. S. Forbes, of the London, Chatham, and Dover. The total number of trains which will run into the Farringdon-street Station of the Metropolitan line each day will be about 450, the number of passengers carried being proportionately great. The opening of the extension of the Metropolitan Railway to Moorgate-street has resulted in a very large accession of traffic to the line. In one day upwards of 90,000 persons were carried in the company's trains, which run to Paddington and Hammersmith; and the traffic upon the newly-opened portion is increasing daily.

The pneumatic railway under the Thames is progressing. At a short distance from Charing-cross Bridge, and between the north and south shores of the Thames, groups of piles have been driven into the bed of the river, marking out the sites for the piers and the route of the line, which will be nearly parallel with the railway-bridge. The ground for the Whitehall Station, in Scotland-yard, has been enclosed, and a coffer-dam commenced, for the formation of the north abutment. Running from the station in Scotland-yard, the line will be carried in brickwork beneath the tunnel of the Metropolitan District Railway, and then under the Low-level Sewer to the northern abutment. From this, iron tubes, of 16 ft. diameter, are to be laid on the clay beneath the river. The trough in the bed of the river is now being dredged for the tubes. From the south abutment the line will be completed to the Waterloo Station in brickwork, passing on its way beneath the Belvidere and York roads, to a terminus near the South-Western Railway Station. At the cab entrance to the Waterloo Station, in the York-road, will be the pumping station, where the engines are to be erected for working the traffic. It is expected that this pneumatic railway will be finished in about twelve months. It is proposed to extend the Whitehall and Waterloo Railway from the Waterloo Station, past St. George's-circus, to the Elephant and Castle. A second proposal has been made to construct a pneumatic railway from Clapham-common, under the Clapham, Kennington, and Newington roads, to London Bridge; and a third proposal is to make a railway from underneath Leadenhall Market to the Custom-house, by means of an iron tunnel sunk in the Thames.

THE IMPROVEMENT OF MARGATE.

THE substance of the articles in the *Builder* appears to have taken root in the minds of the Margate people; and growing out of it a scheme of Mr. Wheeler, architect, is receiving special attention; and, together with extracts from the *Builder*, the whole, with editorial remarks, forming a leading article in the *Kentish Observer*, of 21st December, has been reprinted at the request of some of the inhabitants. Mr. Wheeler's proposal, which has been under discussion in the town council, is to form a road carried upon a sea-wall rising from the sands beyond the face of the cliff, starting from a platform beside the present jetty, and so constructed as to be above high-water reach, and gradually to rise at an easy slope to the Fort-green, and join the present road of the Fort-crescent. The estimated cost is 10,000*l*., which the value reclaimed land would reduce to a considerable extent. In addition to this, and to complete the whole scheme for cliff defence, Mr. Wheeler suggests the formation of a magnificent promenade under and parallel with the Cliff-road to the fort, but extending to the whole reach of the fort, terminating just west of the Clifton Baths. The cost of this would be 17,000*l*. Messrs. Docwra & Son, the contractors, undertake to execute the works according to the plans for the sums named.

SCHOOLS OF ART.

The Keighley School.—The annual meeting of this school was held in the Mechanics' Institution, and was presided over by Lord Frederick Cavendish, M.P. His lordship gave a short address on the objects of Schools of Art, and the great national good which is sure to follow the cultivation of a taste for the beautiful and true in art. Mr. C. D. Hardcastle read the annual report, which showed the school to be in a very prosperous condition, and the success of the pupils, according to the results of the late examinations, to be equalled by few, and surpassed by none of the many similar schools in England. Lord Cavendish distributed the prizes to the students.

The Yarmouth School.—A few months ago there was a question whether this school should continue, and this involved another question, whether the School of Navigation should be given up, in consequence of the absence of sufficient support? An appeal was made to the inhabitants, and new masters—Mr. Dominy for the School of Art, and Mr. Stockton for the School of Navigation—were engaged. We are glad to learn that the result of the appeal has been favourable, and that there is now a prospect of both schools being efficiently maintained.

THE STAGE, &c.

Covent Garden.—We have no hesitation in pointing to the introduction of the pantomime here, titled "Aladdin," as the best of the season, and as good as anything of the kind of any season. It is very well written; the Paynes are marvellously funny, and something more; the groupings and dancing are first-rate, the appointments are splendid, and the veteran Thomas Grieve again shows that he is equal to any of his younger compeers on the special ground of each. Thus, while a street in Canton, with its shops, palaces, and banners, is a specimen of sound, good landscape painting, the transformation scene, with its rising fairies, the quadriga of Apollo, and mechanical contrivances, is a poetic vision full of elegance and beauty. Some of the effects of colour in the "Ballet of Jewels" are singularly charming. Mr. Beverley at Drury-lane is letting his fancy run too much upon "wheels," and has not equalled the scene in "Aladdin" to which we are alluding.

The Crystal Palace.—The Christmas entertainments have been more than usually satisfactory to the juveniles for whose entertainment they were designed.

Gallery of Illustration.—Mr. & Mrs. German Reed, aided by Mr. John Parry, continue to amuse and delight crowded audiences with "A Peculiar Family;" Mr. Parry adding "Mrs. Roseleaf's Party." No better entertainment of its kind has ever been given.

SANITARY CLAUSES OF THE BUILDING ACT.

THE medical officers of health of the metropolis have urged the Home Secretary to make certain amendments of the Metropolitan Building Act, for the purpose of sanitary improvement. They desire that plans of houses shall be deposited with the local authorities, showing the proposed method of ventilation, and provision against the rise of damp from the foundation, as well as plans of drainage; and that no drainage works or foundations should be covered in until inspected and certified by the local authorities as satisfactory; and that the materials of the foundation and basement should also be required to be satisfactory to the local authorities; that the local authorities should be empowered to regulate the area for ventilation that shall be provided at the rear or sides of houses when they are erected, when all the rooms cannot be ventilated from the public way; and where a house erected in contravention of the 29th section of the Act is nevertheless inhabited, that the local authorities should have the means of closing the house as "unfit for human habitation."

Beyond this, and to which they omit to draw attention, the regulation of attic and cellar dwellings should be made clearer, and put into other hands for enforcement. The district surveyors are unable to act.

VALUATION OF WORKHOUSE, &c., ST. PANCRAS, LONDON.

WE have mentioned briefly that Mr. Lockyer had valued the workhouse, vestry-hall, &c., St. Pancras, as against the Midland Railway Company, who wish to purchase it, at 211,000*l.* The following, published as a portion of his report, shows the way in which this conclusion was arrived at:—

"In respect of the value of the ground, which contains a frontage of 486 ft. 6 in. next the King's-road, 442 ft. on the east side, 379 ft. 3 in. on the north side, and 606 ft. 4 in. on the south side, containing 4 acres 3 roods and 33 perches, he is of opinion that this land will become very valuable for store and warehouse purposes, and that the value is 5,000*l.* per acre, or 24,000*l.*—say 25,000*l.* The land contains three frontages, and, by the formation of a street through it from east to west, it may be made to produce a rental of from 900*l.* to 1,000*l.* per annum. He is of opinion that this amount will be sufficient to purchase a site of ten or twelve acres for the workhouse, including a site in the parish for the vestry-hall, casual and receiving wards, and relief offices. To this amount 10 per cent. should be added for the compulsory sale, 2,500*l.* In respect to the valuation of the workhouse for 2,000 inmates, he is of opinion that since the increase in the price of materials and labour, the cost cannot be taken at less than 50*l.* per inmate, which is borne out by the erection of the Croydon Workhouse, the Westminster Workhouse, and the West London Union at Hollowsy; say, therefore, 2,000 inmates at 50*l.* per inmate, 100,0 0*l.* The erection of a vestry-hall, with relief offices, casual wards for 150 persons, and receiving wards for 100 persons, estimated at the sum of 18,000*l.* Fixtures and fittings estimated at 6,0 0*l.* Increased expense per annum caused by the removal of paupers, additional offices, extra expense in the conveyance of stores, &c., estimated at 2,000*l.* per annum, which, capitalised at 4 per cent., or 25 years' purchase, is 50,000*l.* The artesian well, pumps, engine, engine-house, boiler, and tank, containing 20,000 gallons of water, with the services of the engineer and assistant, and coals, after allowing for the cost of water by a company at 6*d.* per 1,000 gallons, and the consumption being 36,000 gallons per diem, estimated at the sum of 5,000*l.* The construction of gas-house, with gas-apparatus, gasometer, coals, man, and assistant, after allowing for the sum of 40*l.* paid to the Imperial Gas Company for one year's gas, from March 26, 1864, to March 25, 1865, and for the coke produced, estimated at 2,000*l.*; and the removal of the inmates, furniture, and stores from the present to the new premises, estimated at 2,500*l.* Mr. Lockyer, therefore, states he is of opinion that the compensation that the vestry of the parish of St. Pancras ought to receive from the Midland Railway Company for giving up their present workhouse, with the vestry-hall, relief-offices, receiving and casual wards, exclusive of all costs, professional and legal expenses, is *two hundred and eleven thousand pounds.*"

And he adds, by way of note, "that, until the ground given up by the parish shall be rated to an amount equal to the new workhouse building, the difference must be paid by the railway company."

COMPENSATION CASE.—A RIDING ESTABLISHMENT.

ON Monday, at the Sheriffs' Court, Red Lion-square, before Mr. Humphreys, a special jury was occupied the whole day in a railway compensation case, "Cooke and Another *v.* The Metropolitan District Railway Company," in which the claim as made was 23,605*l.* by Messrs. Cooke, of the riding establishment at Brompton, formerly connected with Astley's.

Mr. Hawkins, Q.C., with whom was Mr. T. H. Cole, appeared for the claimants; Mr. Lloyd (Mr. Holway with him) represented the company, assisted by Mr. Gadsden.

Witnesses were called on both sides, and among the witnesses for the claimants was Mr. Batty. In 1862 Messrs. Cooke had taken the place, and, as one of the firm stated, had been patronised by the "upper ten thousand." They were horse trainers and breakers, and in two years had made a profit of 1,200*l.* There were other premises to be obtained in the neighbourhood. Evidence was given as to the stock and the value of the place. A sum exceeding 11,000*l.* was put on the property.

According to the evidence on the part of the company, the worth was about 3,120*l.*; and Mr. Lloyd concluded his address by saying that if Messrs. Cooke obtained that sum, they would bless the day when the Metropolitan Railway came into the district.

Mr. Hawkins claimed a full compensation for the destruction to the business by the railway.

The Jury awarded 5,700*l.*

DWELLINGS FOR THE POOR.

THE following is a copy of a motion moved by Mr. Storr, seconded by Mr. Hedgcock, and carried, at the meeting of the Strand Union Board of Guardians, on Tuesday, January 2nd, 1866:—

1st. That a Committee be appointed to inquire into and report to this Board upon the existing house and lodging accommodation for the laboring and poorer classes within the Strand Union District.

2nd. The extent to which the immediate demolition of small house property for the new Law Courts in St. Clement Danes—for the railway about to be constructed from Charing-cross to the Hampstead-road — and for other contemplated improvements—will deprive the said labouring and poorer classes of their present inadequate and yet highly-rented lodgings.

And 3rd. After taking all necessary evidence, the Committee to consider and report to the Board their views as to the expediency of this Board communicating with other Boards of Guardians of the Poor of the various metropolitan unions or parishes, memorializing the President of the Poor-law Board, the Home Secretary of State, the Lord Mayor, the Chairman of the Metropolitan Board of Works, and the several metropolitan members of the House of Commons, with a view to this urgent public question being at once brought under the notice of the proper authorities by the guardians of the poor, in order that the Government may have time carefully to consider in what way suitable provisions should be made for dwellings for the poor before the Parliamentary Committees sit upon the very many Bills for divers new metropolitan railways, and other schemes, that will be laid before them during the coming Session.

THE SEWER IN SHADWELL.

SIR,—I am a ratepayer, and living in the neighbourhood of Shadwell; and have seen large shafts sunk to a great depth near Walburgh-street and Leman-street, which I understood was the course the intercepting sewer was to take. The works are suddenly stopped. I make inquiries, but unfortunately can obtain no information: even the members of our local legislature seem to be in blissful ignorance upon the subject. I have, therefore, no alternative but to guess the cause, or to ask you, Mr. Editor, to enlighten me in this matter. I may as well inform you that the stoppage of these works took place about the time that the Thames Tunnel Railway Bill received the sanction of Parliament. Did the levels of the sewer and intended railway interfere with each other? If so, what were our Metropolitan Board and their staff about, not to have discovered the fact before the railway company had obtained their Bill? I suppose their plans and sections were deposited in the usual way; and if there is a "cat in the bag," our local representatives ought to insist upon its being let out, as somebody will surely have to pay for the enormous shafts being sunk, and the cost of the diversion of the sewer.

A RATEPAYER.

CHURCH-BUILDING NEWS.

Stanton Fitzwarren.—In the early part of the present year it was decided to restore the church in this little village, by voluntary contributions. The matter was put into the hands of a building committee, and Mr. J. W. Hugall, of London, was chosen as architect, by whom the tender of Mr. Edward Smith, of Highworth, was accepted. The work is now completed. Mr. Hugall has preserved each feature from which the history of the fabric can be traced, commencing with the Early Norman to the present time. Two Norman doorways have been found, to the south one of which a porch of the same style has been added; a small Norman window, too, has been restored. On the walls are distinct traces of a fire; and, in restoring the Early English window in the west end of the nave, the masonry, &c., presented evidence which would fix the date of its occurrence at about 500 years since. The most modern part of the structure is the tower, which is of the debased character, and bears the date 1631. A Norman piscina was found embedded in the wall, and in good preservation; this has been replaced in the chancel. The east window is of stained glass, representing the "Ascension," and has been placed there to the memory of the late Dr. Frenchard, by his widow. The other windows are glazed with cathedral glass, in rolled sheets, each compartment having a pattern running its whole length. The roof is new, of red pine; the seats, open benches of the same material; the chancel fittings being of oak. The floor is paved with Minton tiles of different patterns.

Southport.—The chapel, and that portion of the ground of the new cemetery set apart for the interment of deceased members of the Church of England, have been consecrated. The cemetery is situated about half a mile from Southport, at a short distance from the Ormskirk-road. It occupies nearly nine acres of ground, one-half of which is devoted to members of the Church of England, the other half being divided between Roman Catholics and Nonconformists. The chapels (of which there are three) have been built from the designs of Messrs. Blacklock, Son, & Booth, architects, of Manchester and Southport; the builders being Messrs. Statham, Brothers, of Southport.

Bolton.—The Bishop of Manchester has consecrated the church of St. Paul, at Bolton. The sum of 8,000*l.* has been expended upon it, including the purchase of the site. The whole of the 8,000*l.* has been subscribed by inhabitants of Bolton, except 300*l.*, which had been granted by the Manchester Diocesan Church Building Society. The church provides accommodation for 1,173 persons, of which number 759 have seats appropriated to them, and the remaining 414 are free.

Haggerston.—The foundation of a new church, dedicated to St. Augustine, has been laid in the parish of Haggerston, adjoining Shoreditch, by the Right Hon. G. J. Goschen, M.P., Vice-President of the Board of Trade. The church is the first of three to be erected in this parish by the Shoreditch and Haggerston Church Extension Committee, aided largely by local contributions, and to a less extent by subscriptions from the Bishop of London's Fund and from the Incorporated Church Building Society. Upwards of 1,800*l.* are required to meet the approximate expense of constructing the building. It is designed by Mr. Woodyer, will be in the Middle Pointed style, and will be built to accommodate 900 persons free.

Sandhurst.—The church of Sandhurst has been reconsecrated by the Bishop of Oxford. It has been found necessary to build a spacious north aisle, to rebuild the chancel on a large scale and to add chancel aisles and a vestry to the church, which was itself mainly new. The style is Early English, and it has been maintained throughout. The east end is nearly filled with a lofty triplet, and lightness is imparted by wide arches on each side of the chancel. The floor, which rises by six steps to the altar, following the natural slope, is laid with encaustic tiles.

Peasemore.—The new chancel of Peasemore Church has been consecrated. In February last the work of taking down the old chancel of the church was commenced; but it was felt that the church was incomplete without a chancel, and that a western gallery was not the proper accommodation for the choir and organ. Designs for the new works were supplied by Mr. G. E. Street, and have been executed by Messrs. Wheeler, of Reading. The parish is indebted to

the Rev. T. Archer Houblan, the rector, for taking upon himself the main expense of the building, including an arch at the west end, which has opened the tower into the church; twenty-five years ago he entirely rebuilt the church, excepting the tower. The two windows on the north side of the chancel are memorial windows, the subjects being respectively the Adoration of the Wise Men, and the Appearance of the Two Angels to the Women at the Tomb. They are the work of Messrs. Clayton & Bell. The old east window retains its former position, but the colouring of the glass has been improved by Mr. Wailes, of Newcastle, who executed it several years ago. It consists of three compartments, surmounted with tabernacle work and pinnacles. The centre has a representation of the Agony in the Garden, while the side compartments are panelled with green and inlaid marbles. It is chiefly carved in Caen stone, and was executed by Mr. Earp, of Lambeth. The chancel is divided from the nave by a low screen with iron gates. A pulpit, formed of six columns of green Egyptian and purple Welsh marble, has been presented.

Friday Bridge.—During the last month some additions have been made to the furniture and permanent ornamentation of St. Mark's Church, Friday Bridge, by clerical and lay friends of the new parish. In particular, painted glass for plain has been substituted in two instances in the chancel windows. On the south side a single light has been inserted, "To the memory of a beloved Mother," the donor being a gentleman resident in Kent, who has requested the remainder of the window to be reserved for completion hereafter, either by himself or by some relative. The subject is the Mother of our Lord. On the north side an entire window has been given by a gentleman about to settle in Friday Bridge, who had previously contributed to the fund for erecting a tower; the subject is our Lord's reproof of St. Thomas's incredulity, and that apostle's penitent confession. The artists were Messrs. Heaton, Butler, & Bayne, who furnished the window for the chantry some little time ago, and the work has again been superintended by a young amateur in stained glass residing in Wisbech, whose own gift for the head-tracery of the east window forms a feature in the church.

Books Received.

A Handy Book of Sanitary Law. By MALTIN WARE, Jun. Esq., Barrister-at-Law. London: Bell & Daldy. 1866.

THIS little sixpenny "handy book" has been published under the authority of the Society of Arts, and prepared for them by Mr. Ware, in consequence of a recommendation to that effect from the Society's Committee on the Dwellings for the Labouring Classes. In their report they say:—"The present sanitary laws are comprehensive, and, on the whole, efficient, although there are some particulars in which the committee think they require amendment, especially with relation to the inspection of houses let to lodgers, but not now subject to the provisions of the Common Lodging Houses Act. The provisions of the Sanitary Acts are not, however, sufficiently known; nor do those who are qualified by intelligence and position to attend to the sanitary condition of their own neighbourhood interest themselves as much as could be desired in seeing that the powers of the law are put in execution." The committee, therefore, recommended that the council should prepare and publish a concise analysis of the existing law, hoping thereby to call the attention of the educated classes to this important subject, and to point out how they may, merely by a little attention and exertion, confer most important benefits upon a large mass of working people, and upon the country generally. The work is well adapted to its purpose: it points out the laws that refer to all such subjects as common lodging-houses, overcrowding, ventilation, water-supply, drainage, offensive accumulations, pig-keeping, offensive trades, infectious diseases, &c.

British Association, 1865: Report of the Proceedings at the Birmingham Meeting. London: Hardwicke. 1865.

THE publisher of this volume announces his intention to issue the work yearly, the matter being carefully collated, and revised by the various speakers. Imperfections in the present issue are admitted, these having arisen in consequence of the idea of the work not having been matured or finally resolved upon till rather late for revisal by some of the speakers at the Birmingham meeting. The volume is well collated, however, and forms an interesting and useful record of the proceedings.

VARIORUM.

Is it too late to say a word about "Dr. Marigold's Prescriptions?" Is it ever too late to say a word in favour of a good thing? Surely not, especially if it have no need of the good word, and be independent of aid. These "Prescriptions," gathered together, concocted into a whole, and introduced by Mr. Charles Dickens, in a happy vein of humour and pathos, moving to healthful laughter that brings a pleasant tear, are now probably in 150,000 houses, perhaps more. Still, if only for our own satisfaction, we will add our commendation to that of our contemporaries, and heartily wish Mr. Dickens good health and long life to continue his admirable and delightful contributions to the literature of his country, and the gratification and advantage of his countrymen and countrywomen.——Messrs. Day & Son have prepared a fresh issue of "Passages from Modern English Poets. Illustrated by the Junior Etching Club." The volume, those readers who do not know it may be told, consists of forty-seven etchings, with passages from poets, which suggested, or might have suggested, the scenes and groups, selected by the late Alaric A. Watts. Mr. J. Clark, Mr. Millais, Mr. M. J. Lawless, Mr. Walter Severn, Mr. H. Moore, Mr. F. Smallfield, and Viscount Bury, are the most successful.——The *Popular Science Review*, edited by Henry Lawson, M.D. No. 18. January, 1866. Hardwicke. There are interesting papers in this number of the *Popular Science Review*, upon "Ozone in Relation to Health and Disease," by Dr. Richardson; on "Glaciers and Ice," by W. F. Barrett; and various others, besides the usual and valuable scientific summary and reviews. The number is illustrated, as usual, by engravings, some of them in colours.——The *Farmer* (Layton, 150, Fleet-street) is a substantial, broad-sheeted, John Bull looking newspaper, two numbers of which are now before us. It has reached its sixth volume as a new series, having been first of all established in 1843. The contents are varied and instructive to those for whom it is intended. Sanitary matters as regards the farm are not overlooked, and horticulture and gardening are features in its composition.—— Hardwicke's Science Gossip for January contains a paper of some importance on vegetable fibres illustrated by engravings of the minute structure of such fibres, as seen by the microscope.——The new year's number of the *Art-Journal* has three page engravings, including an excellent translation, by Mr. Lightfoot, of Mr. Faed's "Orphan." Mr. De Keyser, of Antwerp, is treated of by Mr. Dafforne, and Mr. Ruskin resumes his papers, "The Cestus of Aglaia." Mr. and Mrs. Hall commence an interesting notice of Southey.

Miscellanea.

WATER SUPPLY AT TRURO.—For the Truro water-works it is intended to form a large collecting reservoir under Trennery wood, on the river Allen, in St. Erme, with filter-beds, and a service reservoir which will be 175 ft. above the surface of Boscawen-street, and will give a pressure sufficient to carry the water above the highest houses in Truro. The supply will be equal to 20 gallons per day for every inhabitant. Water will be supplied to occupiers of small houses for about 2d. per week each house.

INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS, 1866.—The attention of students in drawing is especially drawn to the following prizes offered for botanical drawing:—"Water-colour drawing of any plant, British or exotic, natural size, with the usual magnified dissections; to be drawn or mounted on folio paper, and to combine scientific accuracy with artistic treatment. 1st prize, 5*l.*; 2nd prize, 3*l.*; 3rd prize, 2*l.*" Candidates will observe that these drawings must be sent to the executive committee at the Royal Horticultural Gardens, South Kensington, by the evening of Monday, the 21st of May.

SOUTH KENSINGTON MUSEUM.—During the Christmas week, ending 30th of December, the visitors were 27,754 in number.

WORKING MEN'S COLLEGE.—The annual *conversazione*, or social meeting of the college and their friends, including ladies, will be held, this, Friday evening, the 5th inst.

BOOKMAKING.—In the past year, according to the *Publishers' Circular*, their list comprises no less than 4,952 titles—or, deducting the American works, and books whose titles are recorded only on the occasion of their being advanced or reduced in price, we have no less than 4,496 new publications added to our national library during the last year.

A NEW LINE OF THOROUGHFARE BETWEEN ISLINGTON AND THE CITY.—A report on this new proposal has been made by Mr. Haywood, C.E., to the City Commissioners of Sewers. The projected route, it is said, would shorten the distance nearly half a mile, besides relieving the main thoroughfare. The line of road would not be so broad as the present line of City-road. It would consist mainly of partial lines of thoroughfare already in existence, but defective from narrow straits and stoppages which would require to be opened up. The line would start from Fore-street at a right angle with Moorgate-street and the present route; and would run northwards by Moor-lane (to be widened), Bunhill-row, Sheperdess-walk, and Packington-street, to St. Mary's Churchyard in Upper-street, Islington. The lower part of the route to City-road, which it crosses, does not seem to shorten the way much, but the upper portion, through Shepherdess-walk and Packington-street, would cut off the long angle by the Angel; and indeed pedestrians often do so already in going to and fro between Islington and the City. From various circumstances the cost at present of opening the line of thoroughfare would, it is believed, be comparatively moderate.

GREAT FIRE AT ST. KATHARINE'S DOCK.—Much alarm has been created by the outbreak of another very serious fire at the St. Katharine's Dock, making the third that has occurred in that great commercial shipping depôt within the last few years. It raged with terrible fury at first, during a whole day and night, consuming part of two of its bonded warehouses, and destroying property to a very large extent. The warehouses formed part of the letter D and other stacks of warehouses, occupying one-half of the north side of the docks. The stack contained some eight or ten warehouses, each four or six floors in height, all communicating on every floor by means of double iron folding-doors. The principal goods stored in these warehouses are spirits, tallow, palm oil, cotton, flax, jute, and other merchandise, to the extent of upwards of 2,000,000*l.* value. The floor in which the fire originated appears, as in a former case, to have been filled with jute, the whole mass of which when first seen, was on fire. The damage will exceed 200,000*l.* After the fire was thought to have been subdued it broke out again and made still further havock with the property. Incendiarism is suspected. The damage to the warehouse buildings alone is estimated at £30,000.

LIVERPOOL ARCHITECTURAL SOCIETY.—This Society met on Wednesday evening, 27th ult. Mr. Joseph Boult, in the chair, said, since the last meeting he had been present, as president of the Society, at the opening of the session of the Manchester Architectural Association. There were strong expressions of goodwill towards the Liverpool Society, and a desire that the two societies should work together, and meet together as much as possible. It was particularly thought that they might combine in their annual excursions, and that the meetings of the architects of Manchester and Liverpool in this manner would be agreeable and beneficial to both. The hon. secretary (Mr. Hermann) announced that the second subject for competition by the student members was a drawing-room chimney-piece in the Elizabethan style. Mr. Chantrell exhibited some samples of the new brick made from lime and sand. The paper for the evening was by Mr. George Monier Williams, on "Artificial Stone, with especial reference to the Patent Concrete Stone of Mr. Ransome." The Society also considered the proposal of the Architectural Alliance, that the bills of quantities, in future, should form part of the contract for a building.

LONDON HOUSES.—A correspondent points to the circumstance that at a recent sale for clearance for the North-Western Railway, the "materials of two houses," in Finsbury, were knocked down for three pounds! and asks if it be possible that buildings of that kind exist in London.

WORKING MEN'S SANITARY CLUBS.—Dr. Aldis proposes the establishment of sanitary clubs among the working classes. If they would resolve to help themselves by pointing out to the medical officers of health the existence of contagious diseases in their families, which information they could obtain from the medical attendant; or to the inspectors any nuisances; good would certainly result.

THE FARM LABOURERS' MOVEMENT IN SCOTLAND.—A meeting of ploughmen and farm servants has been held, according to the Edinburgh papers, in the Free School-room, Davidson's Mains, when steps were taken to obtain an advance of wages. James Thomson, of Corstorphine, was called to the chair, and made a sensible speech; as also did Thomas Ewing, a ploughman, at Myreside. Various rules adopted by the Midlothian Farm Servants' Protection Society were read to the meeting. Alterations were suggested, and upon these some discussion took place, and a further revision was resolved upon.

ENAMELLED IRON FOR ARCHITECTURAL AND DECORATIVE PURPOSES.—Enamel on iron is used for many purposes besides lining domestic iron pots instead of tin, and iron water-pipes instead of lead. Ornamental and coloured grate-fronts, panels, tiles, medallions, &c., are now made of enamelled iron by Mr. Benjamin Baugh; as also small buildings of enamelled corrugated iron; and there are, also, enamelled iron tablets, sign-boards, name-plates, &c. Enamelled iron is said to be preferable to galvanized iron for external purposes, as in roofing; and it is proposed to form grave-stones of enamelled iron in colours. The introduction of coloured enamel for decorative purposes is a good idea.

THE PROPOSED MACCLESFIELD INFIRMARY.—A meeting of the committee was held at the town-hall, to consider Mr. Currey's report on the plans and designs, and the observations of the architects upon the same, and to recommend one of the plans for adoption by the subscribers. The committee came to the following resolution: "That the internal arrangements of Mr. Stevens's plans of the Infirmary possess, according to the medical testimony, the highest merit; and the committee are of opinion that Mr. Stevens should be engaged as the architect, subject to such alteration of his plans and designs as the committee may hereafter suggest." We understand the committee were not unanimous; Mr. Currey having reported in favour of Mr. Waterhouse's plan.—A meeting of the subscribers will be held on Monday, the 15th of January, at the town-hall, to receive the report of the committee. All the plans and designs will remain in the assembly-room at the town-hall, for inspection.

ANOTHER TENEMENT DESTROYED IN HIGH STREET, EDINBURGH.—A severe gale, on Saturday last, caused a chimney, in High-street, to fall into the tenement to which it belonged, and through the several floors of which it broke, till it reached the first floor or flat, where it was stopped by strong erections connected with the kitchens of a temperance hotel. Although ten families, numbering in all, with lodgers, about sixty persons, resided in the tenement, and although the accident was sudden, and almost at midnight, strange to say, not one was injured. The house is not more than half-a-dozen numbers removed from the scene of the disastrous calamity which took place under circumstances somewhat similar in 1861, and which was attended with so serious a loss of life. The tenement, according to the *Scotsman*, is, comparatively speaking, not an old one. The part of the chimney which gave way was a brick erection, built on the top of a stone foundation, and, it is said, had been observed tottering or swaying slightly in the high winds which had prevailed for two days before the accident. The heavy mass of *débris*, falling on the back roof of the house, broke through it like a shell, and went crashing through flat after flat. Almost the entire floor of three rooms and part of a lobby in each "house" was thus carried away. The greater part of four "houses" was thus destroyed, and several others adjoining were much damaged.

INTERNATIONAL PHOTOGRAPHIC EXHIBITION.—The Royal Society of Fine Arts of Ghent have determined upon a grand international exhibition of photographic objects. It will be under the joint patronage of the Belgian Government and the town. Communications should be addressed to M. de Wylder, Ghent.

CITY OF LONDON FREE PUBLIC LIBRARY.—The corporation of the City of London have unanimously voted the use of the recently restored Guildhall for the purposes of an Industrial Exhibition, to be inaugurated on the 1st March next. On the motion of Mr. Thomas Lampray, F.R.G.S., member of the General and Executive Committees, it has been determined to devote the surplus funds towards the establishment of a free public library for the City of London. Several City firms have already expressed their intention of liberally contributing to the project, and it is believed the corporation will also lend its aid.

SOCIETY FOR PROMOTING THE EMPLOYMENT OF WOMEN. — The Committee of this Society call attention to the distress now existing among women, and to the necessity of opening out new branches of employment for them. The main object of this society is to introduce respectable girls, through the medium of apprenticeship, to such trades as are suited to their powers. In order to carry out the objects of the Society considerable funds are needed, and the committee have confidence in soliciting the assistance of all who desire to further the welfare of the people, by cultivating a spirit of self-respect among women. The office is at 19, Langham-place.

PIPE SEWERS *v.* BRICK SEWERS.—Several reports have been made to the vestry of St. Luke's parish, Chelsea, by their surveyor, Mr. Joseph Pattisson, in which it is stated that the pipe sewers are not working satisfactorily by comparison with the brick sewers; but whether this proceeds from any defect or peculiarity in laying the pipes does not appear. The results are rather contradictory of former experience. In Kilburn-lane, it is said, there was a deposit of 4 in. in the 9-in. pipe sewer; and in the Harrow-road, a deposit of 4 in. in the 9-in. and 12-in. pipe sewer. In the same report, however, it is stated that in the Plough-lane 12-in. brick sewer there was a deposit of about 6 in. Some of the pipes referred to in the reports were admittedly very irregularly laid, and the house-drain junctions badly connected.

MANUFACTURE OF WHITE LEAD.—Mr. J. H. Chadwick, of Boston, Massachusets, has invented some improvements in pots for corroding white lead, and it consists in forming, at a suitable height within the pot, an uninterrupted circular ledge, whereon the buckles of lead are allowed to rest. This ledge is made by contracting the diameter of the lower part of the pot, or, in other words, increasing the diameter of the part above the part which forms the basin for the acid, so as to make a horizontal circular shelf, which divides the basin reserved for the acid from the space above, which is reserved for the buckles of lead. The pots are, in consequence of this construction, stronger than when made after the form in ordinary use, and they are more easily cleaned. The buckles rest upon the ledge, which furnishes a broad surface for them to rest upon, so that they cannot easily be displaced or be crushed and broken down, and forced into the acid.

COLOGNE CATHEDRAL.—At the last meeting of the society for the completion of Cologne Cathedral, it was stated by the master architect, Mr. Voigtel, that with the aid of the present resources, which yield annually 250,000 thalers, the two towers, together with all the statues and ornamentations within and without the dome, will be completed within ten years. The *Pall Mall Gazette* says,—Instead of the four millions asked for by the late architect, something over half that sum will now be sufficient—both materials and transport having become cheaper—for the completion of the work of many centuries. In three years from this time the northern tower will be finished, and with this the well-known crane the symbol of Holy Colonia will disappear for ever. In two years' time a locomobile will be seen lifting up the stones for this tower, and doing, within less than an hour, with the aid of two men, work which took in the Middle Ages sixty men for a whole day. At present for every foot in height this tower costs the sum of 5,700 thalers (810*l*.).

THE NATIONAL PROVINCIAL BANK OF ENGLAND In addition to the names we have already given of parties by whom the several works were executed, we would add that the whole of the safes, together with the doors, iron linings, and fittings of the strong rooms, also the large folding iron doors of the main entrances, were constructed and supplied by Messrs. Chubb & Son.

CASTING OF A GREAT CYLINDER.—The operation of casting the largest cased cylinder ever manufactured in Lancashire has just taken place at Mr. George Bayliff's Soho Foundry, Cranmer-street, Vauxhall-road, Liverpool. Its weight, when finished, will be 30 tons, and 42 tons of iron were altogether melted. The dimensions of the cylinder are—Bore, 94 in.; stroke, 4 ft. 6 in.; square over all, 11 ft. by 10 ft. 6 in.

EXCLUSION OF FOUL GAS FROM GASHOLDERS. A correspondent of the *Gas Journal*, Mr. H. P. Stephenson, offers a suggestion for preventing the accidental passage of foul gas into supply mains. "To remedy this evil," he says, "I have recommended the introduction of a large purifier between the gasholders and the governors, to be always charged with oxide [of what?]; and this system has been found so useful on various occasions, that I think it should be more generally adopted. Care must be taken that the layer of oxide in the purifier should not cause any practical decrease of pressure."

BURSTING OF A COFFERDAM. — The North-Eastern Railway Company are making extensive alterations near Malton, for the purpose of removing the long wooden viaduct carrying the Malton and Thirsk Railway over the Derwent Valley. This is to be replaced by an iron bridge of one span across the river, and land arches on either side. A cofferdam has been formed in the river for the main pier on the Malton side, but on excavating about 10 ft. of clay a bed of quicksand was tapped abounding with water, which poured in so fast as to cause the bursting of the cofferdam, and the consequence is that the works are for a time suspended. The quicksand underlies the bed of the river, and the foundations will have to be taken below it. Meanwhile the wooden viaduct is being strengthened.

RAILWAYS TAKING LAND FOR PURPOSES OF THIRD PARTIES.—In the case of Vane *v.* The Cockermouth, Keswick, and Penrith Railway Company, the company, whose line of railway was about to cross a lake, during the negotiations for purchase with the owner of the lake, served a notice upon an adjacent landowner to treat for a piece of land within the limits of deviation on the company's plans, the company intending to again convey the piece of land to the owner of the lake, as it would be convenient to him as a landing-place for boats, &c. It was objected, on the part of the plaintiff, that as the land was not required for the purposes of the railway, the company could not take the land under the powers of their Act, which did not enable them to take land to convey it to another person. Vice-Chancellor Kindersley concurred in this view, and granted a perpetual injunction restraining the company from taking the piece of land.

OPENING OF THE HIGHTOWN INSTITUTE AND GYMNASIUM, CHEETHAM, MANCHESTER. — The committee of the Hightown Young Men's Institute, Cheetham, have erected a public gymnasium, as a means of providing healthy exercise during the winter months for the young men in the neighbourhood. The building has just been opened with a public meeting and tea-party. It has been erected by Mr. John Thompson, of Cheetham, from the design and under the superintendence of Messrs. Clegg & Knowles, architects, Manchester, and is of brick, with stone dressings. The front towards the street is panelled to correspond with the adjoining schools, with which it communicates by large folding doors. The internal measurement is about 60 ft. by 20 ft., and the height about 14 ft. to the springing of the roof above, which is a continuous lantern. The roof is carried by a series of framed queen-post trusses visible in the room, and from which the swings, trapeze, and other apparatus are suspended. Ventilation is secured by louvre openings under the lantern on all the four sides, which can be closed at pleasure by cords and pulleys attached to the walls inside. The fittings have been made by Mr. Gresty, and Messrs. Orme & Sons have supplied the Indian clubs, masks, foils, and other implements required.

COTTAGE HOSPITALS.—The Salisbury and Winchester journals state that a cottage hospital for the benefit of the poor on the Savernake estates and in the towns of Marlborough and Ramsbury, is about to be established at Marlborough by the Marchioness of Ailesbury, who has undertaken the entire expense.

THORNTON HEATH COMPETITION.—The premium of fifty guineas offered for the best design for laying out, for building purposes, an estate, situated at Pollard's Hill, consisting of seventy-three acres, has been awarded to Mr. John Marshall Hooker, of London, architect. There were thirty-three competitors, some of whom, we are told, sent two and three designs.

NEW PAINT.—An improved pigment has been patented by Mr. D. P. Fliun, of Geneva, New York, composed of oxide of zinc, slacked lime, resin, milk, and linseed oil, which, it is claimed, is better for the inside work of houses than oil paint, inasmuch as it is more durable and retains its white colour longer: it dries in two hours.—*San Francisco "Mining Press."*

IMPROVEMENTS IN MORTAR MILLS.—An invention has been patented by Mr. John Raines, of Dukinfield, machinist, and consists, firstly, in causing the runners of mortar or other such mills to be pressed upon the bed by a spring or springs; secondly, in mounting the mill upon a framework which also carries a hoisting apparatus and an engine for driving the same, the whole constituting an apparatus complete in itself. The *Engineer* of 22nd December, illustrates a formal description of the invention by engravings.

LAKE-DWELLINGS.—In addition to the lake-dwellings already discovered in Switzerland, Ireland, and elsewhere, the remains of a large number of such dwellings have been recently discovered on the shores of Lake Constantine, and in places not hitherto explored. At a place called Uberlingen, 10,000 piles, which formerly supported the houses of the singular semi-aquatic race who once inhabited most of Europe, have been found, and 30,000 have been counted at Sipplingen. Large quantities of stone knives, hatchets, arrow and lance heads, as well as a number of weapons and instruments in bronze, bone, horn, and ivory, have been found among the piles. The most curious discovery was, however, a rude vessel made of glass. Great quantities of the bones of the giant stag and other extinct animals, as well as those of existing species, were also found. Only one human bone, a parietal one, has been discovered. Researches are still in progress.

SUNBURY.—A new Wesleyan chapel has just been erected, at a short distance from the railway station, and will in a few days be opened for service. This building, Early English in style, is of stock brick, with Bath stone dressings; red and white Suffolk bricks are also freely introduced in the arches, bands, &c. It consists of a school-room on the ground-floor, 45 ft. by 25 ft., entered by a porch, and having a class-room attached, as well as proper conveniences. The first-floor is occupied by the chapel, which is seated for 200 persons, and by the vestry adjoining. The west-end of the chapel is lighted by three lancet windows, having external joint shafts of Bath stone, with moulded caps and bases. A stone cross terminates the western gable, and a smaller one the porch. Small lancets light the sides of the chapel, under each of which are two for the school below. At the east end are three lancets of equal height, with a vesica over. These three have rubbed slate shafts, with carved stone caps and moulded bases. All the windows are glazed in small quarries. The chapel is entered by a porch on the south side, and also by a door at the north-eastern angle. Slates of two colours, surmounted by Staffordshire ridge tiles, cover the roofs, in ornamental patterns, while the interior is boarded, and the principals stained and varnished. The communion rail and the pulpit on its south side, are of pitch pine, and with stained and varnished open benches, complete the fittings of the chapel. Ornamental wrought-iron hinges carry the external doors; wrought-iron standards, painted and gilt, support the communion-rail; and three wrought-iron candle coronæ light the chapel. Each portion of the building is warmed by a separate stove. The contract sum (exclusive of school fittings), was 735*l*. Mr. Hoole, of Craven-street, London, was the architect.

SOUTH-EASTERN INDUSTRIAL EXHIBITION.—This exhibition, which was opened by Viscount Sydney in October last at Greenwich Hospital, will be finally closed on the 13th instant, when the prizes and certificates will be awarded. The exhibition has been visited by upwards of 75,000 persons, and the whole of the children belonging to the various schools of the districts have been admitted free.

NARROW ESCAPE OF ST. CUTHBERT'S CHURCH, WELLS.—Sparks of fire were the other day noticed coming out of the tower of St. Cuthbert's Church, and also a glaring light. A fire had been lighted in the bell-chamber for the purpose of melting the grease which had been applied to the bells that day, and had not been properly extinguished: it had set fire to some woodwork in the bell-chamber. It was luckily observed just in time, and was soon put out.

AN IRON THEATRE FOR THE DIGGINGS.—A theatre for the "new rush" at Hokitika is being constructed in Sydney, under the superintendence of Mr. James Bartlett and Mr. W. Dind, with a large hotel attached. The building is of iron, and will be 150 ft. long, 45 ft. wide, and 23 ft. width of stage, with a depth of 30 ft. There will be a dress-circle, stalls, and pit, and a handsome portico entrance. All the decorations and scenery are to be made in Sydney, and taken down with the building. The hotel is to be fitted with every convenience, including bath-rooms, and will have two American bars, 20 ft. by 15 ft.

THE SANITARY STATE OF IRISH TOWNS.—A paper on the unhealthiness of Irish towns, and the want of sanitary legislation, was lately read before the Statistical and Social Inquiry Society, by Dr. E. D. Mapother, the Dublin medical officer of health. We cannot go into the subject here, but may refer, for a full report of the paper, to the *Medical Press* of 20th December. After pointing out the benefits which are now to be looked for from recent legislation on the sanitary state of Dublin, Dr. Mapother goes *seriatim* into the sanitary and other statistics of many Irish towns, showing that fever is not only epidemic as in other countries, but endemic, as it has indeed been for centuries; being the reigning disease in Ireland. The remedies he proposes are those which have been for many years in operation in this country.

TENDERS

For Bedford Hotel, South Hackney. Mr. Peter Dural, architect:—

Wood	£3,052	0	0
Read & Son	2,941	0	0
Perry	2,837	0	0
Carter & Son	2,831	0	0
Ennor	2,803	0	0

For alterations to a warehouse in Noble-street, City. Mr. Herbert Ford, architect.—

Palmer & Son (accepted)	£200	0	0

For building a public-house, North Woolwich-road, Plaistow. Mr. J. W. Morris, architect. Quantities supplied:—

Heiser	£1,250	0	0
Rivett	1,223	0	0
Sheffield	1,179	0	0
Cordery	1,074	0	0
Kilby	990	0	0
Ennor	979	0	0
Stevens (accepted)	885	0	0

For the erection of a College at Barnet, Herts, for the Rev. J. W. Bell. Mr. John Ladds, jun., architect:—

				If White Mansfield in place of Kett n Stone, add.		
Rhodes & Roberts	£8,534	0	0	£47	0	0
Thomas & Jenkins	7,497	17	0	...		
Colls & Son	6,938	0	0	120	0	0
Nutt	6,550	0	0	...		
Stacey & Garrett	6,338	0	0	12	10	0
Cushin	6,120	0	0	40	0	0
John W. Sawyer	5,922	0	0	60	0	0
Miskin	5,403	0	0	30	0	0
Donnelly	4,340	0	0	30	0	0

TO CORRESPONDENTS.

The Heading of the New Volume, and the Initial Letter, were designed, and drawn on the wood, by Mr. Henry Godwin, architect, by whom also the initial letters in many of our previous volumes were produced.

J. P.—B. G.—J. R. M.—R. K.—A Humble Practiser—G. D—H.—M.—B. & E.—Dr. D. O. E.—C. C. H.—R. L. B.—T. L.—E. H.—T. B.—P. L. O. D—W. O—J. A. M. (letter shall be forwarded), at S. A. (address "The Secretary, Society of Antiquaries, Somerset House").—J. W. H. (next week).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, and necessarily for publication.

NOTE.—*The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.*

The Publisher cannot be responsible for ORIGINAL TESTIMONIALS *left at the Office in reply to Advertisements, and strongly recommends that* COPIES ONLY *should be sent.*

NOTICE.—In consequence of the increase in the circulation of "THE BUILDER," as well as in the number of the Advertisements, it is found necessary to go to press some hours earlier than heretofore. The insertion of Advertisements in the ensuing Number will therefore not be guaranteed unless they are delivered at the Office before **THREE o'clock** *in the Afternoon of THURSDAY, instead of Five o'clock, as previously fixed.*

TO SUBSCRIBERS.

The INDEX to volume of last year will be given in our next number.

The TWENTY-THIRD VOLUME of "THE BUILDER" (bound), for the year 1865, *will shortly be published, price One Guinea.*

CLOTH CASES for binding the Numbers are NOW READY, price Two Shillings and Ninepence.

A COLOURED TITLE-PAGE can be had, Gratis, on personal application.

SUBSCRIBERS' VOLUMES will be bound on being sent to the Office, at a cost of Four Shillings each.

[ADVERTISEMENTS.]

TO THE EDITOR OF "THE BUILDER."

5, Lord-street Chambers, Liverpool, December 23, 1865.

SIR,—It has been said that "anything remarkable—anything strikingly good—is sure to produce a host of imitators, who crib without acknowledgment and copy without intelligence." A most remarkable instance of the truth of this aphorism is to be found in the last number of the *Builder*, No. 1,193, dated 16th inst. I refer to an illustration and lengthy notice of composite shipbuilding at Sunderland. Correctly speaking, it is an advertisement of *one* out of several firms in Sunderland who are all building and have built composite vessels. What makes this so remarkable is the fact that the firm named were defendants in an action, tried at Westminster, ten days *before* the appearance of the article. The trial took place before Mr. Justice Byles and a special jury, lasting four days, during which the most eminent counsel and talent in the shipbuilding profession were engaged on both sides. The jury found a verdict for the plaintiffs upon all the issues tried; and this verdict, so far from complimenting the defendants as having "*revived and improved the practice of composite shipbuilding*," fixed upon them the using of a patented invention dated 1849, and renewed in 1863 by the Privy Council. The letters patent were granted to me, and the jury found a unanimous verdict that the invention, as a whole, was quite new, and also that the several parts of the invention set forth in the specification were also new at the time when the original letters patent were granted. For instance, an independent rigid iron frame, capable of being planked over, was found to be new; and the several parts going to form the frame were also new, as the keel-plate, the stem-plate, the stern-plate, the continuous keelson turned up at the ends and secured there, the curved girders, and stringer attachments, as well as beams, floors, and stanchions,—all making, in the manner described, a perfect independent iron frame, to which wood keel, wood stem, wood sternpost, and wood planking could be attached. The defendants did not deny the use they had made of the patented invention, but affirmed that I was not the inventor, and that Walters, 1824; Watson, 1839; and Ditchburn, in 1841, had forestalled the invention, and that the patent was invalid in consequence. His Lordship,—in summing up the evidence of Watson, Ditchburn, and Patterson, who had built upon Ditchburn's patent, all of these gentlemen being present and examined at great length,—remarked that theirs was no rigid independent iron frame at all, but *only an assemblage of iron ribs*, held together by wood beams, wood keelsons, wood stringers, and floors, and the like; whilst Walters

The Builder.

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The Public Health a Public Question.

NOTWITHSTANDING the existence of boards of health and of considerable powers given by Acts of Parliament to "authorities" of various sorts, some of the simplest and most obvious of much-needed sanitary wants remain unsupplied. We hear, however, a little piece of good news. At a meeting of the Islington Vestry, the other evening, a report was brought up recommending that proceedings should be taken against the owners of Sutton-gardens, in the neighbourhood of the Caledonian-road, to compel a proper supply of water. The mover for its adoption said this "place" was in a most deplorable condition, for the only "provision," if it might so be called, for supplying the inhabitants of the houses with water, was an old rotten butt, sunk 3 ft. or 4 ft. in the ground, close by a footpath, and without any covering to protect it from rubbish being thrown in. The owner, on being spoken to, said that the people might take the water when it was "coming in," and store it in their own homes, —places, the speaker said (and as we know), most unfit for such a purpose. The seconder said that the whole water-supply of the parish (by the New River Company) was most inadequate. In a conversation which followed, the different speakers expressed a very strong opinion that the New River Company should be called upon *to supply water on a Sunday*, for not only were the lower class of houses left without, but inhabitants of houses of a large size often found their cisterns quite empty all day on Sunday. The motion for compelling the owners of the houses to put on a proper supply was unanimously carried, and proceedings, it was understood, would be immediately taken, as the owners had before been called upon, without effect, to do this work.

Having perseveringly urged, for fifteen or sixteen years, in all sorts of ways, with pen and pencil; deprecatingly, mildly, vehemently, now tragically, then amusingly, but always in sad and sober earnest; that a large amount of evil might be mitigated by giving the houses of the poor a supply of water on Sunday mornings, it is cheering and refreshing to find the idea at length taking root even at one vestry meeting. In 1854, after pointing to hundreds of houses where on Saturday afternoons we had found the receptacles, such as they were, empty, and with no means of replenishment till Monday, we wrote,—"For those, then, who say our general subject [sanitary improvement] is too vast for them to touch, here is a simple, practicable point for their operations,—*a supply of water to the poor on Sunday mornings.*" And this we have been repeating in all sorts of words ever since. One Saturday evening, thirteen years ago, we were in the "Coal Yard," at the top of Drury-lane, opposite the spot where the great plague of 1665 made its first appearance, and we found the inhabitants as usual without water. Suddenly a cry of "fire" was raised, and a parish engine, kept close by, was brought out for use. "Thank God," said one of the women, "there is a fire. We will soon get some water." Our comment was, when we printed the statement, "Surely these people *must* be ill supplied with water, one of the chief necessaries of life, when they *thank God for a fire.*" The assertion that the inhabitants of the place were short of water was foolishly denied by "authorities" in the *Times*, which had kindly given increased circulation to the anecdote, and this brought a cloud of witnesses to the want of water, and to strengthen our condemnation.

Typhus, the disease of filth, is again busy—is again weakening and killing. It is never absent in some of our courts and alleys, never has been for years; and its localities are now being made known again to the press, one might suppose, from remarks made use of, for the first time; although these identical places have been pointed out in our columns again and again, and the statements have been copied thence into dozens of other journals. In a few days the new statements will be forgotten, as the old ones were, little or nothing will be done, and King Fever will still hold his court, in preparation for Emperor Cholera. The money-cost alone of such a state of things is frightful. It was proved long ago that the loss through typhus fever in the metropolis, during the five years 1843-47, was 1,328,000*l.*, and this might have been prevented. Who shall calculate the amount of sorrow and abasement that attends it,—the degradation of health, the degradation of morals?

It is not merely in London, but in all parts of the country, that men, women, and children are still being slain unnecessarily by a mean and dirty enemy, who would fly before an effort; and in Spanish ports English vessels are now actually forbidden to land their passengers without quarantine! From Liverpool, Leeds, Norwich, and many other places, come frightful reports.

The medical officer of health for the borough of Gateshead has reported to the town council that—"The mortality of the past fortnight is at the rate of 43 and 41 per 1,000 per annum respectively, taking the present population of the borough to be 36,000. Taking the average mortality of the borough at the very high rate of 30 in every 1,000 per annum, we have at present a 'preventible' excess of 13 in the first and 11 in the second week, or at the rate of 432 preventible deaths in the year. To every death, it has been ascertained, there are at least 33 cases of preventible sickness; and assuming that the present condition of things should go on for a year, we should in that time have had 12,000 cases of preventible sickness. On referring to the report of Mr. Rawlinson to the General Board of Health in 1850," the Gateshead officer continues, "I find that in 1846, when the Irish famine fever prevailed here, the mortality of 38 per 1,000 was looked upon as something frightful to contemplate. At the present time it far exceeds this, and hence I am fully justified in stating that the town is in a worse sanitary condition in 1865 than it was in 1846." The council do not seem to be at all awake to the seriousness of this state of matters, although one of them suggested the suppression of the report. Others attempt to explain it away. The report, however, was "received."

The medical officer of health for Liverpool is urging, as we have long urged, that tenemented houses should be inspected and regulated. Typhus and cholera, and other preventible diseases, are public enemies. Those who give them house-room, and aid in establishing them, are public enemies likewise, and should be looked after and punished accordingly. The London guardians of the Strand Union are awaking to the importance of a provision of proper dwellings for the poor; and, following out a resolution, of which we have already spoken, have addressed the guardians of the other metropolitan parishes. They point out that the dwellings of the poorer classes are overcrowded, highly rented, and in other respects in a far from satisfactory state; that the workhouse is full, or nearly so—the number of casual or houseless poor applying nightly for shelter is great—and the applications for out-door relief very considerably increased. "It is thought probable," they continue, "that the poor of your district are somewhat similarly circumstanced, and that among the many bills to be introduced into Parliament next Session for new railways, or other metropolitan improvements, some may affect you. Even should such not be the case, your district may be affected in itself, by the necessary migration of those who are removed from unions or parishes more or less remote from your own." And then they go on to urge that this evil has now reached such a pitch, that it is time the various municipal authorities, and especially the guardians of the poor, began to consider whether anything can be done to palliate the effects of a system, which is adding to their responsibilities and difficulties. The wholesale destruction of the homes of the poor, and the consequent overcrowding, necessarily increase the number of those who fall upon the rates, and diminish that of those who pay them. They lower the habits of a large class, and saddle others with a fresh load of destitution.

Let the various boards unite in earnest, and something satisfactory may be done. They may depend upon it that by improving the homes of the people they will lessen pauperism, disease, and premature death.

Pauperism, filthiness, and foul ignorance are amongst the social crimes, the unclean realities, from which we should free future generations. In the infectious marsh of social misery, writes a modern French journalist, wallows always the symbolic hydra, a hideous serpent born of ignorance and selfishness. The monster breathes pestilence. He feeds on blood and living flesh. In former times, to appease the legendary reptile, they gave him as tribute flocks of sheep and cattle, they threw to him for food the most beautiful virgins. The monster devoured and ravaged continuously: its appetite grew with what it fed on. Neither prayers, supplications, nor religious sacrifices served to appease its voracity: and so it is with pauperism. It is thought to stop it by gifts. They offer it tribute: it has its civil list. It devours tithes and the legacies of the dead. It is vainly hoped thus to feed and tranquillise it: but the more it eats the larger it grows and the more hungry it is. Greedy as the grave, it still cries give! give! give!

Ignorance produces pauperism, and pauperism in its turn produces ignorance. The circle is continuous and fatal.

THE CHURCH OF ST. JACQUES AT REIMS: A STUDY.

THE small church of St. Jacques, at Reims, has no beauty or interest as a whole to make it worthy of attention from visitors, who will find a larger fund of both at the cathedral and the church of St. Remi than time will usually permit them to exhaust. What must he have been, for an idler, then, who gave time, and even hours, to it, at more than one visit? It may be possible, however, to redeem, and perhaps justify, the unusual attention bestowed upon it by placing notes on record that may spare or guide the trouble of those who follow; and it certainly has this in common with most other ancient and anciently altered edifices, that, defective as it may be, as a whole, it has details that illustrate remarkably, though they may scarcely exemplify, the development of the beautiful.

The nave has preparation for sexpartite vaulting, as at Sens, in alternate piers and paired columns, which are here very short Corinthoid

cylinders, set quite close but for knife-edge interval, and with base and abacus confluent. The sexpartite vault, however, is only executed in the bays next to the crossing of a short transept. The vaulting ribs rise from shaft capitals on a level with those of a triforium, but take a high stilt before they bend: in the quadripartite divisions they bend at once from the springing with a clumsy and conflicting disproportion which we are fortunately not called on by the importance of the case to bring home to the originator, or in any way attend to farther.

One of the Corinthoids is fluted, with channels less wide than the arrises, a treatment of which the like occurs in St. Remi. This is one of the few details in which we trace a faint influence from the Roman triumphal arch that still stands at one entrance of the city, and that exhibited itself well preserved as a model all through the Middle Ages, had the architects of the time been so ill-advised as to regard it. How it came to pass that they so all but entirely averted their eyes from an obtrusive model here, and in so many other cases, and held hard on to a track that turned them into another direction, is a curious subject for consideration. It seems that architecture in its revolt from the classic models had carried over with it some certain details of construction, distribution, and some selections of most available ornament, and thereafter seemed resolved to assert a position of its own, and resolutely work out its problems in reliance on independent vigour of thought, and acuteness and liveliness of imagination, rather than be again beholden to the condescensions of its uncompromising parent.

The Roman arch at Reims is debased enough, and could not have been more judiciously treated than by its present conservators. One half of it is left (and well protected) in its traditional ruin, which is not so utter but that it retains sufficient models for all parts, and details, and decorations. By these models the other half, or rather end, of the monument has been restored, so as to reproduce very accurately what must have been its original appearance. Even the sculpture has been re-instated with perfect justification; for the style of the original is such, that a far better art-critic than Lucius Mummius might be excused for stipulating that those who defaced such works should mend them or replace them by others as good. But late and base as the style may be, it is correctness itself in comparison with any example that could be fairly considered transitional from proper Roman to Mediæval architecture. We are not now about to inquire where or whether such are still to be found, but we lingered at St. Jacques, at Reims, from interest in an example it contains of the relation of the genius of either style when after lapse of ages and revolutions they were again confronted; and Mediævalism has some appearance of having come back home like the prodigal disposed to compromise, but induced at last, for better or worse, to conform.

The choir of the church consists of two bays and a third half-bay,—so to speak,—forming, with a triple window of three sides of an octagon on plan, an apsidal termination. There is a double aisle on either side of the choir, of which the two nearer, in continuation of the nave aisles, have a similar but smaller apsidal end, while the eastern ends of the exterior aisles, north and south, finish square. Towards the transept these outer aisles are closed, and from this arrangement, as well as from smallness of general dimensions, the term aisle chapels would, perhaps, be more appropriate than aisles. Both these double aisles, then, north and south, of corresponding plan, have been reconstructed and searchingly modified by the influence of the Renaissance with but a few years of interval; and there is a good deal of interest and some instruction in noticing both the agreement and difference in styles of treatment. On a rib of the chapel on the right or south is the date 1535, and on a rib in the north chapel, we read 1518. Few as the intervening years may be, they involve this difference in the work, that the earlier workman, unequivocally as his resumption of classicisms is declared, is but equivocal in his management of them; be it from lingering loyalty, or from habit, he has still regard to some of the capital traditions of Gothic, and those traditions which had the greatest artistic value, make the last and hardest fight for it at the end, and if we ponder them well or even moderately, not insignificantly intimate the vigour of their characteristic germs at the beginning.

The archaic paired Corinthoids of the nave are reproduced, but regenerate in classic proportions and well executed ornament, and two such pairs on either side divide the aisles, and receive the transverse and diagonal vault ribs from the piers of the choir on the one hand, and from the outer walls, or shafts, or pillars applied to them, on the other. This determines the general resemblance: the differences in detail are remarkable. The southern architect still retains the pointed arch,—he of the north substitutes or rather recurs to the round. On the south the diagonal ribs towards the two angles of the aisle are received by pillars housed in the corners, of Corinthian detail, but having the proportion of shafts, a proportion no longer recognised on the north: it is also characteristic that on this later side columns are so lavishly expended as to diminish the value of the grouped pairs; they are attached to, or rather set free against, the wall, the piers of the choir, and in the angles of the window, and count up eighteen in all against the poor seven—four coupled, and three engaged, and the two shafts of the south, which hold their own most gallantly, and produce, indeed, a much better if more sober effect. The southern shafts are still unfluted, the northern have recovered the flutes and are reeded also. The capitals of the paired columns south are confluent at adjacent volute and abacus, and hence the lower shafts are in contact for about a foot, and all the mouldings of the bases unite and return as in a Gothic compound shaft. On the north the capitals get themselves quite free, and the slight confluence of the bases is limited to the lower torus.

In both cases the spandrels of the plinths,—the north only has recovered the normal plinth,—are toed by foliage flowing down from between scotia and lower torus. At the attached column, south-west, the angle of the base is broadly cut off, and the leafage droops over the edge, and swells out as if covering a boss, such as the Goths would often place in this position under an oversailing base.

On the north side the order has got back its entire entablature, with full cornice and bulged and carved frieze, and only defrauded of one fascia of its architrave. The south still abides by one of the truest Mediæval motives, and dismisses its arch direct from the abacus,—from the enhanced abacus of Gothic architecture, indeed, and not from that of the Corinthian capital. A very noteworthy point in the history of the transitions of the art, but not very easy to date, is the manner in which arcuation, when it got rid of the general entablature, thought well to retain the upper member of the architrave. By the encroachment of the frieze in later classicism, the architrave had gradually become narrower; and this, with the welcomeness of some strength to the slight Corinthian abacus under new responsibility, seems to have caused what was left of it to be retained, while all superior members were knocked away. The transformations of this feature through the varieties of Romanesque along the Rhine and elsewhere, are unequivocal, and it is hidden even in the coarsely-profiled Norman abacus.

The section of the vaulting rib on the south is characteristic Gothic; that on the north is anything rather, and at first it puzzles to guess where the architect helped himself to it. It, in fact, repeats,—or duplicates, rather,—the profile of the Greek cornice with reduction of the projection. The resulting ribs are heavy. They group very ungracefully at their spring; and, while the southern group is well contained within the vertical of the abacus, the northern trespasses unpleasantly, if not unsafely, on the shelf of the weaker mouldings of the cornice.

The lines of the pointed arches south are still finely and boldly drawn, as by a hand retentive of its Gothic cunning. In the wide spans the curve strikes direct from the abacus; in the narrower the ribs have a certain stilt, but the curve is managed elegantly. Here the northern architect gets into trouble, and the difficulties of variable span for round arches are neither concealed nor conquered.

Round arch windows on the south side are later insertions for uniformity. The wall compartment above is pointed, and has corresponding nook mouldings.

There are points of contrast in the pedestals of the columns that are equally characteristic; but wherefore tax either ingenuity or attention by the description of the details?—these are only interesting as directing us to a point of original departure here come round to at the close, which we may warrantably take the liberty to make our way to independently.

The happy instinct with which Mediæval architecture broke loose from rule to recur to nature, wherever nature had been overborne in earlier practice, is nowhere more conspicuous than in their treatment of the member that takes various form as pedestal, podium, or basement. This instinct was primarily exercised in obliterating utterly the projecting cornice of the Roman pedestal, and then in a reform of basic mouldings, that got rid of some of the most unhappy Roman sophistications, and reverted to the better type that the Greeks had no doubt adopted, not to say invented, long before,—but that owed its recovered position to a revival of sense for the characteristic and appropriate. In these instances, as in the case of the enhanced abacus already alluded to, the revolt from classicism is co-extensive with the field of Mediæval architecture, and seems to be as much due to a general revolt of common sense as to the lead and influence of any one signal example and innovator.

The happy and characteristic invention of the Attic base has as little ever ceased to be worked more or less purely from the date of its invention, as Latin has ceased to be written and spoken better or worse from the days of Cæsar and Cicero. I read it, however, even at its first occurrence as an enriched development of the earlier Doric base-moulding, such as that which supports the orthostatæ of the cella of the Theseum—an inverted ogee; that is, a moulding of contrary flexure with the convexity lowest and advanced. The basic propriety of this moulding consists in the strongest portion of it being at the foot, and in distinct contrast with the level, while the straightening curve above leads up easily to blend with the vertical wall that the moulding properly pertains to. By breaking the curve with a fillet edge to emphasize the point of contrary flexure, the lower portion of the Attic base is produced, and the addition of a small torus above effects, in combination with the cor-vetto of the apophyge, a repetition of the characteristic profile. To mouldings for bases in these forms, primary and developed, the Mediævals attached themselves with tenacity most fortunate, and the more surprising as their Roman predecessors had long wandered hopelessly astray. Would that these worse precedents had been lost beyond chance of revival, never to have returned to vex the sensibilities that are condemned to sojourn in their midst. With that perversion of the passion for novelty, and pretence of invention that adopts change as its own all-sufficient reason instead of pursuing traces of reasoned or reasonable development, the architects at Rome rejoiced to invert the profile of the Greek, and thus they brought the inverted sima of the cornice, remonstrant and surprised, into the place and function of the basic ogee. In this arrangement the thin and weaker portion of the moulding creeps forward upon the level, while the stronger bulge of the convexity starts abruptly away from the wall to which its original allegiance is due.

This misapplication of the moulding is found, but on barbarous ground, as early as in the inverted bell-like bases of the columns of Persepolis. It then disappears till emergent at the Rome of the Cæsars, who scarcely raised a monument that it does not deform. Augustus or Agrippa, Titus, Trajan, or Antonine, all are involved. We turn to Taylor and Cresy to refresh recollections, and there the provincial temple of the Sibyl at Tivoli alone claims to have been observant of the better motive, and has the claim allowed.

When the Mediæval architects struck away the cornices of podiums and pedestals, they still retained this basic ogee, and very important was the history it had before it. We have seen at Sens how the base mouldings of shaft were gradually brought forward over plinth or pedestal; then the rectangular pedestal became polygonal; then, as the sense of style gave a taller proportion to the group of base mouldings, the same influence affected the pedestals till they were drawn up and elongated almost into subshafts. The ogee moulding was treated quite as freely, and yet never to the end of the style lost its characteristic profile. It was varied in curve, and in magnitude relatively to pedestal; it followed the fortunes of the pedestal in receiving polygonal plan, and sometimes was withdrawn within lines of lower plinth, and sometimes oversailed them, like the base mouldings above. Even when its upper edge was obliterated by the outline being continued into the vertical of the pedestal, it soon re-asserted itself; and before long the general verticality of the

outline was softened into a large sweep of easy flexure. Abuses, of course, came in abundantly enough in the fulness of time, from the frittered weediness of some examples to the swollen hypertrophy of others; while in the portentous western piers of the cathedral of Troyes we have all the forms of abuse of all kinds clubbed and clustered together; and so the style went out.

Where have we left the church of St. Jacques, of Reims, its chantries and chapels? We need not wish to recur to it if our comment has led us to take to heart the monumental comments of Mediæval architects, on the principles that they held in common with the Greek. There is scarcely a base of a statue, or a monument, or a podium in London, that does not offend the taste that is in harmony with the canons sanctioned by such lofty sympathies, that does not obtrude as a base moulding, either an abused cymatium, or some other profile of like cognate character and application. Some instances might be pointed out,—might be pointed at,—in which transposition of base and cornice would go very far to harmonize both, and set everything to rights, and wipe all tears from architectural eyes. No appeal to Cæsar,—no citation of Roman precedents is admissible here, where natural principle and natural expressiveness should be sanction sufficient, even though they had not on their side the authorities so emphatically consenting, of both Goth and Greek.

RAMBLING IN DUBLIN.

TOWNSEND-STREET (which was true to its name of old as the town's end) runs parallel to Brunswick-street, at the point of which latter branches off Hawkins-street, the *locale* of the Dublin Theatre Royal,—half a century ago the home of the Royal Dublin Society, within whose darksome rooms toiled the great ecclesiastical historian of Ireland, Dr. Lanigan, to whose memory a monument has been recently erected, after thirty-three years of indifference on the part of cleric and laic,—his own countrymen.

Townsend-street is crossed by a number of lanes and low streets. All, and itself inclusive, are in anything but a clean or sanitary condition. Most of the streets and lanes surrounding and leading towards the quay are in a filthy and abominable state. Townsend-street has ever the appearance of having never been cleaned.

D'Olier-street is a uniform, short, and fine street, in keeping with its duplicate, Westmoreland-street. It leads over Carlisle Bridge to Sackville-street. At the convergence of these streets spoken of, and facing the side of Trinity College, stands a testimonial drinking-fountain, erected a short time since, and subserving the double purpose of doing honour to the late Sir Philip Crampton, and quenching the public thirst. I cannot speak highly of its rather strange design,—a zoological and aquatic anomaly which shoots up from its plinth like some tropical and leviathan water-plant, cowering under whose broad leaves the cold and formal bust of the famous surgeon may be seen, ill at ease.

Proceeding through College-street, the new bank attracts notice, seemingly well constructed of chiselled granite, and not out of keeping in character: it is surmounted with appropriate figures, in which Justice, if not Fortitude and Truth, is symbolized. Facing College-street, and in a line with Westmoreland-street, flashes forth that noble portico that once adorned the Lords' entry to the Irish Senate; and yet it is but a wing instead of the crest of that fine edifice,—Gandon's addition, perchance Gandon's masterpiece. Ah me! Would that there was no hitch here! Pity that there is! This splendid portico and entablature of true Corinthian, dies away into the Ionic which composes the main building. No wonder that the aggrieved architect angrily replied to the ironical query of the wag who asked him, "To what order does this addition belong?" "An order of the House of Lords; and be hanged to them!"

Gandon knew well,—none knew better,—what was in keeping. It is somewhat strange how entirely James Gandon is looked upon and spoken of as an Irish architect, although an Englishman born. But, from the time he got his first appointment in Ireland as architect and superintendent in the erection of the Custom House, down to the day on which he breathed his last in the old village of Lucan, by the Liffey, he became more and "more Irish than the Irish themselves."

Poor Gandon! I would like to know where they have laid you to rest. While musing under the shade of your portico, my memory twitted me concerning your fate. "Where," quoth I, "do his bones rest? Can any passer-by tell me in what city or suburban churchyard I shall find his tombstone?" After some considerable difficulty I lighted upon traces, and pursuing my inquiries, after a short lapse of time, I stood in the village churchyard of Drumcondra, about two miles north of the city. I was told I should find his tomb there: I searched and searched, but in vain. Tablet after tablet I read and conned over, but the name of James Gandon appeared not. I came across poets and antiquaries, Bourbon refugees and Irish rebels, but no hand seemed to have graven the name of—GANDON. I was relieved from my doubting by the entry of the sexton and clerk, who had come to have the bell tolled for some departed villager. He kindly inquired if he could oblige me: an instant informed him of my want. He bade me follow him: a few paces onward, near the church, he stepped up on the mound beside the flat slab. "James Gandon," said he, "is buried here." "'Neath this stone," said I? "Why, this is the gravestone of Captain Grose, the antiquary; of him whom Burns has apostrophised in his well-known lines, which you have, doubtless, read." "Even so," replied he; "Grose and Gandon were bosom friends during life, and now the architect and the antiquary, according to a mutual wish, lie buried in the one grave. I, myself," continued the sexton, "remember well the day on which he was buried; it was an extremely wet one, and when the coffin of Grose was bared, the heavy slab slid down from the saturated clay into the grave, breaking the ——" "Yes, I see that Grose was buried in 1791, and Gandon?"—"About thirty years after."

"And James Gandon," said I, as we walked away, "lies here, unmonumented and unnoticed, and the city he beautified, and the profession he elevated by his classic taste, and that corporation which so justly pride themselves in those monuments he gave them to conserve, have left him for upwards of forty years in an unknown grave, without a figure to mark, or a letter to indicate even on his friend's tombstone the resting-place of the man whose name shed a lustre while alive, and whose works reflect it after his death on the city of his adoption.

Back to Dublin, and to rest; and, refreshed, the morn finds me in the streets, standing 'neath the Corinthian portico that I so much admired yesterday. "What figure is that?" said I, addressing those civil umbrella-women who ply their trade here in the shade. "That's Tommy Moore, sir, the great Irish pote." Moore! Moore!—*that* Moore?—impossible. Moore was little—and *Little* was Moore; but that that Moorish ogre could be "the poet of all circles" is more than I can credit. But stay, I shall cross over. God help you, "Bessy," that you should live to see your darling husband thus outraged. Even the Jarvies on the stand close by are conscious of my indignation, for they volunteer a statement little exaggerated, indeed,—"Isn't he like a detective taking notes up there, sir?" "Well, friend, if he is not like one, it is hard to say what else he is like."

The statue of Moore is a failure; and although the work of another Moore, it is unworthy of him, for the artist has really done some good things in statuary.

Turning round to the right, a few paces bring me to the centre of as splendid and architectural a sight as ever graced any modern city. I stand in the middle of old College Green, hallowed by so many memories. The sun is shedding the full volume of its light on the central piazza of the Irish Parliament House. Plinth and column and entablature are glistening, and their beauty is enhanced by the sparkling rays that are reflected, crystal-like, from balustrade to base. And those figures of Flaxman's pencil and Smyth's chisel, although somewhat stiff in design, how grand they look! The artist, at least, has done his work well.

Old Trinity there, still as strong as a pillar-tower. Live on, old Alma Mater, and embrace and rear up and send forth the good and the wise to battle with the world, the flesh, and the devil. Trinity College is still surrounded by that obstructive circuit of railing whose existence led to as much public discussion in the Dublin press a score of years ago as that contemporaneous topic, "Shall Cromwell have a statue?" I would not go the length of some innovators to remove the railings altogether; but I would bring it in considerably, which would add to the breadth and beauty of College Green.

Within the railings stands the statue of Goldsmith, recently erected. The figure of the poet is perfectly executed,—true to our idea and impression of the man in every lineament. Foley has done his work masterly. The statue of Edmund Burke is intended to form a companion figure to the left of the entry when finished. Within the College gates much can be seen that will repay a visit. The new buildings and the ancient,—the Elizabethan square, the old staircases, the library, the dining-hall, Professor Baldwin's monument, specimens of Sir William Chambers's architectural taste, may be seen here, as well as those of earlier and later architects.

The dining-hall contains some admirable paintings of Irish Parliamentary worthies. "That stair," said one of the attendants of the library, whom I had a few words with, and who had accosted me when he had seen me scrutinising the old quaint carved handrail and string-board of the library stair—"that stair has not one nail driven in any part of it. I have been here for years; and although many have examined it during that time, they have never discovered one nail." I believe he was right,—I could see the marks of none. It was well put together, by mortice, tenon, and dowel, according to the natural fitness of things. There was no slop-work done in joinery when this staircase was framed. Paper, lath and plaster, or brick-nogging was nowhere; walls one brick thick, and gutta-percha centres over chandelier, and water-closets up-stairs,—what builders we have now-a-days, to be sure!

The College Park is an ample piece of ground, for the requirements of university recreation for the students; it also adds to the health of the city. On its eastern side it is enclosed by a lofty handsome iron railing, elevated on a granite base, about 5 ft. high, running the whole length of the park, which commences with Nassau-street and ends with it. The provost's house, which is an extensive mansion, is beside the college. College-green contains also that equestrian statue of the Prince of Orange, "The Dutchman and the Deliverer," the hero of the Boyne, whom the Protestant "gibs" were wont to do honour to on the 1st of July. This statue has been the cause of more riot, annoyance, and bloodshed since its erection than anything else I wot of. It has been painted and gilt, dressed and festooned with ribbons and flowers, by Orangemen, and hacked and sawed, filed and pelted, and tarred and blown off into the gutter by the "Papists." During the century and a half of its existence it has been the fruitful object of plot and counterplot by both parties. Of late years, however, this factious spirit in the metropolis has wholly ceased, and both sides agree to differ. The statue had formerly a railing enclosing it; but the corporation removed it some years since, and have attached a drinking-fountain to the pedestal underneath the statue. "Out of evil comes good."

In a straight line with the Green, continues Dame-street, which leads direct to Dublin Castle. It is a fine and spacious street, all know; historic and handsome, studded with shops and public offices, insurance, some magnificent banking, and telegraphic companies. The streets branching off on either side have some features, but not of very important interest. Anglesea-street is noted for second-hand booksellers, where hard-up students may buy cheap and good editions of the classics. Books are not to be taken by their covers in this street. Trinity-street leads up to Andrew's Church, commonly called "The Round Church," burned down two or three years since, but in course of erection again. The old church had a figure of its Patron Saint above its doorway, the work of Edward Smyth, for which the sculptor was miserably requited half a century since. This street was also the *locale* of John Mitchell's *United Irishman*, and *The Tribune* of his brother Young Irelanders and State prisoners of 1848. At the bottom of Crow-street, the Catholic University has its School of Medicine. George's-street is a busy thoroughfare; in it is the very large commercial establishment of Mr. Jonathan Pim, the newly-elected member for Dublin. Eustace-street is a very narrow thoroughfare, leading down to the Irish "Temple-bar," a street which was famous for hatters: the original stock were said to be immigrant from Normandy.

Sycamore-alley is not an over-sanitary spot; and although an alley, it was once as respectable a quarter as the street from which it is an offshoot. In the last century it had its theatre, exhibition-rooms, and noted "coffee-houses." Here, in this alley, Matthew Buchiner, who was born without hands or feet in Germany, was exhibited. This strange freak of nature could play on several instruments, some of which he invented; and he could also write with facility with whatever stumps he had. Specimens of his drawings and penmanship may be seen in the Dublin Museum. Greatreaks, "who cured by stroking;" Finatchy, and Whalley, the Star doctor and quack, gesticulated on the boards here or in Smack-alley, when the Second George was king.

Essex Bridge is an historic structure. The original broke down in one of its arches about the year 1752, and the present was erected on its site after considerable difficulty in finding a suitable foundation. George Temple, a famous architect, designed and superintended its erection. Temple was a *rara avis* in his day and way; he was the friend of many public men, among whom was Rutty, the author of a History of Dublin. Temple turned an author himself late in life, and published a curious and valuable volume (at least then), entitled "On Building in Water," with which is a succinct narrative of his trials and troubles, and plans and thoughts, during the time he was engaged in the erection of Essex Bridge. Temple discourses on caissons and coffer-dams, and cites ancient examples of bridge-building in water, and gives some hints anent the subject which are still followed. The volume is dedicated to George III. There was an equestrian statue of George II. originally on Essex Bridge, but it was eventually removed, I believe, to Dawson-street, beside the Mansion House.

Standing on the centre of the bridge and looking down the river, on a clear sunshiny day, the sight presented is inspiriting and grand. The broad and slightly curved lines of the Liffey, with the broad roadway of quays on either side, extending from the shipping at Carlisle Bridge to the Park-gate, its long rows of houses, its monster shops and merchants' houses, the magnificent courts of law on the brink of the river, with the stately dome reflected in the waters, and the sparkling granite of the massive pile, taken all together, the spectacle presented on the whole line of river is rarely surpassed.

The Liffey is spanned on its line of quays by seven bridges for public traffic, exclusive of the metal bridge, which is a suspension one, and takes a toll. I think it is full time that the vested trusts of this concern were bought up by the corporation and the bridge opened for free traffic. On inquiry, I find that it has long outgrown its purposes as a construction and its usage as a monopoly. It was erected as a speculation when Crow-street Theatre was in existence; but the theatre collapsed ere the bridge was in working order.

Carlisle Bridge is in no manner sufficient for the traffic passing daily over it. It would be a vast improvement to the noble street which it terminates if the bridge were widened on either side by additional footway and roadway, making the bridge in a direct line with the pathway of Sackville-street. The shipping might be pushed back below the Custom House, and another bridge thrown over the Liffey opposite Beresford-place. The necessity of the public traffic needs such another bridge near the Custom House. The Custom House brings to my recollection James Gandon again. It is another of his classic designs. Here he was assisted by the sculptural talent of a native artist, the founder of the modern school of Irish sculpture. Gandon could and did appreciate true genius, and meeting Smyth he found a man to his taste, and aided him; and they mutually assisted each other in adding to the beauty of the building. The statues, and heads, and general carvings on the Custom House, were done by Smyth, as well as those characteristic heads on the keystones of the arches over the Liffey which are emblematic of the principal rivers of Ireland. Poor Smyth, what a fate was yours and that of your posterity! C. H. C.

THE PERCEVAL STATUE AT NORTHAMPTON.—At a recent meeting of the town council, the removal of Mr. Spencer Perceval's statue from the chancel of All Saints' Church to the Town Hall was resolved upon. The statue will be placed at the north end of the large hall.

CLOSE OF A YEAR IN FLORENCE.

ON the 23rd December we found ourselves among a numerous public, in the Strangers' Gallery of that "Hall of the Cinque Cento," where the Italian Chamber of Deputies now holds its sessions; and on that afternoon, after a *seduta* of scarce more than one hour, it was announced, amidst some tumult and signs of excitement, that the Parliament was prorogued till the 15th of January, the ministry (as all Europe is informed), having given in their resignation a few days previously.

That grand old palace of the Florentine "Signoria," now known as Palazzo Vecchio, in the largest apartment of which the deputies meet, is surely one of the Mediæval monuments that must make the greatest impression upon all impressible minds when first beheld in the course of Italian touring. Its erection was first deliberated on by the civic council in 1294, and ordered by decree of the "Signoria," in 1299, immediately after which, it seems, the works were commenced by the architect, Arnolfo di Cambio. Subsequently enlarged and fortified by Andrea Pisano, in 1342 (during the government of the hated Duke of Athens), provided with new façades (eastern and southern), by Buontalenti, it was almost doubled in extent by the additions of Vasari, ordered by Cosimo I., 1550. Its marvellous tower, rising to the height of 93 mètres, still contains the bell that used to summon the people and political assemblies, and a religious dedication on its summit, where saintly relics are immured in the battlements. Over the chief portal is the memorable inscription, beneath the monogram of the holy name, *Rex Regum et Dominus Dominantium*, recording the extraordinary decree of the Republic, in 1528, for placing the Florentine people under the immediate sovereignty of the Saviour of the world! And near this is now read another long inscription on the ample tablet, recording the event of the 15th of March, 1859, when, at fifty-five minutes after midnight, the Court of Cassation declared the annexation of Tuscany to the Italian kingdom, after inspecting the returns of the national plebiscit, and finding that, out of 386,443 voters, 366,571 had been favourable to that union under constitutional monarchy. The hall of the Cinque Cento, scene of so many historic and eventful gatherings, was commenced in 1495, on the suggestion of Savonarola, for the newly-created council of 1,000 citizens; but the architecture we now see in its vast interior is mainly that of Vasari, begun 1565, after Duke Cosimo had left his family palace (now the Riccardi), to take up his abode, as sovereign, in the ancient seat of Republican government,—successively styled, Palace of the Priori, of the Signoria, and the "Ancient," Vecchio, Palazzo. The architects first engaged for that council-hall were Pollajuolo (the "Cronaca" of art-history) and Francisco di Domenico; and in 1503, Leonardo da Vinci executed for its adornment the splendid cartoon of the "Battle of Anghiari," now irretrievably lost. In 1569 Vasari began the colossal frescoes, finished in three years, that still adorn the upper wall compartments, with views of the principal Tuscan cities, and scenes in the Florentine wars, against Pisa and Siena (1554-5); Passignano, Cigoli, and Ligozzi adding four other great historic subjects, painted on slate. Subsequently were placed here several sculptures, mostly colossal, portrait-statues of the Medici dukes, mythologic and allegoric figures, Adam and Eve, &c., by different artists of the sixteenth century,—one group ("Valour and a Captive") by Michelangelo. For present appropriation, the greater part of this palace's interior has been more or less altered, under the superintendence of Signor Falconieri, an engineer; but complaints having been made by the deputies, of the inconvenience of arrangements in the great *sala*, the Minister of Public Works has commissioned a Florentine architect, Signor Falcini, to renew these fittings up with considerable alteration, as projected by him, of his predecessor's plans. Journalism and public opinion have, indeed, been so severe against the latter gentleman's achievements, that he has lately put forth a pamphlet in vindication of his works at the *palazzo*, but with the sole hitherto result of provoking a more definite reiteration of charges by the periodical press. The detail that first strikes the beholder, and unpleasingly, on entering the now metamorphosed *sala*, is the cutting off, by massive and lofty screen-work, of about one-third its length, a partial view of the remainder being still, however, obtained beyond that wooden structure which forms a background to the president's platform and ministerial benches. Below that high screen-work extends the platform, along the entire width, with seats and tables, for the president and secretaries, the ministers being at another long table on the level of the floor. Around three sides rise the seats of the deputies, in seven tiers, curving into a horse-shoe form, and surmounted, at the end opposite the platform, by two galleries for the public, the lower for ladies, the upper divided into two sections for male auditors, those admissible without distinction daily, and those entitled to better accommodation by tickets. The deputies are (or, we should say were, up to the late prorogation) 360 in number; though 440 are required for the full representation constitutionally guaranteed to this kingdom; and whoever has seen the hall of their present assemblage will understand how well a much higher number might be seated there. As to general effect, that interior has a gravity not unsuitable to its destination, the predominant colour being the darkest blue,—that of all the hangings of draperies,—not ill-according with the now dusky tints of those colossal frescoes, which are still seen to full advantage, though of course all the sculptures, once here, have disappeared. The lighting seems sufficient; and it struck us that the orators' voices were as little lost as possible within so vast an apartment.

On the 27th December, we were at the beautiful extramural Campo Santo, beyond Porta S. Gallo, to attend an occasion when British residents had been invited, by public notice, to show their respect for the illustrious dead—the funeral of Sir Charles Eastlake, which took place at noon, many English visitors being present besides the immediate mourners, among whom Lady Eastlake had the fortitude to take her honoured place. It was a clear, frosty, and beautiful day; the villa-studded heights of Fiesole rose distinct in view beyond the cypress-avenues and marble tombs; no scene could have worn an aspect of more soothing and sunny loveliness, yet at the same time harmonious in its bright repose, with the solemnity of death. On this day we saw, for the first time, the monument of Mrs. Browning, reminding us of *her* funeral, which took place on a summer evening here: a massive sarcophagus, of differently-coloured marbles, it stands on a double file of colonnettes, adorned with bas-reliefs in medallions on each side, lyres, and a profile head, crowned with laurel, not successful as a likeness (if meant for such) nor evoking in memory a face which, without beauty, had interest and charm; in the spaces between these reliefs, sprigs of bay and myrtle, inlaid in black marble; and on a listel in front the simple epitaph, "E. B. B. ob. 1861." The design, we understand, was supplied by the well-known artist, Mr. Leighton. As to effect, we should say the monument wants some detail to give height and finish, for which purpose a stone cross would, perhaps, have been most suitable: and surely the *full* name, at least, should have been given, however desirable be simplicity in such a record of genius.

The Florentine magistracy, in a late session, voted to accept the donation made to the city of Fedi's great group, the "Rape of Polyxena;" also to demand from Government the requisite permission to erect it in the noble Loggia of Orgagna. This colossal work, which we have just seen anew in the sculptor's studio, was begun in 1857; and though it may now seem to the unitiated in perfect state, is yet, we are told, to receive many additional touches before its transfer, probably in the next spring, to the distinguished place chosen for it; not, however, as its merits and scale might demand, to occupy the centre of the Loggia, but to stand on the left, nearer the Palazzo Vecchio, and behind the Perseus of Cellini. For some time an opposition has been at work against the artist, and the proposed subscription for purchase of his group; and this went so far that a committee formed itself with intent to frustrate, in counteraction against which appeal was made to the citizens in general for their suffrages; the result, as we see reported in the studio, being already 27,000 votes in favour of the project, though not more than a relatively small amount, 50,000f. has yet been subscribed. The group in question, 16 palms high, in Carrara marble of greyish tint, the best adapted for exposure to open air, might rather be called the "Sacrifice of Polyxena by Pyrrhus," as it represents the hapless maiden's seizure at the altar of Jupiter, to be sacrificed on the tomb of Achilles, whilst Hecuba

intercedes, kneeling in vain resistance, and a youthful son of Priam lies dead at Pyrrhus's feet: the subject in itself revolting—atrocious, and the effect rather dramatic than *sculpturesque*; but whatever may be urged in an unfavourable sense, the power and pathos of this composition, the heroic beauty of the heads and contours, the poetic imagination manifest in the whole, are unquestionable. Mediæval restorations, in which so much has been accomplished here of late years, have not discontinued since this city has entered on a new phase of destinies. Those at S. Miniato, and the "Pretorio" (*alias* "Bargello") Palace, are completed, and have been reported on in our pages. We now see many things of the last year—the re-opened portico of that small but beautiful structure of the thirteenth century, known as the Loggia del Bigallo, a vestibule to the oratory and offices of the "Misericordia" Company, built from the designs of Niccolo Pisano, in 1248; tastefully closed up in 1697, and now restored to its original state; so that we enter under its vaulting through the richly-moulded arches, and have thence a view, through open ironwork, into the antique chapel, with statuettes, the Madonna and two angels, by Alberto Arnoldi (date 1358), in gorgeous gilt shrines, above a marble altar.

On the evening of the 31st ult. we attended the solemnities, usual in Italian churches,—the Te Deum and Benediction, as act of thanksgiving for the old year,—at S. Maria Novella, restored by the Dominicans, in conformity with the building's earlier Gothic type, and re-opened with pomp in 1861. Such a celebration, with its splendours, mysteries, and striking contrasts of light and shade, proved most impressive with the effect imparted to, and received from, architecture, that has indeed provoked some censure here, yet deserves, on the whole, to rank among the intelligent restorations of Italy's Mediæval monuments.

Taking flight to some distance, we have to notice the restorations, carried out on a considerable scale by an architect, Signor Mancini, and a directing engineer, at the Cathedral of Arizzo,—not one of the largest, but one of the noblest examples of the Italian Gothic, commenced in 1177, from the designs of Lapo, under the direction of Margaritone, and enriched with many exquisite art-works of the thirteenth and fourteenth centuries. A deputation, lately sent to inspect and report, pronounced favourably as to all hitherto effected in these works; but the funds assigned by Government are, we hear, already exhausted,—announcing which, a Florentine journal proposes that the episcopal revenues should be drawn upon for what is yet requisite. At Milan, too, we find a restoration, in principal details finished, and with much intelligence, by an able architect, Signor Terzaglio, of that fine old church, S. Eustorgio, of the twelfth and thirteenth centuries; and it is the intention on the part of the local aristocracy, headed by Duke Litta, further to renovate the lateral chapels, with preservation of their antique characteristics, hitherto unaltered, however in need of repair.

To those interested in Italian affairs, such statistics as have just been made public here may be worthy of note, namely, that the Florentine province at present possesses 170 elementary schools for males, and 100 for females; the actual number of pupils being 36,000 (2,330 more than in the year 1864); 152 charitable institutions, whose aggregate property is fifty-four million francs, their annual outlay 2,521,684 francs; and this territory is now traversed by roads to the extent of 766 kilomètres.

"THE STORY OF THE NORMAN CONQUEST."

ART-UNION OF LONDON.

OUR readers know that each subscriber of a guinea in the Art-Union of London will this year receive a large volume containing Mr. Maclise's forty-two fine illustrations of what is popularly called the Norman Conquest (it was no conquest of England at all) faithfully engraved under the direction of Mr. Grüner. If the subscriber have a conscience and any knowledge of art, he will marvel at the arrangements which place this book in his hands for a guinea, and his surprise will be more than doubled when he finds that beyond the volume, subscribers will get back some thousands of pounds in the shape of pictures and sculpture, selected by themselves from the current public exhibitions, bronzes, Parian statuettes, vases in metal, and etchings by Brandard. However, so it is, and he must be a bold man who will venture to say that an association by which such ends are accomplished is not a public good. It is very easy to sneer at the doings of the Art-Union of London, as at any other society's proceedings; but the people who indulge in the easy luxury usually show, by the stupidity and sometimes falseness of their observations, that they have not taken the trouble to inquire into the working of the society, and know nothing whatever of what they are writing about. The cheap and healthful pleasure which the Art-Union of London dispenses all over the world, the attention to and love for art it has unquestionably induced and fostered, and the aid it has often given to struggling merit directly, independently of its indirect assistance to all artists, by the creation of an art-loving public, are not small things, and give it claims of no ordinary kind.

Concerning the book now before us, there can scarcely be two opinions: praise of it, from critics less likely to view it partially than ourselves, comes from all sides. "A work of no small importance," says the *Times*,—"we are struck, as we turn over these pages, with the ease and accuracy of Mr. Maclise's drawing, the clearness with which he tells the story from point to point, and the picturesque beauty of many of the scenes which he has introduced." The *Athenæum* says the book, "with certain exceptions, comprises a whole of grand design, rare at any time, and unique amongst us." And again, "whatever may be the defects of manner in these designs, and they are not few nor unimportant, it is undeniable that they comprise the noblest examples of monumental design this country has produced on paper." We are disposed to go farther ourselves, and say it is the greatest work of its kind produced anywhere in modern times. If a right appreciation of what is excellent exist extensively, the subscription-list of the Art-Union of London will this year be a very large one. The Council have some other noble works in progress.

ARCHITECTURE IN LIVERPOOL.

THE Anglo-classic style which distinguishes the architecture of Liverpool would probably, from its inherent weakness, meagreness, expensiveness, and general want of vitality, have stood a good chance of dying out with Foster had it not been for the erection of that classic masterpiece St. George's Hall. The whole life and spirit of the modern classic would seem to have expended itself in one great final effort. Much as we admire the antique spirit pervading that edifice, the solid dignity of its masses, the beauty of its colonnade, the richness of its southern portico, the original treatment of the square columns, and the adaptive skill so strongly displayed in its western elevation, we cannot help thinking that generally its influence on the spirit of architecture in Liverpool has been for evil. Anything remarkable, anything strikingly good, is sure to produce a host of imitators, who crib without acknowledgment and copy without intelligence. To paraphrase a building is as easy as to parody a popular song; but to be done really well, argues almost the same amount of talent as was displayed in the original,—nay, of a certain sort, even more; for what is common, what is familiar, has to be invested with a certain amount of originality and newness,—a most difficult thing to do when certain combinations have taken possession of the mind and fancy, of which it is necessary and difficult to divest oneself. In genuine admiration of the architecture of St. George's Hall we yield to none; but whatever our admiration may be, it should be discriminate, and to attempt to adapt the same style to minor and less expensive buildings is pretty sure to end in signal failure; and though we may æsthetically admire it, its real beauties should not blind us to its many and grave defects. Perhaps in no modern building, except the Madeline, at Paris, has the classic spirit been so strictly preserved. Every line and moulding evinces the most perfect appreciation of its classic originals, while for variety and original adaptation it is far beyond its Parisian prototype. The substantial defect of the whole is one that must exist where a form and order of building is employed for an entirely different purpose from that for which it was originally designed. Of all architectural forms the temple type is perhaps the least adapted to modern wants, or a northern climate. Look at the St. James's Cemetery Chapel,—what can be internally more cold, forbidding, uncomfortable, and barren? Not the slightest associations with anything connected with the solemn purposes of the building are to be discovered therein; nor, as Englishmen, can we be expected to appreciate it more by being told that it is a counterpart of the "Cella" of the Parthenon, or any other building, more especially when the difficulty of lighting is got over in so simple a manner as by double glazing a space which, in the original, was open to the deep blue sky. A flat frame of dirty glass, flush with the ceiling, with several panes broken and others cracked, through which a draught sufficient to send the mourners to their graves is constantly playing upon their sensitive grief-stricken heads, is not that which most people would remember without silent condemnation. This, we are willing to admit, is an exaggerated or aggravated case; but, though in St. George's Hall the difficulties have been met by wonderful talent and boldness, the advantages gained are hardly worth the sacrifices necessary to obtain them. To preserve the true classic effect, and obtain the splendid colonnade and portico considered essential to the composition, windows had to be carefully eschewed on the east side and south end, the consequence being that the principal corridors of communication are dark and gloomy, the great hall injured by being lighted from one side only, and two ugly glazed semicircles, concentric with the vault, are found to be absolutely necessary substitutes for fenestration. Beware of those glazed semicircles; for, wherever met with, be sure that there exists an inherent weakness in the design. Had the proper amount of attention been bestowed upon the lighting of the hall, they might have occupied as artistic a position as the rose windows so often found in a similar position in our cathedrals.

At a vast outlay a magnificent effect has been produced; and in the western elevation, though it may not be so unique or so generally admired, the boldness with which the architect has met his difficulties is worthy of all praise. But why manufacture difficulties? Is it absolutely necessary to be always striving and straining after something different from the honest effect produced by a good and well-studied plan, wedded to an appropriate elevation? Why aim at being so grandiose? Do we fancy ourselves Greeks, Romans, Assyrians, or Egyptians? or has the foolish name of the "Modern Tyre" given to our "good old town" affected the brains of its inhabitants? When John Bull learns to be plain John Bull, then architecture will start from a proper basis. We have mentioned but one defect; but we could enumerate many, and it is too evidently in the nature of a compilation of other designs of the author, combined with ancient examples, as explained by the elder Elmes, in the *Builder*, ingeniously fitted to the plan, but by which it has suffered in comfort, acoustic qualities, and general convenience of arrangement. In one respect it is superior to most modern buildings of the same type: it has been, to a certain extent, but not sufficiently, designed from the inside.

When we pass over to the next important building—the Free Public Library, in William Brown-street, and the latest of our public edifices—oh! what a falling off is there! Whether we look at the general design, the excellence of the details, or the quality of the workmanship, more especially as relates to the stonework, we find ourselves in another world—a pseudo-Classic one—a world of knowledge with the "tender strokes of art" omitted. The general division of the masses in this building is the most commonplace imaginable. A central portico and wings—a disposition of parts than which, in public buildings, nothing is more general. It is impossible to rise to something higher than this, that it is found necessary to repeat it in the elevation of the new Public Offices, now building in Dale-street? True, Mr. Allom, the unfortunate author of the successful competition design, can have the blame thrown on him; and it is a peculiarity with those who never originate an idea that they always possess the privilege of turning round and exclaiming, "It wasn't I; it was t'other fellow." But let us distribute praise and blame with *justice;* and we would take occasion to observe that the most commonplace design, by a few strokes of original genius, may be elevated to a position of respectable dignity. Such was the case with the selected design, of which the

present building is less than a paraphrase. The sculpture, the advanced screen wall, with everything that constituted the distinguishing points of the design, have been studiously omitted, and for this was our excellent surveyor voted, we believe, the munificent sum of 500*l.* for extra services, which, together with the salary of the "talent" he was ordered to engage, would doubtless raise up the actual cost of the plans and superintendence to much the same amount that the commission would have been had the real author, as he was justly entitled to, been employed. It seems never to enter the sapient heads of our town councillors, that one man cannot carry out effectively the ideas of another without loss in the transmission, much less when the principal on whom the responsibility devolves is not himself, and does not pretend to be, an artist. This is a mistake so often made, and betrays such gross ignorance, that one feels at times inclined to give up architecture as hopelessly lost. It is certainly most depressing to think of: but courage!—let us try once more.

In the spirit of the details, the influence of St. George's Hall is most apparent—detrimentally so, for the difference of scale is provocative of comparisons the most odious; and if *after*, it is really such a long way after that great original as to make the one a measure of the insignificance and coarseness of the other. How differently would Elmes have treated it had he been spared to complete the central *place* in which his great hall stands; and it is only necessary to run over to Manchester, and look at the Picture-gallery, in Moseley-street, by Sir Charles Barry, to see the vast difference that can exist between two buildings with much the same disposition of parts, but in one of which a refined knowledge was the animating principle.

Had we to illustrate the unartistic nature of the prevailing architecture of Liverpool, or rather, to speak with more precision, the *corporate* architecture, we could not find a more fitting example than the Police Court, in Dale-street. There we have the municipal mind in all its native barrenness. Look at it!—examine it well! and say is it not the negation of all that is piquant and entertaining. Yet nothing is more common than the admiration of a certain class of mind for art of this order. It is plain, common-sense, practical-looking building, say they. For the sake of argument, let us grant that it is so. Well, what then,—has there been no attempt at ornamentation? Is it not evident that considerable pains have been taken to make it neat and attractive, even if a failure? Is not the front of good dressed stone and the door-jambs of polished granite? Most undeniably so. Then, why all this trouble, and why all this cost? If we want only plain, practical building, such can be obtained even better than this at far less mental expenditure and with decidedly beneficial results to the pocket of the borough. Most lamentable thought!—there, in that solid front, are so many thousand feet of good honest stone, in which the forms of beauty exist to be developed only by the architect's brain and the mason and sculptor's hands. There, also, are to be seen so many thousand superficial feet of "plain," "moulded," and "sunk work,"—to address ourselves to the capacity of the measuring mind. There, is everything except carving, in sufficient quantity, in sufficient cubic and superficial measurement, to have, if judiciously combined by an artistic eye, created an edifice that might have been a lasting boast of the town and an ever-renewing delight to her inhabitants, always excepting the criminal population. That such is not the case we may thank our system of town surveyorship, combined with the ignorance and apathetic indifference to beauty so distinguishing our municipal authorities. A deadly influence seems to cling to everything we touch; and to make a building "handsome" in the eyes of most it is only necessary to expend a certain sum of money in a dressed-stone front, which, as long as it remains clean, is sure to be pronounced, in the discriminating criticism usually employed, either very nice, very chaste, very pretty, or very "handsome." Ay, "handsome" is the word. Wonder of wonders!—whatever becomes of all the handsome buildings so plentifully springing up perennially? That is one of the most interesting questions that can engage the attention of those psychological inquirers into the external workings of the human mind. Have they tumbled down? Certainly not, for it is a peculiar manifestation of the longevity of ugliness that such buildings stand like the rock of ages—nothing moves them. Then what becomes of them? Think one moment, reader, gentle or otherwise, of all the buildings you have been pleased with since first your attention was attracted towards them. Think how one that you greatly admired gave place to another you esteemed more, until, down to the present year, in the many splendid "piles" of offices, your admiration has risen to the superlative degree. Now go back to the beginning, and see if you can discover why that handsome front, which so delighted you thirty years ago, now yields scarcely any satisfaction. The reason is apparent and on the surface: it is simply the difference between *dirty* and *clean* stone. Oh! miserable sentiment! Oh! ignoble distinction!—to think that *we*—the men of taste—the refined cream of the earth, should be subject to such insignificant influences; but true it is, and no more striking proof either of the badness of the architecture generally and the perversion of truth universally, than this very and most undoubted fact. The lightness, the newness, the freshness of dressed stone seems to possess charms beyond all the artistic utterances of the greatest of artists. Sermons in stones and bad in everything! Could we divest the public mind of this delusion, and place before it a higher ideal, good would result; for it is a well-ascertained fact that a really good design tones down, colours, harmonizes, and generally improves with age. The old exchange and town-hall prove that; and woe to the ashes of the villain who, through the medium of the Liverpool *Daily Post*, wantonly and sacrilegiously proposed to *clean it down*. Had we not experience of the world, we could scarce have credited such a proposition as serious. What depths of infamy does it betray! But why stop here? Let us whitewash it at once. It would be cheaper and cleaner, and from the well-known sanitary influence of limewash, might possibly be taken as the health committee's first step in the right direction.

After viewing the police courts to our heart's content—or discontent, as the case may be—let us face about and take a glance at the new public offices, which, though not complete, are in an advanced state, sufficient to form some judgment of the style of the building, if not of the effect of the *tout ensemble* when complete. It is unfair and invidious to criticise a building severely when unfinished; for though we may be able to judge, in a measure, of the goodness or badness of the details, there may always be something added which would key an apparently straggling composition together. Oftentimes have we admired a building when rising above the ground which, had we waited until the roof was on, we should have pronounced incorrigibly bad; and the converse of this is often true, for the architect alone, unless we have seen and can understand the plans, holds the motive of the design in his own mind. Frequently a disjointed-looking design, by some addition, falls together and blends in the most harmonious manner; and could we but have looked at it from the architect's stand-point this would have been evident from the first. It is an old saying, that "Old women and little children should not express an opinion until a thing is finished;" so, bowing to this old adage, whether we can be justly classified in either category, we will not attempt to prejudge the effect of the whole, but merely allude to the detail. Doubtless, many will consider us of a complaining sort; but really, from the bottom of our heart we say it, it would afford us far more pleasure could we praise instead of blame. We do not believe in wishy-washy criticism or its efficiency for good. How can we possibly attempt to reform abuses without causing pangs to those whom we are unfortunately compelled to condemn? Could a judge act impartially if carried away with sympathy for the criminal? No; nor could we do the slightest good were we, from motives of expediency, debarred from expressing our most ardent convictions.

LIVERPOOL.

THE PRESIDENTSHIP OF THE ROYAL ACADEMY OF ARTS IN LONDON.

MORE than one usually well-informed correspondent remind us that there was a kind of "interregnum" in the presidentship of the Royal Academy, as there was an "interregnum,"—as there was an "insane interval,"—in the mind of the Royal Founder of the Royal Academy of Arts in London; and, as history tells us, there was and is an unrecognised interregnum in the immediate succession of our kings and queens. Shall Cromwell have a statue?

We had not forgotten that for less than twelve months,—in the years 1805 and 1806,—Mr. James Wyatt, R.A., of No. 1, Foley-place, in London, and of Hanworth, in Middlesex, was a temporary or *pro tem.* president of King George III.'s Academy. "In a short time, however," (says Allan Cunningham, "no ill-informed authority *about* and *against* the Academy) "the Academy became weary of Wyatt, *disliked* him, and restored the Painter [West] by a vote which may be called unanimous."—(P. 52, of Cunningham's "Life of West.")

In reply to our correspondents, we will ask,—"Did the Royal Founder of the Royal Academy of Arts sign the death-warrant of West in favour of Wyatt?" How run and read the Royal Academy Minutes on this subject, Mr. Secretary J. P. Knight, R.A., and Mr. Henry Eyre, registrar?

The temporary election and prompt rejection of *architect* Wyatt (whose talents in detail skilled men admire) amply confirm our statement, not our *assertion*, that the Royal Academy of Arts in London, living *on* and *in* Crown property, and *enjoying* Crown protection and Crown favour, has never held the mental descendants of Inigo Jones and Sir Christopher Wren, and the real founder of the Forty (Sir William Chambers, the architect of Somerset House), in the scales of Vitruvian-Palladian and William of Wykeham justice; though for an abortive period of *nine months* James Wyatt was held to be "truly and absolutely" president of the Forty—and—the Twenty."

RAILWAY MATTERS.

At the Slough junction of the Great Western Railway, some extensive works have been commenced, principally with a view of altering the existing arrangements for the passage of the up and down traffic, which at this spot cross each other in a very peculiar manner. The platforms of both the up and down stations are on the south side of the junction. About a year ago this circumstance partly brought about a collision, which entailed a considerable loss upon the company. After this experience of what might happen again at any moment, the directors wisely determined to lay out a sum of 15,000*l.* in remodelling the junction and stations. These works are making progress, under the supervision of the company's engineer. The alterations will consist of two entirely new stations, built of white brick and Bath stone. The up station will be on the north, and the down station on the south, side of the railway, a communication between the two being provided for passengers by means of a foot-bridge over the line. Each new station will be about 275 ft. in length. Simultaneously with these improvements, great alterations will be carried out at the Reading Station, at a cost of 90,000*l.*

Since the plans of the Sheffield and Buxton and Liverpool Railway were deposited, Mr. Rymer, the engineer in charge, has been testing the geological formation of the district, in the places where the heaviest work will have to be executed. The great tunnel from Black's Plantation to Hathersage, a distance of more than three miles, can be driven through the black shale, and not, as was at first feared, through the limestone rock. Similar tests are being carried out with the view of ascertaining the nature of the hill beyond Castleton, through which a tunnel will be cut.

The number of miles of railway, single and double, open for traffic in the United Kingdom on the 31st December, 1864, was 12,789 miles, being an increase of 467 miles as compared with 1863. Of these lines England and Wales has 8,890 miles; Scotland, 2,105 miles; and Ireland, 1,794 miles. The total authorised capital for the construction of these works to 31st December last, was 390,413,137*l.* by shares, and 130,109,197*l.* by loans; in all, 520,522,334*l.* Nearly five millions of trains were run in the year, the exact number being 3,106,651 passenger, and 1,863,318 goods trains, being an increase of 188,991 passenger, and of 105,285 goods trains, or of 294,276 trains in all, or of above an average of 800 trains per day, Sundays inclusive. The trains ran 129,130,943 miles. The passengers carried in the year were 229,272,165, exclusive of 76,499 periodical ticket holders, of whom there was an increase in the year of 12,108. The main increase was, in the third class, 15,229,183; increase in second class,

7,792,500; in first class, 1,615,407. As relates to second-class passengers in Scotland, there is a decrease of 101,764. The number of cattle carried in the United Kingdom was less by 161,714 heads. In Ireland the falling off was greatest, the decrease being in cattle, 101,026; sheep, 41,930; pigs, 37,786. There was an increase of 7,402,627 tons in the coal and other minerals carried; and of 2,397,666 tons of general merchandise. The total receipts for passenger traffic was 15,684,040*l.*, being an increase of 1,162,512*l.* The receipts from goods traffic was 18,331,524*l.*, being an increase of 1,696,655*l.* Total gross receipts, 34,015,564*l.*; increase, 2,859,167*l.*

With three more sessions of parliament such as that of the year 1865, the authorised capital of the railways of Great Britain will equal in amount the funded debt of the empire.

The traffic receipts of railways in the United Kingdom amounted for the week ending the 30th of December, on 12,299 miles, to 646,105*l.*, and for the corresponding week of last year, on 11,889 miles, to 586,330*l.*, showing an increase of 410 miles and of 59,775*l.*

A subject of discussion in the Brighton Town Council has been the projected formation of a pneumatic railway into the middle of the town, at a depth of 28 ft. or 30 ft. from the surface, so as to be clear of the drainage, actual or prospective.

According to assurances given by the contractors for cutting the tunnel through Mont Cénis, this international railway between France and Italy by the Alps will be open for passengers at latest in 1871, unless some accident should impede the piercing of the tunnel.

The *Gazette di Genova* says:—"The piercing of one of the most important tunnels of the railroad of Eastern Liguria has just been completed; we mean the Ruta, which connects Camoglia with San Margherita by a passage of 3,050 yards. The termination of this important work does away with the most serious difficulty to the opening of the branch line from Genoa to Chiavari."

INDIAN RAILWAYS IN 1865.

THE following statistics are abstracted from a long article in the *Engineers' Journal*:—

At Midsummer, 1865, the number of miles of railway opened for traffic in India, was 3,186¼, and the length remaining to be finished, 1,730¼, making a total of 4,916½ miles, consequently, about two-thirds of the lines sanctioned by Government are finished. Of the ten Indian railways and their branches, the following number of miles are open for traffic:—East Indian, 1,126; Great Indian Peninsula, 595½; Madras, 571; Bombay, Baroda, and Central India, 306; Scinde, 114; Punjab, 252; Punjab Delhi, none; Eastern Bengal, 114; Great Southern, 79; Calcutta and South Eastern, 29; total, 3,186¼.

The miles of the sanctioned lines yet to be finished and opened are:—East Indian, 370½; Great Indian Peninsula, 670¾; Madras, 281; Bombay, Baroda, and Central India, 6; Scinde, none; Punjab, none; Punjab Delhi, 320; Eastern Bengal, none; Great Southern, 82; Calcutta and South Eastern, none; total, 1,730¼.

The capital expended for rolling stock since the first Indian line was commenced up to the 1st May, 1865, was 51,942,029*l.*, the expenditure during the past year only being 3,806,044*l.*, of which about 2,418,345*l.* were spent in India, and 1,387,699*l.* in England. To meet this expenditure 36,533 shareholders subscribed up to December the 31st, 1864, 58,000,000*l.* Of these shareholders 29,303 were registered in England, and 777 in India, 393 only of the whole being natives. The rate at which capital has been expended upon Indian railways during the past fifteen years, is shown by the following figures:—In 1850, 175,156*l.*; 1851, 351,323*l.*; 1852, 427,560*l.*; 1853, 670,649*l.*; 1854, 1,729,588*l.*; 1855, 3,371,005*l.*; 1856, 3,517,907*l.*; 1857, 3,417,268*l.*; 1858, 5,491,125*l.*; 1859, 7,162,872*l.*; 1860, 7,589,770*l.*; 1861, 6,558,614*l.*; 1862, 5,810,852*l.*; 1863, 4,771,775*l.*; and 1864, 3,806,044*l.* The cost per mile of Indian railways, if completed according to estimate, will be as follows, notwithstanding the expense of transporting men and materials from India:—East Indian, 20,849*l.*; Bombay, Baroda, and Central India, 19,230*l.*; Delhi, 18,750*l.*; Scinde, 17,543*l.*; Eastern Bengal, 15,789*l.*; East Indian (Jubbulpore), 15,555*l.*; Great Indian Peninsula, 12,616*l.*; Madras, N.W. line, 12,500*l.*; Punjab, 11,857*l.*; Madras, S.W. line, 11,178*l.*; and Great Southern, 9,316*l.* The average cost per mile of English railways, including purchase of land, is 33,350*l.*

The fares on the Indian railways vary as follows:—First class, from 1¼d. per mile on the Scinde Railway, to 1½d. on the Bombay and Baroda. Second class, from ¾d. on the Madras Railway to 1d. on the Great Indian Peninsula, and several others. Third class, from ½d. to ¾d., half the lines charging the one amount, and half the other. There is a fourth class at ¾d. per mile, on the East Indian, Eastern Bengal, and Calcutta and South Eastern Railways.

The quantity of materials sent out in 1854 for the construction, maintenance, and working of railways in India, amounted to 102,318 tons, in 233 ships. The value of the goods shipped was 1,018,164*l.*, and the amount paid for freight and insurance, 164,528*l.*

CAVE AND ROCK SYMBOLS IN SCOTLAND.

AT a meeting of the Royal Society of Edinburgh, Professor Simpson, now Sir James Young Simpson, Bart., gave an interesting account, illustrated by drawings, of some ancient sculptures on the walls of caves in Fifeshire. He more especially spoke of a series of eight or nine caves at Wemyss, on the coast.

Probably it was from the ancient name of these caves, "weems," that the place took its name. Some of the caves are of great size—one is 90 ft. long, 40 ft. broad, and nearly 40 ft. in height. In several of them there are no sculpturings traceable—these being most numerous in two caves, named Jonathan's Cave and the Dovecot Cave. The ornamentation of these cave walls is like what is found on the sculptured stones of Scotland, including what are the most frequent of any in these caves, the so-called "spectacle ornament" crossed with the N symbol, as already spoken of in the *Builder* under the head of Geometrical Symbols.

Among the symbols also were observed the elephant, very rudely carved, the comb and mirror, specially treated of in the letters on Geometrical Symbols, in the *Builder*, already referred to; the fish, and occasionally the serpent, with the "sceptre" carried through it. The "arch or horse-shoe ornament" was also occasionally found.

The interest of the sculptures discovered in the Fife caves, said Sir James, was this, that with one exception, the symbols he had spoken of had never been found excepting in monoliths, and these monoliths were supposed [in some cases only] to be sepulchral. They had now, however, been found in quite a different position [in Scotland as in England], and where the idea of their sepulchral character would not apply. They had in these caves the bear, the deer, the swan, the peacock, the fish, the serpent, and so on, exactly like what they found in the sculptured stones. The cave sculptures, he had no doubt, were coeval with the monoliths. They found crosses on them in considerable numbers, sometimes the cross standing on a tripod; and in one case they had the cross and tripod inverted. For himself, he had come to no conclusion as to what was the purpose of these carvings, for he thought their supposed sepulchral character was taken away by the position in which they were found. Further, he might mention that other Scottish caves had been found with sculptures on them, as, for instance, Bruce's Cave in Arran, and certain caves in Northumberland, and in some of them the same kind of carvings had been discovered. There were plenty of caves in Scotland yet to be examined, some of them of great size—in the Western Islands, in Argyleshire, in Galloway, in the interior of Lanarkshire, and in Roxburghshire, not forgetting the cave at Hawthornden.

PARIS.

THE works on the site of the Paris Exhibition of 1867 continue most actively. The drainage works have been carried on on a large scale, and the foundations are being laid for the heaviest parts of the building. The hollow portions of the grounds are being filled up with material from the heights of Trocodero, at Passy, opposite the Champ de Mars, the transport being made by means of a railway laid from Trocodero, over the Pont de Jena, as far as the site of the building. Most of the trees in the Avenues Suffren and Labourdonnay have been felled, and the slopes levelled. It has been definitely arranged that the principal entrance is to be on the Quai d'Orsay, and that a terrace will be there constructed at the entrance of the Pont de Jena.

The population of Paris, according to the French papers, counted, at the end of the sixteenth century, only 100,000 inhabitants. Two centuries later, in 1709, the population was 500,000. Since that period the increase has been as follows:—1772, 560,000; 1824, 750,000; 1842, 1,000,000; 1861, 1,500,129; 1865, 1,667,841.

The new church of Saint Augustin, on the Boulevards Malesherbes, is entirely cleared of the scaffolding, and forms a conspicuous monument when seen from the Place de la Madeleine. Nothing remains now to be finished but the interior fittings and the railings. Many complaints are made of the finial of the dome, which is of cast-iron, and resembles a tubular stove with four pipes. The architect is M. Victor Baltard.

The restoration of the Château de Sainte-Germain-en-Laye, proceeds incessantly, under the direction of M. Millet, architect of historic monuments. The upper portion of the donjon of Charles V. will remain as certainly one of the most interesting points in this restoration, the most perfect union existing between the principles of construction and the aim for which it was designed. Similar works are being carried on in the ancient dwelling of Charles V. and François I. The new historical museum, established in one of the halls of the Château, has just been enriched by a bracelet of massive gold, worth 40*l.*, and purchased by the State for 60*l.*

ART-WORKMEN'S COMPETITION, SOCIETY OF ARTS.

IN response to the very liberal offers of premiums made by the Society of Arts, amounting in the whole to a very large sum, 59 works only have been sent in, with 3 models of brackets or trusses, to compete for the prizes offered by the Company of Plasterers. There are, also, 6 works sent in for exhibition only. The 59 works are divided thus:—Carvings in marble, stone, and wood from prescribed designs, 6; repoussé work in metal, 6; hammered work in metal, 3; carving in ivory, 2; chasing in bronze, 4; engraving on metal, 1; enamel painting on metal, 3; painting on porcelain, 4; decorative painting, 3; inlay in metal, 1; cameo cutting, 2 (under one number); wall mosaics, 1; die sinking, 3; bookbinding, 3; illuminations, 3. In the second division, without prescribed designs, wood carving (the figure), 7; animals, 1; foliage, &c., 7. The show is not remarkable. The designs prescribed by the Council are those that were named on a previous occasion. Others should be selected next time for more reasons than one.

A NEW YEAR'S GIFT TO A CORPORATION.

AT a special meeting of the town council of Doncaster, on Monday last, a report was presented from the building committee of St. George's Church, Doncaster, signed by W. B. Wrightson, chairman (late M.P. for Northallerton), handing over to the corporation, entirely free from debt, the church of St. George, opened in 1858, the previous structure having been totally destroyed by fire in 1853. The total cost of the church was 43,128*l.* 4s. 5d., but this by no means represents the total outlay, as the South Chapel was restored by Mr. W. H. Forman, of Poppbrookhouse, Dorking, at a cost of about 7,000*l.* Mr. E. B. Denison, Q.C., presented the pulpit; Professor Selwyn the font; the late Mr. Dent gave a clock and chimes; and the organ, costing 3,500*l.*, was subscribed for without any reference to the general subscriptions. The restored edifice has cost, at a most moderate estimate, 55,000*l.* Of the sum total of 43,128*l.* 4s. 5d. raised in subscriptions, 9,000*l.* were contributed in two sums of 5,000*l.* and 4,000*l.* by the corporation, and 30,490*l.* 4s. 5d., by the public of the country generally; 1,090*l.* 15s. 6d. were the proceeds of a bazaar; the remainder was realised from interest, collections, sale of material, &c.; and the sum of 318*l.* 9s. 4d., due last week, was paid as a third contribution by the corporation. The carving in the church cost 2,596*l.* 16s. 5d.; the roofs, 11,174*l.* 10s. 10d.; and the walls and foundations, 22,872*l.* 10s.



KINNETTLES HOUSE, NEAR FORFAR.—*Plan.*

KINNETTLES HOUSE, NEAR FORFAR.

KINNETTLES, the property of Mr. James Paterson, is within four miles of the town of Forfar, and the site of the house is a steep-wooded bank, sloping down to the south, in which direction are the principal windows of the dining-room and drawing-room. Advantage is taken of this slope to get accommodation for the housekeeper's department below these two rooms, the rest of the principal floor of the main building being nearly on the level of the ground, and without any floor below it. The kitchen office wing, following the slope of the ground, has the ground floor at a level intermediate between that of the principal floor of the main house and the sunk story already mentioned; and the passage from the offices of this sunk story has a gradual slope upon it, so as to avoid the inconvenience of having steps in the middle of it.

That part of the kitchen offices occupied by the kitchen, scullery, &c., is in one story; the remainder (of which the upper floor is shown in the plan) is in two stories, the ground floor containing dairy, larders, washing-house, coal-house, &c. In the upper floors of the main building there are nine bed-rooms and three dressing-rooms, two bath-rooms, as well as W.C.s, &c.

The cost of the whole, exclusive of the conservatory and terrace-walls, not yet contracted for, is about 6,300*l*.

The walls are of a hard grey freestone found on the property, faced with picked dressed courses of Fife freestone, with polished dressings of the same.

Messrs. Peddie & Kinnear are the architects employed.



KINNETTLES HOUSE, NEAR FORFAR, SCOTLAND.—MESSRS. PEDDIE & KINNEAR, ARCHITECTS.

ITCH WOOD.

AMONGST trees little known, but producing valuable timber, may be mentioned the itch-wood tree (*Oncocarpus Vitiensis*), of the Fiji Islands and New Caledonia. Though producing wood valuable for building purposes, the tree is better known for its highly dangerous properties when in a living state. It secretes a deadly milky sap, a single drop of which, should it happen to fall on the hands or face, is said by Dr. Seemann, in his "Flora Vitiensis," to produce a pain equal to that caused by contact with a red-hot poker. The natives are well acquainted with the dangerous properties of the juice, and use it as a poison. If the tree is simply touched, it produces eruptions of the skin. The following extract from a letter directed to the British Consul, by Mr. Egerström, gives a good idea of the nature of this tree: he peeled off the bark of a specimen himself (not knowing the tree), and proposing to use the spar as a flagstaff, he says,—"In the evening I was troubled with considerable itching about my legs, and every part of my body which had come in contact with the spar, especially about the abdomen and lower parts, having sat across the tree when barking it. All the parts affected became red and inflamed, breaking out in innumerable pustules, which emitted a yellowish matter, with a nauseous smell. The itching was exceedingly painful and irritating, and my arms having been bare when operating upon the tree, also became inflamed and broke out as already described. The neighbouring natives, who came to watch my proceedings, now warned me, too late, not to touch the tree, as it was a poisonous one, and advised my keeping quiet, and not to touch or scratch the parts inflamed. This advice, however, I could not follow, the irritation for several days being excessive. I employed no remedy, but bathed daily, as usual, in fresh water, although advised to the contrary; and did not get rid of the injurious effects of the itch-wood for *nearly two months*." A remedy for the dangerous eruptions is said to consist of charcoal reduced to powder, and thickly applied to the parts affected, effecting a cure in twelve or fifteen days. The tree has a green bark, and attains a height of 60 ft., and a girth of 2 ft. or 3 ft., the wood being white and easy to work. The properties of the tree appear to be very similar to the milk mushrooms so extremely common in this country. One drop of the milky juice secreted by some of these species, will occasion a sharp smart like the sting of a nettle, particularly on delicate skins, whilst a drop placed on the tongue is so extremely acrid and fiery, as to cause severe pain and inconvenience for many hours.

CONTINENTAL NEWS.

Austria.—The hitherto confined and inconvenient terminus of the Northern Railway Company at Vienna has been removed, to give place to a new building, fitted up with all the luxury and accommodation for the public required to suit the taste of the present day; and it forms at the same time a handsome ornament to the city, which, during the reign of the present emperor, has been so much enlarged and beautified. This new terminus, which covers an area of 3,000 square klafters, or fathoms of 6 ft., is built in the form of a parallelogram, flanked with towers at each corner. In the centre is the great platform for arrivals and departures, supported by fifty massive cast-iron columns, and 100 pilasters, the whole arched over, the crown of the arch having an elevation of 55 ft. It is sub-divided into five different platforms for the railway lines that concentrate at this point, each affording ample space for convenient ingress and exit. The works have been executed by Herr Hoffmann, the company's architect.——Among the newest improvements in the Austrian capital may be mentioned the Central Market, which was thrown open for general traffic at the end of last month; and its being already so much frequented by both buyers and sellers, shows how much it was needed. It is situated, as its name implies, in a very convenient and central spot in the suburb "Landstrasse," between the Junction railway and the City Park, on the right bank of the Wien, a little stream that here falls into the Danube, and gives its name to the capital. It was designed and built by Herr Gabriel, the city architect and engineer, and is considered in all respects such a model of practical convenience and utility, that similar ones are to be erected in various parts of the city, where their want is most seriously felt. The summer-house, or garden-pavilion, in the grounds of the so-called Free-house, in the suburb of Wieden, celebrated as the classic spot in which, seventy-four years ago, Mozart composed his opera of the "Zauberflöte, has been lately repaired and embellished by its noble proprietor, the Duke of Stahremberg. It still contains the original furniture used by the great composer, among which are two chairs of antique form, and ornamented with elaborate carving.——At Trieste the new Byzantine church of the Oriental Greeks is fast approaching its completion, and with its proud domes not only presents a unique and magnificent appearance, but promises to be one of the handsomest places of worship in the Austrian dominions. It is erected entirely by private subscriptions among the members of the Greek community residing at Trieste.

Bavaria.—The musical composer, Richard Wagner, has been using his influence over the youthful king to extract large sums of money out of the royal pocket, to be spent in building an opera-house, concert-halls, and various other projects for the service of the muses. The new opera-house *at Munich*, is decided on, and the site is the eastern rise of ground on the banks of the Isar, close to the ornamental park, planned and laid out by the late king, Maximilian II. It will be constructed in accordance with Wagner's ideas of acoustics, from the designs of Professor Semper, and under the superintendence of that architect. In connexion with this, a project, has been formed for making a new and magnificent street, with aristocratic houses of the first-class, to lead from the Royal Palace Garden to the banks of the Isar, the execution of which is also entrusted to Professor Semper.——The Maximilianeum is rapidly progressing, and workmen are busily employed in completing the exterior stucco-work. If not too much interrupted by the frost, the building will probably be opened in the spring.——The municipality of Munich has resolved to pull down its antiquated Hôtel-de-Ville, and erect a new one worthy to take its place in the brilliant galaxy of modern buildings for which that city is so celebrated. To gain more room for the new erection, they have just purchased the adjoining house, used by the Government of the circle of Upper Bavaria, for the sum of 450,000 florins. The magistracy have decided on opening a public competition amongst the architects of all Germany for designs for the new building, with three premiums of 2,000, 1,000, and 500 florins respectively for the best plans.——The Munich "Kunstverein," or Association of Artists, is building a Club-house for their own use, for which the King has generously made them a present of the ground for the site. It is situated at the lower end of the arcade surrounding the Hofgarten, and promises to be, when completed, a handsome and spacious building. The estimated cost is 32,469 florins, which have been raised by private subscriptions among the artists of the Bavarian capital.——On Twelfth Day last year the northern tower of the St. Laurence Church at Nuremberg was struck by lightning, but has been repaired and is now restored to its original appearance, though it took a whole year to accomplish it.

Saxony.—At Dresden, a new quarter of the town is projected, and the plans are all finished, and only waiting the confirmation of the Government. In style and architectural design, it will be similar to those of the new Prague and Lüttichau suburbs lately completed. It will be laid out between the terminus of the Saxon-Bohemian Railway, the Berg-street, and the road leading to Yschertnitz. The principal street will be a continuation of Prague-street, which is 100 ft. wide. The nine parallel streets will have a width of 80 ft., and the cross streets of 60 ft. The *trottoirs* will be respectively 24 ft., 16 ft., and 12 ft. wide. The new quarter will also contain five squares of different dimensions, the largest of which will cover an area of 360,000 square feet.

Belgium.—Preparations are making at Brussels for opening a national subscription, to erect a magnificent monument to the memory of the lamented late King Leopold.——The new building for the Free University has been opened, and forms one of the most imposing of the many modern palaces that adorn the Belgian metropolis. The rather heavy appearance of the front is much relieved by a dome of light and elegant proportions, that rises over the Academical Lecture-room, which is of a semicircular shape, and is capable of affording accommodation for 1,500 persons.

Brunswick.—The celebrated quadriga, in bronze, by Rietschel, which was destroyed during the great conflagration at the ducal palace last year, is to be re-cast. The Brunswick Association of Artists, who were consulted on the subject, have unanimously decided that, to be in proper proportion to the size of the building, the dimensions ought to be somewhat reduced. In the work of art destroyed by the fire the horses were 15½ ft. high, whilst in the new casting they will only be 14 ft., and the total height of the quadriga reduced to 22 ft. This proposal has met the entire approbation of the Duke's court architect, Herr Ottmer, as well as of the technical director of the foundry, Herr Howaldt, who conducted the casting operations of the original, and is now engaged for a similar purpose with the new cast.

CHEAP BUILDING.

THE chairman, at the meeting of the Manchester Architectural Association, mentioned in a recent number (Mr. H. Booth), said,—There has never been a time more favourable to the development of good architecture in this country than the present, and it will be for ever a reproach to the architects of this day if some decided improvement does not distinctly mark the English architecture of the latter part of the nineteenth century.

The country is prosperous, wealth abundant, and the public quite prepared to pay for what they can believe to be the best and cheapest. And this question of cheapness leads me to speak of a subject which has doubtless forced itself unpleasantly on the attention of most of you in the course of your business transactions as practising architects. I refer to the tendency on the part of some members of our profession to pander to the desire for cheap buildings,—a desire which is quite natural in the person whose money is about to be expended, and is indeed often useful as a healthy check on the otherwise too aspiring notions of the artist, but which has a most disastrous effect upon both the interests of architecture and the morality of the architect when taken advantage of by him for selfish or other unworthy purposes. It is not necessary to remind you that lowness of price, exclusive of other considerations, does not constitute cheapness. Experience has taught me to become sceptical when told that an architect has the reputation of erecting very cheap buildings, as I have too often the justification of such scepticism in the examination of the buildings themselves. Perhaps, in no class of buildings is the effect of cheap architecture more painfully apparent than in some of the churches and chapels now erected. The straining after what is called effect, but which would be more correctly described as a desire to make things appear not only better than they really are, but something totally different, at the expense of good construction, cannot be too strongly reprobated.

SCHOOL-BUILDING NEWS.

Shouldham.—The foundation-stone of a new National School-room has been laid here. The want of a suitable building for a school has long been felt, the school having been in existence for the last eighteen years, and seventy-five children are now taught in a room only 20 ft. square. The Rev. W. W. Allen, the incumbent of Shouldham and Shouldham Thorpe, having purchased a site opposite the church, and in the centre of the parish, at a cost of 100*l.*, and presented it, exerted himself to raise sufficient funds to complete the work. The building resolved upon is in the Decorative style of the thirteenth century, and will include a room 17 ft. 6 in. by 46 ft. 6 in., and two porches 6 ft. 6 in. square. The architect is Mr. R. J. Withers, of London; and the builder is Mr. Clare, of Watlington. The total estimated cost is nearly 500*l.*

Shrewsbury.—An infants' school, to accommodate 230 children, has lately been built in St. Austin's-street, parish of St. Chad. It consists of school and class rooms, covered porch, &c. The material employed is brick with Grinshill stone dressings to windows, and the roofs are open-timbered and covered with Staffordshire tile. The style of the building is Early Deco-

rated. The work has been carried out by Messrs. Everall & Morris, from the designs of Mr. E. Haycock, jun., architect, Shrewsbury, for 600*l.*

Hornsey.—New National schools have been opened here. The new school-room stands immediately opposite the old building, on the other side of the road, and is in the Pointed style. It is lighted by a large window at one end, on one side by five, and on the other by three windows, glazed with a larger and better description of glass than is usually employed in such buildings. The result is, that there is a good flood of light, and ventilation has been seen to. The roof, internally, is of light open timbers. The dimensions of the room are 55 ft. by 22 ft. At one end of the building is a residence for teachers. The entire cost is upwards of 800*l.* Mr. James Edmeston, of London, was the architect; and Mr. J. W. Lacy, of Norwich, the contractor.

WHEN IS HALF A BUILDING TAKEN DOWN, UNDER THE METROPOLITAN BUILDING ACT?

SAVILLE HOUSE, Leicester-square, burnt down about a year ago, was about to be re-constructed by Mr. Rigby, under the direction of Messrs. Nelson & Innes, using the existing party walls, on the ground that half of the old building, measured in cubic feet, had not been taken down. The district surveyor, Mr. Kendall, demurred, and summoned the builder before Mr. Knox, at Marlborough Police Court. Several meetings took place. Mr. Raymond appeared for the Metropolitan Board of Works, to support the district surveyor, and Mr. Sleigh for the defendant. Mr. Knox's decision has already appeared in many of the daily papers; but it seems desirable, nevertheless, that we should record it in our pages:—

Saville House was burnt down on the 20th of February, 1865, and of the building, after the fire, there remained the two party or west and east walls, partially damaged by the action of the fire, the front or south wall towards Leicester-square, and the northern walls of the building, also to a considerable extent injured by the fire; indeed, the north wall of the front building was well nigh wholly destroyed. The roof and floors were gone, and for all practical purposes connected with the discussion of the summons it may be said broadly that the interior of the building was destroyed by the fire. Of Saville House nothing remained but the dilapidated shell. With this exception, Saville House was left by the fire a mere heap of ruin. Now, the law is, that "wherever any old building has been taken down to an extent exceeding one-half of such building in cubic feet, the rebuilding thereof shall be deemed to be the erection of a new building, and every portion of such old building that is not in conformity with the regulations of this Act shall be forthwith taken down." These are the very words of the Act; but though the terms used by the Legislature would appear at first sight to be clear and explicit enough, yet, as it has turned out, almost every phrase has become the subject of keen and anxious discussion. The most important questions raised are, however, three in number:—1. What is a building for the purpose of the Act? 2. What extension, if any, should be given to the terms used in the Act of "pulled down?" 3. How should we proceed in order to measure the contents of a building in cubical feet? Other minor points have been raised, but upon the conclusion I may arrive at under the three heads just named my decision must turn. First, then, what is a building? Is it a shell—the four outer walls? or is it these with the addition of the floors and roof? or is it all these, and whatever else is contained within these six limits? I see no reason for any variance between the conclusions of common sense and usage and the conclusions at which I must arrive, after a careful perusal of this statute, as to the intentions of the Legislature. As far as may be, I would let the statute interpret itself wherever we are left to seek the intentions of the Legislature, without help from the preliminary definitions. In the present case, however, definitions do help us in an indirect way. I find among them that "the area of every building shall be deemed to be the superficies of a horizontal section of such building, made at the point of its greatest surface, including the external walls and such portion of the party-walls as belong to the building." Here, then, the external walls and the party-walls are spoken of by the framers of the Act in such a way as must preclude the idea that they looked upon the shell of the building and the building as identical. It may, perhaps, at this point be best to add that I have not considered it necessary to go to any length into the discussion as to the attached buildings, inasmuch as, though the point were found for the defendant, it would not alter his case. I should, however, add that on personal inspection the attached buildings did not exceed the height of the ground flooring, and, therefore, cannot be taken into account in increase of the cubical contents. Next, when can a building be said to be pulled down? Is it necessary, as contended by the learned counsel for the defendant, that the meaning must be confined to occasions where a building has been pulled down by the hands of workmen acting under competent direction and of set purpose; or does it mean if a building is levelled with the ground by the act of God, as by lightning; or, as with Saville House, if destroyed by fire; or even if it should fall to the ground by sheer decay, that then it should not be re-erected in conformity with the provisions of the Act? Surely such an absurdity could never have been intended, as that, if a ruinous building should tumble down because it was ruinous it should be sufficient to restore it to the condition in which it was the moment before it fell. I have little of my own to add to what was urged by the learned counsel for the complainant on this point. I do not consider the Act under review as a penal Act, although it contains penalties. It is an Act intended for the protection of the public out of regard for existing interests; it does not—save as far as the provisions for "dangerous structures" are concerned—interfere with old buildings: but, when they are once down, it enacts they shall be re-erected in conformity with the provisions of the Act. It is a statute that should be read liberally for the public protection Such, I feel sure, was the meaning of the Legislature; and although the term used might have been more comprehensive, it is, I think, sufficient to justify the view that, when an old building is once down, any re-erection should be considered as within the meaning of the section of the Act now under review. Saville House, then, is a building—an old building—which has been "pulled down" within the meaning of the Act. I now come to the third point, which is, as to how the cubical contents of a building should be measured. I should have thought this plan enough according to the calculation of height, length, and breadth in the usual way. I cannot but say that, as it seems to me, a good deal of somewhat perverse ingenuity has been employed in making that obscure which is sufficiently clear. I am not here to inquire into the methods of calculation employed by professional men, save in so far as I ask myself if they, or any of them, carry out the intentions of the Legislature. If they do this I am satisfied; if not, I reject them. I say that what must be calculated is not the solid contents of the containing limit, less the roof and floor, but that it must include the space contained within these limits. Take advantage of the shell as an instrument of calculation, it is little more. The methods pronounced by the district surveyor and Mr. Nelson, the architect of the building, appear to me equally faulty, inasmuch as both of them ignore the portions of the building contained within the walls, as floors, roofs, staircases, &c. The district surveyor has, I think, withdrawn his calculation as based on a faulty method, and he has done well. Mr. Nelson's plan it is sufficient to say that its result is a *reductio ad absurdum*. That gentleman appears to have proved to his own satisfaction that half of Saville House is standing. I can only say I was there last week, and I saw several large portions of the building represented by walls in a ruinous condition. One portion of a party-wall had received a new facing, but I cannot say I had any very robust confidence as to what lay beneath. The fire must have acted very partially indeed if it treated three of the walls in so unhandsome a way and left the fourth in a sound condition. But to return to the more immediate subject. The method propounded by Mr. Reeves, the surveyor to the Metropolitan Commissioners of Police, has this advantage, that it actually takes account of the cubical contents of the building, and does so in a satisfactory and scientific way, which cannot, as I think, be impeached. If, then, I am right in the view that the term "building" in the Act means the "entire building," and not merely the shell, it is obvious that, upon Mr. Reeves's method, very considerably more than half the building is gone. Saville House must be reconstructed according to the conditions imposed by the Act of Parliament, and every portion of such building which is not in conformity with the provisions of the Act now under review must be taken down. Judgment must, then, go for the district surveyor, which will be in the form of an order to comply with the requisitions of the summons in the usual way.

We fully agree in the decision arrived at, and must applaud the magistrate for the ability with which his decision is set forth and illustrated.

POOR ALMSHOUSES, &c.

A SAD account appeared in the *Builder*, December 23rd, of almshouses supposed to be amongst the poorest in the kingdom—1*s.* a week, ostensibly founded by the Russell family at Woburn. It is doubtless to be wished that any such true statement should give birth to fair consideration. There exists a rather singular, though certain circumstance, as it might strike any visitor to Covent Garden Church. In the "List of Benefactions" the "Northumberland" family, though their property in that parish is doubtless comparatively small, appear as donors considerably more than the Bedford (whatever they may do privately), who possess nearly the whole,—once church property. I fully suppose, though I have seen no allusions to the subject for some time, the first keep up a private donation of "100*l.* in half-crowns" to the poor of St. Martin's on Christmas morning. J.

METROPOLITAN BOARD OF WORKS.

PROGRESS OF THE MAIN DRAINAGE AND THAMES EMBANKMENT WORKS.

THE engineer at last meeting of the Board read his monthly report, from which the following statements are taken:—

"*North Side of the Embankment.*—Thames Embankment.—Contract No. 1, between Westminster and Waterloo Bridges: The approximate cost of the work done, materials on the ground, and plant, is 251,370*l.*, the sum of 6,841*l.* representing the progress made by Mr. Furness in the past month. Of the total amount, the sum of 137,404*l.* represents the work, 59,337*l.* the materials, and 54,629*l.* the plant. By the strict terms of the contract, the works should be completed by the 16th of August next, but there was so much delay at the outset—first, from want of possession of the wharfs necessary for the deposit of materials and plant; next, from the various experiments by the contractor to settle the form of caisson and timber dams to be adopted: then with respect to whether the Board would construct a steam-boat pier at Hungerford; and now from the works of the Waterloo and Whitehall Railway, near that point—that I fear the actual time of completion may be extended to many months beyond that date.

Thames Embankment. — Contract No. 2, between Waterloo Bridge and Temple Gardens:—The approximate value of the works completed, and of the materials and plant upon the ground, is 163,882*l.*, the sum of 6,339*l.* being due to the progress made by Mr. Ritson in the past month. Of the total amount the proportionate sum of 119,967*l.* is for work, 18,898*l.* for materials, and 25,017*l.* for plant. Strictly by the terms of the contract the works should be completed by the 9th of March next; but as in the No. 1 Contract, delay was experienced in obtaining possession of the requisite wharfage accommodation, and there were other minor causes of delay equally beyond the contractor's control.

Low-level Sewer.—The value of the whole of the work executed is about 178,421*l.*, of which the sum of 5,321*l.* is due to the progress made by Mr. Webster in the past month.

Abbey Mills Pumping Station.—The value of the completed work is 14,132*l.*, the sum of 2,132*l.* representing last month's progress.

South Side of the Thames.—Thames Embankment.—Contract No. 1.—Mr. Webster has completed 1,000 ft. run of piling for the dam, and 1,250 ft. run in staging have been driven to an average depth of 16 ft. About 95,000 cubic feet of timber have been used in these works, and about 75,000 ft. are upon the ground ready for use."

Mr. Roche called attention to the small amount reported to be expended during the month on Contract No. 1; and, after a brief discussion, the matter was referred to the Thames Embankment Committee.

"BUILDERS' CLERKS."

SIR,—Seeing your correspondent "Peto's" letter of last week, I must ask your kind permission to allow me space to thank him for having struck the first blow in a matter needing so much consideration and co-operation of builders' clerks to promote their present interest and their future happiness; and I hope, that as "Peto" has started first, his hopes may be realised, and that the suggestion may be earnestly taken up by all whom it concerns. It is well known to every one that the wages of the builders' workmen have, during the last few years, been very much improved in consideration of the high cost of provisions, rent, &c.; and who has seen more of the working of these matters than the builder's clerk? Yet his employer has not raised his salary, although provisions, rent, &c., affect the clerk as much (if not more) in proportion as the workman; for a builder's clerk, with a family, cannot rent what he requires for respectability, health, and a very moderate amount (if any) of comfort, at less than 35*l.* to 40*l.* per annum; and what is then left for provisions, clothing, and educating a family, is the barest possible sum that it can be done with. In fact, when his day's business is over, the troubles of home are at once on his mind, to know how best to keep the family in a healthy and respectable manner; for if health fails, debts must be incurred, and if appearance fails in himself his position is likely to become worse, as he is required to represent his employer whenever required; and should he be out of a situation for any length of time, what he has must be forfeited. And *why* should this state of things exist? Is not the builder's clerk as valuable to him as any of the clerks of other businesses to their employers? His hours are equally long, and in many cases longer; his duties heavy, and requiring great experience; his life endangered by his business; and if he feels disposed to insure against accident, he finds he has 60 per cent. more to pay than others out of the trade; yet the salaries never exceed (and but rarely reach) 300*l.* per annum, and will not average more than 100*l.*; whilst there are clerks in other offices ranging up to 600*l.* per annum.

A MEASURING CLERK.

GREEN COATING ON STONEWORK.

SIR,—What are the best means of removing the green coating which sometimes appears on the surface of newly erected sandstone buildings? I have particularly in view an illustration in the case of a house in Derbyshire, which has, gradually as the work advanced, been disfigured in this way. W. O.

PROPOSED NEW UNIVERSITY BUILDINGS, GLASGOW.

IT was long ago proposed to erect new buildings for Glasgow University, and now the Union Railway Company having bought the present College grounds, and an Act of Parliament authorising the removal having been obtained, Gilmore-hill has been purchased as a site. Further, Mr. G. G. Scott has prepared designs, which are being exhibited. It is stated that the funds at the command of the senate, amounting, with the promised Government grant, to 138,900*l.*, are quite inadequate, and probably a further sum of 150,000*l.* will be required to complete the scheme in the style worthy of the ancient university and the modern city. A sum of 54,000*l.* has been already subscribed by leading firms in the city, in sums varying from 500*l.* to 1,000*l.*

THE YEATMAN HOSPITAL, SHERBORNE.

THE Yeatman Hospital has been inaugurated, in the presence of a large number of persons, including most of the principal inhabitants of Sherborne. The building is in the 15th century Gothic style, and will, when completed, consist of a centre and two wings, one wing being left for erection hereafter. The whole building is designed to accommodate sixteen beds, and there is room in the portion inaugurated for eight, of which four are at present ready. The wards are light and lofty, well warmed, and fitted with ventilators. The kitchen con-

tains one of the newest "kitcheners," and provision is made for baths, operations, the keeping of drugs, &c. On the ground-floor of the centre wing are the surgeon's room, matron's room, kitchen, larder, pantry, scullery, and other domestic offices, together with some of the males' wards. At present the females' wards are on the first-floor; but when the building comes to be enlarged, the whole of this part will be appropriated to the males, and the females' wards will occupy the whole of the new wing. On the first-floor of the centre wing, adjoining the females' ward, are the Board-room, matron's room, operating-rooms, and bath-room; the other part being fitted up with lavatories, closets, &c. The whole of the work was carried out under the superintendence of Mr. Thomas Farrell, for the contractor, Mr. Down, of Sherborne. Messrs. Slater & Carpenter, of London, were the architects; Mr. Chapman, of Montacute, providing the Ham stone dressings; and Mr. Mitchell, of Sherborne, doing the local stonework. The contractor's estimate was 1,726*l.*, and the total cost of the building, including 86*l.* for architect's commission, was 2,048*l.* 17*s.* 6*d.*

THE ARCHITECTURAL MUSEUM PRIZES.

IT will be seen that the Council of the Architectural Museum offer an additional prize of 5*l.* (given by the Architectural Union Company) for a boss, modelled in clay, representing King David with his harp. The boss is to be not less than 9 in. over, and to be original in design. The Council of the Architectural Museum add 2*l.* as a second prize, and will themselves adjudicate in this competition.

MIDLAND RAILWAY: ST. PANCRAS STATION COMPETITION.

OUR readers know that eleven invited architects submitted designs for the proposed new station. The following award has been made:—To Mr. G. G. Scott, R.A., the erection of the building; Mr. G. S. Clarke, premium 200*l.*; Mr. E. M. Barry, 100*l.*; Mr. T. C. Sorby, 50*l.* The other competitors were, Messrs. C. P. Cockerell, Derbishire, Lockwood & Mawson, Hine & Evans, Walters & Co., Lloyd, and Owen Jones. The cost of the selected design is estimated at 80,000*l.*

SCOTLAND.

Edinburgh.—The plan of a structure, commemorative of the late Miss Catherine Sinclair, has been submitted for the consideration of the Lord Provost, with the view, if possible, of finding a proper site for it in the city, more particularly near the west end of the new town. The design, which is by Mr. David Bryce, architect, is in the form of a Norman cross, about 60 ft. high, and is embellished with figures and pinnacles—a kind of miniature Scott Monument in its general aspect. Means are already provided for erecting this structure.

GAS.

THE Staines and Egham Gas Company have declared a dividend of 7 per cent. for the past year, and a further reduction of 6d. per thousand feet in the price of gas, which is now 3*s.* 6*d.*——At the Dundee Gasworks, during a recent gale, the shaking of a gasometer which stands at the north-east corner of an inclosure 70 ft. high, broke one of the pillars or supports, and the large mass tilted over to the east side: the lower rim being thus partly raised above the level of the water in which it floats, the gas inside escaped in large quantity, and became ignited; by what means is unknown. It immediately blazed up, of course, with great fury. The aperture between the water and the outer rim of the gasometer being of small size compared with the whole surface, the flame continued steadily for a considerable time. Had the gas escaped without immediate ignition, there might have been a terrible explosion. As it was, the flames rose to a height of fully 30 ft., and the heat was so intense as to melt the cement in the joings of other three gasholders; so that the gas also escaped from them, and they were soon encircled with rings of flame, which burnt on till the gas was exhausted. The leaks at the joinings will have to be stopped; but beyond that the last three gasometers appeared to have suffered little or no injury. The first one, however, is much distorted at the tilted side where the gas escaped. ——An invention of Mr. W. Sim, of Glasgow, has for its object principally to produce gas, so that it may be employed in places to which it is difficult to convey coal. One kind of apparatus for producing the gas consists of a vessel to hold mineral oil, from the bottom or sides of which tubes project, through which the oil is led by its gravitating power or otherwise. The falling drops are vaporized, and then conveyed through pipes in the ordinary manner. The oil may be vaporized in bulk instead of in drops, if preferred. The idea of this invention is by no means new.

THE NEW MASONIC HALL AT LEEDS.

THE building fronts into Great George's-street, and is faced with stone. It is in the Early Gothic style. The entrance to the hall is at the south end, through a vestibule and staircase. At the foot of the stairs is the smoke-room, 31 ft. long, 16 ft. wide, and 13 ft. high. On the first-floor is the banqueting-room, 52 ft. long, 22 ft. wide, and 15 ft. high; a robing-room, 19 ft. long, 16 ft. wide, and 12 ft. high; and a hall which occupies the entire size of the building to the front, and is 58 ft. long, 29 ft. wide, and 27 ft. high. An arcade surrounds the walls with clustered shafts and carved capitals, from which springs a dome-vaulted ceiling, carried out and decorated with a blue ground sprinkled with stars. The ribs are crimson and yellow. The lower part of the walls are a warm maroon colour, with black diaper thereon, and a border of blue and crimson of Vandyke pattern. The east end, or daïs, separates itself by an arch, panelled in colour, with a domical ceiling in blue, mixed with stars; and the ribs of oak, with gilt paterae, picked in with vermillion. The daïs is raised three steps above the hall floor, and is fitted with oak stalls and seats covered with green leather, which surround the walls of the hall. Spacious kitchens, lift, cooking appliances, lavatory, &c., formed part of the arrangements also made, and every convenience has been provided to make the building complete and convenient. The building was designed and carried out under the direction of Messrs. Perkin & Son, architects, and has been formally opened.

CHURCH-BUILDING NEWS.

Everton-cum-Tetworth.—The church here, having been restored, has been re-opened for divine service. The alterations and improvements consisted of new seats of oak and stained deal, new tiled floor, oak pulpit and reading-desk, entire new north wall, windows, and doors, new stained window in chancel—a memorial of the Astell family, said to be presented by Lady Fairfax—new stained roof to chancel, altar rails and cloth. The belfry of the tower, formerly used for ignoble purposes, opened to the roof, showing a good window, which, if of stained glass, would complete the effect. The vestry or robing-room is inclosed in glass.

Alvediston.—The church here has been re-opened. The edifice, which is of the thirteenth century, had for years been sadly dilapidated. A sum of 1,200*l.* was subscribed, and Mr. Wyatt, the diocesan architect, was employed to superintend the restorations. The object of the architect has been to preserve all the main features of the original architecture. The only alteration made in the form of the building has been in the erection of a vestry on the south side, and the addition of a chancel aisle for the accommodation of the children. The nave and transepts remain as they were, and so does the tower, which, though of the Perpendicular period, includes a gable and other features of a continental character. The south transept contains the tombs of several members of the Wyndham family; and while the workmen were excavating for the foundations of the new vestry, they discovered, lying on its face, a foliated stone cross of the thirteenth century, which had evidently belonged to some tomb. This relic has been inserted in the eastern wall of the chancel, immediately over the communion-table. The east window has been presented by Lady Herbert, in memory of her late husband. The centre light contains a representation of Christ on the cross, the two side lights being occupied by figures of St. John and the Virgin. The south window, which contains a figure of St. Andrew, is also the gift of Lady Herbert. Both are by Messrs. Lavers & Barraud, of London. The seats, which are of uniform height, are of stained pine. The church is fitted with a warming-apparatus, by Haden, and the whole of the work has been carried out by Mr. Miles, of Shaftesbury, builder.

Dudley.—The Earl of Dudley has lately given 500*l.* towards the restoration of St. Edmund's Church, one of the stipulations being that all the high pews should be cut down and thrown open. This has been done, the congregation having readily assented; and now the church is re-seated in a uniform manner. A piece of iron-stone was lately thrown through one of the north windows of this church. The window, which was of stained glass, was completely smashed; but it was fortunate that no person was injured.

Cheltenham. — The foundation-stone of All Saints' Church, Cheltenham, has been laid. The site is at the end of Glenfall-terrace. The cost is somewhat under 1,500*l.* In the neighbourhood many residences and mansions have been lately built. The structure will be in the Early French style, and will afford accommodation for 950 persons. When finished, it will consist of nave, aisles, transepts, and chancel aisles, and tower and spire, about 205 ft. in height, at the end of the south aisle. The piers inside will be of red granite; and mosaic work will be introduced in parts of the building. The corbel carvings and decorations will not be executed at once, nor will the erection of the tower and spire be immediately commenced; but the body of the church will be carried on with all possible speed. The church will be entirely free, and the seats open.——The new chancel of St. Luke's Church, erected within the last few months, has been consecrated by the bishop of the diocese. The chancel and the chancel aisles have been lengthened some 20 ft., and will furnish about 100 additional sittings. An east window is being prepared by Messrs. Hardman & Co. The arch to the chancel window has been enriched with carving and Forest stone. The enlargement has been carried out by Mr. Darby, builder, under the superintendence of Mr. Middleton, architect.

Books Received.

An Old Fairy Tale told Anew, in Pictures and Verse. By RICHARD DOYLE and J. R. PLANCHÉ, The Pictures engraved by the Brothers DALZIEL. London: G. Routledge & Sons.

THE tale is "The Sleeping Beauty in the Wood," which, told as it is by the pen of Planché, and the pencil of Richard Doyle, comes out more amusing and piquant than ever. The right men are in the right place, and the result is excellent. The author, who was called in to write to the illustrations already made, speaks of what he was about to do, as—

> "The flattering task, to be a foil
> To the fine pencil of a Doyle."

But we are much disposed to think that the precedence must here be given to the pen. In a poem of some 800 and more lines, Mr. Planché tells the story with a charming mixture of pathos and fun, sprinkling his verses with those unexpected relationships between the pathetic and the gay which constitute humour. Take a few of the lines accompanying the sketch of the bad fairy, — one of the most powerful of the drawings, though the tower is brought too close by its shadow, and so looks too small. She is seated upon the sands hard by,—

> "Crouching beneath her pall-like cloak,
> Nursing her crutch as she does her hate,
> While the carrion crows around her croak,
> And wonder how long they have still to wait."

Soon she is mounted on her broom and is scudding away,—

> "Over hill, over dale, over lake, over bay,
> Over town, over tower, over marsh, over wood,
> On that very ill wind which blows nobody good."

The parliamentary measure which is passed to prevent the fulfilment of the wicked fairy's prophecy, in Fairyland, he says,—

> ——"is remember'd still
> As the 'Mustn't Spin with Spindles Bill.'"

If poetry were our province, we should point to the dirge-like song of the old crone to whom the spindle belongs and the opening of Part II. for merit of another kind. Mr. Doyle's illustrations are nineteen in number, and, like most good things, will pay for study, and give more

pleasure the last time they are looked at than the first. The discovery by the queen that "the fish she rescued" was a fairy; the departure of the fairies (notice "Buttons," who stands at the dragons' heads); and the sleeping occupants of the castle, have the strongest claims. The Messrs. Dalziel have executed their portion of the work with great delicacy and skill.

VARIORUM.

MR. GEORGE WRIGHT, the courteous and active secretary of the Junior Athenæum Club, has launched, through Simpkin & Marshall, a neatly-bound little volume of fugitive verses, under the title of "Lyric Leaflets shed in Early Spring," by which we are to understand they were the doings of his youth. They show tenderness and feeling, dealing with "the heart's past history," and establish for Mr. Wright a fresh claim on those who know him.——"Art Directory; Science and Art Department." London: Chapman & Hall, 1865. We are often asked for information as to schools of art and other matters connected with the Science and Art Department of the Government, and are glad now to be able to direct the attention of those interested in such subjects to this new sixpenny Art-Directory. It contains all requisite information as to the localities of the Metropolitan and Provincial Schools of Art; the circumstances under which aid can or cannot be granted; and so on; with regulations for promoting instruction in art in various ways. There is also a list of persons, ladies as well as gentlemen, certificated as competent to act as teachers of art-schools.——The *Church Builder Quarterly Journal*, 1865. London, Oxford, and Cambridge: Rivingtons. This little quarterly journal of church extension in England and Wales is published in connexion with the incorporated Church Building Society. It is nicely illustrated by engravings, and forms a neat volume.——The *Gentleman's Magazine* (Bradbury & Evans), has taken a new start, as many of our readers will already know, under the editorship of Mr. Walford. No. 1 of the new series has been issued. It contains several interesting papers,—on Inishcultra and its Remains, by Mr. R. R. Brash, M.R.I.A., with illustrations; on the Chapter-house of Westminster, by the Rev. Mackenzie Walcott, F.S.A.; and on the Drawings of P. Santo Bertoli in the Royal Collection, Windsor Castle, by Mr. B. B. Woodward, F.S.A., Librarian to her Majesty, with all the usual antiquarian and other intelligence, reviews, and correspondence. The nature and value of the Royal Collection at Windsor Castle are only known to a few; and as we desire especially to direct attention to this collection, we may here quote a passage from the opening of Mr. Woodward's interesting paper:—

"This superb museum, as it would be called on the Continent, both in its origin and in its special character, presents some features of interest sufficient to deserve notice here. It was really commenced (as we infer from most satisfactory evidence) by Charles II., who, as we believe, at the instance of Sir Peter Lely, purchased at the sale of the great Lord Arundel's collection in Holland the drawings and MSS. of Leonardo da Vinci, the drawings of Holbein, and a considerable number of miscellaneous drawings by Michelangelo, Raphael, Parmigiano, and their scholars and followers. Lely's death soon afterwards, and the king's indifference to such matters, made this beginning for a time a failure, and a new commencement was made by one almost as unlikely as Charles II. to care for so refined a pursuit as the study of art — Frederic, Prince of Wales. He, it appears, purchased of the famous Dr. Mead various art-treasures, miniatures of Holbein and Oliver, drawings of Poussin and Pietro Santo Bartoli, &c. About this time (the Holbeins earlier, the Leonardos later) Charles's collection, which had been lost sight of for from eighty to ninety years, was brought to light again from a bureau in Kensington Palace, of which the key had long been lost. And these collections, combined, were the foundation and germ of the Royal Collection made by George III. as it remains at Windsor Castle in the present day."

Miscellanea.

MR. PEABODY'S GIFT TO THE POOR OF LONDON. The trustees have issued a report, to which we may return.

IMPROVEMENTS AT THE STOCK EXCHANGE.—The committee of management of the Stock Exchange, having acquired the property between their premises in Capel-court and Throgmorton-street, are about to rebuild the whole of the frontage from the designs of Mr. J. Cole, architect.

AN ARTIFICIAL ALABASTER.—M. Henry St. Claire-Deville lately communicated to the Academy of Sciences the curious fact that magnesia obtained by calcination from chloride of magnesium will, when exposed to the action of water for some months, acquire considerable consistency, and become hard enough to cut marble. A lamina of this magnesia of moderate thickness is translucid, like alabaster. With this substance M. Deville has been enabled to take casts, as if with plaster of Paris, only the former sets under water. A mixture of chalk and magnesia in powder, made up into a paste with water, is good for moulding, and will become exceedingly hard under water.

EXPLOSION AT HARTLEPOOL.—A vessel in the Victoria Dock, Hartlepool, loaded with Shotten gas-coal for France, exploded on the 6th inst., doing much damage, and seriously injuring the captain and a boy. It is generally believed that when fires are continually kept burning in the cabin and forecastle in vessels laden with gas-coal no explosion will take place, as the gas is gradually consumed by the fires. Such fires were burning in this vessel, and the gas could only become ignited from such source, as there was no other light aboard. This must prove the fallacy of the prevailing belief, and to avoid such frequent disasters, the vessels should not be battened down for some time after taking in such dangerous cargoes.

SANITARY MATTERS IN NOTTINGHAM.—From the Report of the Sanitary Committee of the town council for the year ending Sept. 30th, 1865, it appears that the deaths during the past year have been 1,998, which is 90 less than the previous year, and gives a ratio of 24 deaths to 1,000 persons living. The average for the past ten years was 1,880; and the number of births for the past year, 2,716; or nearly one-third more than the deaths. The ratio of infant mortality still continues great. The number of deaths under one year and not exceeding five years has been 871, which constitutes two-fifths of the whole deaths; but this proportion is less than the corresponding cases of last year. The corporation surveyor, Mr. M. O. Tarbotton, C.E., has made a preliminary Report to the Bridge Committee on the application of the town sewage to agricultural purposes. His chief conclusions are, that irrigation of land is the most practical and economical mode of utilizing the sewage of towns; that the sewage may be most profitably applied when no pumping or raising is needed, but that the value is reduced very rapidly in proportion to the height to which it becomes necessary to lift it; that in order to utilize the sewage of Nottingham it will be necessary to employ mechanical means of raising the same to a sufficient altitude to allow it to gravitate over the neighbouring land.

THE TELEGRAPH IN DIFFERENT COUNTRIES.—At a recent meeting of the members of the Liverpool Historic Society a paper was read by Mr. E. B. Bright, C.E., on this subject, in the course of which he stated that in the world there were 86,600 miles of telegraph line, carrying very nearly 250,000 miles of wire. In England there were 16,148 miles of line, and 73,810 miles of telegraph wires; so that, as to the length of line, England returned between one-fifth and one-sixth of the whole of the telegraphs of the world; and as to the length of wires, it was between one-third and one-fourth. The English rate of charge, after that of France and Switzerland, was the lowest in the world. In America the rates were exceptionally high, and consequently the signal company there realised exceptionally large profits. A great part of the telegraph abroad was worked for political purposes, and was kept in the hands of the Government for that reason, and it was not worked on a commercial basis at all. In France there was formerly a loss of 130,000*l.* to 140,000*l.* a year on the working of the telegraph, and last year there was a loss of 40,000*l.* In India the last returns showed a loss of 70,000*l.* on the year in the working of the telegraph, and that notwithstanding that the rate for transmitting messages in India was higher than it was in England. It had been asserted that the rate system for the transmission of telegrams might be made to assimilate to the postal system; but it must be borne in mind that letters from one town to another could be conveyed in the same train, whereas, if even one firm had to transmit twenty messages, those messages would have to be transmitted separately, and taken separately to the persons to whom they were addressed.

HOUSE ACCOMMODATION FOR THE PEOPLE.—The Department of Economy, of the Social Science Association, will hold a meeting on the evening of Monday, the 23rd, to discuss "Practical Measures for the Improvement of the Home Accommodation of the People."

WAREHOUSEMEN AND CLERKS' SCHOOLS.—To our notice of this building, of which a view appears in our last number, we willingly add that the engineer's work and the fitting up of the laundry, wash-house, drying-room, &c., are under the superintendence of Messrs. Clinton & Owens, engineers; and that the gas-pipes and fittings are being fixed by Mr. John Biggs, of Southwark.

THE BRIGHTON PAVILION.—The Pavilion committee of the town council have agreed to a report adopting a plan of the borough surveyor, for the conversion of the Pavilion dome (the late royal stables) into an assembly-room, capable of seating 3,000 persons, and to be suitably decorated, at a cost of 3,500*l.* The ventilation of the Pavilion rooms is also about to be improved. At the request of the Pavilion committee, the surveyor reported upon the question of ventilating the principal suite of rooms, and he suggested a plan which would cost about 50*l.* The report was unanimously adopted.

THE LATE MR. NICHOLAS WOOD.—Mr. Nicholas Wood, of Hetton Hall, in the county of Durham, died on the 19th ult., in the seventy-first year of his age. He will be known more or less wherever civilization extends, as having been foremost in promoting some of the great improvements which so signally mark the nineteenth century; and wherever the early history of the two Stephensons and of the locomotive is known, there also is known the name of Nicholas Wood. His duties as a colliery-viewer did not prevent him from pursuing many interesting subjects of research, and of these he freely communicated the results to the public. He was the early employer, and afterwards the valued friend, of George Stephenson, with whom and his distinguished son he was on terms of great intimacy as long as they lived. Mr. Wood took an active part in the establishment of the North of England Institute of Mining Engineers, in September, 1852, and continued in the honorary presidency of that society to the time of his death. He was connected with many other learned institutions, being a Fellow of the Royal Society, as also of the Geological Society of London, and a member of the Institution of Civil Engineers.

PALESTINE EXPLORATION FUND.—A report has been received from Captain Wilson, chief of the first expedition of this association, dated Damascus, December 20th, of which the following is the substance. The party arrived at Beyrout at the end of November, and left for Damascus on the 10th December. Astronomical observations have been obtained, fixing the positions of Beyrout, Damascus, and various other places. The lakes east of Damascus were in course of exploration. Plans, with detailed drawings and photographs, have been made of the old temple at Deir-el-Kalah (near Beyrout), the Temple of Mejdel-Anjar, the old city of Chalcis, a small Greek Church at Masi, the basilica of Theodosius at Baalbek, in the great quadrangle (abutting on the western end of the great temple, the back of the apsis resting on the steps), the temple at Ain Fijeh, and the Roman gate at Damascus—Bab Shurky. The exploration of the Assyrian mound at Tel Salhiyeh, near Damascus, had been commenced. A plan of the great mosque at Damascus, with photographs of details, was in course of execution. Careful photographs of a large size had also been taken of various objects of interest along the road between Beyrout and Damascus, some of these for the first time. At Tel Salhiyeh and Harran-el-Awamid inscriptions had been found apparently not hitherto known. The expense of travelling appears to have risen very greatly in Syria, owing to the locust plague of the summer and the murrain, which is still raging in the north of Palestine. A firman has been forwarded from the Porte to the Governor-General of Syria, authorizing and encouraging the researches of the fund to the fullest extent, and the Governor-General has been profuse in his offers of assistance. A list of subscriptions hitherto received for the fund (amounting to 2,965*l.* 12*s.*) will shortly be published. In the mean time donations are earnestly requested, and may be paid to Messrs. Coutts & Co., and the Union Bank of London, or to the honorary secretary, Mr. George Grove, Sydenham.

INSTITUTION OF CIVIL ENGINEERS.—Mr. John Fowler, in his address as president, on Tuesday evening last, dealt with much ability on the means by which the younger members of the profession may best prepare themselves for the duties which the future will bring with it.

MUNIFICENCE OF LIVERPOOL CHURCHMEN.—The people of Liverpool have, since the 13th of last November, raised 50,000*l.* for church and school extension, in addition to 14,000*l.* which they raised in the latter half of 1864 for the augmentation of the incomes of the clergy. Three months ago a new church was consecrated: one more was consecrated on the 30th; and two more are building, the cost of the four churches being not less than 30,000*l.* So that in a year and a half they may be said to have raised 94,000*l.* for church purposes.

THE CARLISLE SURVEYORSHIP.—The resignation by Mr. Gordon of the appointment of city surveyor, says a correspondent of the *Carlisle Journal*, will be generally regretted in this his native city. The post of engineer at Frankfort-on-Maine is one of great importance, and affords an opening which any rising man of ability might envy. Mr. Gordon was, I hear, chosen over the heads of about forty applicants. The appointment is for three years certain, with a salary of 600*l.* a year; and should the work be done satisfactorily there are many other continental towns that will be sure to court his services.

FIRES IN THE METROPOLIS.—In the new Act relating to the extinction of fires in the metropolis, which comes into operation with the new year, there is a provision with respect to chimneys on fire which ought to be known. It is enacted that, "If the chimney of any house or other building within the metropolis be on fire, the occupier of such house or building shall be liable to a penalty not exceeding 20*s.*; but, if such occupier prove that he has incurred such penalty by reason of the neglect or wilful default of any other person, he may recover summarily from such person the whole or part of the penalty he may have incurred as occupier."

FATAL FALL OF SEVEN HOUSES IN HULL.—On Monday last, no less than seven houses were blown down by the wind. A gust of unusual violence first caught hold of a large new building intended for a carriage manufactory, and blew one of the walls down, which fell on to some houses beneath. An entire block of houses in Temperance-street was thus either blown down or completely smashed in by the falling wall. Without a moment's warning, seven houses full of inhabitants were converted into a heap of ruins, in some cases not even a wall being left standing. Besides the houses which were thus completely destroyed, the fronts of four or five of those opposite, were smashed in, five of the seven houses being down a narrow court. Five persons were killed and many seriously injured. Others made narrow escapes.

ALLEGED STATE OF THE DOE PARK RESERVOIR, BRADFORD.—Mr. W. Ferrand, M.P., in a letter to Sir George Grey, again calls attention to the alleged dangerous state of the Doe Park Reservoir, near Bradford. Writing on December the 26th, he says:—"On Friday I visited the reservoir with Mr. Hulbert and Mr. Ramsden, one of the mill occupiers in the valley below. We found the water run off only 8 ft. The embankment immediately over 'Rawlinson's dangerous leak' has sunk in for 8 yards in length, and the puddle bank adjoining it for 30 yards. We examined the drain-mouth leading from the leak, and found it much discoloured, and the volume of water 72,000 gallons in twenty-four hours; thus showing that the embankment is still being washed away by the water passing underneath." The Mayor of Bradford has also transmitted a communication to Sir George Grey, in which he admits that there is a leak in the embankment, which has had the careful attention of Mr. Gott, C.E., and the Waterworks Committee since the time it appeared; that the water has been run off to the depth of 17 ft. 6 in., in order to discover its situation; that during this process it has diminished, until the leakage (together with the run off water which has always existed) is not greatly in excess of that at the time the reservoir was certified; and that there is no cause whatever for alarm. Since this was written the *Bradford Observer* has been informed that the remaining leak has "entirely ceased."

THE POOR OF NEW YORK.—In December, 1864, there were 495,592 persons in the city of New York, packed in tenement houses and cellars at the rate of 240,000 to a square mile. Of these about 10,000 in the aggregate are yearly imprisoned for crime. The number of families relieved last year by the association existing for that purpose was 5,573, comprising 22,285 persons.

THE TOWN CLERKSHIP OF LIVERPOOL. — The special committee appointed to consider and report as to the office of town clerk have taken into consideration the various applications. Mr. John Rayner, town clerk of Bradford, was voted for by eight members, and Mr. M'Gowen had three votes. The salary was recommended to be 1,600*l.* a year. A special meeting of the council is to be held on the 22nd instant, to take the recommendation of the committee into consideration.

JEWISH REMAINS.—According to *La Presse*, a rather interesting discovery has been made by MM. Farwooth and Pizzicani, in the course of their excavations near Tripoli. A search for Greek or Roman remains has eventually led to the turning up of a tenement forming a complete Jewish household, such as were in existence two centuries before the Christian era. Some of the apartments are in a remarkable state of preservation, the domestic utensils being such as were commonly found in the Nile Valley. What truth there may be in such a startling announcement may be shortly ascertained by the London Asiatic Society, to which the relics have been forwarded.

FALL OF A TUNNEL ARCH AT LIVERPOOL.—A fatal accident has occurred at the Wapping Tunnel, in Park-lane. Near to the end of the tunnel, running parallel with Sparling-street, there have recently been erected a number of storage cellars, arched over, some of which would seem to be not yet in a completed state. A cart and two horses, belonging, it is said, to the contractor for the works, were standing on one of the arches near to the top of Sparling-street, the conveyance having been taken there laden with material to place on the arch, when one of the iron girders which supported the fabric gave way, and the whole structure fell in, along with, of course, the horses and cart. A man was killed, but, strange to say, the horses and cart received but little damage, and the driver escaped unhurt.

THE CHIEF SURVEYORSHIP OF MARYLEBONE.—A discussion has taken place at the Marylebone vestry on the report of a committee as to the future appointments in the surveyor's department, in consequence of the age and infirmity of the present holder of the office. The report recommended a chief surveyor at 350*l.* per annum, with residence at Stone-yard when vacant, with two assistant surveyors at 200*l.* each, and that the present surveyor's faithful and laborious services for upwards of thirty-three years entitle him to such consideration that he be allowed to give the benefit of his experience at the Stone-yard at half his present salary, 200*l.* per annum, with his residence. Two amendments were moved: first, to give the surveyor three months' leave of absence and appoint an extra clerk, to be paid by him, which was negatived; and a second, to appoint a surveyor at 500*l.*, he allowing present surveyor 150*l.* and house during life. Upon this second amendment the debate was adjourned.

RAILWAY COMPENSATION CASE.—At the Westminster Sessions-house, last week, before Mr. H. Scott Turner, the high bailiff, a compensation case, "The Corporation of the Marine Society *v.* The Metropolitan District Railway Company," was appointed to be heard before a special jury. The claim was about 30,000*l.*, in respect of the freehold of several houses in Bridge-court, Cannon-street, required by the Metropolitan District Railway. Only five special jurors answered to their names, and the high bailiff mentioned the circumstance to Mr. Hawkins (acting for the claimants), as he wished to know what was to be done in the matter. Mr. Hawkins begged the indulgence of the court, as he hoped to save time. A consultation took place between the parties, which occupied some time, and at length it was announced that the case had been arranged. Mr. Hawkins said the jury had better be sworn, as they would give a verdict by consent for 22,750*l.* The five special jurors were accordingly sworn, and a verdict for 22,750*l.* was recorded.

ROCHDALE TOWN-HALL.—At a meeting of the Rochdale town council, on Thursday, the contract of Messrs. Warburton, of Harpurhey, for the erection of the proposed new town-hall, at Rochdale, for the sum of 26,570*l.*, was accepted, it being the lowest of several tenders.

ARCHITECTURAL INSTITUTE OF SCOTLAND.—At the last general meeting of the Architectural Institute of Scotland, held in the Hopetoun Rooms, on the 11th ult., a paper was read by Mr. David MacGibbon, architect. Subject,—"Notes on Kirkwall Cathedral." The paper was illustrated by photographs shown on a large scale by means of the Lime Light.

ASCOT GRAND STAND.—During the recent gales the roof of the new entrance at the Grand Stand, Ascot, lately built by Messrs. Oades & Son, of Egham, was blown off in one mass, splitting several of the timbers. This immense weight of seven tons was carried several feet. The permanent part of the structure was not injured.

IRON ROLLING IN AMERICA.—A new method of rolling iron has been produced in Boston, United States. It consists of a process for rolling it into irregular shapes, by which chequered surfaces, projections, and depressions can be obtained with the same facility as plain surfaces have heretofore been produced. This result is accomplished by means of placing upon rollers adjustable discs of any desired pattern, which leave upon the bars drawn through them the impress of the figures which they bear.

THE POLYTECHNIC INSTITUTION.—The entertainments here just now are particularly good, suggestive and instructive as well as entertaining. Professor Pepper's exceedingly interesting lecture on optical illusions justifies the first part of our praise, and the funny illustrated story of "The Dragon," and the "Dissolving Views of Robinson Crusoe," more than support the latter. The evening classes are about to reassemble here, and should be taken advantage of by many.

BIRMINGHAM FREE LIBRARIES.—In addition to the two Free Libraries now established in Birmingham, a third will soon be completed, at the corner of Heath-mill-lane, Deritend. It was estimated by the Free Libraries committee that the building, exclusive of fittings and warming apparatus, should not cost more than 1,000*l.* Plans for the erection were invited to be sent in, and those submitted by Messrs. Bateman & Corser were selected by the committee. The building, which is in the Tudor style of Gothic architecture, is being carried out by Messrs. Briggs & Son, the estimates for the works being about 900*l.*, exclusive of fittings.

A FREE PUBLIC LIBRARY AND READING-ROOM FOR BEBINGTON, CHESHIRE.—A free library and reading-room, the sole gift of Captain Joseph Mayer, of Liverpool, have been opened here. Mr. Mayer has procured one of the largest houses in the village, and this he has fitted up as a library and reading-room for the use of the inhabitants, free from any charge. He has furnished the library with a collection of upwards of 2,000 volumes. The reading-room is provided with the Liverpool and London daily papers and most of the current monthly publications. There are also provided, for the use of those who wish them, games of chess, draughts, &c. The rest of the house is for the residence of the librarian and other officials connected with the institution. Captain Mayer has provided for the annual expenditure.

OPENING OF THE GROSVENOR HOTEL, CHESTER. Of this new hotel we spoke on the 2nd of September last as a commendable exception to the style of other new edifices in Chester, being more in keeping with the peculiar architecture of the ancient city. The superstructure of the building is composed of brick, with Bath stone dressings to the doors and windows. The columns of the row are of Anglesea marble, with moulded capitals and bases of hard stone. The entrance in Newgate-street is constructed in a similar manner to the front row. The works of the hotel and tap building have been executed by Mr. Thomas Hughes, of Aldford. The stable buildings are being executed by Messrs. B. & O. Owens, of Chester. Messrs. Penson & Ritchie, of Chester, are the architects who have designed and superintended the whole of the buildings. The hotel was opened on New Year's Day.

FALL OF PART OF A CHURCH TOWER.—A part of the tower of the church of St. Lawrence, Norwich, has fallen down, crushing the choristers' vestry, in which, half an hour later, the clergy and choir would have been assembled.

MANCHESTER CATHEDRAL TOWER. — The progress made in the reconstruction of this tower within the last few months has been satisfactory. The building has now passed the clock chamber and the bell-loft, and reaches to the height of the belfry floor. The style of the doorway and the west window, which forms a part of the tower, is Perpendicular, in consonance with the rest of the building. The foundations of the tower penetrate 13 ft. into the ground, and the tower is now 75 ft. above the surface. The architect, Mr. J. P. Holden, expects to be able to complete the outside work in the course of the year.

SPECULATION IN PETROLEUM. — During the petroleum mania in America, 1,100 oil companies were started, with an aggregate par capital of 600,000,000 dollars. It is estimated that 15 per cent. of that amount has been actually paid up, giving an aggregate of real investment of (say) 90,000,000 dollars. The production of the present year may reach about 1,500,000 barrels. The exports have usually averaged about 37 per cent. of the entire production. The average price at the well is 10 dollars a barrel, making 15,000,000 dollars as the value of the year's production. Deducting 20 per cent. for company and working expenses, this yield would leave 13½ per cent. upon the estimated 90,000,000 dollars of actual invested capital.

DESTRUCTION OF CREWE HALL, CHESHIRE.—The destruction by fire of the seat of Lord Crewe, Cheshire, is much deplored. The loss unfortunately includes many works of art. The mansion was finished by Sir Randal Crewe early in the reign of King James I., but it had fallen into much decay by the process of time, and was completely restored by its present owner, under the superintendence of Mr. Blore, about 1837, at large cost. It is supposed that the end of an old beam had come in contact with the fire in the flue of a chimney. It is said that provision was made against fire by hydrants placed at certain distances round the house, supplied with water from the lake, and also by taps in the rooms communicating with an immense reservoir on the top of the house; but it appears that the taps were not thought of till access to them was cut off by the flames, and during the early part of the conflagration the hydrants were also forgotten.

IMPROVEMENTS IN THE METROPOLIS. — "We anxiously desired the Thames embankment," remarks the *Railway News*, in giving a review of new projects, "but almost regretted the realization of our wishes when we saw the magnificent proportions of the river façade of Somerset House destroyed by a heap of rubbish. The Adelphi-terrace, too, the tasteful design of the Brothers Adams, is to come down *in toto*, and thus we shall lose some agreeable reminiscences of Dr. Johnson, David Garrick, Anglica Kauffman, and Hannah More. The property round about belongs to the Messrs. Drummond, and they are about to build upon it a splendid crescent to extend the whole length from Hungerford to Waterloo Bridge. Middle-row, Holborn, is to be removed; the Burdett-road, Finsbury, the Commercial-road, Whitechapel, the High-street, Kensington, are all to be improved. Park-lane is to be widened to an extent that will not only accommodate its traffic, but make it one of the finest main thoroughfares in London. The new street to the Mansion House, right through Printing-house-square, is to be proceeded with. Two new and magnificent approaches are to be made to the Thames embankment, one passing over the site of Northumberland House, and giving a wide prospect from the corner of the Haymarket direct across the river; the other, equally spacious, and from the corner of Wellington-street on to the embankment at the foot of Cecil-street. Preliminary steps are to be taken for embanking the south side of the Thames, and on the north the embankment is to be continued from what is called 'Mr. Cubitt's-road' up to Chelsea." By instructions of the Improvement Committee of the City of London, we observe, the building materials of several houses and shops situated on Holborn-hill and in Farringdon-street, have been disposed of by auction, with a view to their immediate demolition for the purposes of the projected Holborn-valley viaduct.

SOUTH-EASTERN INDUSTRIAL EXHIBITION. — The closing ceremony of this Exhibition is announced to take place at the Painted Hall of the Royal Hospital, Greenwich, on the afternoon of Saturday, the 27th inst., when the prizes and certificates will be awarded to the successful exhibitors by Viscount Sydney, lord-lieutenant of Kent. The Exhibition, which was opened in October last, has proved successful, and will be closed to visitors after this Saturday, the 13th instant.

TENDERS

For alterations and additions to house and warehouse, at Kettering, Northamptonshire. Mr. R. W. Johnson, architect:—

Buswell	£879	0	0
Watkin	814	0	0
Briskett	789	0	0
Henson	752	0	0
Wilson	742	0	0

For rebuilding No. 42, East-street, Brighton, for Messrs. Farmer & Rogers. Mr. H. Jarvis, architect:—

Bywater	£4,640	0	0
Rider	4,580	0	0
Thompson	4,540	0	0
Fabian	4,390	0	0
Cheesman	4,375	0	0
Henshaw	4,364	0	0
Bland	4,118	0	0

For erecting a dwelling-house and stable in the Lordship road, Stoke Newington, for Mr. Lawrence. Mr. F. G. Widdows, architect:—

Sewell & Sons	£3,084	0	0
Newman & Mann	2,981	0	0
Patman	2,896	0	0
Flint	2,844	0	0
Rivett	2,843	0	0
Child & Son	2,765	0	0
Ennor (accepted)	2,734	0	0

For erecting a tavern at South Hackney, for Mr. Lane. Quantities supplied by Mr. F. G. Widdows:—

Wood, Brothers	£3,032	0	0
Read & Son	2,941	0	0
Perrey	2,867	0	0
Carter & Sons	2,831	0	0
Ennor (accepted)	2,803	0	0

For rebuilding 12, 13, and 14, Newington Causeway, for Messrs. Dunn. Mr. Henry Jarvis, architect:—

Turner & Sons	£4,313	0	0
Marsland	4,208	0	0
Piper & Wheeler	4,180	0	0
Tarrant	4,024	0	0
Patrick	3,960	0	0
Rider	3,930	0	0
Henshaw	3,859	0	0
Thompson	3,780	0	0

For alterations and repairs at No. 22, Parliament-street, Westminster, for Mr. Herbert W. Taylor. Messrs. Wimble & Taylor, architects:—

Allen	£506	0	0
McLachlan	498	0	0
Colls & Son	484	0	0
Moultrie	476	0	0
Marsland & Son	465	0	0
Adamson & Son	463	0	0

For sea wall, Bridlington Quay:—

S. & T. Crawshaw	£25,348	0	0
Nelson	25,105	0	0
Hawdon & Goddard	23,883	0	0
Garsido & Stead	20,673	0	0
Barry	19,600	0	0

For the erection of farm buildings, Foston, near York, for Mr. R. Nelson. Mr. John Gibson, Malton, architect. Quantities supplied:—

Tinsley	£402	0	0
Cooper & Fisher	383	7	0
Barry	382	0	0
Dodsworth	307	0	0
Ware & Danby	299	10	0
Hill	280	6	5
Dring (accepted)	230	0	0

For the erection of seven cottages at Low Hutton, near Malton, for Mrs. Carr, Rockingham-terrace, Malton. Mr. John Gibson, Malton, architect:—

Barry	£674	0	0
Tinsley	668	0	0
Skelton	625	0	0
Hill	609	2	11
Wilson & Baron	594	0	0
Kirby	551	0	0
Cooper & Fisher	549	15	0
Dodsworth	525	0	0
Ware & Danby	469	0	0
Humphreys	457	12	6

For the erection of a farm-house and farm buildings at Lendales Farm, near Kirby Misperton, for Mr. J. Mitchelson. Mr. John Gibson, Malton, architect. Quantities supplied:—

Barry	£1,485	0	0
Burrows	1,199	0	0
Denham	1,187	0	0
Dodsworth	1,160	0	0
Skelton	1,106	0	0
Race	1,087	10	0
Wilson & Baron	1,030	16	0
Harrison & Oldfield	974	10	0
Wood (accepted)	955	0	0

For additions to Culverdon Brewery, Tunbridge Wells. Mr. Charles Shoppee, architect. Quantities supplied by Messrs. Paun & Clark:—

Jackson & Shaw	£4,690	0	0
Patman and Fotheringham	4,585	0	0
Macey	4,543	0	0
Mansfield & Son	4,450	0	0
Anscomb	3,958	0	0

TO CORRESPONDENTS.

F. J. B.—J. G.—D.—J. F.—Mr. B.—Mr. H.—R. H. C.—M.—An Observer.—J. D. P.—Mr. P.—Mr. W.—C. E. C.—T. C. S.—G. C.—F. R. W.—C. C. H.—R. F.—H. J.—Lady S.—H. W.—J. R.—A. B. H.—W. & T.—E. W.—W. T.—J. W. M.—G. H. T.—W. R. B.—H. N. B.—T. S. (must do his own "sums").—F. T. (ditto)—E. H. R. (modes of removing paint from stonework have been given in previous volumes)—E. W. T. (not desirable).—St. Leonard's (in type).—The Oak (ditto).—Edinburgh (ditto).—P. L. O. D. (ditto).

C. L. sends the following:—"I have a well, surface water, sandy soil, the water of which is strongly impregnated with iron: can you inform me how to remedy this?"

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

The Publisher cannot be responsible for ORIGINAL TESTIMONIALS *left at the Office in reply to Advertisements, and strongly recommends that* COPIES ONLY *should be sent.*

NOTICE.—In consequence of the increase in the circulation of "THE BUILDER," as well as in the number of the Advertisements, it is found necessary to go to press some hours earlier than heretofore. The insertion of Advertisements in the ensuing Number will therefore not be guaranteed unless they are delivered at the Office before **THREE o'clock** *in the Afternoon of THURSDAY, instead of Five o'clock, as formerly.*

TO SUBSCRIBERS.

The TWENTY-THIRD VOLUME of "THE BUILDER" (bound), for the year 1865, *will shortly be published, price One Guinea.*

CLOTH CASES for binding the Numbers are NOW READY, price Two Shillings and Ninepence.

A COLOURED TITLE-PAGE can be had, Gratis, on personal application.

SUBSCRIBERS' VOLUMES will be bound on being sent to the Office, at a cost of Four Shillings each.

[ADVERTISEMENTS.]

CHUBB *v.* GRIFFITHS. — CAUTION.—Notice is hereby given, that on the hearing, on the 16th of December, 1865, of the above cause, his Honour the Master of the Rolls granted a decree making perpetual the injunction which had on the 1st of June last been granted against the defendant, restraining him from selling under Messrs. Chubb & Son's name any Iron Safes not made by them, and from affixing to any Safes not of their manufacture plates bearing their name. The decree also directed that the defendant should pay the costs of the suit. All persons are cautioned against supposing that such Safes as may be found to be fitted with Chubb & Son's Locks are therefore necessarily Safes of Messrs. Chubb & Son's manufacture, as it is believed that large numbers of these Safes are sold under false representation, genuine name-plates being removed from Messrs. Chubb & Son's Locks and affixed on the escutcheon or on some conspicuous part of the Safe. Dealers in second-hand fire-proof Safes are particularly cautioned against selling, as Messrs. Chubb & Son's, Safes which are not of their manufacture, and against in any way affixing their names on Safes not of their manufacture, and against allowing any Safes professing to be of Messrs. Chubb & Son's manufacture to pass through their hands without the strictest examination: and proceedings in Chancery will in all cases be instituted when offences of the same or a like nature are brought to notice.—STUART & MASSEY, 5, Gray's-inn-square, Solicitors for Messrs. Chubb & Son.

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

The Builder.

VOL. XXIV.—No. 1198.

*A History of the City of Rome.**

THE fascination that topography has always had for some minds appears intensified in these days of cheap travel. Persons who would have taken but a calm interest in the topography of a distant city in the days of Dugdale, Camden, or Leland, appear now, from the comparatively easy possibility of verifying their impressions by personal inspection, to throw themselves into the investigation with great zeal. Just as young men reared in country places, but hoping some day to make their fortunes in London, familiarize themselves with its principal streets, the sites of its most celebrated buildings, its short cuts, its saunter-places, and by-ways, by means of maps and guides, they bestow upon distant places the liveliest interest. Some of the more enthusiastic venture to describe in print the city they choose for their mental explorations; others make models of places thus surveyed. Hence we have works on Jerusalem and models of the City of David by persons who have never set foot in Syria. And so, too, we have year after year, in the exhibitions, restorations of buildings by modellers who have not seen the actual remains of them. The circle of travelled topographers is, however, much larger still; and writers who can speak with authority of certain places are sure of attention and appreciation. This is pre-eminently true of Dr. Dyer, who has just placed before the public a History of the city of Rome, worked out as much by topography and archæology as by its annals.

In the face of the current opinion of the spuriousness of the earliest Roman annals, a history of the city compiled by their aid alone would be but an unsatisfactory affair. But, besides drawing his materials principally from the actual remains of the grand works of the kings, Dr. Dyer seeks to remove the imputation of fiction from the "Annales Maximi," cast upon them by Sir G. Cornewall Lewis, Dr. Arnold, and other recent writers. Part of the incredulity concerning the genuineness of these records appears to have arisen from a misapprehension of the meaning of Cicero, who mentions that the Pontifex Maximus wrote down the events of the year, and transferred them to an album or white board, which he set up in front of his house, so that the people might read them. Niebuhr and Becker infer from this that such cumbersome things as wooden boards are not likely to have been saved in the great conflagration which destroyed the Commentarii Pontificum; and, though not specially mentioned, they must have been burnt; but Dr. Dyer calls attention to the expression that they were transferred to an album, which implies they were written elsewhere in the first instance; and argues that, as Livy, in his account of the loss of the Commentarii, does not include mention of the "Annales" as sharing the same fate, we should consider these records were saved. Sir G. C. Lewis, like a giant with an arrow in his hand, stepped forward with another argument against the authenticity of the early annals. Cicero mentions that a calculation of eclipses was made from one recorded by Ennius, and in the "Annales Maximi," back to that which occurred on the Nones of Quinctilis, when Romulus was slain. From the circumstance that there was a necessity for reckoning back eclipses astronomically to get at the fact concerning them, Sir G. C. Lewis infers that the earliest "Annales Maximi" must have perished, or nothing more than a reference to them would have been requisite, as prodigies so rare and so alarming would have been duly entered on a public record, as, indeed, Cato the censor declared they were. But Dr. Dyer combats the assertion by the exact translation of the passage in the fragment of Cato the censor to which Sir G. C. Lewis refers, which, when thus given, goes to show that many entries of eclipses were, doubtless, made, but that, owing to their nature not being understood, other phenomena may have been also recorded, which would lead to confusion, and make the calculation necessary all the same. Cato's words are, "I do not like to write such things as we see on the tablet of the Pontifex Maximus, as when corn was dear, and when a *darkness*, or *something or other* intercepted the light of the moon or sun." Our author pertinently remarks, this obscure and unscientific mode of recording eclipses would scarcely have been used after their nature was understood, and consequently the entries to which Cato was referring, must be those in the annals previous to the date B.C. 401, when the calculation recorded by Cicero was made. To a third argument adduced by Sir G. C. Lewis, in which he states, that although Livy regularly mentions prodigies in his later books, he rarely records them in his first decade, or those relating to the period of the annals supposed to be destroyed, Dr. Dyer replies that, if he mentions them at all, he must have taken them from some record, or have made them out of his own head. In truth, Livy's books relating to the period immediately after the Gallic conflagration, mention but six prodigies, while the first five, or those supposed to be destroyed, record nine supernatural events, such as showers of stones, a shower of flesh, a speaking ox, a superhuman voice on the Alban Mount, &c. Among the many famines and pestilences mentioned in these earliest books, there is one visitation in which several distinguished persons fell victims to it, whose names are given with a preciseness which shows a consummate coolness of invention, if the record is a forgery or fantasy. Livy and Dionysius are both suspected of falsehood and time-serving, of pandering to the national vanity, because it is clear that writers guilty of such inaccuracies as allusions to flights of vultures and groves of palm-trees in Rome would not stick at trifles: but we might as well discard our own Mediæval writers because they mention wolves and eagles as not uncommon; for although vultures may not be observed perched upon the house-tops in Rome, they are found in Northern Italy still; and there are, at the present day fine examples of palm-trees which, although not proving the existence of others in Pagan times, show there is nothing in the soil or climate to prevent them from having flourished in great numbers. Thus, one by one, Dr. Dyer disposes of the arguments adduced against the authenticity of the earliest written records. Against the modern objectors, he arrays, with much learning, Cicero, Varro, Quintilian, Cato, Pliny, Servius, Verrius Flaccus, and A. Gellius, none of whom raised a voice against their genuineness. Scholars of the old school may, therefore, breathe again, and feel they have not been standing upon ground altogether devoid of foundation. Having shown cause for crediting the genuineness of the documents whence the Cesarian writers culled their materials, our author freely refers to them in the course of his work. He gives all the early legends respecting the occupation of the Mons Palatine, by Evander, the son of Mercury by an Arcadian nymph; the settlement of Saturn upon the Capitoline Hill in that golden age when the fields were tilled for the common good, and the houses built without doors so as to present no obstacle to the entrance of neighbours; the visit of Hercules to Italy when his cattle were stolen by Cacus, a robber then resident near the Aventine Hill; the dethronement of Numitor by Amulius; the foundation of the city by Romulus; the flight of six vultures seen by Remus, and of twelve seen by Romulus; the contrary statement by other authorities, that Rome was founded by the Pelasgians, or by some Athenian emigrants called Aberrigines, or by the son or great-grandchildren of Ulysses, or by Eneas or his descendants; in fine, every suggestion hazarded by Roman historians is duly recorded, including the legend which tells us that the plough which made the celebrated furrow to confine the first limits of the city was drawn by a cow and a bull, typical of the male and female inhabitants who were to people it, the former of whom were to be the terror of the surrounding country, while the latter were to stay at home.

Hitherto Dr. Dyer, in common with all previous topographers, believed that the whole of the Palatine Hill was included in this city of Romulus, but the recent excavations made by order of the French emperor in the Farnese Gardens, purchased from the ex-king of Naples, have induced him to alter his opinion upon this subject; and now he embraces the view of Signor Rosa, that the city extended only over the western portion of the hill as far as the newly-discovered depression which divides it from the eastern portion. It is certainly corroborative of this supposition, that of the few objects mentioned by Tacitus as occupying sites in the city, four of them are within this western portion, while the position of the fifth is unknown, and is, therefore, quite as likely to have been within the same confines as without them. The new dimensions thus given to the city Dr. Dyer considers more in accordance with the number of the followers of Romulus given by Dionysius, 8,000 foot and 300 horse, who would, probably, have thought of investing their position with the nature of a stronghold rather than of spreading it over a difficultly defensible area; and the fact that the two known entrances are in this western portion of the hill, taken with Signor Rosa's discovery of the Porta Netus Palatii in a position indicating a line of wall intersecting the hill along the line of depression, lends additional corroboration to this conclusion.

According to Livy, the first temple built within the city was that erected by Romulus, to receive his spoils taken from the Cæninenses, the nation first on the field to avenge the outrage upon the Sabine women at the games held on the Vallis Murcia. But here, even Dr. Dyer suspects some inaccuracy, as a city, he thinks, founded with Etruscan rites must have contained temples dedicated to Jupiter, Juno, and Minerva. The battles between the Romans and Sabines were commemorated by the erection of a temple to Jupiter Stator. The conditions of a truce between Veii and Rome were engraved upon a brazen column; and the Sabines, on the Capitoline Hill, erected several temples, that dedicated to Semo Sancus, or Dius Fidius, so named from his love of open air, having, we are told, a perforated roof. Thus, within a very short time of the foundation of the city by Romulus, numerous

* "A History of the City of Rome: its Structures and Monuments, from its Foundation to the End of the Middle Ages." By Thomas H. Dyer, LL.D., author of the article "Roma," in Dr. Smith's "Dictionary of Ancient Geography;" "History of Modern Europe," &c. London: Longmans, Green, & Co. 1865.

buildings testified to the vitality and endurability of the enterprise.

The late M. Ampère, in his work, "L'Histoire Romaine à Rome," advanced the opinion that the Sabine element has never been properly appreciated. In our glorification of the Romans we seldom give credit to the influences that must have been brought to bear by the Sabine women, especially through their children, upon the manners and customs of the followers of Romulus. M. Ampère went so far as to say, not only all their religious and much of their political and social organization, their customs, ceremonies, and arms, were the result of Sabine influences; but they were, in fact, a conquered people, continuing in the land only by sufferance of the Sabines. But here Dr. Dyer comes to the rescue of the ancient writers again. He contends that the privileges the Sabines enjoyed were obtained by treaty and agreement; and that the pre-eminence of the Romans must be inferred from the circumstance of the original Romulean city retaining the name of Roma, and of this appellation being extended to those quarters occupied more exclusively by the Sabines, and especially to the fact that every individual citizen was called a Roman,—a title that would not have been of consideration if its legitimate possessors were a conquered people. Tatius, the Sabine king, was killed only five years after the commencement of his joint reign, while Romulus reigned for thirty-seven years; and their successor was chosen from the Sabines, simply by an arrangement between the two races of inhabitants, by which the old Roman senators secured the privilege of electing a king by conceding that their choice should fall upon a Sabine. That they were justified in their selection we have evidence in the endeavours made by Numa Pompilius to fuse the two peoples into one, to promote their domestic comfort, and improve their institutions. He removed, too, his residence, to a site upon the neutral ground between the two hills respectively occupied by the two nations, so as to give neither city the pre-eminence, and erected the Temple of Vesta, typical of the hearth of the city, round which the citizens could draw in brotherhood and peace, in the same locality. Our author assumes that this temple was merely an *ædes sacra*, because, being the abode of the four vestal virgins appointed by Numa for its custody, it was not inaugurated, so that the senate might not assemble in it. It was of a circular form, having a dome, and possessed a sacred grove. On the Palatine Hill Numa established the Curia Saliorum, where twelve patriarchs preserved the sacred *ancilia* and *lituus* Romuli; and on the Quirinal he erected a Temple of Romulus, to carry out his plan of obliteration of all distinctions between the two races. Another great building erected by this monarch was the Aix, or citadel, upon the Quirinal, which was known as the Capitolium Vetus, and endured down to the fifth century, as mentioned in the "Notitia." Numa also possessed a residence on the Quirinal; and the gate which formed the entrance into the Sabine city he converted into a temple of Janus. He also founded a large temple on the Capitoline Hill, to Fides Publica, or public faith, besides dividing the city into districts, and distributing public lands among the poorer citizens; thus leaving every proof of a wise and vigorous administration in the forty-three years of power allotted to him.

Under Tullus Hostilius the Cœlian Hill was annexed to the city of Rome and peopled with inhabitants from Alba Longa, who were transferred there as to the head-quarters of a conqueror; one residence of Tullus being on that hill, although it is supposed he had, also, a house on the Velia. The Cura Hostilia, or Senate-house, built by this king on account of the addition of several noble Alban families to the number of Roman patricians, Dr. Dyer places at the north-west corner of the Forum, on a site now occupied by the SS. Luca e Martina. There will be few to gainsay the identification of site; for it is not the works of the kings that have excited the numerous and contradictory controversies among antiquaries but those of the Cæsars. Vareo, especially, hands down the fact that this senate-house was a temple, not a *sanctum*; the difference between the two being, that the one was inaugurated a ceremony indispensable to the transaction of public business—and the other consecrated by the pontiffs for divine service. As we have seen, the Ædes Vesta was sacred, but not inaugurated for public assemblies; while this Curia was established for the particular purpose, and not for worship. The open space at the north-west end of the Forum, called the Comitium, was improved by Tullus. This, it will be remembered, was, with the Curia, the direction faced by the fiery speaker on the rostrum in the days of the Republic; and thus we may consider this wonderful site as already assuming an indication of the importance it ultimately assumed in the most magnificent days of the city.

The next monarch extended Rome over another hill, by locating some thousands of Latins on the Aventine. Niebuhr, Dr. Arnold, and M. Ampère all think it probable that the plebeian order was the result of this great importation; but Sir G. C. Lewis deemed the hypothesis improbable, and for once went with the ancient writers in regarding the *plebs* as coeval with the origin of the city. Dr. Dyer gives no opinion on this question, but passes swiftly on to mention the fortification of Mons Janiculus on the right bank of the Tiber at this time, with the erection of the first bridge over the river. Pons Sublicius was built on piles, and in so durable a manner as to exist down to a late period of the empire. This piece of marine engineering was followed by the founding of the seaport called Ostia, at the mouth of the Tiber. The Carcer Mamertinus (of which one subterranean cell is still numbered among the lions of Rome) was built in this reign.

Tarquinius Priscus inaugurated a new era in Roman masonry by reducing the stones to rectangular blocks, discarding the use of irregular masses in the construction of the works he accomplished. Of these the most remarkable was the Cloaca Maxima, the mighty threefold sewer that appears to have been the foremost as well as first of all sewers, down which Agrippa is said to have sailed in a boat, and whose huge mouth is still discernible near the Porte Rotto. Along the southern side of the Forum thus satisfactorily drained, Tarquin caused a row of shops to be built; and at the head of it, under the Capitoline Hill, he founded the Temple of Saturn, of which eight columns still standing on that spot are considered by Dr. Dyer to be remains. He projected a still more magnificent temple to Jupiter on the Capitoline, as well as a vast circus, for horse and chariot racing, in the valley where the memorable seizure of the Sabine women took place rather more than a century previously. But his assassination put an end to his projects, which were, however, carried out in some degree by Tarquin the Superb, after the intermediate reign of Servius Tullius.

By this time the seven hills were more or less populated, and Tarquin is accredited with the scheme of enclosing them all with a wall; but the circumvallation was actually effected by Servius Tullius, if we may believe the statements of Livy and Dionysius, although there is not wanting a partisan of Tarquin who represents that he finished the wall, to which Servius added only the agger, with its ditch 100 ft. wide and 30 ft. deep. Dr. Dyer traces out the line of circumvallation with much painstaking and minuteness, its length of six miles occupying several pages of indication and description. Servius Tullius built a temple in honour of Diana, and two in honour of Fortuna; and likewise added a subterranean dungeon to the Mamertine prisons. Tarquinius Superbus completed more of the works projected by the elder Tarquin. The magnificent temple of Jupiter Optimus Maximus, elevated on an artificial platform on Mons Tarpeius, was about 240 ft. square, having a triple row of columns on the front facing the south, and double rows at the sides. It contained cells to the early Italian trinity, Jove, with Juno and Minerva. Dionysius relates that he surrounded the Circus Maximus of the elder Tarquin with porticos; but Livy describes him as having employed the plebs in erecting *fori*, or seats for the senators and knights around the circus. The Capitoline temple was, however, his principal and last work; for the harshness with which he treated his workmen, the plebs, led to his expulsion, and the establishment of the next great era in the history of Rome,—the Republic.

One of the new features in the topography of republican Rome was the formation of an island in the Tiber. This is recorded to have been caused by the corn of Tarquin the Superb, thrown into the river by the populace because it was grown on consecrated ground; and however improbable this account may appear, Dr. Dyer thinks it is likely that the island was formed about this time, either in this manner or some other, because if it had existed in the days of Ancus Marcius, he would have used it for his bridge, especially as it was nearer the central parts of Rome than his Pons Sublicius is believed to have been. Soon after the expulsion of Tarquin, ancient writers record, an attempt was made by the Latins to restore him to his throne, when a great battle, at which supernatural appearances took place, was fought at Lake Regillus. Objection has been taken to the occurrence of this battle, as there is now no Lake at Regillus; but Dr. Dyer triumphantly brings forward Signor Rosa's discovery of the bed of one near Colonna, at a place called Pontano, where the surrounding country is of a similar character to that described by the ancient writers. And so on, throughout the volume, Dr. Dyer stands forward as the champion of those early professors of literature without whose writings the history of the world would exhibit a dreary blank, extending over the record of a thousand years. We must continue our notice in another number.

EDINBURGH REDIVIVUS.

EDINBURGH has at length begun to arise from her ashes. Like the beautiful Phœnix of the fable, she has prepared her nest; and her old sanitary sins and sorrows, as we hope, are about to be burned up by the sun, and consigned to oblivion. Like this fabulous bird, there is but one of the species—there is only one Edinburgh; and it is long since we protested against the most beautiful city in the British Islands being also the most deplorably filthy. Perhaps our humble admonition did some good; at any rate, it was made with that intention. Lord Palmerston indeed, had preceded us. Previous to his celebrated letter to the Presbyterian clergyman, the dolorous watchword of the city during a visitation of cholera, was something like that which Mr. Disraeli told the astonished farmers in Buckinghamshire, was an error in the translation of Solomon. "*Vanitas vanitatum*," said the Edinburgh preachers, *et omnia vanitas*." This has been changed, as we perceive, for the better. We dislike a play upon words, but the opportunity is irresistible. *Sanitas sanitatum* is now the cry; *et omnia sanitas!* If we might venture to make use of an appropriate paradox, we should say that a healthy contagion has spread over the town, until it is at this moment labouring in the throes of a sanitary convulsion! Seriously, we trust this healthy reaction will not be temporary.

To begin with the chief cause we must begin with the chief magistrate. We must really congratulate the citizens of Edinburgh upon the choice they have made of Mr. William Chambers as their Lord Provost. Such a man, in such a place, was sorely needed. He is, we suppose, one of the oldest social reformers in Edinburgh. The journal which he conducted so successfully for many years, was by far the best popular educator on such questions as ragged schools and reformatories; and even, we must own, upon many questions of technical sanitary science. Such articles in the journal, it is understood, were chiefly written by Mr. William Chambers. But, at all events, there can be no doubt of his long and intimate acquaintance with the varied phenomena of public morals, and the inexorable laws of public health. Fortunately for his fellow citizens, he has now an excellent opportunity of giving practical effect to his knowledge, and he is not, we believe, the man to neglect it.

As we mentioned in our impression of the 16th of December, the new Lord Provost inaugurated his period of office with an elaborate manifesto on the sanitary condition of the Old Town. In brief, his proposals are,—to pull down all the half ruinous tenements; to form diagonal streets through the closes; to let in light and air by removing the antique wooden fronts which overhang such closes; to abolish cow-houses; to prevent overcrowding; to build extensively on the sites of the ruinous tenements houses for the poorer and middle classes; and, finally, to discharge the cost of this improvement by an assessment of a few pence in the pound, levied on the whole rental of the city for a period only of six or seven years. We are not, of course, doing justice to Mr. Chambers's able and comprehensive speech. But this is, as far as we can see, the gist of his plan of operation.

Such a plan, it is admitted, is absolutely necessary to purify the Old Town. Some of the more enthusiastic town councillors supposed that it

might even be made a source of revenue to the city; for the most important feature of the proposal is, that the corporation shall do the whole work,—reap the whole profit, or sustain the entire loss. But this is the mercenary, or purely utilitarian, view of the case. The lowering of the death-rate in consequence, as the medical officer of health pointed out, would be equal to an annual saving of 312 lives!—and who, as the Lord Provost says himself, shall estimate the benefits which it might produce in a moral and religious point of view? Speaking from our own recollection, indeed, we can assert that those dingy closes in Edinburgh and Glasgow are perfect hotbeds of crime and licentiousness; and as for the poor children who are ushered into existence in such horrible dens, our readers may judge of their condition from what Mr. Chambers said of them, at a recent meeting of the United Industrial Schools.

"No one can go through the more densely peopled divisions of the Old Town without observing that there are still hundreds of poor semi-neglected children, who are apparently at no school at all. You see them with wan and polluted faces, sitting on door-steps, to get a breath of the dingy atmosphere, or frolicking in rags, with bare excoriated feet, in front of the dismal dens which they call their home, and where they experience neither the luxury of cleanliness nor moral culture—where, in fact, they burrow like a kind of wild animal; and where, as we know from statistical returns, a large proportion die before they reach ten or twelve years of age. How one's heart bleeds for these poor little things, learning nothing good, abandoned to all that is bad; and what a scandal to our country, with its prodigious professions, that all this should be suffered to go on, so far as the public administration is concerned, and only meagrely assuaged by the efforts of a handful of benevolently-disposed individuals."

We have taken much trouble, from first to last, with the sanitary condition of Edinburgh, and we venture to throw out a reflection or two which may possibly prove of some further assistance in the great work.

In the first place, we must point out what we believe the Lord Provost must have a thorough conviction of, that it is impossible to improve the old town of Edinburgh without improving it off the face of the earth! But this ought to be a gradual process; such a process, in fact, as we believe has been going on more or less imperceptibly during the last thirty years. There can be no good reason why it should not be done on some regular plan; only it should always be borne in mind that Edinburgh is neither London nor Paris. Edinburgh, we hope, will take warning from the example of Aberdeen in somewhat similar circumstances. Of the result of the improvements in that northern city, financially speaking, we may say that the end is not yet, and cannot with certainty be predicted. But the effect of the evictions of poor people which followed on this improvement, and the consequent overcrowding, are very clearly seen indeed. Their condition is about the most revolting and shocking to which a population can be reduced. The case of Glasgow might be referred to, on the other hand; but this has no precise analogy, we are afraid, to that of Edinburgh. Glasgow is the second in point of population, and probably the second richest city in the empire. Edinburgh, with all its beauty, is unfortunately poor; and we question very much indeed, unless the inhabitants are quite unanimous, whether a Paliamentary sanction will be obtained to the principle of levying an assessment on the New Town of Edinburgh for the improvement of the Old Town. To give a parallel illustration we should not think it is probable that Grosvenor-square would submit to be taxed for Bethnal Green; or that Belgrave-square would consent to be punished for the sanitary backslidings of Bagnigge Wells-road: although, we confess, if we had our way, they should be. Besides, the New Town of Edinburgh is at this moment, we understand, suffering under a compulsory assessment of about 70,000*l.* for the drainage of the Water of Leith. This difficulty, the Lord Provost will see, must be met with great moderation and temper; and doubtless it may be got over: for we suppose it is utterly hopeless to make the Old Town pay for its own purification; and the revenues of all improvements must be regarded for some time as problematical.

In the second place, we do not see that the Lord Provost's scheme contains any reference to a better system of draining and washing out the closes. As far as we remember, there were drains laid down almost in every close in Edinburgh; but there were no soil-pipes connected with them; and no provision for carrying away the surface filth, even, which is the Edinburgh nuisance, *par excellence*. We observe from the medical officer's report, that water-closets were actually fitted up in one close (Dickson's Close); but they turned out an intolerable nuisance, and had to be removed. To meet this awkward difficulty, Mr. Ramsay, the ingenious manager of the Edinburgh Water Company, has brought forward a highly original proposition! for abolishing water-closets altogether! What a curious place is this Old Town of Edinburgh, after all! It reminds us a good deal of the coachman in Molière, who, after having been subjected to various sorts of modern medical practice, was ultimately killed according to Hippocrates! These dingy closes were planned centuries before the art of drainage had been invented. They have positively wallowed in filth for 500 years. They have passed through all sorts of domestic revolutions. The history of Scotland, as Alexander Smith somewhere says, has gushed through them like a stream; but the "pail" seems to stick to them. Those who are well-read in the literature of the city, can relate how there were first of all the pails at the door, then pails on the stairs, and then pails emptied over the window! For the last half-century or more, such homely utensils were supposed to have gone out of date. But alas! the inevitable "pail," somewhat modernized, and made air-tight ("or nearly so"), has again become the order of the day! Well, why not? we shall be asked. Is not this a necessary consequence of the northern Revivalism? Perhaps it may be. But if so, it is surely an absurd consequence. There may be cases, perhaps, in which inland towns shall ultimately be driven to such a necessity for sheer want of outlet. But Edinburgh can never be such a town. We sincerely trust, therefore, that the Lord Provost will not turn out an advocate for the "pails!"

Again, we do not observe any allusion in the Lord Provost's manifesto to an increased water-supply. We may lay it down (since we are on the subject), as certain as an axiom of Euclid, that unless a system of drainage be accompanied with an adequate supply of water, it will not only turn out useless from the beginning, but in process of time will become absolutely injurious. It is a great misfortune, in our opinion, that the Edinburgh water supply is in the hands of a joint-stock company, and not, as in Glasgow, Aberdeen, and other towns, in the hands of the corporation. For example, every Edinburgh police bill which passes through Parliament makes domestic cleanliness more urgent and imperative; every water company's Act renders the process more difficult and unmanageable. The one body lays down a system of main sewers; but the other refuses an ounce of water to flush them. The consequence is, that in hot and dry weather the Edinburgh sewers, no matter in what quarter of the town, become intolerably offensive and injurious to the health of the inhabitants. Of course, under the present constitution of parliamentary committees on private bills, the wonder is that so much harmony is preserved. But here we think is a genuine case of antagonism—discreditable alike to the Edinburgh town council, the water company, and the Government. A systematic and copious flushing of all the sewers and dirty closes in Edinburgh would, we are perfectly certain, reduce the death-rate of the city 2 or 3 per 1,000 per annum. And this is nothing at all to what might be effected if the lower quarters of the town were liberally supplied with water. We have no hesitation in saying that the supply of water to the Old Town of Edinburgh, from whatever point of view it may be regarded, is a great disgrace to the city. Yet there is not a single word said on the subject in Dr. Littlejohn's sanitary report. The fact is, we rather dislike the tone of apology and *couleur de rose* which that gentleman's otherwise able and perspicuous report sometimes assumes. It is not the business of a medical officer of health to make things pleasant to the local authorities. His functions are in our opinion of a higher order.

Finally, we must observe that nothing is said with regard to the sanitary condition of the New Town, or the disgusting condition of the gas-works; but of course it would be impossible to exhaust the subject in one address. If we consider the state of the cellars and the common stairs, and the water-closets which are ventilated into the common stairs, we must say that the New Town of Edinburgh stands as much in need of reform as the Old Town! As for the gas-works, they have ruined the Palace of Holyrood amongst other things. No loyal subject of her Majesty—not even Scotchmen, we believe—could recommend her to eat and sleep in an atmosphere of sulphuretted hydrogen and carbonic acid gas. We may return to this subject. In the meantime, with these slight criticisms, which we are sure will be taken as they are meant, in good part, we leave the subject. But we must not omit to congratulate the Lord Provost on his intended provisions against overcrowding. This salutary object, our readers know, we have had our humble share in promoting; but those alone who, during many years of anxious labour and tedious reiteration, have stuck to their point, and at length carried it, can experience the feelings of pleasure and gratification with which we observe the reform spreading. On the subject of cow "byres," too, against which in the heart of a town we have always vehemently protested, we observe that much good may be effected. For the rest, we trust Mr. Chambers will proceed in his course of reformation with his characteristic vigour and energy, at the same time in a conciliatory spirit, and without rashness or precipitation. It is not for us to tell him that he has an opportunity before him of which many a patriotic Scotchman might envy him, but which few could exercise so well. Indeed, the whole nation at this moment must feel interested in the city over which he presides, since it is possible that he may be the instrument of adding to her romantic history and her extraordinary beauty something of the indispensable qualities of domestic virtue and personal cleanliness.

THE DEVELOPMENT OF STYLES.

THE history of an art, like that of a science, can scarcely be followed with interest or accuracy unless the exponent of its course at least, not to say his reader, has steadily in mind throughout, the ideal of the art or science in a condition of ultimate or proximate perfection. Life is too short, the competition of other attractions too lively for every mistake and misgrowth to be chronicled in full detail. It is well to be warned of them, and to have marks set at what points the first explorers went astray, and note made of how they came to do so, and with what general consequences of delay and disaster; but these cautions are most advantageously set down on the corrected and completed map. With a clear apprehension of the developed theory of mechanics in possession, we glance with heightened interest and insight over the adventures of successive discoverers, and measure readily and exactly the direction and extent of their services or their errors; and so if we would recognise promptly the true place of successive phases of Gothic architecture, we shall do well to keep before us the idealised models of its best and ripest manifestations. Neither art, nor science, nor politics, ever close their histories, but the histories have their pauses,—their epochs,—and epochs of varying value. Our interest clings about the epochs of most brilliant characteristics, and indeed recurs to history for little else than to gain knowledge by what concert of events such epochs were brought round, or to follow with sympathetic feelings the process of their dissolution.

The epochs of architecture are the completions of styles,—a proximate completion at least, of styles, at once characteristic and excellent. I say proximate at least; for, as we have seen in the case of Anglo-Norman architecture, forms may arise and fall into systems so positively pronounced and of such intrinsic excellence as to merit to be called styles, and yet perish prematurely, though it may be to give place to better.

The change from Anglo-Norman to Early English style was made, to a great extent, by translation rather than transition. If we take the Norman designs and make no more alterations in them than follow of necessity by substituting pointed arches for round, and giving mouldings a studied in place of a crude section or profile, we may easily be surprised at finding how little more remains to do to effect the full change. Indeed, it will appear that some of these transformations carry us on beyond the Early English, and well into the period of the more truly and fully-developed Gothic. The germs of both these later styles were hidden in the earlier, and the significance of the earlier germ will be best appreciated by due recognition of the mature growth and bloom.

Round-arch Anglo-Norman architecture, then, already pre-figures the coming contrasts by examples of allegiance to the contrasted systems of stories and of compartments,—to the predominance of the horizontal or vertical lines of division.

The chapel in the White Tower of London may be taken as a small and simple example: another, near at hand, is the church of St. Bartholomew the Great,—of the story arrangement in which no vertical lines are employed to give emphasis to the correspondence of the upper and lower arches. Still less are any continuations of such lines carried up the sides of the plain barrel vault; the vault lies, we may say, like a lid upon the upper story of arches, as that is set again upon the level wall above the lower series, and its long plain unbroken surface, not only is congruous with, but challenges a like length of unbroken parallel lines in the walls that it rests upon.

In other more important examples, from Waltham Abbey to Durham Cathedral, the same principle is largely and grandly predominant, albeit that slender attached shafts may rise on the face of alternate divisions, either from the ground or from a corbel,—assertions faint, but even now ambitious of the rival and ultimately victorious tendency.

On the other hand, the nave of Ely gives the most pronounced exemplification in round-arch Norman of predominance of the vertical divisions. It is to be feared that the intention of the architect was to cover this nave with a wooden roof, or, rather, ceiling; but, still, the evidence is not conclusive for a conviction, and as spans quite as wide had already been vaulted, we may allow the benefit of the doubt. If the design be, in fact, completed by a groined vault, we should have a perfectly congruous result, the marked vertical lines that divide the walls into compartments from floor to springing of vault, being duly acknowledged by upward continuation of edges of groins, or even of groin ribs.

The admittedly most important and characteristic feat of completed Gothic was to recognise the expressive value and superiority of this motive, and to apply it with exhaustive strictness. In its fullest expression, the vaulting-shaft continuous from floor to springing carried up with it anticipations not only of transverse but of diagonal ribs, and even of the ribs or mouldings of the nook of the clerestory; and the general result was to give the most marked impression of the form and proportion of the transverse section of the nave, and of a succession of nave compartments of which the dividing shafts ranged on either side like the set and orderly standards of an avenue. The propriety of this arrangement was in fact not a little assisted by the ritual tendency to give the nave more and more the character of an avenue leading to a sanctuary, and less and less that of an apartment. Thus also the gradual subordination, to the verge of suppression, of the triforium even as a story, was perfectly consistent when the great gallery of the earlier cathedrals fell out of use; and was, in fact, given up.

In the new and highly elaborated forms that accompanied the full introduction of the pointed arch, the so-called Early English style held on with much favour to the system of the stories, but had to combat, and did not always or even often struggle successfully against the tendencies inherent in the genius of the style, or at least in its adopted detail, and so failed in the last condition of success, a just self-confidence and vigorous self-assertion. The value of the continuous shaft from floor to springing was never even recognised, still less seized, emphasized, enhanced, as in the completed Gothic, and thence the Early English nave lacks and in consistency was bound to justify the lack of—appropriate expression as an avenue; whereas it unawares or weakly, usually claims to be an avenue both by its great length, and often by the story of the triforium, in favour of which verticality is sacrificed, being a nonentity, after all, as a gallery of occupation.

In choirs and presbyteries which are avowedly apartments, the incongruities are not so great. Stalls conceal the piers; the length is not so exaggerated; and here the style which has made some noble efforts might have achieved its complete and blameless triumph, had it dared to pronounce the triforium as an available gallery, and then taken thought, and so modified the bearing as well as the proportions of the vaulting as not to challenge of necessity a reminiscence of allegiance due to the vertical.

As regards the triforium, it in many cases retains at least the appearance of a practicable gallery for occupation, and then its rhythmical correspondence with piers, reinforced by aid from immediate superposition, is, with but rarest exception, sufficiently declared. To their joint grouping the spacing of the vault conoids corresponds; it is in the articulation of these with the system that the consistency fails, when it does fail, which is much too frequently. The Mediævals themselves disagreed so remarkably in the management of this, that modern modesty need not decline to have or to express an opinion of its own. At Canterbury, the vault springs from a level with the triforium capitals; but it is provided with a shaft, and the case does not unequivocally belong to the Early English instances. The repudiation of the true vaulting shaft being accepted, we have no hesitation in asserting that the consistency of the style,—the expression of direct down-press of a higher story on a lower as its basement, demanded that the vault conoid should descend clear within the string-course that crowns the triforium story, and that all its projections beyond this should be manifestly but the decorative surface mouldings. By the schemes that were adopted, we get in one form or another an overlap of vertical and horizontal systems that vitiate both. The conoid starts visibly from a corbel in front of the wall,—sometimes at considerable height above the clerestory string-course, sometimes from spandrel of triforium, or even from a level as low as its capitals. Again, the bearing corbel shaft has its own corbel at all intermediate points between the lowest points of the spandrels of the pier, and of the triforium arches. The ribs of the conoid also converge so nearly to a point, that the breadth demanded for a base of superposition disappears.

The crossing of the triforium string-course by the slight shaft as it descends to its corbel, does little to impair the value of the marked horizontal line; as little does it break the orderly sequence of triforium piers which promise a varied repetition of the pier story above,—but as the invited eye rises to complete the comparison, it is met by the not inconsiderable shoulders of the intrusive conoids which hustle, without respect, the parallel clerestory string-course, with no gain to themselves but the acquisition of a slipped-down appearance, and a presumptuous forfeiture of obligation to the able and expecting pile of level stories, out of complaisance to a decorative detail that for its own part does not pretend to be anything more.

It is to this apparent descent of the vault that we would ascribe a good deal of that effect of lowness in Early English vaults, that neither mere recollection of the height of other styles nor the actual restriction of the dimensions suffices to account for. The offence is, that we feel them, not absolutely, but disproportionately low; and the question of interest is, where does this peccant disproportion lie? This is not far to seek; it is to be found in the defective or intermittent sense of the proprieties of gradation, especially in the cardinal respect of spans and altitudes. As necessarily as the ear in music will be dissatisfied with a key-note that pretends to conclude the melody independently of the leading note, will the eye and the sympathies remain discontented in architecture when the most salient proportion of the building is not duly led up to by some easy intermediate step. This subject, however, cannot be pursued at length here; suffice it to point to the harshness with which at Salisbury the proportions of the main section of the nave are combined with the narrow lancet windows on the one hand, and the ungracefully depressed including arches of the triforium, on the other.

In the eastern half of Canterbury Cathedral, the tendencies of the Story and the Compartment meet, and whirl as in a very eddy. By the introduction of Purbeck shafts from capitals of piers to spring of vault, William of Sens gave a certain adumbration of the value of verticality, especially as on intermediate piers another of these dark conspicuously relieved shafts continues to the floor. But the principle of the stories is, in fact, still retained by thus piling one independent shaft upon another; and the eye tracks the lines of capitals instead of the string-courses, and recognises the adherence to a double tier, which is expressed in the strongest way in the superposed tiers of shafts of like range with pier and triforium capitals, that encircle the great piers of the crossing.

Within the five years that followed, during which English William went on with the work of his disabled master, the confusion had subsided; whatever may have been due to the foreign architect, who even in his own work shows himself decidedly progressive, it is gratifying to find that under English hands was first struck in England with clearness and decision the key-note of the pure Vertical style. In the corona that completed the works in 1184, we find the vaulting shaft made consistently continuous from floor to springing; and regarding England alone, we are carried at once, as by a leap across the centuries, past all the elaborately enriched developments of the Early English style, to the model of a bay that taken alone is the advanced germ of a highly-organised and purely Gothic cathedral.

Noble and admirable, in spite of all defects, is the style that we call Early English; but it might seem as if the very concert of French and English genius, under which we see its indistinct commencements at Canterbury, was required to bring it back from its wanderings, not to say vagaries, and so conclude its history by conferring its highest correction. The vertical and the horizontal distributions which meet, contest, and at last part company, at Canterbury Cathedral, were destined to meet again, after many an active decad of experience and trial, in the not less sacred and imperial Abbey of Westminster. Here French design again appeared on English ground, and worked with no careless regard to English models; the result is that noble structure, which we cannot enter without recognising a style instinct with the spirit of beauty that reigns in Ely choir, Lincoln, Norwich, and Salisbury; but with every discord harmonized, and almost all the perfections of the aspiring expression that claims verticality as its living organ, added to it for a royal dower.

ARCHITECTURE IN LIVERPOOL.

THE group of buildings around the Exchange, of which group it is the centre or nucleus, is probably that in which the greatest wealth has been expended and the greatest effort at effect been made. Whether the impression created be commensurate with the vast sums lavished upon the ornamentation depends entirely upon what the observer sets value on or store by. Certain it is, that a stranger, on a first visit to the town, could not help being struck with the signs of wealth of which these buildings may be taken as the emblems. To the majority, costliness is all sufficient, and in the battle of life he who has the biggest house, the greatest number of servants, the finest horses, he who gives the most extravagant spreads and the choicest wines,—is considered the better and happier man and a decidedly lucky fellow. But what has all this to do with architecture? More than at first may be apparent; for those to whom these things —not to say vanities—are the sole aim and object of life, constituting a very low ideal, must necessarily be impressed most with external flash and bounce. True!—costliness, though not a necessary adjunct of good taste, forms the sinews with which the greatest effects can be produced; and happy the man who, when he has thoroughly mastered his profession,—but not till then,—can have the opportunity of carrying out his views without the depression caused by the miserable cheese-paring which so often forms an element in domestic architecture. While plenty of money is a *sine qua non* for the production of great monumental works of art, we would wish it to be distinctly understood that, if the art employed is a mere hap-hazard shuffling about in the dark, without a central guiding-light to steer by, the greater the expenditure the more worthless the result. The plainest brick warehouse in the town is infinitely superior, as a building, to that large agglomeration of protruding plate-glass bubbles in Water-street, termed Oriel Chambers. Did we not see this vast abortion—which would be depressing were it not ludicrous—with our own eyes, we should have doubted the possibility of its existence. Where and in what are the beauties supposed to lie? That is a question which has troubled us in our dreams, and the more we strive to comprehend it the further we are from a solution of the difficulty. Could we speak in the singular number, we should exclaim with *Hamlet*, "Oh, my prophetic soul—my uncle!" for surely the design must have been inspired by a pawnbroker, the tastes are so similar.

To show more clearly the ruling principles of

composition, this building is worth a little close study. The inspiring motive—the happy thought has been the term "Oriel;" and truly it is a poetic word, and one conveying visions of fine old gabled manses, rich in carving and corbels, but richer in the lovely covering of grey and green—mural paintings by nature—touches by the mellow hand of time. An oriel window is an inspiring object; but a row of windows falsely so called, all bad to commence with, and all exactly alike, is the reverse. Did we say a row?—we should have said a *tier* of rows—a sight to make the angels *weep*. If from the *bubbles* we pass our eye up to what is called the sky-line, it is, perhaps, if anything, still more execrable. From the curved copings, which in the meagrest versions of the debased Elizabethan, could not pass muster, up to the shapeless, spiritless pinnacles, all is bad. It is really—if we are to do good—no use mincing the matter, and we sincerely hope this edifice will prove unique in its way, and the first and last in such a style. In the face of so much vulgarity, we almost forget what the laws of composition are, and their artistic interpretation, which, if not felt, cannot be seen. What would the public say if Mr. Gye were to treat them with an opera containing only two airs, the plot of the piece being, that they should alternate with each other at regular intervals, and wind up with a grand flourish of kettle-drums, brass trumpets, and penny whistles? To say that variety is essential in a composition is only a weak way of expressing what we want to say. There should be a central and governing idea—a rising and falling in the cadences,—the divine music of form. There should be feeling—there should be sentiment—there should be light and shadow and varied masses, all tending round, and all helping towards a grand and inspiring effect. The pervading sentiment may be varied to suit the spirit of the place. It may be quiet, reposing, retiring. It may be bustling, enlivening, and mentally excitative. It may be dignified, in solid masses, or take any other form the fancy may choose; but should always be manly, thoughtful, and honest in intention.

To draw a contrast, let us now examine the Albany, in Oldhall-street, which, unfortunately for local talent, is by Mr. J. K. Colling, a gentleman distinguished for his knowledge of nature, and the application of the principles of growth in leaves and flowers to decorative purposes. To those who have studied architecture, the first glimpse of this building is sufficient to show that it has the ring of the true metal about it—the guinea stamp—the goldsmith's mark. Yet, how simple is the combination of the masses and even how regular the wall-voids. The general form is what is called Italian; but it is, in constructive spirit, more Gothic than otherwise. Examine any part of the design and the motive is apparent, easy, and plain of comprehension. To those who do not understand artistic terms it would, perhaps, be difficult to explain what *breadth* means; but if they will study this elevation, and it makes the right impression on the mind, they will at once *feel* it. This is the more strange, for the voids are larger than usual, and it is usually considered indispensable to the attainment of breadth that there should be abundance of wall surface. In the Italian, or Cinque-Cento period breadth is an important element, and it is mostly obtained by extent of wall surface and small openings. In Italy small windows—such is the strength of sunlight—are a necessity; so that the Italian masters had, on this score, no difficulties to contend against. In Liverpool, the nearest approach to the true Italian effect may be seen by those desirous of studying the matter, in the range of warehouses on the south side of Cooper's-row, close to the Sailors' Home. Though not, in other respects, worthy of notice, and ornamented with vile cement dressings, those buildings may yet serve as an illustration. In the Albany, the architect has had to encounter difficulties of a severer kind; and it is wonderful the breadth and solidity that has been attained, considering the small width of the interspaces between the windows, and is instructive as showing that, when extent of surface cannot be obtained,—the effect which is here so remarkable may be arrived at by *depth*—depth of reveal that will display to the eye at once the real thickness of the wall. The base is solid and massive, very properly constructed in stonework; and though we confess not to liking what is called rustication—or a torturing of the joints of the stone—a cutting away of the bed—and we are not partial to key-stones, which, by a popular fallacy, are considered so essential to the stability of a building, the treatment of this basement is in the least objectionable form. On the ground and first floor are ranges of very large windows, the lower with segmental heads, the upper with semicircular heads filled in with segmental tympana. Above this, the windows are diminished in size, a treatment founded in common-sense practice and conducive to dignity of effect. It is here that the brick groundwork is most apparent. Surmounting the whole is a large and massive cornice, simply and well designed of the sort, and quite in character with the rest of the building. We admit that we are not partial to heavy cornices. See the abortion at the corner of Oldhall-street and Chapel-street, that huge compo monstrosity under whose shadow we never pass without a shudder. Their use is not so apparent as we could wish; but, if we adopt the Italian form, it is difficult to see how we are to avoid employing them. In The Albany the cornicione has the additional defect of a very common balustraded parapet—the weakest portion of the whole design. But let that pass, for we should feel grateful to the architect who has afforded us so much to admire. Now, as a matter of comparison, contrast all this with Oriel Chambers. It is at once simpler and more varied, and, as our eye passes upwards, we perceive the rising and falling—the true architectural cadences—the diversity in the masses crowned by the dignified and governing cornicione. The constructive principles are Gothic, because advantage has been taken of the most striking points of the construction for decorative effect. The arches and spandrels are of solid stone, as also are all those portions which, from the weight to be carried, are supposed to demand it. There is no unmeaning copying of forms of other buildings. It is evident that each part has been designed only with reference to the position it should hold in the general composition, and the incised decoration adopted—a style strongly supported by Mr. Colling—conduces to the breadth of effect of the whole, as well as the inspiriting sharp points of light and shadow, to the avoidance of monotony. The little discs and semi-spheres of polished granite are tastefully introduced, and the door-case, though common in form, is well designed. In fact, all difficulties have been met in the simplest and most straightforward manner. There is no laborious straining after effect observable, and altogether it is, though not a stone building, one of the best in Liverpool.

After having so much to find fault with, it is a real pleasure to be able to point to an architectural example—even while candidly confessing that the style employed is not the one we consider best suited for civic purposes—possessing in itself elements of a high class of art; we allude to the Branch Bank of England, in Castle-street, the architect of which any one conversant with the peculiarity of his works would at once see was the late Professor Cockerell. We recollect well the period when it was in progress of building—the careful solidity and genuine nature of its construction—the evidences of thought everywhere apparent, and the contrast which it then, as now, displayed in comparison to the Commercial Bank, on the opposite side of Cook-street. The individuality so distinguishing every line and moulding we take to be not the least of its merits. We feel a pleasure in recognising the old master-hand—a pleasure arising from the same source that in a friend those delicate points of humour and wit which are lost upon the outside world give us the acutest and most genuine delight. Thus, in the works of Thackeray, the piquant, incisive wit, combined with—notwithstanding his cynicism—the most delightfully genial and humorous *bonhomie*, expressed in the most crystal, clear English, are distinctive peculiarities, which afford us the most discriminating pleasure. But, if we did not *know* Thackeray thoroughly in a literary point of view, could we appreciate him to the same extent? Most certainly not. The best, most artful, and most delicate touches would be in a measure lost. The exact impression in the author's mind would fail to be conveyed to us; and the same is true architecturally, though words in the one case are the more expressive mediums of communication, while form, material, colour are those only at the disposal of the architect. Still, notwithstanding there exists as distinctive an individuality of character in architecture as in a literary composition; though, of course, the witty or the humorous, excepting in those wonderful Mediæval carvings, is not the phase of mind which is usually represented. The character of the mind, as respects the delicacy of taste—the perception of the agreement or disagreement of certain forms—the comprehension of the subleties of analogies in nature—the manifest likings and dislikings or certain characteristic traits in selection—appreciation of colour, and preferences arising as can be seen from the natural confirmation of mind of the designer, modified and developed by education—these, all these, to the true lover of art, go to make up the unique delight—the totality of impressions which follow the complicated but perfectly analyzable emotions created in the sensitive and educated artistic mind by the sight of a beautiful building. Can we, when capable of distinguishing these high qualities, oftentimes combined with the tenderest sentiments, be expected to fall down and worship the architectural Baals so freely set up in our high places in all their deformed coarseness?—Gods, each of whom says, "Look at me, how big and strong I am, what muscle, what power I possess,"—the power of ugliness! "What a display I make—these bracelets cost 100,000*l*., and these ear-rings double that amount. Oh! son of man, am I not on this account worthy of thy worship?" Thou art; and lots of true worshippers thou'lt find; but our humble selves look up to something purer, and greater, and higher than thee, and we cast thee from us. This is the poetic view of it; but if ye prefer a plain translation, we say that such low and sordid qualities as many of our hugest buildings possess cannot possibly please the palate of him who has tasted better things.

There are four banks within a small circle of the Exchange, and another further off on the outside—the Savings Bank, in Bold-street, a decided outsider—which, in a measure, afford a good illustration of several phases of architecture in Liverpool, and the different degrees of individuality which it is possible to exhibit in a building. As a contrast to Cockerell's work, the Commercial Bank—with the exception of that in Bold-street—affords the most instructive lesson; while the Mercantile Bank, in Castle-street, and the National Bank and offices of the Liverpool Law Association, at the bottom of Cook-street, illustrate two styles of building now predominating in Liverpool,—the work of two of the leading architects—leading, at all events, in point of extent of practice.

While the Branch Bank of England is an exemplar of the application of Greek *taste* to modern wants, forming a style of which Cockerell was the introducer, as opposed to the vapid copying insipidities of the Foster school—a style that was born and died out with him, and will probably not again be introduced, for who can write epics with Homer?—it still (though we run the chance of being laughed at for saying so) displays some Gothic spirit in the motive force of the design. Such is not peculiar to this one design, but the same spirit may be observed in the external treatment of the staircases of the Liverpool and London chambers,—an essentially Gothic idea. There is a boldness and depth about the bank the more strongly marked by contrast with the pasteboard pilasters of the Commercial; but the difficulties always attendant upon the use of a columnar style before pointed out exist in as much force as ever, though they have been well and boldly met. The massive three-quarter columns are of the Doric type, and enclose two stories, though on the Cook-street side the architect has coolly and properly dismissed them altogether. The mouldings and details are pure, well studied, and far from wanting in originality; indeed, considering the small scope such a style affords, it is on this point most worthy of commendation. Setting aside the question of the advisability of making the architectural character of a building dependent upon features borrowed from temple architecture, and seeking light and shade by destroying the insular functions of the original column by attaching it to the wall to which it can have no true affinity, and is simply disruptive in effect, there is much to admire in this edifice; and we cannot withhold praise from any one who, it is clear, worked from honest conviction, though the limits within which he bound himself were contracted, not to say narrow. Before we leave we may remark that there is rather a want of life in the general effect, arising from the absence of carving. It mainly and essentially depends upon lines and mouldings; and no building can, in our opinion, be complete as a work of art in which carving, whether in the form of floral decoration or figure sculpture, is absent: no amount of straight lines, curves, or Greek frets can ever fill the void which its absence occasions though in many

works carving may unfortunately be looked upon as little less than an eyesore.

It would be useless to waste many words on the Commercial Bank: the whole thing is a mistake; and the preposterous size of the stones employed, and the shallow rustication of the basement, combined with the want of original spirit, and shallow meagreness of the whole belongings, put it without the pale of criticism. It is heart-rending to see so much good stone and good work wasted in so dull a performance. The Savings Bank, in Bold-street, is of the same type—not of art, for art would not own either—if anything, worse in taste.

In the Mercantile Bank, we first introduce to our readers a style which is exercising considerable influence in the town,—whether for good or evil we will not at present inquire. It has not a large frontage, and possesses the not uncommon defect of appearing as though made in lengths, and sawn off to suit consumers. If every building were designed with an individuality of its own, what a much more picturesque and interesting place of abode we should have on this—at the present season of the year, in some respects owing to the art of man—dull earth. Possibly, we know not, it may be merely the commencement of a larger design; but, anyhow, the propensity to build everything in *ranges* is most destructive of architectural effect: it is a rag and remnant of the Palladian ideas of the last century. In our opinion, nothing can be more monotonous than streets designed on the grand scale, according to a fixed plan, as in Paris. Bad as it is, we prefer our own architecture, for we do get occasional choice morsels; whereas, in the other case, the whole is absorbed in one grand impression, which, once made, becomes afterwards inexpressibly tiring. Look at Lord-street, in which the new lines of buildings, the guide-books inform us, "were built to elevations prepared by the Corporation Surveyor at the time, of which Lord-street and South John-street afford the fairest specimens." Fair specimens, truly! Then, by all means, let us have ugliness, for the opposite of what we dislike must surely please us. Though Lord-street be a wide street, it would be difficult to find within the whole realm anything less entitled to be dignified by the title of architecture than the shallow, meaningless, original compo fronts which our Corporate talent, in its desire for uniformity, has ruthlessly inflicted upon the town. Fair buildings! Ay, fair in the glories of paint and patches, like the antiquated, worn-out, dissipated dames whom Dickens has depicted—Thackeray scarified.

LIVERPOOL.

THE EDUCATION OF THE CIVIL ENGINEER.

THE following is the corrected text of the address delivered by Mr. John Fowler, at the Institution of Civil Engineers, on taking the chair, for the first time, after his election as president, on the 9th inst.:—

The high degree of material prosperity which this country and its dependencies have now happily enjoyed for a considerable time, has naturally led to great activity in our profession; and probably at no former period have the skill and enterprise of engineers been so severely taxed as during the last few years; and as civilization continues to advance, and labour to require increased assistance from mechanical contrivances, the connexion of civil engineering with social progress will become more and more intimate.

I hope I may be allowed to say, with a deep feeling of professional pride, that hitherto the inventive genius, the patient perseverance, and indomitable energy of the members of our profession have not been found unequal to the tasks they have been called upon to perform; and although I have full confidence in the future, I venture to suggest that the present is a fitting moment for considering the means by which our younger brethren may be best prepared for the arduous duties, and growing difficulties, which they will undoubtedly have to encounter in their professional career.

It is not merely that works of magnitude and novelty are increasing, and will continue to increase, but it is becoming apparent that we shall have to meet the competition of foreign engineers in many parts of the world; and that great efforts are now being made, not only by careful scholastic education, but by more attention to practice on works, to render the civil engineers of France, Germany, and America, formidable rivals to the engineers of this country.

Here it has always been found that friendly and honourable rivalry among members of the profession has been on the whole beneficial to science and to engineering progress, and we cannot doubt that the same result will follow the more extended rivalry which we shall have now to meet from the engineers of every nation. At the same time this consideration renders it our especial duty to take care, that the distinguished and leading position which has been so well maintained by our great predecessors, shall not be lowered by those who come after them.

My predecessors in this chair have addressed you chiefly upon the interesting topics and works of their own time; and with so large a field demanding their attention, it was natural that they should devote themselves mainly to describe the past and to indicate in outline the features of greatest interest in the present.

My immediate predecessor, Mr. McClean, gave to the Institution a description of the remarkable results which had been produced by the general introduction of railways into England in combination with steam-power, and clearly pointed out their influence on the increase of its material prosperity and national wealth.

Mr. Hawkshaw pointed out the rapidly increasing importance of wrought iron for engineering works, with the promise of new applications of steel; and the fact and consequences of the increasing speed of railways and steamboats.

Mr. Bidder, after defining the object and scope of the profession of the civil engineer to be "to take up the results discovered by the abstract mathematician, the chemist, and the geologist, and to apply them practically for the commercial advantage of the world at large;" illustrated his views by selecting the examples of hydrodynamical science and hydraulic engineering, for the purpose of pointing out the serious mistakes which might arise from a neglect of a proper knowledge of true mathematical principle.

Mr. Robert Stephenson described the modern railway system in England up to the period of his address, commenting upon its extent and justly appreciating its value; and he reviewed, in a large and philosophical spirit, its system of management, and the commercial economy which it had produced.

Mr. Locke in like manner selected for his subject a description of the French railway system and its management, in the introduction of which he had himself been so actively engaged.

Another of my predecessors, Sir John Rennie, seems to have been determined that no single topic of professional interest should remain to any future president which he had not himself exhaustively discussed; for he not only presented a complete panorama of all past engineering works, but he gave a descriptive analysis, so full and complete, as to make his address at once a history of engineers, and a manual of engineering science.

The whole field of discussion and description of the past has thus been so completely and so ably occupied by my predecessors in this chair, that I shall not attempt to travel over the same ground; but I propose to deal almost exclusively with the future, and endeavour, although I possess no particular personal fitness for the task, to suggest some of the means by which the younger members and the rising generation may best prepare themselves for the duties which that future will bring with it.

I may first briefly notice, and for the purpose of illustration and introduction, a few of the great engineering problems of remarkable boldness and novelty which are now presenting themselves for the supply of the future wants and convenience of mankind: amongst them may be enumerated the Suez Canal; the tunnel through, and the railway over, Mont Cenis; railway bridges over and under great rivers and estuaries; new ferry works of unusual magnitude; vast warehouses and river approaches for commercial cities like Liverpool; railways under, over, and through great cities; long lines of land and ocean telegraphs; and comprehensive schemes of water supply, drainage, and sewerage.

All these works present problems of great interest, and it will require cultivated intelligence, patient investigation, and enlarged experience, to accomplish the task of their satisfactory solution.

For the Suez Canal we must be content to wait a few years before the work be so far advanced as to enable us to judge of the effects of the physical and moral obstacles which to some experienced minds have appeared all but insuperable.

The Mont Cenis Tunnel, and the temporary railway being constructed over its summit, will continue to be watched with interest by all engineers, and it may yet be a question how far the mode of traction which has been adopted for the temporary railway will prove to be the best. The modified locomotive has, no doubt, with the aid of a central rail succeeded in surmounting gradients which have hitherto been considered to be more severe than compatible with the economical use of the locomotive engine; but further experience is still required, and the results of the trial will be watched with great interest, because it cannot be doubted that conditions will continue to present themselves to which the ordinary locomotive engine cannot conveniently be applied.

In many of the proposed and future designs of bridges over or under great rivers and estuaries, no novelty in the principles of construction may probably be required; but in other cases the mere magnitude alone will demand new arrangements and combinations, and may possibly also suggest the use of steel, for parts or the whole of the structure.

The docks and warehouses of our great commercial cities are rapidly advancing in importance, and are constantly demanding increased facilities to enable them to meet the exigencies of trade; and for this purpose every possible resource of steam machinery, and hydraulic and pneumatic mechanism, will have to be taxed to obtain convenient and adequate power and expedition.

The new scheme of river approaches at Liverpool is one of the most remarkable proposals of modern times for its boldness in grappling with the difficulties and necessities of a pressing want, and the complete solution of a difficult problem. It is understood that the engineer of the Mersey Board, who has designed this great work, is preparing a model on a large scale, which I have no doubt will be brought before the Institution.

The railways under, over, and through great cities are amongst the most striking results engendered by the necessities of rapidly increasing and closely crowded population, and may be regarded as one of the most useful economical developments which engineering has supplied to satisfy the requirements of modern civilization. The engineering problems they present are infinite in their number, and interestingly intricate in their character.

Ocean telegraphy is yet in its infancy, but enough has been done by the numerous lines already laid, and by demonstration before this Institution, to prove that further experience alone is wanting to enable deep or shallow sea cables to be successfully laid and maintained wherever they may be required; and probably in no branch of our profession is the future of greater interest than in the coming telegraphic connexion in every part of the world by sea and land, and in the political, commercial, and social results, which must follow such a remarkable increase in the facility of general intercommunication.

The rapid growth of communities to which I have already alluded has also developed the necessity of provision being made for a more abundant supply of pure water, and for a more complete system of sewerage than is now generally possessed by our towns and cities; some of these works are already being carried out, or seriously contemplated, on a scale of almost startling, but not unnecessary, magnitude.

It is plain, therefore, that in every department of civil engineering the wants of commerce and society are pressing more and more urgently upon the resources of our profession. We have ship canals, but the Suez Canal throws them all into the shade. We have long tunnels through our English mountains, but we have now to penetrate the Alps. We have large bridges, but larger are required. We have noble ports, but they are choked with trade, and new accommodation of an improved kind is called for. We have steam ferries across rivers, estuaries, and straits, and rapid ocean steamers, but higher speed and better accommodation are demanded. We have large warehouses with convenient mechanical appliances, but larger warehouses and better mechanical appliances have become a necessity. We have many thousands of miles of telegraphic communication, but nothing short of its universal extension will suffice.

In the solution of these problems, thus rapidly indicated, and in others which could be easily adduced, we may rest perfectly satisfied that the difficulties they present are not to be overcome by a stroke of genius or by a sudden happy thought, but they must be worked out patiently by the combination of true engineering principles, ripe experience, and sound judgment.

Having thus called your attention to the peculiar position of our profession in consequence of its rapid growth, and pointed out some of the problems which await an early solution, I shall now attempt to describe the nature of the functions of the modern civil engineer; and consider how the coming generation can be best prepared for its inevitable work, and to what extent this Institution can be made ancillary to that purpose.

Although we know from history that men have existed from the earliest times who have been distinguished by great mechanical capacity, remarkable skill in working materials, profound science, and constructive knowledge, yet it is only during the present century that civil engineering can be considered to have become a distinct and recognised profession. Now, however, it has assumed the position of an art of the highest order. Perhaps we may without arrogance be entitled to claim for it the title of a true *science*.

Many attempts have been made to define and describe a civil engineer in a few general words, but all such attempts have been more or less unsatisfactory. Still, though it is difficult, if not impossible, to describe an engineer by a short definition, it is not so difficult to enumerate and describe the nature of the works he is required to design and execute, and the professional duties he is called upon to perform.

He has to design and prepare drawings, specifications, and estimates, and to superintend the carrying out of works which may be thus enumerated:—

1. Railways, roads, canals, rivers, and all modes of inland communication.

2. Water supply, gas-works, sewerage, and all other works relating to the health and convenience of towns and cities.

3. The reclamation, drainage, and irrigation of large tracts of country.

4. Harbours of refuge and of commerce, docks, piers, and other branches of hydraulic engineering.

5. Works connected with large mines, quarries, ironworks, and other branches of mineral engineering.

6. Works on a large scale connected with steam-engines, with machinery, shipbuilding, and mechanical engineering.

This list, which might be almost indefinitely extended, involves a vast variety of work, and must appear almost appalling to a young engineer; and yet it greatly concerns his future success that he should, as far as possible, be prepared to undertake any or all of the works embraced in the list.

I believe the personal history of most of us would show that circumstances have led us in a widely different direction in the exercise of our profession, from that which we originally contemplated, and that the success of many men may be distinctly traced to their ability to avail themselves of unforeseen opportunities to advance in some new direction.

The civil engineer must therefore be prepared for the various classes of constructive works thus enumerated; but in addition to this professional preparation it is of the first importance as affecting his true position, and the confidence which ought to be reposed in him, it is essential that he should also have a correct appreciation of the objects of each work contemplated, as well as their true value, so that sound advice may be given as to the best means of attaining them; and he must be prepared, if necessary, to advise his employers that the objects which are sought are not commercially worth the cost of the means which would secure them. It is not the business of an Engineer to build a fine bridge or to construct a magnificent engineering work for the purpose of displaying his professional attainments, but whatever the temptation may be his duty is to accomplish the end and aim of his employers by such works and such means as are on the whole best and most economically adapted for the purpose.

The first question which will present itself to an Engineer with respect to any proposed work, will be the selection of his material; and as this question is so vital to the accomplishment of a satisfactory result, I propose to treat it in a preliminary and special manner. I wish to impress upon every young engineer a due sense of its importance, because probably a greater number of mistakes have been made by the use of a wrong material, than from any other cause.

In the case of stone work, it is essential that the mode of construction shall have reference to the character of the stone; and this requires much of the knowledge of the stonemason and the quarryman, so that the engineer may know how best to work and set the stone, and what are the peculiarities of the quarry as to its sound or unsound beds; and, in addition, he should have sufficient chemical knowledge to detect any unfitness in the conditions of use to which he proposes to subject the stone.

Let us always bear in mind, in connexion with this subject, the example of Sir Christopher Wren, engineer as well as architect, who himself selected the quarries, and sometimes even the blocks of which his structures were composed.

Of bricks, I must be content with saying that the power of detecting the good from the bad, the suitable from the unsuitable, must be acquired by the combined assistance of reading, experiment, and practice.

A knowledge of lime, and the art of making the best practicable mortar from each description of building lime, is almost of equal importance to that required for selecting the stone, brick, and building materials themselves; but it is somewhat remarkable that the art of preparing mortar in a proper manner is not so general as it deserves to be; and to secure good mortar is a matter of continual anxiety to the engineer.

Mortar for engineering works is ordinarily made from cement (chiefly Portland cement), or from hydraulic lime, such as lias, or from ordinary lime, such as grey or chalk lime.

Cement is chiefly used in combination with sand in various proportions, according to the nature of the work to be executed; and it is not only necessary to possess the requisite knowledge and experience for determining the proper proportions of cement and sand for each individual case, but it is desirable to have the means of determining, by direct and repeated experiment, the strength and quality of the cement which it is intended to use.

In the case of hydraulic lime, such as lias, the same general knowledge of the proper proportion of sand to be used is also requisite; but, from the great variation in the character of lias lime, and the different proportions of silica and alumina in combination with the lime itself, it is essential to obtain a careful chemical analysis, in order to avoid the great disappointment and bad consequences which may result from ignorance of the various qualities.

Of ordinary limes it is only necessary here to say that they are of almost infinite variety as to quality and constituent parts, and must each be dealt with accordingly; and the engineer can scarcely take too much trouble to inform himself of the exact nature of each lime he has to use, or the best mode of using it.

Modern science, and the convenient manner in which steam-power can now be applied, have given to the modern engineer the means of obtaining better mortar from the same materials than was possible before the general introduction of steam.

The heavy rollers and iron pan worked by steam-power are now almost universally used for grinding and mixing lime and sand for works of magnitude. They produce, with properly-proportioned ingredients, a mortar so good in quality, and so equal in the time and power of setting, that the engineer can calculate with certainty upon the conditions under which his designs will be carried out; and, when he has become thoroughly acquainted with the quality and power of good mortar, and acquired confidence in its use, he will feel himself justified in its adoption in cases where our predecessors, and even some modern engineers, would have hardly ventured to employ it, in the place of the more costly Portland cement.

When iron is intended to be used in structures, it is essential to know under what circumstances cast-iron is best for the purpose, or when wrought-iron should be employed, and also when steel must be resorted to. The profession has probably been assisted to a greater extent by the experiments and writings of its members, and of distinguished men of science, in the material of iron, than on any other subject; but these valuable investigations and experiments must be supplemented by the practical knowledge which can only be acquired by attentively studying the peculiarities of material and manufacture.

Cast-iron or pig-iron remelted and run into moulds is largely used by engineers for columns and other parts requiring great power of resisting compressive strains; and, as its price per ton is generally about one-half of that of wrought-iron, it becomes a matter of economic importance to adopt it in all cases where it can be safely and properly used; but it is of the most varied quality and strength, and the greatest attention of the engineer is required to secure the proper kind.

Wrought-iron is, perhaps, less varied in its quality than cast-iron, and for many purposes of engineering it is the safer metal to adopt, from its greater power of resisting tensile strains, and less liability to sudden fractures; but it must be remembered that wrought-iron is sometimes pure and of high quality, sometimes very impure and of the commonest quality; and, even with the same degree of purity, it may be soft and fibrous, or hard and crystalline. Therefore it is obvious that the young engineer should acquire a sound knowledge of its nature, both chemically and practically, so as to enable him to secure the quality he desires, and to know when he has obtained it.

It would be easy to enlarge upon this interesting question of wrought-iron, but it may suffice to instance armour-plates and rails, as cases where the best quality is required; but the quality, though best, must be different in kind: for armour-plates the iron can scarcely be too soft and fibrous, whilst for rails it can scarcely be too hard and crystalline, provided it is not so brittle as to be liable to fracture by use. Again, in some iron, such as the "best Yorkshire," the quality appears to improve with every additional operation in the manufacture, whilst the ordinary Welsh iron is almost destroyed by repeated manipulation. All these and many other matters connected with iron should therefore be known thoroughly and practically to the engineer.

In order to illustrate the necessity of the systematic study of the peculiarities of the metals called iron and steel, let me refer to the experiments of Mr. Eaton Hodgkinson, which first demonstrated that the average resistance of cast-iron to crushing was more than six times its tenacity, whilst the resistance of wrought-iron to crushing was only four-fifths of its tenacity; and it will be remembered that the mathematical investigations he founded upon these experiments first established on a satisfactory and reliable basis the degree and ratio of tensile and crushing force in cast and wrought iron.

With respect to steel, it must be admitted that, before we can safely adopt it to any considerable extent for purposes of construction, it will be necessary to have a similar series of experiments and investigations specially made; but so promising a metal will amply repay all the trouble that may be bestowed upon it.

Of timber a thorough knowledge should be acquired, as no material is otherwise more likely to deceive and to disappoint the engineer. Not only is great difference found in trees of the same general description, such as the numerous varieties of the pine, but the same kind of pine is a different quality of wood in different countries, and even in different soils and climate in the same country; and again the same tree is entirely changed by being "bled," or having its sap withdrawn. The oaks of America, England, and the Continent are entirely different in their character, and oaks also differ in quality from each other in the same country; and so with numerous other woods used by the engineer. The strength, durability, and peculiarity of different kinds of timber, and the true value of artificially preserving them, should also be known and understood.

I have selected these examples for the purpose of illustrating this important fact, that before an engineer can even commence the designs of his works he must have previously obtained a large amount of preliminary information regarding the nature of all the materials employed upon expressing works, so as to enable him to select for his intended structures those materials which will be on the whole the most suitable, having reference to efficiency, durability, and economy.

I will now proceed to the question of the kind and degree of knowledge which is required to enable a young engineer to proceed to the actual design of a public work of importance, such as a railway with its stone, brick, and iron structures, its earthworks, and its all-important permanent way, a railway station, a station-roof, docks and their appliances, water-works, breakwaters, or a *Great Eastern* steam-ship.

Although it has become the practice in modern times for many civil engineers to be employed chiefly, or almost entirely, in some one branch of the profession, I desire to repeat my conviction that it is most important that the early preparation and subsequent study should be as extensive as possible, and should embrace every branch of professional practice, not only for the purpose of securing to a young engineer more numerous opportunities for his advancement, but also because sound engineering knowledge and experience in all branches will greatly add to his efficiency and value in any special branch, in the same manner that a medical man will be more reliable in his practice on the eye and the ear if he possesses a sound practical and theoretical knowledge of every part of the human frame.

All classes of the profession, but especially the railway, the dock and harbour, and the waterworks engineer, must possess a knowledge of parliamentary proceedings, so as to be able to avoid all non-compliances with the standing orders of Parliament. This, it is true, is no easy matter, as the clauses are often drawn up with so little care and practical knowledge that neither engineers nor solicitors, nor the most experienced parliamentary agents, can understand what is intended.

On the subject of parliamentary proceedings generally, it may be taken for granted that all committees desire to do justice to the cases which are brought before them, and that if they sometimes fail in their decisions, either as regards the interests of the public, or in arranging a fair settlement between antagonistic interests, it is not unfrequently due to the imperfect and crude manner in which cases are presented to them; and I would impress on all young engineers the importance, both to themselves and to their clients, of laying their cases before committees in the most perfect manner possible, by full and correct information, carefully prepared and clearly worked out.

The professional knowledge required by the railway engineer commences with surveying of all kinds, the use of the theodolite, the aneroid barometer, the level, the sextant, &c., and includes surveys for preliminary and parliamentary purposes; and also working surveys of minute accuracy, on a large scale, from which engineering works may be set out with precision upon the ground.

The railway engineer must understand thoroughly the nature of earthwork of every kind, and the proper angles or slopes to be adopted for cuttings and embankments. He must have the requisite qualifications to enable him to design bridges, viaducts, tunnels, and all other works and buildings in the best and most economical manner.

He must have a knowledge of the training of rivers, and the effect of floods and drainage, to enable him to make accurate provision for the discharge of water, without waste of money by large works unnecessarily, or the risk of damage from works which are insufficient.

He must be familiar with the various characters of permanent way, the best description of rail, sleeper, fastenings, and ballast, and with the different descriptions of gurt crossings, turntables, signals, and telegraphs.

In the matter of permanent way, it is somewhat remarkable that, with all our experience, there should still remain a doubt amongst engineers as to the best kind to be adopted even under similar circumstances. For, although continental engineers have almost without exception adopted the flat-bottomed or "Vignoles" form of rail, the I form of rail with equal top and bottom webs, and cast-iron chairs and wooden keys is still largely used in this country.

A collection of facts with respect to the different descriptions of permanent way in use in this and other countries, with a view to arriving at a comparison of the advantages and disadvantages of each, would form a most interesting and important paper for the Institution, especially if it embraced all the recent experiments with reference to the use of steel rails.

The railway engineer should not be destitute of some knowledge of architecture and such a taste for those graceful outlines and simple appropriate details, which should always characterise the works of an engineer, avoiding, on the one hand, the unnatural ornamentation which seems to have no connexion with the structure, and, on the other hand, a disregard of either form, outline, or proportion.

But all such knowledge may fail if there be not constant supervision and control over the quality of all the materials and the workmanship employed upon the railway; and it is not too much to say that without the practical knowledge, which is only obtainable by having first performed the duties of resident engineer, it is hopeless to expect that any engineer can be competent to undertake the responsibility of important works, or be fit to have large sums of money intrusted to him for expenditure. It is in the capacity of resident engineer that all previous preparations, both scholastic and professional, and all theoretical requirements, become utilized and rendered of practical value; and it is only after much experience on different works of varied character, dimensions, and materials, that a young student of engineering can claim to take rank as a "civil engineer."*

NEWS FROM AND ABOUT JOHN AUBREY.

ALL who love "Ana," "Antiquities," and Architecture, and like to indulge in what the elder D'Israeli designated *Anecdotage*, will continue to recal with pleasurable associations the names of two Wiltshire worthies, John Aubrey and John Britton. The "Life of Aubrey" by Britton (published in 1845) is a careful, pleasant, and useful addition to our biographical stores—not from its observation of life, or discrimination of character, or any charm of style, but from the new matter it contains touching many pleasant passages of antiquity meriting remembrance. Our "two Johns" cared more for Abury, Silbury, and Stonehenge,—for Old Sarum, Salisbury, Malmesbury, Wilton, "Pembroke's princely dome," and Longleat, than for St. Peter's at Rome, St. Sophia's at Constantinople, or St. Paul's in London. Wiltshire men will share their partialities. All children true to the places of their birth will excuse (if excuse be needed) a partiality at once so natural and so pardonable.

Your valuable contributor (now no more among us) our old clubbable friend John Britton was ever curious about John Aubrey. I, too, have been so, and still am so; thousands share the same curiosity; all the readers of the *Builder* must, for Aubrey was a zealous antiquary, and a laborious noter down on the spot of what he saw and what he heard.

In this belief I now transmit to you for publication a few "Notes" of what John Aubrey placed on paper for the information of Anthony Wood. I made my "Notes" many years ago in the Ashmolean at Oxford, when sharing the hospitalities of Brasenose (the late Rev. Thomas Chaffers, the vice-principal, was our well-informed and plentiful host), with three eminent names in the history of art, Passavant, Waagen, and Richard Ford, of Handbook reputation. Aubrey's "Notes" are (if I may be pardoned the apparent Irishism) in "Letters" to Anthony Wood, and will now be published—strange to say—for the first time.

1. The first glass coach that came into England was the Duke of York's, when the king was restored: in a very short time they grew common, and now (1681) at Waltham or Tottenham High Cross is set up a mill for grinding coach-glass and looking-glass.

2. Mr. Theodore Haak saieth that the antiquity of pinnes is not above 200 yeares: before they used a thorn.

3. Sir John Suckling invented the game of cribbage.

4. A Bristow man, living in Castile, in Spain, learnt there the art of making soap, which he first set up in Bristow, now (1681) eighty years since.

5. Jessamines came into England with Mary the Queen Mother.

6. Laurell was first brought over by Alathea Countess of Arundel.

7. Peruques not commonly worn till 1660. There was one Gregory in the Strand that was the first famous perriwig-maker, and they were then called Gregorians. He lies buried by the west door of St. Clement Danes.

8. The first Pointe-de-Venise band that was worne in England was by King Charles I. at his coronation: now 'tis common.—*From Mrs. Judith Dobson, vidua Pictoris.*

9. In Queen Elizabeth's time the apothecaries did sell sack in their shopps. My grandfather and several old men that I knew heretofore did remember it.

10. The tradition is that the Bell of Lincoln's Inn was brought from Cales [Cadiz], plundered in the expedition under the Earl of Essex.

* To be continued.

11. William Browne,* whom William Earl of Pembroke preferred to be tutor to the first Earl of Caernarvon, which was worth to him 5,000*l.* or 6,000*l.* He bought 300*l.* per annum land.

12. H. Brome assured me that his brother Alexander † was in his Accidence at four years old and a quarter.

13. I am informed at the place where he dyed [Fletcher (B. & F.)] (which was by the Bankeside near to the Play-house), that he was buryed about the middle of the Bull-head churchyard;—that churchyard—for there are four, which is next the Bull-head Tavern, from whence it has its denomination.—*Letter dated Jan^y ye last*, 1673.

14. This I had from his [Fletcher's] tayler (1668).

Robson was the first that brought into England the art of making Venice glasses; but Sir Edward Zouch, a courtier and drolling favourite of King James, oppressed this poor man Robson, and forced it from him by these verses to King James, which made his Majesty laugh so that he was ready to ———. The verses are these:

> "Severn, Humber, Trent, and Thames
> And Thy great ocean and her streams
> Must put down Robson and his fires,
> Or down goes Zouch and his desires."

The king granted this ingenious manufacture to Zouch, being tickled with these rhymes; and so poor Robson was oppressed and utterly undone, and came to that degree of poverty, that Mr. Philips told me he swept the yard at Whitehall, and that he himself saw him do it. Sir Robert Mansell had the glass work afterwards, and employed Mr. James Howell,‡ at Venice, as a factor, to furnish him with materials for his work.

Katherine,§ the daughter of John Fowler and Katherine his wife, was baptized in St. Mary Woolchurch, in London, January 11, 1631, died in Fleet-street, and buried June 23, 1664, in St. Bennet, Sherehog, in the north aisle, under the great stone with the brazen monument.

Aubrey's "Lives," or "Letters to Wood," will merit re-examination and republication by "an eminent hand;" in other words, "a competent editor."

P. C.

* Author of "Britannia's Pastorals."
† Alexander Brome, the Cavalier Song-writer.
‡ The letter-writer.
§ Katherine Philips, the poetess, "the matchless Orinda."

CHURCH OF ST. LEONARD'S STANTON, FITZWARREN, WILTS.

THE old church at Stanton has been restored, and is again open. Originally it was no doubt a small Norman church, without tower, and consisting of a nave and a semi-circular apsis at the east end. It seems more than probable that the alteration in the building was consequent upon the destruction of the original building by fire; the remains of charred stones, ashes, molten lead, and other evidences of a fire having been discovered during the progress of the recent restoration. The small apsis was then probably removed, and the church enlarged by the addition of a chancel, of almost equal size to the nave. That the church had originally an apsis has been within the last few days placed beyond all doubt, the foundation of the same, about midway between the arch separating the nave from the chancel and the east end of the chancel, having been accidentally discovered whilst laying the encaustic tiles within the communion-rail. We may also notice another discovery recently made when scraping the wall on the south side of the chancel: a pedestal piscina of Norman design and workmanship. The present tower was erected in 1631. The nave, which is of Norman workmanship, is separated from the chancel by a Norman arch. The spring of this arch was raised in 1812, when various works were done, with better intention than knowledge.

The works on the present occasion were done by Mr. Smith, of Highworth, under the direction of Mr. Hugall, architect, at a cost of about 900*l.* A new Norman doorway has been formed in the south side of the nave. All the windows that needed it have been restored and filled in with new glass, that in the east window being stained, and representing the Ascension, by Messrs. O'Connor, and is a very fine specimen of art workmanship; olive-coloured opaque glass, with full-size representations on them, burnt in with oxide of iron, of the vine-leaf, in the west window; the fig-tree in the south (nave) window; the passion-flower and the fig-tree in the

two south (chancel) windows; and the wheat-stem in the north (nave) window.

The font, which stands on a moulded base, is circular in form, divided into twelve compartments, each compartment being filled in with figures illustrative of the virtues overcoming the vices, with appropriate inscriptions. This font, which belongs to the latter Norman period, verging upon the Early English, is of elaborate workmanship, and has been restored, and a pyramidal cover, which will be suspended from the roof, added.

The floor throughout has been laid with encaustic tiles, the old high pews have been removed, and pitch-pine varnished seats substituted. The organ also has been completely reconstructed, by Messrs. Gray & Davidson; and a heating apparatus has been put in.

On the occasion of the opening of the church, John Burton, a working mason, at Highworth, Wilts, composed "a copy of verses," which was neatly written and illuminated by his son, also a mason, and presented to the architect. The father has bought himself a library of useful books, and both, we are told, are well-conducted, good workmen.

SOCIETY OF FEMALE ARTISTS.

THE ladies have removed to the Conduit-street Gallery, and make a better show than they did last year. They exhibit 398 paintings and drawings, and five pieces of sculpture, by Mrs. Thornycroft, and her daughters. Amongst the pictures there are many very agreeable works, though none with the highest claims. Miss Kate Swift holds her own, especially in "Train up a child in the way it should go" (247). Miss Lottie Westcott must have worked with the latter, so similar are they in manner. Her "Widow's Tale," is a very good picture. Mrs. Goodman has a pleasing portrait of clever Miss Bessie Parkes (201), who herself exhibits several sketches. "Market Scene at Chester" (56), by Miss Louise Rayner, deserves great praise; as do Miss Charlotte James's flowers (62 and 116). Miss C. F. Williams has a very agreeable view, "On the Thames, near Cookham" (231), and Miss S. S. Warren several good landscapes. A frame of male heads, by Miss A. Claxton, "Professionals" (340), and one of female heads, "Sketches" (365), by Miss Florence Claxton, illustrating the Church-goer, the Chapel-goer, the Synagogue, &c., display remarkable cleverness. (31), "The origin of 'Our Lady of Hawthorns,'" Miss A. Burgess; (97), "The Glen, Holford," Mrs. F. Thomas; (103), "All Saints Church, Hastings;" (227), "Curiosity," by Miss Humphreys, and Mrs. Newcomen's bold pastel, "An old Donkey," deserve special notice.

Amongst the amateurs, Mrs. Roberton Blaine, Mrs. Frederick Marrable, and others, are prominent.

Miss Cantelo has sent some fresh and graceful specimens of flower-painting on pottery, an art-industry she has marked out for herself, and which might usefully be taken up by others.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the meeting, January 10th, Mr. H. Syer Cuming in the chair, the Rev. S. M. Mayhew exhibited the fragment of an ancient weapon of ash obtained from the Thames in 1865. The form and material were well preserved, and presented an exact resemblance to the point of an Indian war-club from North America.

Mr. Sanders, of Luton, exhibited a series of Roman coins selected from those discovered at Luton, in December, 1862, of which an account has been given by Mr. Evans, in the *Numismatic Chronicle*. The hoard contained upwards of twenty different types of coin, and Mr. J. B. Bergne pointed out that the specimens now produced added eleven varieties of the *reverse* to those described by Mr. Evans. Some observations by Mr. Bergne were also read upon the Greek coins from Newtown, in the Isle of Wight, produced at the last meeting by the Rev. E. Kell. Mr. Bergne dwelt much on the probability of these coins having a fictitious character.

Mr. Syer Cuming, the Rev. W. S. Simpson, Mr. Josiah Cato, and others, exhibited very numerous examples of a bone implement lately found in much abundance in and near the Thames in London, the subject having originated with Mr. G. Wright, F.S.A. Careful analyses of the specimens were submitted, and numerous suggestions offered as to the use of these objects. They are portions of the metatarsal and metacarpal bones of the ox, the deer, and the horse, generally 4 in. to 6 in. long, but often more and often less. The head of the bone seems to be always in its natural form, or but little cut, whilst the other end of the implement is cut to a square shape, sometimes with much precision and sometimes not, and in rare instances other forms besides the square are used. A hole is drilled down the pith of the bone, so as in several cases to hollow its whole length, and in others only just to enter the square end. The sides of the square are marked by two or three notches. The uses suggested were, that the bones were adapted to the purpose of *bobbins* for some kind of spinning or lace-making, that they were what seamen call *toggles*, merely used to stop a cord from passing through a hole, and might have been applied to a rude sort of door-latches; and, lastly, that they were of no use, but the refuse of cutlers' bone-workers, in which case the workmen had cut off and used so much of the bone as could be done, leaving him a sufficient piece to grasp, which then was thrown aside. It was, however, stated that a modern cutler who had been consulted, was not able to offer any explanation; and the prevailing opinion of those present seemed to favour the supposed antiquity of the articles.

Mr. C. Rutley read a careful account of the paintings lately discovered in East Bedfont Church. There are two subjects, a "Crucifixion" and a "Majesty," both extremely well treated. Photographs were submitted. The paintings are, for their age, in good preservation, and were pronounced by Mr. Rutley to be of the thirteenth century. The figure of Christ in Majesty, surrounded by saints and angels, is particularly imposing, and the subject is treated with a good deal of Byzantine character. Mr. E. Roberts, F.S.A., was inclined to assign a rather later period to the work. The meeting adjourned to the 24th inst.

LIVERPOOL MEMS.

LIVERPOOL doings make a large claim on our attention this week, such are the greatness of its interests and the activity of its citizens. We must throw together some further items of information concerning the same locality.

The Albert Statue.—The town council have determined to remove the large recumbent lions from the exterior area on the east side of St. George's Hall, in order to make way for two carriage-entrances and the statue of the late Prince Consort, executed by Mr. Thornycroft. It was also resolved to spend 950*l.* in re-arranging the Crown Court, a similar alteration being contemplated in the Nisi Prius Court.

Widening of Church-street.—The finance committee have instructed Mr. Robson, the borough surveyor, to negotiate with Mr. Jeffery to set back Compton House 6 ft. from the present line of property in Church-street. No doubt this improvement will be carried out, and followed by others most important for the relief of the traffic in Church-street and Parker-street.

The Town-Clerkship.—Without any personal bias we have sought a reason, in the published statement *pro* and *con.*, why an old and, we believe, energetic servant of the corporation, Mr. M'Gowan, should give place to a stranger to the town, and we have failed to find it.

Proposed Gallery of Art.—The council have resolved that a building, suitable for a gallery of art, combining galleries for painting, sculpture, and school of design, shall be erected on the vacant land on the east side of the library, which has always been intended for the purpose, and that such sum as may be necessary for the erection of such building shall be borrowed on the security of the library and museum rate, provision being made, if the funds will admit, for the annual exhibition of works of art. Mr. Picton, in support of the proposition when it was under discussion, mentioned that in Melbourne a noble gallery of art had been established at a cost, for the building, of 50,000*l.*, and of an additional 50,000*l.* for the land, while the population of the whole colony of Victoria was not equal to that of the town of Liverpool.

The Architectural Society.—At the fortnightly meeting last week, Mr. Joseph Boult presiding, the secretary read a note from the Dean of Westminster asking for the co-operation of the society in memorializing the Lords of the Treasury for the restoration of the Chapter-house at Westminster, at the national expense. It was resolved:—

"That this meeting rejoices to hear that there is a reasonable prospect of the Chapter-house at Westminster being at length restored, not only to a state of decent appearance, but to something of its pristine grandeur. They trust it will not be necessary in the present day, when the public have manifested so much interest in similar works throughout the country, to lay any stress upon the duty of preserving from further decay an edifice of such national importance, and one so rich in historical, ecclesiastical, and architectural interest."

The debate on the proposal of the Architectural Alliance, "that the bill of quantities, in future, form part of the contract for a building," adjourned from the last meeting, was resumed, and ultimately adjourned to the 4th April next.

Liverpool Sanitary Reports.—Dr. Trench, the medical officer of health for Liverpool, has made his "Report on his Third Presentment to the Grand Jury" under the local "Sanitary Amendment Act," and the report has been printed. The third presentment comprehends proposed structural alterations in 189 courts, and will involve the destruction or alteration of 226 houses. "All these several streets not only stood very high in the death registry of fever during its epidemic prevalence last year, but are also distinguished by the overcrowding of houses on superficial area, the consequent want of adequate thorough ventilation and the other physical causes of disease which it was the object of the Act to ameliorate or remove. In the case, however, of St. Andrew-street there is an exceptional sanitary evil to which the medical officer invites the attention of the committee. It is the proximity of the public abattoir." The reporter gives a useful account of abattoirs, and recommends the formation of one at Liverpool, on sanitary grounds, at some distance from the town, such as on the Newsham House estate near the cattle-market, at the Old Swan, so that it would be contiguous to a railway.——The quarterly report of the same officer, ending 30th December, has been printed. The registered deaths were 4,860, being an increase of 748 on the corrected averages of the last ten years for the corresponding quarter, and making the death-rate equal to 40·8 per 1,000 per annum. Zymotics occasioned 1,657 deaths, being an increase of 492 on the corrected averages of the last ten years.

A SCHOOL OF ART FOR TORQUAY.

WE understand that active steps have been taken by the inhabitants to establish a school of art in Torquay. All the necessary preliminaries are now arranged. Communication has been received from South Kensington, stating that "the school of art at Torquay will be placed upon the official list, and that aid to the same will be granted by the Department, according to the regulations;" and it is intended to inaugurate it on the first Monday in February next, with an exhibition of works of art and a *conversazione*. There is every probability that Torquay in a short time will have a very flourishing school of art to add to its attractions. Street improvements are being made in Torquay, which will add materially to its appearance. It has already a celebrity as a picturesque watering-place, second to few.

FROM SCOTLAND.

Falkirk.—Sixteen years ago, a plot of ground, lying to the west of Falkirk, was purchased as a site for a Sheriff Court-house, prison, &c., for the eastern district of Stirlingshire. A series of delays have tended to render the Falkirk people almost hopeless of ever seeing what is so essential to the district. The ground, however, has now been staked off, and considerable progress made with the foundation. The architects are Messrs. Brown & Wardrop, of Edinburgh. The entire cost of the edifice will be about 8,000*l.* It will consist of a court-room, justices' hall, and prison offices, with suites of rooms for the Sheriff Court officials. Messrs. R. & A. Berry, of Edinburgh, have the contract for mason-work.

Jedburgh.—At a recent meeting of the local Commissioners of Police, the provost said that the committee appointed at a former meeting had communicated with Mr. Leslie, C.E., Edin-



ST. BENEDICT'S CHURCH, CAMBRIDGE: TOWER ARCH.

burgh, and that gentleman had since visited the locality, and examined the springs at Blackburn. Since then the ground had been surveyed, but the official report had not yet been received. The clerk read a letter from Mr. Leslie, which stated that the probable cost of bringing the water into the top of the town, using a 5-in. pipe, and including the expense of the reservoir, would be about 2,350*l*. This would not, however, include the pipes for the town.

Eyemouth (*Berwickshire*).—The plans for the proposed improvement of the harbour here, with relative report, have been received from Messrs. Stevenson, C.E., Edinburgh. In their report they state that the evils chiefly complained of are—first, deficient depth of water; second, want of space for beaching boats; and, third, want of protection or shelter from the river Eye when in a flooded state. To remedy these defects the works proposed are—"first, the deepening of the lower part of the harbour to the level of low-water, and the excavation of the sloping beach; second, the extension of the present basin for the distance of about 400 ft. The whole works of excavation, including new quays, &c., could be carried out for an expenditure not exceeding 14,000*l*." Eyemouth is an important fishing seaport, where large fishing vessels are in use.

THE SAXON ARCHWAY OF ST. BENEDICT'S CHURCH, CAMBRIDGE.

WE gave in our last volume* an account of this very fine example of early work, which has lately been restored and opened to the church by the removal of a modern gallery and pews that for many years past have entirely encased and hid the tower-arch from the church.

We now engrave a view of the archway. The construction of the arch and the irregularity of the stones are singular; the whole of the latter, both of the jambs and arch, go through the whole thickness of the wall, which is about 3 ft.

Upon taking down a modern (wooden) doorway on the west front of the tower, remains of a window, of good Perpendicular character, were discovered; also portions of a ringers' floor, of the same date. These will be carefully renewed. Other works of restoration are in progress (to the tower); and it is hoped to rebuild the south aisle of the church, which at the present time is in a very dilapidated state. It is also proposed to remove the present high pews, and reseat the church with open benches.

The works are entrusted by the committee appointed for the restoration to Messrs. Rattee & Kett, who will throughout endeavour to preserve the character and every remnant of the ancient building.

* See p. 691.



NEW EXCHANGE, LIVERPOOL.—MR. THOMAS HENRY WYATT, ARCHITECT.

THE NEW EXCHANGE, LIVERPOOL.

THE west wing of the Liverpool Exchange, containing the news-room, the fine apartment, 175 ft. long, of which we gave a view in our last volume,* is proceeding rapidly. The heavy girders (upwards of 90 ft. long) which carry the roof over the news-room are in their places; the roof is being put on; and there is reason to hope that the completion of this part will not be long after the time first named,—viz., the end of May next. The engraving in our present number shows the building as it will appear when the whole design is carried out. It will surround three sides of the open area known as the Flags: Nelson's monument stands in the centre of the fourth side, and is seen in the view. The part now in progress is that on the left-hand side of the monument in the view. The principal entrance to the news-room is from an arcade next the Flags. The doorway here will have pilasters of Scottish red granite, and the vestibule will be lined with marble pedestals. Underneath the room are capacious cellars for the storage of wine, &c., which are already let, and a fine sale-room fronting South Chapel-street. On the ground-floor in the tower will be a room for the temporary use of the Underwriters' Association, during the erection of their permanent room in the east wing. We may state that there is a room on the basement, next Rumford-street, containing fifteen square yards, which is already let for 85*l.* a year; and another room, also on the basement, and next the Flags, containing about fifty square yards, which is let for 200*l.* a year. In immediate proximity to one of the entrances to the sale-room is a "lift," such as is common in large hotels and warehouses, for taking people from the basement to the upper floor. The style of the exterior, it will be seen, is the French Renaissance.

The stones used in the exterior of the building are from the Hollington and Grinsill quarries; the internal stonework (of which there is a considerable quantity) being from Caen.

There will be about 250 public and private offices, when complete, and the shares are, we believe, at a considerable premium.

The drawings are being made for the north side and the east wing, intended to contain a stock-exchange; and these will be commenced as soon as the news-room is in a fit state to be used temporarily as the *bourse*.

Mr. T. H. Wyatt, we may repeat, is the architect, and is represented on the spot by Mr. Joseph Boult, Surveyor to the Exchange Company. Messrs. Holme & Nicol are the contractors for the part in progress, at the sum of 69,680*l.*, and Mr. PARSONS is the clerk of the works.

FROM IRELAND.

Omagh.—A correspondent of the *Tyrone Constitution* says:—"It is strange that the people of Omagh, who have the character of being wise, industrious, and enterprising, should exhibit so much apathy about the health of their town. Fever, scarlatina, and diarrhœa have been, and are actively at work in the midst of us, and yet no public meeting has been held—no sanitary committee has been appointed—nothing has been done by the inhabitants in order to counteract and control the spread of contagion." The writer speaks especially of the nature of the water supply as sufficient of itself to account for the unhealthiness of the locality.

THE CROZIER QUESTION.

WINCHESTER CITY CROSS.

WE mentioned recently that Mr. Scott had submitted a list of ancient glass paintings and sculptures to justify the statue of William of Wykeham on the restored cross which holds the pastoral staff in the right hand, and we said that the committee thereupon had resolved to apply to the council for payment of the balance due for the restoration. This, however, has not settled the matter. The council, after hearing a reply to Mr. Scott from Mr. Baigent, resolved, by an amendment, that the figure is inaccurate, and that they will not entertain the question of paying balance until the figure has been rectified, free from further expense to the city. A report of the proceedings at the meeting of committee, Mr. Scott's report, and letters from Mr. Buckler (who opened the question in our pages), Mr. Baigent, and others, have been reprinted as a pamphlet, and may be advantageously consulted by those who take interest in the matter. Mr. Baigent in his letter, which displays a little more personal feeling than is desirable in such controversies, refuses to have anything to do with foreign representations, and says not the slightest dependence is to be placed on the statements in Mr. Scott's list, an assertion he then goes on to support with more or less force. Without going into the question of justification which Mr. Scott is well able to fight out, it seems clear that the very right in this case is the left: and the best thing the sculptor can do is to set to work at once and alter the statue.

* Pp. 191—3, where, also, are particulars of the intended structure.

THE LIVERPOOL OPERA HOUSE.

MADEMOISELLE TITIENS has laid the chief stone of the Alexandra Theatre and Opera House on a site in Lime-street, between London-road and the railway station, where there are three street frontages, the principal one to Lime-street. Mr. A. Salomons, of Manchester, is the architect; and Messrs. Jones & Son are the contractors. The building is to be completed by the 1st of October next. The report of the directors of the company who are erecting the building states that 3,830 shares have been subscribed for, and 4*l.* a share called up. The site cost 15,750*l.* The main walls of the building have been raised 18 in. above ground, at a cost of 1,457*l.* The estimated cost of the whole is 15,000*l.*, for which, says the report, "the whole of the most modern improvements (including a covered entrance drive) will be carried out, and 1,500 persons will be seated in a theatre, second to none in Europe, in comfort, convenience, or good taste. The shops and restaurant included in the proposed building are estimated, by competent authorities, to produce a rental of 460*l.* a year."

LIVERPOOL AND ARCHITECTS.

SIR,—Your correspondent "Liverpool," who, from the tenour of his letters, should seem an architect, appears to labour under the unhappy condition of inability to reconcile himself to the social conditions among which he lives. Where the endeavour to do this would involve a moral sacrifice, the remedy, of course, is to separate oneself by change of residence from what is felt to be injurious or degrading; but where no such paramount principle is affected, and obligations of duty or of expediency—using the term in its best sense—point strongly to the distasteful locality as one's proper sphere of action, it will surely be found best to accept the trial which is so imposed as a part of life's discipline,—a far less irritating course than that of dwelling on the evils which we see but cannot remedy, and deploring instead of quietly enduring the vexations and humiliating experiences inseparable from the pursuit of an intellectual calling on uncongenial ground.

With some knowledge of the world and of Liverpool, I venture to say that I believe those who there occupy the "leading" position, as it is phrased, in architectural practice, are in respect of education, taste, and ability as well suited to the demands of the community around them as are the very able men named by your correspondent to the special spheres which they severally occupy.

Liverpool as a great mart, a place of mere buying and selling, cannot be expected in her traffic in the raw material of imports, or those ready manufactured for export, to stimulate intellectual activity in the manner in which it is excited in a great seat of manufacture such as Manchester, or even as Sheffield. Advancement in design, in chemistry, in machinery, keep there ever alive the faculties of taste and invention, and mature the general mind for judgment and decision on questions of science and art.

Thus it arises that while by Manchester a decided, though sometimes rugged, determination is shown to be her own arbiter in matters of taste, Liverpool has ever sought to appear in unison with "fashionable" opinion in London; and generally distrusting her own power to discriminate among the claims which might be asserted by resident professors, has on great occasions taken the seemingly safer, if more timid course, of calling in metropolitan aid.

Hence, as you, sir, are probably well aware, it was as surely predicted among the architectural profession that the Manchester Courts would be placed in the hands of a Manchester man, as that the Liverpool Exchange would fall to the lot of a London architect; and while hard-headed men of business, personally engrossed with lucrative valuations and references, and ignoring or deputing if need be, the artistic element (should I not say *essence?*) in architecture, are entrusted with the profitable commissions connected with mere commercial enterprise, it is generally, almost necessarily, assumed by their patrons that these, who represent the highest local (money) success in their calling, have, too, the highest local skill. Such as they do possess, or can command and employ, suffices for the measure of their clients' taste and cultivation; and it is only when some project is in hand which will challenge the world's criticism that the misgivings of insufficiency and impotence drive these patrons in self-defence to shelter themselves in their character of committee-men under the protection of some name of established artistic repute. There can be no use in declaiming against such a result, which seems inseparable from a mere mercantile community like that in question. Among the half-million of population comprised in what is called "Liverpool," there must be, and are, a moderate proportion of men of all occupations, who, by natural taste or education, have a fondness, at least, for art; but architecture, as commonly understood, is the last thing which they, for the most part, would connect with that term; and of those whose knowledge on this or other branches of art might weigh with the general public (speaking locally), the larger proportion would, through lack of that influence which wealth alone secures under the social *régime* of such a town, be found excluded from all recognised voice on points of public interest. This has been strongly illustrated by the late course of events with respect to the local art institutions, the conclusion of which has been simply to leave their whole control in the hands of those only among professed art-lovers whose large means enable them to be purchasers of costly works. Goldsmith describes a man who had "lately stepped into taste and a large fortune." Many such could be found in Liverpool, and in Manchester, too; but where real knowledge, as in the latter town, is sure to be appreciated, because tending to that advance in design which secures a demand for local products, mere pretension will mostly find its true level. In towns of mere commerce, like Liverpool, place will be, and constantly is, yielded to confident self-assertion.

To end as I began, I can but say that I think all this the natural course of events,—very uncomfortable, doubtless, for men of true artistic feeling to live under, but beyond their power to remedy; and, if not able patiently to work through it, let them, if their ability is equal to the task, seek, like the lamented young architect your correspondent mentions, to secure a varied general practice by success in competition,—a system the evils of which I am nowise unconscious of, but which, like the one we have been discussing, I cannot see a way to cure.

P. L. O. D.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening, the 5th inst., at the house in Conduit-street.

The chair was occupied by Mr. R. O. Harris, in the absence of the president.

The following gentlemen were, on ballot, elected members of the Association:—Mr. G. W. Cross, Barnsbury-road; Mr. C. H. Wilday, Queen's-road, Bayswater; Mr. W. H. Howe, Blackheath; Mr. G. Low, Queen's-road, Peckham; Mr. F. Palmer, Lower Norwood; and Mr. H. Spanton, Upper Dorset-street.

Mr. T. A. Britton, who was to have read a paper on fir and pine, as used in modern buildings, attended, and apologised for not being able to carry out his intention. He substituted, however, a short paper on wood generally, having reference more especially to the best manner of preparing it for use, and also to the causes of decay as caused by worms, ants, dry rot, &c. He observed, *inter alia*, that dry rot was often caused by a peculiar fungus found in

the earth of the site in which new buildings were raised; and mentioned, as an illustration of the pernicious influence of such agencies, that in the case of a house constructed in the neighbourhood of Hampstead Heath, not only had the timber been affected by dry-rot, but the health of the workmen had suffered from inhaling the noxious emanations of the fungi. The latter were caused by vegetable decomposition; and it often occurred in the case of American timber, that the dry-rot first made its appearance on board ship, the timber having become infected while being floated down the rivers to the port of shipment. He recommended that plank, scantling, &c., should be carefully brushed before being stacked, and that when stacked they should be so placed (on end), as to allow a free draught of air to circulate round them.

The Chairman inquired what was the difference (beyond the nominal distinction) between red and yellow pine.

Mr. Britton replied that the red pine had a brighter grain. Both timbers grew in the same forest; and, although apparently similar when cut up, a timber-merchant could at once distinguish between them. Having described the difference between Riga, Dantzic, and Memel timber, Mr. Britton stated that any of the three were, in his opinion, superior to American timber.

Mr. North called attention to the inferior description of timber so frequently worked up into furniture, especially into the backs of looking-glasses.

Mr. Britton said that as a rule the very worst spruce stuff was used for the backs of looking-glasses. It was called in the timber trade "broken stowage."

Mr. Riddett inquired whether "pugging" a floor had a tendency to promote dry-rot, and also whether varnishing timber would have a contrary effect.

Mr. Britton replied, with respect to the latter question, that in his opinion, any kind of good oil or copal varnish would have a tendency to retard the dry-rot, but not so effectually as three coats of paint. With regard to "pugging," he was in favour of showing as much of the timber as possible; but, undoubtedly, any damp pugging would be likely to engender dry-rot. He found, as a general rule, that builders were fond of using outside cuts for joists.

Mr. J. D. Mathews having proposed a vote of thanks to Mr. Britton for his paper, commented upon the circumstance that students of architecture knew very little about woodwork, and that it was very desirable they should obtain a few practical hints to enable them to find out the difference between good and bad timber. He hoped that in the course of the summer Mr. Britton might be able to supply this deficiency by conducting the members of the Association over some large timber-yard where they could acquire the class of information which they wanted. He was sure the Association would gladly devote an afternoon to the subject if Mr. Britton could give them his services as *cicerone*.

In reply to further questions, Mr. Britton observed, that the high duty which used to be charged upon Baltic timber, as compared with Canadian, not only prevented the consumption of the former in large quantities, but led the Baltic merchants to devise a means of defeating the restrictive system of protection to which they were subjected. The duty on Baltic timber having been 44s. per load, as against 10s. per load on Canadian, the Baltic merchants were in the habit of sending their timber to America, and afterwards re-shipping it to England, as the produce of the American forests.

A question having been asked in reference to the faulty wood used in the building in Westminster which was recently the scene of a lamentable accident,—

Mr. Britton observed that he had examined the wooden beams which had broken, and that he found them to be rotten at the heart, and also affected with the dry rot. The difficulty of getting seasoned timber arose from the great competition of the present time, as builders would not keep a stock of wood cut up, because they regarded it as so much capital locked up without producing any profit.

A member observed that dry rot was frequently engendered by damp pugging, and that shells or some perfectly dry material ought invariably to be used.

The Chairman asked what effect the tapping for turpentine had upon the timber.

Mr. Britton replied, that the extraction of the turpentine would, in his opinion, facilitate dry-rot in timber. Spruce fir was deprived of its resin altogether. With regard to painting timber—wood that was painted on one side only would last twice as long as if completely covered with paint.

The vote of thanks to Mr. Britton having been unanimously accorded,

The Chairman announced that on the 19th inst., a paper would be read by Mr. R. P. Pullan, "On Christian Architecture in the East."

TO REMOVE GREEN COATING ON STONE-WORK.

ONE of the simplest methods of removing the green coating from stone-work is to wash it with a brush and soft soap. I have recently removed some stains of long standing by this means. If this should not answer the purpose, a *weak* solution of sulphuric acid will most probably remove it. I have also seen potash used for the same purpose in a very successful manner. This was recommended, I believe, by the Camden Society.

S. B. B.

FIRE ANNIHILATORS.

SIR,—The conflagration in St Katharine's Dock and the destruction of one of the old English mansions bring the subject of fire again before us, and the best means of successfully combating with it. The difficulty experienced in closing fireproof doors, as at the commencement of the outbreak in the Dock warehouses, might easily be obviated by the application of wire ropes and pullies worked by lovers from the ground-floor; but that is not the subject I wish to deal with. Fire Annihilators, the French invention in particular, being the most recent and best advertised, are being thought of, and many wonder why they are not tried. This they are not popular with the able brigade under the charge of Capt. Shaw one can easily understand; and whether they would prove effective in such a fire as that at the Docks remains an open question.

For outlying villages and country-seats I would advocate that they should be tried;—not that I am in any way interested in these inventions, but simply from the fact of having witnessed a fire that happened out of the London Brigade district, and on that occasion becoming impressed with the necessity of some abler extinguisher than the parish fire-engine being required.

The fire I refer to occurred at Finchley, during the severe frost in the beginning of the year 1862. The stable of a corn-chandler's was fired, that communicated itself to some timber, and eventually to the house. A fire-engine from Highgate arrived, but the frost rendering the necessary element not comeatable, it could give no assistance; and but for the timely service rendered by some few bricklayers and carpenters in knocking in the roof of one house, thus cutting off further communication, a row of seven houses would have been consumed.

The advantages of fire annihilators are, that one could be stationed near every cluster of houses (under the care of the police or village official); could be conveyed to a fire on horseback; and, not being liable to be frozen out, would not depend upon a supply of water, or the mustering of pumpers in a remote district, where a crowd would not spring into existence like magic, as in the streets of London.

I leave the proprietors of annihilators to blow their own fire-horns in praise of their inventions, and trust I have not put a damper upon Merryweather's tried prodigies.

W. E. BROWNE.

"BUILDERS' CLERKS."

SIR,—I was very pleased to see the letters of "Peto" and "A Measuring Clerk" in the last two numbers of your Journal upon builders' clerks, and I quite agree with them both that they are very much oppressed and down-trodden: I am very glad that the subject has been taken up, for it is quite time that something should be done for us as a body.

Your correspondent "A Measuring Clerk," in quoting the salaries received by us is very far above the average, for I know instances in which the salaries paid are under the wages of the joiners in the shops. How is this? and where is the secret of the joiners' independency? for they are independent. Simply in the fact that they are united together to protect themselves; and it is our own fault if we do not do the same.

I must say that, looking at the state of things around us, it is high time we were bestirring ourselves; and why? Because we who have an appearance to keep up, are have to be confined in unhealthy offices for hours more than the joiners are employed, get in many cases assuredly less, they do, into about one-quarter the pay *per hour*, than joiners' wages and far exceed the clerk's salary.

Provisions have increased in price, rents have been raised; joiner's wages have been raised; ay, even bricklayers' labourers have had an increase; but we, the poor slaves of the (in many cases) wealthy contractor, are obliged to drag out a miserable existence, being often compelled to pinch our families in order to keep up that appearance which, if once lost, our only chance of keeping the situations we now hold is for ever gone.

Now do not think, Mr. Editor, that I have overdrawn the picture. I have not. There are noble men, I know, amongst the employers in the trade (some of whom, doubtless, would assist us if we made a start), but they are few, and bleat are those who obtain appointments under them; but the rule remains the same; and if we want to improve this state of things, we must unite together and do it ourselves. Your readers will ask, "What do you propose to do?" I reply, form a committee at once; lose no time about it. I, for one, will gladly do my best; and let us meet and form a society similar to the joiners' trade union, which shall have for its objects the relief of its members in sickness; an allowance at old age; providing a sum at death to cover the funeral expenses; and last, but not least, let it have for one of its objects the determination to support any member who may be thrown out of employment because he will not work unless he is paid a *reasonable* salary for his labour. Let him be supported till that *reasonable* salary is obtained; and such a society, under the divine blessing, shall be the means of cheering and comforting many a cheerless family, and relieving the mind of many a perplexed brother.

I trust this matter, now it has commenced, will not be allowed to drop till something is set on foot which shall ultimately place us in the position we ought to occupy.

JOHN MOORE.

I think the following question is one that might be raised in the mind of my fellow-clerks. That is, has any ordinary clerk in a builder's office the opportunities of ever gaining sufficient practical knowledge to become a builder himself? It appears to my limited experience that without he has some capital to apprentice himself, there is very little chance. Should you kindly submit this in your columns, I, and perhaps many others, may have the subject made clearer to us.

AN INQUIRER.

THE FALL OF HOUSES AT HULL.

AN inquest is being held on five persons killed by the falling of buildings during a gale, as we have already noticed. Amongst the witnesses examined was the foreman of the joiners employed at the new building. Witness (William Anson) was working for Mr. Collinson, who laid out the work for them. Witness and a man named Hairsine were fitting sashes into the second story. Mr. Collinson wished them to assist the bricklayers, as he thought the top was not safe. It was blowing very hard just then. They went to the ladder leading to the second floor, when that part of the building which they had left fell. Witness and Hairsine were on the ladder, and as soon as the accident occurred they descended and assisted Russell and Rawson. There was a very heavy gust of wind just at the moment the premises fell. All the brickwork of the building was finished. The back wall went over first, the joists then fell and levered the front over. The bottom joists would have about five inches bearing at each end, and were secured to the wall-plate, and the upper joists the same. Hairsine, joiner, gave similar evidence. The jury, at this stage of the proceedings, decided to appoint Mr. Botterill and Mr. Foale to make an examination of the building, and the inquiry was adjourned.

HULL NEW TOWN HALL.

THE opening of this new edifice, of which we gave a view, in vol. xxii., p. 455, is to take place on the 25th inst.

The style of architecture, we may repeat, is Italian. The front is of Streetly and Portland stone, having a Bradford stone plinth, with red Mansfield shafts to the columns and pilasters. The windows have French casement sashes, and are glazed with Bristol plate glass. There were forty architects' designs sent in, from which that of Mr. Brodrick was selected. The estimated cost was 20,200*l.*; but the actual cost will be about 28,000*l.* The contractor was the late Mr. T. Addy. The woodwork was done by Messrs. Hutchinson & Son. The contractor for the decorations and painting was Mr. Wardale.

The design for the statue of Andrew Marvell, for the new town-hall, consists of a statuette in plaster, 2 ft. high, upon a suitable pedestal, the whole being one-fourth the size of the marble one. Mr. Keyworth, jun., is the artist. His design represents Marvell in the costume of the period, and standing as he may be supposed to have done while refusing the bribe offered to him.

LEEDS.

Hunslet Moor Church.—The design selected for this church bears the motto "Prudence," and is by Messrs. Perkin & Son, of this town, architects. It is of the Early Decorated period of Gothic, and consists of a nave, 85 ft. by 38 ft.; north aisle, 80 ft. by 10 ft.; south aisle, 70 ft. by 10 ft., which terminates at the east end by an aisle 22 ft. by 14 ft., opening into the chancel by a double arch. The chancel has a polygonal apse, 42 ft. by 25 ft., the floor of which is raised three steps above the nave, and the sacrarium three steps more. There is a tower with short spire at the south-west angle, whose height to the top of the terminal will be 128 ft. The tower opens into the nave by a lofty arch, and here the font is placed which constitutes it a

baptistery. The font is raised on three steps and will be of Caen stone, with red Mansfield shafts. The church is to be lighted by gas coronæ. The outside walls are to be faced with stone, having red and white bands introduced. The dressings are to be white sandstone. The interior throughout is to be faced with white Pontefract brick, intermixed with red brick bands. The arches are to be of white and red brick intermixed. The chancel arch will have a slight admixture of black brick, and the other arches an outer rim of the same. The chancel is to be faced altogether with white brick, and the angles of the apse are to be finished with red Mansfield stone shafts. All the capitals to the piers and shafts will be carved. The roofs will be of the barrel form, open and stained, and covered with slates of two colours, blue and green, except the chancel, which will be of red and blue slates, and ornamental cresting. All plastering in the interior has been avoided. The seats are open and of deal, stained. The estimated cost is 5,000*l*. The competition was open to all England, and there were thirty-six different designs sent in, some of which were from London, and other distant parts of the country. The whole of the designs here have been exhibited at Mr. Broadhead's Picture Gallery, Albion-street. Mr. Ingham, of Palermo, has contributed 3,000*l*. towards the erection.

School of Art.—The exhibition of the students' drawings in this school for the first quarter of last year has been held in East Parade. The number of the drawings on this occasion is not equal to former exhibitions, but in point of merit they are considered to be in most cases decidedly superior. Four national medallions have been awarded to Leeds students, fourteen medals, and several "honourable mentions." The most successful exhibitor, on the present, as on so many other occasions throughout the country, is a lady. Miss M. A. Selby, with three drawings, has taken three medals and one national medallion. The other three medallions were gained by T. Walker, for an isometrical view of a planing machine; Joseph Winpenny for a projection of a sliding cap lathe (both in the mechanical class); T. Pawson for a drawing of an antique column from copy.

West Riding Club.—Premises in Bond-street, adjoining the Philosophical Hall, formerly used by a coach-builder, have been converted into a club-house. The designing and arrangement of the building were carried out by Messrs. Perkin & Son, architects. The accommodation consists, on the ground-floor, of a spacious entrance-hall and staircase, coffee-room, billiard-room, lavatory, and steward and waiters' rooms, and a kitchen fitted with every requisite. On the first floor there are a large and lofty reading-room, which occupies the entire frontage of the building, a card-room, two private dining and other rooms; and in the top floor are servants' bedrooms.

THE PEABODY GIFT TO THE POOR OF LONDON.

A REPORT has been issued by the trustees of this gift, in which they print the following account of

RECEIPTS AND EXPENDITURE TO DECEMBER, 1865.

RECEIPTS.			
Gift of Mr. Peabody		£150,000	0 0
Interest		10,872	9 4
Rents from Spitalfields, deducting expenses		764	8 3
Ditto from Islington, deducting expenses		179	3 8
		£161,816	1 3
EXPENDITURE.			
Paid for land at Spitalfields...	£3,300 0 0		
Cost of buildings	23,915 11 3		
		£27,215	11 3
Paid for land at Islington	8,646 5 6		
Paid on account of buildings	26,962 14 3		
		35,608	19 9
Paid for land at Shadwell	4,450 3 10		
Paid on account of buildings	7,998 5 0		
		12,448	8 10
Paid for land at Chelsea		4,616	18 6
Ditto at Bermondsey		4,870	7 3
Expenses to date for secretary, bookkeeper, books, stationery, &c.		517	10 0
Cash at interest		72,000	0 0
Ditto in Bank of England		4,338	5 8
		£161,616	1 3

The trustees, as most of our readers know, resolved to erect improved dwellings for the poor as one of the best possible ways of benefiting, not only the present, but future generations of London poor; and with ordinary care and management such a mode of dispensing benefits may be extensively reproductive, and not only benefit the poor by the buildings already erected, or about to be erected, but by many others reared from the proceeds of these.

The report says,—

"The number of persons who took possession of their new homes in Spitalfields was upwards of 200, including such classes as charwomen, monthly nurses, basketmakers, butchers, carpenters, firemen, labourers, porters, omnibus drivers, sempstresses, shoemakers, tailors, waiters, warehousemen, &c.

In the buildings at Islington, which were opened in September, 1865, the inmates are of the same class, with the addition of persons employed in other trades—watch-finishers, turners, staymakers, smiths, sawyers, printers, painters, laundresses, letter-carriers, artificial flower-makers, dressmakers, carmen, cabinetmakers, bookbinders, and others. The entire community there now consists of 671 individuals, of whom nineteen are widows, the rest married persons and children.

In evidence of the improved salubrity of the buildings, the superintendents report that ill-health is rare, and that the number of deaths since the first buildings were opened, in February, 1864—nearly two years ago—have been one man, aged 30, who died of a chronic complaint, and four children, one of whom was under five, and two under two years old.

The social contentment of the tenants is freely expressed; no complaints have been made of any of the arrangements provided for their comfort; and they all speak approvingly of the unaccustomed advantages they enjoy. Among these they especially particularize the security of their furniture and effects, which are no longer liable, as they formerly were, to be taken in distress should the landlord become a defaulter."

The tenants pay rents at the rate of 2s. 6d. a week for one room, 4s. for two, and 5s. for three rooms.

WATER FOR JERSEY.

THE project for supplying the town of St. Helier with water, which has been in suspense since 1859, seems now in a fair way of being realised. The company at first formed was repeatedly modified; but it was found that the sanction of the Privy Council to an English company was essential to enable them to carry out their object; therefore an Act of the States of Jersey was obtained, and about three months past received the royal assent.

At a public meeting, summoned by Mr. J. G. Falle, constable of St. Helier, for the 3rd of January, a large number of the inhabitants attended; and from the lively interest evinced throughout the proceedings, it is now more than probable that the town will not be much longer unprovided with a plentiful supply of good water.

The constable of St. Helier opened the proceedings with a lucid speech, showing that the only water to be had was from pumps, and that it was bad in quality as well as insufficient; many of the poorer classes having to resort for their supply to public pumps. He then introduced to the meeting the gentlemen representing the Jersey Water Company, who had just arrived from London, Mr. Edward Easton, of the firm of Easton, Amos, & Co., and the solicitor and secretary of the company. These gentlemen severally addressed the meeting, and explained their plan of operations.

Several of the inhabitants also addressed the meeting, expressing their satisfaction with the explanations given; and after a full discussion and understanding of the subject, in which there was not a dissentient voice, a committee was nominated to carry out all measures incidental to the matter in the Island.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Slindon.—The new church here has been opened for divine service. The edifice is dedicated to St. Richard, Bishop of Chichester, who was canonized by Pope Urban VI., in 1261. It stands on a rising ground at the upper end of the village, near the old mansion, the ground being given by Col. Leslie. Provision was made for its erection by the late Anthony James, fourth Earl of Newburgh, who died in 1814. The building is of flint obtained in the neighbourhood, with stone dressings. It was built by Mr. R. Bushby, of Littlehampton. The amount of the contract was 2,000*l*. The design was by Mr. Chas. A. Buckler, of Brompton, architect, and in the style of the thirteenth century. The burial-ground behind the church is laid out with gravel walks, in the form of a cross. The church consists of nave, chancel, and south aisle: the roof is of open timber. The aisle is divided from the nave by an arcade of four painted arches, at the end of which is a statue of the Virgin and Child. At the west end of the aisle stands the font: the basin is of white stone. The east window is filled with painted glass, in memory of the late Countess of Newburgh. Messrs. Hardman & Co. were the artists.

Eromsgrove.—In the church here, a new pulpit, of Caen and Bath stone, has just been erected. In the centre panel are represented the Lamb and Flag with the words "Agnus Dei," and foliage. In the two side panels are carved the symbols of the four Evangelists; and in the other is carved the hand of St. Peter, holding the keys, and foliage round; there is also foliage round the cornice. The blocks to windows, &c., of sanctuary are carved in foliage and heads. There are yet a number of blocks to finish, but they are stopped for want of funds. The work has been executed by Mr. R. Boulton, of Worcester, sculptor.

Horsham.—A new church, lately erected by the Duchess of Norfolk, and dedicated to St. John the Evangelist, has been opened by the (R.C.) Bishop of Southwark, in the presence of the youthful Duke of Norfolk, the Duchess, and a numerous congregation. The church is designed in the Pointed style of the twelfth century: a study of the peculiar features of the Sussex churches gives interest to the design. The dimensions are 50 ft. by 21 ft., and a portion of the future presbytery occupies the south-east angle of the building; a bell gable, covered with shingles, crowns the gable towards the street; and the roof is tiled with the red tile of the county. The roof is open, with curved braces and tie-beams. There are a stone altar and font, and the nave is filled with open benches, confessional, &c. The architects are Messrs. M. E. Hadfield & Son, of Sheffield; and the builders, Messrs. Burston & Sharp, of Horsham. The material used is the stone of the locality.

TITHE COMMUTATION.

MR. C. M. WILLICH writes to us thus,—"As many of your readers may feel anxious to know the result of the corn averages for the *seven years* to Christmas, 1865, published by authority in the *London Gazette* of January 9th, viz.:—

	s.	d.	
Wheat	5	11½	per Imperial Bushel,
Barley	4	2½	ditto,
Oats	2	8½	ditto,

I beg to state, for their information, that the value of each 100*l*. of tithe rent-charge will, for the year 1866, amount to 97*l*. 7s. 9½d.

It appears from my 'Annual Tithe Commutation Tables,' that the *lowest* average value of 100*l*. tithe rent-charge during the thirty years which have elapsed since the passing of the Tithe Commutation Act, was in the year 1855, viz.,—89*l*. 15s. 8¾d.; and that from that time up to the year 1861, the average gradually increased 22*l*. 7s. 8d., or about 3 per cent. per annum up to 112*l*. 3s. 4½d., or the *highest* value during the whole period. From 1861 the septennial average value has been gradually receding in a similar ratio. The general average for thirty years is 100*l*. 17s. 7¾d."

CHURCH-BUILDING NEWS.

St. Helen's.—A new church has been consecrated at Parr, a suburb of St. Helen's, in place of the church which was burnt down about two years ago. The site is about two miles from St. Helen's station, and is on high ground, rendering the church a prominent object for a considerable distance round. The church will seat 600 persons. It is built entirely of stone, with the exception of the lining of the walls, which is composed of the bricks of the old burned down church and a little slag from the copper furnaces, which, for the sake of effect, has been mixed with the rubble walling. The ashlar stone of which the doors, windows, and other dressings are made, is from Rainhill. The general contractor was Mr. John Middlehurst, of St. Helen's. The ornamental glass was by Messrs. Edmundson. The heating apparatus was by Messrs. Haden; and the coloured decoration by Mr. R. Park. The cost of the church, complete, has been 2,600*l*., exactly the amount of the tender sent in, and also the exact amount that the committee, in the first instance, proposed to spend. The architect was Mr. J. Medland Taylor, Manchester.

Stockport.—The contract for the completion of St. Matthew's Church has been let to Mr. Forrester, at an estimated cost of upwards of 1,900*l*.

The extreme height of the spire is 200 ft. from the ground, and it will be the highest in Stockport or neighbourhood. The tower is constructed to carry eight bells.

Ashton-under-Lyne.—A new church, at Hurst Brook, near Ashton-under-Lyne, has been consecrated by the Bishop of Manchester. It has been erected at the sole cost of Mr. Oldham Whittaker, who also provides an endowment; and the site was given by the Earl of Stamford and Warrington.

Farnworth.—A new church, erected in the rapidly-increasing district of New Bury, Farnworth, near Bolton, at a cost of 2,500*l.*, has been consecrated by the Bishop of Manchester. The site was given by the Earl of Bradford, who has also provided an endowment and house for the incumbent, and a fund for the repair of the edifice.

Liverpool.—The new church of St. Titus, in Portland-street, off Vauxhall-road, in the district of St. Martin's-in-the-Fields, has been consecrated by the Bishop of Chester. The church, which will seat 700 persons, was completed sixteen months ago, but the consecration was deferred in consequence of a dispute as to the title. The style is very plain Gothic. Public subscription supplied the building funds, and the site was given by Mr. Charles Turner, M.P.

Aylesbury.—The churchwardens of St. Mary's Church, encouraged by the opinion of the architect, Mr. G. G. Scott, and by the general wish of the committee, as well as by the amount of subscriptions already promised, have resolved to put a stone facing to the whole of the work in their first contract, which comprises the west end and portions of the north and south aisles and nave.

Worcester.—Shrub-hill Church, Worcester, has lately been furnished with triple sedilia, the gift of the architect, Mr. J. Hopkins. They stand at the south side of the sanctuary, and are slightly recessed in the wall, the seats being divided from each other by polished marble shafts, with carved capitals, above which rise trefoil-headed arches, with diapered and incised gables, terminating in crosses. A band of incised work extends across the back of the seats, and the latter will be provided with green cushions and hangings. The carving has been executed by Mr. R. Boulton, of Worcester.

Grimstone (Leicestershire).—It has been decided at a parish meeting to proceed with the restoration of the parish church of St. John, during the ensuing summer. The plans, which have been prepared by Mr. R. W. Johnson, of Melton and Leicester, architect, comprise extensive repairs to the roofing, drainage of foundations, renewal of gallery, opening out south transept, which has been for some years used as a school-room; new benches, pulpit, reading-desk, &c.; restoration of porch and interior stonework generally.

Markfield (Leicestershire). — St. Michael's Church has been re-opened and consecrated. The stonework and old oak roof were greatly decayed; besides which, the eastern pier of the arcade had cracked, and the south wall projected into the churchyard. In February last, the building became so evidently dangerous, that it was deemed unsafe for divine service; the congregation, therefore, have since assembled in the new National Schools, built in 1861. The architects employed were Messrs. Millican & Smith, of Leicester. An enlargement of the church (towards the north), in 1829, had thrown it altogether out of proportion; and yet, to save expense, it was necessary to retain this wall: it was further requisite to enlarge the building, to meet the requirements of a large and increasing parish, and yet so to restore the original church as to preserve all its features in their integrity. This has been effected by throwing out the church westward, on a line with the west tower wall; by enlarging it north and east for a new chancel (to the side of which a vestry is now attached); and by running a new arcade from the chancel-arch to the west wall. The church, therefore, now consists of a nave, north and south aisles, chancel, and chapel adjoining. The walls are built of Markfield granite, with dressings of Hollington stone, and pointed with dark mortar. Internally the old tower arch is opened up, and its old arcade and windows are restored. The sittings, which are about 400 in number, are of deal, stained and varnished: all are free and open. The chancel tiles are from the works of Mr. Wm. Whetstone, Coalville, who has given those within the communion-rails. The communion-rails are of English oak, carved in a style corresponding with the church. The reading desk also is of oak, carved. The pulpit is of Bath stone, circular on plan, with a Derbyshire marble shaft to support the bookboard. The font is of white Mansfield stone, with a circular bowl, supported on a central stone stem surrounded by smaller Derbyshire marble shafts.

Heytesbury (Wilts). — Lord Heytesbury and his son, the Hon. A'Court Holmes, have given 1,000*l.* each, in addition to a guarantee for the repayment of a further sum of 2,000*l.*, towards the restoration of the Collegiate Church of Heytesbury, Wilts, in the diocese of Salisbury. The works which are in course of being carried out are estimated to cost 5,000*l.*, and will be of an extensive and complete character, almost amounting to reconstruction, the edifice having been allowed to fall into a ruinous state. Mr. Butterfield is the architect, and it is expected that the restoration will occupy quite two years. The church is one of the most ancient in Wiltshire.

Books Received.

The Atlantic Telegraph. By W. H. RUSSELL, LL.D. Illustrated by ROBT. DUDLEY. Day & Son (Limited), Gate-street, London.

A REMARKABLE career has been that of W. H. Russell, LL.D., the "special correspondent," *par excellence;* the historian of the Crimean War, the Indian Mutiny, and to some extent of the American conflict. Such work needed a variety of qualifications not usually found united in the same individual, but he has met the requirements, and has earned for himself a record in the history of his country by having helped to write it. Amongst his lighter occupations since the days of siege, massacre, and stampede, he has recorded a royal marriage; and, last, he comes to the public as the historian of the, unfortunately, unsuccessful attempt to lay the Atlantic Telegraph. It may be a question whether it would not have been better for the undertaking if the directors had enabled more than one pen to tell the story of the voyage. The British public like one intelligence to check another, and some doubts which certainly are entertained at this moment, by a few, touching particular incidents, groundlessly or otherwise we need not inquire, would probably not exist had this occurred. Admitting, however, that the course pursued by the directors was the best, there can be no doubt at all that they succeeded in inducing the best man to undertake the task. All will remember the account of the voyage, graphic and complete, that Dr. Russell gave in the *Times* immediately after the disaster. It was read with eagerness far and wide, and thus served to deprive of some of its interest the volume now published. In this, however, the author gives the history of previous endeavours, and, of course, a much fuller account of the last. Moreover, the volume contains twenty-six illustrations by Mr. Robert Dudley, and will give pleasure to a large circle. The drawings are reproduced in tinted lithography, and picture the various events as they occurred, from the weighing of the anchor off the Maplin Sands, Nore, July 15, 1865, to the clearing of the deck for the final attempt at grappling, on the 11th of the following August: the majority of them are exceedingly good. We should point especially, though for different reasons, to the spirited sketch of the occupants of the mess-room, Trinity Bay; the curious illustration of coiling the cable in the tank; Foilhummerum Bay, and the view in the bows when the cable was broken and lost.

We hope we are right in concluding, from the improvement evident in the price of the old shares, that the fresh capital required has been subscribed. No means should be left untried to effect the successful laying of the cable from England to America.

VARIORUM.

UNDER the title "The Private Bills in the Session 1866," Messrs. Vacher have published the complete list, arranged first alphabetically, and then in numerical order. The Bills are 633 in number. At the end of the list the "Orders" relating to private Bills are given. —— "The Railway, Banking, Mining, Insurance, and Commercial Almanack for 1866" (Simpkin & Marshall) has its usual very large amount of information as to the material interests of the United Kingdom. —— "Warne's Victoria Spelling Book" (Bedford-street) is so full of little engravings illustrating the text, that it can scarcely fail to prove attractive to the little folks it is designed for. Going beyond a spelling-book, it contains a good deal of valuable information, tables, &c., at the end. —— The same publishers (F. Warne & Co.) have published a fourth volume of "Penny Readings, in Prose and Verse," selected and edited by Mr. J. E. Carpenter. The selection continues to be very good and appropriate. The spread of "Penny Readings," since we mentioned the first, at Ipswich, set going by Mr. Shave Gowing, is remarkable. —— "Merry and Wise," is an illustrated monthly magazine for young people. The number for January contains some capital little stories, with engraved illustrations, and all for 3d. The children of to-day are much better off than their fathers were.

Miscellanea.

COPPER. — An extraordinary rise has taken place in the price of copper in France within the last few weeks, in consequence of the difference between Spain and Chili.

THE GYMNASIUM MOVEMENT.—A company has been formed with a view to provide Newcastle with a gymnasium, bowling-green, and skittle and quoit grounds. The arrangements are from the designs of Mr. Matthew Thompson, architect.

THE SOUTHAMPTON SURVEYORSHIP.—The town council have appointed Mr. Lemon as their surveyor, with a salary of 350*l.* a year. The list of candidates had been reduced to two, Mr. Lemon and Mr. Fereday, and the majority voted for Mr. Lemon.

TYPHUS FEVER IN LANCASHIRE.—Typhus fever is said to be very prevalent in West Leigh and its neighbourhood. One medical man alone has had forty cases under treatment within a few days; and of the workpeople at one place, Messrs. Tunnicliffe & Hampson's, upwards of fifty of the hands had to leave their employment in consequence of the epidemic.

WELLINGBOROUGH NEW CHURCH.—Designs for this new church have been submitted to the committee by the following architects:—Mr. Slater, of London; Mr. Webber, of London; Mr. E. F. Law, of Northampton; Mr. Holme, of Birmingham; Mr. E. Sharman, of Wellingborough; and Mr. Buckeridge, of Oxford. The committee have chosen that of the last-named gentleman, and immediate steps will be taken towards the erection of the building.

A NEW THEATRE FOR NEWCASTLE.—An extensive tract of ground has lately been purchased in the Westgate, a few doors above Thornton-street, by a party of capitalists, on which it is intended to erect a theatre on a large scale. The building will face Bath-row, and extend backward as far as Temple-street westward. The preliminaries in the rear have already been commenced, some massive pillars having been run up. A deputation of gentlemen from Newcastle have been in London, inspecting the internal arrangements of the metropolitan theatres, with a view to introduce the very latest improvements into the new erection.

STREET MANAGEMENT IN LONDON.—The shameless mismanagement whereby the streets of the metropolis are becoming, year after year, more and more filthy and disgusting to passengers, ought really to be brought under the notice of Government or the Legislature. Well may it form one of the counts of the indictment whereby, it is to be hoped, the present and past state of affairs will be voted by the Legislature to be no longer endurable. It is not defect of legal power either which prevents the vestries from compelling the shopkeeping and other inhabitants of the thoroughfares to keep the pavements in front of their houses in decent order; nor which prevents the Metropolitan Board of Works from seeing that the law is enforced by these vestries, both as regards the carriage-ways and the pavements. The parish authorities prefer conniving at the disreputable system of crossing-sweeping beggars who infest the streets, and pertinaciously annoy the passengers, to the appointment of paid sweepers. What are the police about? Have not they the power to compel both householders and parish authorities to do their duty?

ARCHÆOLOGY IN DORSET.—The Archæological ngress in Dorchester has led to the projected nation of a Dorset Archæological and Natural story Society, for the discovery and preserva- n of county antiquities, &c. A museum eady exists for the reception of all such relics may be suitable for preservation in the eral collection.

ANCIENT LONDON.—In the course of the works Messrs. Coll & Co., in preparing to rebuild 53, Coleman-street, London, a portion of an phant's tusk, 3 ft. long, has been found at a th of 15 ft. from the surface. Previously a ge quantity of what seemed to be rams' horns some pottery had been found on the same ; but of these little notice was taken at the e.

THE LATE CURATOR OF THE ARCHITECTURAL HIBITION.—We hear with surprise of the th of Mr. Moody, who acted for several of the ieties meeting at the house in Conduit-street, nite a young man. His income, as may be posed, was very small; and, having left a low and five children, some architects have ermined that it will only be a kindly act to ke up a purse for the widow. Mr. G. True- , of 5, Bloomsbury-square, will be happy to eive subscriptions. We had reason lately to demn the late curator's behaviour on a par- lar occasion; but this must not prevent us n advocating the cause of the widow and hans.

GROWTH OF AMERICAN CITIES.—In the year 0 Cincinnati had but 400 inhabitants; in 0 it had 2,540; in 1820, 9,602; in 1830, 351; in 1840, 46,338; in 1850, 115,436; in 5, it had 230,000. In 1831 the city of Chicago twelve families; it has now about 200,000 abitants. So late as 1850 there were but 40 es of railway lines around Chicago; now 00 miles centre there; and in the one year 5 the value of the commerce that passed over St. Clair flats was 22,700,055*l*. In 1849 when anised as a territory, Minnesota had 4,000 abitants; by the census of 1860 it had ,000. The growth of the cities of Cali- ia and "Petrolia," (which now contribute 000,000 dollars to the internal revenue of the ited States) are within the memories of young n and boys. The westward march has become sh.—*Fraser's Magazine.*

ART AND PRESBYTERIANISM.—In the course of ccent sermon on the relation of art to reli- n, the Rev. James Rankin, M.A., of Greenock, erved:—If there is one thing better than ther in architecture, painting, sculpture, sic, poetry, literature, or devotion, surely the st worthy place on earth for that best thing is 's house, and it will be very poor evidence he merit of our Presbyterianism if it is any endangered thereby. Truth and beauty in perpetual amity; beauty is even part of h. And a grievous wrong is done to the pel cause by that gloomy sect which would vn on art and taste, to prevent them entering 's house. It is there, above all places else, t they are accessible to the poor, who most d such kindly and loving influences to raise ir thoughts above narrow means at home and d toils out of doors.

LONDON FEVER AND THE RAILWAYS.—The nthly report and quarterly summary of the dical Officer of Health for Marylebone, dated 6th instant, shows that in the five weeks ing December, bronchitis destroyed seventy- and pneumonia thirty-four persons, against thirty-six and twelve at the corresponding iod last year. Amongst diseases of the notic class, measles, whooping-cough, and r had been most prominent, and small-pox been fatal in two cases. During the quarter e had been 1,227 births, and 964 deaths, the rage deaths of the quarter being in the ratio 23·7 per 1,000 of the population. On the ject of fever and small-pox, Dr. Whitmore :—"The rapid growth of railways in the ropolis is making fearful inroads upon those litics which are inhabited by the poor and titute classes, who, as a consequence, are en to find shelter in places more filthy and rcrowded than those from which they were ted; hence it is that small-pox, scarlatina, ius, &c., propagate so rapidly in infected ricts, and until means be adopted for ating persons suffering from contagious ricts, all efforts for sanitary improvement be of comparatively little avail."

THE LATE PRESIDENT OF THE ROYAL ACADEMY. The remains of Sir C. L. Eastlake, removed from the burial-ground at Florence, were interred at Kensal-green Cemetery on Thursday last.

MONT CENIS TUNNEL.—In a communication from Pico Mulera, Italy, dated January 4th, Mr. H. Hoskings writes—"The mortality amongst the workmen employed in the Mont Cenis tunnel is so great, in consequence of powder-smoke and bad ventilation, that they have refused to work any more. The work is now at a standstill."

THE CHATSWORTH WOOD CARVINGS.—We mentioned not long ago the examination by Mr. Rogers of the wood carvings at Chatsworth, and the statement he had made as to the decay which is going on in them. We now hear that the Duke of Devonshire has desired him to go down to Chatsworth to superintend the transmission of the wood carvings to London, that he may treat them as some have been already treated by him for the Earl Brownlow.

PORTSMOUTH.—The memorial of the dockyard artisans for an increase of pay has been refused; and Lord Clarence Paget, in an official circular, which has been posted at the dockyard, concludes with an expression that their lordships, after having given the matter a full and anxious consideration, have come to the conclusion that they would not be justified in recommending to Parliament a general increase of the wages of the memorialists.

THE FALL OF THE MYTHOLM-BRIDGE VIADUCT. An inquiry is being held by Captain Tyler, on behalf of the Board of Trade, as to the causes of the fall of the viaduct at Mytholm-bridge, near Holmfirth, on the 3rd of December last. Mr. Barrowclough, architect, gave evidence as to cracks and bulgings in the piers. Mr. Watts, resident engineer, produced the plans and specification, signed by Mr. Meek, the engineer, and Mr. Wadsworth, the contractor, and the latter and the sub-contractor were examined. Captain Tyler will report to the Board of Trade on the subject.

MAGNESIUM IN AMERICA. — The Americans have not been slow, of course, to convert the magnesium light to public service. In their theatres, it is said to be superseding the lime light. The wire is burnt in a large lamp, and delivered by clockwork. The flame sustains itself continuously from one and a half to two hours, in which time three-quarters to an ounce and a half of metal is consumed. The fumes are arrested within the lamp by mechanical means, and thus the reflector and the glass in front are preserved from fouling. Although the lamp costs 100 dollars, the maker finds it difficult to meet the orders he receives for it.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—The first *conversazione* under the auspices of this society took place on Wednesday evening last at the Gallery of the Society of British Artists, Suffolk-street, Pall-mall, Mr. H. Wallis having granted the use of his winter exhibition of modern pictures in furtherance of the object. The chair was occupied by Mr. Hurlstone, the president of the Society of British Artists, who congratulated the members of the association on the progress they were making. Mr. H. Ottley, the hon. secretary, addressed a few observations to the guests; and at the close of Mr. Ottley's remarks a programme of music was effectively gone through by several well-known artists.

THE LINCOLN DIOCESAN ARCHITECTURAL SOCIETY.—At the first committee meeting of this society, for the present year, held on the 5th inst., the Rev. Chancellor of Lincoln acting as chairman, the designs for painted glass windows, provided by the society's secretary, were laid before the committee. The first was one submitted to her Majesty, to serve as a memorial to her late royal father, the Duke of Kent, about to be erected in St. Nicholas Church, Sidmouth, where he died. The second was one for the great west window of Worksop Prior Church, about to be erected as a memorial, by Mr. Garside, of Worksop; and the third was intended for Washingborough Church, whose east window is about to be filled with painted glass, in memory of the late Rev. H. W. Sibthorp, by the parishioners. An epitaph, in Norman French, of the fourteenth century, was read and explained, and a remarkable instance of a low side window, together with all its adjuncts, throwing light upon the use of such windows, was described.

NEW RAILWAY MAP OF LONDON.—A new map, showing the otherwise indescribable webwork of railways into which it is proposed this session further to enmesh the metropolis, has been published by Stanford, of Charing Cross. Lists of the various schemes and plans are also given at the foot of the map.

THE CARRIAGE-WORKS OF THE GREAT WESTERN RAILWAY COMPANY.—Cripling Meadow, at Oxford, has been conveyed to the Great Western Railway Company by the corporation, and all that remains now to be done is the making of an application by the company for additional powers to enable them to purchase a few acres of adjoining land. Against that application neither the University nor City authorities have signified any intention of opposition, as the transfer of a larger area will be mutually beneficial.

MIDDLE-CLASS EDUCATION IN THE CITY.—An influential meeting of citizens of London has been held at the Mansion House, with the view to carry into still greater effect the arrangements which were set on foot at a preliminary meeting, held there on the 7th of November last, for the establishment of a system of middle-class education in the metropolis, and for obtaining funds for the purpose. Many of the most eminent of the citizens were present, and various appropriate resolutions were passed for the promotion of the object in view. Measures are to be taken to obtain a charter of incorporation for the association, and subscriptions are in course of collection by the committee.

RAILWAY-CARRIAGES.—Mr. Rock Chidley has recently brought out an invention for improvements in railway-carriages, which consists mainly of affording easy means of communication through the whole of the carriages of a train, and an economical mode of warming and ventilating them. For the first object the inventor proposes an opening at the end of each carriage, the connexion being made by means of a covered or hooded platform, constructed so as to expand, if required, from a space of a few inches to one of several feet. The object is to give the guard of the train an easy means of communicating with any of the passengers. Below the flooring (which is perforated) of each carriage a serpentine pipe is placed, and the pipes below adjoining carriages being connected, they can be supplied with steam from the engine for the purpose of warming. Provisions for a safety-valve and self-acting taps for the discharge of the condensed water have been made. Ventilation is accelerated by admitting the air through the perforated flooring required for the warming, and by an air-passage between the top of the compartments and the roof of the carriage, on which latter are set ventilators, having a cowl above to turn with the wind.

WESTMINSTER ABBEY AND ST. PAUL'S.—In an article on Westminster Abbey and the Chapter House, the *Athenæum* suggests the removal of certain monuments from the Abbey to St. Paul's, as very desirable for the improvement of both edifices. "It will be remembered," remarks the writer, "that most of the obstructive, incongruous, and modern monuments in the Abbey refer to men not interred there; thus Admirals Tyrrell and Kempenfeldt are in the seas; and while Wolfe lies at Greenwich, his monument is probably 30 ft. in height, and shuts in the tomb of one as brave as he—to wit, Sir Francis Vere—which, although not harmonious with the style of the building, is a fine work of art—as the cast from it, now at South Kensington, testifies—and non-obstructive in position and character. Wolfe's monument, placed against the wall in St. Paul's, or with one of those great square piers to back it, would enrich the interior, now so chilly and desolate. Among others of better keeping with the Cathedral than the Abbey are the colossal monument to Lord Holland; that to the three captains, Bayne, Blair, and Manners; those to Pultney, Earl of Bath, Admiral Holmes, Mrs. Davidson; the 'neat mural monument' of Sir C. Stuart; that of Lord Ligonier and the Muse of History (poor Clio!) which, we may add in passing, stands close to the grave of Pym, who was, says Dr. Ryvers, interred under the gravestone of John Windsore; Sir Gilbert Lort and his cherubs; Sir Peter Warren and Hercules, neither of whom, any more than Clio and Ligonier, we believe, are buried in Westminster Abbey; Mr. Clement Saunders, carver (of meat) to Charles II. It would be no wrong to the gallantry of Wager to put up his cenotaph in St. Paul's instead of the Abbey."

IRON CHURCH AT CREWE.—The directors of the London and North-Western Railway Company have just completed the erection of an iron church, to accommodate 300 persons. Two of the directors have signified their intention of giving 1,000*l.* each towards erecting a larger place of worship when required.

MODELS OF VOLUNTEERS. — Mr. H. W. M'Carthy has completed models of two statues of Volunteers, which are, we understand, intended to ornament Col. M'Murdo's new house at Rose Bank. These figures are of life size. The uniforms chosen are those of privates in the London Scottish and the Inns of Court. The stone figures are in a forward state.

THE MARGATE WATER SUPPLY.—The foundation-stone has been laid of a new high-surface reservoir and tower, which will be erected opposite La Belle Alliance Cottages, and near the old church, for the purpose of supplying the upper portion of the town. The building will cost about 1,000*l.*, and the tank will be capable of containing 20,000 gallons of water. Mr. Pickering, of London, is the architect, and Mr. Sayer, of Margate, the builder.

THE SEWAGE, MACCLESFIELD. — On Monday last, Mr. Arnold, of Manchester, met a deputation of the Macclesfield Local Board of Health on the subject of the town sewage and its alleged pollution of the river Bollin. Mr. Arnold recommended the construction of a main drain to carry the sewage beyond the town, and then the utilization of the sewage for the purposes of irrigation. Settling-beds he regarded as only temporary remedies. We believe that a preliminary survey will be made in a few days with a view of carrying on Mr. Arnold's recommendation.

THE LIVERPOOL TUNNEL FATALITY.—The adjourned inquest on the body of Henry Preston, who was killed by the fall of an arch, in connexion with the Wapping tunnel, has been held at Liverpool. It was stated in evidence that the iron girders supplied by Mr. Underwood to the contractors (Messrs. Thompson) had been tested in the usual way by a hammer; that this mode was superior to the test by weight (which was not adopted); and that after all tests it was possible for a flaw to exist without detection. The coroner, in charging the jury, said it was evident that the responsibility did not lie with the railway company; while the contractors appeared to have employed competent persons. The jury, in returning a verdict of accidental death, exonerated the contractors.

PROPOSED WET DOCK AT WHITEHAVEN.—At a recent meeting of Whitehaven trustees, Dr. Fidler took up his notice of motion pledging the trustees to obtain a wet dock. He passed rapidly in review the attempts which had been made to get a wet dock since 1854. He then proposed a motion in the terms of the notice. Messrs. Jefferson, J. Lindow, and Thompson spoke in favour of a wet dock; Mr. Lindow producing a plan for a dock in the neighbourhood of Kennedy's yard, which he believed might be constructed for 70,000*l.* or 80,000*l.* The motion was carried. Dr. Fidler then took up his other motion, that Mr. Coode, C.E., be requested to confer with this Board as to the practicability of constructing a dock at a cost of 120,000*l.* After some discussion, in which it was decided that the words "for 120,000*l.*" should be struck out, as it was stated that if a sum was named Mr. Coode would think himself at perfect liberty to expend that sum, the motion was carried.

THE RAILWAY ACCIDENT AT BECKENHAM.—The fall of an engine and thirteen trucks of a luggage-train through a bridge on the London, Chatham, and Dover line at Beckenham has been found to have been caused by a recent flood having produced a hole nearly 8 ft. deep in the brook where the foundations of the centre arch had been completely washed away. The engineer has in the meantime supported the remaining rails by blocks of timber resting on sills laid along the surface of the subsoil, in their turn supporting timber baulks wedged up close under the iron girders not displaced by the accident. Transverse timbers were then fixed across the archway to keep everything in its place, and a trial engine with a train of empty carriages passed safely across the bridge. Mr. Mills remained beneath while this experiment took place, in order to satisfy himself that the work was thoroughly secure. Everything having been pronounced sound, the ordinary traffic was immediately resumed.

SURVEYOR'S DEPARTMENT, BELFAST. — The Council have determined that the salary of the surveyor (Mr. Montgomery) shall be raised to 500*l.* a-year; further, that an additional assistant shall be provided; that the officers and men in his department shall be placed under control of the surveyor; and that he shall have the power of appointment and dismissal, subject to the approval of the Council.

GAS.—The Birmingham town council have effected much good through compelling the gas companies to file the proper accounts, so that the consumers may see whether the Act of Parliament, which limits their dividends to 10 per cent. and states that the surplus must go towards reducing the price of gas, has been complied with. A report of the Works' Committee states that the saving effected in six months in the cost of public lighting has amounted to 1,834*l.* The gas companies have lowered the price of gas without reducing their dividend.

WORCESTER CATHEDRAL RESTORATION.—The next contract for this restoration is to embrace the cloisters. There is no part of the Cathedral or of the ancient conventual establishment more pregnant with interest than the quadrangle in which the monks of old spent the greater part of their life, in study, in copying old manuscripts, and in domestic occupation. For centuries the cloisters have been imbedded in whitewash, the removal of which will bring to light much interesting sculpture; and the restoration and glazing of the windows, smashed during the civil wars, will completely alter the character of the structure.

PLANS BY PHOTOGRAPHY.—It is announced in Paris that the optician Chevalier has succeeded in arranging an apparatus for taking geometric plans by photography. According to the *Society of Arts' Journal*, the instrument is provided with a meridional telescope, and a compass in order to set it to any given point; a circular collodionised glass is placed horizontally at the bottom of a camera obscura, formed of copper, and moved by clock-work, so as to describe within a given time the entire circle of which the station chosen is the centre, and the various objects as they are received in turn by the lens are photographed on the circular plate through an extremely narrow slit in the side of the copper box. The operation is to be repeated at three stations in order to avoid error, and the result is said to be highly satisfactory. The three circular plates are then used to lay down on paper all the points of the plan described. The same instrument working vertically, instead of horizontally, serves also for levelling.

TENDERS

For the erection of two villas, Acton. Messrs. Osborn & Russell, architects:

Webb & Sons	£910	0	0
Bird	779	0	0
Lord	770	0	0
Rydmann	730	0	0

For additions to manufactory, for Messrs. J. & G. Meakin, Hanley, Staffordshire. Messrs. Scrivener & Son, architects:—

Barlow (accepted)	£2,260	0	0
Harley	2,247	0	0
Steele	2,245	0	0
Blackhurst	2,200	8	0

For tavern and two houses, Shoreditch, for the North London Railway. Mr. J. Livock, architect. Quantities supplied by Messrs. Pain & Clark:—

Watts	£3,963	0	0
Conder	3,771	0	0
Manley & Rogers	3,710	0	0
Wells	3,690	0	0
Scivenor & White	3,588	0	0
Adamson & Son	3,555	0	0

For rebuilding No. 101, High-street, Shoreditch, for Mr. Morris Rouse. Mr. Mansell, architect:—

Hoare	£1,157	0	0
Hampton	1,087	0	0
Thomas & Jenkins	940	19	0
Webb & Sons	900	0	0
Tully	850	0	0
Cushing	844	0	0
Johnson	800	0	0
Williamson (accepted)	795	0	0

For restoration of Howard Chapel, Bedford. Mr. Usher, architect:—

Wain & Foster	£515	0	0

For new bridge, sluices, &c., at Kunston Park. Mr. Usher, architect:—

Dickens	£335	0	0

For new sunday-school rooms, class-rooms, minister's vestry, kitchen, &c. &c., adjoining Bunyan Meeting, Bedford. Mr. Usher, architect:—

Day	£2,140	0	0
Curwin	2,119	0	0
Wain & Foster	2,050	0	0

For the erection of warehouses, Whitecross-street, for Mr. Bassingham. Mr. Thos. Burton, architect:—

Gammon	£2,363	0	0
Sargeant	2,200	0	0
Woodward	2,196	0	0
King & Sons	2,195	0	0
Downes	2,075	0	0
Lark	2,007	0	0
Browne & Robinson	1,990	0	0
Henshaw	1,985	0	0
Turner	1,953	0	0
Foster	1,941	0	0

For rebuilding warehouse, Houndsditch, for Messrs. Defries. Mr. H. H. Collins, architect:—

Cohen	£10,654	0	0
Hardman & Sandon	9,098	0	0
Colls & Sons	8,972	0	0
Hill & Keddel	8,884	0	0
Ashby & Horner	8,777	0	0
King & Sons	8,560	0	0
Conder	8,445	0	0
Newman & Mann	8,391	0	0

For restoring Cockley Cley Church, Norfolk. Mr. R. M. Phipson, architect:—

Brown	£1,508	0	0
Bishop	1,360	0	0
Cornish	1,353	0	0
Burrell (accepted)	1,362	0	0

For rebuilding Aylsham Vicarage, Norfolk. Mr. R. M. Phipson, architect:—

Worman	£1,435	0	0
Cornish (accepted)	1,310	0	0

For restoring the chancel of Thorndon Church, Suffolk. Mr. R. M. Phipson, architect:—

Rednell	£750	0	0
Bishop	595	0	0
Cornish	574	0	0
Grimwood & Vine (accepted)	573	10	0

For restoring the nave of Burgate Church, Suffolk:—

Bishop (accepted)	£650	0	0

For proposed mansion and stabling, near Wavertree, for Capt. Harris. Mr. Wm. Paice, architect:—

Taylor	£5,600	0	0
Paice & Co.	5,450	0	0
Mullet	5,400	0	0
Howell (accepted)	5,120	0	0

For new shops at Rugeley, for Mr. E. Broad. Messrs. Scrivener & Son, architects:—

Clarson	£2,440	0	0
Matthews	2,340	0	0
Steele	2,275	0	0
Barlow (accepted)	2,137	0	0

For alterations and additions to the European Bank, 83, King William-street, City, E.C. Mr. Thos. Allason, architect:—

Hill & Sons	£2,114	0	0
Henshaw	1,538	0	0
Thorne & Co.	1,200	0	0

For erecting church at Charlton, Kent. Mr. W. Wigginton, architect:—

	No. 1 Design.		No. 2 Design.
Axford & Miller	£6,204	.....	£5,858
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Errata. In the article on Dublin, in last number, for "George Temple," read *George Semple*, and for "Smock Alley," *Smock Alley*.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the writer, not necessarily for publication.

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The Builder.

VOL. XXIV.—No. 1199.

The Sanitary Condition of Leeds.

IN a series of articles upon the sanitary condition of some of our larger towns we described Leeds, five years ago, as a "filthy and ill-contrived town." Our remarks bearing out this description seemed at that time to have had a peculiar sting for the provincial conscience, three of the four newspapers published in Leeds having risen up and with great vehemence upbraided the criticism as exaggerated, and sought to offer a variety of fanciful explanations for what was called our *animus* against the town. It is worthy of remark, however, that the *Leeds Mercury*, then and since a stanch advocate of sanitary reform, the leading and only daily paper in Leeds, did not join in the howl of invective with which its contemporaries sought to smother the disclosures which were then made by us, nor endeavour to impugn the motives which actuated us in our sanitary campaign.

Since that time it has been somewhat interesting to watch the development of the sanitary question in Leeds; and were the subject otherwise than tragical, nothing could well be more amusing than to see come to pass, from a variety of authorities, verifications of all we said years ago, and disclosures which prove that at the time our article was written we were not overdrawing the picture of Leeds, but considerably underdrawing it; that, in fact, many of the most flagrant abuses of decency in sanitary and social arrangements were never mentioned; and that, though we condemned many evils and exceptionally bad building arrangements, our description of the filthiness of the town fell short of the truth—rather than exceeded it.

The attention of the local press was repeatedly called to the unhealthiness of the town, by the statistics of the Registrar-General, the presence of epidemic fever, which the reports of the medical officers of the Board of Guardians showed to be almost ever present in one part of the town or another, and by a continued discussion of the subject in one or more newspapers. In a burst of sanitary enthusiasm, an association was formed some year and a half ago, which gave itself too much to do, and has consequently done too little, except that its existence, and the association with it of some of the most public-spirited and influential residents, were a standing record of belief in a bad state of things, and a desire for improvement. Recently a Government inspector, Dr. Hunter, on the request of some inhabitants, has made a full examination of the town, and reported upon its sanitary state. In his report, he seems to have found fault with the management of the Nuisance Committee of the Town Council, and attributed many of the nuisances he saw and described to the neglect of the Corporation to remove the ashes and night-soil,—a task it had undertaken the responsibility of doing, instead of letting the work to a contractor. Our own statement was mildness itself in comparison with the report of Dr. Hunter as to the filthiness of the town; and, as we were attacked and abused, so he has been, with a virulence and animosity which was hardly to be expected from the municipal body, who sent a formal reply to Dr. Hunter's report to the Government.

The public of Leeds endorsed Dr. Hunter's report, and the local press, as with one voice, condemned the council for its almost personal treatment of Dr. Hunter in the reply made to his report. In explanation of the evils alleged to exist, the council asserted that Dr. Hunter might have fallen into the hands of disappointed sanitary reformers, who took him to the worst parts of the town only; and Dr. Hunter's answer to this is, that all the evils described in his report were shown to him by the council's own officers, employed and paid by the municipal authorities. The council only contradicted Dr. Hunter upon one charge, which was immediately substantiated by reports on several districts made to the town council by local inspectors, who had been requested to examine and report upon divisional districts in each ward. Upon the publication of one of these reports, a butcher residing in the district where many nuisances were found, immediately followed the lead of the council, and violently denunciated the local reporters, calling in question some details in their report, which the reporters offered to substantiate in the presence of witnesses. This offer was denounced as a threat by the butcher, whose own slaughter-house was in the district, and he prudently withheld from the test of the facts.

So that it will be seen that the sanitary question has been decidedly lively of late in Leeds; and, as the matter appears to be taken up in earnest at last, we return to it with some degree of interest.

And, firstly, we cannot help congratulating the public of Leeds upon a decided advance in right feeling since the publication of our own article. Then we were condemned on all sides nearly, for pointing out several obviously bad sanitary arrangements, and suggesting the removal of prominent nuisances. Dr. Hunter has been condemned only by the town-council, whilst the public have stood rebuked and silent, and the volunteer inspectors have been condemned only by an individual, whose vocation and interests, perhaps, do not afford the best qualification for the task of criticism in sanitary matters.

The opposition, therefore, to the advance of sanitary doctrines has gradually dwindled from the public of Leeds to its council (which, as public scavenger, is an interested body), and from the council to an individual.

There is, therefore, hope yet for the town; for though the difficulty of convincing the public of Leeds has been great, it appears to have been accomplished. It has been asserted that you cannot make a Scotchman appreciate a joke, except by resorting to a surgical operation. It has taken many surgical and more undertakors' operations to make Leeds appreciate that she is filthy and a badly managed municipality; but now, by the confession of her own citizens, she stands convicted of filthiness and neglect. A career of almost unexampled prosperity, the possession of several important trades, the accumulation of a vast amount of wealth by the principal citizens, and the extraordinary increase of population, have made Leeds the envy of other rising towns, and given it a character which it may well be proud of. Its public buildings and its public works have been carried on in a spirit which is munificent and far-sighted. National recognition has followed this public spirit, and the ancient capital of Yorkshire has been despoiled in order that Leeds may become an assize town, on account of the vast population in and near to the town.

Nevertheless, town-halls, infirmaries, and assizes do not of themselves make a great town, nor even do wealth and population. They may be, and usually are, characteristic of a great town, but they do not make true greatness. They may attest the power and means of doing justly and nobly, but may exist along with manifest injustice and miserably petty conduct; and, so long as the weak and the poor are allowed to be oppressed, either by grasping and unscrupulous landlords, or shirking scavengers; so long as men are allowed to build sleeping-rooms over middens, and let damp and unwholesome cellars for residences,—whilst reeking ashpits are allowed to poison and weaken the naturally strong, and slay by fever the naturally weak,—so long may Leeds be an extensive town, but not a great town. The imposing tower which crowns its magnificent town-hall will but mark the spot where beneath is the reign of death, and witness to the world that munificence and murder may be exhibited side by side.

Both public spirit and private enterprise have done much of late years to improve and adorn the town with good buildings; and, though possessing powers to compel the consumption of smoke by the iron furnaces and dye-houses so numerous in the place, yet the municipal authorities allow the Improvement Act to remain wholly inoperative with respect to smoke consumption; and the stonework of all new buildings rapidly assumes a funereal hue, which is utterly destructive of all artistic effect. Rich carving becomes first black, and then choked up with soot, losing its sharpness and form. The effect upon health of a constant atmosphere of diluted smoke must be, and undoubtedly is, very deteriorating; and yet, though methods exist and are in operation for the consumption of smoke (one method being fully described so recently as January 20, in the *Leeds Mercury*), the few individuals who make the smoke for their own profit, by their own sweet will, are allowed to destroy their neighbours' and the public property in buildings, and their neighbours' health, unchecked by an Improvement Act, obtained, among other reasons, to prevent their doing so.

In this, as in sanitary matters more directly, the municipal authorities stand by with helpless and hopeless imbecility, stirred up at intervals to a spasmodic action by the indignant cry of the public, and then sinking back again into a normal condition of blissful repose. Occasionally indignant demands have been made in the local newspapers that the municipal representatives of the people shall attend to the public business for which they have been elected; and a sorrowful response was recently made that the councillors are elected as Whigs or Tories, and can hardly be expected to attend to such insignificant matters as town business. If there be a meeting in favour of or against reform, you may find a few town-councillors in earnest and angry debate; and all the time Leeds is one of the worst, if not *the* worst, scavenged town in England, and drinks the sewage of the neighbouring town of Otley and of the villages on the banks of the Wharfe, whilst fever and other diseases springing from dirt and filth raise the death-rate of the town to an unenviable prominence, exceeding that of London, with its overcrowded streets and its hundreds of thousands of poor.

In this matter there is much to be improved, and there are ample means in the town to carry out all necessary improvements. Every authority yet consulted has pointed out to the public of Leeds the necessity of radical reform in its sanitary arrangements, and infinite credit is due to its own leading paper for a stanch and unflinching advocacy of sanitary measures. It is a poor man's question, for the sufferers are the poor; it is a working man's question, for it is one affecting health, the capital of working men; and it is a rich man's question too.

We ought to expect that such a question shall be attended to in the West Riding of Yorkshire, so celebrated for its advocacy of popular measures, and more especially in a town which aspires to the name of the metropolis of the county.

We repeat, that we are rejoiced at the progress of a right public feeling in the matter, in the town of Leeds, and we wish a hearty God speed to the sanitary reformers there who, through evil report and good report, have never deserted the cause.

A HISTORY OF THE CITY OF ROME.

WE return to Dr. Dyer's history.*

Our author does not materially add to the number of existing republican remains; but he brings into notice every mention of works effected in this era, all traces of which have disappeared. We hear of statues, temples, bronze pillars, building sites, aqueducts, roads, and various forms of improvement to the city. Clælia and Valeria were both honoured with equestrian statues for having swum across the Tiber. A temple vowed by Postumius to the Italian trinity of Ceres, Tiber, and Tiberia, was built at the western extremity of the Circus Maximus; another to Castor and Pollux, was erected in the Forum under the Palatine Hill; a third was built upon the site of the house of Spurius Cassius, in honour of Tellus; and several were erected in honour of the always popular goddess Fortuna. Of the latter, that dedicated to Fortuna Muliebris, or the fortune of women, in recognition of the services of Veturia and Volumnia, the mother and wife of Coriolanus, in inducing that general to desist from his threatened assault on Rome, is remarkable for having been served by newly-married women only. It was built upon the spot where Coriolanus received the Roman matrons, four miles out of Rome, on the Via Latina; and no woman who had married a second time was permitted to approach the statue of the goddess within. Among the miscellaneous buildings of this period, the Villa Publica should be recalled to remembrance. This was used for the taking of the census, the lodging of troops, the reception of foreign ambassadors, and for the headquarters of victorious generals awaiting a decree for a triumph. A great engineering work, too, the draining of the Alban Lake, took place in the time of the Republic. An Etruscan aruspex and the oracle of Delphi both announced that Veii would never be taken till the lake was drained,—a task which was therefore effected. Camillus founded a famous temple to the Veintine Juno, who consented to be removed to Rome, probably on the northern extremity of the Aventine,—the hill likewise chosen for a temple to Flora, erected at the time that floral games were instituted in honour of that deity.

Dr. Dyer goes thoroughly into the dispute concerning the gold paid to the Gauls to induce them to abandon Rome after their celebrated occupation of the city for six months, when they destroyed by fire and pillage so much that was valuable and irreplaceable. Livy makes one statement; Sir G. Cornewall Lewis shows so many inconsistencies in his narrative, that he is unable to receive it; and, as before, Dr. Dyer sides with Livy. As he remarks,—"Truth is sometimes stranger than fiction; and the instinct of doubt often falls short of the reality of fact. Doubt is only a form of suspicion; and though suspicion, under proper control, is no doubt a useful thing, yet there is scarce a feeling in the human mind more liable to overrun its proper boundaries. The share of Camillus in the transactions in question is confirmed by Livy's account of his dedicating three golden *patera*, inscribed with his name, to Juno, out of the surplus of his Etruscan spoils, after paying the matrons; which *patera* were extant in B.C. 83, and consequently in the time of Livy's father." This piece of corroborative testimony should certainly have its weight with modern objectors to the story of the golden ransom and its recovery. Our columns are, however, more concerned with the buildings of Rome. On the evacuation of the city by the Gauls the work of reconstruction commenced, and the erection of altars and temples took place. An altar was consecrated to Aius Locutius, at a spot where a supernatural warning had been given; and a temple was erected to Mars on a hill about two miles from the Porta Capena. As tiles were furnished at the public expense, and the citizens were permitted to fell timber and quarry stone wherever they pleased, the story of the rebuilding of the city having been effected within a year need not be discredited as improbable, especially as, down to the war with Pyrrhus, the private dwellings of the Romans were but of slight construction, roofed with shingles.

Livy and Plutarch bear testimony to the city being as large and well peopled at the end of a year as it was before the invasion; and the latter mentions that Camillus, from his active exertions in preventing the inhabitants from deserting it, and in superintending the building operations, obtained the title of the second founder of Rome. The great Roman highways commenced by Appius Claudius, must have been, however, a still more considerable accession to the progress of the city, as we all know how much facility of communication does for a place. These, with their foundations of piles where necessary, their four courses called respectively the *statumen*, the *rudus*, the *nucleus*, and the *pavimentum*, are too well known to need description here (but should any student desire more information concerning them, they are referred to Bergier's "Hist. des grands Chemins de l'Empire Romain," and Dean Ramsay's article, "Viæ" in Dr. Smith's dictionary). The aqueducts, too, of this consul must have been of incalculable benefit to Rome. He is said to have vowed a temple to Bellona in his second consulship, but as the only temple of Bellona known to have existed lay near the subsequent Circus Flaminius, in the Campus Martius, which Pliny relates was in existence two centuries earlier, our author favours the supposition that Appius Claudius restored this building instead of rearing another, as it was not unusual to carry out a vow of building a temple by restoring one to the same deity then in decay. The wife of his colleague, Volumnius, also beautified Rome with a temple. She was a patrician by birth, but owing to her marriage with Volumnius, the other patrician ladies deemed that she had degraded herself, and refused to allow her to worship in the temple of Pudicitia Patricia; consequently she dedicated part of her own residence in the Vicus Longus, to the worship of Pudicitia Plebeia, where none but plebeian matrons of unimpeachable chastity, and only once married, were permitted to sacrifice.

The first sun-dial was brought into Rome, it is said, in the year B.C. 293, but as it was not constructed for the site it was placed upon, the space before the Temple of Quirinus, it did not show the time correctly. But it was not superseded for a century, when Q. Martius Philippus set up a correct dial. In the year B.C. 159, P. Scipio Nasica introduced an invention of the Greeks, by which the lapse of time was measured by water. We can see the gradual enrichment of the city which such introductions indicate. Stone and bronze statues, some of them equestrian, columns engraved with decrees and regulations, temples on every side, and public buildings in considerable numbers, were among the features of the day, while in B.C. 273, the grand arches of the Anio Vetus, extending for 1,105 ft., were added to the scene. But before the end of the republic, the great Via Flaminia stretched its long length northwards for 210 miles; and Flaminius had also erected the Circus Flaminius. Two temples, vowed after a battle with Hannibal at Lake Trasimene, were consecrated to Mens and Venus Erycina, by Q. Fabius Maximus, and T. Otacilius Crassus. A tholus, or round temple, was dedicated to Cybele, a deity till then represented by an irregular black stone reputed to have fallen from heaven, by M. Junius Brutus, who caused the goddess to be henceforth represented in a statue which was placed with its face to the east. Basilicæ were built for the transaction of law and exchange business, for the purpose of relieving the Forum, already too confined for its manifold uses. The first Basilica was founded by M. Portius Cato, B.C. 184, but this was burnt down, without much regret, in one of the numerous conflagrations, as the smells from an adjoining fish-market often drove its frequenters into the Forum. The next was built close to this site, in the censorship of M. Æmilius Lepidus and M. Fulvius Nobilior, the latter of whom had, before this, built the Temple of Hercules, and brought into Rome from Ambracia 230 marble statues and 285 others in bronze besides pictures. The former of these censors, with another colleague, L. Æmilius Paulus, founded an Emporium, where sea-carried goods could be landed and sold, under the western side of the Aventine; and, in conjunction with Nobilior Lepidus, constructed a harbour, a bridge over the Tiber, called Pons Æmilius, a market, and other porticoes.

In the censorship of Q. Fulvius Flaccus and A. Postumius Albinus, B.C. 174, the streets of the city were paved with flint, and the roads and footpaths outside with gravel. We read of more basilicæ, of the introduction of an apothecary's and surgeon's shop, by Archagathus, a Greek, whose enterprise was received with the substantial welcome of a free gift of the shop by the public, the establishment of many kinds of games calling for various erections for their celebration, of pageants, triumphs, before we come to the time when Livy began to complain of the introduction of that luxury which, in the form of bronze beds, with sumptuous coverlets, sideboards, tables with one foot, pantomimists, female musicians, and sumptuous feasts, he looked upon as the seed of future luxury of still greater intensity. B.C. 146, the Roman Forum contained several Greek statues. Alcibiades and Pythagoras were placed near the Comitium; before the Rostra were statues of the three Sibyls; the balconies of the Tabernæ, on the south side of the Forum, were covered with a picture by Serapion; the Comitium was adorned with a fresco brought from Sparta, by detaching the bricks upon which it was painted; and in the Septa, or Ovile, were various works of art, especially two celebrated groups, the one representing Pan and young Olympus, the other Chiron and the youthful Achilles, for which the keepers were responsible with their lives. And besides these embellishments Rome possessed five triumphal arches, four of which were surmounted by gilt statues. In the struggles for power that ensued before the inauguration of the Imperial dynasty, Rome found herself possessed of more temples, more basilicæ, more gilt equestrian statues, many splendid mansions,—that belonging to Crassus, celebrated for his enormous wealth, being called the Venus of the Palatine, but which was surpassed by the neighbouring house of Catulus, which in its turn was surpassed by that of Aquillius on the Viminal. Dr. Dyer mentions that the whole rent of the house inhabited by the dictator Sulla, of which he occupied only a part, was about 45*l.*, according to Plutarch. "Towards the close of the second century, B.C., the augur Æmilius Lepidus was cited before the censors for giving 6,000 sesterces, or about 53*l.* a year, for his house,—a rent quite below the dignity of a senator 100 years after. In the time of Cicero, 88*l.* was a moderate rent, and 264*l.* an extravagant one." It is interesting, also, to remember, side by side with the recent valuation of Northumberland House, that the house occupied by Clodius, the friend of Cæsar's wife, was bought by Scaurus for 130,000*l.* Cicero gave 30,000*l.* for the house once occupied by Crassus. One of the villas of Lucullus, known for his wealth and luxury, is said to have resembled a small town in its extent; and in his gardens on the Pincian Hill, he had a celebrated gallery of pictures and statues. He built a temple to Fortune, before which, says Dion. Cassius, the axle of Cæsar's car broke down in one of his triumphs; and he erected on the Capitol a Colossus of Apollo 45 ft. high. To complete this outline of the proceedings of a wealthy noble, he gave feasts which cost 1,700*l.* or 1,800*l.*, was the friend and patron of many talented and learned Greeks, was fond of literature, and took delight in horticulture, being the first to introduce the cherry-tree into Europe. The advocates, Hortentius and Cicero, possessed very numerous residences. The former of these lived in a house on the Palatine, afterwards occupied by Augustus, and owned many sumptuous villas. It is said of him that he watered his fruit-trees with wine, a piece of extravagance hardly compatible with a love and patronage of art. Cicero was grander in his tastes. Besides his house on the Palatine, he had villas at Tusculum, Arpinum, Antium, Astura, Formiæ, Cumæ, Pompeii, and one or two other places. Dr. Dyer has gleaned that Tusculum, situated about a two hours' journey from the city, was his favourite abode out of these, for here Pompey, Lepidus, Lucullus, Scaurus, Hortensius, and others also had villas, so that Cicero could enjoy society as well as the country. In the day of his reverse of fortune, this villa, as well as that at Formiæ, and his house on the Palatine were destroyed: on the site of the latter a statue of Liberty was erected, which Cicero declared was nothing else but the image of a Greek courtesan, plucked from a tomb. Pompey, after his third triumph, when he rode in a car, resplendent with jewels,

* See p. 37, *ante*.

in a purple chlamys, which had belonged to Alexander the Great, erected a temple to Minerva, on the site of which now stands the church of Sta. Maria Sopra Minerva, and another to Hercules Victor, in the Forum Boarium. He made a splendid gift to the people of their first stone theatre, which, on account of its peculiar construction, deserves more mention. Hitherto the material used for theatres was wood, as they had gradually grown from similar contrivances to those in which the miracle plays of the Middle Ages were acted, and there was a prejudice against the employment of stone. The wooden theatre, built by M. Scaurus, B.C. 59, accommodated 80,000 persons, and had 3,000 bronze statues between its numerous pillars; that of Pompey was, however, to outvie this. On the top of his theatre he built a temple to Venus Victrix, in such a manner as made the benches to look as though they were the steps by which it was approached. Remains of this building have been traced in the Palazzo Pio, and the adjoining cellars and stables by the late Commendatore Canina; and two satyrs, supposed to have adorned the stage, are now in the court of the Capitoline Museum. Forty thousand spectators were accommodated, and it was adapted for the exhibition of gladiators and wild beasts, as well as dramatic performances. Pompey knew well the taste of the populace, when he inaugurated it with a grand wild beast combat, in which it was said five hundred lions and twenty elephants were killed. It requires some degree of education in an audience to appreciate dramatic performances. Behind his theatre Pompey built a portico, which became one of the most fashionable lounges in Rome. This portico is sometimes confused with that of the hundred columns, Hecatostylon, which is said to have likewise contained groves of plane-trees, and to have been consumed in the same conflagration; but Dr. Dyer evidently follows Martial, and deems them distinct places. Pompey adorned his portico with representations of the fourteen nations he had conquered. This magnificence was exceeded by Catullus, who had re-roofed the Capitoline temple with gilt tiles. And Cæsar was not behind-hand in adorning the already superb city. He enlarged the Forum, by adding another, the Forum Julium, to it, the site of which, Cicero states, cost him about 500,000*l.* It contained a temple of Venus Genitrix. He projected a magnificent marble septa in the Campus Martius, for the Comitia Tributia, the portico of which was to enclose a space a mile square. He contemplated, but did not live to accomplish, an alteration of the course of the Tiber, from the Milvian Bridge to the foot of the Vatican Hill, which would have enabled him to get a new Campus Martius, and build upon the old one; also the erection of a temple of unparalleled dimensions to Mars, and a stupendous theatre on the side of the Tarpeian Mount. He commenced, however, the Basilica Julia, and caused the Curia Hostilia, as restored by Faustus, the son of Sulla, to be removed, to make room for the Curia Julia. Between the Temple of Castor and the Regia, Cæsar erected new rostra, without destroying the old ones, which were still occasionally used. Dr. Dyer remarks that Rome must have been deficient in such lines of fine buildings as we see on the quays and boulevards of Paris, the Rue de Rivoli, the Place de la Concorde; or as Regent-street, Oxford-street, and Piccadilly. The nature of the site admitted of no such evolvement of architectural resources. The longest street in Rome, probably the Vicus Longus, did not exceed three-quarters of a mile in length; and the widest streets are not likely to have been wider than the great Roman causeways, which were, at some places, 13 ft. broad, and at the widest but 15 ft. Our author thinks we should be justified in likening the alleys between the insulæ, or blocks of houses, to those of Venice. Juvenal speaks of the darkness of the houses being only compensated for by the privilege of being present at the games of the circus; and when we consider that some of them must have exceeded 70 ft. in height, as Augustus introduced a regulation forbidding them to exceed that height, and that they were provided with *mœniana* or balconies, we can readily realise that the obscurity in the lower apartments must have been considerable. As the summits of the hills were occupied by temples, aristocratic residences with gardens, and public buildings, the streets were necessarily confined to the low sites. It was this crowding of habitations in the streets, doubtless, that intensified the sense of expanse felt on nearing the Forum and the space occupied by the Circus Maximus; but when a glimpse of a roof covered with gilded tiles was to be seen against the bright blue of an Italian sky, or a gilded statue on the top of a marble arch stood out in bold relief from the same inimitable background, we must be sure that the effect of the whole was very remarkable.

We do not intend to follow Dr. Dyer's train of conclusions respecting the imperial history of the city, as these pages have recently given many particulars of modern discoveries; and contending opinions are so strong on several disputed points, that nothing less than a consultation of the volume itself can be sufficing to partisans. But from our indication of the laborious manner in which the first part of the task has been performed, our readers may gather that the second portion is given in a truthful and discriminating manner worthy of their regard.

EVILS FORETOLD.

THE COURTS OF LITTLE CORAM-STREET.

ON several occasions during the last twelve or fourteen years, we have pointed out the evil conditions under which people were living in Little Coram-street, and showed how health was constantly deteriorated there and lives were shortened. Take one paragraph, written twelve years ago:*—

"In Great Coram-street, leading from Tavistock-square, close to the Russell Institution, is a narrow, squalid-looking turning,—Little Coram-street,—running north to Tavistock-place. A stranger visiting the street will not fail to be struck with the immense number of children, women, and others, who swarm in crowds, evidently too great for the visible houses. A careful inspection shows narrow passages leading from this street to collections of small houses inhabited by very poor people. One of these courts (Coram-place) is *fifteen feet below the surface of the street*, and is reached by a flight of steps. Having said this much, and considering the poverty of many of the inhabitants, and the ill-condition of the houses, none will wonder at bad results. Surrounded on all sides by tall buildings, and planted below the surface of the ground, it is scarcely possible for a breath of even comparatively pure air to reach the inhabitants."

From that time to this sickness has continued to be prevalent in these courts, and people have died unnecessarily. At last a case has come before the public. On the 20th, Dr. Lankester held an inquest on the body of Ann Ready, an infant five months old. Mary Ready, mother of the deceased, said she lived at No. 12, Russell-place, Little Coram-street. She occupied a very small room there, for which she paid 1s. 3*d.* a week. On Monday afternoon last she laid the baby down asleep, and, after it had lain some time, she went to look at it and found it dead. She did not know that the child was ill. Mr. Blake, the coroner's officer, said the house in which deceased died was most wretched; the smell was enough to poison any one. There were dust-holes in the yard, overrunning with refuse and decayed vegetable matter. There was no door to the closet, which had overflowed. The mother of the deceased corroborated this statement, and added that she had complained to her landlord, who told her if she didn't like it she had better go. But that was easier said than done, for wherever she applied for a room she was refused on account of her children. Mr. William Gill, surgeon, said the place was in a very horrible state, and there was a disgusting effluvium in it arising from the filth. The *post-mortem* examination of the body led him to the opinion that the cause of death was exhaustion from the depressing and poisonous influence of the air which the child had breathed. Two jurors, *who had similar property*, thought that no one should interfere, but admitted that the dust should be got rid of. The coroner said it was most dangerous to the community generally to allow such an accumulation of filth to engender and spread disease. He thought a sanitary police should be instituted. After a short consultation, the following verdict was returned:—"That the deceased died from the mortal effects of exhaustion, accelerated by the defective sanitary arrangements in the house in which deceased lived." The jurors previously alluded to objected to the verdict, but there being twelve exclusive of them, the verdict was accepted and recorded. The jury then appended the following resolution:—"The jury empannelled at the Oporto Stores, on the 20th of January, 1866, to inquire into the cause of death of Ann Ready, having returned a verdict that the said death was accelerated by the want of sanitary arrangements in the house in which the deceased died, would call the attention of the parish authorities to the filthy state of the said houses, in order that measures may be immediately taken to render them fit for human habitation."

Probably now the authorities may listen and attend. Thus it is that week after week our early revelations and statements are justified and our prophecies fulfilled.

* Reprinted in "London Shadows," p. 49. 1854.

THE EDUCATION OF THE CIVIL ENGINEER.

THE dock and harbour engineer requires the general and much of the special knowledge of the railway engineer, such as that which belongs to railways and tramways, and warehouses for goods; and to this he must add a vast amount of other special knowledge not required by the railway engineer.

He must understand the laws which govern the ebb and flow of the tides, the rise and fall and time of high and low water, and he must have a knowledge of marine surveying, or the best means of ascertaining the set and speed of currents, and their tendency to increase depth of water by scour, or to diminish it by silting; he must also know what kind and extent of entrance accommodation to provide, whether the general plan should comprise only a simple lock, or be combined with a half-tide basin; whether single or double gates should be used; and whether it would be necessary to have a tidal basin or a recessed space or both.

The nature of the trade to be accommodated in the proposed docks must also be carefully ascertained, in order to provide a proper proportion of quay space and water space, and proper width of quays, warehouses for bonding or for goods to be deposited, sheds for temporary protection, entrance for barges into warehouses from the docks, graving docks and workshops, with mechanical appliances for gates, sluices and pumping, and for shipping or discharging minerals or goods.

He may have to deal with solid foundation and enjoy a facility of procuring suitable materials for construction, as at Liverpool; or he may have the bad foundations of Hull and other places, where alluvial silt of great depth has accumulated. It may be that good sound stone is too costly for the mass of his work, and that he must resort to brickwork, or rubble stonework, or concrete, or to a combination of all three; but in determining such questions it is impossible that anything but previous habits of careful investigation and experience will enable an engineer to arrive at the best decision. For it is not enough that his work should be solid, permanent, and safe, but it should be rendered so at the smallest possible cost.

The dock and harbour engineer is also required to report upon, and to construct, harbours of refuge, piers, landing-stages, lighthouses, forts, canals and their appliances, river improvements, and many other hydraulic works; and, in short, of this branch of engineering it may be truly said that questions are continually arising which require special study and mechanical invention to a greater extent than in almost any other branch of the profession.

Harbours of refuge, being large and costly works, are necessarily few in number, and they are so slow in progress, and have generally been so often changed from their original object and design, that few engineering works have given less satisfaction either to the profession or to the public; but we may hope, in the future, that if governments will accurately appreciate the objects they desire to obtain, and boldly grapple with the difficulties and cost of a well-matured design, better and more useful works may yet be accomplished.

The waterworks and drainage engineer must possess many of the qualifications of the railway and dock engineer, and especially those which concern earthworth and masonry; he must also be familiar with the means of obtaining information on the subject of rainfall in different localities, the methods of correctly gauging streams of every kind; the proportions of the rainfall available for his purposes after estimating for evaporation and waste, and the extent of the provision to be made for periods of dry weather, or for compensation to mill-owners and other interested parties.

He must be conversant with the proper mode

* Mr. Fowler's Address, see p. 43, *ante*.

of executing the works of reservoirs, conduits, weirs, tunnels, and aqueducts.

He must understand, by the aid of the chemist and his own experience, the nature of the impurities in water, and the best mode of diminishing them, whether mechanically, by subsidence and filtration, or otherwise.

To the waterworks engineer we must look for the solution of one of the great problems which the rapid increase of population is now forcing upon us, viz.—a comprehensive system of conservancy of the flood waters of mountainous localities for the use of large cities and towns, and densely populated districts. We are completely outgrowing our present arrangements for water supply in the great majority of instances; and the convenience, comfort, and health of the public demand that such works when required shall be no longer postponed.

The initiative has been taken as to the question of a new source of water supply for London, in a pamphlet by a well-known authority in this branch of engineering, and sooner or later the subject must command public attention.

The waterworks engineer must also be competent to design and superintend works of sewerage, as well as the water supply, of large and small towns and localities; and his familiarity with waterworks will naturally aid him in this, as the problems for the discharge and pressure of fluids are identical in both cases.

The great sewerage works of London are now far advanced, and have already produced beneficial results; the attention of other still neglected cities and towns has recently been called to this important subject by the loud and startling voice of a threatened return of cholera, and it is to be hoped that the proper authorities will perform their duty promptly and efficiently in this matter; but I cannot here refrain from calling attention to a gigantic evil which has been created by certain drainage and sewerage works already executed, and where the convenience and comfort of one set of people have been obtained by the infliction of a nuisance upon others: I allude to the discharge of collected sewage, without any attempt at purification or deodorisation into streams of pure water.

It is remarkable that an injustice so great, and an evil so intolerable, should in any case have been permitted by Parliament, or by the general law of the land; but now that public attention has been fairly directed to the subject, it is to be hoped, that as soon as possible a remedy will be applied to the cases where mischief has already been done, and that care will be taken to prevent its recurrence.

It is no longer a matter of doubt that deodorisation or purification is quite practicable in every locality; and therefore no sewage should ever be permitted to be discharged into existing streams without this purification, or it should be carried out to the sea, and there discharged, as is now proposed for the north side of London.

The mechanical engineer deals with the most varied and numerous subjects of all the branches of engineering. They require that he should thoroughly understand the means of producing mechanical power, and applying it to all the infinite variety of purposes for which it is now demanded. To this end he should be master of the laws of motion and rest, of power and speed, of heat and cold, of liquids and gases.

He must be familiar with the strength of materials under every variety of strain, the proper proportions of parts, and the friction of surfaces.

He must apply existing tools, and contrive new ones for his work, and know how to direct power in the raising of weights, or for driving all fixed machinery, or in producing locomotion on land or water.

On railways he is responsible for the vast number of objects required in the machinery of erecting and repairing shops for the engines and carriages, for the pumping and other fixed engines, and especially for the locomotive engine itself, and for rolling and fixed plant generally.

In connexion with docks, he is required to design the machinery for opening and closing the dock gates, working sluices, emptying graving dock, or for working the cranes on the quays, or in the sheds and warehouses.

The mechanical engineer generally also executes the designs of the gas engineer, even when he does not originate the work which is intrusted to him; and in this branch considerable chemical knowledge must be added to his mechanical qualifications.

For waterworks he designs and executes pumping-engines, sluices, valves, stopcocks.

In the case of mines, he supplies designs of the engines for pumping, drawing, winding, or ventilating; for locomotives above and below ground, as well as for the various mechanical appliances required in collieries, mines, and iron-works.

The adoption of the telegraph has been so astonishingly rapid and extensive, both by sea and land, and the purposes to which it has been applied so important, that a considerable body of able and accomplished engineers have devoted themselves almost exclusively to the subject for the last few years, and have already created a new branch of the profession, called telegraphic engineering; but to be an accomplished telegraph engineer, it is necessary first to be a good mechanical engineer, and then to add the special knowledge of the electrician, and therefore I include them under the head of mechanical engineers.

I think it may fairly be traced to the distinguished ability of that class of mechanical engineers who have devoted themselves to telegraphic engineering, that already so much has been done in telegraphy. Certainly no discussions have been more ably sustained in this Institution than those upon this subject.

Allied with the mechanical engineer is the naval architect; and only a mechanical engineer could have constructed the vast steamships of modern days. The ordinary timber ship-builder of old would have been literally "at sea" in the construction of modern vessels, wherein the material is iron, and when the size of the vessel requires scientific knowledge of form and resistance, of strains and of strength, and when steam is the motive power. The demand for large and swift vessels for ferries, for long voyages, for floating batteries, and for iron-clad sea-going vessels, has of late been so great, that the construction of steam vessels has become a distinct branch of engineering, under the name of naval architecture.

The mining engineer must possess much of the knowledge of the railway and the mechanical engineer, and he must add to that general knowledge much special knowledge of his own. He must know how to sink shafts to the minerals, if they require to be extracted from beneath the surface (which is usually the case), and how to divert or pump out the water he meets with either in the shafts or the workings.

He must know how to excavate and bring to the surface minerals, whether they be coal, copper, tin, lead or iron, and to do this he must construct subterranean railways, provide means of ventilation by fans or furnaces, supply power to lift the extracted mineral to the surface; and when brought there he must understand the further requisite work, as the coal will probably require screening, or washing, or manufacturing into coke, and the ore will require crushing, washing, or smelting, or possibly all three operations.

In all these cases, and many others, such as the collection of surface ironstone and other minerals, by railways and locomotive engines, and the working of lifts and inclined planes, the mining engineer has most important functions to perform, and special machinery to adapt or invent; and relying on his judgment and skill alone, the investment of large sums of money for the development of the mineral wealth of this country is annually made.

I must not altogether omit a passing reference to the scientific talent which of late years has been devoted to artillery—its weapons of attack and works of defence; and I think we may fairly claim that it is mainly due to some of the able members of this Institution that this art has been placed on a new and vastly improved basis, and that as a consequence a new branch of the profession has been actually created—artillery engineering.

Having now enumerated in some detail the various descriptions of work which engineers are called upon to carry out, I will next proceed to point out the kind of preparation which, in my opinion, is requisite to enable them to perform their work in a proper manner.

I am aware of the difficulty of the task, and of the wide difference of opinion which exists on the subject, but I feel unable to resist the opportunity of bringing this question under the consideration of the Institution, because I feel convinced that at no period in the history of the profession has it been so important as at the present time. Those who may not be disposed to coincide with my views may at least be led by the description of them to throw new light on a subject which is of vital consequence.

We of the passing generation have had to acquire our professional knowledge as we best could, often not until it was wanted for immediate use, generally in haste and precariously, and merely to fulfil the purpose of the hour, and therefore it is that we earnestly desire for the rising generation those better opportunities and that more systematic training for which in our time no provision has been made, because it was not then so imperatively required.

The preparation and training for the civil engineer may be shortly described as follows:—

1. General instruction, or a liberal education.
2. Special education as a preparation for technical knowledge.
3. Technical knowledge.
4. Preparation for conducting practical works.

All this preparation and training will have to be acquired at some time or other, and in some order or other; and it is known that in the cases of some successful persons of great perseverance, they have been acquired in a very remarkable order; but at the present time, and with all our modern opportunities, there is no reason why they should not be learned in the most convenient and methodical manner.

I will begin by supposing a boy of fourteen, in whom his parents have discovered a mechanical bias, who has made good progress in his general education, and especially in arithmetic, is of strong constitution, and possessed of considerable energy and perseverance; and unless a boy possesses these tendencies and qualifications it is quite useless to destine him for an engineer.

Taking the boy of fourteen, however, who possesses the requisite qualifications, and with a determination of his own and his parents' part that he shall be made an engineer, the period from fourteen to eighteen should be devoted to the special education required by an engineer, during which mathematics, natural philosophy, land surveying and levelling, drawing, chemistry, mineralogy, geology, strength of materials, mechanical motions, and the principles of hydraulics should be thoroughly mastered.

To accomplish these studies, and, in addition, to make considerable progress in the living languages, French and German especially, it will be necessary to sacrifice to some small extent his classical studies and pure mathematics; and it is, in fact, the partial omission of these studies, and the prominence of those I have enumerated, which constitute a "special education."

If from fourteen to eighteen the boy has made all the progress in these studies which can be reasonably expected from fair abilities and more than average perseverance, the next step is of great importance and is one respecting which some difference of opinion will exist.

At eighteen a boy, if duly prepared, may either be at once placed in the office of a civil engineer for a period of four or five years' pupilage, or he may be placed in a mechanical workshop, or he may be sent to one of our great universities; and any one of these courses may be the best under particular circumstances, such as local convenience, or as the social position of parents may dictate.

It cannot be doubted that a period of twelve to twenty-four months may be very profitably spent in manufacturing work, before passing into a civil engineer's office; but in that case the greatest possible care must be taken that the works selected are adapted in themselves to impart the desired information; and that proper organisation exists for carrying out strict office discipline, regularity of attendance, and due diligence; and that assistance be given systematically to the pupil to enable him to obtain all the advantages possible from his stay at the works.

It is of the greatest importance to the future success of the engineer that during his professional preparation he should continue his studies of mathematics and scientific works relating to his profession, and also of modern languages.

In the case of its being intended to send the boy to Cambridge or Oxford, it is indispensable that all preliminary professional work, such as practical knowledge of mechanics, mechanical drawing, surveying and levelling, should be mastered before going to the university, because it can scarcely be expected that he will submit to the drudgery of learning them after his return from a three years' university course, then at the age of, say twenty-two. Probably the best plan will be to take him away from his scholastic studies somewhat earlier than eighteen, if it be intended that he should go to the university, and to take especial pains to make him accom-

plished in the preliminary work of the draughtsman, the surveyor, and the mechanic; so that when he has taken his degree and enters as a pupil in a civil engineer's office he will at once commence useful and interesting employment, and will not require more than three years' pupilage.

If arrangements can be so made, and assuming a boy has worked well at school with his general studies, and subsequently with his special studies; and if from the age of seventeen or eighteen he does justice to his opportunities in a good workshop, keeps up his knowledge of the modern languages, proceeds to Cambridge or Oxford, taking a good degree, and completes his studies as a pupil with a civil engineer,—probably such a course would constitute the best possible preparation and training which could be obtained; but at the same time it cannot be doubted that it is a somewhat hazardous combination, and can only be successful with great determination on the part of the pupil to keep his future career always in view, and to prepare for it accordingly, both before going to the university, during his college career, and after he leaves it.

With respect to the special preparation of young men, between the ages of fourteen and seventeen or eighteen, several of the largest and best proprietary schools and colleges in this country have special classes and departments for the study of the applied sciences; and hence well-prepared pupils are annually sent out to commence their career with engineers, architects, and surveyors; but still the character of this special preparation, in its theoretical branches, is not considered quite equal to that of France or Germany for the civil engineer.

It is true that nearly all continental nations have an advantage over this country in the power which the nature of their Government gives them of concentrating, in one recognised official school for the preparation of civil engineers, all the best available talent of their country.

This plan does not exist in our country, and on the whole we rejoice that it does not; neither does the inducement of Government employment form the chief stimulus to our exertion, for which we are also thankful; but at the same time no good reason can exist why the opportunities of acquiring theoretical preparation in this country should be inferior to those of the Continent: and I have the confident hope, from the anxiety which is now manifested to increase the ranks of our profession, and the desire to have the best possible preparation for it, that even in the theoretical branches we shall shortly have to acknowledge no inferiority to any other nation. In the practical branches we are admittedly superior.

In drawing attention, however, to a comparison between our own and other countries, let me be guarded against the possibility of being understood to suggest that this theoretical equality ought to be obtained by any sacrifice whatever of our undoubted great practical knowledge; indeed, on the contrary, I think that the attention to the greater opportunities which young engineers in this country enjoy, by reason of the number and character of our new public works, than is attainable in other countries, should be constantly encouraged to the utmost possible extent, and that our old superiority as practical engineers should be ever maintained.

We will now suppose that the general education and the special instruction have been completed, the short probationary pupilage in workshops has been gone through, languages and mathematics kept up and improved, the university course in certain cases completed, and the period to have arrived for entering a civil engineer's office.

In selecting such office for a pupil, it is important that it should be well organised and not be too large; that the engineer should be a comparatively young and rising man, and be accustomed to take pupils; but these should be few in number, and bear some proportion to the number and extent of the works in usual course of construction under the engineer's direction.

It is not necessary to follow the pupil when once the engineer's office is entered with any detailed advice, because he is no longer a boy, unable to appreciate his position and duty; we assume that he has been highly educated and carefully trained, well knowing that his future success or failure will depend on the degree of diligence in availing himself of the opportunities of acquiring knowledge during his pupilage.

The work in the office and in the field should be done to the best of his ability; and, after the pupil has become a skilful draughtsman, and is capable of taking out quantities of engineering works, and preparing detailed estimates methodically arranged, he will then probably proceed to work out details of designs, and make calculations of strengths and strains, and thus become of real value in the office, at the same time making real progress and rapid improvement for himself.

He should avail himself of every opportunity of mastering the purpose and the principles of construction of the work brought to his notice; both in the office and in execution; and he should ascertain the cost price of all the materials and workmanship employed, separating the items into every minute detail; and he should continue this practice systematically with all works on which he is engaged.

The information which, amongst much besides, should be obtained during pupilage, and which is necessary to constitute a sound engineer, is,—

1st. A fair knowledge of the most fitting material for any given work, under any given circumstances.

2nd. The power of designing any ordinary work with a maximum of strength and a minimum of material and labour.

3rd. A knowledge of the means of ascertaining the cost price of any ordinary engineering work.

The information or knowledge included in this brief enumeration may be called practical knowledge, and it cannot be too often urged upon young engineers that theory and practice must always go together, hand in hand, and that they are not only not inconsistent or conflicting, but that they are necessarily united, and must both be fully developed in the same person before he can become a properly qualified "civil engineer."

The period of pupilage should be from three to five years, depending on the circumstances which have been previously indicated, and, in addition to his attention to the office, and outdoor works, it will be well, while keeping up his preparatory studies, especially mathematics, that he should improve his acquaintance with the French and German languages, and keep up his knowledge of their engineering literature, and also avail himself, professionally and personally, of the advantages offered by this Institution.

In the case of the mechanical engineer, however, it will be seen that although all scholastic and scientific training should be the same as that previously described for all other branches, the period of pupilage of the mechanical engineer must necessarily be passed chiefly in large workshops or manufacturing establishments.

I propose now to consider in what manner this Institution can be made available in the preparation of this young engineer, and more useful to the profession generally; and as a first step allow me, very briefly, to trace its history, and refer to its present prosperity.

It will be remembered that the Institution of Civil Engineers was established on January 2, 1818, and Telford was formally installed president, on March 21, 1820.

The origin of the Institution was very humble.

About the year 1816, Mr. Henry Robinson Palmer, who was then articled to Mr. Bryan Donkin, suggested to Mr. Joshua Field the idea of forming a society of young engineers for their mutual improvement in mechanical and engineering science. The earliest members were Mr. Palmer, Mr. Field, and Mr. Nicholas Maudslay, to whom were shortly added Mr. James Jones, Mr. Charles Collinge, and Mr. James Ashwell.

When the society was constituted, on the 2nd of January, 1818, these six young men were joined by two others, Mr. Thomas Maudslay and Mr. John T. Lethridge, with Mr. James Jones as secretary, and during the remainder of that year there was no increase in the number of the members, and the only additions were three new members in 1819.

In the following year, 1820, when Telford became president, there were thirty-two elections.

At the end of 1822, when the Institution had been established for five years, there had been fifty-four elections.

Telford's name gave a great impulse to the progress of the Institution, which grew rapidly in importance under his fostering hand; so that, at the tenth year of its existence, at the close of 1827, there had been a total of 158 elections, and by June 3, 1828, when the charter of incorporation under the Great Seal was obtained, the number amounted to 185 members.

Telford continued to be the president until his decease occurred, which took place on September 2, 1834; and at that time the actual number of members on the books (as distinct from the number elected) was 200.

Mr. James Walker, the second president, was elected to that post on January 20, 1835; and, after occupying the chair for ten years, he declined to allow himself to be again put in nomination, in consequence of a strong expression of opinion from several influential members, that a shorter period for the term of the office of president had become necessary.

Accordingly, on January 27, 1845, Sir John Rennie was elected president, and served for three years.

Since then the chair has been successively filled by Joshua Field, Sir William Cubitt, James Meadows Rendle, James Simpson, Robert Stephenson, M.P., Joseph Locke, M.P., George Parker Bidder, John Hawkshaw, and John Robinson McClean, each of whom has served for two years, the maximum time now allowed by the by-laws.

It should be mentioned that, in the ordinary course of rotation, Isambard Kingdom Brunel would have succeeded Robert Stephenson, but Brunel requested that he might not then be put in nomination, owing to ill-health and the pressure of professional duties; and, unhappily, his early subsequent disease prevented any future opportunity being afforded him; which will always be a subject of regret in the annals of the Institution, that one so gifted and accomplished should not have appeared on their list of presidents.

At the close of 1836, when the Institution had existed nineteen years, the number of members of all classes who had been elected was 369, and the number of those still remaining on the books was 252, or about five-sevenths of those elected.

At the close of 1860 these numbers were 1539 and 930 respectively, from which it appears that three-fifths of all those elected still belonged to the Institution, being a decline of only one-seventh in the relative proportions after a further existence of twenty-five years.

The average annual effective increase of members and associates during the ten years from 1840 to 1850 was 25, and from 1850 to 1860 it was 27, the actual increase in 1859 and 1860 being 37 in each year. In 1861 it was 20, and in 1862 the number was 57.

The number of members of all classes on the books on November 30, 1865, were:—

Honorary Members	20
Members	486
Associates	689
Graduates	8
Total	1,203

or an effective increase in one year of 108 members of all classes.

It will thus be seen that a steady annual increase has been the characteristic of the Institution from its commencement; and it may be noted in this, the forty-eighth year of its existence, that, when it had been established twenty-four years, the number of members was nearly one-half of the present number.

The experience of the last few sessions shows us clearly that we may expect the future rate of increase to be at least equal to the past, and the attendance, on the Tuesday evening discussions, shows that the interest attached to the proceedings of the Institution increases in at least an equal proportion with the augmentation of the numbers.

It is now not uncommon to find our meeting-hall inconveniently crowded, and occasionally it is altogether inadequate to accommodate the numbers who desire to be present; and from the public interest attached to some of the subjects, many persons who desire to hear, or to take part in, the discussions, are now prevented by our restricted accommodation from doing so.

For some years in the early history of the Institution it was a work of considerable difficulty to keep the disbursements within the amount of the receipts, and except for the admirable and economical management of our late secretary, and now honorary secretary, Mr. Manby, it is hard to know what difficulties we might not have experienced; nor was it until the income became sufficiently increased by the liberal donations of the council and other members, by trust-moneys and bequests and by the increase in its numbers, so as to be decidedly

in excess of the disbursements, that the Institution was in a financial position to give increased accommodation and assistance to its members.

It may be stated that during the last ten years the average increase on the receipts has been 40 per cent., whilst the increase in the disbursements has been only 20 per cent.; and that the present amount of the realised property of the Institution may be safely taken at 25,000*l*.

It will have been observed that considerable improvements have been made in the library of the Institution, and in its arrangements and facilities; and no doubt the council and secretary will continue to give this important subject their earnest attention, and we may reasonably expect that both the contents of the library and its accessibility will be still further increased.

It is, however, somewhat remarkable that a greater number of members do not avail themselves of the additional opportunities of reference to the library which have been afforded them; and this brings me at once to the consideration of the important question of the manner in which this Institution may be made more useful to its members.

The state of the finances, as we have already seen, will prudently permit the expenditure of a larger annual sum than we now disburse, and therefore we are at full liberty financially to consider additional accommodation, even if it does involve some increase of expense; and I believe the library of the Institution would be far more valuable to the members if an arrangement could be made by which it might be kept open in the evenings for a certain number of days in the week, say until nine or ten o'clock. I have ascertained that no practical obstacle to this extension of use exists, and that the additional expense would not be considerable.

Most of the members of the Institution are necessarily engaged in their ordinary daily professional duties during the only hours when the library is at present available to them; and it is obvious that it is only in the case of a special reference being required, or for some statistical purpose, that the library can be useful to members generally under the present arrangement.

I can say from my own experience, that I should have felt it a great boon, as a young man, to have had the opportunity of spending an hour or two in the evening occasionally, and of reading and consulting the rich record of professional learning and experience now collected in our library, and therefore I throw out this hint respecting the extension of the hours for reading.

Another step might probably be taken with great advantage to students and engineers generally, viz., the systematic collection of good working drawings, specifications, and contracts for important works in progress or completed, and by facility being afforded for reference to them in the library, with permission to make tracings or copies.

There can be little doubt but engineers in large practice would supply or permit copies to be taken of their working drawings and specifications for this purpose; and in addition to this assistance with respect to drawings, it would not be difficult to obtain permission for the inspection of the works themselves during their execution, so that young engineers might have the opportunity, especially during the summer months, of seeing works as they are carried out, and comparing them with the drawings and specifications to which they have had access in the library.

I would also venture to suggest that, in addition to the greater accommodation which may be given to those using the Library by extended time of access to it, and to the collection of working drawings and specifications, with arrangements for inspection of practical works, a limited number of lectures would be very valuable if given by members who were especially conversant with any given subject, on other evenings than those of the ordinary meetings during the session of the Institution.

I now approach a question in connexion with the Institution and its functions upon which, in common with the profession generally, I confess I feel very strongly, and that is, the necessity of providing as soon as possible a building more commodious and more convenient than that which we now possess.

Our rapidly increasing numbers have already reached the point when, as I have previously stated, the theatre in which we are now assembled is admittedly insufficient for the accommodation of those who wish to attend our discussions; and in addition to inadequate space, there are conditions inseparably attached to the present building which prevent this room being properly ventilated and rendered comfortable.

The other rooms of this building are also totally inadequate for the ordinary purposes for which they are required, and on the evenings of our annual *conversazione* especially, the crowding and discomfort are such as to repel many of our best friends from venturing to be present with us.

With a proper building and well-arranged rooms, we shall also be able to have many objects of professional interest for our inspection and study, of which we are at present deprived —such as models of work and machinery, new articles, or new combinations, or, possibly, even a good museum.

I hope, however, we shall shortly be in a position to consider a distinct proposal for a new building, worthy of the present position and the future requirements of the Institution.

Having now frankly brought before the Institution some of the more important matters which appear calculated to influence the future of the members of our profession, permit me to say, in conclusion, that I am not sanguine enough to expect that I shall accomplish more in this address than direct the thoughts and attention of my professional brethren to the subject, and induce others more able than myself to take it up.

It cannot be doubted that the rapidly-increasing prominence and importance of our profession imposes upon us grave responsibility and the duty of vigilant watchfulness, so that the character of our members, and the success of our works, may be all that greater knowledge, wider experience, and more cultivated taste ought to make them; and that every new work of importance may be better than that which has preceded it, and remain as a land-mark, of which all may be proud.

It is not now sufficient that an engineering work should be durable and free from failure, but, with our present means of study and of knowledge, it will be expected that our works should display in a satisfactory degree the qualities of fitness, economy, and taste, in addition to that of durability.

With deeper study and more complete preparation, the love of our profession and pride in its noble works will become greater and greater in its students, and lead to that intense devotion and application which history teaches us has alone produced the greatest works in art and science; and we cannot doubt that far greater triumphs remain to be, and will be, achieved, by those whom I now see before me, than have yet been realised by either ancient or modern engineers.

Let us, however, bear in mind, amidst our exciting professional avocations, and in our interesting struggles to improve upon the past, that we can never do better than imitate the example of the great and good men who have been removed from amongst us during the last few years, in the happy manner in which they succeeded in combining good personal feeling and friendship with professional rivalry, and in their high appreciation of this institution, and their interest in its prosperity and usefulness.

THEATRICAL COMPLAINTS.

Do we invent anything here in England? Is not everything taken from something, or brought from somewhere? At any rate, everything theatrical? When we saw the pantomime at the New Surrey, we inwardly praised the property-people there for the artistic manner in which the fish-masks, so to call them, were formed, clever both in form and colour. The lobsters especially extorted our praise, notwithstanding the bad temper into which a vulgar "advertising" curtain had thrown us. The dress of scales, too, in which some of the ladies of the ballet are encased, destructive as it is of all elegance of form, seemed original and fresh. "Come," muttered we, "there is some little power of invention at work here in England." Not a bit of it. Going after to Astley's, close by (where, by the way, there is a remarkably brilliant transformation scene), on came some of the fishes, our friends the lobsters, and even the women in scales, clumsy as before. In the piece of Christmas nonsense at the St. James's, oysters make their appearance. From Liverpool accounts reach us of well-made lobsters, in a piece called "King Salmon;" the same from other parts of this ingenious United Kingdom; and then looking for the real originator, we find him a Frenchman in Paris! It is positively abominal: have we no invention, or is it cheaper to buy novelties abroad than to offer inducement to the right people in England to set their wits to work in this direction? It is bad enough to have to take our drama second-hand, but surely we might hope to be equal to providing the furniture and fittings. In the Drury-lane pantomime the representatives of the metals, Copper, Pewter, Tin, and so on, are very cleverly designed; but whether we are to go to Paris for their creator, or give praise to that Dickwynking who some years ago acknowledged he had been led to an improvement in his line by some hints in the *Builder*, we may not venture to say. Touching Drury-lane, by the way, the repetition, night after night before the pantomime of so offensive a farce as that called "Husbands Beware" cannot be condemned too loudly. In this production, which is as stupid as it is false, *all* the husbands introduced were indulging in vulgar gallantries, and were only to be retained at their homes by threats of exposure! At any time it would be offensive; but to persist in acting it at Christmas-time, with the house constantly one-third full of children, was positively monstrous; and such is the state of theatrical criticism, such the connexion between dramatic critics, dramatists, and managers, at the present time, that no one has been found to express the opinion of the public on the subject. As if to make theatrical criticism of even less value than it is now, an "enlightened British jury" has made a dramatic newspaper pay heavily for saying Mr. Emery did not know his part on the first night of the "Watch Cry" at the Lyceum. The author of the piece said, on his oath, that the statement was correct: we say, without an oath, that most certainly we came away from the performance on the evening in question with precisely the same impression; nevertheless, the sapient jury amerced the journal in damages and costs. If the truth may not now and then be told about actors, managers, and pieces, the public should leave off reading what is written of them.

BOULTON AND WATT.*

WAIVING all questions in dispute between Mr. Smiles and his critics, we shall here simply make the best use our limits will allow of the abundance of biographical matter which his new and able work contains, especially with regard to Boulton, of whom much less is known than of his more celebrated partner Watt, although without Boulton there could scarcely have been any Watt known to posterity as the inventor of what Watt himself cursed irreverently as the "damned fire-engine," which he would have cast into the dust-hole, and never would have realised without the generous helping-hand of Boulton, who brought him out of the slough of despond, and placed him on the fair way to fortune's temple, where, eventually, they both enjoyed their *otium cum dig.* till the close of their eventful lives.

Matthew Boulton the younger, the subject of the memoir, was born at Birmingham, on the 3rd of September, 1728. His father was amongst the most interesting and prosperous of Birmingham manufacturers. He was a silver stamper and piecer, to which he added other branches of manufacture, and these, afterwards, his son Matthew largely extended.

Little is known of Matthew's early life beyond that he was a bright, clever boy, and a general favourite with his companions. He received his education chiefly at a private academy at Deritend, kept by the Rev. Mr. Ansted, under whom he acquired the rudiments of a good ordinary English education. Though he left school early for the purpose of following his father's business, he nevertheless continued the work of self-instruction, and afterwards acquired considerable knowledge of Latin and French, as well as of drawing and mathematics. But his chief pleasure was in pursuing the study of chemistry and mechanics, in which he became thoroughly accomplished. Long after he joined his father in business, he delighted to revert to his classical favourites. From an entry

* "Lives of Boulton and Watt, principally from the Original Soho MSS." By Samuel Smiles. London Murray. 1865.

in his private memorandum-book of expenses at the age of about thirty, though then very economical in other respects, we find him expending considerable sums in experiments on electricity, and on one occasion laying out a guinea on a copy of Virgil, from which it appears that trade had not spoilt his taste for either science or letters.

Young Boulton appears to have engaged in business with much spirit. By the time he was seventeen he had introduced several important improvements in the manufacture of buttons, watch-chains, and other trinkets; and he had invented the inlaid steel buckles which shortly after became the fashion. These buckles were exported in large quantities to France, whence they were brought back to England and sold as the most recent productions of French ingenuity. The elder Boulton, having every confidence in his son's discretion and judgment, adopted him as a partner so soon as he came of age; and from that time forward he took almost the entire management of the concern.

With a view to economy, Boulton, in course of time, erected a steel-house of his own, for the purpose of making steel; and he frequently used it to convert the cuttings and scraps of the small iron wares which he manufactured, into ordinary steel, afterwards melting and converting it into cast-steel in the usual way.

From the earliest glimpses we can get of Boulton as a man of business, it would appear to have been his aim to be at the top of whatsoever branch of manufacture he undertook. He endeavoured to produce the best possible articles in regard of design, material, and workmanship. Taste was then at a low ebb, and "Brummagem" had become a by-word for everything that was gaudy, vulgar, and meretricious. Boulton endeavoured to get rid of this reproach, and aimed at raising the standard of taste in manufacture to the highest point. With his object, he employed the best artists to design his articles, and the cleverest artisans to manufacture them.

In 1759 Boulton's father died, bequeathing to him the considerable property which he had accumulated by his business. The year following, when thirty-two years of age, Matthew married Anne, the daughter of Mr. Luke Robinson, of Lichfield. The lady was a distant relation of his own. Considerable opposition was offered to the marriage by the lady's friends, on account of Matthew Boulton's occupation; but he pressed his suit, and, with good looks and a handsome presence to back him, he eventually succeeded. He was now in a position to have retired from business altogether; but a life of inactivity had no charms for him. He liked to mix with men in the affairs of active life, and to take his full share in the world's business. Indeed, he hated ease and idleness, and found his greatest pleasure in constant occupation, which he practised till his death, at the ripe age of eighty-one.

Instead, therefore, of retiring from trade, he determined to engage in it more extensively. He entertained the ambition of founding a manufactory that should be the first of its kind, and serve as a model for the manufacturers of his neighbourhood. His premises on Snow-hill, Birmingham, having become too small for his purpose, he looked about him for a suitable spot on which to erect more commodious workshops; and he was shortly attracted by the facilities presented by the property afterwards so extensively known as the famous Soho. (Fig. 4.)

Soho is about two miles north of Birmingham, on the Wolverhampton-road. It is not in the parish of Birmingham, nor in the county of Warwick, but just over the Border, in the county of Stafford. Down to the middle of last century the ground on which it stands was a barren heath, used only as a rabbit-warren.

Before removing to Soho, Mr. Boulton took into partnership Mr. John Fothergill, with the object of more vigorously extending his business operations. Mr. Fothergill possessed a very limited capital, but he was a man of good character and active habits of business, and had besides a considerable knowledge of foreign markets.

Steps were immediately taken to open up new connexions and agencies at home and abroad; and a large business was shortly established with many of the principal towns and cities of Europe, in filagree and inlaid work, livery and other buttons, buckles, clasps, watch-chains, and various kinds of ornamental metal wares. There was shortly added the manufacture of silver-plate and plated goods to their other branches, and turned out large quantities of candlesticks, urns, brackets, and various articles in ormolu.

From the first, Boulton aimed at establishing a character for the excellence of his productions. They must not only be honest in workmanship, but tasteful in design. He frequently went to town for the express purpose of reading and making drawings of rare works in metal in the British Museum, sending the results down to Soho. When rare objects of art were offered for sale, he endeavoured to secure them. He borrowed antique candlesticks, vases, and articles in metal from the Queen, and from various members of the nobility. He did not confine himself to England; he searched the Continent over for the best specimens of handicraft as models for imitation; and, when he found them, he strove to equal, if not to excel them in style and quality. While ambitious of reaching the highest excellence in his own line of business, he did not even confine himself to that, but was feeling his way in various directions outside of it. Thus to his friend Wedgwood he wrote on one occasion, that he admired his vases so much that he "almost wished to be a potter." At one time, indeed, he had serious thoughts of beginning the fictile manufacture; but he rested satisfied with mounting in metal the vases which Wedgwood made.

Another branch of business that he sought to establish was the manufacture of clocks. It was one of his leading ideas, that articles in common use might be made much better and cheaper than they were if manufactured on a large scale with the help of the best machinery; and he thought this might be successfully done in the making of clocks and timepieces.

Two of his most highly finished astronomical clocks could not find purchasers at his London sale; on which he wrote to his wife at Soho,—

"I find philosophy at a very low ebb in London, and I have therefore brought back my two fine clocks, which I will send to a market where common sense is not out of fashion. If I had made the clocks play jigs upon bells, and a dancing bear keeping time, or if I had made a horse-race upon their faces, I believe they would have had better bidders. I shall therefore bring them back to Soho, and some time this summer will send them to the Empress of Russia, who, I believe, would be glad of them."

During the same visit to London, he was more successful with the king and queen, who warmly praised and purchased his productions.

Thus stimulated by royal and noble patronage, Boulton exerted himself to the utmost to produce articles of the highest excellence. Like his friend Wedgwood, he employed Flaxman and other London artists to design his choicer goods; but he had many foreign designers and skilled workmen, French and Italian, in his regular employment. He attracted these men by liberal wages, and kept them attached to him by kind and generous treatment.

Before many years had passed, Soho was spoken of with pride, as one of the best schools of skilled industry in England. Its fame extended abroad as well as at home, and when distinguished foreigners came into England, they usually visited Soho as one of the national sights. When the manufactory was complete and in full work, Boulton removed from his house on Snow-hill to the mansion of Soho (Fig. 2), which he had by this time considerably enlarged and improved. There he continued to live until the close of his life, maintaining a splendid hospitality. Men of all nations and of all classes and opinions, were received there by turns,—princes, philosophers, artists, authors, merchants, and poets.

Boulton's connexion with Watt arose in this way. Want of water-power was one of the great defects of Soho as a manufacturing establishment, and for a long time Boulton struggled with the difficulty. The severe summer droughts obliged him to connect a horse-mill with the water-wheel. "The enormous expense of the horse-power," he wrote to a friend, "put me upon thinking of turning the mill by fire, and I made many fruitless experiments on the subject." In 1766 we find him engaged in a correspondence with Benjamin Franklin as to steam power. Eight years before, Franklin had visited Boulton at Birmingham and made his acquaintance. They were mutually pleased with each other, and continued to correspond during Franklin's stay in England, exchanging their views on magnetism, electricity, and other subjects. When Boulton began to study the "fire-engine," that is, in fact, the steam-engine, with a view to its improvement, Franklin was one of the first whom he consulted.

From their correspondence, it appears that Boulton, like Watt—who was at about the same time occupied with his invention at Glasgow—had a model constructed for experimental purposes, and that this model was now with Franklin in London.

A letter of Darwin to Boulton is preserved, without date, in which the Doctor lays before the mechanical philosopher the scheme of "a fiery chariot," which he had conceived,—in other words, of a locomotive steam-carriage. He proposed to apply an engine with a pair of cylinders working alternately, to drive the proposed vehicle; and he sent Boulton some rough diagrams illustrative of his views, which he begged might be kept a profound secret, as it was his intention, if Boulton approved of his plan and would join him as a partner, to endeavour to build a model engine, and, if it answered, to take out a joint patent for it. But Dr. Darwin's scheme was too crude to be capable of being embodied in a working model; and nothing more was heard of his fiery chariot.

Another of Boulton's numerous correspondents about the same time was Dr. Roebuck, of Kinneil, then occupied with his enterprise at Carron, and about to engage in working the Borrowstounness coal-mines, of the results of which he was extremely sanguine. He also wished Boulton to join him as a partner, offering a tenth share in the concern, and to take back the share if the result did not answer expectations. But Boulton's hands were already full of business nearer home, and he declined the venture. Roebuck then informed him of the invention made by his ingenious friend Watt, and of the progress of the model engine. This was a subject calculated to excite the interest of Boulton, himself occupied in studying the same subject, and he expressed a desire to see Watt, if he could make it convenient to visit him at Soho.

It so happened that Watt had occasion to be in London in the summer of 1767, on the business connected with the Forth and Clyde Canal Bill, and he determined to take Soho on his way home. When Watt paid his promised visit, Boulton was absent; but he was shown over the works by his friend Dr. Small, who had settled in Birmingham as a physician, and already secured a high place in Boulton's esteem. Watt was much struck with the admirable arrangements of the Soho manufactory, and recognised at a glance the admirable power of organization which they displayed. Still plodding wearily with his model, and contending with the "villanous bad workmanship" of his Glasgow artisans, he could not but envy the precision of the Soho tools and the dexterity of the Soho workmen. Some conversation on the subject must have occurred between him and Small, to whom he explained the nature of his invention; for we find the latter shortly after writing Watt, urging him to come to Birmingham and join partnership with Boulton and himself in the manufacture of steam-engines.

We need not here go into any detail as to the various causes which prevented, for a considerable time, the carrying out of this important arrangement; suffice it that what Watt regarded as the wreck of all his hopes,—the bankruptcy of his partner, Dr. Roebuck,—constituted the very turning point of his misfortunes; for Mr. Boulton was a creditor of Dr. Roebuck, and accepted his two-thirds share in Watt's engine patent in lieu of 1,200*l.* which Roebuck owed him; and Watt, "heart-sick" of his country, and determined to quit it, did quit it, but with very different prospects to those he anticipated. Soho was his destiny, and he arrived in Birmingham in May, 1774, where he at once entered on a new and important phase of his professional career.

"Had Watt searched Europe through," remarks Mr. Smiles, "probably he could not have found a man better fitted than Matthew Boulton for bringing his invention fairly before the world. Many would have thought it rash on the part of the latter, burdened as he was with heavy liabilities, to engage in a new undertaking of so speculative a character. Feasible though the scheme might be, it was an admitted fact that nearly all the experiments with the models heretofore made had proved failures. It is true Watt firmly believed that he had hit upon the right principle, and he was as sanguine as ever of the eventual success of his engine. But though inventors are usually sanguine, men of capital do not take up their schemes on that account. Capitalists are rather disposed to regard sanguine inventors as visionaries, full of theories of what is possible rather than of well-defined plans of what is practicable and useful.

Boulton, however, amongst his many other gifts possessed an admirable knowledge of character. His judgment of men was almost unerring. In Watt he had recognised, at his first visit to Soho, not only a man of original inventive genius, but a plodding, earnest, intent, and withal an exceedingly modest man; not given to puff, but, on the contrary, rather disposed to underrate the merit of his inventions. Different though their characters were in most respects, Boulton at once conceived a hearty liking for him. The one displayed in perfection precisely those qualities which the other wanted. Boulton

MEMORIALS OF BOULTON



1. *Handsworth Church; the Burial-place of Boulton, Watt, and Murdock.*



3. *Boulton's Monument in Handsworth Church, on the left-hand side: that of Murdock is opposite to it.*



2. *Soho House.*



4. *Soho Manufactory.*



MEMORIAL DRINKING-FOUNTAIN, ST. MARGARET'S, WESTMINSTER.—MR. S. S. TEULON, ARCHITECT.

was a man of ardent and generous temperament, bold and enterprising, undaunted by difficulty, and possessing an almost boundless capacity for work. He was a man of great tact, clear perception, and sound judgment. Moreover, he possessed that indispensable quality of perseverance, without which the best talents are of comparatively little avail in the conduct of important affairs. While Watt hated business, Boulton loved it. He had, indeed, a genius for business,—a gift almost as rare as that for poetry, for art, or for war. He possessed a marvellous power of organization. With a keen eye for details he combined a comprehensive grasp of intellect. While his senses were so acute, that when sitting in his office at Soho he could detect the slightest stoppage or derangement in the machinery of that vast establishment, and send his message direct to the spot where it had occurred, his power of imagination was such as enabled him to look clearly along extensive lines of possible action in Europe, America, and the East. For there is a poetic as well as a commonplace side to business; and the man of business genius lights up the humdrum routine of daily life by exploring the boundless region of possibility wherever it may lie open before him."

Our readers know too well the upshot of this truly providential union of requisite opposites, to require us here to inquire into it. The grand result was what Mr. Boulton had long had in view before he met with Watt,—the supply of POWER to the whole world of men. Watt was the good genius to whom the world owes it, but Boulton was the good genius of Watt.

As the firm of "Boulton & Watt" became infirm only with advancing years, they looked forward with pleasure to the prospect of their two eldest sons—Matthew Robinson Boulton and James Watt, junior—joining them in the business they had established, and relieving them of the greater part of their anxieties and labours in connexion with it. Both were young men of intelligence and character, carefully educated, good linguists, and well versed in practical science. We find many references to the education of the two young men in the letters of Boulton; few or none in those of Watt. The former alike attracted young people and was attracted by them, entering heartily into their pursuits; the latter was too much absorbed by study, by inventions, and by business, to spare time for the purpose. Besides, he was, like his countrymen generally, reserved and undemonstrative in all matters relating to the feelings and affections.

The infusion of young blood had the effect of imparting new vigour to all the branches of manufacture at Soho, and at the same time of relieving the senior partners from a considerable amount of labour and anxiety.

On the dissolution of the original partnership between Boulton and Watt at the expiry of the patent in 1800, Boulton was seventy-two years old, and Watt sixty-four. The great work of their life had been done, and the time was approaching when they must needs resign into other hands the great branches of industry which they had created. Watt, though the younger of the two, was the first to withdraw from an active share in the concerns of Soho. He could scarcely be said to taste the happiness of life until he had cast business altogether behind him. It was far different with Boulton, to whom active occupation had become a second nature. He himself was accustomed to say that he must either "rub or rust;" and as the latter was contrary to his nature, he rubbed on to the end, continuing to take an active interest in the working of the great manufactory which it had been the ambition of his life to build up.

We cannot better conclude this hasty sketch than by once more quoting from Mr. Smiles's interesting volume, which we strongly recommend for general perusal.* "Matthew Boulton was, indeed, a man of truly noble nature. Watt, than whom none knew him better, was accustomed to speak of him as 'the princely Boulton.' He was generous and high-souled, a lover of truth, honour, and uprightness. His graces were embodied in a manly and noble person. We are informed through Dr. Guest that on one occasion, when Mr. Boulton's name was mentioned in his father's presence, he observed, '*the ablest man* I ever knew.' On the remark being repeated to Dr. Edward Johnson, a courtly man, he said,—'As to his ability, other persons can better judge. But I can say that he was *the best mannered man* I ever knew.' The appreciation of both was alike just and characteristic, and has since been confirmed by Mrs. Schimmelpenninck. She describes with admiration his genial manner, his fine radiant countenance, and his superb munificence:—'He was in person tall, and of a noble appearance; his temperament was sanguine, with that slight mixture of the phlegmatic which gives calmness and dignity; his manners were eminently open and cordial; he took the lead in conversation; and, with a social heart, had a grandiose manner, like that arising from position, wealth, and habitual command. He went about among his people like a monarch bestowing largesse.'"

When Boulton was carried to his last resting-place in Handsworth Church, of which we give illustrations, six hundred of his workmen followed the hearse, and there was scarcely a dry eye amongst them.

* It is illustrated with numerous engravings, some of which we are enabled to reproduce. See p. 64.

THE MEMORIAL DRINKING-FOUNTAIN, ST. MARGARET'S, WESTMINSTER.

THIS fountain is being erected at the corner of Great George-street, Westminster, at the sole expense of Mr. Charles Buxton, M.P., and is dedicated by him to the memory of his father, Sir T. Fowell Buxton, bart.; and those who with him advocated in Parliament the emancipation of the slaves in the British colonies, and whose names will be inscribed upon some part of this memorial.

The base is an octagonal structure, about 12 ft. in diameter, having open arches on the eight sides, supported on clustered shafts of polished Devonshire marble, around a large central shaft, with four massive granite basins. The whole of the stonework and sculpture has been executed by Mr. Earp, of Lambeth. Surmounting the pinnacles at the angles of the octagon, will be eight figures of bronze, representing different rulers of England; the Britons represented by Caractacus, the Romans by Constantine, the Danes by Canute, the Saxons by Alfred, the Normans by William the Conqueror, and so on, ending with Queen Victoria. Hitherto in the covering of spires, lead or slates have been almost exclusively used. The objection to lead is its black and sombre hue, when exposed to the atmosphere of London, as illustrated by the spires of Wren's churches, while slate from its flatness is wanting in shadow, and produces an effect of thinness. It will be sought in the present structure to obviate these objections, by the use of plaques of iron, with raised patterns giving shadow, while colour will be imparted by the surfaces being enamelled. The enamel being composed of materials resisting the acids contained in the smoky atmosphere, a permanent mode of colouring, it is supposed, will be obtained at the same time that the iron is preserved from oxidation. The Skidmore Art Manufacture and Constructive Iron Company are introducing this new feature in constructive appliances. We understand they have erected furnaces for ornamental enamelling for railway roofs, interiors of domes, &c., so as to produce a light durable covering, with ornamental colour.

The drinking-fountain has been executed from the designs of Mr. S. S. Teulon, of Craig's-court, Charing-cross, and when completed will have cost upwards of 1,200*l.*, exclusive of the water supply, which is undertaken by the Metropolitan Drinking-Fountain Association. The total height from the pavement to the summit of the cross will be 45 ft. The stonework is up ready for the roof.

THE HOLBORN VALLEY IMPROVEMENT.

AT the last Court of Common Council, Deputy Fry, the chairman of the Holborn Valley Improvement Committee, brought forward a report from that committee in reference to this improvement, and for authority to engage such professional assistance for carrying out the same as may be deemed advisable for the prompt and efficient execution of the works.

The town clerk read the report in question. It extended to very great length, but the material points contained in it may be briefly stated. The committee reported that they took steps to obtain tenders from some leading firms for the erection of the viaduct, and five such tenders were sent in, the lowest of which was 239,000*l.*, and the highest 245,000*l.* It appeared that the original Parliamentary estimate for the cost of the viaduct was only 53,000*l.*, which was subsequently increased to 110,000*l.*, and the committee, finding this enormous discrepancy, declined to accept any of the tenders. They called in the assistance of Mr. Haywood, the engineer to the Commissioners of Sewers, and he had some communications with Mr. Horace Jones, the City architect. Mr. Haywood had already been consulted in reference to the proposed improvements at Holborn-hill, and had prepared a plan for the viaduct, which he estimated would not cost more than 110,000*l.* After a good deal of conference it appeared that these gentlemen could not agree upon the matter, and the committee resolved upon referring the two plans to some eminent engineer. Mr. Joseph Cubitt was selected. Mr. Cubitt appeared to give a decided preference to the plan proposed by Mr. Haywood, and expressed his opinion that it could be erected for the sum mentioned by that gentleman, namely, 110,000*l.* In the course of the subsequent proceedings, a resolution was come to that Mr. Haywood and the City architect should act together in reference to the contemplated work, with power to call in Mr. Cubitt as consulting engineer; but Mr. Haywood positively declined to agree with this proposition. Mr. Haywood also stated that he had obtained an estimate from an eminent and wealthy firm, and one that had never failed to carry out any contract undertaken by them, of the cost of the viaduct he proposed to erect; and the amount for which they had agreed to complete the work and keep the viaduct in repair for one year was 109,624*l.*; and he undertook, if the work was entrusted solely to him, that it should be carried out upon this footing.

Deputy Fry moved that the report be agreed to.

Mr. M'George moved as an amendment, to add the following words to the report:—"That, considering the reference to Joseph Cubitt, esq., engineer, and his report on the subject, the Improvement Committee be instructed to make such an engagement as they may deem advisable with Mr. Haywood, architect of the Sewers Commission, for the construction of the structural part of the viaduct."

The amendment, after a lengthy discussion, was carried.

The report, with the amendment added, "and that it be referred back to the committee for execution," was then put as a substantive motion, and carried by a large majority.

HOME ACCOMMODATION FOR THE WORKING AND INDIGENT CLASSES

AT a meeting of the department of Economy and Trade of the National Association for the Promotion of Social Science, held at the Society's Rooms, Adam-street, Adelphi,—Mr. Chadwick, president of the department, in the chair,—the subject of "Home Accommodation to the Working and Indigent Classes in Great Towns" was introduced. There was a large attendance.

Mr. Thomas Beggs, in a paper which he read, he dwelt upon the consequences of tpresent insufficient accommodation for the working classes, particularly in large towns, and referred to the various land and building societies which have from time to time sprung into existence. Coming to the freehold land and building societies, Mr. Beggs said,—"I believe that here is the power, in an advanced stage of development, that will meet to a large extent the evil of defective dwellings and overcrowding in our large cities. These societies have originated among the people, and to a considerable extent have been supported, and, in some degree, have been managed by them. Leasehold houses are generally built upon leasehold land, and the tendency is to carry a system of scamping through the whole operations. The interest of the builder is temporary and not permanent. As a corrective to this and many other evils springing from it, I wish to give facilities to all classes to become proprietors of their own houses, having the house and the land upon which it stands in one freehold."

Mr. T. T. Taylor, of Bristol, proposed "that an Act of Parliament be obtained to empower a board, or commission, as shall be deemed most advisable, to undertake the work; such districts of each town as are properly to be described as 'pestilential' to be purchased from the present landlords and ground landlords, under compulsory powers—the price to be determined by an average of three years' rating; such districts to be gradually rebuilt with streets of lodging-houses, constructed on the plan which may be deemed to unite every sanitary condition—drainage, air, light, and water supply—at the most economical rate; the money for the purchase and subsequent buildings to be lent by Government at a small interest, according to an Act now in force but never used (c. 34 of the 14th & 15th Vict.), which empowers the Public Loan Commissioners

to lend money for the erection of lodging-houses for the poor; the buildings, when completed, to be sold, and the Government repaid within twenty years."

Mr. Robinson remarked that overcrowding was getting worse from day to day, and suggested as a remedy the formation of a company under the limited liability principle, one portion of the shares of which might be paid at the rate of 6d. a week, thus enabling the working classes to become shareholders, and another portion to be paid up by calls much more rapidly, so as to commence operations at once.

Mr. Webster proposed that the communications of Messrs. Beggs, Taylor, and Robinson should be received, adopted, and circulated.

Mr. R. Rawlinson, C.B., seconded the proposition. He thought that the time had come when some effort should be made to remove the plague-spots which existed in London. He suggested that a committee should be formed to discuss the matter and put it fairly on its legs.

After some further discussion, in which Mr. M'Cullagh Torrens, M.P., Mr. Locke, M.P., the Hon. Arthur Kinnaird, Mr. Alderman Waterlow, Mr. Chas. Buxton, M.P., and others took part, the motion of Mr. Webster was unanimously agreed to; and on the motion of Mr. Locke, M.P., a special committee was appointed to take the question into consideration, report thereon, and take any steps with reference thereto that they may think proper. The names of the committee are the Hon. Arthur Kinnaird, Mr. Torrens, M.P., Mr. Rawlinson, Mr. Alderman Waterlow, Mr. Hare, Mr. Beggs, and Mr. Hawes, with power to add to their number.

SCHOOLS OF ART.

The Halifax School.—The annual meeting of this school has just been held. Mr. E. Akroyd, M.P., who presided, said the institution was in a satisfactory condition, so far as the education of the students was concerned, but financially, the state of the school was deplorable. It was in debt, and an increase of subscribers was indispensable, if the school was to be maintained. Though he was a strict political economist, he apprehended that education was one of those things that was not altogether self-supporting. It was not so amongst the wealthier classes, for both the public schools and the universities depended very much on the endowments left by previous generations. It would, therefore, be hard indeed if these schools of art should be elected for an experiment in political economy and driven to the necessity of self-support before they had created the taste for art which they were intended to teach. It was the more important that aid should be obtained from Government from the fact that nobody saw the necessity for raising the standard of art-culture. He thought, even looking at the question from the Chancellor of the Exchequer's point of view, he could show that these grants in aid of art were self-supporting. Mr. Stansfield, M.P., made some remarks as to the administration of schools of art. The schools, he said, were about ninety in number; the scholars were between 16,000 and 17,000, and of these perhaps 9,000 were artisans; the total amount of voluntary subscriptions was not more than 2,500*l.* annually; and of that sum not more than one-half was subscribed by the manufacturers of the country; and the total amount of their subscriptions had rather decreased of late years than otherwise. He grudged no amount of money which was voted for educational purposes, if he was satisfied as to the method of its application; but he should very much doubt if they were in a position to make a further demand upon the State with reference to the subject of art-education. But if they were to do so, and if they were to call upon his honourable colleague and himself to endorse their appeal, he should like to ask them to strengthen their hands and enable them to go to that Department with a case so good and strong that they should not be inclined to take a refusal. The town must begin to recognise its own duty in this movement. He would venture to say that, if the town would support this institution, add to its attraction, and make some vigorous immediate effort, they should be able to go with a clear conscience and a strong case, and call upon the central Department and the Government to do their part. The report for the year ending June, 1865, stated that the large number of 146 students in the central school, 772 students in public, and 276 students in private schools, had been taught by or under the superintendence of the head master. The honours, &c., gained this year were greater than those on any previous occasion, and comprised 1 national medallion, 1 national honourable mention, 23 local medals, 3 honourable mentions, 24 local prizes, 38 highest marks in the 2nd grade examination, 6 second marks in ditto, 34 prizes in the 1st grade examination, 47 passes in ditto, and 10 slate prizes. The committee considered the works executed during the year to be of a far higher character than those previously produced.

A School for Keighley.—The committee of the Keighley Mechanics' Institute, desiring to meet the wants of the Institution and the town generally, in providing a new building, which shall include suitable class-rooms, club-room, library and reading-room, school of art, public hall, &c., convened a meeting (which was held in the reading-room of the Institute), to consider and devise the best means by which such a building could be erected. The meeting was numerously attended, and it was resolved "That a building be erected suitable for the institution at a cost of from 6,000*l.* to 7,000*l.*;" and "that the building should provide the accommodation mentioned." A committee was then formed, and to it was entrusted the duty of preparing a general scheme, which is to be submitted to a general meeting of the members.

The Kidderminster School of Art.—The annual meeting of this school has been held in the music-hall, Kidderminster. The floor and gallery were filled, and amongst those present were—the Earl and Countess of Dudley, Lord Lyttelton, Mr. H. W. Foley, M.P., and Mr. A. Talbot (mayor of Kidderminster). The Earl of Dudley presided. The report for the past year stated that there had been a satisfactory rate of progress during the past twelve months. The chairman distributed the prizes to the successful students. In course of his speech he said, that in going round the designs with the committee, he could not but be struck with those for carpeting which hung against the walls. He found Sir John Pakington's prize for an original carpet design had induced eight or ten pupils to compete. Two were selected, and both, considering the ages of the students, were not only creditable, but gave great promise. But when he noticed that these works were produced by the offer of a prize, such as Sir John Pakington gave, he confessed he was sorry that every year they had not got as many competitors. He should be glad to see at least a dozen competitions for designs in carpets, whether a particular prize were given that year or not. He was informed that there were thirty-six youths now placed out in the town, and who would not have been so well placed except from their instruction at that school. His lordship referred to the chemistry class which had been established, and said if they could combine this new with the old features, the could not but think that the Kidderminster School of Art had before it a day of prosperity.

FALL OF RAILWAY STATION ROOF, MANCHESTER.

A PART of the roof of the London Road Station fell on the afternoon of Monday last, and unfortunately caused the death of two men and injuries to about thirty others. The greater part of the work had been finished, and nearly all that remained to be done was the completion of the roof. This is a glazed structure, supported by iron pillars and girders, and is situated immediately to the east of the Companies' offices, which front London-road, and over the lines of rails. Two designs were originally prepared, one proposing that the area should be covered by one large arch, and the other proposing two arches or spans. On the recommendation of an engineer in London the latter plan was adopted, and the erection was commenced. The roof extends from the station façade eastwards a distance of about 213 yards, and its width is 65 yards. Lengthwise the roof (two spans in width) is divided into eight bays or sections, six of which are severally about 78 feet long, and the remaining two 88 feet each; and it was supported by 27 iron pillars, 27 feet in height, divided into three rows, two of which are ranged on the sides of the station, while the other row is at the junction of the two spans over the centre of the space occupied by the rails. The highest point of each arch is 64 feet from the level of the rails. The transverse iron principal-girders rest on wrought-iron trussed beams, five feet deep, the top and bottom flange of which are connected with a number of upright and diagonal braces. At the time of the accident the arches were approaching completion, all the bays having been placed, but none of them were quite finished.

As far as can be ascertained at present, the disaster occurred through the failure of the longitudinal trussed girder reaching from the seventh to the eighth column of the central row of pillars. This girder, as well as that in the eighth bay, being 10 ft. longer than the others, had been made considerably stronger, and it is consequently difficult to account for the fracture. The contractors for the roof are Messrs. R. & J. Rankin & Co., of Liverpool; while Messrs. R. Neill & Sons, of Strangeways, are the contractors with the railway companies for the alterations, and they are executing the timber, slate, glass, and lead work of the roof for Messrs. Rankin. The loss, including the damage done to engines and carriages, will amount to several thousands of pounds.

COMPETITIONS.

Newcastle Cemetery.—The first premium for buildings has been awarded to Messrs. Bellamy & Hardy, Lincoln. The second for buildings, Mr. Stallwood, Scarborough. The first premium for laying out grounds, Messrs. Bellamy & Hardy. The second for laying out grounds, Mr. Miller, Newcastle. The works are to be commenced at once under the direction of the successful competitors.

Neepsend Church, Sheffield.—Designs have been submitted to the committee of the Church Extension Society in Sheffield for a new church to be erected at Neepsend, by the following architects:—Messrs. Flockton & Abbot, Messrs. Blackmore & Mitchell Withers, and Mr. Fletcher, all of Sheffield; and Mr. Thomas Charles Sorby, of London. The committee have selected that by the last-named gentleman, and immediate steps will be taken towards the erection of the building.

The Reading New Workhouse.—Plans for the workhouse, to be erected in the Oxford-road, were recently sent to the Board of Guardians by six architects of this town, and the Poor Law Inspector, on his last visit, selected two, one executed by Mr. Woodman, and the other by Messrs. Brown, expressing, however, his preference, on several grounds, for Messrs. Brown's plan. The Board have finally selected Mr. Woodman's plan.

PROPOSED ST. PANCRAS STATION OF THE MIDLAND RAILWAY, LONDON.

IF the selected design be carried out,—Mr. Scott's,—the station and hotel will form the largest modern pile in the metropolis in the Pointed style, after the Houses of Parliament.

The hotel portico is in a line with the road footway, and leads into a vestibule with a lofty groined roof. The combined façade of the hotel and station will comprise the hotel, a curved side on the approach leading up to the station, and the front of the station itself, which recedes considerably from the roadway. The total length of the frontage will be about 500 ft., and the curved frontage of the hotel will give nearly 100 ft. more,—that is, about 600 ft. in all. The front will be of brick, with stone dressings. The frontage will be 90 ft. in height to the parapet, and about 120 ft. to the ridge of the roof. The chief features in the design are the clock-tower, at the King's-cross end; the hotel principal front; and the two oriel bays on the station front carried the whole height of the wall. The clock-tower, 30 ft. on the side, is finished with octagonal turrets, and surmounted by a spire, the total height of which is about 250 ft. The hotel front has also a tower on the outer corner, about 90 ft. high, and has a high truncated roof with an ornamental cresting. The approach to the station is by an incline from the side of the hotel entrance, along the concave side and the straight frontage of the building. There will be two carriage-ways for entrance and exit, which pierce the front by wide and lofty pointed arches, the height of two stories of the building, the carriage-entrances flanked by narrower and lower arches on each side for foot passengers.

The hotel will contain a coffee-room, about

110 ft. long by 33 ft. wide, on the ground-floor, with its front to the station entrances. The ends of the room will be semicircular, and the one side convex; the other, parallel to it, concave in surface. The cost, if the design be completely carried out, will probably be considerably above 300,000*l.*, instead of something below it, as we stated originally.*

The roof of the station, designed by Mr. W. H. Barlow, will have the large span of 240 ft. clear, and will be 690 ft. long and 100 ft. in height to the ridge above the level of the rails. The main ribs spring from massive brick piers at the level of the platforms. The horizontal thrust of the arch is resisted by some of the wrought-iron cross girders carrying the station-floor, which girders are securely connected to the ribs at their springing; thus forming ties between the feet of each rib, below the level of rails and platforms. The curve of the ribs is of two radii of 160 ft. and 57 ft., meeting at an angle in the centre, so forming a pointed arch.

The level of the platforms is about 23 ft. above the level of St. Pancras-road. A store is formed underneath the whole of it. The framework of the roof is of wrought iron, with the exception of cast-iron ornamental bases to the main ribs. These ribs are 29 ft. 4 in. from centre to centre, and 6 ft. deep, and have three intermediate ribs between them at equal distances apart, carried at every 18 ft. 6 in. by trussed purlins between the main ribs. The lower sides of the roof are to be covered with slates on boarding, while the centre portion will be glass, "ridge and furrow," skylight at right angles to the ridge, 152 ft. wide, extending nearly the entire length of the roof.

THE PARIS EXHIBITION BUILDING.

THE *Moniteur* publishes regularly the state of the works at the Champ de Mars, for the Exhibition of 1867. The progress is very favourable, and there is every reason to expect that the earthwork and masonry contractors will have completed their contracts before the specified time. On the 15th inst., the cube of the embankment amounted to 80,000 mètres, and that of the foundations to 100,000 mètres. The total earthworks for obtaining a level site for the building and levelling the Champ de Mars, are consequently 180,000 cubic mètres up to the above date. More than half the masonry for the foundations, the sewers, and subterranean ventilation channels were executed. The cube of the masonry completed up to the 15th of January, is 160,000 mètres. The lower pieces of the metal framework are beginning to be laid, and towards the end of February, the first of the metallic arches, which are to form portion of the monumental part of the building, will be put in place.

THE IMPROVED VALUE OF PROPERTY IN BROMPTON.

Thurloe-square.—At the Sheriffs' Court, Red Lion-square, last week, a compensation case, showing the improved value of house property in Brompton, "Hoofstetter *v.* The Metropolitan Railway" was heard before Mr. Humphreys, the Coroner, and a special jury. Mr. Karslake, Q.C. (with whom was Mr. Marriott), appeared for the claimant, Mr. Lloyd and Mr. Holloway represented the company. The claim as made was 5,250*l.* for a house, 52, Thurloe-square, Brompton, of which he obtained a lease in 1844. The company had offered 3,000*l.* and as it was refused the cause came before the Court. For the claimant the estimate was about 3,600*l.*, and the rental value was about 180*l.* a year. It was stated that rents had enormously increased of late years, and the Museum at Kensington had added to the value of houses in the neighbourhood. Mr. Hoofstetter was 72 years of age, an invalid, suffering from bronchial affection and for several months was confined to his house. He was very much annoyed at leaving the house, as he could only freely breathe in the locality, and had succeeded in getting another house, No. 24, in the same square, which was on the eastern side, while the old house was on the north-western side. For the company evidence was given that the new house was on the best side, notwithstanding the back opened to a mews and a public dunghill. Mr. Lloyd ridiculed the claim as preposterous and extravagant. The jury assessed the compensation at 3,100*l.*

Alfred-place West.—On another occasion, at the same Court ("Allum *v.* The Metropolitan Railway"), Mr. J. A. Russell appeared as counsel for the claimant, and Mr. Lloyd for the company. The property was leasehold at Alfred-place West, and had been taken by the company for their extension line. It was purchased in 1850 for 850*l.*, and the claim made on the company was 1,980*l.* The rent was 85*l.* a year. It was admitted that property at Brompton had increased in value, was increasing, and was likely to increase. On the part of Mr. Allum the valuers estimated the value of that gentleman's interest at between 1,500*l.* and 1,600*l.* It was stated that the house was worth 120*l.* a year. On the part of the company this was ridiculed, and several valuers were called, and their estimate was between 1,200*l.* and 1,300*l.* Mr. Lloyd, in summing up the evidence given on the part of the company, declared that the claim was most extravagant. He was quite aware that property in the metropolis had greatly increased, but in a few years there would be a collapse, and it would go down faster than it had gone up. He submitted that 1,290*l.*, including the 10 per cent. for compulsory sale, was ample compensation. Persons were not to make a profit out of companies because they had property. Mr. Russell having addressed the Court, the assessor placed the case before the jury. They would consider all the evidence, and the evidence of their own eyesight, as they had seen the property. They would ascertain the sum it was worth to rent at the present time—whether 85*l.*, 90*l.*, 100*l.*, or 120*l.*, and then fix the compensation. The jury awarded 1,350*l.*, and this being something less than the company had offered, part of the costs and his own expenses fell on the claimant. Saying that the house was purchased 15 years ago for 850*l.*, was no proof of the unfairness of the owner's demand: much of the property in Brompton has doubled in value since that time. Mr. Lloyd's assumption that in a few years there will be a collapse is altogether unsupported by facts.

THE LOCKE MEMORIAL.

ON Monday, the 15th inst., the ceremony took place of unveiling a statue by Marochetti, of the late Joseph Locke, C.E., M.P., &c., erected in the People's Park, at Barnsley,—a plot of ground presented to the town by Mr. Locke, with a liberal endowment for its maintenance.

The ceremony was attended by Lord Alfred Paget, the principal authorities of Barnsley and a large body of the neighbouring gentry, Mr. Fowler, the president of the Institution of Civil Engineers, and a goodly assemblage of engineering friends from London.

A procession was formed in the Church Field, and proceeded to the park, where the statue was unveiled by Lord A. Paget, who, as chairman of the Memorial Committee, addressed the assembly, as also did Mr. Fowler, who in course of his speech said,—"I can assure the inhabitants of Barnsley, and the numerous friends and admirers of Mr. Locke now assembled here, that the members of the Institution of Civil Engineers of England, of which I have now the honour to be president, take a deep interest in these proceedings, and that they sympathise cordially in the respect thus rendered to the memory of a man whom they will long remember as one of their most distingnished and useful presidents. The world justly thinks that the days of Stephenson, Brunel, and Locke were 'days of the giants' of the engineering profession; and, gentlemen, allow me to say that we, in the present day, entirely agree with the world at large in that opinion. Locke was truly one of those giants. His far-seeing and strong common sense, his comprehensive grasp of all the bearings of a question were so powerful, that the capitalists of Lancashire, of London, and ultimately of France and the continent of Europe, placed faith in his judgment, and then followed him with such confidence as to entrust almost unlimited capital to his disposal in every undertaking in which he engaged. In France he was the pioneer of the railway system of that country, and had the good fortune to be accompanied and seconded by Mr. Brassey, whom we are all delighted to see present with us this day. What more fitting representatives of Englishmen could be found than the prudent but energetic Locke, and the modest but lion-hearted Brassey? Amongst civil engineers, and in the annals of the Institution, the name of Locke will ever occupy a distinguished position; and I believe the record of this day's proceedings will be memorable as long as a great and useful man continues to be appreciated by England and Englishmen."

ANTWERP ARCHÆOLOGICAL CONGRESS.

THE following questions for discussion are amongst those set down for the Archæological congress which is to take place at Antwerp in August of the present year:—What measures can Governments be asked to take in order to the preservation of public monuments? An exposition is invited of the legal enactments in force in Belgium, and other countries, for such purposes. What was the origin of the Pointed style of architecture; and what were the influences which led to its introduction in Belgium? What were the special conditions which contributed to modify that style in Belgium, France, England, Germany, Holland, and Italy? What are the principles which should direct the restoration of ancient monuments constructed at various periods and in different styles? What were the causes of the development of the fine arts in Flanders during the fourteenth and fifteenth centuries; and what was the effect of that artistic movement in France? If foreign archæologists are treated as well at Antwerp as were the foreign artists and art-lovers who were invited there a few years ago, they may spend a delightful week.

COTTAGE HOSPITALS.

THE opening of cottage hospitals in villages, not only to relieve town hospitals, but to promote convalescence, was early advocated in our columns, and we have since regarded with satisfaction every addition to the growing list. The example of the Cranley hospital, after its successful career of six years, has led to the establishment of similar hospitals in many other rural districts; there is one successfully at work in East Grinstead, Sussex, and another at St. Andrew's, in Fifeshire. The total cost of furnishing an hospital for six beds is only 70*l.* The per-centage of cures is sufficiently great to astonish many an old hospital surgeon accustomed to wards haunted by erysipelas and hospital gangrene, which are in some cases quite as destructive to life as the original casualty. The pure air, seclusion, and liberal diet do far more than skill can to recover patients rapidly in village hospitals.

A meeting has been held in the town-hall, Marlborough; the Marquis of Ailesbury, K.G., the Lord Lieutenant, in the chair; for the purpose of advancing the establishment of a cottage hospital for the town and district. The meeting was largely attended by the clergy, gentry, farmers, and tradesmen of the town and district, and was unanimous in adopting the whole of the resolutions brought before it. A provisional committee is formed who will proceed to frame rules for the governance of the hospital, which will forthwith be established on the borders of Savernake Forest; with Lord Ailesbury as president, and the appointment of four honorary surgeons.

THE UTILIZATION OF WASTE HEAT.

Now that co-operative principles are so much understood, we should bear in mind the great advantages cities and towns have of economising fuel. Bountiful Providence blesses us with the means of being warmed and filled, and wilful waste of either fuel or food tends to woeful want. We luxuriate now in the use of our nation's great source of prosperity, the coal-fields, which may serve for many generations. However, the skill of the age ought to be directed to some mode of economizing this sinew of the nation's strength, by preventing the present great waste of fuel. When gas was first introduced into London in 1804, by Mr. Winsor, a German, who, however, formed unsuccessfully

* The following were the estimates of the several architects who were invited to take part in the competition:—G. G. Scott, R.A., 316,000*l.*; Hine & Evans, 255,000*l.*; T. C. Sorby, 245,000*l.*; E. M. Barry, A.R.A., 236,487*l.*; Walters & Barker, 190,000*l.*; Owen Jones, 187,000*l.*; G. S. Clarke, 164,500*l.*; F. P. Cockerell, 155,000*l.*; H. Lloyd, 150,000*l.*; Lockwood & Mawson, 135,792*l.*; H. Darbishire, no estimate.

uat was called "The National Light and *Heat* mpany," can you enlighten me as to what ans were to be used, and how heat was to be plied or supplied by that company? We have ng had gaslight and water companies supplying mmunities with these blessings, with profit to emselves and comfort to the consumers: why ould we not have warm air supplied to heat blic buildings and private dwellings by a heat-iring and smoke-annihilating company? Some ars ago, there was a Yankee notion to have central heating depôt in New York, from which es would convey heat to any part of the city. ore recently, a perambulating genius in Edin-rgh writes, suggesting to have all footpaths pt dry in wet weather by hot-air flues under pavement. The waste steam from our ntless engines, now idly dissipated, might many cases be conveyed in pipes to ildings in their vicinity, and so save much l. What an amount of wasted heat we have our gas works and many large manufacturing tablishments, destructive to the health of the rkmen employed, which to a great extent ght be withdrawn by means of pneumatic es, the cold air drawn away before the heated closing in behind, and by such means con-yed to heat our public buildings, &c., now ated at great outlay by costly, and in too ny cases inefficient, apparatus, needlessly suming thousands of tons of coal. It was ntioned not long ago, that many valuable cords of the nation were being destroyed by ing kept in damp depositories; surely ventila-n and heated air have by this time been plied to cure such an evil. And what of our n firesides, that smoky but time-honoured titution, that unimproved relic of the olden ne? What an amount of heat and fuel we ste on external walls and send up the chimney cause we cannot get the smoke to go up with-t such a waste of fuel. Why is the skill of our chitects and builders (so often put out by oky chimneys) not at once directed to put wn smoke, and have it conveyed into the ains and sewers of our towns as an antiseptic ent to counteract the evils of foul air, the lole being drawn off by lofty and powerful ex-cting flues or chimneys? Should Mr. Ramsay's some such idea of sewerage reform be carried t, as no doubt will be the case ere another neration passes away, our costly sewage will turned to better use than at present. My idea that a co-operation of *fuel* instead of *filth* is nted, thus purifying Auld Reekie and other wns. A great social reform will be effected by ding the miseries of many a smoky house, and lding wives may then become more amiable. A ple stove or heating apparatus for supplying water has been constructed by which smoke nsumed as in an argand lamp by a jacketed mney; the fuel is peat, supplied with petro-m or other oil.

JAMES KEER.

RPORATIONS AND THEIR SURVEYORS.

UR corporations and local boards are so often lined to ignore the time-honoured proverb, t "the labourer is worthy of his hire," that pleasant and refreshing to note a case where more liberal spirit prevails. When will our porations admit and act upon the truth that ry man, in any capacity, if he does his duty, ntitled to fair remuneration? I commend following observations, made by Dr. Browne a meeting of the Belfast Town Council, on the h instant, as reported in *The Belfast News ter*:—

"He was always anxious that the rates should kept down to as small an amount as possible, he would be still more anxious that the ies devolving upon their officers should be roughly discharged. There never was a ater mistake made than to be cheeseparing or derpaying valuable officers. The difference of w hundred pounds yearly should not stand he way of the corporation in carrying out the ails of the trust. Although it might appear nge on the face of it, there was a loss en-ed upon any community that neglected itary regulations; first, there was a loss of man life, and next the loss of health, thereby blishing pauperism, and a heavy expense in increase of rates through the medium of ther corporation, the poor-law guardians. would it not be better, then, that the coun-should on all occasions be prompt and ready eet the wants of the poor? to prevent pau-sm as far as possible, and show no parsi-monious spirit?" &c. &c.:—and so the good doctor continued; and the council, like sensible men, agreed to advance the salary of their surveyor to 500*l.* per annum.

Now, I beg of you, Mr. Editor, if you can find space, to give publicity to this most excellent advice and practical spirit of anti-shabbiness from the sister isle, and let the sound of it echo round our own land to the awakening of hope in many an *underpaid* and *overworked* official, and let corporations here learn to "*go and do likewise*." I am not a corporate official, but have been; and I know the varied and never-ceasing round of duties they have to perform, and the proportionately small remuneration they receive. What is the consequence? They are ever restless and changing from place to place, and the public interests suffer in thousands where they applaud their councillors for having saved merely pounds.

Let the words of the worthy Dr. Browne have their effect amidst "the multitude of counsellors" (councillors), and let their "much wisdom" be hereafter shown by giving a remuneration proportionate to the talents employed and the diligence exhibited; for surely of all men they should be well paid to whose skill and perseverance is in a great measure entrusted the great and most important work of preserving and improving the national health as represented by the populations of our cities and towns.

JOSEPH BRIERLEY.

THE HERBERT HOSPITAL, WOOLWICH.

A REPORT descriptive of the Herbert Hospital at Woolwich, by Captain Douglas Galton, Assistant Under Secretary of State for War, has been printed for Her Majesty's Stationery Office. It is illustrated with thirty-two sheets of drawings, and forms a complete and valuable monograph of the building and its adjuncts. We gave particulars of the hospital in our last volume,* but shall have occasion to return to Captain Galton's report.

THE SURE FOUNDATION.

"HEW me quick the sternest timber,—
Forge me iron,—scarp me stone;—
Marble, granite, bond together,—
Be the linking deftly done."

And they brought the toughest timber,
Forged the metal, scarp'd the stone;—
Link'd them all in deftest union
From the basement to the cone.

Came a mighty storm at even,
Reign'd in wrath the red typhoon:—
Heaved and sunder'd, crash'd and thunder'd
Wall and tower in ruin down.

Came in haste the bearded Master,—
Tore his beard and tore his gown;
Daubed the ashes on his forehead,
Prone in ashes laid him down.

"Up!" there came a Voice beside him,
"Up! nor make thy idle moan;—
Plan thee straight a new creation
Loftier than the overthrown.

But again lest tower and column
In the dust be hurl'd and strewn,
Prove thee well, and build thee soundly,
On a *sure Foundation Stone!*"

E. P.

"BUILDERS' CLERKS."

SIR,—I thank you much for the insertion of my "Address to Builders' Clerks," and it is with pleasure that I am able to inform them, and more especially "John Moore," that I have received promises of support, pecuniary and otherwise, and trust shortly, with the future assistance of influential fellow-labourers, to be in a position to call a general meeting, to be held at some central hall in London, to consider the subject, viz., assistance to the aged, the necessitous, and the fatherless. This does not mean or convey that by such a gathering of confidential servants we are to, or should attempt to, arrange a combination to use coercive principles for advance in salaries. If such is wanted, ascertain the firms that justly pay the dues to merit, and by example brought to bear where needed, obtain the requirement desired, and that according to ability, not by force exacting an equal due for the indolent and careless; not attempting to cramp the hand of charity by introducing trade union fetters. Let the labour in forming it be one of love, free from interested motives, endeavouring to obtain the goodwill of all, with the pecuniary assistance of the willing.

PETO.

* Vol. xxiii., p. 183.

WE have received two or three other letters taking the same view as our previous correspondents, but the publication of them would scarcely advance the object desired. We give from one, signed "Five Clerks to a London Building Firm," their suggestion as to what the Institution to be established should embrace,—"Say, a register for clerks requiring engagements; assistance by way of loan (if necessary), when out of employ; help in sickness by means of a provident fund; the formation of a lending library (so much needed and yet so unlikely to be obtained without co-operation, in consequence of architectural and building literature being so very expensive); the collection of working drawings, specifications, models, and samples of building goods and appliances, for study and reference; meetings for lectures, discussions, &c., appertaining to building matters, and for mutual friendship and improvement."

DOUBLE MONEY FOR OVERTIME.

A CASE was tried at the Sheriff's Court, on Wednesday the 17th inst., in which Hammond, a builder, was the plaintiff, and Sharpington, a contractor, the defendant, the action being brought to recover double money for overtime.

It appeared that certain works were going on at the premises taken by the Imperial Bank, and the great point was to get them finished by a particular time. On the part of plaintiff it was sworn that he was requested to work during the night, upon a promise that he should be paid double money between twelve o'clock at night and eight in the morning. He did work, but could not get the double money. Defendant's representative stated that the men were not promised double money, nor were they entitled to it, the custom being to pay time and a half. Plaintiff replied that the other men had been paid double money, and called a witness, who fully bore him out in this evidence, deposing that he had personally received the double money. To rebut this testimony Mr. Sharpington's foreman was put into the box, and he said that the custom was to pay time and a half. If the other men had received double time it was in mistake. He admitted that the plaintiff did speak to him about the double money, and witness told him he was not entitled to it; but as the work was imperative, witness told plaintiff to go on with it and get it done.

His Honour said that it appeared to him to be a question of some importance, and he thought there was reason on the side of the plaintiff. It was clear that there was no contract, from the evidence of the foreman; and if the men had to work far into the early hours of morning, he could not hold it to be unreasonable that they should be paid extra money. Now the plaintiff's witness had sworn that he had received double money, unchallenged, and therefore there was evidence upon the point to guide the Court, who would find for the plaintiff for the amount claimed.

ART MUSEUM FOR NORTH LONDON.

A PUBLIC meeting has been held in Myddelton Hall, Upper-street, Islington, for the purpose of promoting the establishment in North London of a Museum of Science, Art, Industry, and Domestic Economy. The proposed museum is intended to embrace the following objects:—1. Science, illustrated by its most novel, practical, and popular applications. 2. The arts of design and decoration, illustrated by those examples which may best tend to raise the standard of taste and artistic refinement, and to show the progress of art-workmanship in this and other countries. 3. Technical and inventive industry. 4. Domestic and sanitary economy for the furtherance of health and comfort, and with a view to improving and turning to the best account the common things of every-day life. There was a numerous attendance. Mr. W. Harvey occupied the chair.

In his address the Chairman said,—What they desired was not merely that their artisans would be able to execute the work that was put before them in the best possible manner, but that they should design and carry out work artistically. At present the artisans of this country were excelled in many branches of art by some foreign nations; and working men ought to have facilities given them for bringing out their powers and energies to the highest point of excellence. In that way the establishment of art museums in all parts of London would be pro-

ductive of the most beneficial results to all parties.

The meeting was also addressed by Mr. Torrens, M.P. for Finsbury, and other gentlemen; and resolutions were unanimously passed to the effect,—"That in the opinion of this meeting it is desirable to form a North London Museum of Art, Science, Industry, and Domestic Economy;"—"That the honourable members for the borough be requested on the meeting of Parliament to support the views of this meeting;"—and, "That a committee be formed for the purpose of carrying out the foregoing resolutions."

The committee was accordingly appointed.

THE BRISTOL ARCHITECTS AND THE NEW ASSIZE COURTS.

SIR,—I beg to send you a copy of a memorial which has been signed and sent in to the Finance Committee of the Corporation of Bristol, for insertion in the *Builder*. The only architect in Bristol who refused to sign was Mr. Pope, of the firm of Pope & Bindon, architects to the corporation.

C. J. PHIPPS, Hon. Secretary of Bristol Architectural Society.

To the Finance Committee of the Corporation of the City of Bristol.

GENTLEMEN,—We, the undersigned architects of this city and neighbourhood, having noticed an advertisement in the local papers, stating that you "are desirous of receiving plans and estimates for altering the present guildhall and erecting a second court, &c., in rear of the same; and also for the erection of two assize courts in Queen's-square;" beg respectfully to say, that however desirous we may be to submit designs in competition for the proposed new courts, we feel that we ought not to be called upon to expend such an amount of our time and labour as the magnitude and importance of the proposed buildings will necessarily entail upon us, upon such unusual conditions as those offered in the said advertisement,* especially as we are aware that no site has, as yet, been fixed upon for these buildings.

We fully believe that it is your wish, and also the wish of the council generally, to have the most perfect new buildings put upon the best site; and we venture to express a hope that, when that site has been fixed upon, you will issue clear and definite instructions, and offer such premiums as shall induce architects of acknowledged reputation to respond thereto.

We beg respectfully to inclose for your consideration, copies of advertisements issued for similar buildings, and also a code of instructions, drawn up with great care by the Architectural Alliance (London), which we should be glad to see adopted in all architectural competitions.

We remain, &c., Charles Underwood, Samuel Charles Fripp, Archibald C. Fenton, J. H. Hirst, F.R.I.B.A., Samuel T. Welch, Henry Lloyd, Foster & Wood, W. H. Hawtin, Henry Masters, Godwin & Crisp, J. A. Clark, Chas. F. Hansom, F.R.I.B.A., Wm. Bruce Gingell (all of Bristol); Wilson & Wilcox, Hickes & Isaac, C. J. Phipps, M.R.I.B.A. (all of Bath).

FIRE ANNIHILATORS.

SIR,—I have always entertained a high opinion of the fire annihilators, and am only surprised that they have not been more popular.

I think no country house should be without them, and shall be glad to be informed of whom they can be obtained. T. GRISSELL.

Norbury Park, near Dorking.

FOUNDATION-STONES.

SIR, -Will some of your correspondents inform me where I should search in order to find the foundation-stone of one of the old minsters?

I have been told that it was usually laid in the "north-east corner;" but the question arises,—Which is the north-east corner in a cruciform edifice, the transepts of which are directed to the cardinal points? M.

INCREASED PAYMENT TO CONTRACTORS FOR EXTRA HASTE.

PIPER *v.* THE QUEEN.

THIS was a petition of right, presented in the Court of Queen's Bench, January 19th, in which the petitioner, the well-known builder, claimed a sum of money as due from the Crown, under a contract for the construction of forts at Gosport. The claim was for an extra remuneration, called "expedition money," for a quicker execution of the works, and the question was whether the claim was substantial. The contract was in 1855, for the construction of three forts at Gosport. It was for the sum of 242,700*l.*, and it was to be completed at Christmas, 1862, unless there were extra works, for which a proportionate time was allowed; and, on the other hand, there was a penalty of 200*l.* a week for delay. The claim was for the sum of 100*l.* a week for the completion of the works before that time. The claim was grounded on the following letter to the contractors, from the War-office:—"As an inducement to use greater expedition, and to cover any expense incurred by so doing, I am to acquaint you that the Secretary of State has approved your receiving 100*l.* for every full week upon any of the forts being handed over perfectly complete to the officer commanding the Royal Engineers," &c. There had been extras to the amount of 27,000*l.*, which, according to the contract, gave 90 weeks beyond Christmas, 1862, for the completion of the work. The forts were completed, one on the 22nd of December, 1862, another on the 2nd of January, 1863, and the third on the 20th of January, 1863; that is, respectively, 91 weeks, 89 weeks, and 86 weeks, before the extended time for the completion of the works. The question was whether the letter was applicable to the extended time for the completion of the works, or only to the original time mentioned in the contract. If the contract and letter entitled the claimant to the expedition money in respect of the number of weeks that the forts were handed over complete before the extended time for completion, the judgment was to be entered in his favour for 26,600*l.*, otherwise against him.

After considerable argument,

The Lord Chief Justice threw it out for the consideration of both sides that it was a fit case for settlement out of court. There was some degree of ambiguity and doubt, and this might lead to protracted litigation. Would it not be wise to settle it amicably? The terms of the letter might be against the contractor, but, on the other hand, beyond all doubt he had completed the forts earlier than he would have done but for the letter.

The counsel on both sides so far adopted it as to ask time to consider it and consult their clients, and so the case stood over.

THE FALL OF A HOUSE AT HULL.

THE inquiry concerning the death of the five persons killed by the fall of a large building at Hull, has been concluded, and the jury returned a verdict tantamount to accidental death, adding, "We are of opinion that the decision of the Works Committee of the Local Board of Health in passing the plans for the said building displays the greatest want of proper precaution, more especially as their surveyor refused to pass the original plan. We are of opinion that Mr. Collinson's employment of such unskilled and inexperienced workmen, and his deviation from the plans, were the cause of the instability of the building, in addition to the want of an experienced person to superintend the progress of the work." In the course of the inquiry,—

Mr. William Botterill, architect, stated that he and Mr. Foale had inspected the plans and premises, in accordance with the desire of the coroner, and had prepared a joint report which contained their evidence. They were of opinion that in the combination of the building error of judgment and want of practical knowledge were very apparent. The plans submitted to the local Board appeared in the first instance to have been disapproved, because, among other objections, "some of the walls were not shown to be of sufficient thickness," and they think the committee committed a serious error in subsequently confirming them without seeing that this was rectified. They were also of opinion that the back wall should at least have been made 18 in. in thickness to the height of the ground-floor story; 14 in. to the first-floor story; and the remainder 9 in. in thickness. They likewise thought that if bond timber or wall-plates had been used, in all probability the wall would not have been blown down by the gale, or only the upper part above the ceiling joists. They were further of opinion that had not the gale occurred the back wall of the building, from its own inherent weakness, must at some time have collapsed, and might have occasioned more serious results than even in the present deplorable calamity. The drawings had not been adhered to, and altogether both error of judgment and want of practical knowledge were apparent. They were further of opinion that the pressure of the wind was the immediate cause of the falling of the building; yet they felt persuaded it was in a measure accelerated and augmented by the insufficient strength of the walls and the faulty construction, there being not sufficient ties, or indeed any ties at all, beyond the iron "dogs" attached to the ends of some of the floor and ceiling joists, and to the tops of the rafters (seven in number), which at the time of the accident were the only portions of the roof fixed upon the building, and which were with out the proper tie-beams or framing to resist the thrust.

Books Received.

"Their Majesties' Servants;" or, Annals of the English Stage. By DR. DORAN, F.S.A. Second Edition. London: W. H. Allen & Co. 1865.

THE issue, in one compact volume, of Dr. Doran's exceedingly interesting and valuable account of "Their Majesties' Servants" is a wise step, and will doubtless give it, what it well deserves, a large circulation. Beginning with the Norman kings, the story is told, with a pleasant pen and complete knowledge of the subject, down to the time of Edmund Kean, of whose genius he has a vivid recollection. The volume is adorned with a portrait of Thomas Betterton, after Kneller, and is inscribed by the author to his friend E. M. Ward, R.A., "in memory of pleasant old converse on plays, players, and play-going times." We commend it warmly to all who take interest in the subject.

Miscellanea.

MONUMENTAL.—A memorial cross, chiefly o Aberdeen granite, and in the Early English style has been erected in the churchyard of Lee by the parishioners, at a cost of 300*l.*, to the memory of the Rev. G. Lock, M.A., the late rector.

METROPOLITAN ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—A meeting of this Association was held on Saturday, January 20th, when Dr. H. B. Montgomery, member of the Madras Sanitary Commission, read a paper on "The Tendency of Religious Festivals and Pilgrimages in India to originate and disseminate Epidemic Disease; with Suggestions as to the Sanitary Precautions to be adopted to prevent Injury to Public Health."

A RAILWAY SOLD FOR DEBT.—The first railway that has been sold up for debt has been disposed of at Dublin in the Court of Bankruptcy. The line was the Wexford and Bagenalstown Railway, 21 miles in extent, and in perfect working order. Creditors to the amount of 67,000*l.* were either present personally or by representation. The line was knocked down to Mr. Mott, a barrister, for the sum of 25,000*l.* It is said that this gentleman has purchased in trust for some London capitalists.

THE CHURCH OF ST. NICHOLAS, NEWCASTLE.—A correspondent, "R. F." who denies indignantly some of the remarks of "C. C. H." (p. 915, vol. xxiii), and says, what no one will deny that there are many things in the town deserving of admiration, adds,—"'C. C. H.' might have used his pen to some useful purpose on the steeple of 'canny St. Nicholas, the pride o' wor toon' (which he is bound to admit is a most magnificent piece of architecture), had he said something about its dilapidated and dangerous state; and should anything happen to it, it will be an everlasting disgrace to Newcastle. It is scarcely safe from day to day; and what between one party and another disputing who shall be at the expense of the necessary repairs, they might easily lose one of the greatest ornaments in Europe. From history it appears the corporation have always kept it in repair: why not the do so again?" We were in hopes the point in dispute was settled, and that the tower was about to be repaired. Something effectual should at once be done.

INCREASING VALUE OF LAND IN LONDON.—The value of land in the City portion of the metropolis is becoming almost fabulous. The following, which we have had in type for some time gives a case in point:—The old-fashioned banking-house of Spooner, Attwood, & Co., at the corner of Lombard-street, in Gracechurch-street being no longer necessary, in consequence of the absorption of the business by the Consolidated Bank, was lately pulled down, and the site cleared. A lease of the ground for ninety-nine years was then granted by the freeholders (one of the City companies) to the Agra Bank, at a rental of 6,000*l.* a year. Shortly after the execution of the lease, the directors of the Agra Bank absorbed the old banking firm of Masterman & Co., in Nicholas-lane, and removed from Cannon-street to the more convenient premises of Masterman & Co., which they are now rebuilding and enlarging. A customer for the lease of the site in Lombard-street was, however, soon found. The City Offices Company agreed to purchase it, and to give the Agra Bank a premium of 70,000*l.* The former company have, in their turn, made an arrangement with the directors of the London and County Bank to build a bank for them on the site thus acquired, for which they are to pay a rental of 12,000*l.* per annum. The London and County Bank will, by this means, get the largest cash office of any metropolitan bank, while the City Offices Company will be able to let off the surplus accommodation to be provided in the new building, at rents which will bring in 10,000*l.* per annum, making their gross annual return from the property 22,000*l.* From this there must be deducted 6,000*l.* a year ground-rent, leaving a surplus of 16,000*l.* per annum, which it is estimated will pay 16 per cent. on the investment. The directors of the London and County Bank rebuilt their premises in Lombard-street a few years since, at a cost of more than 30,000*l.*; but they are already found to be too small.

* These conditions being:—1. No guarantee to accept any design; 2. Offering no premiums; 3. Requiring designs for two sites before any site is fixed upon by Corporation; 4. The advertisement being the production of an irresponsible Committee, acting without instructions to do so from the Corporation.

ASSOCIATION FOR THE IMPROVEMENT OF THE CONDITION OF THE SICK POOR IN THE METROPOLITAN WORKHOUSES.—An Association, with the above title, is in process of formation. With a view to the furtherance of this object, it is proposed that a public meeting be called early in February. The temporary honorary secretaries for the purpose of organization are—Mr. Ernest Hart, 69, Wimpole-street; Dr. Anstie, and Dr. Rogers. Mr. J. S. Storr is treasurer *pro tem.*

THE PLANS FOR IMPROVING MARGATE.—At a recent council meeting, it was moved by Mr. Preble, and seconded by Mr. Gardner, that Mr. Wheeler's claim of 50*l.* be paid. An amendment was moved by Mr. Rapson, and seconded by Mr. Lyons, that Mr. Wheeler be paid 50*l.* for his plans, on condition that he give up all claim to any commission he may be entitled to as an engineer or surveyor, should any portion of his plans be carried out. This led to a warm discussion; and the amendment was ultimately carried by five to three.

WHITE PIGMENT.—Mr. John Dale, of Manchester, proposes to decompose the material called satin white, containing sulphate of lime and alumina by chloride of barium, or of strontium, so as to replace, or partially so, the sulphate of lime by the sulphates of barium or strontium. The proportions to be used of the chlorides of barium or strontium will be according to the amount of sulphate of lime to be replaced. Secondly, he proposes to produce a substitute for white lead, by using caustic baryta or strontia, instead of lime as usual.

OIL-YIELDING COAL.—A few months ago a new shaft was sunk at Brancepeth Colliery. The coal produced has the appearance of cannel coal, which is used for the production of gas; but a sample having been forwarded to Mr. John Young, F.R.S.S.A., Dalkeith, for analysis, it has been found that out of one ton of the coal, 36 gallons of crude oil can be produced, and from this a quantity of 24-18 gallons of light oil, similar to the best paraffine, but free from any pungent odour, and not dangerously inflammable. The oil, it is said, emits a good light.

THE DRAINAGE OF CHATHAM.—Great surprise has been created in the Chatham Board of Health by a letter from the Lords of the Admiralty on the subject of the drainage of the town. The Admiralty refer to the fact that Chatham is not properly drained, but that cesspools exist generally, the emptying of which must jeopardise the health of the inhabitants. The town, their lordships observe, has an abundant supply of water in pipes, and an "ample fall to the river," and they "request" that "immediate steps be taken for introducing proper sanitary measures." The Board were greatly astonished that in these days, when sanitary movements are directed to the prevention of the pollution of our rivers by sewage, the Board of Admiralty should suggest that all the refuse of some 40,000 people should be turned into the river Medway as a "proper sanitary measure" for improving the town. It is remarked that one great difficulty in dealing with the drainage of Chatham had been what was considered the impossibility of turning the sewage into the river. It was arranged that a proper reply should be prepared.

ART-EDUCATION.—On Saturday, the 20th, Professor Westmacott, R.A., F.R.S., delivered the first of a course of lectures, at the Royal Institution, on "Art-Education," and how works of art should be viewed. He began by speaking of the absence of knowledge of the fine arts of painting and sculpture in England before the eighteenth century, and the desire that now exists among the public to know more of art than they have ever been taught. This country, with its strongly utilitarian ideas, has, he thought, ignored both the necessity and propriety of art-education; whilst the ancient Greeks, on the other hand, had such a taste for it that it pervaded all ranks of society, and their commonest productions seem to have been steeped in beauty. Without such an education,—for it is not a natural gift,—it is not possible to be a good art-observer. He carefully pointed out the difference between the real and the ideal by comparing a cast from a real human form with the ideal production of the artist. The latter, although much more beautiful, he pointed out was yet not untruthful, and contained no nature anatomically incorrect. Age, sickness, infirmity, and grief militate against the beauty of the real human form, so also do some dresses and costumes, but in the ideal figure of the artist these defects are not seen.

ARCHITECTURE IN RUSSIA.—A school of architecture has been opened at Moscow as a branch of the school for painting and sculpture in that city. It is endowed by the Government for sixty pupils.

STRIKE IN THE IRON TRADE.—There seems to be an uneasy feeling among the operatives in the iron trade at Leeds. At one of the works the whole of the strikers,—some sixty in number,—have thrown down their tools, and refuse to come in again without a rise of 1*s.* a week; and at another, notices have been given for a similar advance.

A PARSEE SANITARIUM AT BOMBAY.—A very commodious sanitarium for poor Parsees has just been inaugurated at Bombay. The cost and endowment, amounting to six lacs of rupees (60,000*l.*), have been defrayed by Merwanjee Framjee Panday, a wealthy member of the Parsee community, who seems to be a worthy successor in charity to the late munificent Sir Jamsetjee Jeejeebhoy.

WATERWORKS FOR BARKING.—The people of Barking have made a movement to provide a good supply of wholesome water for themselves. The sketch of a scheme has been issued, by which it appears that the capital is to be 4,000*l.*, in 5*l.* shares. It is proposed to obtain the supply by means of an artesian well from the tertiary sands, whence the water will be raised by engines into a reservoir, placed at a sufficient height to command every part of the town, and to afford a constant supply. Nearly half the capital has already been subscribed.

HOW TO MAKE GOLD.—M. Frantz, a metallurgist, and M. Henri Faure, editor of the *France Médicale*, have just announced to the learned world that they have discovered a method for transmuting silver, copper, and mercury into gold, all these, they say, being "only one and the same metal in different dynamic states." This idea is quite in accordance with that of the old alchemical writers on the subject; and the possibility of transmuting metals has been admitted by Sir H. Davy, Dr. Faraday, and other eminent modern chemists. Whether, in this case, it has really been done, however, we cannot testify.

EXHIBITION: MANCHESTER DISTRICT ART WORKMEN'S ASSOCIATION.—It has been determined to hold a second exhibition of arts and manufactures in the Royal Institution, Manchester, and February has been fixed for the opening. The committee are now engaged in allotting the space at their disposal, and classifying the numerous articles offered for their acceptance. The number of exhibitors greatly exceeds that of any former effort of the kind in the neighbourhood. Amongst manufactures which will be illustrated throughout their various processes may be mentioned gold-beating, brush-making, cotton-cleaning with gins, sugar-refining, needle-making, &c. Architectural models, mediæval wood and metal work and stone carving will also be represented. A special feature will be the collection of photographic portraits of national and local celebrities, now being formed for the Manchester Corporation by Mr. M'Lachlan. The certificate of the Board of Trade, extending protections to designs and inventions, has been obtained.

THE ANTIQUITIES OF MALTON.—An interesting excavation is now being carried on among the trenches of the British and Roman encampments at Malton, by which the positions of various fortifications, levelled down and lost about the commencement of the present century, are being recovered. A railway cutting is being taken through this anciently fortified ground, and numerous burials and many antiquities have already been found. About fifteen years ago the first railway cutting was made, and it has been found that two Roman burials were then destroyed, portions of them having been found recently. At the same time a very large British stone cairn had been partially cut through, and the burial nearly all destroyed. This tumulus was 30 ft. in diameter. Amongst the discoveries is an urn of the Durobrivian pottery. This urn is of very delicate ware, and is exactly of the shape figured in Wright's "Celt, Roman, and Saxon," p. 120, left-hand figure, top group, except that the white enamel on the blue-slatish ground is a double or inverted zig-zag pattern, instead of a foliate one. The urn was smashed by the workmen, and a few fragments were lost, but it has been rebuilt by Mr. Monkman, and sufficient has been obtained to show the form.

BRECON NEW WATER WORKS.—The first sod of the new waterworks in this borough has been cut by the Mayor, at the site of the intended reservoir, a short distance from the Brecon Union. The elevation of the reservoir will be something more than the steeple of the priory church, and the water (which is said to be very pure) will be supplied without any difficulty to the highest point in the town.

DENMARK.—Next June will take place, in Denmark, an exhibition of agricultural implements and machines, under the auspices of the Agricultural Society of Denmark. They hope that the constructors of such machines in England and France will send objects to this Exhibition. In Scandinavia, the importation of these instruments is very considerable, so that constructors will be likely to derive advantage from the display of their produce.

WORCESTER CATHEDRAL ORGAN.—The new site of this instrument has at length been fixed upon. The restoration committee have determined that the whole of the old organ of the cathedral shall be placed in the second bay of the choir on the north side; that is, one bay more easterly than where the present small organ is placed. The instrument, it is said, will project only 1½ ft. into the aisle, and present no obstruction to the perspective from east to west. The pipes will probably be decorated.

HOUSES FOR THE LABOURING POOR.—Mr. Henry A. Isaacs has given notice of the following motion for the next court of Common Council: "That whereas a large number of poor persons have been displaced by the demolition of house property within this city, for railways and city improvements, it is desirable, in order to remedy to some extent the inconvenience resulting therefrom, that the Corporation should erect an additional number of lodging-houses for the labouring poor."

CHAPEL, FULHAM PALACE.—The foundation-stone of a new chapel for this palace was laid last week. Fulham has been the residence of the Bishops of London since before the time of the Norman Conquest. The present Bishop of London has, we believe, for some time decided on building a new chapel on the south side of the palace, running east and west, and on afterwards restoring the entrance-hall of the palace to its original dimensions. The new chapel will join on to the palace. It is to be of moderate proportions, and from designs by Mr. Butterfield, architect. The foundation-stone was laid by Mr. Cranford Tait, the Bishop's only son.

ESTIMATED COST OF THE NEW WORKS OF THE NORTH-EASTERN RAILWAY.—It appears from the documents deposited at the Private Bill Office that the North-Eastern new lines and works are estimated by Mr. Harrison at 392,600*l.* of which the new station at York will cost 48,674*l.* 18*s.* 6*d.*, and the land to be purchased will cost 48,674*l.* The company's new lines and works in the county of Durham will be constructed on Mr. Harrison's estimate, for the sum of 128,500*l.* The necessary bridges are computed to cost 30,512*l.*, independent of the lock and bridge over it at the timber pond, Hartlepool Slake, which will absorb 2,400*l.* The land and buildings will be acquired for the sum of 19,895.

THE NOTTINGHAM TOWN IMPROVEMENTS.—Those street improvements are making rapid progress; and a sale of building sites in Market-street has just taken place in connexion with them. The lots disposed of comprised 1,195½ square yards, and the amount realized was 5,769*l.* The auctioneer's estimate was 5,543*l.* The new street is 50 ft. wide at the Market-place, and 55 ft. at the top, gradually opening out in the form of a trumpet-mouth, to receive the traffic from Goldsmith-street and Sherwood-street. The first street improvement consisted of the removal of Chandler's-lane and all buildings between that dingy purlieu and Bottle-lane. The result attained here is the formation of Victoria-street, 50 ft. wide, giving an approach from the east end of the town to the Market-place; and of Queen-street, 40 ft. wide, which affords a new carriage-road from Fletcher Gate and the adjoining streets. The second great improvement was the widening of Lister Gate. The street has been widened from about 25 ft. to 50 ft. 6 in. at the narrowest point, and to 70 ft. at the Broad Marsh end. The plans for all these improvements, and others connected with them, were prepared by Mr. Tarbotton.

STRIKE OF POTTERS AT BRAMPTON, NEAR CHESTERFIELD.—On Monday the whole of the potters employed at the Brampton Potteries, near Chesterfield turned out on strike, thus closing all the works. The dispute between the masters and men arose as follows:—The men demanded, some time back, an increase in their wages for the manufacture of certain articles in the trade. The masters, at a meeting last week, decided to increase the wages for pots 1d. per score; but the men refused to accept this unless a certain class of earthenware called "twelves" was included in the wage list for smaller pots, which is higher than that for large sizes. This alteration would make a difference of 4d. per score pots in the men's favour, and consequently greatly increase the expenses of the masters. The masters refused to make the concession, and a strike has been resorted to by the men, with a view to compel the masters to come to their terms.

PRIZES OFFERED.—In connexion with the approaching International Horticultural Exhibition, the Society of Arts have offered a number of premiums in competition. Amongst them the following:—For a half-size model, showing the best principle of construction for a tent for horticultural exhibitions, capable of being extended by a multiplication of the parts exhibited—a prize of 10*l*. The best transplanting machine for weights of eight tons and upwards—a prize of 10*l*. The best transplanting machine for half-ton weights and upwards to two tons—a prize of 5*l*. The best method of ventilating plant structures, to be shown by a model—a prize of 5*l*. The best garden wheelbarrow in principle of construction—a prize of 3*l*. The best sunshade for garden seats—a prize of 3*l*. The best guard for protecting young trees from animals, in parks, orchards, and pleasure-grounds—a prize of 3*l*. The best instruments for working to levels and slopes in garden-ground work—a prize of 2*l*. Earthenware boxes for edgings—a prize of 3*l*.

DEATH OF DR. PETRIE.—DR. G. Petrie, the author of the "Round Towers of Ireland," has just died in Dublin. He was born in 1791. His profession was that of a painter, but, as is well known, he devoted himself ardently to antiquarian pursuits. He edited the *Dublin Penny Journal* along with the Rev. Cæsar Otway. His essay on the Round Towers received the gold medal of the Royal Irish Academy about the year 1837. He subsequently wrote an essay on the military antiquities of Ireland, which also obtained its prize, in which he showed that works of Cyclopean architecture remained in Ireland, the relics of a primitive race in a remote age. He was afterwards engaged on the historical and antiquarian sections of the Ordnance Survey of Ireland. Dr. Petrie also did much for the preservation of native Irish music, and is said to have left behind him a valuable collection of it, in great part unpublished. Dr. Petrie was an ex-president of the Royal Hibernian Academy, a vice-president of the Royal Irish Academy, and a corresponding member of many continental societies.

VALUE OF PROPERTY AT PIMLICO.—On the 22nd inst., at the Westminster Sessions-house, before the high bailiff, a compensation case, "Shanks *v.* The Metropolitan District Railway Company," was heard, in which a question was raised as to the value of property at the West-end. The claimants, Messrs. Shanks, were coach-builders in Great Queen-street and Shaftesbury-terrace, Pimlico. The latter premises were required by the company, and the claim made was nearly 8,000*l*. The premises were held on lease, and 3,000*l*. were asked for the same, while the witnesses for the company gave it as their opinion that 850*l*. was the value. About two years' profits were demanded for the destruction of the business at Shaftesbury-terrace, where the profits made were about 1,800*l*. a year. Mr. Shanks, one of the claimants, said they could get no West-end premises, and some of the wealthy customers for carriages would "not come over the stones." The business at Great Queen-street had been carried on in the family for more than seventy years, and at one time that was the west end of the metropolis. It was admitted that property at Pimlico was increasing in value. Mr. Hawkins, Q.C., complained of the treatment of Messrs. Shanks by the company, who had made no offer. Mr. Lloyd designated the claim a monstrous one, and alleged that 2,000*l*. would be ample compensation. The jury gave a verdict for 3,800*l*.

WORKMEN'S INDUSTRIAL AND FINE ART EXHIBITION AT LIVERPOOL.—An exhibition, which is likely to be attended with much success, was opened at Liverpool, on Tuesday, by Mr. T. B. Horsfall, M.P. The exhibition has been brought about by the working men of the city, and is called the Liverpool Industrial and Fine Art Exhibition. There are also 350 contributions from working men alone.

THE ACCIDENT AT BECKENHAM.—The coroner's inquest has elicited nothing further than what we have already stated as to the probable cause of the fall of the bridge; and the jury have returned a verdict of accidental death; but have left "to the engineer of the company, Mr. Mill, the consideration of the evidence as to the question of the state of the streams and bridges, and such matters." Mr. Fowler was the designer of the bridge which fell.

PROPOSED TOWN HALL FOR BURTON-UPON-TRENT.—The rapid growth of this town now requires a more commodious public room than the town-hall (which was some time ago considered insecure, and is now only temporarily supported by pillars), and a private meeting has been held to consider the best means of securing the erection of public rooms. A report was submitted, which was ordered to be laid before the commissioners at their next meeting. It is suggested that about 12,000*l*. should be expended; and that the Commissioners should borrow the money upon the security of the town rates.

VAGRANCY AND CRIME IN KEIGHLEY. — In a leading article of the *Keighley News*, a shocking state of affairs in reference to low lodging-houses is ably exposed; and the writer shows that the provisions of the bye-laws of the Board of Health are either unknown to, or else set at defiance by, the lodging-house keepers of Keighley. "It is therefore," he continues, "the duty of the officers of the Board to put the law in force. There is no excuse for their supineness; for the same bye-law entitles them to free access to every room in every lodging-house, at all times, to inspect and examine for themselves. A single visit would convince them that every consideration, pecuniary, sanitary, and moral, requires prompt and energetic action." Keighley, it seems, is a sort of half-way house for vagrants between various large towns. Of eighty-four convictions from Keighley, no fewer than sixty-six were for offences committed by tramps and such like vagrants.

THE PATENT OFFICE INQUIRY.—A final report by Messrs. Greenwood and Hindmarsh to the Lord Chancellor in reference to the Patent Office has been issued. They recommend that the office of Clerk of the Patents be abolished, and that a superintending officer, with a salary of not less than 1,500*l*., be appointed. They think the clerks generally are underpaid, and they recommend that the staff in the specifications department be increased. "It is very desirable," says the report, "that persons who occasion extra work to be done in the office should be made to bear the expense. The only remedy which seems to us to be available in the present state of the law is for the commissioners to make a regulation that persons filing specifications shall pay the expense of correcting their inaccurate copies, and upon leaving their specifications shall deposit sums of money by way of security." The expediency or necessity for the extension of the Patent Office Museum is believed by the reporters to be an idea entertained by many of the most eminent persons, both in town and country, as well as by the scientific gentlemen who have already presented a memorial on the subject. The museum ought, the commissioners think, to be in the same building as the Patent Office (it has been exhibited hitherto in South Kensington).

TENDERS

For alterations to house and shop, Kingsland, for Mr. Hide:—

Wiltshire	£330	0	0
Bennett	306	0	0
Tolley, jun.	264	0	0

For labourers' cottages, at Twickenham. Mr. Moye, architect:—

Stonner	£505	0	0
Ebrem	503	0	0
Wood	500	0	0
Hanney	497	0	0
Staple	437	0	0
Wilpen	425	0	0
Donken	375	0	0
Wibble	350	0	0
Neale	350	0	0

For the erection of residence and offices, St. Cuthbert's, Bedford. Mr. Usher, architect:—

Dickens	£849	0	0
Corby	819	12	0
Day	813	15	0
Cunvin	793	0	0
Wenir & Foster	765	0	0

For supplying and erecting cast-iron palisade and gates round Chapel Field, Norwich, according to designs by Mr. J. S. Benest, city architect. Quantities not supplied:—

Sparke & Co.	£750	0	0
Murrell	635	0	0
Barnes	566	0	0
Garrood & Gower	562	10	0
Boulton (accepted)	520	0	0

For warehouses and shops, Park-lane, Liverpool, for Mr. James Radford. Messrs. J. A. Picton & Son, architects. Quantities supplied:—

Denton	£5,895	0	0
Burroughs & Son	5,635	0	0
Tomkinson	5,439	0	0
Mullin	5,424	0	0
Jones & Son	5,400	0	0
Hughes	5,390	0	0
Urmson	5,316	0	0
Wiley	5,300	0	0
Ray	5,218	0	0
Rome	5,199	0	0
Martin (accepted)	5,148	0	0

For the erection of eight model cottages, at Slough, Bucks, for Mr. Little. Quantities supplied. Mr. William Sim, architect:—

Liddiard	£1,261	6	6
Caley	1,196	0	0
Knight & Son	998	0	0
Atkins	944	0	0
Hards	930	0	0

For fittings for the Railway Hotel, Notting-hill, for Messrs. Salter & Marten. Mr. T. Muncey, architect:—

Selleck	£481	0	0
Moultrie	377	0	0
Mudd	299	10	0

TO CORRESPONDENTS.

W. S.—G. H. T.—F. T. M.—J. E. B.—H. H.—A. & K.—W. R. W.—W. W.—G. T.—Subscriber.—J. B. C.—R. T. M.—Inquirer.—C. H. T.—J. C.—P. M.—J. B.—C.—M—J. A.—T. P. M.—T. H. C.—T. C. S—H.—A. C.—E. & Son.—Mr. S.—Z.—J. P.—Enquirer.—C. D. (write to hon. secretary, 9, Conduit-street).—Veritas (no)—G. B. (shall have attention).—G. B. (in type).—J. P. W. (ditto).—C. B. A. (ditto).—Many communications must remain unattended to until next week.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

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[ADVERTISEMENTS.]

CHUBB *v.* GRIFFITHS. — CAUTION.—Notice is hereby given, that on the hearing, on the 16th of December, 1865, of the above cause, his Honour the Master of the Rolls granted a decree making perpetual the injunction which had on the 1st of June last been granted against the defendant, restraining him from selling under Messrs. Chubb & Son's name any Iron Safes not made by them, and from affixing to any Safes not of their manufacture plates bearing their name. The decree also directed that the defendant should pay the costs of the suit. All persons are cautioned against supposing that such Safes as may be found to be fitted with Chubb & Son's Locks are therefore necessarily Safes of Messrs. Chubb & Son's manufacture, as it is believed that large numbers of these Safes are sold under false representation, genuine name-plates being removed from Messrs. Chubb & Son's Locks and affixed on the escutcheon or on some conspicuous part of the Safe. Dealers in second-hand fire-proof Safes are particularly cautioned against selling, as Messrs. Chubb & Son's, Safes which are not of their manufacture, and against in any way affixing their names on Safes not of their manufacture, and against allowing any Safes professing to be of Messrs. Chubb & Son's manufacture to pass through their hands without the strictest examination: and proceedings in Chancery will in all cases be instituted when offences of the same or a like nature are brought to notice.—STUART & MASSEY, 5, Gray's-inn-square, Solicitors for Messrs. Chubb & Son.

The Builder.

VOL. XXIV.—No. 1200.

The Influence of Improvements in Artillery on Human Habitations.

SO great is the perfection to which modern science has brought the telescope that the surface of the moon is now allotted to separate observers, and a map of that satellite is in course of preparation on which it would be easy to denote such physical changes as have been effected in recent times in the volcanic districts of our own planet.

If we were to suppose the point of view to be reversed, and that observations could be made from a spot so far removed from the earth as to permit distinct examination of its surface, without the means of holding any direct communication with its inhabitants, it is probable that the marks which human industry is now making on those portions of the world which are inhabited by civilised men would lead the observer to conclude that some marked and striking change had occurred in human affairs, and in the relations of mankind to their terrestrial abode.

If we suppose the observations to be made from a point so far distant that the military movement of masses of men, the smoke and the confusion of battle, the glare of the nocturnal illumination of great cities, and the frequent and steady transit over the aqueous portions of the planetary surface of the black clouds that designate the track of ocean steamers would be but faintly visible, the attention would be forcibly called to the long and numerous lines traced with geometric exactitude over the less accidented parts of the land, and evidently linking together the various centres of human activity by some new method of communication.

Another sign of the present time, less readily intelligible than the growth of the iron web, would be found in the gradual disappearance of some of the most ancient marks of the warlike character of mankind, the fortifications of their great cities. The inference to be drawn from the disappearance in so many parts of the world of the defensive works of the busy centres of life would be that an age of peace and amity had at length commenced upon earth.

The inference would be natural, but it would be untrue. But how unable would any philosopher who was unacquainted with the whole state of the case be to conceive that it was the steady increase in the offensive power of military engines that led to the destruction of fortifications from Naples to Bombay, and that the castles of the Angevin monarchs, as well as the defences erected since artillery first played upon masonry, have been dismantled, not because their protection was unnecessary, but because it had become inadequate.

Human abodes have two chief functions to fulfil,—that of protection from the elements, and that of protection from violence, whether of man or of beast. The first requisite will depend principally on climate, and to the extent to which it rules the characteristics of building, architecture will have a geographical or climatic character. The second requisite will depend on the nature of the offensive power against which it is intended to guard; and it will, therefore, vary with the advance of physical science as applied to warlike purposes. It will thus be more essentially historic or chronological. Thus, if we compare the difference between early and late buildings of a civil and of a military character, we shall be at once struck with the slow change in the architectural characteristics of the former as compared with the rapid modification of those of the latter description; or perhaps it may be more accurate to say, with the permanence of architectural as compared with engineering features. Our noblest and most venerated sanctuary has been so faithfully preserved from the time of the Plantagenet, and again from that of the Tudor dynasty, that the restorations effected by the great architect of the time of the Stuart sovereigns are blots upon its beauty; and it is only by the most faithful reproduction of every detail of the work of the original artists that the ablest architects of our day would consent to defend Westminster Abbey from the further ravages of time. But the walls of Chester, from which the second Stuart king looked down on civil war, are now regarded only as antiquarian curiosities; and fortifications of far later date bid fair to be superseded by mere earthworks.

The fact is, that the tremendous and yearly-increasing range of projectiles, and the corresponding increase in the weight of guns, are revolutionising the art of war. And not only is this the case in the tactical movements of armies, and in the actual shock of arms, but in the selection of strategic points, and in the whole theory and physiognomy of fortification. No wall will resist the breaching artillery that sea transport can bring to bear upon it, nor even that which command of the means of transport over ordinary roads will place at the disposal of the assailant. And it is becoming daily more difficult to find any sure protection against these, except that which is afforded by the very bowels of the earth. Earthwork lines, therefore, and casemates sunk in the solid rock, will be henceforth regarded as the proper defences of important strategic points; and to this must be added the selection of a position so far from the seaboard as to render shelling from floating batteries impossible. To cover dock-yards and naval arsenals, it will of course be necessary to arm proper batteries,—whether fixed or floating has yet to be determined. But that those great military points, the possession of which is necessary to the occupation of a country, will be designated by such conditions as above described, there seems no room to doubt. The sieges of Sebastopol and of Gaeta, and numerous incidents of the American war, furnish ample and positive information in this respect.

Remarks of this nature may perhaps seem of less practical value to many English readers than to those who have been familiar with the scenes of recent warfare. But in the not impossible event of a European war, considerations of national and of personal security will come home to every thinking man. The conditions of attack and of defence are now changing with a rapidity that is without precedent; and the result of the improvements which science is daily effecting in warlike implements, is as yet extremely uncertain. The history of war hitherto shows the increasing preponderance of offensive over defensive power. For a time, indeed, we have seen the defence prevail, and the science of offence remaining stationary. Such was the case from the time of the first employment of plate armour, as an improvement on chain mail. So long as the lance of the knight, the axe of the man-at-arms, and the arrow of the archer, remained the most formidable offensive weapons, the knight was safe in his panoply, and could safely disregard great disproportion in the number of unarmed assailants. But as soon as small-arms made their way into military service, complete armour, ceasing to be a protection, became only a burden and a disadvantage, and we find the jack-boot displacing the jointed iron armour of the legs, and the riveted iron casing replaced by a light cuirass, intended only to turn aside the blow of the sword. At the present moment our naval armaments may be regarded as in a condition similar to that of the knight at the time of the revolt of the "Jacquerie." So impervious is the casing of the latest iron ships to the artillery at this moment opposed to them, that a single armed monster of this description would safely run the gauntlet of a whole fleet of those first-rate men-of-war, the broadsides of which were so irresistible in the time of Nelson. It is more than probable that the attention now given to artillery will produce guns and projectiles able to pierce the strongest iron shell that the laws of flotation will allow for the sides of a ship; and so soon as that is certainly and pretty generally the case, the iron war-vessel will be laid aside for the same reason as the iron armour of the knight; but in the mean time iron vessels are an absolute requisite of national safety.

If England were engaged in war, ships and guns being what they are, the effect of the increased range of projectiles would soon be felt, or, at least, feared, on the seaboard of the belligerent countries. Such a town as Dover might, it is true, find safety under the guns of her castle; but what would be the security for such a place as Brighton? A prolonged war, under existing conditions, would drive the mass of the coast population beyond reach of shells thrown from the sea; and in inland or continental districts the chief safety of a town would be found to consist, not in works of circumvallation or in strength of citadel, but in distance from those detached forts which will become the keys of of defence and of occupation.

There is yet another consideration, and one that is as startling as it is novel. Since the days of Van Tromp, the only question that has ever been raised as to the defence of London has been that of resisting a land attack. The tried experience and profound military science of the great Duke of Wellington only led him to wish to provide for the case that would arise if an enemy were to obtain such a maritime superiority, if only for a short period, as would enable him to throw a considerable body of men on the coast. The plans discussed for the defence of London in such a case were exclusively military plans. Nor was it needful, in the lifetime of the Duke of Wellington, to make any provision against an attempt to ascend the Thames. Field artillery would have been available in such a case, and any vessels that attempted to ascend the river, even if they were unopposed by naval means, would have been riddled by guns from the land, and taken as in a trap.

But the case is now widely different. The effective portion of the fleet—that is to say, the iron vessels—is limited in number by its enormous cost. The naval strength of each belligerent in this respect would be pretty accurately known. Now, supposing such a naval engagement to occur as should cripple our iron vessels (and were they to go into action with their present supplies of iron shot to meet the steel projectiles of other nations, "cripple" would be too mild a word to describe the result), where would be the defence of London? Iron vessels cannot be improvised, neither can they be resisted by any but their like. One iron vessel unopposed in the Thames would destroy Sheerness, Chatham, Woolwich, and dictate its own terms to London. Three days of such an invasion would be more destructive than three months of the most formidable invasion contemplated by the Duke of Wellington. The American war has given us lessons on this subject that we shall do well to heed in time.

There seems every reason to suppose that a considerable change in the conditions of human abode will be a consequence of the improvements which are now taking place in artillery. Railways have done much to alter the mode of city life, and are likely to do much more, whether in scattering a dense population over a district of continuous villages, such as we now see rising in so many districts round London, or in connecting towns that may become centres of abode with those that remain merely centres of commerce and of business. The civil and the military features of city architecture will become more distinct and more widely separated; and the object of the rulers of countries likely to become the theatres of war will be so to dispose the chief strategical points as to offer no excuse for bringing on an unarmed population the horrors of a bombardment. That the whole arrangement of the armies of Europe will be recast, that heavy cavalry has become useless, that greater rapidity of motion will be the chief requisite of troops in the field, and that the proportion of artillery to other arms will greatly increase, is the opinion of men well competent to judge the subject. That the present condition of the art of war is one of transition there can be little doubt; but the change that has taken place in artillery since the time of Napoleon has already been such as to modify the old rules of sieges and of battles, and the degree to which non-combatants, and especially those who are inhabitants of great cities, will, in the event of war, be affected by this change, is a question to which it seems to us that attention adequate to its importance has by no means hitherto been directed.

CHURCH WARMING IN THE NORTH.

One of the most difficult tasks that fall to the architect's lot is to warm a church comfortably, securely, at small cost, and with due regard to ecclesiastical propriety. That a church should be properly warmed is not, perhaps, of so much importance in the south of the kingdom as in the north, where, to sit in a fireless building for two hours, in a hard frost and an east wind, is a penance even to the strong. As a collection of facts bearing upon any given subject is often the means of illuminating it, we give the attempts at church-warming that have been made by the clergy and churchwardens of some of the churches in an archdeaconry in our northernmost county. We must premise that a Northumbrian summer is locally acknowledged to consist of "three hot days and a thunderstorm;" and that all the rest of the year is winter, variegated by high winds, nipping winds, frost, snow, hail, mists, and rain. Notwithstanding this severity of climate, it is too often the practice to leave churches locked up from the hour they are closed on Sunday evenings till the time they are opened to be swept out on Saturdays. That they should become under this treatment the prey of damp, mildew, and mustiness, ought not to astonish anybody. Yet we know this state of things to be generally looked upon as a most lamentable, unaccountable, and incurable marvel. It is not likely that one of the persons shrugging their shoulders, shaking their heads, and turning up their eyes at the spectacle of a damp church, would think of shutting up their own houses in the same manner even for a few months; they would urge that everything in them would become mouldy, rickety, greasy, moth-eaten, or worm-eaten, or otherwise deteriorated in value according to its material. Yet in ninety cases out of a hundred, this is the plan pursued with churches, year after year, year after year. The grand mistake lies in the supposition that a church can be treated, in this respect, with less care than any other fabric. Who is not shudderingly familiar with the cold damp smell that issues from a country church as the person entrusted with the keys, and the duty of showing it to strangers, pushes the door slowly back on its usually rusty hinges? One is apt to think it is the smell of the dead, buried in old times within the fabric; others, more imaginative, attribute it to "the decay of ages," whatever that may mean; but, in point of fact, it is the smell of neglect, or precisely the same smell that any building would have that was treated in the same manner.

The modes of church warming adopted in the North are very limited. The choice, with very few exceptions, seems to be between stoves with ascending flues and stoves with descending flues; and most preference is shown for the former. Accordingly we find the long black leg of a flue, to which the stove appears the distorted foot, striding half-way across most of the church interiors we have examined, while the termination of the flue on the exterior gives a caravan air to that portion of the edifice through which it pierces. In some cases these stoves are not lighted till Sunday morning; in others it is found that this quantity of heat is so insufficient to dissipate a week's damp that they are lighted on Saturdays, when a good fire is made up at night, and the edifice left to its fate, which, in one recent instance, at least, at Shilbotell, resulted in the over-heated flue setting fire to some woodwork close at hand about midnight. In this case the utter destruction of the church might have taken place, were it not for the circumstance that the village inn turned out its last loiterers at that hour, and they, perceiving the flames in the church, roused assistants, and put out the fire. We know of one case only where the warming of a church, used only on Sundays, is commenced on Fridays. This superior piece of attention is practised at Ponteland. The reason given for the general rigid economy of fuel in a coal county where the price of coal varies from 5d. to 6½d. the cwt. at the pit's mouth, is the same as would be advanced in less favoured districts—the expense. Ponteland Church also caught fire not long ago, in consequence of the flue drying the surrounding timber to ignition point. Here the plan of an underground furnace has been adopted from which run stone flues beneath the aisles, having gratings above them to assist in the distribution of the heat. When the products of combustion have passed for some hours down one aisle, a door at the entrance of the flue is closed, and another opened, which directs it down another flue laid in another channel. Both flues terminate at the same point; and thus, having traversed the length of the church, the smoke, &c., escapes up a chimney built against the tower the position of which, by the bye, is so carelessly chosen as to block up an ancient Norman doorway.

In Chillingham Church another plan is tried. Here huge hot-water pipes lie on the pavement in the ambulatory and ascend the chancel step like a black sea-serpent taking sanctuary. This awkward arrangement warms the somewhat small church, but is most unsightly.

One of the plans approaching nearest to success is pursued at Lesbury. Two underground chambers, about 5 ft. square by 4 ft. deep, have been made in this church,—one beneath the chancel pavement, the other at the west end of the nave, in each of which is placed a square iron stove, similar to those used by joiners and in laundries. From these, below the pavement, proceed iron flues, which cross the church and discharge themselves out of stone-built chimneys, on the north aisle wall. The steps leading down to these furnace-chambers, as well as the long narrow beds, lined and paved with stone, in which the flues are laid, are covered with ornamental gratings, which, of course, present no obstacle to the passing to and fro of the congregation. When it is necessary to attend to the fires the person in charge merely lifts up the grating over the steps and descends, closing it again at the conclusion of his task. These stoves and flues can be got up to red heat, if required. Precaution is taken against this extreme heat by making the flue in stone when it passes under pews, or near other woodwork. The drawback here—for there is one—is, that as the outlets of the flues are on a low wall, so as to be out of sight of the village which lies on the other side of the church, they smoke in some winds.

At Eglingham, the parish of the Archdeacon of Lindisfarne, there is a tubular boiler, in a kind of shed built at one side of the chancel, whence proceed pipes carrying hot water along the centre ambulatory, below ground. The boiler is supplied by a ball-cock cistern,—which is, however, filled by hand; and there is a safety-valve, and every precaution against accident in the way of instructions to the person in charge to fill the cistern before he heats the water in the boiler. Still, it is not conducive to a calm and dispassionate state of mind, whilst listening to the sermon, to know that carelessness on this attendant's part, or his illness, with compulsory performance of his duties by an inexperienced stranger, might lead to an explosion.

On the building of St. Paul's, Alnwick, by the predecessor of the late Duke of Northumberland, a hot-water apparatus, costing some hundreds of pounds, was laid down by a metropolitan firm. This utterly failed. Stoves were then tried, whose shining black flues ascended towards the roof, and then abruptly turned off, in elbows, in the direction of the windows through which they passed. These were, of course, miserable eye-sores in a handsome building. They are now superseded by the plan of lighting the gas in all the floriated standards in the chancel and corona in the nave, which gives the interior, with its grand Munich window, a rich and jewelled appearance; but raises the question, whether it is the correct thing to treat day as night. At the west end there is a large Gill stove.

Elsdon Church is another instance in which the underground plan has been tried. This has a heating-chamber at the angle of chancel and north transept, with a grating covering the apparatus up the central ambulatory. As this has not been superseded it is possible that it is deemed more successful. But this edifice is so damp from overflowing water-butts planted against it, that all heating must result in steam.

When the Norman church at Rock was restored about ten years ago, the difficulty of heating was not grasped; but the cold being too severe to be overlooked, a small stove has been introduced in the chancel and another in the vestry, for which two stone chimneys have been built on the most-seen side of the church. These chimneys were at first kept low, so as not to offend the public eye; but, not answering, were heightened: as they still did not answer, that is to say, the smoke did not ascend them properly, tall funnels have been added to both, much to the deterioration of the general effect of the building. It is of no use shirking the matter. Churches in severe climates must be warmed: the only question is, which is the best way to do it? It is more economical to make provision when building or restoring than to postpone the expense, and have to make a second work of it.

At Branxton Church, adjoining Flodden Field, there is a common ship's stove in the centre of the nave, with the flue rising straight up from it, as in steamboat cabins, and passing out of the roof. This is not a plan of church-warming that will recommend itself to any churchwarden now-a-days. Edlingham, too, of Saxon foundation, has a stove in front of a pillar in the north aisle, the pipe of which passes through the roof. In the fine old church at Norham, an open fire has been boldly adopted at the west end. There are, however, two stoves with pipes in the aisles. As far as cheeriness and warmth are to be considered, there is of course nothing superior to the open fire in a properly-constructed grate; and the line drawn between the ecclesiastical fitness of these and stoves is quite arbitrary. If the exterior of a church is to be marred, as some would consider, with flues or chimneys, why not fearlessly make provision for open fires at once, with, perhaps, low-hooded fireplaces?

Bamborough Church has a square stove in the chancel, and another in the north transept. The interesting Norman church, with its Early English chancel, at Mitford, is warmed with a stove with a descending flue, placed midway in the centre aisle. The modern church at North Sunderland has no better expedient for warming than a stove at the chancel arch, which leaves the west end cold. Whittingham Church, famous for its Saxon tower, illustrated by Rickman, has adopted the comparatively good plan of making recesses in the walls at different points, for its three stoves. One of these recesses is on the north wall of chancel; another on the north wall of north aisle; the third on the south wall of south aisle, near the porch. This is an improvement upon the rule of placing the black, unlovely objects in the most conspicuous situation possible. Doddington Church has a stove exactly in front of the chancel arch, with another midway in the nave; and Cerham Church, also, gives the ugly stove the most conspicuous position at disposal in front of the altar railings. Chatton Church, restored within remembrance, has been scarcely better considered, having a round stove in the centre aisle at the west end, and another at the east end of north aisle.

It will thus be seen that the art of church warming is at present in a very low stage of development. But it is a necessity that progress will compel us to grapple with and master. The hot-water processes require that the building should be air-tight, or the heating power is inefficient,—a state of things it is difficult to obtain, and scarcely desirable. Where, however, expense is no object, either for apparatus or for fuel, as in the case of St. Michael's, Alnwick, where the Duke of Northumberland pays all costs, and the scheme is considered from the beginning, and

the pipes and boilers made sufficiently large, and the water heated several times in the course of the week, this plan is found to answer well. Under other conditions it is a failure.

The hypocaust-like approximation of the underground furnace and flues is found to answer tolerably well in many instances, although subject to the inconvenience of not drawing well in some winds. Open fires in various parts of a church, with firebrick largely used in their composition, and ecclesiastical appearance considered in their design, have not yet had fair trial. But, apart from the contrivance with which the warming is effected, there should be a more general recognition of the abiding need in our humid climate of attending more studiously to the condition of our ecclesiastical fabrics. No church should be shut up for a week; and there are many, the situation of which imperatively requires that they should be cared for every day.

THE TREASURES OF NORFOLK

FOR THE "COMING" PORTRAIT EXHIBITION AT SOUTH KENSINGTON.

THE county of Norfolk, once extremely rich in works of art,—in early ages in its cathedrals, its churches, and its castles, in later times in the halls of its nobility and gentry,—has been sadly stripped. Less than a century since, the grandson of Sir Robert Walpole, Earl of Orford, the hated nephew of Horace of Strawberry-hill, had not sold the contents of Houghton to Catherine of Russia, shipping the Houghton of the first earl to the inaccessible Hermitage at St. Petersburg. Less than fifteen years since, Wolterton, in Norfolk, the seat of "Old Horace," has been stripped and van-loaded to the inevitable hammer that sounds so frequently and honourably in the great room of Messrs. Christie, Manson, & Woods, in King-street, St. James's, London. Yet, in spite of such art losses, and of others in art treasures, Norfolk has *not* been reduced to its reputation in dumplings all the year round, and its Leadenhall Market supplies of turkeys at Christmas. It has its unrivalled Lynn cup and its noble Lynn brass,—one of the very finest of brasses to be seen in England, rich as England is in sepulchral monuments.

Beyond its wealth in Mediæval art, Norfolk is rich in historical portraits,—portraits that will yield a fair harvest, if rightly gleaned. What the county possesses in this way, and will doubtless send to South Kensington in the spring of the present year,—the Royal Prince asking, the Earl of Derby (the President of the Exhibition) requesting, and his son, the noble member for King's Lynn soliciting,—form and supply the subject of this communication.

At Sandringham, close to the lobster-washed sands of Cromer (known in art by the loving and careful pencil of William Collins), the heir to the throne of Queen Victoria,—

"Of virtuous father virtuous son,"*—

has erected a palace, and is fast filling it (so rumour runs) with works of art.

It cannot, however, be expected that a hall of a young prince, both of yesterday's date, can be rich in early English portraits; of Plantagenets, Yorkists, and Lancastrians; of Tudors and of Stuarts; of Howards and of Gorings: so from royal Sandringham we shall drive to noble Holkham Hall, the seat of the Lord Lieutenant of Norfolk; no less a person than Thomas William Coke, second Earl of Leicester of the last creation.

Here, however, rich as Holkham is in works of art and its woods with game, we have no "preserve" of portraits to bag. We shall not find here a similitude *ad vivum* of Mr. Attorney-General Sir Edward Coke that we should "enter" for the keen criticism of a Kensington jury on a public day.

At charming Blickling, near Aylsham, we should knock and ask for the Vansomer portrait of Chief Justice of the Pleas, Sir John Hobart, of the time of James I., additionally interesting from its costume; then we should certainly carry away the curious and suggestive full-length portrait of Henrietta Hobart, Countess of Suffolk—the Marble-hill, Twickenham,—mistress of George II., and the friend and correspondent of the great Lord Peterborough, of Swift, of Pope, of Gay, and of Horace Walpole.

When at Fakenham, or Rougham, we should "haste, post haste,"—(as the old post-bagmen were often directed to haste, "on their lives,") to Raynham, the seat of John Townshend, Marquis Townshend, whence, after presenting a royal sign-manual warrant, countersigned by the Secretary of State for Home Affairs, we should carry away (with Horse Guards or Scotland-yard force, if necessary) the whole of the full-length portraits of eminent Englishmen who fought in the Low Country wars of Queen Elizabeth and King James, taking extra especial care of the two brothers, Sir Francis Vere and Sir Horatio Vere.

While in this neighbourhood, we should be proud to find anything like a *traditional* portrait of our famous Lady of Walsingham; or, while looking about us at Salle, we should be in ecstacies were we to stumble upon a genuine Queen Anne Boleyn, or even a Boleyn Viscount Rochfort. Hereabouts ask for "Quarterly Review" Elwyn.

At unfortunate Windham-haunted Felbrigg, we should be glad to fall on—by accident or otherwise—a portrait of the *statesman*, Mr. Windham, the friend of Dr. Samuel Johnson, and many distinguished men; the forthcoming publication of whose "Diaries" promise, by the samples we have seen, a treat for an April season, and an honoured place on the shelves of skilled collectors of readable works.

At Rougham once more, we hurry, still untired and athirst, for Houghton Hall, the stone-built mansion of "Bob the poet's foe," prime minister Sir Robert Walpole. The Walpole portraits are still here, and will well repay a visit, and more than a choice example, historically and biographically, for the Kensington exhibition. Are we presuming when we more than think that our readers will be pleased with knowing what the *Builder* is doing in this way?

First of all, in spite of its size, 6 ft. 10 in. high by 8 ft. 5 in. wide, we see a visionary van for carrying to Kensington, from the hunting-hall we are in, "The Hunting Piece" by Wootton, representing Sir Robert Walpole on horseback, his friend, Colonel Charles (Mrs. Oldfield's) Churchill well seated on his saddle. Sir Robert Walpole's face is well known, not so the portraiture of the white horse he is on, the horse being no other than the actual horse "Chevalier," taken in Scotland in "the fifteen" (1715), and "the only horse the Pretender ever mounted there."* Special trains from Culloden-Inverness to see this picture.

Then we should mark for removal the three-quarter of Sir Robert when "secretary at war" to Queen Anne, a highly-interesting portrait by Jervas, and by Pope's Charles Jervas in his happiest mood.

Still "hungry," we should set apart, in "The Little Bedchamber," Dahl's portrait of Catherine Shorter, Sir Robert's first wife, and the mother of the letter-writer Horace, who has *twice* mentioned this suggestive portrait. In his "Ædes Walpolianæ," the "Horry" of Pope's "Lady Mary" calls it "an exceedingly good portrait;" and in his account of Dahl, in his "Anecdotes," he refers to it once more,—"In my mother's picture at Houghton there is great grace, though it was not Dahl's most common excellence." Portraits of the mothers of great men have an undefinable attraction. Horace Walpole's affection for his mother never forsook him; seventeen years after her death he erected a statue to her memory, in King Henry VII.'s Chapel in Westminster Abbey.

At *Narford*, in Norfolk, the seat of the Fountaines (so rich in old china collected in Queen Anne's reign), an Edward VI. and Queen Elizabeth to the knees, assigned to Sir Antonio More, should not be overlooked; nor should a believed-in Holbein of Queen Anna Boleyn be passed over hastily. A Sir Peter Lely painted De Grammont heroine or two may be found, and safely admitted as—good.

And thus ends these Norfolk "notelets" for Kensington use, or, as Sir Walter Scott's friend, Charles Kirkpatrick Sharpe, was used to call his really curious bits of information he was wont at times to send to the great poet, antiquary, and novelist,—

"Some Nothings for Sir Walter's use."

A paragraph or two more:—

Whilst the travelling *employés* of the Kensington Museum are scenting and scouring ducal Norfolk from north to south and from east to west, it should be part of their instructions (for their better information and guidance now and for others hereafter) to be on the look-out for portraits of "Norfolk worthies," of whose lineaments as they lived we know too little,—men like Bishop Joseph Hall and Richard Corbet, of Norwich; men like Sir Thomas Browne, of Norwich ("Religio Medici"), and Sir Roger L'Estrange, of Hunstanton, of whom many wish eagerly to know more. A genuine likeness of Poet-Laureate John Skelton, of the time of Henry VIII., would delight more people than his able editor, the Rev. Alexander Dyce; while a portrait of Phineas Fletcher, rector of Hilgay, in Norfolk, would be found acceptable to all who love the poetry of the age of King James I. A portrait of Professor Porson, a native of East Ruston, would be welcome to scholars.

To please elderly ladies, Dunham should be searched for a portrait of Cowper's Mrs. Unwin, "Mary" of the "needles,"—death took her at Durham. Norwich might be found to contain a portrait of Henry Headley, the poet and editor, who died there in 1788.

Stark and "old Crome of Norwich" might be noted usefully for other purposes than a London exhibition, which commences and expires in a London season. A characteristic portrait of William Wilkins, R.A., architect of the London University and of the London National Gallery, might be noted as a native of Norwich, in Norfolk; and, with all his waste of space in porticoes to let and corridors and passages that led to nothing, William Wilkins was—a skilled architect.

PETER CUNNINGHAM.

* Milton of Mr. Lawrence.

* A Description of the Pictures at Houghton Hall (Walpole's Works, II. 241).

ARCHITECTURAL WORKS IN GERMANY.

Prussia.—At Berlin the Government are about to lay before the two Legislative Chambers the plans of a new Parliament House for their approbation, and to ask the Lower House for a pecuniary grant for the execution of the works. The intended site is the one hitherto occupied by the Porcelain Manufactory in the Leipzigerstrasse. The front buildings of that establishment are proposed to be left intact, but to undergo various alterations, and then to be used as parliamentary offices; whilst a new erection, containing a hall of assembly for each of the legislative bodies, is to be built in the garden behind, but connected by wings with the building fronting the street. The plans and estimates in question are only of a preliminary nature, and have been made by Government architects connected with the Ministry of Commerce and Public Works. If the proposal meets the approbation of the Legislature, experienced architects are to be sent to London and Paris to study the arrangements in those cities, and to prepare more elaborate designs and detailed estimates. It is stated that the building of the proposed new Houses of Parliament will last five or six years; but a great deal of water will run into the sea before the plans and estimates are completed, and the foundation-stone laid. The new Exchange at Berlin is to be ornamented with a colossal marble statue of the present King of Prussia, the work of the artist Herr Siemering, who has just completed it by order of the well-known Berlin banker, Mendelssohn-Bartholdy (the brother of the late musical composer), who makes a present of it to his fellow-townsmen. The statue is to be placed in the vestibule of the new Exchange building. The Rauch Museum is nearly completed, and will be opened early in the spring. It is intended to contain exclusively the works of that celebrated artist, lately deceased, in imitation of the Thorwaldsen Museum at Copenhagen. A Paris paper, in lately giving a description of the building, and misled by the name,—*rauch*, in German, signifying *smoke*,—adds seriously, "Our Teutonic neighbours can do nothing without smoking, and have just raised a temple to sacrifice on its altars the inevitable cigar and the cherished pipe!"

Cologne.—The total receipts of the Dombau Association, for the completion of the cathedral, amounted, in 1865, to 234,000 dollars, of which 106,000 dollars were raised by voluntary subscriptions, 175,000 dollars the proceeds of the lottery, 50,000 dollars the Government annual subvention, and 3,110 dollars from legacies. The committee have applied to Government for permission to get up an annual lottery for nine years more; and if granted, they hope by their own personal exertions to make the receipts amount altogether to 250,000 dollars a year for

the above period, by which time it is hoped and expected that the works will be finally completed, as the estimates for the remaining portion are still 2,250,000 dollars, which is just one-half of the sum that the railway-bridge over the Rhine at Cologne cost, the length of which is exactly equal to the height of the two towers of the cathedral if piled one on the other. The glass paintings for the two windows of the cathedral, — legacies from a deceased lady named Schaafhausen, and the late President von Wittgenstein, -have just arrived from Munich, where they were executed. They contain together eight figures of saints, and are spoken of as perfect models of the art of painting on glass, which was long supposed to have been lost, but has been now re-discovered by modern ingenuity, and is considered fully equal to the glass-paintings in any of the old cathedrals, both for stability and brilliancy of the colouring.

Aix-la-Chapelle.—The Polytechnical School at Aix-la-Chapelle, the building of which has been commenced, is to be finished by the autumn of 1868. The whole building, including the chemical laboratory, covers an area of 35,161 square feet, all covered in with arches of solid masonry. As compared with the extensive Polytechnic Schools of the south of Germany and Switzerland, the relative proportions stand as follows: — The Polytechnic School at Zurich, exclusive both of the laboratory and of the wing that connects the building with the university of that city, covers an area of 51,726 Prussian square feet; the Polytechnic School at Carlsruhe, 33,909; the Polytechnic School at Stuttgart, 22,711; and the Polytechnic School at Vienna, 16,700 ft. Thus it will be seen that the new Polytechnic School at Aix-la-Chapelle is only exceeded in extent of area by the establishment of a similar nature at Zurich. The celebrated professor of chemistry at the university of Munich, Baron von Liebig, has been officially consulted as to the most practical way of fitting up the chemical laboratory in this new institution, which is to be called "The Rhenish-Westphalian Polytechnic School."

Saxony.—The restoration of the Church of St. Sophia, at Dresden, is progressing rapidly, as the works have not been hitherto interrupted, owing to the extreme mildness of the weather this winter. The new front which is being added to the original structure, and contains a double portico, is 88 ft. in width, and has now been brought up to such a height as to admit the lengthened roof of the church being extended over part of it, whilst the rest will be carried up higher, as it is to terminate in two towers. ——Subscriptions are being made among the Polish residents at Leipzig for the purpose of purchasing the plot of ground on which stands the monument of Prince Poniatowsky, who, twice wounded at the battle of Leipzig (October 18, 1813), was eventually drowned in attempting to cross the Elster, on the retreat of the French army after that decisive action. The owner of the so-called Reichenbach Garden, in which the monument was erected, being dead, the ground has been purchased of his heirs for building purposes by speculators, who offered the monument for sale to the Emperor of the French; but, as he has declined to purchase it, the Poles are taking the matter in hand in order to preserve the memory of the deceased prince, whose name is written on one of the brightest pages of their country's history.

Bavaria.—The subscriptions that are being made for the erection of a second Protestant church at Munich have proved eminently successful. Amongst the latest donations received is one of 1,000 florins from the venerable ex-King Ludwig I.

THE LATE JOHN GIBSON, SCULPTOR.

The north-east wing of Trafalgar-square, Charing-cross, in London, may well go into mourning. In the December of the year so newly closed died Sir Charles Eastlake, president of the Royal Academy of Arts in London, who dedicated and devoted a life of many years to Italian art, working with the *Devonshire* strength and soul within him to the seemingly hopeless task of reviving an extinct race of "Virgin and Child" painters, of "Crucifixions" and "Entombments." "The genius and the faculty divine"* (clever, accomplished, and resolute as he was) were not within him. And now this January of 1866 has brought the intelligence, not unexpected, that fair Italy has taken from among us a great English sculptor,—born an artist,—trained in academies and schools to be a sculptor, and in his way not soon to be forgotten,—a man who gave his "nights and days" —not to Addison and Steele, or Shakspeare and Milton—but to Phidias and Praxiteles, to Canova, Flaxman, and Thorwaldsen; and has left behind him many statues that will long remain, in conception and execution, monuments of reproductive and re-heated or revived art.*

Caernarvoned-Conway, in North Wales, was the birth-place of Gibson. The three-plumed principality had done nothing for art—through her Llewelyns, her Fluellins, and high-born Hoels, her Morgans and her Wynnes, until she gave birth amidst her mountains and her beacons to Richard Wilson, our English Claude. Since then poetic Wales can justly boast of giving birth to 'Gibson of Rome," as he loved to be called, though "Gibson of Wales," a like unregistered distinction, was always dear to his heart.

John Gibson was born in 1790, at Gyffin, near Conway—the son of William Gibson, gardener, of the parish of Gyffin, and Jane Roberts, his wife. He was baptized on the 19th of June in that year. His age at his death is therefore easily calculated. The art of sculpture is a healthy occupation.

From Wales he made his way to Liverpool through the kindness and liberality of his father's master, a Griffiths of good family. In princely Liverpool he was apprenticed—like Chantrey, at Sheffield, before him—to a carver in wood (or cabinet-maker, or carver and gilder). His masters' names—such minutiæ well merit preservation—were Messrs. Southwell & Wilson.

While an apprentice, the sculptor-to-be of "The Tinted Venus," is said to have modelled in wax a figure of "Time," with the usual attributes assigned to that allegorical old gentleman, who has been found in running a race with man not to be "subject to any contingencies."

A love of nature, of infancy and innocency, was innately pure (as from a fountain head) in our great sculptor. A little anecdote will illustrate what we say. When Gibson was day and night at work on the statue of Her Majesty for the House of Lords, he was frequently at "our palace," and sanguine friends would twit him touching a "knighthood" near at hand. That Gibson coveted knighthood none of his friends believed. Whatever expectations they may have had, came soon to an end. A pretty little princess of the blood, an "Alice Maud," or an "Helena Augusta," or a "Louise Caroline," or a "Beatrice Mary Victoria," came, like one of Sir Joshua Reynolds's children, all nature and art, into the room to see "our Phidias" at work. The sculptor, delighted with what he saw, snatched (Hector like) the little Astyanax to his arms and kissed the child. *Exit*—etiquette outraged—sculptor Gibson from "our palaces" at St. James's and Pimlico, and our castles of Windsor, Edinburgh, &c., for evermore.

Nollekens's John Thomas Smith justly boasted, during a long life, that he had been patted on the head by Dr. Johnson, and kissed by blue-stocking Mrs. Montagu. We do not believe for a moment that so great a lover of art as her Majesty is well known to be, had aught in the world to do with the anecdote we mention.

While in Liverpool, his skill and enthusiasm attracted the attention of Washington Irving's *Lorenzo de Medici*, Roscoe. The *Chantrey-statued* Roscoe called the attention of Michel-angelo Taylor to young Gibson, and with this result, that Liverpool was left (1818) for London. Nollekens and Flaxman, and Chantrey (with his Lichfield Children, and Lady Louisa Russell fondling a Bird), were then the leading sculptors in London.

From London, with "letters of introduction," and, better (perhaps) still, with "letters of credit," he made his way (1820) to Rome. In the Eternal City he drank deeply of the "undefiled well,"—acquired the friendship of Canova, and the approbation of Thorwaldsen.

Such approval called the attention of the late princely Duke of Devonshire to the then modest studio of the hard-working and enthusiastic and still-improving sculptor. A commission was the result,—the "Mars and Venus" in marble known and admired by all who know Chatsworth.

Wilkie's "Reading of the Will"—King of Bavaria loved art, and a commission to Gibson followed. The name of Gibson as a great English sculptor is held in high esteem in Munich.

In his thirty-second year our Praxiteles from Wales was seen in Rome by that fine-souled and noble-minded English gentleman, Sir George Beaumont, the friend of Coleridge and Wordsworth, of Chantrey and of Wilkie, whose proffered gift of his pictures to the nation was the splendid bribe that led to the purchase of the Angerstein Collection for the National Gallery of Great Britain and Ireland. What so-correct a judge (who could not be mistaken and would not lie) thought of Gibson at this time (1822) he expressed in a letter from Rome to Chantrey. The words are remarkable:—

"I have given a commission to Gibson; he seems to me to have great merit, and his composition, I think, will please *you*. He is modest and assiduous, with much taste, and, I think, will do us great credit."

"Us," means England. Was Sir George mistaken?

A *rapt* enthusiast in his art, he was *wrapt* up in his art. Conceptions, in no way *misconceived*, crowded his thick-coming fancies, until he became afraid at times of losing the shadow of his well-earned reputation. Yet his name was well known within and without Somerset House, in London, where the bust of Michelangelo does now unnecessary work (yet we would not remove it). In 1833, the Royal Academy admitted him an A.R.A., and in 1836 a *full* Royal Academician.

Works that more than justified his election followed quickly. His *first* statue of Huskisson (in the St. James's Cemetery, at Liverpool) pleased better judges than Liverpool men. His *second* statue, of the same statesman (of bronze, and 9 ft. high), confirmed his reputation. His *third*, at Lloyd's, in London, is liked by the worthies there.

Pleased, but not satisfied, with what he had done, and what he was about, he returned to "Sappho" and "Aurora," and "Hebe" and "Proserpine"—

> "All standing naked in the open air,"

and to "The Hours and Horses of the Sun," but quitted them quickly for more remunerative "portrait-statues." Dead men find means for artists to live.

Mr. Gibson was happily seen to advantage in the "London International Exhibition" of 1862. His marble "Venus," coloured or tinted, attracted admirers and approvers of all kinds,—

> "For fools *admire*, but men of sense *approve*."

Viewed in any light, and by any theory, the "Tinted Venus" of our island-born Gibson is a fine statue,—a seaborn goddess in "antique" born three thousand years after her time. Mr. R. Berthon Preston was in 1862 the much-to-be envied owner of this noble work of art.

Flaxman kept aloof from attempting a "Venus."

Gibson's full-length, 7 ft. high, standing statue of Sir Robert Peel, in the north transept of Westminster Abbey, has many merits. All who love art, all young men who study art as a profession, should contrast Gibson's "Peel," with its companion statue of "Canning," by Chantrey. Merits and defects are obvious in both — we prefer the Canning.

The portrait-statue of her Majesty, Queen Victoria, is a fine example of modern art that will *survive*,—barbarous Huns, and Goths, and Vandals allowing. The tints are introduced with taste, and the statue has that "lion-port" which 'speaks a queen.

* Wordsworth,—"How many are the poets that are sown by Nature," &c.

* There is an excellent engraving of his "Tinted Venus," by W. Ridle, in the *Art Journal*.

THE DEVELOPMENT OF STYLES: EARLY ENGLISH.

The round arch Norman style had undoubtedly attained in England, in its later days, to a very high degree of elaborateness, both in combination of constructive forms and in decoration: these are leading characteristics of the Early English style that, immediately succeeding it, remained imbued with much of the characteristic Norman feeling, and in many respects was but a heightening and a refinement of already declared Norman motives and tendencies; and yet there has seldom, perhaps never, been a more sudden and complete change of style in any art than signalised the translation or transformation of Norman into Early English. It may well have been that eyes accustomed so long to the nu-

merous and grand examples of Norman interiors with their spacious spans, their broad arches, their long lines of even columns or columnar piers, and horizontal stretches of super-imposed and well-distinguished stories, were not prepared at once to break with all the ties and traditions of their national experience; and so the new architecture remained an architecture of stories rather than of compartments, of broad openings or groups of openings, rather than narrow; and while the novelty of the pointed arch was freely introduced, the consequent requisites of thoroughly revised proportions and distributions to accord with its genius were repudiated entirely or timidly tolerated, or degraded by a compromise that deferred a change that should have been allowed at once. The Norman style itself seems to have made some attempts to retain position by assimilating certain cardinal innovations. The prime proportional modification of giving a preponderance of height to the pier arches and openings as compared with the height above, was adopted with more boldness than well-studied effect and happy result at Gloucester; and at Oxford Cathedral we see the same attempt in another and rather curious form, where, instead of the triforium story being lifted up above the summits of the more lofty piers, it is left in position, and the cylindrical piers push upwards and past it, absorbing its proper divisions, and so leaving the story to take bearing as best it might on the sides of the invading and intrusive cylinders.

But the new movement admitted of no permanent or extensive compromise; in a very few years the mighty round arch style that had covered England in the space of a century with monuments, that have such important representatives surviving to this very day, came to an end as a style either of perfected or progressive development, and new fashions reigned, and reigned absolutely, in its stead.

The characteristics of the new style that were sufficient to cast all that was retained of the old into obscurity, if not oblivion, are—

1. The substitution of the pointed for the round arch, all but universally.

2. The largely indulged affection for marble pillarets and shafts, attached, free, and clustered, and even an exaggerated preference for slender proportions in place of the antecedent thick-set.

3. A more refined feeling for appropriateness and delicacy in the profile of mouldings especially displayed in the numerously elaborated suites of archivolts, and with a marked preference for the mouldings of the Attic base, both for bases and circular capitals.

4. Supercession of proper Norman decorative mouldings by restriction to one or two types—the dog-tooth, &c., supplemented by an entirely novel style and type of sculptural foliage lavished upon capital and corbel,—the so-called stiff-leaf, properly stiff-stalk and lobed trefoil foliage.

The extent and suddenness of this transformation were due first to a quick inrush of architectural ideas and models from continental districts, where the art had made progress far in advance of disordered and retarded England; and then to the fact that the resources and organization and self-confidence of England had advanced so rapidly within a very few years, as to be able to leap at once to almost the foremost line of architectonic advance, and at least assert for itself a proper action upon all that it adopted,—an action of reserve as to how much of its old traditions it still chose to stand by,—an action of taste, when we may not rather say caprice as to what changes it would make in its adoption, and what combinations of the remotest models it should be pleased to make essay of, and hold hard on by.

As regards the pointed arch, it had been already not merely invented and adopted in France, but employed with such consistent and instinctive feeling for its artistic value and import as pronounced it the key and characteristic of a proper style. Our predecessors in architectural archæology were wont to make large excursions around the question of the invention of the pointed arch, as their central subject of curiosity; and this general galloping-ground still exercises some adventurous spirits, ever greeting each other as they return but to take a fresh departure, with confident annunciations of "Lo here! lo there!" It may be feared that it is past hope for us to be enabled ever to point out "with finger straight" the one discovery that would go to the root of the matter, —the one man of genius who first penetrated so happily to the spirit and meaning of the motive of the pointed arch, and gave it such monumental enunciation that thereafter its individuality of life was secure, and it opened out safe for ever upon the clear progressive development which has made it a glory and a decoration for the world. It is something that we are able to limit, by not too lax a cordon, its geographical and historical place in the north-west province of France and in the twelfth century.

With respect to general origin, the pointed arch had many, and independent. It occurs casually in such instances as in the interlacing of Norman circular arcades. A more important though in itself equally casual evolution of the pointed arch occurs in the frequent early form of vaulting a square compartment with semicircular diagonal groins. As the width of such a compartment is less than its diagonal, which measures the diameter of the semicircle, the transverse arch, being of equal height and not stilted, will necessarily come out as a pointed arch. Hence the transverse arch in so many examples of sexpartite vaulting shows a point, and pointed also by the same consequence are the arches of the clerestory wall or nook moulding.

The like impending alternative of a stilt, threw a reluctant architect upon the pointed arch in exigences where the height of an arch of narrow span was required to range in line with that of one broader, as on Suger's façade of St. Denis, or in the closely-set spacing at turn of an apse in continuation of the wider parallel columns of choir or nave.

Not to forget such a case altogether it must be set down that undoubted instances occur in which the pointed arch is applied constructively from a recognizable appreciation of its special value and function in construction; though of a truth contrary examples, where the round and pointed arch ought in constructive propriety to change places, are quite as abundant. Then the spirit of ornamentation was alert to avail itself, at any moment, of an effective and piquant contrast for no better reason than has suggested to architects of all time the interchange of angular and segmental pediments over windows. It might, indeed, seem to be as recondite a problem how the pointed arch ever could have escaped invention, as how it ever came to be invented. It was a very different matter to recognise the grounds of natural expressiveness in the form, and to set original examples of the most important developments of the noble and prolific germ.

Much of this progress had already been realized, as we have said, in France when Early English—or English Pointed architecture of any kind as yet was not; and the play and variety of the new form had been already largely drawn upon for architectural effects. These are, indeed, inexhaustible in skilful hands—how liable to abuse in unskilful there are examples enough to show, without quitting Mediæval times to draw disparaging comparisons with our contemporary revivalists. Semicircular arches, whether detached or concentric, differ from each other but in scale, not in proportions; and, as we have seen, those which differ in span can only range in height by eleemosynary stilting. The pointed arch has infinite variability of proportion between span and height available either for play or convenience; nay, in systems of subarcuation or suites of mouldings, each successive arch varies in proportion from the next, because the increments or diminutions of breadth and height are of necessity unequal, and thus each internal arch becomes by the easiest of all gradations more and more acute.

It is worth while to give a word or two, even if digressively, to the organic nature of the pointed arch in those forms of which the element is a simple arc of a circle, independently of stilt or of that approximation to the horse-shoe that results when the arcs approach each other more nearly at the base than at some other point intermediate between base and apex. Fortunately for architecture this latter variety of arch has all but escaped the notice of the traffickers in novel and startling ornamentation. Such arches may be defined as arches of which the arcs are struck from a centre above the level of their bases; and another variety is produced when the centre is below that level. These are of much more frequent application and admissible applicability, and for our present purpose follow the same laws of variation as the intermediate and more legitimate class that are struck from centres upon the level of the base,—or, as we had better say,—the springing. All possible varieties of such arcs lie between the point of spring and the apex of the quadrant of a circle. The double quadrant is a semicircle; the double quadrant less any portion by the apex gives a pointed arch, and all possible, any conceivable or optional number of, pointed arches of the class defined, fall into orderly sequence within the limits of the point of springing and the apex of the quadrant. The limb that measures two-thirds of the quadrant from the point of springing is the side of an equilateral spherical triangle, or, as it is phrased, of an equilateral pointed arch. This figure has the merit that commends itself to all moderate geometricians of being the most easy of all others to draw. It is held that the Mediævals attached some special symbolical value to its tri-unity; a point, as far as we are aware, quite destitute of documentary confirmation, though it may be well founded, nevertheless. Practically, the equidistance of points of springing from each other and from apex tells but indistinctly in an open arch, and would infallibly be lost altogether unless taken upon one highly and chiefly conspicuous line of extrados, intrados, or axis of most distinct intermediate moulding. For in a combination of concentric lines the equilateral triangle has but a single opportunity; of every arc without it the interval of points of springing will be in excess of that to the point to the apex; and of every arc within it there will also be inequality, but with the difference the other way.

Apart from the convenience of the designer and indulgence to the idleness of the draughtsman, it may well be doubted whether any real architectural value attaches to this figure. We are very much inclined to think that the true sites of the expressive power of the pointed arch are to be sought elsewhere, and in another manner, than blind grasping at casual coincidence or unreasoning reliance upon mystical analogies that never pretended to be rational. The most promising attempts would probably be made by adjusting total height and span by definite proportion, both in the clear opening and with the inclusive group of mouldings; and then again by making the height of the points of utmost swell proportionate to entire height, and the breadth of interval here proportionate to interval at springing. We are bound to observe and study nature at first hand in art as much as in science; and if we neglect nature to fly to dim, traditional canons, we shall make the same mistake as the Mediævals themselves, who neglected the stars to pick out an astronomy from the system of the false Aristotle or the still falser Areopagite.

The constructive value of the pointed arch only received its due acknowledgment when sexpartite vaulting was given up at once and for ever; in this system there lay the essential incongruity that it was precisely in the arch of widest span, the arch across the diagonal, that the serviceability of the pointed arch for relieving dangerous flatness at the crown was rejected, while it was applied, if at all, to the narrower transverse. In the form of quadripartite vault that took its place, the section either way gave a pointed arch. When this change was made there was revealed more distinctly than ever the natural affinity of the pointed arch to lofty proportions. This was of vital importance when the Compartment was irresistibly extruding the principle of the Story; albeit there may be reason to think that the harmonies of the broadest proportions of which the pointed arch is susceptible have in consequence failed to be worked out, unless in few exceptional cases.

What progress had already been made in France in the new development cannot be better exemplified than in two monuments of Champagne, in the Church of Notre Dame at Châlons, and in the altered Church of St. Remi at Rheims,—a monument of alteration, displaying as much genius as the original construction at Châlons,—both dating nearly at the same time, both as early as A.D. 1157—1183. In both the beauty and the value of the pointed arch are conspicuously declared and displayed; in both the specific verticality of completed Gothic is accentuated and announced; and thus a full melody is completed, upon the theme of which the key-note had been already struck by Suger at St. Denis in A.D. 1144.

Of these remarkable churches there may be more to say hereafter; enough at present that we have full in view the immediate source from whence came in the grand revising, not to say subverting influence, that changed the entire theory of construction and half the decorative aspect of English architecture.

A reservation is made in the last clause, for

there is another aspect of decorative Early English that carries us,—unless we are much mistaken,—in a far different direction. We do not hesitate to connect the lavish employment of decorative Purbeck marble pillarets in England, with the Italian models of which the Cathedral at Pisa was the great, the much-marvelled, example. This great structure was commenced as early as A.D. 1063, and the persistency of the style is shown by its continuation in the baptistery adjacent and the leaning campanile that were not commenced till a century afterwards, in A.D. 1153 and 1174. The Pisan architects had abundance of ancient coloured marbles to their hand, and, indeed, the very shafts and columns they employed were very extensively of antique workmanship. From these contemporary works it is my belief that the English architects derived a passion for the contrast of materials and for multitudinous enrichment by shafts and shaftlets, though they applied the new-found form of ornament to combinations derived elsewhere than from the great Pisan basilica. We are not aware whether this affiliation of style has been suggested before,—it will cause neither mortification nor surprise should it prove so. There are, we believe, some traces in England—in Worcester Cathedral, for instance—of an attempt, after another Italian example, to gain an effect of colour by alternate courses or voussoirs of dark and light stone. The colours here are in moderated contrast and very aptly in harmony, and it is to be regretted that the design was not pursued. For whatever cause, —lack of material or change of architect and difference of taste,—the contrast is first applied but irregularly, and at last given up.

Thus, in our pursuit of the development of styles we have found ourselves carried onward to Italy, and in face of a remarkable Mediæval monument that bears double relation to classic antecedents, on the one hand, and to Gothic derivations on the other. Let us, in conclusion for the time, make this a standing-place, and looking both before and after, glance over the wide field of eventful architectural history.

The Pisan was a finished model of new works just commencing, exactly when new plans were demanded for Canterbury; its tiers of arcades open and in relief, which, we believe, helped the successful competitor to a leading charm in his design, repeat the well-preserved motives of such ancient works as the Coliseum or Septizonium, with the difference of following the late Roman precedents of arches that spring, as at Spalatro or in works of Justinian, not from an entablature, but a capital.

These structures, ancient and modern alike, are systems of stories, are dominated by horizontal division; but there were ancient forms still closely akin, in which verticality asserted itself and attracted its own school of imitators. These are such as the basilica of St. Apollinare, near Ravenna, or that at Treves, where the wall surfaces exhibited a series of loftily-proportioned pilasters, with arches in relief,—a franker and in all ways better expression of the blind discharging arches latent in the substance of the wall of the Pantheon. At Treves a double series of windows are included with no recognition of horizontal line or string-course, between the boldly vertical piers that rise from the ground to the arch that turns just below the cornice. The development of the motives of which these are but isolated examples from a series of unknown variety and numerousness, was most important; it is traceable both in Italy and markedly along the Rhine countries, and the application of it in one country no doubt reinforced and reacted on that of the other. But Roman works were sufficiently abundant in both for it to proceed in each case all but independently, and common accordingly to both Italy and Romanising Germany are the strips of pilasters that clothe external walls, and sometimes in complete and sometimes in periodical series meet the small arches turned below the cornice. Tall reedy shafts more frequently take the place of the pilasters in Italy, but not in Italy alone, as we see by the western apse and towers of the Mediæval churches at Treves (Fergusson, 572), and the parallel line of derivation is equally unmistakeable on the Rhine and on the Po, traceable through many and many a link of connexion. The more daintily designed churches of Novara, Verona, Modena, Parma, Pavia, and Piacenza, must submit in consequence to claim of cousinship on the one hand by the lean but largely draughted styles of Spires, Worms, and Mayence, and on the other hand need take no umbrage at alliance with the at once broader and better filled out forms of Bonn and Cologne. After the obliteration of so much monumental evidence, even a correct list of dates of those that remain would not enable us to disentangle the exact line of historical and artistic development; nor is this so important in respect of the secondary connexions; it is of far more interest if we can but seize the general interchange of architectural resources between modern and ancient times, between the heirs and the acquirers of the arts of civilization, and so attain to appreciate the spirit and genius with which they turned them to account.

To recur to our more immediate topic, there is much in the mode of employing Purbeck marble shafts in the English cathedrals that a better judgment rebels against. Sooth to say, apart from the disadvantages of a fallacious material that falls before ordinary damps of condensation in a damp climate,—the colour blends not well with any material it is usually used in conjunction with. Nothing but a liberal use of colour,—of tone, at least,—on the associated surfaces can save it from the intrusiveness of an insult on the poverty of the partnership, and its darkness is a certain disadvantage in a country that has seldom any light to spare. Still we may be grateful to Purbeck marble for having been one of the inducements, if vainly to emulate the variegated pomp of Pisa, at least to develop that variety of clustered shafting to which our best cathedrals owe so much of their general charm, as well as the special and rare enrichment of the nobly-moulded and happily-invented suites of archivolts that answer to them.

ARCHITECTURAL EDUCATION SOME TIME AGO.

A MEDAL bearing the portrait of Mr. T. L. Donaldson has been recently struck, as our readers know, at the instance of some of his professional brethren, to commemorate his services as Professor of Architecture in the University College. On receiving it from the hands of Mr. A. J. Beresford Hope, on the 15th ult., the Professor said, after expressing his thanks:—If I have done somewhat in respect to education, perhaps I may be pardoned if for a few moments I briefly allude to the state of architectural education when I was myself a young man. It is now five-and-fifty years since I entered my father's office as an architectural pupil, and what was the state of our art then? There were no means of education within the reach of the student in connexion with his profession. There was no University College—no Queen's College —to throw open their halls, and give instruction in their schools. My father left me free to follow my own wishes, and I sought to acquaint myself with the literature of our art; but there was no library—as there is now in the room adjoining this—of architectural works: and what were the books which had at that time been published? Pugin was then only beginning his series of Gothic works; Britton was in the midst of the publication of his "Antiquities of England." What were these to a young student? And Carter, admirable as he is as the first to discriminate the styles of Mediæval art, still his work was insufficient to convey the knowledge which the student ought to possess. I wanted to draw; and I felt to conquer the human figure was the only way of getting the mastery of the pencil. I went, therefore, to the classes of Mr. Sass, who was the originator of that school, afterwards so successful in Bloomsbury-street. I had to go up to an attic in a house at the corner of King-street and Holborn, and there I worked from seven till nine in the morning, under the advantages of a good light from the north and a few plaster casts, to get a knowledge of drawing. I afterwards obtained an admission into the Royal Academy, where I studied the antique. But what were the opportunities there? If I had to make a study of an Apollo, or a Venus, or the Laocoon, it was necessary to make the drawing eighteen or twenty inches high. What student's mind could grasp the proportions at such a scale on which to draw the human figure? Those acquainted with the sketches of the great masters know, that they made them about six or eight inches high, and afterwards enlarged their figures from those sketches. But they did not pretend to draw them to a large scale at first. I went through the school of architecture—such as it was. I wished to study mathematics; but there was no professor of that science, and I went first of all to a Scotsman; and he was the means of introducing me to a very remarkable man—a clerk in the Legacy Duty Office, in Somerset House—who was considered particularly skilled in mathematics, but was blind. That man was no other than the son of Robert Burns, the Scottish poet—a most amiable, modest man; and he gave me my first instructions in mathematics. He had such a perfect mastery of figures, that he would in the middle of an equation point out if I committed any error, discovering it at once by mere mental calculation, however complicated the operation. I then wanted to learn water-colour drawing, and for that purpose I went to John Varley. My hour for visiting him was seven o'clock in the morning, because he had so large a practice that that was the only time he could afford me; but I found, instead of confining himself to teaching me water-colour drawing, he was desirous to initiate me into the mysteries of astrology! which was his great hobby. On the first morning, after being with him a quarter of an hour, he asked me, "How old are you? In what year were you born? In what month? On what day? At what hour?" I replied that those were matters of which my mother was probably much better cognizant than myself. Varley replied, "Ask your mother, and when you come next time I will cast your nativity." He was an admirable master, but was ever talking about his favourite study of astrology! I mention these circumstances, gentlemen, to show you the great difficulties, which a young man had to encounter in the acquisition of his profession at that day. Was not that enough—after having visited Italy, Greece, and Turkey—to urge me to exert myself to establish in this country an efficient school of architecture? After being for some years in practice, I felt, in common with other professional brethren, the great want of an institution in which the character of the profession should be high, and conduce to that result; and hence the origin of this Institute, which progressed to its present position by steps so graphically pointed out by our worthy president. I was afterwards, as you are all aware, appointed to the Professorship of Architecture in University College, and in that position I felt an immense weight upon me. I was really frightened after having offered myself, when I found I was accepted; and I wrote to the authorities of the College to ask them to permit me to withdraw, for I felt I was inadequate to carry out the duty: they would not grant me their permission to do so. I was obliged to put my shoulder to the wheel, and endeavoured to do my best to interest the young men in their studies, laying before them the best examples. I made myself more thoroughly acquainted with the principles of the art, and I endeavoured to impart them to those under my care in a manner that should give them a love of the art itself, and enable them to master all its difficulties. This shows the obstacles hitherto experienced; and I believe the present state of our art, and the low condition of art-criticism in this country, prove how necessary is a good substantial education to enable the young architect to carry out his works in a manner which shall represent the feelings and sentiments of the age in which he lives, and so as to be local, independent, and English, instead of being what they are now. There are many noble works of art—Mediæval, Italian, and Classic—which have been executed within the last few years, and the talents of my professional brethren are largely exhibited in many of the works now carrying out. But there is also so much of wild caprice observable in many works in the metropolis, as to prove how essential is the want of a good school to inculcate sound fundamental principles of art. This has been already begun in France in October last, and I think we have ourselves a lesson to learn from it. I had the honour of presenting to the Institute a scheme from Monsieur Trélat, a professor of that school, and our friend Mr. Burnell subsequently forwarded to us a pamphlet on the same subject. In France they have established a regular system of education, which is to occupy a period of three years. The students are to be engaged in their duties nine months every year. They attend daily from half-past eight till half-past four, from which one hour is taken for dinner. They are to go through the whole system, and the cost of the three years' education will not exceed 100*l.* for each pupil. They will be taken through the whole history and principles of the art, mathematics, physics, geology, knowledge of materials, and all sciences connected with the profession. In fact, it is a thoroughly complete

system, not to inculcate any particular style of art, but to initiate the student in all the studies which are necessary to form his taste. This, however, is not to supersede the instruction in the office of the architect, but it is only preliminary thereto, and to make him more efficient to enter upon the practical application of the principles he may have learned. Thus in the practice of their art they will bring into play all the science and all the knowledge acquired in the schools.

ON TIMBER SUITABLE FOR BUILDING PURPOSES.

NORTHERN ARCHITECTURAL ASSOCIATION.

At the annual meeting of this Association, held on the 23rd ult., the president, Mr. J. Green, Newcastle, read an address on timber suitable for building purposes. In the course he said,—Without entering into a discussion of the anatomy and physiology of trees, and the properties that will hence result to the timber of each class or natural order, I intend to confine my remarks to topics of a strictly practical character. In the first place, I will offer some remarks on the timber of those trees which have the medullary rays in their composition; after which, proceed to make some remarks upon the number of those trees in which the medullary rays are absent. The timber of the trees in the first of the classes into which I have divided my subject constitutes that which is generally and popularly known as hard wood, and of which the oak, the ash, the elm, and the European or Spanish chestnut may be considered as the principal types. That in the second of the above referred to classification is the timber of the *coniferæ* or resinous woods; and as examples the Scotch fir, the Tyrolese pine, the white or Weymouth pine, the pitch pine, the Norway spruce, the larch, &c., may be pointed to. It may now be remarked that, in comparing the nature of the timber required for the purposes of domestic architecture under different circumstances—as, for instance, previous to and during the Tudor period, and of that required during the present time—we find a marked and important difference to exist. The resinous wood of the coniferous trees comprising the immense pine forests of Northern Germany, Russia, Norway, and Sweden, whilst admirably adapted to the roof trusses and floor joists of the stone and brick buildings of the present day, would be ill-suited to the framed erections of from 300 to 400 years ago. Besides the risk of fire that would have attended the use of fir timber in such edifices, it would have been wholly unfit for the system of carpentry which then prevailed. The use of pins and treenails, as fastenings, would split fir, whilst such fastenings are the best that could be used in the oak carpentry of our ancestors. The reason of such immunity from splitting by such fastenings in the Mediæval system of carpentry alluded to is the binding of the yearly increase by annular additions of the size of the timber by the medullary rays of the hard wood then used, which is wholly wanting in the timber of trees of the pine tribe used in the system of carpentry of the present time. Here, then, by an altered and a much-improved system of house-carpentry at the present day, has opened to us the use of the *Pinus sylvestris*, which, when grown on strong soils, and in the cool climate of the Northern countries of Europe, is by far the strongest, the stiffest, and most durable timber for edifices erected according to the mode of building of the present day, at a most reasonable cost. Although this is decidedly by far the best variety of pine for building timber when grown under favourable circumstances for producing a good quality, yet there are many other varieties indigenous to different countries and climates, which, although not so valuable for main timber in carpenter-work, are better adapted for the finer fittings, or the joiner-work of houses. The varieties to which reference is now made are the white or Weymouth pine, and the yellow pine, both from America. The Norway spruce, the *Pinus abies*, from which the white Norway deals are sawn, and also larch, make excellent flooring-boards and tread-boards for stairs. Spruce is also excellent for framed-work, such as doors, panelling, and the like; but is too resilient for beams, or for any purpose subject to cross strain, without allowing a much greater scantling than would be necessary for the best fir, or for well-grown and well-seasoned oak. Of domestic-grown timber suitable for house-carpentry the catalogue is certainly a short one. It comprises but three descriptions of hard wood, and perhaps a fourth, if elm be included, and but two of the timber of the coniferæ. The two varieties of oak which are indigenous to Britain are the *Quercus robur* and the *Quercus sessiliflora*. The heartwood of these varieties of the oak, when the tree is well matured, is unquestionably the very best, all properties considered, of any British-grown timber. It is, however, becoming scarce, and timber of good quality of these varieties is so much in demand for shipbuilding as seldom to be available for house-carpentry, except at a very high price. In speaking of these varieties of oak timber for the purpose of house-carpentry, it must be borne in mind, that when the timber is young, it must not be considered better than, if so good as, red fir from the Baltic ports, or from Norway, or from Sweden. The hard-wood timber of home growth next in importance to the oak, is the European or Spanish chestnut, *Castanea*. This timber is as durable as either variety of oak just mentioned, and, in general appearance, it bears a strong resemblance to the *Quercus sessiliflora*, but it is inferior in strength to either variety of British oak spoken of. The last of the British-grown hard woods to be mentioned, although seldom used for the purpose, but which may be found useful under some circumstances in house-carpentry, is elm. It has the property of not splitting, and, when mortised, biting a tenon inserted into it tightly; but it is extremely difficult to work. It, however, makes a better king-head in a composite roof-truss than any other kind of timber, but is inferior for this purpose to cast iron, and can only be recommended for that use when few such members for roofs of a building may be needed. Any other of the British-grown hard woods it is unnecessary to speak of, as all of them, on account of their liability to the attack of insects, rapidly deteriorate in strength, and fall into a state of decay. Of the timber of the coniferæ of domestic growth, the larch and the *Pinus sylvestris* grown in the Scottish islands, are the only kinds suitable for the use of the house-carpenter; the former mentioned for the purposes already spoken of, and the latter mentioned for inferior work in general carpentry. It may here be mentioned, to condemn the practice, as the most egregious folly, of proprietors of estates using home-grown timber, because it happens to be on their estates, in the erection of buildings for agricultural purposes, when the cost of sawing and preparing any such stuffs brings the price of it to much more than Baltic deals, in every respect infinitely superior to any home-grown timber, except such as will always command a much higher price than any ready-sawed foreign timber can be purchased for. Besides oak of British growth, previously treated of, oak is imported from the Continent of Europe and from America. The Turkey oak, *Quercus cerris*; the Holm oak, *Quercus ilex*; wainscot from Riga and Dantzig, and the cork-tree oak from the Mediterranean, are from the former-mentioned part of the world; whilst the American oak, *Quercus alba*, and the Canadian oak, *Quercus rubra*, are American varieties. All these foreign varieties of oak are, however, inferior to English oak in durability. Riga wainscot, imported in quartered logs, with the bark on the outside surface of the quartered tree, and sold by the quantity of 18 ft. cubic measure, is frequently very beautifully mottled, and valued by cabinet-makers for the manufacture of furniture, and by joiners for doors, panelling, window sashes and cases, floors and stairs for the best fitted houses. Mahogany is still more useful for the purposes mentioned than wainscot. Besides the remarks I have just had the honour to submit to the present meeting of our association, I would wish to draw attention to a matter of considerable importance in the use of timber in domestic architecture, and that is the preparation or seasoning of timber, with a view to prevention of its decay. The seasoning of timber is, no doubt, best and most perfectly attained by air drying, that is, in being subjected to a current of atmospheric air in the shade, and protected from rain. This, however, requires great length of time thoroughly to effect, and has led to several expedients to be had recourse to, to obtain the same results in a much less space of time; but although effectual to a great extent for the immediate purpose in view, all the artificial processes to which I allude are accompanied by some objectionable result so as greatly to deteriorate from their merits, and thereby to render them in a greater or less degree failures. I shall now request the further indulgence of your attention to a few brief remarks on the processes of artificial seasoning of timber which have been most frequently adopted with a view to increasing its durability. The first of the means alluded to, rendering timber more durable, to which I will refer, is placing it in a stream of water saturated with lime for eight or ten days. This process has certainly the effect of rendering timber more durable, and less liable to the attack of worms; but it, however, becomes so hard, after being dried, as to be very difficult to be worked; and, therefore, the process should be applied after the timber has been sawn into the scantlings in which it has to be used. This process, it may be remarked, is to be recommended in cases where home-grown timber—particularly fir—is used for building purposes. By the process of creosoting,—that is, of timber after being heated being painted over or steeped in Stockholm tar, oil of tar, or creosote, all of which articles are the same, but in different degrees of purity,—the timber is rendered more durable and less liable to the attack of worms; but by this process it is rendered very inflammable and liable to accident from fire; in addition to which the disagreeable odour from timber so treated renders it objectionable for being used in the building of dwelling-houses. Kyan's process for prevention of decay, which consists in impregnating the timber with corrosive sublimate, renders wood to which it is applied brittle. Timber, when steeped in a strong solution of alum, soda, and in some other solutions of mineral salts, is free from the attack of insects and rendered n a great degree fire-proof; but the process greatly impairs its strength. Whatever may be the direct advantage obtained by the processes of which I have just spoken, when accompanied by some objectionable property or other, they cannot be said to be worthy of adoption in preference to, or to supersede, the air-drying of timber to season it for building purposes, except when the saving of time may be an important object. Before dismissing the present topic, there is an important fact in relation thereto yet remaining to be noticed, and which appears to be but little understood, or, at least, seldom attended to. The fact to which I allude is, that when timber used as posts inserted in the ground is placed in the inverted position to that in which it stood when growing it is very much more durable than if placed in its natural or growing position. This is easily accounted for in the valves of the sap vessels of the growing timber opening upwards; but when that position is inverted, the valves of the sap vessels become reversed in their action; and, therefore, when timber is used as posts inserted in the ground, the valves being so reversed prevent the ascent of moisture from the soil in the wood. A safeguard against the decay of posts, which should never be omitted to be taken, is charring their lower ends to the distance of several inches above the ground in which they are to be inserted. I may also remark that charring the lower end of posts is to be preferred to the use of creosote.

BARNARD CASTLE, DURHAM.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the meeting of this Association, on January 24th, Mr. Thomas Wright, M.A., in the chair, a paper on Barnard Castle, Durham, by Mr. T. W. U. Robinson, of Houghton-le-Spring, was read. It contained a concise history of the founders and successive owners of the fortress. Barnard Baliol founded the castle in the first half of the twelfth century, and it shortly became the key to the territory beyond the Tees, on which river it stands. In less than 200 years seven lords of this line succeeded one another, the seventh exceeding all his predecessors in the vastness of his territorial possessions, extending into most counties in England and into Scotland. His wealth brought him the crown of Scotland, and his prosperity induced the enmity of his sovereign, the English king; so that within the 200 years he died destitute, and in exile, in Normandy, in 1314. For a short time, the prince bishop of Durham held the castle after 1296; but the king soon passed it to Guy Beauchamp, Earl of Warwick, and for five descents it remained with that princely family during about 200 years. It then fell to the possession of the Duke of Gloucester, Richard III., and became a royal fee, which it continued to be to the reign of

Charles I., who granted it to Sir Henry Vane, of Raby, with whose descendant, the Duke of Cleveland, it continues. The chief interest of the place is now to be found in the great historic names with which it is associated. The ruins contain but a very small part of the work of the Baliols, and are more remarkable for the picturesque beauty of their situation than for their architectural attractions. A fine Norman gateway and massive circular tower, the latter attributed to Bishop Bek, of Durham, during his short tenure at the end of the thirteenth century, are, however, well worth attention.

ECCLESIASTICAL ART IN IRELAND.

There are at present in the workshops of Messrs. Early & Powell, in Camden-street, Dublin, some painted glass windows, intended for the chapel of the Convent of Mercy at Parsonstown, of which we hear good things. The colouring, says our correspondent, is brilliant; the treatment of the sacred subjects artistic and expressive. The expense is to be defrayed by the amount of a legacy left for the decoration of the chapel of the Convent of Mercy at Birr by the late Mr. Joseph Burke, of Elm Hall, in the neighbourhood of Parsonstown, and of Fitzwilliam-place, Dublin. These windows include representations of the Holy Virgin, St. Joseph, and St. John the Baptist.

SANITARY MATTERS.

Llanelly.—The fevers that abound here now and have been raging for the last twelve months, having caused considerable alarm to the inhabitants generally, they, through the Board of Health, memorialised the Home Office to send a medical man to inspect the town. The result was that the Government authorities sent Dr. Hunter, who visited the worst neighbourhoods and the principal parts of the town, where fever has been most fatal. Dr. Hunter gave it as his opinion that the town was in a most unhealthy state, and required immediate attention and cleansing. The drainage, he urged, ought to be completed thoroughly; and what is done of it ought to be well ventilated.

Hulme.—At the last meeting of the Chorlton Board of Guardians, a letter was read from the medical officers for the Hulme district, asking for an augmentation of salary, on the ground that their duties had been largely added to by the enormous increase of sickness among the poor—the cases requiring medical attendance having doubled since the year 1859; and they believed that this increase was likely to be permanent; for, owing to the gradual absorption of dwellings for the erection of warehouses in Manchester, great numbers of small houses of the worst class in point of ventilation and drainage were springing up in the outskirts; and the defective sanitary condition of these dwellings would be likely to add to rather than diminish the prevalence of disease. The letter was referred to the out-relief committee.

Newcastle and Gateshead.—In addition to their ordinary duties, the Gateshead guardians are still required to discuss mortality tables and devise measures calculated to improve the health of the Union. At their last meeting, it was stated that fever was so prevalent that proper hospital accommodation for the patients could not be had. It was resolved, therefore, to secure a building and adapt it for the purpose required; and a committee was appointed to take the required steps for carrying out the object.

PARIS.

The works of the Halles Centrales are pushed forward with all the vigour necessary for a work of such importance, covering, as it will when completed, 40,000 square mètres (9a. 3r. 21½p.), without counting the land occupied by the service or the boundary roads, specially reserved for commerce and circulation. Commenced in 1854, the eastern block was terminated in 1857. Of the six pavilions which constitute the western body of the building, similar to those of the eastern, two are actually finished, and every preparation has been made for the site of another pavilion in a line with the great central street of the Halles. Our readers are aware that the Halle aux Blés, or Corn Market, constitutes, in the definitive plan of the Halles Centrales, the head of the group of buildings. This edifice, preceded by two buildings for offices, will be far from spoiling the general aspect of the Halles. Commenced in 1763, on the site of the ancient Hôtel des Soissons, the Hall aux Blés, of a circular form, was completed in 1772, from the designs and under the superintendence of Le Camus de Mezières. It has twenty-eight arcades on the ground-floor, and as many windows in the upper story, which is gained by two staircases, placed at equal distances, and of a very remarkable construction. Each story is covered with stone and brick vaulting. The cupola, as it at present exists, was raised in 1812, from the designs of M. Brunet, architect. Constructed with rafters of cast-iron, covered with copper sheating, it replaced the ancient timber one destroyed by fire in 1802.

The three great principal doors of the Eglise Saint Augustin, in the Boulevard Malesherbes, have been just placed on their hinges. They have been executed in galvanoplastic copper, by M. Christofle, from the designs of M. Baltard, architect to the church. The figures occupying the upper portion of the two lateral doorways represent little angels carrying the insignia of the Passion. At the upper portion of the central door are placed the four cardinal virtues—Justice, Force, Prudence, and Temperance. These are by M. Mathurin Moreau. The lower portion of this door is decorated with shells and reeds, the emblems of baptism, and vine-branches with ears of corn, the emblems of the Communion. Above the cardinal virtues, and let into the stone, are three medallions, painted on enamelled lava, by M. Paul Balze, representing the theological virtues, Faith, Hope, and Charity. At the interior, above the three great arcades giving access to the porch, projecting brackets support the apocalyptic symbols of the Evangelists,—the angel of St. Matthew, the eagle of St. John, the lion of St. Mark, and the ox of St. Luke. These are the work of M. Jacquemart. A first These are the work of M. Jacquemart. A first row of nichcs, adorned with colonnettes, contains the statues of the great prophets; in front, Moses and Elias, by M. Cavelier; on the left, Jeremiah, by M. Chambard; Isaiah, by M. Farochon: on the right, Daniel, by M. Chardigny; Ezekiel, by M. Gruyère. A frieze, representing Christ and the Twelve Apostles, forms the principal feature of the façade. Two other friezes on the lateral faces represent the patrons of the edifice, Christian fathers and doctors,—St. Leon le Grand, by M. Farochon; St. Augustin, St. Leon le Grand, by M. Farochon; St. Augustin, between St. Monique and St. Ambroise, bas relief, by M. Bonnassieux; St. Gregory the Great, by M. Chambard. On the façade, in the niches at each side, and on a level with the bas relief, St. Augustin, St. Thomas d'Aquinas by M. Cavelier; St. Chrysostom, by M. Despretz. In the great central arcade, on each side of the rose window, are two angels, under palm-trees, holding the Old and New Testaments, by M. Lepère. The cross, on the summit of the pediment, crowns all; it is accompanied by two angels carrying the chalice and crown of thorns, by M. Schroder. The church is expected to be opened for service at the end of the year 1866.

Among the number of churches in construction in Paris, that of Saint-Ambroise-Popincourt, although commenced after those of Montpamasse and Montrouge, seems to be most rapidly progressing, the walling being completed, and the iron rafters for the roof in place.

Constructed under the superintendence and from the plans of M. Balu, this church will yield nothing either in grandeur of aspect or decorative richness to those of La Trinité and Saint Augustin. The principal façade, looking upon the Boulevard Prince-Eugène, will be preceded by a porch of grand open arches flanked by two towers 60 mètres high (196 ft. 10½ in.), which is the only masonry work that remains to be executed for this edifice. At the first story these towers will be decorated with an arching surmounted by a rosace containing a work of art; the second story will be equally adorned, but with an arching of larger dimensions; while at the summit, where the spire commences, the angles will be enriched by elegant campaniles, which will harmonise, by their chaste outline, with the general *ensemble* of the edifice. On the principal façade, as well as on the gables of the transepts, at the height of the clerestory, will be opened grand rosaces of the richest coloured painted glass. A stone gallery or triforium will be carried round the entire building. This church, conceived in the semicircular style of architecture, will have three vaulted naves, and a transept; its greatest length will be 287 ft., and width 118 ft. 1½ in. The Rue St. Ambroise and another projected street, will isolate laterally this church, the grand entrance being preceded by a "place" at the edge of the Boulevard Prince Eugène.

The old church of St. Ambroise, to be demolished as soon as the new one is ready for service, dates from the year 1659.

On December 26th, the new Tribunal of Commerce of Paris, of which we have given illustrations and description (see *Builder*, No. 1,187, November 4, 1865), was inaugurated with great ceremony. The Emperor and Empress were present, and on their arrival were received at foot of the grand staircase by the Minister of Agriculture, Commerce, and Public Works. Their majesties were conducted over the building, and addressed warm felicitations to M. Bailly, the architect of the structure, for the good taste displayed both in the arrangements of the interior, and the internal and external ornamentation.

During the past year the following have been the receipts of theatres, &c., of Paris, liable to the tax for the indigent:—January, 84,956*l.* 14s.; February, 82,610*l.* 13s.; March, 76,474*l.* 6s.; April, 66,030*l.*; May, 65,245*l.* 17s.; June, 46,622*l.* 15s.; July, 39,188*l.* 8s.; August, 49,384*l.* 12s.; September, 49,941*l.* 15s.; October, 64,085*l.* 16s.; November, 66,553*l.*; December, 75,641*l.* 12s.; total, 766,736*l.* 7s. for 1865. The receipts for 1864 amounted to 669,959*l.* 1s., leaving a balance in favour of 1865 of 96,777*l.* 6s.

EAST GREENWICH.

Some time since a site for a Wesleyan church and schools, at Creed-place, adjoining Greenwich park, was acquired by trustees, and plans were prepared from their instructions by Mr. Hoole, of Craven-street, London, for the erection of a complete educational and religious establishment. This was to include a church, schools for boys, girls, and infants, a parsonage, and a house for the master.

The first instalment of this extensive scheme has just been completed by the erection of one of the large school-rooms. This will shortly be opened for service, and will be used as a temporary chapel until the funds are forthcoming for proceeding with the remainder of the work.

The internal dimensions of the school are 48 ft. by 30 ft. It is entered by a porch. The materials used in its construction are stock bricks, with Bath stone dressings, with relieving arches of red Suffolks and yellow malms over the doors and windows. Internally the walls are of picked stocks, relieved with white and red Suffolks. The roof is an open one, and is boarded, fitted, and slated with blue and green countess slates, surmounted with Staffordshire ridge tiles. Bath stone corbels carry the roof principals, which are stained and varnished. Lancet lights, in pairs, light the sides of the school, and three lancets the front. Over these is a circular window, 3 ft. in diameter. A similar window is formed in the opposite gable; and these two, being made to open, secure the means of ample ventilation.

The gas-lighting is effected by a single row of burners along each side of the building, at about the level of the wall-plate.

Macfarlane's sanitary cast-iron appliances are added in the rear of the school.

The works have been carried out by Messrs. Kitson & Sons, of East Greenwich, for 600*l.* An additional sum of 50*l.* had to be expended on extra depth of foundations, which, owing to the unsound nature of the ground, had to be carried in some places as deep as 14 ft. below the surface. A bell-cot has been added to the building by a special contribution.

THE LATE MR. DAVID BELLHOUSE, OF MANCHESTER.

Mr. David Bellhouse, who died on the 19th ultimo, at the residence of one of his sons at Sale, in Cheshire, at the ripe old age of 74, long held the position of acknowledged head of the building trades in Manchester. He commenced life under the auspices of his father, Mr. David Bellhouse, one of the most eminent timber merchants of his time in that part of England, as a joiner, builder, and contractor on a large scale. He was highly successful, and his name

is connected there with nearly all the great public edifices and works of his time. But his great judgment, skill, and intelligence, soon made him known beyond the limits of his business as a constructor. He was one of the first of the race of civil engineers, and was continually consulted about the stability of works of construction, long before the railways created, as it were, a new profession. As a witness in "compensation cases," so remarkable was his skill, intelligence, shrewdness, and knowledge of the value and capabilities of land in the district, that his testimony was considered to be almost indispensable on one side or the other, and his "retainers" were very numerous. The writer of an appreciative notice of Mr. Bellhouse in the local *Courier* speaks of one of these compensation cases, tried in the large room of the York Hotel, King-street, in which the late Serjt. Wilkins was opposed by the late Mr. Justice Cresswell, and in which the evidence was going rather strongly against the serjeant's client. "Mr. Richard Lane, the architect, Mr. Thomas Lee, also an architect and surveyor, and our late friend," he says, "had all given evidence which threatened to be very destructive to the serjeant with the jury. Finding himself in this difficulty, the serjeant, with the humour for which he was remarkable, waxed poetical to the jury. 'I am in this predicament, gentlemen,' said he, 'the old rhyme, which you know, meets me full in the face—"Pass the Lane, and over the Lee, and then you come to the Bellhouse;" and I candidly admit that the Bellhouse, with all his wonderful shrewdness and knowledge, is by far the most formidable difficulty I have to "pass."' It was a well-deserved compliment bestowed in the jocular vein." As a genial and excellent member of society Mr. Bellhouse was greatly regarded; and in connexion with music and musical professors he will be long remembered in Manchester. We may add that he was one of the two original partners in the well-known engineering firm of Edward T. Bellhouse and Company, of Eagle Foundry, Manchester.

THE ARCHITECTURAL MUSEUM.

It has been arranged, we understand, that the casts forming the Architectural Museum shall be removed from South Kensington and made to take shape as a separate institution. The committee are seeking for a building near to Charing Cross, if possible, where they may be set up for the convenience of art-workmen and others willing to study. If we are ever to have, as we should have, a National Museum of Architecture, Government must lend its aid in earnest, and afford such a space as will admit of a complete development.

EDINBURGH ORIGINAL SECESSION CHURCH.

The original Seceders are a small body who still adhere to the principles of the solemn league and covenant, and they retain as their motto that which figured on the banners of the Covenanters,—"For Christ, His Church, and Covenant." The congregation, which is a poor one, have for some time past used the Temperance Hall, Nicholson-street, as their place of worship; but they have now, by earnest and energetic action, raised sufficient means to build a church for themselves. The site of the new church is the westernmost corner of Victoria-terrace. This terrace is formed somewhat in the same manner as the Rows at Chester. Victoria-street takes a sudden dip from Melbourne-place to the Grassmarket, and the terrace is formed over the shops, giving a level footway to the Castle-hill. At either end the buildings are made to project over the footway, forming an arcade. The front wall of the church rests on five massive square piers, carrying round-headed arches, according to the original design of the terrace, and the architects (Messrs. Paterson & Shiells) have adopted the Lombardic style in the superstructure, as most in unison therewith. Above the cornice of the arcade the church is lighted by two rows of windows, having moulded imposts and archivolts; and each window is divided into two lights, by shafts, with moulded caps and bases, finished at top by pointed and cusped arches, and a pierced circle near the apex of the arch. In the centre of the south elevation a gable rises to the height of the ridge, which is flanked on either side by smaller gables. On the east and west sides gables rise to the level of the ridge. All the gables are ornamented with crocketed skews and stone finials, and the three main ones are pierced by cinquefoil openings for ventilation. The ground-floor, within the arcade, contains a room which may be used for congregational purposes, but which is intended to be let as a wareroom in the mean time. The church floor is 15 ft. above the level of the terrace, and extends over the arcade. The entrance is at the south-east angle, through a hall and staircase at the rear. The interior is almost square in plan, and is treated in a plain and unpretentious manner. A gallery runs along the north side, and the pulpit occupies the centre of the south side. It is seated for 400, and cost about 1,600*l*. The site presented considerable constructive difficulties.

PERMANENT SUN-PRINTING IN OIL COLOURS AND PRINTER'S INK.

The ingenious process of Mr. John Pouncy, of Dorchester, whereby the sun is made to print photographs, from ordinary negatives, upon paper prepared with sensitized printer's ink, has already been more than once favourably noticed in the *Builder*. Mr. Pouncy is still making advances on his original idea of the carbon process, for the attainment of the great desideratum of truly permanent photographs. He now prints, by his printer's ink and oil colour processes, on ceramic ware, the photographs being thus burnt in upon the ware; and is also experimenting on wood for decorative panels, as well as for engraving blocks. The pictures are transferred either to wood, for panels, &c., or to lithographic stone, for ordinary lithographic printing, by simple means; and really the effects, especially in the form of lithographs, are excellent, though not so fine, of course, as his photographs themselves, which will admit of even microscopic examination. The transfers to wood may be said to be still in an immatured state; but they promise well, whether for decorative panels or for the engraver. For panels (as for ceramic ware also, we presume), the photographs may be taken in his sensitized oil colours (green, blue, red, &c.) as well as in ordinary printer's ink sensitized. In sun-printing with these colours turpentine is the sole developer of the picture, after the sensitized ink or oil colour has been fixed by the sun-light upon the tissue paper on which it is spread. Mr. Pouncy supplies this paper, post free, at the rate of something like 1s. a sheet, or less in wholesale quantities; so that, on one condition, that the picture shall bear his penny-license label, any photographer may use his paper, and so produce truly permanent photographs. A practical photographer says that this is cheaper than he can prepare sensitized paper in the usual way. The public, however, we suspect, must create the demand, by insisting on having permanent photographs by Pouncy's method. We would strongly recommend the Manchester Corporation to give this process a trial in their projected photographic museum. A specimen of Mr. Pouncy's sun-printing in printers' ink may be seen at the *Builder* office.

EDWARD SMYTH, THE IRISH SCULPTOR.

A Reader says "he would be much obliged to the editor of the *Builder* if he or his correspondent 'C. H. C.' (in the number for January 13th, 1866) would name any work in which a full account of the Irish sculptor, Edward Smyth, can be found; the only notice the writer has hitherto seen being the brief one in Walsh's 'Dublin;' from which it would appear that he was of good family, but threw away his social advantages. The writer wishes to know, among other things, if *Edw.* Smyth,—or, as some one has stated, a *John* Smyth, *designed* the monument of Archbishop Smyth, in St. Patrick's Cathedral, which was executed by Van Nost. In 'C. H. C.'s' interesting article, where the names of Flaxman and Smyth are brought together, it does not seem quite clear which of the two is intended in the expression, 'The artist, at least, has done his work well.' The writer is inclined to suppose that Smyth, the sculptor, belonged to some branch of the family of which the archbishop and three other bishops were members."

Our correspondent "C. H. C." having read this note, writes:—

In reply to the inquiries of your correspondent respecting some account of the life and works of Edward Smyth, I feel a pleasure in directing him as far as I remember at present.

He will find in one of the early volumes of the *Citizen*, a Dublin monthly magazine, published between the years of 1839-42, a very graphic and sympathetic account of Smyth, his career, and ill-requited services. The sketch was written by one, I believe, who knew him.

Scattered, also, through the four volumes of the *Dublin Penny Journal*, 1832-6, and the *Irish Penny Journal*, 1840-1, will be found some slight notices of the sculptor and his works, in the description of public buildings in these publications.

If I recollect right, there is some mention of Smyth, or John Smyth, the son of the former, in the account of St. Patrick's Cathedral, in "Bell's Gothic Architecture of Ireland."

I am unable to say positively at present who designed the archbishop's monument alluded to; but certain I am there is much which has been executed by the Smyth family in Dublin, and throughout Ireland and England, unchronicled.

The only contact I know of between Edward Smyth and Van Nost was in the competition for the statue of the celebrated Dr. Lucas, at present in the Royal Exchange, Dublin; when Smyth carried the palm by his superior model, and executed the work.

In the article on Dublin, where the expression is used, "The artist at least has done his work well," Smyth is meant.

To the above sources of information pointed out, I may add that in the "Life of James Gandon," the architect, written by the late T. Mulvany, and published twenty years since in Dublin, some notices of Edward Smyth, in conjunction with the works of his friend and patron, will also be found.

The whole of the Smyth family,—the father, son, and grandsons,—were remarkable for their genius and misfortunes; and the ill luck that appeared to hover around the grandfather has followed the footsteps and culminated with his grandchildren.

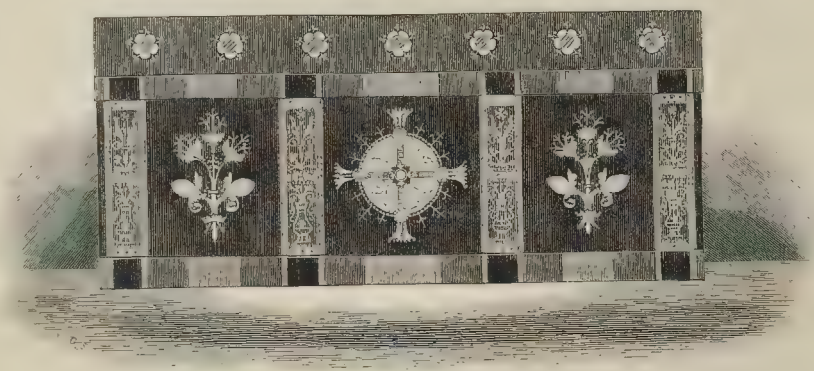
Of the latter, the brothers Michael, James, and George were clever, unpretentious, but ill-fated. The last-named is, I believe, still alive in Dublin, and doubtless could furnish information anent the family, its history, and the profession it founded, elevated, and represented for many years in Ireland.

C. H. C.

DWELLINGS FOR THE POOR.

Delegates from various boards of guardians within the metropolitan district have held a meeting at the offices of the Strand Union, in Bow-street, Covent Garden, to consider what steps they should take with reference to this urgent public question. The chair was taken by Mr. Wilkinson. Mr. Storr remarked that the committee appointed by the Strand Union Board felt no difficulty in coming to the conclusion that the existing house and lodging accommodation for the labouring and poorer classes within their district is inadequate; that great overcrowding prevails; that disease and immorality are thereby fostered; that rents are high; and that it is impossible to tell where the 3,082 poor persons, whose houses would be removed to make room for the new law courts, will be driven to when the time arrives for them to seek other abodes. It would be a good thing in itself to remove this property, which was old and in bad repair, and in which constantly there were outbreaks of fever; but that was only half the question. The other half, hitherto unanswered, was, where are these people to go? "Supply and demand" was a very good thing in its way, and as far as it went; but it was no consolation to these poor people, on turning them out, to say that all things found their level by laws well understood by political economists, the upper classes, and railway companies. Other gentlemen expressed their opinions, and a draft memorial was read by Mr. Kilner, the clerk, which was ordered to be printed, and copies sent to every board of guardians within the metropolitan district. At the next sitting the memorial will be discussed, as well as the necessity for petitions being presented to both Houses of Parliament.

Drainage of Midhurst.—This town is now undergoing a thorough course of drainage. The works have been commenced in North-street.



ALTAR CLOTH, RADCLIFFE INFIRMARY CHAPEL.

THE GIBBONS CARVINGS AT PETWORTH.

THE bad state to which time and neglect have brought many of our fine eighteenth-century carvings being just now recognised, we would express a hope that the elaborate works by Grinling Gibbons and his more modern successor Ritson, at Petworth, will receive immediate attention. When we last saw these wonderful carvings, the washed-out-and-dried appearance which they presented struck us forcibly, and a certain powdery surface in parts suggested the possible presence of the insidious worm. We may be mistaken. Careful examination may show, as would we hope be the case, that they are sound at heart; but this examination should most certainly be made at once by a competent person.

We understand that the carved pendants from the Cedar Chapel at Chatsworth, which are about to be repaired and set right, will be placed in the Library of the Royal Institution in Albemarle-street this (Friday) evening, when Lord Stanhope is to lecture.

WASHABLE FRONTS.

A CORRESPONDENT writes:—"Among all the contrivances for making our very dirty metropolis look a little cleaner, I do not know whether it has ever occurred to anybody that the houses might be faced with glazed bricks, which would wash. Every year costly buildings are erected faced with various-coloured bricks. In two or three years these buildings look more wretchedly abject and dirty than if no attempt at all had been made at colour. Bricks might be made, glazed on one side only, just as cheap jars and crocks are partially or entirely glazed. If houses were faced with these, any colours might be used, and the houses might be washed once or twice a year, according as the inhabitants wished."

Such bricks have been and are made, as readers of the *Builder* know; but the cost and other circumstances seem to stand in the way of their use. Moreover, unless arranged with taste and skill, the result, as with encaustic tiles, is not satisfactory.

MID-LONDON RAILWAY.

THE Metropolitan line, although eccentric, and ranging from Paddington, N.W., to Finsbury Pavement, has wondrously alleviated the pressure of carriage traffic on the great thoroughfares of Holborn and the New-road; and, since its opening, the suburbs of the north-west have been further packed with houses and swollen by a population, making the metropolis continuous for six miles in that direction. The wondrous and unexpected success of the Underground line has, therefore, shown the way of facilitating locomotion, and of saving the wholesale demolition of old settled districts.

Were it not for the easement afforded by the Metropolitan line, Oxford-street, Holborn, the New and City Roads, would be now as crowded and stagnant as Fleet-street and the Poultry.

In addition to the grand arterial thoroughfare along the new river embankment, there are now several railway projects which have complied with the Standing Orders, and are before the Standing Committee of the House; amongst them is the *Mid-London Railway*, which is proposed to start from near the Kensington Station of the West London line; to be continued thence in a direction as nearly straight as may be to the London, Chatham, and Dover concentric station at Farringdon-street; measuring 5¼ miles in length, exclusive of connecting branches, and providing stations at suitable distances for all the principal points throughout its course, near the great intersecting thoroughfares; first at Addison-road, then at Bayswater-road, near the old Toll-bar, at or near Park-lane, at Regent's Circus, Oxford-street, at High-street, Holborn, and at or near the corner of Chancery-lane,—the distances being severally about half a mile apart.

This line will open out thoroughfares 60 ft. wide at least, first at Tenterden-street, Hanover-square; then from Soho-square to High-street, which it is proposed to widen; and so continue by the new route through Lincoln's-Inn-Fields, at present barred out by turnstiles, and thence by the corner of Chancery-lane to Middle-row, Holborn, where co-operation will be given by the Board of Works to abate that foul blot on London's finest street: thus, the course runs nearly straight in a parallel with Oxford-street and Holborn.

Throughout its whole course the line will be covered, or underground,—in some places tunnelled, but improved much as to the system of ventilation, and lighted from above at stations and wherever the superficies will admit of shafts; the average depth below the surface being about 20 feet.

The expense is estimated at 2,500,000*l.*, but it is urged the cost of construction will be much reduced by the right appropriation for valuable ranges of business houses, in those parts where the line of deviation includes old and comparatively valueless premises.

Taking, as the Mid-London does, the grand central route, there will be little interference with valuable property, and none with public structures.

If an outlying metropolitan line pays so enormously, it is fair to assume that one leading directly through the centre, offering the shortest communication between the heart of commerce and its outlying limbs, can scarcely fail to succeed in a pecuniary point of view, while at the same time it offers to the whole community the advantage of time saved, with economy, certitude, and safety. Some proximate notion of value assured to the public in time saved may be deduced from the fact that three-quarters of an hour will be gained in a single journey, and, therefore, an hour and a half from a return, on the whole distance, and so in proportion for short stages. Supposing, then, that 100,000 passengers used the trains daily, we should get 150,000 hours thus saved.

CHAPEL, RADCLIFFE INFIRMARY, OXFORD.

THIS chapel was built at the sole expense of Mr. Thomas Combe, M.A., of the Clarendon Press, and presented by him as an offering to the Radcliffe Infirmary, Oxford. A room in the centre of the building (of course unconsecrated) had previously been used as a chapel. The present building, which will accommodate about 100 worshippers, is connected by a covered corridor with the north wing of the main building. This, as well as the chapel itself, is warmed with hot water. The building is a simple parallelogram in plan, of 62 ft. by 20 ft. internal measurement, with a small recess on the south side for an organ and vestry. The seats, unlike a college chapel, all face eastward, and there is a raised chancel (seen in the view) one-third the total length of the building. The material used is Gibraltar stone, in horizontal courses, with Bath stone dressings. The chancel is lined with Bath stone, and the upper portion of the rest of the walls above the window-sills, internally, is finished without plaster. The reredos consists of a wooden frame, decorated with colour and gilding, containing in the centre a figure of our Lord, and on each side figures of angels playing on musical instruments. All these figures are painted on poplar panels, on burnished gold grounds, and were copied at Florence, from works of Fra Angelico, by a resident artist, Sr. Martelloni, expressly for the chapel. The east window and the altar-cloth were presented by Mr. Combe. The former is by Messrs. Heaton, Butler, & Bayne, who also executed the coloured decoration of the roof and reredos. The altar-cloth, designed by the architect, and of which we give a separate engraving, is manufactured of embroidered velvet, worked with coloured silks and gold threads, and set with fine large crystals. The frontal is of green velvet, and divided into three compartments, by four embroidered and floriated orphreys; to these portions have been applied some elaborate specimens of the modern embroidress's art. The superfrontal is composed of crimson silk velvet. This altar-cloth has been well executed by Messrs. Frank Smith & Co., of Southampton-street, Strand. The works were carried out by Mr. Joseph Castle, of Cowley-road, Oxford. Mr. Blomfield was the architect.

The chapel was consecrated by the Bishop of Oxford, on the 7th of June last, and has since been used by the inmates.



RADCLIFFE INFIRMARY CHAPEL, OXFORD.—MR. ARTHUR W. BLOMFIELD, ARCHITECT.

UNSIGHTLY SCREENS BETWEEN GARDENS.

IN the Court of Common Pleas, in the case of Noel *v.* Paddle, the action was brought to recover damages against the defendant for having erected on the plaintiff's wall a hoarding of "a dirty colour," which offended his eye and trespassed on his party-wall. It appeared that the plaintiff and defendant are next door neighbours in Ockendon-road, Islington, and the complaint was that a hoarding or screen had been built up by the defendant against a low wall separating the respective gardens of the houses Nos. 54 and 56, so as to practically raise it about 3½ ft. The boards were fastened to the wall on the defendant's side by 6-in. staples. Before any witnesses were called for the defence, Mr. Justice Byles suggested some terms, which, in a modified form, were, after some discussion, agreed to. The hoarding is to be taken down, and the wall raised at the joint expense of the plaintiff and the defendant. A juror was withdrawn, and each party will pay his own costs.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening (the 19th ult.), at the House in Conduit-street.

The chair was occupied by the president, Mr. R. W. Edis.

Messrs. E. Northcote, 20, Guilford-street, Russell-square; Mr. Vialls, St. Giles's-square, Northampton; and Mr. E. S. Harris, were elected members of the Association.

Mr. J. D. Mathews (hon. secretary) read a letter from Dean Stanley on behalf of the Westminster Chapter-house restoration committee, requesting that the object which the committee had in contemplation might be brought under the notice of the Association, with the view of obtaining its co-operation at the deputation which the Chancellor of the Exchequer had consented to receive after the Christmas holidays. The committee also invited the president to join their number.

The Chairman observed that the letter of Dean Stanley referred to a subject in which he was sure they must all, as architects, feel an interest. The restoration of the Chapter-house at Westminster had been taken up by a body of gentlemen well known for archæological and antiquarian research, and included the names of Earl Stanhope, Mr. Beresford Hope, M.P., Mr. Tite, M.P., and many others equally well known. He begged to suggest a resolution to the effect that the Association had learned with pleasure that steps were about to be taken to restore the Chapter-house, and that the Association would be glad to give all the assistance in its power towards a work of such national importance and interest.

A resolution similar in substance to that suggested having been agreed to,

The Chairman said he had to announce with pleasure that since their last meeting one of their members, Mr. J. Lemon, had been appointed surveyor for the Borough of Southampton, having been selected from between fifty and sixty candidates for the office. He hoped that although Mr. Lemon might no longer be an active member of their body, he would still be able to visit them occasionally, and that he would also endeavour to make the Association known in the neighbourhood which would be the future scene of his operations. There was another subject which he considered it was his duty to bring under the notice of the meeting, and he regretted to say that it was of a melancholy nature: he referred to the sudden death of their registrar, Mr. Moody, who had succumbed to a painful disease.

Mr. R. P. Pullan then read a paper on "Christian Architecture in the East." He observed that the Church of St. Sophia at Constantinople, or the great Mosque of St. Sophia, was the finest interior of any church in the world, both as regards space and ornamentation. In the Dromic churches of the East, there were galleries for the accommodation of women, the religion of Orientals not allowing the two sexes to worship in common. The presence of these galleries distinguished the Dromic churches of the East from the basilicas of the West. The only ancient church in the East which appeared to him to be uninjured by the process of restoration was that at Bethlehem. It was remarkable, however, for the absence of the women's gallery. The effect of the interior had been spoiled by the erection of a cross wall to divide the Greeks from the Latins, both of whom laid claim to the church. The interior decorations included some fine mosaics. A similar mode of decoration was extremely effective at the Church of Salonica, the dome of which was covered with them, although Time and the Turks, the latter more destructive by far, were fast abolishing them. At the time when he visited the latter church, a little urchin threw stones at the ceiling of the dome, in order to bring down portions of the mosaic for him to carry away as trophies. He regretted his inability to thrash the juvenile iconoclast; but the experiment would have been a dangerous one, as he happened to be the son of the chief priest. Having traced the history of Christian architecture from the time of Constantine to that of Justinian, Mr. Pullan described the little mosque of St. Sophia at Thessalonica, built in the reign of the latter monarch. This church at one time was endowed with peculiar sanctity, as it contained the body of St. Nicholas, from which exuded holy oil, which was believed to have curative properties of extraordinary value. When, however, the church fell into the hands of the Normans (who regarded the Greeks as heretics), the holy oil was used to grease boots and fry fish, which desecration occasioned frightful scandal to the true believers. Of thirteenth century architecture there were numerous examples at Jerusalem, Cyprus, Rhodes, and other places, the whole of which appeared to have been originally designed by French architects. The Cathedral of St. Mark, at Venice, built in the form of a Greek cross, was the purest Byzantine church in the West. Why, he asked, could we not have a Dromic church in England; or why, at least, might we not profit something from the Byzantine period of art?

Mr. H. Dunphy, in moving a vote of thanks to Mr. Pullan, observed that he feared Byzantine architecture would not be appropriate to our climate. In the clear transparent atmosphere of the East, where shade was most desirable and where a little light went a long way, a Byzantine church was most suitable; but with an English climate, and especially a London fog, he did not believe it would be accepted as suitable. So far as floor space was concerned, the class of building advocated by Mr. Pullan was very desirable, no matter what might be the style of architecture; but in England, as a general rule, congregations appeared desirous to worship by stealth, as they did all in their power to conceal themselves in hideous pews that resembled horse-boxes more than anything else. A revolution of feeling in this respect would be necessary before churches with a spacious area for worship would become popular.

A member observed that he considered the Byzantine style gloomy, morose, and not adapted to the ritual of Protestant worship. It was, consequently, inapplicable as the groundwork of a new style.

Mr. L. W. Ridge would prefer to see modern architects endeavour to strike out a style of their own rather than fall back upon adaptations of thirteenth century art, or that of any other epoch of the past.

In reply to a question,

Mr. Pullan described the manner in which the mosque of St. Sophia, at Constantinople, and the Church of St. Mark, at Venice, were lighted. The windows were filled with fine stained-glass in small pieces, fitted into very heavy stone mullions. He had never found a round window similar to that recently restored in the basilica of the Temple Church in any of the Eastern churches which he had visited. With regard to the measurement, &c. a little bakshish judiciously administered to the church-keeper would enable the visitor to take any measurements or make any notes he pleased.

In answer to further questions, Mr. Pullan stated, that although within a day's journey of the recent extraordinary discoveries of early ecclesiological art in Syria, he had not visited the spot, as he had been informed that there was nothing to see but some Byzantine ruins similar to many others that had previously come under his observation. He wished it to be understood that he did not advocate a Byzantine church in England, but that his contention was merely that the principle of Byzantine architecture might be usefully applied in the construction of large churches.

After some further dicussion, the chairman, in putting the vote of thanks to Mr. Pullan, observed upon the valuable nature of the information which he had collected, and expressed his opinion that the architect who had travelled most would, in the end, be found to be the best designer. The impression brought to his own mind by the contemplation of a Byzantine building, was that of great solemnity and grandeur, although, so far as the dome was concerned, he did not think that the Pagan was the best example for Christian art.

A member observed, that the dome was probably suggested by the form which the firmament presented to the human eye. He saw no reason why the dome should be characterized as Pagan, because it came from Rome originally. The Parthenon was domed, but Rome was the centre of the Christian world.

The vote of thanks to Mr. Pullan having been agreed to,

Mr. L. W. Ridge brought under notice the advertisement of the trustees of St. Mary's, Islington, for plans for the erection of a new workhouse, and their offer of 2½ per cent. to the superintending architect. He moved that the honorary secretary be requested to transmit to the trustees a copy of the rules of the Architectural Alliance, with special reference to the schedule of architects' charges, as sanctioned by the Royal Institute of British Architects.

After a short discussion, in which the chairman and other members expressed an opinion that it would be better not to take any notice either of the trustees or of their offer, the resolution was put from the chair, and on a division, carried by 17 to 15.

The Chairman announced that the subject for the next class of design would be, "A wooden belfry and spire and summit of tower;" and that on the 2nd of next month, Mr. Lemon would read a paper "On the prospect of improved dwellings in London."

ST. NICOLAS COLLEGE, LANCING, SUSSEX.

DURING the last few years very large and important works have been carried into execution, both at the college at Lancing, and also at its schools at Hurstpierpoint and Ardingly. It may be remembered that the object in founding the college was to provide a sound education in the spirit of the English Church, for the sons of the middle classes. The principal school is at Lancing, and is for the upper middle class, such as Harrow or Winchester; the second school is at Hurstpierpoint, and is for the sons of wealthy tradesmen, farmers, &c.; and the third school at Ardingly, is for 1,000 boys of the lower middle class, where they are boarded and educated at 14*l.* 14*s.* per annum.

The college at Lancing will, when completed, accommodate not less than 300 boys. The buildings were first commenced in 1855, and from that time they have been in course of erection. The two wings of the lower quadrangle were complete in 1857, together with the head-master's house and crypt of the long hall. The library was next taken in hand, together with the upper school-room. These two buildings form the connecting block between the wings of the quadrangle; they are each 30 ft. in width. They are lighted by a series of two-light windows in gables, divided by buttresses with canopied niches, the cloister being continued underneath on the ground-floor, and opening into the yard by richly moulded and cusped arches. The roofs of both buildings are boarded and panelled to the cant of the rafters. In the west wall is a series of arches, which will open into the reading-rooms and class-rooms. The block of buildings extending in a line southwards from the library, beyond the south wing, was then completed. There are in it four stories, containing rooms for the visitor, the Bishop of Chichester, chaplain's and masters' rooms, dormitories, &c. This brought the works up to the middle of 1864, when a contract was entered into with Mr. Bushby, for the completion of the dining-hall. This building is 101 ft. long, below which is a breakfast-room of the same length. The hall is lighted by richly-moulded two-light windows separated by massive buttresses about every 10 ft. apart. The end wall is ornamented by bands of stonework above. The roof is supported by lofty moulded arched principals, and will have on the east side five, and on the west four, dormer windows of stone, with rich buttresses; and in the centre will rise a lofty lantern of oak, covered with lead, with a shingle spire. The contract with Mr. Bushby is now given up, and the roof is being erected by workmen employed by the college, under the direc-

tion of their architects. The works in contemplation for this year are the grand staircase and approach to the hall, ante-hall, gallery, &c. The grand staircase and lobby will be groined, the arches being supported on clustered columns of marble; and the gallery will open into the hall, by three lofty arches resting on granite clustered shafts. The oak panelling of the hall will also be proceeded with. Besides these works, the south wing of the upper quadrangle will be commenced, which will consist of two floors of dormitories with an open cloister of two stories, with richly-moulded arches. The material used at the college is flint with dressings of Caen stone, and the style of the whole is that of the latter end of the thirteenth century. The works have been carried out, for the most part, by Mr. Bushby, of Littlehampton, under the architects of the college, Messrs. Slater & Carpenter; Mr. Knight being the resident clerk of works.

At. St. John's school, Hurstpierpoint, the new chapel has been completed, and which was more fully described in a previous number. The new head master's house will be commenced in the spring, with additional dormitories.

At St. Saviour's schools, at Ardingly, the first portion of the new buildings will be completed in carcass at the end of the present month. They consist of a block, having on the ground floor a cloister, class-rooms, master's rooms, common room, &c. and on the first and second floors, two domitories, side by side, each for fifty-two boys (204 in all); there are also here master's and prefect's rooms. This building will form the west side of the great lower quadrangle, and the works to be undertaken this year will complete half of the north side. These works are the building of the dining-halls, for 800 boys; they will be in two stories, for 400 each. The material for these and the block already built, is red brick, with dressings of sandstone and Caen stone; the style is Early Pointed. The builder employed is Mr. Cave, of Brighton, under the architects of the college, and their clerk of works.

A STEEPLE JACK AT WESTMINSTER.

A daring individual, named Burns, from Manchester, has succeeded at the House of Parliament in the dangerous operation of fixing four copper bands round two of the finials on the centre tower. The last November gale blew off one of the finials, and loosened another; and if it had not been for the lightning conductor, one would have dropped down, and might have done considerable damage, being one of the highest, and 9 in. square by 6 ft. 5 in. from its basement to top, surmounted by a vane that would not revolve. From that cause the wind had such power over it that the third joint gave way, and the finial fell against the steeple; the west wind, however, moved it again, and placed it in its position, where it rocked. Burns made his way, 210 ft. high, outside the tower, without scaffold, by a series of seven ladders, in an ingenious manner, and safely repaired it. Burns very recently got up to the top of the steeple of St. Mary's Church, Rotherhithe; succeeded in taking down the weather-vane, which is 7 ft. 4 in. long, and 84 lb. weight; and after it had been repaired and regilded, he restored it to its place.

THE NEW COLLEGE FOR HULL.

The foundation stone of a new college for Hull has been laid by the Earl de Grey and Ripon, who is to be the president of the institution, and who delivered an able speech on the occasion, on the subject of middle-class education. The college will be called the Hull and West Riding college, and is situated in close proximity to the large collegiate school in the Elm Tree-avenue. The building is in the Gothic style of the thirteenth century. The architect is Mr. R. G. Smith, who is also architect to the corporation, and was the architect for the New Theatre Royal in Hull. The frontage in Park-street measures about 130 ft. The depth of the building will be 117 ft., and the greatest height 70 ft. It will be of red brick with Harehill stone facings. The great hall (already considerably advanced) will be 60 ft. by 40 ft. In front of this hall there will be a portico, formed of red Mansfield columns, over which is the large window of five lights. The hall is flanked by flying buttresses rising above the roof at the east front, and terminating in pinnacles. That part of the building yet to be erected comprises the portico just mentioned and the class-rooms, masters' rooms, porter's residence, &c. Of the class-rooms there are to be eight, two masters' private rooms having separate entrances from the front, the porter's residence, lavatories, and other conveniences. Over the porter's residence and the door by which the pupils will enter the college, will rise a bell turret. At the back there will be an extensive playground, and the whole building will be enclosed with iron palisading. The contract for carrying out the work was taken by Mr. Charles Hutchinson, of Hull, and the estimated cost of the whole building was 3,000*l*.

WHERE ARE THERE ANY LONDON ANTIQUITIES?

Sir,—There would seem to be two sorts of people, in this present latter half of the nineteenth century, devoting themselves to *art—art capitalists* and *art workmen*; those who reap all the benefit and vanity to be got now-a-days out of art and architecture, and engineering, and those who *do* all the work. That the art capitalist has his rights no one will dispute; but there are, I suspect, not a few who will deny that the draughtsman and workman and student have theirs as well. I must contend that they have *rights*. Sir, your uniform practice now for so long a series of years, in allowing every struggling cause to have its say, will, I feel certain, *pass* the few words, out of many, which I cannot forbear.

The first art-right, in my opinion, which every art student, whether workman or draughtsman, has a claim to, is the unasked-for permission to see and study in their integrity the works of those who have gone before them, and who have left records of their personal and individual power over the materials out of which fine art is formed and shows itself. Without this they are as men without a past. Instead of following on with ever-increasing strength the work that has gone before them, they must perforce begin anew each one for himself. Every successive generation of art-workmen has to begin a new art-life, and from a fresh starting-point, without guidance and without element of *comparison* and consequent help.

Our London antiquities, if we now had any, would be to the Gothic art-student of the present all this. By the side of these actual remains of what our ancestors in art-workmanship have left us, all books, drawings and copies are as nothing—little better than lumber; for the actual impression of the hand-writing of each dead artist is, or, rather, was, on them. Have our present race of art-capitalists any *right* to either scrape this off, to paint over it, to blot it, or to withhold it from our sight? I say they have not. No—not even for vanity's sake, nor at the bidding of a society. It is the student's *right*.

But where are there any London antiquities to look at, whether with or without leave? Where are the remains of the London of the Middle Ages? Where is Gothic London? Everybody who reads this knows well that but very little indeed remains; nothing, in fact, but a church here and there, and Westminster Abbey and its Chapter-house. All else is utterly gone, and nothing but the remembrance in the drawings of old Hollar left. These few churches actually, and wonderful to say, yet remain, *i.e.* the skeletons of them, the dry dead bones: for so thoroughly have they one and all been, or are being, scraped, painted, and blotted with "*art-manufacture*," that, as MS. records in stone, they are gone or going utterly! *One single solitary bit only now remains, the Westminster Chapter-house*;—saved, miraculously saved—see the Dean's address—by the very influences, years ago, which were meant for its destruction. Nobody owned the Chapter-house: to the Abbey Prebends it was and is useless; the Record Office kindly took to it, hid the writing on its walls with deal packing-cases, and so saved at least a part of it to this present hour. It is the sole and only record of Gothic London now existing—our only antiquity. Has anybody, therefore, a right to "*restore*" it, *i.e.* to blot it with the nothingness of *art-manufacture*, or to shut it up from our sight till that dire event comes about? But, sir, it *is* shut. Is this fair? Ought it to be thus? Before we talk about our antiquities, must we not *see* them? It is comforting to think that the leading journal is a little interested, that it condescends a moment from its political economy and allows some one to ask "Where are our antiquities?" Let us hope that it will aid in preserving from the clutches of the manufacturer of "stained glass" and "*polychromy*" this sole remnant of our antiquities; and that it will, before it urges the "restoration" of the Chapter-house, go and look at it, and study the restored bits of the Abbey and its "lantern," and grieve over its newness and destroyed antiquity.

If Mr. Scott can be induced for but a few hours to go to the Temple Church, and lament over its mutilated Gothic carcass,—the round part only will do,—with its glass, paint, tiles, mended effigies, fragments like the Greek marbles of a great bygone time and ways, each effigy covering *over* the very ashes of him whom it represented, and its brass work,—I feel sure that he will stay his hand, or, rather his orders, and will forbear, and will *not* "restore" the Chapter-house, or, as the Latin has it, "furbish up" the little that remains of it, or blot it with manufactured glass. I am thoroughly confident of this; for a way there is to do this work of reverential preservation, but what that precise way is who can tell, till we see the writing on the ruins of it? Will Mr. Scott open again for a few short days the deal doors of this monument, and burn the empty boxes which hide the walls and floor; then look at it,—for he has not yet seen it himself,—and keep in view the manufactured Temple work? Then, and then only, will he see that the way *not to do it* is to follow the very elaborate drawings which he exhibited, and which were so much admired by his friends.

C. Bruce Allen.

P.S.—If there be any difficulty about moving away the boxes and lumber, why not shift part and let us see *half* the building?

THE TRADES MOVEMENT.

Sheffield.—The dispute between the file manufacturers and the grinders appears to be approaching an unpleasant phase. A meeting of the manufacturers has been held, to consider the advance of wages demanded by the men. About thirty firms, including the most important in the file trade, were represented. Mr. S. Butcher presided. He referred to the keenness of the competition which exists in the American trade, and said that by this movement the file-grinders were seeking to do what the native American manufacturers also had at heart, namely, to prohibit the importation of English-made files into the United States. There was but a very small margin of profit at present, and if the manufacturers were to concede the advance asked for, they would be compelled to close their trade in this branch with America. A long discussion ensued, in the course of which it was stated that the advance asked for would be equivalent to 33½ per cent., and not merely 25 per cent. as had been previously stated. The meeting unanimously resolved not to grant it. The forgers and cutters are said to disapprove of the conduct of the grinders.

Edinburgh.—There has been a meeting of the house-painters of Edinburgh, to consider the propriety of a union, with the view of obtaining a reduction of their hours of labour to nine hours per day. A resolution to that effect was unanimously agreed to.

Wolverhampton.—The local branch of the Amalgamated Society of Carpenters and Joiners have just celebrated their first anniversary. The chairman congratulated the meeting (about fifty in number), on the progress they had made in twelve months, and trusted the year they had now commenced would prove equally prosperous. The secretary said the Society was founded in London, in 1860, at the end of which year it had twenty branches, 618 members, and 32*l*. in funds. In December, 1865, it had 134 branches, 5,777 members, and funds amounting to 6,868*l*. 6*s*. The objects of the Society were to secure for its members, by legal and honourable means, the full value for their labour; and such reduction of the hours of labour as could be agreed on between masters and men; and provision for sickness, old age, &c. The Secretary of the General Union of Carpenters and Joiners, in responding to a toast, said that the time having arrived for giving notice on the part of the men of any alteration they desired in the rules, notice had been sent in for the increase of wages asked for last year, and which the men

believed still to be their due. They had also given notice for the Saturday half-holiday. They did not obtain that concession last year, in consequence of the difference among the delegates themselves. This year the demand was modified to the effect that all wages should be paid not later than one o'clock on Saturday, so that if a man preferred work to relaxation after that he could do so, but he for one wanted the relaxation.

Paris.—The operative paperstainers in Paris have struck work for shorter hours. The men demanded that their day's work should be reduced from 11 to 10 hours from the 1st of January. The masters require a postponement until September next, the period when new patterns of stained paper are adopted, and when all the arrangements are made for the ensuing year.

IRON MOULDERS' WAGES IN MANCHESTER.

During the last few weeks the journeymen moulders of Manchester and Salford have made a demand, at a very short notice, for a general advance of wages of 2s. per week. The weekly wages given to iron moulders in Manchester and Salford have been 31s. and upwards, which are stated to be more than the rate obtained by any other class of operatives connected with the engineering trades in the same locality, and the present demand is for 2s. advance for every moulder employed, whether he receives 31s., 33s., or 38s.

This is looked upon by the employers as an attempt to initiate a general rise of wages in all branches, as a similar advance can hardly be refused to engineers, millwrights, smiths, turners, patternmakers, &c., after it has been granted to the moulders. Most of the foundries in Manchester have ceased casting for the present, and others are partially worked by moulders at the old rates. The masters have had several meetings; and it is intended, we are informed, that a Defence Association be formed, unless the present demand be withdrawn.

PRIZES FOR ART-WORKMANSHIP.

SOCIETY OF ARTS.

The following is a list of the prizes awarded:—

Works executed from Prescribed Designs.

CARVING IN MARBLE, STONE, OR WOOD.

The Human Figure.—Work executed in marble or stone, after the "Boy and Dolphin" cast from a chimneypiece, ascribed to Donatello.—Three works sent in.—First prize not awarded. Two second prizes of 7*l.* 10s. each,—one to Alexander Kenmure, 43, Pancras-square, N.W.; and one to R. Wallace Martin, 5, Olney-street, Walworth, S.

Ornament.—Work executed in marble, stone, or wood after a carved chair-back in the South Kensington Museum.—Two works sent in.—First prize not awarded. Second prize of 5*l.* to John Dayman, jun., 4, Edward-street, Vauxhall Bridge-road, S.; and extra prize of 2*l.* 10s. to James Stuart, 7, Pancras-square, N.W.

REPOUSSÉ WORK IN ANY METAL.

Ornament.—Work executed after a tazza in the South Kensington Museum.—One work sent in.—First prize of 5*l.* to S. Beresford, 29, Mydleton-street, E.C., and 3*l.* extra.

HAMMERED WORK IN IRON, BRASS, OR COPPER.

Ornament.—Work executed after a portion of a Pediment of a Gate (German work, date about 1700) in the South Kensington Museum.—Three works sent in.—First Prize of 7*l.* 10s. to J. Letheren, Lansdown Iron Works, Cheltenham; and second prize of 5*l.* to T. Winstanley, No. 7, Stanhope-street, Newcastle-street, Strand, W.C.

CARVING IN IVORY.

Human Figure in the round.—Work executed after a miniature statuette (Italian), No. 304 in the South Kensington Museum.—Two works sent in.—First and second prizes not awarded. Prize of 5*l.* to John Bentley, 22, Sherwood-street, Golden-square, W.

CHASING IN BRONZE.

Ornament.—Work executed after Goutier, from Cabinet in the possession of her Majesty the Queen.—Four works sent in.—First prize not awarded. Two second prizes of 7*l.* 10s. each awarded, one to G. R. Meek, 26, Harrison-street, Gray's-inn-road, W.C.; and one to H. J. Hatfield, 16, Alfred-street, Tottenham-court-road, W.C.

ETCHING AND ENGRAVING ON METAL.—NIELLO WORK.

Ornament.—Work executed after arabesques by Lucas Van Leyden, 1528.—One work sent in. First prize not awarded. Second prize of 5*l.* to G. S. Berry, 4, King-street, Regent-street, W.

ENAMEL PAINTING ON COPPER OR GOLD.

The Human Figure.—After Raffaelle's design of the "Three Graces," executed in *grisaille*.—Two works sent in.—First prize not awarded. Second prize of 5*l.* to W. J. W. Nunn, 10, Gardham-street, Bromehead-street, Commercial-road, E. Extra prize of 3*l.* to E. Autran, 4, Nassau-street, Soho-square, W.

Ornament.—Executed after a German arabesque (sixteenth century).—One work sent in.—First prize of 5*l.* to Frederick Lowe, 13, Wilderness-row, E.C.

PAINTING ON PORCELAIN.

Ornament.—Executed after arabesques by Lucas Van Leyden, 1528.—One work sent in.—First prize of 5*l.* to Alexander Fisher, 5, Clyde-street, Stoke-upon-Trent.

DECORATIVE PAINTING.

After an *ornament*, from Castel R. Pandino, near Lodi, from a drawing in South Kensington Museum. Three works sent in.—First prize not awarded. Two second prizes of 3*l.* each awarded, one to John Henk, George-street, Stoke-upon-Trent; and one to Thomas Longmore, Hardinge-street, Fenton, Staffordshire.

INLAYS IN WOOD (MARQUETRY OR BUHL), IVORY, OR METAL.

Ornament.—Executed after a specimen in the possession of the Hon. John Ashley.—One work sent in (metal).—First prize of 5*l.* to T. R. Rice, 18, Suffolk-street, Essex-road, N.

DIE SINKING.

Human Head.—After the head of the Prince Consort, by Wyon, on the Society's medal.—Three works sent in.—First prize not awarded. Second prize of 5*l.* to A. Bouchette, 12, Percival-street, E.C.

BOOKBINDING AND LEATHER WORK.

Bookbinding.—After an Italian specimen in the South Kensington Museum.—Three works sent in.—First prize of 7*l.* 10s. to John Jeffrey, 61, Charlotte-street, Portland-place, W.

ILLUMINATIONS.

Ornament.—After an altar card, attributed to Giulio Clovio, in the South Kensington Museum, No. 2,958, or a MS. border, date 1450, No. 3,057, in the South Kensington Museum.—Three works sent in.—First prize not awarded. Second prize of 3*l.* to W. W. Burgess, 21, Market-street, Curzon-street, W.

Works executed without Prescribed Designs.

WOOD CARVING.

Human figure in alto or bas-relief; animals or natural foliage may be used as accessories.—Seven works sent in.—No first or second prizes awarded. Third prize of 10*l.* to J. Meiklejohn, 58, Sussex-street, Pimlico, S.W., for a carving, "The Introduction of Music to the Arcadians." An extra prize of 7*l.* 10s. to G. F. Bridge, 3, Vincent-square, Westminster, S.W., for a carving, "Purity;" also one of 5*l.* to Henry Jones, 9, Bedford-street, Seymour-street, Euston-square, N.W., for a panel, in oak, with figure of "Wisdom;" and one of 3*l.* to G. Rumford, 19, Eccleston-street East, S.W., for a carving, "Puck."

Animal or still life. Fruit, flowers, or natural foliage may be used as accessories.—One work sent in.—First and second prizes not awarded. Third prize of 5*l.* to John Neaves, 26, William-street, Regent's Park, N.W., for a carving, "Eagle and Prey."

Natural foliage, fruit, or flowers, or conventional ornament in which grotesque figures or animals may form accessories, preference being given where the work is of an applied character for ordinary decorative purposes, as representing commercial value.—Seven works sent in.—First prize of 10*l.* to R. Baker, 11, King-street, St. James's-street, for a carving of a "Festoon of Flowers." Second and third prizes not awarded. Two extra prizes of 3*l.* each to G. H. Bull, 34, Albert-street, Regent's Park, N.W., one for a frame carved in pear-tree wood, and one for a frame in oak.

WORKS SENT IN COMPETITION FOR THE PRIZES OFFERED BY THE WORSHIPFUL COMPANY OF PLASTERERS.

Three works sent in: models of trusses.—First prize of 10*l.* to R. W. Hanwell, 59, Charlotte-street, Caledonian-road, N.; and second prize of 5*l.* to James Steele, jun., 25, Holmhead-street, Glasgow.

Part of the sum offered by the Plasterers' Company, 10*l.* (25*l.* in all), is to be given for a design for a frieze, a drawing, not yet sent in. The Company have liberally voted 25*l. per annum* for the advance of their art. It is to be hoped, the offer will be rightly taken advantage of. This has not been the case in the present instance with reference to the Society of Arts. The response is not equal to the inducements advertised. The sum of 600*l.* was offered in prizes, and of that only 144*l.* have been carried off. The subject needs inquiry.

The Yorkshire Architectural Society, it may be seen, advertise their willingness to give prizes for the best and second-best design, modelled in clay, for a bracket, boss, or spandrel of an arch. We direct attention to the advertisement in our last number in case it should have been overlooked by any of those to whom it is addressed. Modellers, carvers, and art-workmen generally have no reason to complain of want of opportunity to show what they can do.

WATER SUPPLY FROM THE CHALK FORMATION FOR THE BATHS AND WASHHOUSES, GOLDEN LANE, CITY.

To meet the large demand for water required for the use of this establishment, it was estimated that it would be cheaper to obtain it from the chalk formation than to procure it from the water company, provided the quantity could be guaranteed.

The services of Mr. Thomas Tilley, artesian well engineer, were called in, who undertook to obtain the required quantity; and after two years of labour the long-sought-for water has been obtained in large quantity. The well is sunk through the London clays, and lined with 9-in. brickwork in cement, to a depth of 100 ft. from the engine-room floor; 50 ft. of cast-iron cylinders, of 5 ft. 10 in. outside diameter, were then inserted, with a view of passing through the upper green sand, and on to the chalk. This being accomplished, after much difficulty, a concrete invert was put in, by the aid of a diver, to form the bottom, in which an 18-in. guide-pipe was placed, and driven firmly into the chalk to about 6 ft. in depth, leaving 2 ft. standing above the concrete bottom or invert. By these means the chalk water was entirely cut off from connexion with the water from the upper green sand, instead of being left, as is often the case; as it was feared the sand absorbed a part of the supply from the chalk, which turned out to be correct; for, from experiments previously made on the water level, it was found to be lower by 12 ft. than after the connexion was cut off. The 18-in. boring was then continued to a further depth of 30 ft.; and afterwards, with a tool of 12 in. diameter, to a further depth of 100 ft.; making a total depth of 240 ft. from the level of the engine-room floor; or, 258 ft. from level of road. On taking the levels of the water when the engine was at rest, the water from the chalk was found to stand at 106 ft. from the surface of the floor line, there then being 29 ft. head of water in the shaft to pump from. Whilst testing the yield for thirty hours, it was found that, after lifting 250 gallons per minute, the level of water was only lowered 3 ft. instead of 12 ft., as was the case before the connexion with the green sand was cut off, and the supply was found fully equal to the demand. The water is raised by means of a set of three-throw deep-well pumps (on the latest improved principle), each of 8 in. diameter, with 2-ft. stroke, and working at their lowest speed, viz., fourteen strokes per minute. The pumps are so arranged as to be readily repaired under water; and the barrels being fixed near the bottom of the well, at least 20 ft. of suction-pipe could be attached and lowered down the 18-in. bore hole; so making, with the 29 ft. of water in the well, a head of water equal to 49 ft. to pump from.

By this means it is estimated that a much larger supply of water can be obtained. The water is described as bright and soft, and well suited for domestic purposes.

The power for driving the pumps is obtained from a 20-horse power vertical-motion engine, fixed near the well.

To show the value of the project, the establishment is provided with two large swimming-baths, requiring in the aggregate about 200,000 gallons of water. Hitherto they have been supplied by the water company, at a cost of 6d. per 1,000 gallons, or equal to 5*l.* sterling, each time they are filled, which is usually twice per week. The actual working expense for raising this quantity of water from the well into the baths is only 16s., thereby effecting a saving of 3*l.* 8s. per week.

The building, of which full particulars have been given in our pages, includes 84 private baths and 2 large swimming-baths; 84 laundry compartments; 2 Turkish baths, one for ladies, the other for gentlemen; 180 dwelling-rooms, let out to families; 1 spacious dining-room; and a chapel capable of accommodating 350 persons.

The works were executed at a cost of 40,000*l.*, and at the sole expense of Mr. A. J. Vieweg, of London; but the establishment has now passed into the hands of a company, under the direction of a few gentlemen interested in improving the dwellings and increasing the comforts of the poorer classes.

RAILWAY COMPENSATION CASES.

Grady v. *The East London Railway.*—The claim in this case was made in respect of fourteen leasehold houses, situated in Brunswick-terrace, and St. Helena-row, Rotherhithe; and the principal point in dispute was the question as to whether the present rentals should be taken as the actual value of the property, or whether—as was contended by claimant and his surveyors—an improved rental value had arisen upon the property consequent upon the proposed construction of the new park in the immediate vicinity, and the great demolition of houses in the locality for railway purposes, causing houses of this class rapidly to rise in value. Mr. Peake, of Tooley-street, was surveyor to the claimant, and he was assisted in the case by the following gentlemen, who gave evidence that they considered the property to be worth—

Mr. Arthur S. Newman	£5,243	0	0
Mr. Porter	5,419	0	0
Mr. Dickins	5,205	0	0
Mr. R. Eden	5,225	0	0
Mr. Wm. Smith	5,348	0	0

On the other hand, the company, whose case was conducted by Mr. Clifton, architect, called Mr. Clark, of the firm of Messrs. Farebrother, Clark, & Co., who assessed the value of the property at 3,111*l.*; and Mr. Ryde, of the South-Eastern Railway, at the sum of 3,085*l.* The jury, after considerable deliberation, gave the claimant a verdict for 4,200*l.*, which carried all costs.

Davies v. *The Metropolitan Railway Company.*—Some remarkable evidence was given in this case of the value of property in Kensington, which one of the witnesses declared had increased "beyond all calculation." The inquiry took place before Mr. Humphreys, the coroner, and a special jury, at the Sheriffs' Court, Red Lion-square. Mr. Karslake, Q.C., and Mr. Prentice appeared for the claimant of the house and shop, 7, Kensington-terrace, which had been leased for twenty-one years to Mr. Weatherley, at 70*l.* in 1860. Mr. Lloyd (Mr. Hollway with him) represented the company. The claim was 4,600*l.*, and the company had offered 2,300*l.* All the witnesses stated that property had greatly increased in value. Mr. Lloyd, for the company, called no witnesses, but addressed the jury, urging that the claim was excessive, and that the property was not worth the sum which had been mentioned. The coroner left it to the jury to determine the present value of the premises, and then to capitalise the amount. The jury gave a verdict for 2,700*l.*; and, that being beyond the offer, the expenses will fall on the company.

Balls v. *The Metropolitan Railway Company.*—This case (Court of Queen's Bench) raised a point of some importance relating to compensation cases. The question was as to the nature of an offer which relieves the company of costs in the event of the jury awarding less than the amount offered, and refused. The facts were these:—The claimant in November sent in a claim of 400*l.* for damage caused to him by the taking of his premises. The company made no offer, and the proceedings went on until the 4th of December, when the jury were nominated to assess compensation. Then on that same day the company made an offer of 100*l.*, which, however, was clogged with the condition that it should be taken to include all costs and expenses. The offer was refused. Costs to the amount, it was said, of 40*l.* had been already incurred, and the claimant went on until the case came before a jury, who gave him only 75*l.* The claimant, however, had claimed his costs, which the officer had taxed at 156*l.* The statute provides that if the verdict shall be given for a less sum than the sum offered, the claimant shall be entitled to no costs. The question was whether he was entitled to costs. After a long argument, it was observed by the Lord Chief Justice that the offer which the statute meant was an offer of compensation, whereas this offer included costs—an observation which the counsel for the company and the rest of the Court deemed conclusive. The Court gave judgment for the claimant.

INAUGURATION OF A GOLDSMITH'S STUDIO AT BIRMINGHAM.

MESSRS. W. & J. RANDEL, of Vittoria-street, have been celebrating the opening of an art-studio on their premises. The manufactory and warehouse of this firm have been built on an extensive scale. The works cover altogether an area of 105 ft. by 54 ft., and they consist of a work-shed, 66 ft. by 9 ft.; a dressing-room, 66 ft. by 9 ft.; a casting-shop, 16 ft. by 16 ft.; and a stamping-shop, 26 ft. by 16 ft. In addition to these there are all the departments which are included in the requirements of a warehouse, consisting of show-room, 23 ft. by 16 ft.; rough warehouse, 26 ft. by 13 ft.; receiving-room, 20 ft. by 13 ft.; and a private room, 15 ft. by 11 ft. The warehouse and offices are separated from the work-shed by glass-windows only, so that all the workpeople are under the immediate supervision of their employers throughout the hours of labour. The work-shed is about 17 ft. in height, and is well lighted and ventilated. There are six rows of work-benches in the shed, at which about 100 hands can be accommodated. The whole of the building is warmed by hot-water pipes; and, exclusive of this, fresh warm air is introduced into every room, and the requisite outlets are provided for the vitiated air. The floors of the building, and also the roofs (with the exception of the work-shed), are fire-proof. They are formed entirely of bricks, in the manner of arches, with only about 6 in. rise. The floors and roofs are on this principle in the factory of Mr. Wiley, in Graham-street, by the same architect. The front of the warehouse is in the Italian Gothic style of architecture. Mr. Bland is the architect of the building, and Messrs. Webb, Brothers, are the builders.

The room set apart by the firm for the art-studio is on the second floor, and measures 51 ft. by 16 ft. Here the firm purpose offering every facility for the study of art in its highest branches. Drawing and design classes will be held here two evenings in each week. There will be classes for adults, apprentices, and females. The whole will be free to the students (paper and pencil excepted).

THE RIVER COMMISSIONERS AT CROYDON.

THE Commissioners appointed by Government to inquire into the state of the rivers of Great Britain are still continuing their inquiries. They have just held a public inquiry at the town-hall, Croydon, into the utilisation of the town sewage in the vicinity, especially as affecting the health of the inhabitants. The Commissioners were Mr. Robert Rawlinson, C.B., chief commissioner; Mr. John Thornhill Harrison, C.E.; and Professor J. T. Way.

Several members of the Board of Health were present, and underwent a searching examination; but the answers given were satisfactory and to the point. Much useful information was elicited from the different witnesses.

The Chairman (Mr. Rawlinson) opened the commission. He said they had come to Croydon knowing that the authorities had taken the lead in adopting main sewage and house drainage, the carrying out of which project had cost a considerable amount of money, and which, in the first instance, did not exactly carry out the object that was intended. They also knew the authorities of Croydon had been engaged in serious litigation with respect to the pollution of their stream, and that they had latterly carried out most successfully the utilisation of sewage. They, therefore, came down with a desire to obtain as much information as they possibly could, and in the best way they could, and they should be glad to hear any testimony that might be brought before them.

The first witness called was Dr. Carpenter, who stated that he had lived in Croydon about fourteen years. He remembered the great outbreak of fever, and he specially examined its nature. The fever prevailed in the best houses, and in the highest parts of the town; in the houses connected with the sewers, and in those unconnected. It was not infectious. The main sewers being insufficiently ventilated was, in his impression, one of the causes of the fever. Great improvements have taken place since then in the main sewers. They have had, several years in succession, a very low death rate. It has been as low as 16, and is generally under 20. As to the death rate before the Board was established, Dr. Westall one or two years stated it at 29, 28, and 27. The water supply, if properly carried out, will form a new item in the arrangement to secure a great amount of health. Sewerage alone will not ensure perfect immunity from preventable disease. Dr. Carpenter stated that in 1848 the death rate was 28; in 1849, 26; 1850, 20; 1851, 19; 1852, 22; 1853, 26; 1854, 26; 1855, 19; 1856, 18; and 1857 it was under 16. The Chairman asked the witness if he was able to draw any conclusions whether there are any injurious influences from the mode of irrigation; in reply to which he said, I have formed a decided opinion upon the subject. No injury has resulted to any one so far as it has come under my knowledge, so that the sewage may be applied to land without fear of injury to health.

Dr. Sutherland was next examined, and he stated that he had been in practice in Croydon for the last thirty years. He quite concurred in all Dr. Carpenter had said; but he wished to say a few words about the epidemic that visited the town some years since. At the time it occurred he had a strong conviction, which had been strengthened by subsequent experience, that the epidemic was chiefly caused by the want of proper ventilators to the sewers. There was one point he wished to refer to, and that was, that in the first outbreak the greatest number of cases of fever occurred in the High-street; but, since that time, there had been less fever in High-street than almost any other part of the town.

The Chairman said, when he first heard of the outbreak he was in the north of England. He soon afterwards saw Dr. S. Smith, and told him he was satisfied that the ventilation of the sewer-pipes was not sufficient in Croydon. He came down to Croydon, and saw the then surveyor to the Board, Mr. Cox. He spoke to him on the subject, and he learnt from him that there was no ventilation to the drains. There had been two or three points where they were ventilated, but (said he) the stench was so great that I had them stopped up. He said to Mr. Cox, "Why, man, should you not infer that, if there was a stench from two or three points, you ought to have opened thirty-two points rather than stop them up?" His report was sent in, in which he urged ventilation; but, as he had many other things to attend to, he did not know whether his recommendation was carried out.

Dr. Sutherland said, to carry out a complete system, regular flushing should be resorted to, as without flushing they were in danger.

The Chairman said they might take it for granted that gas from decomposition rose against gravitation, as sewage, which was heavier, flowed down with gravitation. Therefore, in sewage works, some persons thought it was the best plan to place sewers on steep gradients; but places with steep gradients were not so well for sewage works as a flat country. The sewage rushing down a steep gradient did not allow the gas time to escape that was generated in the higher parts. Thus it would be possible to make Brighton much worse than it was at present by spending 100,000*l.* upon it.

Mr. Close.—Are you in favour of pipe drainage?

The Chairman.—Where pipe drainage is sufficient to carry off the sewage they make far the best drains for a town; but I would prefer to

ut down brick drains rather than pipes. How-ver, where pipes can be used, they can be put r to advantage. Some people would have ewers made large enough for a man to get into hem; but sewers should be no more cleaned nt by human hands than chimneys. No human eing should be sent below the surface to cleanse sewer. Every sewer can be made to work rithout that.

Mr. Harrison (to Dr. Sutherland).—Do you uffer that the former outbreak was caused by a ant of ventilation; and since that has been arried out, although it is not even perfect at he present time, do you trace the present out-reak to that?—No; I do not attribute it to the ewers in any way. I think it is atmospheric auses and wet weather. I state distinctly that hose cases within my experience were excep-ional cases. The majority I attribute to the tate of the roads. With respect to the drains, also should recommend that no direct con-exions be allowed between the houses and the ewers. I also recommend overflow-pipes to be arried outside.

At the close of the inquiry the Chairman said, e were on the eve of a great change with espect to the disposal of sewage, the utilisation f which was one of the great questions of the ay. Mr. Marriage's farm had been visited by im, and he believed that gentleman had untied ne difficult knot, by showing to all the world hat sewage could be utilised, not only without njury to health, but with a fair amount of profit.

ARCHITECTS' RESPONSIBILTIES.

ENGLAND *v.* WYATT: IN COURT OF COMMON PLEAS.

THIS action, defended more on public than rivate grounds, deserves the attention of the rofession. It was tried before Mr. Justice yles and a common jury. In 1860, the de-ndant, Mr. T. H. Wyatt, who was superintend-g the works at Bemerton Church, Wiltshire, rranged with the plaintiff to lay certain tiling in e chancel. This was executed: an account as sent in first, according to plaintiff's evidence, the defendant, though this Mr. Wyatt denied, id then to the builder of the church, Mr. Miles, ho was bound to do the tiling under his con-act, and for whom defendant had given the rder. Miles objected to some of the charges, id would not pay the whole of the amount harged, and then plaintiff brought this action gainst the architect. The amount was 3l. 3s. 6d. Another item, 2l. 3s. had crept l, but this, it was explained by the plaintiff, as for cement ordered by Miles for his own se, and for which plaintiff did not pretend have any claim against defendant. 14l. 10s. 1d. Miles's money had been paid to the laintiff. There was a little discrepancy as to e terms in which the architect communicated ith the plaintiff at the first interview. The tter said he heard nothing of the builder on hat occasion; while Mr. Wyatt believes that he ld him that he had advised the builder to have e tiles laid by him (the plaintiff), as he was perienced and would lay them quickly. The dge was about to sum up, proposing to submit t the jury—first, whether in ordering the goods r. Wyatt was agent for Mr. Miles; and, condly, whether the plaintiff knew or ought to ve known this; when the jury said it was un-ecessary, and gave a verdict for the plaintiff r the balance, 8l. 13s. 5d.

It behoves the profession to take this decision to serious consideration, and to protect them-lves carefully when making contracts and rrangements for others with tradesmen.

SES OF NATIONAL MUSEUMS TO LOCAL INSTITUTIONS.

THE paper read last week at the Society of ts, Adelphi, on the uses of National Museums local institutions, by Lord Henry G. Lennox, P., has been already largely reported by e press, and need not here be entered on at y length. The subject is an extensive one, r the paper treated not only of the question volved in the uses of national museums to al institutions, but also of that wider question th which it is so intimately connected, namely, e management of our national collections in eir bearing on the education and enjoyment of e people. These collections, Lord H. Lennox of opinion, ought not only to assume a more educational character, but to give a helping hand, by circulation and by gifts, to local collections in our various provincial towns. The management of such national institutions as the British Museum was not only faulty in these but in other respects, and ought to be reformed. The trustees lagged indolently behind the spirit of the age, and did not expend their vast revenue as they ought to do for the instruction and recreation of the people. The author advocated the opening of the collections on the week day evenings. His lordship concluded by saying:—

"I trust the discussion of to-night will be such as to strengthen the hands of the Chancellor of the Exchequer, and nerve him to add this to the many achievements of his political career—the breaking up the antediluvian system of irresponsible Boards, and the placing under a responsible minister of the Crown the control and government of our vast national collections, so that they may be managed in consonance with the wants of the age, and be made as available as possible for the education and recreation of the people, not only of the metropolis, but of the United Kingdom at large."

Professor Tennant, Mr. Ayrton, M.P., Mr. H. Chester, and Mr. Layard (the chairman), took part in the discussion. Mr. Layard said he could not advocate either the opening of the national collections after dark or the circulation of valuable art works throughout the provinces, but he thought the present was a fitting time to enlarge the utility of the British Museum and National Gallery, and it was probable that the subject would soon be brought under the notice of the Government.

THE PRESIDENTSHIP OF THE ROYAL ACADEMY.

THE Council of the Royal Academy met, as arranged, on Thursday night, when Sir Edwin Landseer repeated his resolution to decline the presidentship, on the score of uncertain health. Mr. Maclise distinctly expressed *his* determination *not* to accept it, under any circumstances, and begged his friends who had suggested to him his fitness for the chair, not to vote for him. On proceeding to the election, the numbers were, by a large majority (not equal to Sir Edwin's of the last meeting) in favour of Mr. Francis Grant.

It is needless to refer to the three or four other Academicians whose names received votes.

"THEATRICAL COMPLAINTS."

SIR,—In your last number and notice of the Drury-lane pantomime of the present season, my name receives "honourable mention," but doubt is expressed of my being the originator of the designs of the representations of the metals Copper, Tin, &c., which you approve, or whether they are not of foreign importation.

Kindly permit me to endeavour to remove every doubt upon the subject, by affirming myself to be the sole inventor of the whole of the characters referred to in "King Pippin," and also of the characters and appointments of "the opening" of every other pantomime produced at this theatre since the year 1851 to the present time, inclusive, my worthy authors' manuscripts being my only source of inspiration.

The models, also, have been the work of my own hands.

I shall be happy to submit for your inspection the whole of my drawings, &c., and refer unhesitatingly to the lessees, managers, and various members of the establishment, who from time to time have witnessed my labours, for entire confirmation of this statement.

DYKWYNAAN.

P.S.—The hints derived from the *Builder*, some years since, had reference to scenic modelling, I believe.

BUILDING LEASES AND EJECTMENTS.

IN the Vice-Chancellor's Court, on January 20, before Vice-Chancellor Sir John Stuart, the case Thompson *v.* Marquis of Normanby was tried. This was a Bill praying for a declaration that the plaintiff was entitled to have a building lease granted to him of a piece of land at Staithes, in the North Riding of Yorkshire, for such term of years and at such ground-rent and fine (if any) as the Court might think right; or that it might be declared that the plaintiff was entitled to purchase such piece of land from the defendant at a fair and reasonable price, or at such price as the Court might think right, or that the plaintiff was entitled to a lien on the above piece of land and the buildings thereon; and for an injunction to restrain an action of ejectment brought by the defendant against the plaintiff. The plaintiff, being desirous of renting additional houses at Staithes, applied, in April, 1860, to the agent of the late Marquis of Normanby for a piece of waste land in that village upon which to erect these houses; and, therefore, the plaintiff agreed with such agent to take that piece of land and hold it upon the customary tenure upon which the property in Staithes was then and now held, at the same price as that at which other sites in Staithes might be sold for, or to take a building lease thereof at a reasonable ground-rent. The bill alleged that the plaintiff, in reliance on the beforementioned agreement, erected certain buildings on the above piece of land, having purchased some of the stones used for that purpose of the agent of the late marquis, to whom such stones belonged; and that the defendant and his late father were well aware of the above agreement. In the year 1863 the late marquis died, and was succeeded by the defendant. In October, 1865, the plaintiff was, at the defendant's instance, served with a notice to quit the houses and buildings erected by him, but he refused to quit possession of them. The defendant, in May, 1865, commenced an action of ejectment against the plaintiff, and thereupon the bill was filed.

Mr. Malins and Mr. Trevor were heard for the plaintiff, but Mr. Bacon and Mr. F. O. Haynes, for the defendant, were not called upon.

The Vice-Chancellor said that the plaintiff's case had totally failed. By his bill he had rested his case upon three grounds, but at the bar two of them had not been insisted on; and what had been argued was that, because the plaintiff had expended on the defendant's land certain sums of money in erecting cottages thereon, he ought not to be ejected without compensation, and that he had a lien on the land for the sum expended by him. The doctrine of the Court in cases of this kind was clear, and was to the effect that, unless there was negligence on the part of the landlord amounting to deceit, the person building was not entitled to relief. There was no pretence for any such case here, and the bill must therefore be dismissed with costs.

AN AIR AND LIGHT QUESTION.

IN the Vice-Chancellor's Court (January 28), before Vice-Chancellor Sir W. P. Wood, the case of Smith *v.* Owen was decided. The bill was filed for the purpose of restraining an alleged interference with light and air, arising out of improvements in the adjoining houses.

The plaintiff is lessee of No. 118, New Bond-street, a house with a projecting bow window, well adapted, as the bill alleged, for the display of goods, from the uninterrupted view of it commanded by persons walking or driving along the street from the northwards. The defendant, who is the lessee of No. 117, immediately adjoining the plaintiff's premises on the northward, had, about the beginning of 1864, commenced altering his shopfront by pulling down the portico and throwing out the shop-front, or street line, to an extent of more than a foot from the external wall, the commencement of the projection at the side nearest to No. 118 being at a distance of five inches only from the nearest division of the plaintiff's window. The case made by the bill was that the defendant had materially impeded the access of light and air to the plaintiff's shop, and also destroyed its capabilities for the exhibition and display of goods. The defendant, on the other hand, insisted that the view of the plaintiff's window was actually improved, as the old portico had been removed and a level front presented to the street.

Evidence was given on either side, the effect of which is stated in the judgment of the Vice-Chancellor, who, without hearing counsel for the defence, said that no case had been shown on behalf of the plaintiff such as to call for the interference of the Court. If a person standing outside a shop window found the light reflected upon the window abstracted to such an extent that he could not see the goods exposed for sale in the window, then a case would arise for the interference of this Court. But that principle had not the slightest application to a case like the present, of a man not being able to see the window and the goods from the same distance as formerly. He knew no law which prevented a man, apart from any interference with light and air from building upon his own ground so as to prevent his neighbour's house from being seen. An illustration at once occurred to him from the period when the shops of London were distinguished by particular signs or emblems, such as the "Golden Ball," &c. It never could have been held that the Court would restrain a man from building his house so as to obstruct the view, seen by passers from a distance, of this golden ball or other emblem. It was quite obvious that, upon this branch of the case,—interference with the view of goods in the window,—there was no pretence for the suggestion of any appreciable injury as resulting to the plaintiff. Upon the question of direct interference with light and air, the evidence was wholly in favour of the defendant. The plaintiff had failed to make out any case for equitable relief, and the bill must be dismissed, with costs.

PLAYGROUNDS WANTED.

COUNTRY people have remarked to me that, twenty or more years ago, Cockneys were small and sallow as a rule; but now, if any one will observe the men who are poured into London by our principal railways each morning, he will not find a finer body of men in the world. This change is caused by living in the suburbs, and, in the younger men, by their joining the Volunteers. The fresh air and the exercise have done it all; and I venture to say the change for the better in their morality is as great. If you want to raise a class in civilization, you must begin with the body. The ancient Greeks knew that better than we: witness the care they bestowed on muscular development simultaneous with mental training, and the splendid life resulting therefrom.

As the merchant is the pioneer abroad of the missionary, so should the builder be at home. Half of the places called houses ought, as Thos. Carlyle would say, "to be swept into the dust-heap;" and it would pay in the long run for John Bull to do it; and, when he does it, he should remember that, as man's spirit can only act through his body, and that, as it is almost impossible to have a healthy mind in an unhealthy body, it is right to attend to the welfare of both.

One of the greatest natural wants of life is amusement. Life is God's gift, and the fuller of life any individual or animal is, the fuller of fun.

The very word "lively"—life-like—means it. Look at a kitten, for instance. Give a child too little amusement, and he grows up stunted in mind, body, and soul. Give him none, and he dies. This law is as inexorable as that which makes breathing sewer gases fatal. Bearing this in mind, walk through the courts of Shoreditch, Whitechapel, or any of the places so faithfully drawn in your paper some time ago. Then ask yourself how you would like the task of educating in these slums, for time and eternity, your children, which you find so difficult a task even in your sunny home in the suburbs.

Workmen's clubs are a right step, but only a step. While he is enjoying himself there, what are his wife and children doing? Poked away, perhaps, in one, or it may be two, rooms, in which, perhaps, the only ornaments consist of the clothes-lines nailed from wall to wall, on which are hanging the clothes just washed; and in that room the children are confined all day. Perhaps they are sent to the national school, to be out of the way; but the best national school is a playground, until a child is six or seven years old. Take the case of a shopkeeper in London. When his children return from school, he cannot allow them to run about the streets; therefore they must remain indoors, and thus grow up weak, or half of them die off.

The workmen's trains, to enable them to live in the suburbs, ought to lessen the evil, one would think; but the process is being repeated. Long rows of cottages are run up, with yards behind in which you cannot comfortably "swing a cat" by the tail; and the country is suddenly transformed into the town. The inevitable tavern comes first at the corner; a few shops next it; the rest of the land crammed with cottages, thirty to an acre. Go where you will it is the same. On Plaistow Marsh a second Ratcliffe-highway is springing up; on the Isle of Dogs the Ironmongers' Company are getting their land "covered," as it is called, in like manner; so it is on the land behind the Old Kent-road,—all on the principle that a man's life is only to eat, drink, sleep, then die.

We are told that the works of men follow them into the next world. Is there no member of the Board of Works anxious to have such a following,—shrewd enough to grasp the real magnitude of this question, and to see that it involves consequences which act with tremendous force upon the physical and moral well-being of any community?

J. P. Watkeson.

"WING SIGNAL" BETWEEN PASSENGERS AND GUARDS.

A simple and easily-worked signal has been invented by Mr. Sinclair, of the Conservative Club, and set to work (successfully it is said) on one of the carriages of the North British Railway, by way of experiment. It has been thus described:—

"The apparatus is fitted up at the end of each carriage, and consists of two sheet-iron wings, painted white with a black border, which are fixed on iron rods, and move on hinges. Attached to the 'wing' rods is an iron chain with a small ring at the end. In the centre of the end of the carriage is fixed a perpendicular rod, in which moves a large iron detent-ring: to this is attached the chain, which is carried through the whole length of the carriage on both sides. Below this fixture is placed a loose pin; and, when the signal is set for use, the chains attached to the wings and the large ring of the 'pull' from the interior of the carriages, are slipped on the pin. In this position the wings are kept out of sight behind the carriage, but immediately on the chain in the carriage being pulled, the large detent-ring is drawn over the pin, and by their own weight the wings fall to the side, and are exposed to the observation of the guard. The wings are each 2 ft. long and 1 ft. broad; and being placed at the top of the side of the carriage, are easily noticed by the guard from his sentry-box in the parcel-van." By night a light in front will be so placed as to be intercepted by the signal when made and seen from the guard's van.

It is not intended that when the guard sees the signal displayed he shall immediately stop the train, but that "it shall be considered as a 'signal of distress,' and that the train is required to be stopped at the first convenient opportunity, unless in a case of the most urgent necessity."

This signal may be quite efficient, as a signal; but the quotation just made shows clearly that no signal is in itself sufficient for the purpose in view. How is the "urgent necessity" to be judged of by the imprisoned and helpless guard? Suppose that a murder, or a criminal assault on a woman, is being committed, and that the signal is made: of what preventive use will it be to stop the train "at the first convenient opportunity?" Or again, suppose that some nervous old woman of either sex is screaming or holloaing out of the window, while also making the signal, on account of some imaginary danger (and not of course from any voluntary motive of a larking or mischievous nature), is that to be considered by the boxed guard as a case of "urgent necessity?" With facilities for the guard to traverse the train, and judge by his own eyes and ears, *at the carriage signalled from*, such signals as Mr. Sinclair's might no doubt be useful; but would they be necessary, if the duty of the guard were occasionally to traverse the train from end to end while in transit? The public ought to insist upon arrangements to this effect, and nothing short of this will do. The question of signals, as an adjunct, may then be fittingly considered.

RIVERS AND SEWAGE.

Sir,—Allow me to thank you for the paragraph on the "Drainage of Chatham," p. 71. It is absurd to suppose (as many do) that Government will pass a universal law of prohibition against sewage entering an open tideway, in cases where local flushing can be obtained, or where no towns are affected below it. To apply my idea of flushing a river to the Thames, it will only be necessary to pen the fresh water up at Teddington Lock, during the flood tide, and then let it off at the commencement of the ebb, as fast as the gates can be drawn, and when the head is run down, shut the gates to obtain another head, repeating the operation at every turn of tide downwards.

Of course, existing rights must be compensated, but there can be no doubt that much purer water would be found in the river where it is now found to be offensive. And of course this flushing would be limited to the spare water of the river after the water-works are supplied; nevertheless, considerable amelioration may even now be obtained until Mr. Bateman's gravitating supply comes to hand. And I am of opinion that his powers of supply should be taxed to the utmost, in order that the whole sewerage of the metropolis may be flushed with fresh water. By this means, and this only, will the town be kept sweet and wholesome; and, as the opportunity is now before the public, provision should be made to embrace it, as it is hardly probable that the additional cost would follow the increased supply of water. It should be added, that this scouring or flushing the sewers would only be necessary in dry weather, when, in fact, it is most necessary.

W. Thorold, M.Inst.C.E.

DISSENTING CHURCH-BUILDING NEWS.

Brecon.—The foundation-stone of a new chapel for the Calvinistic Methodist body has been laid here. The design was prepared by Mr. W. F. Poulter, of Reading. The contractors are Messrs. Williams & Sons, builders, Brecon, whose tender was 2,052*l.* The chapel will be in the Gothic style. The principal elevation will be on the south side, within a few feet of the Walton-road, at which end there will be three principal entrances. The south-east angle will be erected in octagon form, surmounted by a spire 87 ft. high. The chapel, with an apse at the north end, will measure 58 ft. by 33 ft. clear. At the north end will be a school-room, 39 ft. by 22 ft., and also at the north end of the chapel will be a class-room, 13½ ft. by 11 ft., as well as a vestry-room.

Luton.—The chief stones of the new chapel, to replace Bunyan's "Old Meeting," in Park-street, have been laid by Sir S. Morton Peto, bart., M.P., and Mr. John Everitt. The proposed building is to be of plain brick, erected at a cost of something over 2,000*l.*, by Messrs. Smart Brothers, of Luton, and will accommodate 1,200 persons. The architect is Mr. Warburton Stent.

Clifton.—The chief stone of the new chapel, Clifton College, to be raised in memory of the late Canon Guthrie, has been laid by his widow. The chapel, which will cost 4,500*l.*, the total expenses being defrayed by Mrs. Guthrie, is to be dedicated to St. Paul. The style is to be Early Decorated. The ground-plan consists of nave and chancel, with ante-chapel and porch at the west, an organ-chamber and vestry on the north of the chancel, and a tribune for ladies over the ante-chapel, to which access is gained by an octagonal staircase, grained in stone in the tower adjoining. The tower will be erected by the College Company, as a tribute of respect to the memory of their late chief, and to be called the "Guthrie Memorial Tower." The walls will be built of stone quarried on the ground, with dressings of Bath stone. The design is by Mr. Chas. F. Hansom, the architect of the College buildings, and will be carried out under his superintendence by Mr. James Diment, of Bristol, who is also the contractor for the additions to the College now in progress. The total internal length is 125 feet.

Todmorden.—The foundation-stone of a new Unitarian church has been laid at Todmorden, on the hill-side opposite the railway station, by Mr. Samuel Fielden, the senior member of the firm of Messrs. Fielden, Brothers, of that place. The estimated cost of the building is 12,000*l.*, the whole of which will be paid by Messrs. Fielden, Brothers. The building will be a stone Gothic structure, worked out in the Decorative style of the fourteenth and fifteenth centuries. At the west end an octagonal spire will rise to the height of 150 ft., and will stand out conspicuously on the hill-side. The masonry will be executed under the immediate supervision of the firm, aided by the architect, Mr. Gileson, of London.

Liverpool.—The chief stone of a Welsh Wesleyan chapel has been laid in Shaw-street. The building will be in the Italian style of architecture, with a frontage towards Shaw-street, about thirty yards in length, of polished Stourton stone. The chapel will be entered on a level with Shaw-street, through a porch pierced with three lofty doorways. The porch will be surmounted by a pediment carried on Corinthian columns, separate entrances and stairs being provided to each gallery. The chapel will be twenty-four yards long and seventeen yards wide inside; the roof in one span, with a flat ceiling under. The space under the chapel is designed for a school-room or lecture-room, with six class-rooms, and accommodation for a resident keeper, &c. Owing to the fall in the ground, this part of the building will be unusually lofty and convenient, and will be entered on a level from Haigh-street. The works are being carried out by Messrs. Nicholson & Ayre, from the designs and under the superintendence of Mr. John Denison Jee, architect, Mr. Humphrey being clerk of works. The edifice, with the site, will cost about 8,000*l.*, of which 1,500*l.* have been presented by Mr. Maurice Williams.

Redland.—The foundation-stone of a new Wesleyan Chapel has been laid at Redland, by Sir S. M. Peto. The chapel is to be erected on a site adjoining White Ladies'-road, at an estimated cost, including land, of 5,000*l.* It is intended to accommodate 850 persons. The design is in the Decorated style of Early Gothic architecture, with details slightly French. The chapel is to be lighted on each side with long two-light windows, with buttresses between each window. There will be two side galleries, and one at the end over the entrance, as well as an organ-gallery behind the pulpit. The pews will have sloping backs and low doors. The chapel is to be spanned by a single roof, of the collar-beam form. The walls throughout are to be stuccoed. Underneath the chapel a basement-floor is provided, consisting of a large room, 12 ft. high, for public meetings, &c.; several class-rooms, dwelling-rooms for chapel-keeper, &c. The building is being erected of sandstone, obtained from the site. The fronts will be all of polled stone, in random, ranged courses, and pointed; the dressings of freestone. Cathedral glass is proposed for the windows. The roofs are to be covered with Bangor slates. The contractors for the erection are Messrs. Eastabrook & Son, Bristol, whose contract is 3,622*l.*; and the architect is Mr. Samuel Hancorn, of Newport, Monmouthshire, whose design was selected from several others submitted in competition.

CHURCH-BUILDING NEWS.

Chetnole (Dorset).—A new aisle has just been added to the church here, which was some few years ago restored, and a new chancel has been built. The aisle is on the north side, and is of lofty and wide proportions. The roof is gabled, and boarded and panelled on the inside, as is usual in this district. The windows are of three lights, with Perpendicular tracery. The arcade is of four bays, with moulded arches, supported on clustered columns, with carved capitals. The stone used is from the Ham-hill

arries. The new seating is of pitch pine, to rrespond with that of the nave. A new redos, of carved stone and marble, is to be ected, and a new pavement in the sanctuary d down. The works have been carried out, om Messrs. Slater & Carpenter's designs, by . Down, of Sherborne, under Mr. Farrall, as rk of works. The carving is by Poole & Son, Westminster.

Kidderminster.—The new workhouse chapel s been opened. The edifice was erected from e design of Mr. Hopkins, of Worcester, the ocesan Society's architect, by Mr. Nelson, of idley, builder. The style is Early Decorated, d it is built of red brick with stone dressings. consists of a nave, chancel, and sacrarium, and 68 ft. in length, 26 ft. in breadth, and 17 ft. in ight to the wall-plate, or 40 ft. to the apex of e roof. Its fittings are open seats with sloping cks, stalls, &c. The roof is open, the woodrk being stained and varnished. The chapel warmed by one of Gurney's stoves. The mber of persons it will comfortably hold is 2 adults and 50 children, and its cost will be out 700*l.*

Tunbridge Wells.—A reredos has just been ected in Ashurst Church, the gift of Mr. G. eld, of Ashurst Park. The work is in Caen one; the carving is executed by Mr. Forsyth, Hampstead, after a design by Mr. H. W. rzon, architect.

Grimsby.—St. Peter's Church, Cleethorpes, is be completed forthwith. At a committeeeeting lately held, the tender of Mr. Maxey, of outh, for the internal work, was accepted, and e church is to be ready for consecration by e end of May. In the plans of Mr. Fowler, of outh, there is a tower with spire appended, but r the want of funds the tower is only raised to little height, and in its unfinished state is a reat eyesore to the rest of the building. It ppears that the residents of Cleethorpes are willing that the beauty of their church should marred by such a defect, and at a meeting cently held it was proposed and unanimously greed that an effort should be made to complete e tower. Accordingly a committee was appointed for raising the required funds.

Radcliffe, Manchester.—St. Thomas's Church as been lighted. It is fitted up with polished rass standards, of nine lights each, brackets, c., by Mr. J. W. Dovey, of Manchester.

Southwold.—The church here is to be restored. r. R. M. Phipson, architect, has reported upon ie whole building. His report states that the ave and chancel roofs require a thorough overauling and repinning together, the timbers aving begun to spread or open at their various intings, as well as some of them being much ecayed. The lead covering is stated also to ave become so bad that nothing short of enrely relaying it with new metal is required. he stone parapet which was commenced at the ast end by the original builders, but which was ever completed, should now be finished. The ction of the sea air on the clerestory windows as brought the stonework of them into a very ecayed state, and they all, more or less, require areful restoration. Many of the windows and ortions of the church are also stated to require storation. The cost of all these works the rchitect estimates at 1,100*l.*, and nearly 1,100*l.* f this sum has already been subscribed. The orks will be done as far as possible by local radesmen, and will be commenced immediately. he architect in his report strongly urged the moval of the west gallery and the opening out the west tower, arch, and window; and although several parishioners were in favour of it, the gallery has been so recently erected that was deemed desirable not to wound the feelngs of contributors still alive by taking it down present.

Blackburn.—The chief stone of St. Michael's hurch, Brookhouse, the building of which was ommenced some years ago, and interrupted by ie subsequent distress, has now been laid. The ilifice was designed by Messrs. Stevens & obinson, of Derby, architects, and will accomodate about 800 persons. It is being conructed on land adjoining the school-house on halley-road, exactly opposite the convent of otre Dame. The plan consists of nave with orth and south aisles, divided from it by arcades f five arches, and together measuring 72 ft. by 4 ft.; chancel, 32 ft. by 22 ft.; and an organisle and chancel on the north side of the chancel, 5 ft. by 13 ft. The tower is placed at the southast angle, with arches, opening one into the hancel and one into the south aisle; it will be ranged as a baptistery, and the font placed in it. There are two main entrances; one through a porch on the south side of the church, the other through the tower: there is also an entrance for the clergy into the vestry. The elevation is designed in the English Gothic style of the thirteenth century. The church will be built of stone, with two or three light tracery windows in aisles, five-light east window, rose-window in the west end, and large-sized trefoil windows in the clerestory. The tower will be 70 ft. high from the level of the ground, and on it will be a spire 76 ft. in height with large spire-lights and broached pinnacles. The woodwork of the roof and seats throughout will be of deal, stained and varnished. The height of the nave from the floor to the apex of the roof will be 50 ft., and of chancel 44 ft. The foundations of the church throughout have already been built to the plinth moulding, and owing to the rapid slope of the ground on the north side are seen rising 28 ft. above the level of the river which here forms the boundary of the churchyard. Mr. Richard Hacking, of Blackburn, is the contractor for the completion of the building.

PROVINCIAL NEWS.

Cheshire.—At the Cheshire Quarter Sessions, lately, the report of the committee appointed to consider whether it was necessary to build a new asylum, was taken as read. The report may be briefly summarised thus:—The committee considered that it was necessary to build a new asylum, and that it should be erected in the Macclesfield Hundred, in the north-eastern division of the county, and that the quantity of land to be acquired for the purpose should not be less than 60 acres. On the motion of Earl Grosvenor, the report was adopted, and the committee re-appointed to consider the most eligible site and price thereof, and to report to next sessions.

Carlisle.—The County Hotel, at the entrance to the city from the Citadel Station, is about to be extended, and a new hall erected in connexion with it. The architects of the extensions are Messrs. Cory & Ferguson. The hall will be 70 ft. long by 35 ft. broad, and about 30 ft. high, and will accommodate 500 persons.——The new premises, says the local *Journal*, which Mr. C. Ling, provision merchant, is about to erect in English-street, in this city, on the site of the Woolpack, will be an additional acquisition to the architectural features of Carlisle. The architect is Mr. John Hodgson. The building will occupy a frontage of 47 ft. The elevation displays an example of the Venetian style of architecture, adapted to the necessities of modern times. The building is of four stories, rising to the height of 48 ft. In the centre of the front will be a wide gateway, affording a cartway to the warehouses at the rear of the building. The material used for the front is white fire-brick, relieved by bands and dressings of red and white inlaid with green slate. Iron balconets, finials, and surmounting railings, and iron trellis-work on the chimney-tops, will give a finish to the whole design. The extensive warehouses in the rear, extending six stories in height, will be devoted to Mr. Ling's use.

Norwich.—The building erected in London-street for the transaction of the business of the Consolidated Bank is now completed and opened. The style of the building resembles that in which some of the principal houses in Northern Italy were built during the early part of the seventeenth century; and the windows on the first floor are somewhat similar to those in a like position in the Palazzo Fibbia, at Bologna. Most of the other details, we are informed, are the result of studies made personally by the architect while in Italy. The caps to the columns are designed from the different water-plants which grow in the Norfolk rivers, all as a matter of course conventionalized to suit the character of the architecture. The whole of the London-street front is built with Bath stone, the columns being of polished red granite. The frontage next the Castle Meadow is entirely in red brick—a material which was constantly used at the period of the style in Northern Italy. The size of the bank is 44 ft. by 30 ft. It is 18 ft. high, and has manager's and waiting rooms behind. The walls are lined throughout with pine varnished; and oak partitions, filled in with ground plate-glass, divide the bank from the anterooms. The ceiling is divided by beams into panels, in four of which are sunlights; and there is a large fire-proof strong room in the basement, built in firebrick and afterwards lined with iron, with Milner's treble fire-proof door to it; a similar door separating the bank from the private house, which will be occupied by the chief cashier, but which has no connexion with the bank further than by a fire-proof door. All the windows on the ground-floor, back and front, have Messrs. Bunnett & Co.'s fireproof and thief-proof shutters. The cost of the whole building, including fittings, but exclusive of the land, will be about 4,000*l.* The architect was Mr. R. M. Phipson, of Norwich and Ipswich; and the contractor was Mr. Hall, of Norwich. The carving has been executed by Mr. Barrett, of Norwich; and the stone-masonry by Mr. Stanley, of St. Stephen's.

Books Received.

About Railways. By William Chambers, of Glenormiston. W. & R. Chambers, London and Edinburgh.

This little volume gives a very interesting and popular account of our British railway system, and also a glance at foreign and colonial railways. It treats specially of legislation and management, construction, rolling stock, traffic, tickets, clearing-house, metropolitan railway links, curious railway undertakings, statistics, and cheap railways. Under the last of these heads Mr. Chambers mentions that although 40,000*l.* per mile is not uncommon as the cost of a railway in England, much cheaper ones can be produced in Scotland. One, he particularly refers to, namely, the Peebles line, of which, if we mistake not, he is himself the chairman, as having cost only 5,000*l.* per mile; and hence, although in a comparatively thinly-peopled district, it yields a dividend of 6 per cent. per annum. The reason given by a railway engineer for this comparative dearness of railway construction in England is rather curious, when national character or at least reputation is considered. It is "because English directors insist on having fine stations, and will not generally work unless they have some special advantage in view; while, in various instances, Scottish directors, from some local patriotic feeling, not only exact no remuneration, but are satisfied with stations and other equipments of a very modest description."

Although the volume under notice is merely the result of some leisure half-hours, it contains throughout obvious evidence of an observant and practical mind, well accustomed to popular writing, and will be read with pleasure and profit both by home and by foreign readers.

Miscellanea.

Royal Institute of the Architects of Ireland.—There was an ordinary general meeting of the Institute, in their rooms, Great Brunswick-street, on Thursday evening, the 18th of January, Mr. G. Wilkinson, J.P., in the chair, when a paper was read by Mr. W. Fogerty, Fellow, on "The Architecture of Ancient Egypt."

Rat-killing extraordinary.—A rather new and curious use of electricity is now being made in the Paris sewers, we are told. There, as is well known, rats swarm by millions. Wires, 100 mètres long, insulated by glass feet from the ground, and connected with a strong battery, are spread through these subterranean walks. Little pieces of roast meat are attached to the wires at short distances, and the rats, by nibbling at the bait, bring down the shock with terrific power upon their bodies. Death is almost instantaneous, and the morsel moreover remains intact, ready to destroy other victims.

The Queen's Pension to Miss Roberts.—There are many of our readers who will learn with sincere pleasure of the Queen's grant of a pension of 200*l.* per annum out of the civil list to the daughter of the late Mr. Richard Roberts, whose inventions and life-long labours as an engineer contributed so much to the wealth of Great Britain. Apart from the public services thus graciously recognised, and in some small proportion rewarded, the character of the immediate recipient—a young lady who has sacrificed much of personal ease, and even of health, to the preservation of her father's fame—gives to the grant an additional fitness and significance.

Troyon's Pictures.—The late M. Troyon's pictures, 150 in number, sold under his will, produced the sum of 15,000*l.* People are wondering what the Marquis of Hertford intends doing with the number of costly pictures he purchases and sends to England.

Drainage of Frankfort-on-Maine.—Frankfort-on-Maine is to be supplied with a thorough system of drainage in the English style. The civil engineers engaged by the municipality to superintend the works are Messrs. W. Lindley, of London, and T. Gordon, of Carlisle.

Knowledge Wanted. — "We niver had naw ventilashun when I lived wit' auld squire: nowt' o't sort," said an old servant to his master. "You must have had some ventilation, Tom," said the master, as he looked at the well-stuffed-up stable; "your cattle could not have lived without it." "Mebbe; but I niver seed it, nor naw sike thing; and I knawed iverything that coomed in and oot a't pleace."

The Hull Town Hall.—The opening, as we announced, took place on the 25th ult. The statue of Edward I., who made Kingston-upon-Hull a royal borough, and which has been placed in the new town-hall, as a gift from Mr. William Hodge, of Newington Hall, one of the aldermen, was unveiled on the occasion of the opening, by the Lord High Steward, Earl de Grey and Ripon. The decorations have been ably executed by Mr. J. L. Coulton, of London.

The Park for Middlesbro'.—The 70 acres of land so munificently presented to the town of Middlesbro' for a public park by Mr. Bolckow, are at present being broken up, with a view to the formation of the grounds. A number of workmen are at present engaged, and considerable progress will no doubt be made when more favourable weather sets in. The place is admirably adapted for the purposes of a people's park.

The proposed National Exhibition of Portraits.—The town clerk read a letter from Mr. Norman McLeod on this subject at a recent meeting of the Salisbury council. It was stated that the corporation possessed some valuable and interesting portraits, amongst them that of Chiffinch, to whom allusion was made in Scott's "Peveril of the Peak," and who lived in the time of Charles II. It was believed to have been painted by Greenhill, a Salisbury artist, and a pupil of Lely. It was agreed to forward to South Kensington a list prepared by the town clerk, leaving it to the authorities to select such pictures as they might think proper.

Proposed Harbour at Filey.—The Harbour of Refuge Commissioners some years since reported to Parliament that there was no place so suitable as Filey Bay for a harbour of refuge for the east coast, being adapted by nature for the purpose, and being most accessible of any bay between the Wash and the Tay. The present Government have taken no interest in the matter, and therefore what they refused to do certain capitalists propose to carry out by private enterprise, and have obtained for the purpose the Filey Pier and Orders Confirmation Bill, 1864. It is now desired to float the company, and a public meeting has been held at Filey for the purpose of getting the inhabitants to take shares to the extent of 10,000*l.*, 30,000*l.* having been otherwise raised, and a contractor being ready to take 20,000*l.* in shares as payment. The estimate is 100,000*l.*

Application of the Aniline Dyes to Painting.—It is found that all resins having acid properties—caoutchouc and the aniline dye-stuffs—dissolve in the solution of aniline. Shellac is thoroughly soluble in it, and the resulting solution may be coloured with the concentrated solution of an aniline dye-stuff, the result being an excellent material for producing transparent paintings on glass, porcelain, &c., to which it very firmly adheres. The aniline dye-stuff may be dissolved directly in the aniline solution of shellac, with the aid of heat; but not fuchsine, since this, when heated with shellac, is changed to blue: hence, when this substance is to be dissolved, a solution of it in aniline, prepared without heat, is to be mixed with the aniline solution of shellac. These shellac solutions of the dyes may be mixed with oil paint not containing lead, and thus a brilliancy of tone may be imparted to the various colours in oil which they do not themselves possess. — *Scientific Review.*

The Royal Gold Medal for Architecture. The council of the Institute propose to recommend Mr. Butterfield as the recipient of the Royal Gold Medal this year.

The Irish Albert Memorial.—A correspondent wants to know what site may (at last) be settled on for the Dublin monument to Prince Albert, and the premiums which the committee will award to the best designs.

Builders' Clerks.—It will be seen by our advertising columns that a meeting is to be called speedily, for the purpose of talking over a proposed Association of Builders' Clerks. All who feel interested in the matter should attend when the day is named.

Another Death by a Hydraulic Lift.—An inquest is being held on the body of Henry Girling, a porter, employed at the Great Western Railway Hotel, who was killed by the lift used in the hotel. The coroner, Dr. Lankester, states that he has held three inquests in such cases during the last twelve months.

A Cap for Drawings.—The "Patent Cap" advertised in our columns by Messrs. Wallis & Co., will be found useful, especially in stacking rolled drawings likely to be wanted. The end gives space for written name, &c., so that the required roll may at once be found.

Increase of the Bridport Surveyor's Salary.—At the last meeting of the local Highway Board it was resolved that Mr. Cox's salary should be increased from 175*l.* to 200*l.* a year, and also that a gratuity of 25*l.* should be presented to him in acknowledgment of past services rendered to the Board.

London.—There are, it appears, 339 thoroughfares in the city of London, and 163 of these are only of a sufficient width to allow of a single line traffic, while there are 101 which afford only a double line traffic, and only 70 which afford room for three lines or more. There are 60,000 vehicles passing daily through the city.

A Sculptor stabbed in Rome.—Mr. Lawrence Macdonald, the well-known sculptor, was recently attacked by three persons, while ascending a common staircase, on a visit, between nine and ten p.m., and stabbed in the neck. The villains were scared, otherwise, it is believed, Mr. Macdonald would have been robbed, and perhaps murdered outright. It is not thought the wound is very dangerous, and Mr. Macdonald is progressing favourably towards recovery.

Worcester Arboretum.—The inhabitants, at a meeting to consider an offer of Earl Dudley to aid in retaining the Pleasure-grounds for behoof of the citizens, resolved to take means to obtain the votes of the ratepayers upon the desirability of the town council investing the sum of 5,000*l.* from corporation property or from the rates, in aid of the purchase of the Pleasure-grounds, to be vested in the corporation or the local board of health for the perpetual use of the citizens.

Clifton Suspension Bridge.—We have heard that the directors of this company have determined to recommend a dividend at the rate of 2½ per cent. per annum, for the six months ending the 31st of December. The last, and, indeed, the first, dividend was at the rate of 5 per cent. per annum, therefore the present is a very serious falling off. We understand, however, that the decrease is owing mainly to the large local rates which have been charged upon the work. We believe that the bridge has been assessed at something like 800*l.* for the Somersetshire side, and 800*l.* for the Gloucestershire side.

Preservation of Commons and Open Spaces. A public meeting has been held at the Mansion House upon this subject, under the presidency of the Lord Mayor, when resolutions were agreed to,—"That the preservation of the commons and open spaces in the neighbourhood of London is absolutely essential for the health and recreation of the public,"—"that it is incumbent upon the Legislature to deal with the subject of open spaces, and that the meeting pledges itself to support the Commons' Preservation Society in its efforts to press the question upon the Legislature;"—"that subscriptions be invited from those present, and a list of subscribers be opened at the Mansion House;"—and that petitions be presented to both Houses of Parliament urging immediate legislation on the subject. Messrs. Ransom will act as bankers.

Mr. Peabody.—This munificent gentleman has added a further sum of 100,000*l.* to his former gift to the poor of London, making it in the whole a quarter of a million.

TENDERS

Accepted for erection of tavern, &c. for Mr. William Purkiss. Quantities by Messrs. Pain & Clark:—

Green:—			
Public-house and fittings	£2,891	0	0
Private house	355	0	0
Shop	380	0	0
Sundry works	403	0	0

For eight pairs of semi-detached cottages, at Wimbledon, at per pair. Mr. T. H. Hill, architect:—

Gay	£437	0	0
Harmer	392	0	0
Crouch & Son	375	0	0

For a new warehouse in Wimbledon-street, Leicester, for Messrs. Hart & Levi. Quantities supplied. Mr. Francis Drake, architect:—

Johnson	£5,424	0	0
Osborne, Brothers	5,367	0	0
Cox	5,191	0	0
Kellett	5,138	0	0
Porter	5,073	0	0
Hutchinson & Son	4,853	6	0
J. H. Johnson	4,750	0	0

For the extension of Messrs. Courage & Co.'s brewery premises, at Horselydown. Quantities supplied by Messrs. R. L. Curtis & Son. Messrs. Davison & Scamell, architects:—

	Main building.			Extra for Cellars.		
Lawrence & Sons	£10,883	0	0	£1,120	0	0
Piper & Wheeler	10,687	0	0	1,195	0	0
Brass	10,423	0	0	1,167	0	0
Myers & Sons	9,999	0	0	1,039	0	0
Sanders	9,995	0	0	1,152	0	0
Wells	9,990	0	0	985	0	0
Marsland & Son	9,793	0	0	935	0	0
Hart (accepted)	9,789	0	0	972	0	0

For alterations at Church House, Stanwell, for Mr. R. B. Cooper. Mr. F. C. Clark, architect:—

Oades	£891	0	0
Hardy	670	0	0
Tye & Andrew	667	0	0

TO CORRESPONDENTS.

Messrs. M.—H. T.—Mr. R.—J. B.—G. M. J. G. (send particulars at convenience).—E. W. P.—J. K. -A Builder's Clerk.—An old Servant.—Serjeant B.—W. L.—P. W.—B. A.—M. J.—P. W. K.—W. & F.—J. R.—J. M.—H. L.—J. C.—T. & A.—Mars (no offence meant).—T. L. J.—W. F. S.—C. J. H.—P. & C.—J. L. C.—E. P.—Dr. D.—E. D.—Messrs. H.—C.—E. C. R.—G. C.—G. M. H.—J. N.—C. H. D.—American Pine (the paper has not yet been read).—K. K. (if the walls are not now dry cause must be at work to keep them damp).—P. T. (there is no certain evidence of such difference. Some of each is bad).—Beta (if names are not written legibly correspondents must take the consequence. We have no consideration for people who write their own names so that they cannot be read).—F. J. F. (shall have attention).—X. B. K. (ditto).—V. (ditto).—G. S. C. (ditto).—J. E. (send us particulars).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

Note.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

[Advertisements.]

COMPOSITE SHIP-BUILDING.

To the Editor of "The Builder."

Sunderland, Jan. 18, 1866.

Sir,—A letter of Mr. John Jordan, in your paper of the 6th instant, criticising an article relating to our practice of the composite system of ship-building, which appeared in a preceding number, has just been brought under our notice. *Suppressio veri, suggestio falsi.* His claim to originality as a patentee of the principle being as yet virtually disallowed in the Law Courts, it would assuredly have been in better taste, and more accordant with a recognised rule, to have abstained from any reference to a suit now pending. The *Times* law report of the 16th instant, will show in how far Mr. Jordan's self-gratulation is warranted. The patents cited by your correspondent, dating back the invention to 1814, only go to prove that, in common with other important inventions, it has undergone a natural term of obscurity, and that he, like ourselves, only contributed to the ultimate success of the plan. Every item named as original introductions, with one exception, was practically familiar to ship-builders long before the date of Mr. Jordan's alleged invention. The butt joint, as applied by him, we admit to be novel, but so totally impracticable and inefficient, as to have been discarded in probably every instance where such vessels have been built. So far from the engravings in your paper having been copied from his filed drawings, as Mr. J. would suggest, they were made from photographs of models prepared by us to illustrate our essential differences from the officially published specification and drawings, and to refute the charge of infringement; which, however, was not defended, as, at an early stage of the proceedings the Judge determined upon

The Builder.

VOL. XXIV.—No. 1201.

The Provision of Wholesome Dwellings for the Labouring Classes.

KNOWING as we do the number of persons whose attention is directed to this subject, and the general ferment it has at last caused, it is difficult to resist the belief that something will now be done on a sufficiently large scale to meet the requirements of the time. What we have been saying for years, almost alone, is now heard from hundreds of lips: and a belief in the truth of it is becoming general. That our record may be complete, we must throw together brief notices of some recent proceedings connected with the movement. At meetings held by the Social Science Association and by the Society of Arts, Mr. Beggs read papers urging the extension and further development of building societies and freehold land societies.

"I believe," he said, "after all that can be done by benevolent associations, or philanthropic individuals, or even by Government loans, that the remedy for defective and insufficient house accommodation will be found in giving free scope to commercial enterprise and the employment of capital in that direction. As I have said in another place, the man who will show that dwellings suitable to the requirements of all classes of the people, within the reach of their means, and of sound and convenient construction, can be made to pay a fair interest for the capital invested, is the true benefactor. It will be a still greater boon to bring the ownership of a house within the reach of that very numerous class who have now to pay high rents for very inconvenient accommodation." "I propose to effect this object," he went on, "by an extension and further development of building societies and freehold land societies. Institutions of this class are not much known, and still less understood, by the middle and higher ranks; but they have found great favour among the industrial classes, as they afford facilities for the thrifty and sober man to attain a small property. They are becoming one of the most powerful agencies in the work of improvement, and when some of the disabilities are removed, which arise mainly from the state of the law, they will serve a great and important end. They embrace all the advantages of the associative as distinguished from the communistic principle. Experience has shown that nothing makes a man so conservative as the possession of property. That state will be the most secure, all other things being equal, which contains the largest number of independent proprietors. The building society or freehold land society supplies the means by which the humblest workman who is sober and prudent may become possessed of a freehold house. If a man obtain this, he will be careful of all changes likely to affect his own possessions; he will not be a ready dupe of the demagogue, nor will he be the promoter of strikes and combinations."

The extent of the operations of these societies is not generally known. In Birmingham, for example, from the first commencement of building societies, in 1842, up to the present time, not less than 2,500,000*l.* has been invested in them, and mostly by the working classes and lower portion of the middle classes. In six freehold land societies in that town, all held in one office,—

There has been advanced on mortgage...	£561,500
Of which there has been repaid.....	302,500
Leaving still to be paid	£259,000

so that considerably more thon one-half advanced to the members by way of loans has been repaid. It is stated that in Birmingham about 9,000 persons have, through the means of these societies, become proprietors of their own dwellings. In Leeds a building society has been in existence for about seventeen years. In June, 1865, it had 6,872 members, and the weekly receipts at that time were about 3,624*l.* The amount advanced to borrowing members has been 749,864*l.* Altogether there have been 24,589 members of the society, who have paid upwards of 1,200,598*l.*

The Temperance Building Society, London, has, according to its last report, received, in the ten years of its existence, 700,000*l.*, and lent upon property the sum of 509,000*l.* The Conservative Land Society, according to the last report, has bought sixty-six estates, containing 620 acres, and making about 4,842 allotments. The total amount of subscriptions received by that society is 394,966*l.* The British Land Company, which originated from the National Freehold Land Society, has bought land to the value of 1,496,034*l.*, of which it has sold to the value of 1,246,234*l.* The number of estates bought is 219, comprising 6,492 acres. As the average sub-divisions are about fifteen to an acre, Mr. Beggs estimates that the British Land Company and the National Freehold Land Society together have created from 40,000 to 45,000 independent proprietors. Besides this the society has been of great use as a savings bank. The interest, although variable, has generally been 5 per cent., and last year a bonus of 1 per cent. was added. A large number of small traders use the society in the same way that merchants and manufacturers use the large banks, with the exception that they cannot avail themselves of it for the purposes of honouring bills and cheques. After an existence of about nine years it has been able to pay for the last two of those years a dividend of 15 per cent., and the shares are now selling at 75 per cent. premium.

In 1860, the Messrs. Chambers computed the number of building societies at about 2,000, and the amount invested in them at about 10,000,000*l.* Taking this as a tolerably correct estimate, the amount must have reached by this time 12,500,000*l.* If these societies are working under a bad management or a defective code of rules, it is quite clear that an immense amount of mischief may be done by them; if they can be properly directed, an equally large amount of good will inevitably arise. The reader desired for them a more simple mode of conveyance and transfer. "These alterations in the law would greatly facilitate the operation of freehold land societies and building societies, and give them increased power and freedom of action. I am prepared for the question—How does this apply to the condition of London, where the need is urgent, and the price of land so high as to place it beyond the reach of such societies for the purpose of finding dwellings for working men and men of small incomes. I will endeavour to supply the answer. There is a very large class who, by the aid of railways, could escape from London, and who would be glad to do so, and we shall have to look to this as one of our resources, for the erection of dwellings in the suburbs would lessen the competition in London itself, and consequently enforce improvement. Many thousands of clerks, warehousemen, book-keepers, and shopmen, who are not required to attend as early at their places of employment as the mechanic and artisan, would be removed, and make way for those who, by necessity or inclination, must be resident in the neighbourhood of their work."

The difficulty that would meet a building society or a large commercial company, if even what is asked were conceded, would be that which now stands in the way of private enterprise, the difficulty of obtaining sites. Under present circumstances they cannot be had. We therefore agree with those who seek for compulsory powers to obtain land for building purposes,—a power vested in the Board of Trade, the Privy Council, or any court established by the Act itself, by which any corporate body, on giving the usual guarantees, and depositing plans and proposals, and showing the want of dwellings for the people, may acquire land for their erection on the same terms that railway and dock companies now obtain it, without the necessity of going to Parliament in each case for a Private Bill. Some seek, too, for a power to enfranchise leasehold property under certain conditions, and a power to compel the sale of such property as may be in the hands of incapacitated persons, or where circumstances prove the inability of the owner to comply with the laws laid down for the protection of the public health. "I ask also," says Mr. Beggs, "that freehold occupation may be further encouraged, by enacting in the same Bill that, as in the case of Scotland, a man may become the proprietor of a flat or floor of a house. This should be done under the most stringent regulations as to sanitary arrangements."

In the course of the discussion that followed, Mr. Thos. Webster, Q.C., said he thought the real solution of the question lay in a nutshell, viz., compulsory and enabling powers. He would go to the extent of saying that compulsory powers were essential, but under proper restrictions. They knew with what jealousy compulsory powers were regarded by the Legislature, and justly so, except in extreme cases, of which he thought this was one. The great desideratum was, suitable dwelling accommodation for the people near their work. It did not do to talk of taking them into the country; cheap land in the suburbs and weekly railway tickets at a shilling per week were all very well in some cases, but it was essential to many of the classes of labour that suitable dwellings should be provided them near the scene of their labour. A great many landlords had properties which were so many plague-spots, and scarcely worth the having. They would be only too glad to combine with others in the removal of the evil if they could do so; but it might happen that there was a small amount of intermediate property which could not be dealt with except by compulsory powers. Such compulsory powers should be placed in the hands of one of the public departments, and by these means large plots of ground, now covered with buildings that were a disgrace to our age, would be cleared. By the combined efforts of ground-landlords, under private agreement, with enabling powers to those who at present could not give a title, together with compulsory powers to such an extent as was necessary in extreme cases, such plots of land might be put into the hands of individuals who had both means and inclination to provide for the working classes that accommodation on which their hearts were so much set.

Mr. Hawes, who was in the chair at the Society of Arts meeting, agreed that it was only

by enabling and compulsory powers that they could succeed in obtaining sites for these purposes. He had no doubt money and land were to be had in plenty if the way were fairly opened to their employment. To this end compulsory powers were in some cases absolutely necessary. They did not ask for powers to take property without assigning any other reason than that labourers' dwellings were required to be built upon it; but they did call for compulsory powers with regard to those localities which were reported to the boards of health as being of a pestilential character, and detrimental to the public health, which were not only pernicious to the immediate neighbourhood, but tended to increase the death-rates of the whole metropolis. It was known that at the present time plague-spots existed which were irremediable by any means short of an entire sweeping away of the buildings upon them. He would only ask for compulsory powers in such cases as these. Having got those powers, let capital be employed upon buildings which would give a fair return upon the money invested. The thing could not be done in a small way. They must create some great organization or corporation which would go into it boldly, and which by its character would have some influence with the Government, and induce them to give their assistance. There was one point on which he thought some misapprehension existed. They had heard a good deal about the destruction of houses for the purposes of railways. He confessed he did not regard that in so serious a light as some persons appeared to do, for by the last returns of inhabited houses the increase had been greater than the increase of the population; but, at the same time, the houses were not of the kind wanted, nor were they in the proper situations. They were getting farther from the great centres of employment.

On Monday afternoon last, a meeting of the London Guardians interested in this question was held at the office of the Strand Union. Mr. Wilkinson, of the Strand guardians, occupied the chair; and Mr. J. S. Storr said it was generally felt that the existing house and lodging accommodation for the labouring and poorer classes was quite inadequate; that disease and immorality were thereby fostered; that rents were high, causing the people to over-crowd, thus giving rise to those outbreaks of fever which constantly occurred. He warned the guardians, that unless they took the initiative in pressing for legislative interference in such matters, so that where a railway was to be formed, or an improvement was to be effected, the companies should be compelled to erect dwellings in lieu of those they destroyed, fever would be still further engendered, and some of the guardians might look to have their term of office cut untimely short in a manner they little thought of.

Mr. Hopwood proposed that a memorial, prepared by the gentlemen of the Strand Union, should be adopted, and presented to the president of the Poor-law Board.

Mr. Marshall (of St. Martin's) pointed out that the ill lodgment of the industrious classes caused them to be but one remove from paupers, as their health was weakened by the bad places in which they dwelt, and they easily fell victims to sickness, in which case they and their families became chargeable to the rates.

One of the guardians gave an account of the deplorable manner in which the poor were lodged in St. James's, as witnessed by himself when distributing relief; and he described one recipient of out-door relief as living in a cellar called a kitchen, the window of which she could not open because of the fearful stench from the privy and dustbin.

After some conversation, it was resolved that the memorial should be sent to the president of the Poor-law Board immediately. The memorial which was decided on concluded by urging that corporations and limited owners should have increased powers to sell lands for the erection of dwellings suitable for labourers; that the Public Loan Commissioners should have power to lend money, at a rate not exceeding 3½ per cent. per annum, for building such dwellings; and that in all future railway Acts and Acts for local improvements, when houses were destroyed inhabited by the working classes, it should be made compulsory for those carrying out such Acts to provide, within a convenient distance, other dwellings in the place of those destroyed.

Amongst encouraging indications it may be mentioned, that the half-yearly report of the Improved Industrial Dwellings Company (formed by the exertions of Mr. Alderman Waterlow), to be presented on the 10th inst., recommends a dividend at the rate of 5 per cent. per annum, and the appropriation of 268*l.* to a reserve fund for repairs and redemption. New buildings are in course of erection in the City-road, which will accommodate about seventy-two families, and others are contemplated at Greenwich. The whole of the property of the company comprised in the four estates at Wapping, Southwark, Bagnigge-wells, and King's Cross, is fully completed and occupied, and great eagerness is shown to obtain admittance whenever any vacancies occur.

All the rooms in the Peabody Buildings at Islington are let, and the tenants seem to us well satisfied. We must remark, however, *en passant*, that the rooms in these buildings are too small. The architect of the trustees must contrive to give them larger in his next pile.

Something will be done in the neighbourhood of Grosvenor-place. Mr. Goldsmid, as chairman of a recent meeting of the Metropolitan Association for the Improvement of the Dwellings of the Industrious Classes, speaks of the liberal and philanthropic motives which have influenced the Marquis of Westminster in an arrangement with that Association. "The terms of the agreement are these:—The marquis lets to the Association a plot of ground, for a term of ninety-nine years, at the merely nominal rent of 40*l.* a year. On this plot the company are to erect suitable dwellings for 149 families. The marquis stipulates that these are to be let at moderate rents, calculated, when all are filled, to produce a net return of 5 per cent. on the outlay. The requisite capital is to be lent by the marquis to the Association on the mortgage of the buildings and land, and he is to receive as interest only 3 per cent. The remaining 2 per cent., subject to the deductions incident on change of occupancy and temporary vacancies, is to be retained by the Association for the expense and trouble of management."

This arrangement shows that while the marquis is effecting great improvements on his estate by means of the new buildings for the use of the wealthy now rising in the neighbourhood of Grosvenor-square and the Victoria terminus, he has not lost sight of the needs of the working classes, and is rightly anxious to do his part in the efforts now being made for supplying them with convenient and wholesome dwellings.

In the country, by the way, the new Act on Union Chargeability will do good. This important Act of Parliament will take effect on the 25th of next month, when the law which has been in force since the reign of William IV., will be repealed. The expenses thenceforth incurred in unions as to the poor, including the vaccination and registration fees, are to be charged upon the common fund, and not separately to each parish. The Poor-law Board are to make rules to carry the Act into execution, and there are several provisions as to the removal of paupers. From March 25th one year is to be substituted for three years, in the 3rd section of the 24th & 25th Vict., c. 55. The Act will make some considerable improvements, too, in the administration of Poor-law relief.

We report on another page a paper and discussion on the subject of which we are writing at the Architectural Association. One of the speakers on that occasion, Mr. Gilbert R. Redgrave, has since written to us, asking the opportunity to give a brief outline of his scheme, in the hopes that the subject may be again ventilated in our pages, and that some definite course of action may be decided upon. We willingly comply. Mr. Redgrave writes,—

"Modern improvements are daily driving out large bodies of the poorer classes into the suburbs, and land is far too valuable in London and its immediate vicinity to think of appropriating any very extensive central site for labourers' dwellings. What I propose is to obtain land well removed to the north-east, north-west, south-east, and south-west of London, and there to build four capacious workmen's towns, or colonies, having easy access by rail to all parts of the metropolis. The various lines should be bound to run special workmen's trains, morning and evening, at low fares, and the workmen would be provided with weekly or monthly return-tickets to such stations as were nearest to their work.

To buy land and build these towns would surely be more in the province of a limited company than many of the projects now being introduced, where businesses better carried on by private individuals are undertaken by companies ignorant of their management; and I calculate that a capital of half a million would suffice for the erection of a town of 4,000 dwellings, varying in accommodation for large and small families. Such a town should be complete in itself, having its own waterworks, gasworks, and drainage; it should be managed by a committee of its own inhabitants subject to the board of directors of the company. Public baths and wash-houses, public playgrounds, and such like institutions should be provided. A complete system of sanitary laws should be enforced by an officer paid by the company. Places of worship, workmen's halls, and shops on the co-operative system, would from time to time be added; and I even dream of such a community becoming a model for all countries, of what may be done for the working-classes, by leading them to feel an honest pride in their homes and their independence.

I am sanguine that, by a careful management of the revenues from all sources, a dividend of 6 per cent. might be obtained from such a workmen's town.

Nobody can feel more than I do, the difficulties attending such an undertaking as I propose. I have heard most of the objections which may be urged against it, but I believe that it has fewer serious obstacles than many other plans which have been brought before the public during the last few years. Something must be done directly to house thousands of our workmen! Why not take them at once to healthy districts, clear away from town, to such places as Banstead Down and Epping Forest, and overlook the petty objections to their having to ride twenty minutes in the train to reach their work? At all events, take them clear away from the suburbs, or in a few years we shall have to move them again.

Do not condemn my scheme until some worthier one has been propounded."

The proposition, we need scarcely say, is not an entirely new one. We have before us the proposals of three companies, now in progress of formation, for the provision of houses for the working classes. The express object of two of these companies is to erect such workmen's villages at short distances from the metropolis. The great objection is the removal of members of one class of society from the scope of the good offices and good influences of the classes above them. We shall have opportunities, however, to return to this question.

The London House Improvement Company (another of the three) suggest that the improved dwellings, when erected, should be mortgaged to the extent of a portion of their value, and that the amount raised by such mortgage, together with all profits over and above 5 per cent., should be invested in the erection of additional buildings. By these means, it is urged, the number of houses to be built with any given capital could be more than doubled in eight years, and the per-centage available for dividend would be largely increased.

If we could now carry the subject any further, we would add here, as amongst the promising incidents of last week, some account of Mr. Jas. Holes's volume, entitled "The Homes of the Working Classes, with Suggestions for their Improvement," and which contains views and plans of many of the "model" buildings that have been erected, especially in Yorkshire. For this, however, we must take another occasion. Suffice it, at present, to repeat the expression of our hope that, out of the present stir, some real and large good will result.

HISTORY AND ART OF GLASS PAINTING.

SOME friends of the late Mr. Winston, out of regard to his memory, have collected various memoirs upon stained glass written by him, and have published them, with a selection of illustrations from his drawings.* They express a prefatory belief, that to bring together the critical remarks and varied information distributed by him in the thirty years he made glass-painting his study, will be an acceptable work in the eyes of those interested in the same pursuit. For many years Mr. Winston was considered an authority upon all matters connected with glass-painting; and those who have seen his drawings, between 700 and 800 in number, laboriously made and coloured in exact imitation of the examples they depict, will admit, that if an industrious and minute investigation of a subject in the leisure hours of another profession qualify a critic, he must be regarded in that light. But we know, in truth, there is more than this required to constitute an art critic. Those who pass opinion upon other people's creations, should have a sound practical experience of the nature of the work commented upon, as well as a spark of that inscrutable gift called genius, for which mere *art-feeling* is a sorry substitute, as it conveys no expression of creative powers. "Only fancy," wrote Mr. Winston to a friend, on a matter of art, in a letter twelve pages long, dated the 26th of October, "since the 24th of September I have disposed of 4,000 cases and thirty insolvencies in the courts here." His immediate friends very properly admire this diligence and this facility

* "Memoirs illustrative of the Art of Glass Painting." By the late Charles Winston, of the Inner Temple. Illustrated with engravings, from the author's original drawings, by Philip H. Delamote, F.S.A. London: John Murray, Albemarle-street. 1865.

in turning from one branch of his studies to another; but with a mind thus pre-occupied, it is not surprising that Mr. Winston is occasionally to be detected in inconsistencies almost feminine in their charming simplicity? At one time he urges in his memoirs that there is no style of glass-painting equal to that of the twelfth and thirteenth centuries; at another, there is no glass to compare with that of the cinque-cento period. To the Archæological Institute at Lichfield, he remarked, that "in colouring and power the Glasgow windows are inferior to those at Lichfield. Their material, like all ordinary modern glass, is comparatively flimsy, and its colours are crude; the general treatment, also, is rather of the kind suitable to fresco, which requires light colours and light shadows, for effect at a distance." To Mr. Charles Heath Wilson he wrote subsequently concerning the Glasgow lights, "Ainmüller's general colouring is, to my mind, so good, and he is so alive to the value of white as a foil to the coloured glass, that, I fancy, you may with safety let him go his own gait." And to Herr Ainmüller himself he wrote —"I have no hesitation in declaring that, in my humble opinion, when we consider the high art displayed in the figures, and the skill shown in the execution of these windows as glass-paintings, the windows of Glasgow Cathedral are absolutely unrivalled. No modern work approaches them, and, upon the whole, they are certianly superior to any ancient work." And again, in another passage in the same letter, after saying "as glass-painting they appear to me to touch perfection," and extolling "the excellent drawing and arrangement of the groups, the dignity of the single figures, the draperies so well suited in their manner for painted glass, &c.," he wrote, "but I cannot omit again to express my extreme satisfaction at everything connected with these windows, which was the especial work of your establishment, such as the harmony of the colouring and the breadth of the effect; and it gives me great pleasure to be able to say that the window which seemed to be most agreeable in respect of ornamentation was the one which was executed from your own designs for Mr. Walter Stirling." It is not to the point whether or not the works mentioned were most worthy of the censure or approbation passed upon them, we simply point out the contradiction. It is not too much to expect that art-work should be judged by its merits, and not by the sympathies of the critic.

We suspect Mr. Winston was not aware of the degree in which he was led by his sympathies. His classical education, in the first instance, gave him a predilection for all things Greek, and an impression that Mediæval artists borrowed art, costume, as well as all learning, from that nation. Latterly, when brought into communication with the German school, delighted with the courtesy, the forbearing deference to his opinions expressed and shown at head-quarters, he saw little else than extreme merit in all the productions of the Munich establishment. The only instance in which he appeared conscious that he was abandoning a point which he had spent some labour in insisting upon, was when he wrote to Mr. Charles H. Wilson, "There is no third course, as I once supposed and advocated in the article in the *Illustrated News*, of getting a modification of Mediævalism by good artists. You entirely convinced me of my error. The Glasgow windows, and also the Alnwick window, by Dyce, are sufficient proofs that I was wrong and you were right." The third course alluded to was the study of Greek figures by our modern glass-painters. For many years he entertained an opinion that all that was wanting to adapt the mosaic manner of the earliest glass-painters to nineteenth-century requirements, was for the artist to go back to the authorities whence the twelfth-century men took their designs (the Greeks), and produce from the same storehouse figures with all the improvement that has been made in drawing and perspective since the earlier efforts, and this without losing sight of the Early English character of the ornamental work, which, as according with the buildings for which the glass was required, was to be indispensably maintained a feature in the new style.

In an address to working men, delivered at Lichfield, he takes up the subject at the mode of manufacture of the glass, and follows it through different phases, till it resolves itself into an artistic disquisition on design. We attach more importance to Mr. Winston's comments on the various practices pursued in the art than on his criticism of art-works. The general principles that he lays down are good. He contends that brilliancy and transparency being the special qualities of glass, these excellences should be brought out, not suppressed; that the lead-work and iron bars being indispensable to the execution and erection of the window, they should be accepted as inevitable parts of it and considered in the design, not hidden as much as possible; that the drawing should give as perfect representations of the figure, and as good perspective, as is attainable by artistic skill, not the mere imitation of the inarticulate mannerism of the earliest efforts in the art, which were evidently the result of ignorance and inability to do better, not of aim; and that, as success in glass-painting depends in a considerable degree upon the glass, it should be made to resemble the ancient material in texture and in tone. Perhaps, the greatest service he rendered the art of glass-painting, was his endeavour to ascertain the chemical constituents of ancient glass with a view to its exact reproduction. "Ever since 1850," he writes in 1856, "I have been amusing myself, at no small cost, in having analyses made of ancient glass, that of the twelfth and thirteenth centuries in particular, and have entirely succeeded in discovering its manufacture, thus clearing up many points which before were matters of conjecture." In 1852, he communicated to the Royal Institute of British Architects the result of some of his experiments; and, in the discussion which followed, he mentioned that the depth and richness of tone in ancient glass were not the effect of atmospheric influences, nor of age, for he had applied an alkaline wash to many pieces, and always found that old glass, whether cleaned or uncleaned, was superior to the modern in tone and effect. In his subsequent investigations, he succeeded in making glass which a competent chemist, not knowing that it was of recent manufacture, assured him that it was impossible to make. His experiments, with but few exceptions, were confined to twelfth-century colours, of which he succeeded in making the ancient blue, *streaky* ruby, several but not all kinds of green, yellow, white, and a few shades of purple. Notwithstanding the satisfactory issue of his experiments, he felt that he had worked to but little purpose, as the manufacturers he employed were encouraged, he believed, to make "a sort of glass in some sort resembling the real thing, which glass has been imitated by others; so that I expect," he writes in 1856, "(as it is much easier to be made in a short time), the real manufacture will be given up, except when particularly asked for. I may say that this result has already taken place. When, therefore, you hear of Winston's glass, you must bear in mind there are two sorts,—the right sort, including nearly the whole of the twelfth and thirteenth century colours, and some of the colours of the sixteenth century; and the wrong sort." The first colour analyzed was blue. Dr. Medlock, of the Royal College of Chemistry, ascertained that the colouring matter of the old glass was cobalt, not lapis lazuli, as was suggested by Mr. Hendrie in his translation of "Theophilus;" and using this fact, in conjunction with the ancient receipts, the result was obtained mentioned above.

In addition to this approximation of new glass to the hitherto unattainable rich tints and substance of the old material, Mr. Winston classified the varieties. In 1847 he published an "Inquiry into the Difference of Style observable in Ancient Glass Painting, especially in England; with Hints on Glass Painting," in which he followed Rickman's nomenclature as far as it went. He divided the various styles of stained glass into the Early English, Decorated, and the Perpendicular, adding the Cinque-cento and Intermediate, the last being one form of expressing a hope that the nineteenth century would develop a style of its own. In his later writings he adopted the centuries in which the various works were executed as a designation of their styles, and abandoned himself to the conclusion, as we have seen, that it was unlikely that anything superior to the Cinque-cento work would be accomplished. The greatest contrasts he pointed out consisted between the glass of the twelfth and thirteenth centuries, and that of the sixteenth. In the first of these periods, he insisted, the most beautiful and deepest colours were used; and the design was of the simplest kind, one plane only being represented, rarely any attempt being made to render any other background than that of a deep blue or red. In the few instances where landscape is attempted, it is symbolized in the same positive colours as the principal object, and therefore appears on the same plane. The whole expression is produced with strong black outlines, to which is added a wash of shadow in half-tint. Hence the effect, though flat, is intensely rich, resembling, in the absence of pictorial finish, a transparent mosaic, rather than a painting. In the work of the sixteenth century, the material used is thinner, more pellucid, and lighter in tints. This admits of a different treatment to the thick deep-toned glass of the earlier period. Complicated groups are introduced in the foreground; and architectural accessories as well as landscapes are freely used, the relative distances of which are so well indicated as to impart an atmospheric effect. The colouring is arranged in broader masses: the execution of the expression much more delicate. Whereas the mosaic manner kept a flat surface prominently on the mind of the spectator, this brought out the objects represented in a rounded, finished form, as in a picture. In the intervening centuries, between the thirteenth and sixteenth centuries, there was a gradual transition from the one style to the other, which was accompanied by a similar change in the manufacture of the glass. In this there was a certain degree of harmony; as the glass became lighter in tints, more shading was permitted to the artist. Thus the flat style died out with the old Byzantine influences, and the new gradually developed, until, accelerated by the great discoveries of the antique in the fifteenth century, it culminated in the style distinguished as Cinque-cento. Mr. Winston saw no beauty in the work of this long transitional period. He thought the change from the conventional Greek foliage to that formed upon the naturalistic mode inaugurated by the school of Cimabue, the leaves of oak, maple, ivy, and hawthorn, in their natural forms, was no improvement; and questioned whether "anything more uninteresting and insipid was ever seen than the stereotyped flat features and screwed-up eyes which we meet with in nearly all glass-paintings between 1250 and 1350." He considered, in fine, the transition a deterioration. The early severity of drapery he deemed the effort of a rude age to imitate Byzantine art, if not to copy the ordinary dress of the time; the flowing robes of the Cinque-cento period, the graceful growth of the newly facilitated study of the antique. We use his own words to express this idea more fully:—"The draperies of the earlier figures are also truly Byzantine in their closeness and tightness; but those of the later figures are easy and natural; yet, in the character of their folds, very like the old Roman. It is possible that they were copied from nature, and that their classical air is partly owing to the fact that many of the dresses used in the twelfth century, and, perhaps, early part of the thirteenth, were actually shaped like the Roman. Thus the tunic, or under-coat, of the thirteenth century, is exactly like the Roman in form. Again, the military or state cloak, is the paludamentum of the Roman generals without any variation." He pursued this train of argument further in a paper read to an ordinary meeting of the Royal Institute of Architects, in 1856, "on the resemblance between Mediæval and Classical art, as exemplified in the glass-painting of the twelfth and thirteenth centuries," insisting that, with the exception of the legs and arms being clothed, there is but little difference between an ordinary thirteenth-century figure copied from glass, and a figure taken from the arch of Titus, or Trojan's column. "The Mediævals," he stated, "almost invariably adopted the tunic with long sleeves, which was the one usually worn by the Romans; and instead of the braccæ and buskins of antiquity, they clothed the nether man in long hose, over which they used shoes or long boots." To return to the glass. In the middle of the fifteenth century, an improvement dawned in the art of producing the effect of nature in light and shade. Following Masaccio's teaching, perspective and light and shade began to be regarded as indispensable to artistic representations even when the material painted upon was glass; consequently, as the Cinque-cento is approached, we find the shadows getting deeper and applied with more skill, and made by stippling. The general adoption of mullioned windows admitted of an extension of design. In the earlier styles, this was limited, in picture windows, to a series of medallions with groups of little figures in them, a Jesse tree, or figures beneath canopies; but later, the possibility was seized of approximating a painted glass window to an oil painting, with the additional beauty of brilliancy, transparency, and intensity of colour. As it is impossible to represent the clear deep transparent shadows of oil-pictures on glass, the

Cinque-cento artists wisely selected subjects that would not suffer by this shortcoming in their medium; and they also adopted the plan of representing their figures as if seen under broad sunshine, by which election, although they increased the decision of their shadows, they limited their extent. Before Mr. Winston was placed in communication with the Munich establishment he considered the windows of the transepts of the north aisle of the choir of Brussels Cathedral as the most effective of this period with which he was acquainted.

In 1857, giving an opinion upon one of the windows executed at Munich, from a design by Dyce, and now in St. Paul's Church, Alnwick, he wrote,—"The dry hardness of the Alnwick glass is owing to the shadows not being sufficiently stippled and juicy or deep enough. Compare these with the Brussels glass, and you will see what I mean. If very light shadows are right, then William of Wykeham's glass in the ante-chapel of New College, Oxford, is superior to that of Brussels. Dyce, I know, was very full of keeping the glass in his window flat because the wall of the church was flat. But he was no logician, otherwise he would have seen the confusion of ideas involved in his proposition. This is well expressed by Dr. Johnson in the case of dramatic writing. But it is possible that what Dyce wrote to the Germans had the effect of inducing them to alter their own style for the worse. I should give you a hint about Dyce's window. I dislike the canopies as much as you do, but I believe that he is perfectly justified (having adopted the Italian Gothic) in mixing what you justly call Gothic and Byzantine. This mixture is inherent in the Italian Gothic, and constitutes one of the greatest objections to the style, though, strange to say, Ruskin admires it." Although this glass was executed in Munich, we have Dyce's own word that he considered it as truly English, as though it had been manufactured in his own studio. The full-sized working drawing or cartoon was his; the colouring, shading, expression, ornament, were all minutely given by him. Glasgow windows being designed by German artists are of different rank: these are essentially Munich windows. Glass designed by Dyce cannot be placed in the same class. Whatever merits or demerits it has, apart from faults or beauties of material and manipulation, they are Dyce's. There came a time, however, when Mr. Winston thought the Munich establishment had altered their mode for the better, instead of for the worse, as on the production of Dyce's design, when he no longer deemed their glass hard and dry, and insufficiently stippled and juicy; when, in short, he wrote that it "touched perfection." This was when his advice was acted upon in the technical execution of those lights for which he revised the specifications. He became more and more interested in the Munich establishment as the director of it adopted and worked out his views; and, his biographer relates, one of the latest acts of his life was to journey to Brussels to meet Herr Ainmüller, of the Royal Glass-painting establishment, to confer with him on the proposed glass-painting for St. Paul's Cathedral, with the advantage of being able to refer to those of the Cathedral of St. Gudule. "Stick to Munich," he wrote to Mr. Wilson, of Glasgow, in the same letter in which he said, "in point of execution Hedgeland's work at Norwich and Nixon's at Christchurch, Bloomsbury, are more glass-like, and therefore more correct, than any of the Munich work;" with the explanation that what was gained by the technical excellence of the English glass-painters was lost in art, and that on the whole he thought it better to have art without transparency than transparency without art; and "my own private opinion is, that Marochetti and Ward might, with the new glass, execute the whole thing in a way greatly superior to the Germans;" but, as there was no certainty as to the result of an experiment, he would not venture to recommend an untried plan.

The assistance given to the art of glass-painting by the pen and purse of Mr. Winston was considerable, and his minute examinations of all the ancient evidences of the art were made with a patience and power of questioning the bearing of certain means to an end that were doubtless the result of his mental training for the real business of his life. Nevertheless, the expenditure of some of his time and money was wasted upon objects yielding but an inadequate result, and in inquiries that were detrimental to the straightforward progress of an art. We now allude especially to his attempts to produce, by artificial means, the effects of age on new glass. Both English and French artists have endeavoured to antiquate their glass, but the practice cannot be looked upon as legitimate or even pardonable. Mr. Winston, with his power of microscopic inquiry, soon ascertained that nature, that is to say weather and time, darkened each piece of glass in the centre, leaving the edges, which would be to a trifling extent sheltered by the raised leadwork, with a lighter coat of incrustation; whereas the "medicine-man," as the Indians would call the mysterious operator aiming at the production of an appearance of age, daubed the glass all over and then rubbed the centre of each fragment tolerably clear again. Casting about for some material that would stick to glass without being burned, he thought of mortar, and called to mind that he had seen some that must have been adhering to the glass for 400 or 500 years; and then, acting upon the observations he had made as to the mode of applying it, he made the trial, and considered the effect produced a perfect imitation of the "beeswing of age." Subsequently he used hydraulic lime instead of common lime, which he found made the mortar adhere so firmly that it was irremovable when set without the application of an acid. He laid this mortar on with a flat varnish-brush about an inch wide, taking care that it was of a thinner consistency than when used for ordinary work, and correcting the whiteness of it with a dusting of soot or lamp-black. The process was best effected while the glass was on the easel turned with the unpainted side up to receive this coat of antiquity. Thus doctored, provided the material resembled the old in texture, the imitation was not to be detected. Although Mr. Winston was not the originator of the idea of shamming the antique, we feel his experiments in search of the real materials and mode of manufacture of ancient glass stand out in favourable contrast to these essays to obtain its semblance only. Moreover, the good that he did in other departments far outweighs the force his example may have given to this little piece of masquerading.

We would advise all glass-painters to study the information, the opinions, the experience, and the arguments in this memorial volume. There is the result of the learned and wealthy leisure of a life spent upon one subject, placed in a small compass under their eye. They cannot fail to learn much from it, however greatly they may differ from the author in some of his views.

ITALIAN NOTES.

The event of the time has been the re-opening of the chambers, and the introductory speech, or programme, as it might be called, of the new finance minister. Having been able to find our way amidst an overwhelming crowd, into the Strangers' Gallery in the Hall of the Cinque-cento, we observed sundry improvements in detail, especially in the platform-seats of the president and ministers, which we hope will prove so satisfactory as to eliminate all ideas of transferring the grand national assemblage from this historic hall to the obscure interior of any convent, as journalists at one time suggested. We noticed, also, the place assigned to two of the colossal sculpture groups, out of the collection that formerly stood round the walls of this parliament chamber, against the wings of a species of ædicula, in whose centre hangs a life-size full-length of the king, above the platform.

This morning (the 29th ult.) took place the solemn funeral service, attended by deputies and senators, at S. Croce, for the lamented Massimo d'Azeglio, military honours being accorded with most picturesque effect, and the occasion illustrated by all the pomps of woe, all the majesty of ceremonial. An immense catafalque in the midst of the nave, lighted by countless wax torches and candelabra, and adorned by allegorical statues, stands of arms, Mediæval helms and cuirasses, pendent banners, garlands of evergreen, numerous inscriptions on white and black grounds, amidst heavily-hanging funereal draperies, set forth the virtues and genius of the illustrious dead, more elaborately eulogized in a long panegyric pronounced from the pulpit after the Communion. The church, though defective in many architectural features, lends itself in a felicitous manner to the character and *ensemble* of rites like these; and the magistracy have ordered that here should be placed a tablet to Massimo d'Azeglio, though the actual interment of his remains within these walls, offered to relatives, has not been desired.

The very day after the death of that noble-minded and variously gifted man, was held a meeting of the Communal Council at Turin, to discuss the subject of a monument, and to vote 5,000 francs as its own contribution; the results of that deliberation being just made public, to the effect that the subscription will be kept open till the end of next April, after which date will be appointed a committee to determine as to the site, within the city of Turin, and as to the artistic execution—the final decision, however, to rest with the Council; and all Italian journals are invited to concur, making their offices so many centres for the receipt of oblations. A tablet was, on the same day, ordered for distinguishing the house in which Azeglio had lived and died.

This occasion of mourning, and its impression on the public mind, lead us to consider the peculiar direction given to art in Italy, a consequence of national tendencies and new political circumstances, within recent years. In sculpture the monumental, and for the most part destined not for consecrated walls but for civic adornment, has become the range most conspicuous, the class of subjects in highest demand; and within our recollection, in a period of comparatively few years, have been raised such public memorials to Dante, Columbus, Tasso, Machiavelli, Palladio, Metastasio, Giusti, the Cardinals Mai and Pacca, two Popes, others of crowned head, Cavour, and (latest) Ruggero Seltimo, the veteran hero of Constitutional Reform in Sicily, whose monument, a portrait statue by De Lisi of Palermo, was inaugurated on the 12th of January in that city, placed at the centre of a new piazza named after him; the committee responsible having, in three years, collected 25,000 francs for this work; finally unveiled to public gaze amidst all possible honours and accessories of picturesque festivity, such as Italians have been ever skilful to devise, enthusiastic to accomplish. Among monumental busts in public buildings, the latest addition is that of Monsignor Cavedoni, a well-known archæologist, President of the Deputation of National History at Modena, whose likeness has been placed between those of Muratori and Tiraboschi in the Palatine Library of that town; and we hear that, of Azeglio, a bust also will presently be seen in the Communal Palace at Bologna. Among memorial tablets we notice those erected within the last year at Florence—to Benedetto da Majano, on the house where he had his studio (here called his "shop," *bottega*) from 1480 to 1498; to Jacopo Chimenti, known as "l'Empoli," (1640), on his studio in the same street, *Via de' Servi*; and to Giovanni Manozzi, known in art as Giov. di S. Giovanni, on the house where he died in 1656.

Florentine papers announce that the President of the Italian Committee for the Dublin Exhibition has been informed of the aggregate prices, more than 46,000 francs, paid for sculptures sent from this country (those from Rome, we conclude, not being considered in the returns), also of the names of all artists whose works were most in request—Magni, Argenti, Galli, Corbellini, Albertoni, Strozza—such the published list.

The Uffizi Museum has lately received an addition to its treasures, not yet, indeed, on public view, though in a room on the premises, in a large picture, the "Coronation of the Blessed Virgin," by Lorenzo il Monaco, the Camaldolese monk, known by that name in art annals, who flourished during the first half of the fifteenth century, and but few other works by whom—all of sacred subjects—have hitherto found their way beyond the confines of Tuscany. That in question, his largest and finest, was painted for the high altar of his monastery, the Angioli, in Florence, and bears a Latin inscription with his name, and the date 1413. In form a Gothic triptych; it contains more than 100 figures of different scale; at the centre the "Coronation," with sixteen angels around the glorified Virgin; laterally ten saints in each division; in the gable summits, the Holy Trinity, Mary and the Angel of the Annunication; on the predella the Nativity, the Adoration of the Magi, and six scenes from the life of St. Bernard, miniature in size. Strange has been the fate of this complicated picture; removed from its original place over the altar, in the sixteenth century, and long forgotten, as we learn from Vasari, till at last discovered at the Abbey church of a village called Cerreto, near Certaldo, where the

first modern writer to see and to report upon it was Gaye, *vide* his "Correspondence of Artists" (*Carteggio inedito, &c.*), and whence it was lately transferred to the Uffizi. The annotators in Le Monnier's excellent edition of Vasari speak of it as "a work so admirable in all its parts, that words are wanting to describe its merits suitably;" and we find those merits appreciated in the "New History of Painting," by Messrs. Crowe & Cavalcaselle, who describe it as still in the Abbey church at Cerreto. Its artist, born towards the end of the fourteenth century, died at his monastery, in Florence, in what year is uncertain, and left his most valuable works, including miniatures painted on MS. codes, with the now-recovered altar-piece to this city. We have seen at the Angioli cloisters his *hand* (a very finely formed one), preserved by the monks as an artistic, not religious relic, in a coffer long deposited in their library!

At the Uffizi we had the satisfaction of ascertaining and seeing that all the objects in *orfévrerie* and *pietra dura*, so mysteriously stolen a few years ago, have been recovered, and replaced in the cabinets of that priceless collection, now again displayed in its integrity. The robbers, who entered by the little window of the roof, are now in prison. Since last reporting on the arrangements of the Palazzo Vecchio, we have had a private view of its interior, and have seen the colossal sculptures, historic and allegorical, that used to stand round the Hall of the Cinquecento in their place within the segment cut off from that part now serving for parliamentary uses, except the two groups now seen against the screenwork above the president's platform—namely, the "Victory and Prostrate Captain," by Michelangelo, and "Virtue triumphant over Vice," by Gian Bologna,—nobly-conceived works indeed, but, colossal as they are, too distant for appreciation by the public in the galleries at the hall's opposite extremity. The contiguous suites of rooms now fitted up for parliamentary offices,—one, the vastest and stateliest, for a general rendezvous, news and conversation room of the deputies,—are furnished in the modern style, luxurious as well as comfortable; these are amply adorned by the fresco-painters of the sixteenth century with historic groups,—scenes in the lives of Medici Grand Dukes and Pontiffs,—some interesting in regard to subject, though little noticeable for any qualities of art.

We are sorry to have to report the death, in Rome, of Mr. George Wigley, the architect, a cultivated as well as estimable gentleman, who wrote and lectured on art and antiquities,—on the holy sites of Jerusalem, among other subjects,—having spent some years in Palestine, and many more in Rome, where a church was built from his designs by the Redemptorist Fathers. He had corresponded for several journals, French and English, from Italy; and wasfull of energy, till cut off by brief illness in the vigour of life and capacities.

THE GEOMETRICAL FORMATION OF THE GREAT PYRAMID OF EGYPT.

PROFESSOR C. PIAZZI SMYTH published, in 1864, a book, entitled "Our Inheritance in the Great Pyramid;" in which he endeavours to prove that the pyramid was built to record the original measurement of the earth, and that it contains, within and about it, the *standards* from which have been derived all ancient weights and measures; and he appeals to the British public at once to re-adopt them.

This important suggestion, that originated with the late Mr. John Taylor, commanded my close attention; but while I carefully perused their works, the remarkable contradictions of the witnesses who had seen the pyramid and measured it, and recorded the length, and breadth, and height thereof, presented such a series of discrepancies that it amazed me. I pondered on these things, and the result is a geometrical problem, so very similar in form to the original pyramid, and so closely coincident with its most approved dimensions, as must cause it to be interesting to your readers, especially to your mathematical ones;—because it is *unique!*

Herodotus (book ii., chapter 124) says—"The pyramid is of a square form: every front is eight plethra long, and as many in height."

This passage Mr. John Taylor explains thus,—"that square measure is meant, therefore each face of the pyramid contains eight plethra, and the square of its height the same." On this hint I found my problem, *i.e.*, to draw the plan, elevation, and development of a square pyramid, the squares of whose every front shall be equal to the square of its perpendicular height.

First, let the given line A B (Fig. 1) be divided

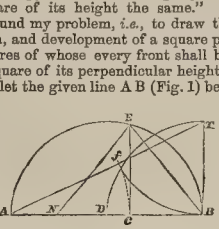


Fig. 1.

at C, so that the rectangle $AB \cdot BC = AC^2$ (2. prop. 11); bisect it in D, and with DA as radius describe the semicircle A E B, and erect CE at right angles to AB, make CN = CB, draw the lines NE and BE.

Because $CE^2 = AC \cdot CB$ (2. prop. 14), and $CE^2 + CB^2 = BE^2$ (1. prop. 47), but $CE^2 + CB^2$ are = $AC \cdot CB + CB^2$ or $AB \cdot BC$, and (by con.) to AC^2; therefore AC = BE, also the rectangle $BE \cdot BC$ the square of a front = CE^2 the vertical height. Again, the triangles NEC and CEB are = (by con.), and they together form the triangle NEB, which is the vertical section of the required pyramid.

Next construct a square FGHI (Fig. 2) equal

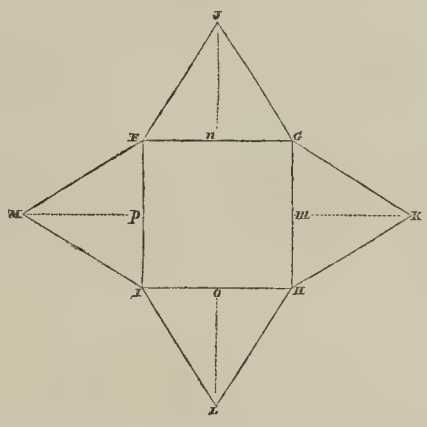


Fig. 2.

to the line NB^2 (Fig. 1), bisect each side at n, m, o, p, and erect right angles on each of them, and make each line equal to BE (Fig. 1) the slant height of the section, and complete the four triangles. Because in the triangle JFG (Fig. 2) J n is = (by con.) to BE (Fig. 1) and $nG = BC$, therefore $nG \cdot nJ = CE^2$ (Fig. 1), and the four triangles (Fig. 2) are = (by con.), wherefore each of them is equal to CE^2; likewise the square FGHI = (by con.) NB^2 (Fig. 1); then the square will be the base of the pyramid, and the four triangles the developed faces thereof;—which was to be done.

The angle EBC (Fig. 1) = 51° 49′ 38·3″.

Further define numerically the geometrical pyramid by ascertaining the value of its normal lines.

First, let the line AB (Fig. 1) be one, and the line BT be the half of it; then

$\sqrt{AB^2 + BT^2} = 1{\cdot}1180339 = AT$
$AT - BT = {\cdot}6180339 = AC$ slant height.
$AB - AC = {\cdot}3819660 = BC$ half the base.
$\sqrt{AC \cdot BC} = {\cdot}4858682 = CE$ vertical height.

Next, multiply these numbers by one thousand, and call the unit AB (Fig. 1) an English foot; then remove the decimal point three figures to the right hand, and it is done without the alteration of a figure. Multiply BC the half base by two for the whole base, and then the numbers stand thus:—

AC the slant height	= 618·0339	English feet.
BN the whole base	= 763·9320	
CE the vertical height	= 485·8682	

Dimensions of the Great Pyramid in English Feet.

		Date.	Base.	Height.
Observers	Herodotus	450 B.C.	767·134	487·9
	Diodorus Siculus	44 ,,	763·630	484·9
	Pliny	70 A.D.	763·795	485·83
Measurers	John Greaves	1637 ,,	693·000	481·0
	Colonel Coutell	1799 ,,	763·6	—
	Colonel H. Vyse	1837 ,,	764·0	480·75
Theorizers	John Taylor	1838 ,,	764·0	486·0
	Prof. P. Smyth	1864 ,,	763·81	486·25
	The Problem	1865 ,,	763·93	485·86

Thus, then, it is proved that this hypothetical pyramid is not only geometrically coincident with the data of Herodotus, but the numerical quantities of its principal lines, viz., the base, the perpendicular, and slant heights, present a very remarkable relation to the English foot, and to the best dimensions of the Great Pyramid; a relationship that calls for and deserves examination.

GEORGE THURNELL.

*** The result shown in the table is certainly remarkable, and is deserving of attention.

FROM MELBOURNE, AUSTRALIA.

Intercolonial Exhibition of 1866.—A list of commissioners for the management of the Melbourne International Exhibition of 1866 has been published in the *Government Gazette* of Victoria. The *Mining Record* objects to many of the names as not being those of practical men, likely to know their work and to do it satisfactorily.

The Princess's Theatre, Spring-street. This building has been long closed to the public as a theatre; but the present lessee, Mr. Achilles King, has entirely remodelled it, with the intention to re-open it for theatrical entertainments. The dress circle, which before was octagonal in shape, has been made circular; the ceiling has been raised; and the whole form of the house made uniform in point of construction. The height of the ceiling is 32 ft. The structure is dome-shaped, and the decorations represent flying groups of figures, painted by Mr. Habbe. An elaborate cornice, designed by Mr. Schemmel, runs completely round. The proscenium is 33 ft. wide and 22 ft. high. The length from the curtain to the foot-lights is a little over 8 ft. The whole of the interior decoration is done in network and arabesques, while the architectural arrangements have been carried out with a regard to acoustics. The depth of the auditorium from the curtain to the back of the house is 77 ft., and the width across the house from back to back 79 ft. The sweep of the dress circle is broken by the governor's box standing forward a few inches, between two small balconies, or rows of balustrades. The decorations around the face of the dress circle are in blue and gold, a fringe of gold, with large tassels of the same material, running round the whole length. The seats have all been enlarged, and re-covered with a lilac material. On either side are private boxes. The stalls, pit, and under circle have likewise been re-modelled. The stage has been reconstructed and made larger. The present depth is 58 ft., and the width 79 ft. Attention has been paid to ventilation. The whole of the arrangements — architectural, decorative, and otherwise—have been carried out personally by Mr. King. A commodious café, with ladies' and other rooms, will form part of the arrangements. Mr. John Grossett was foreman of the works.

The New Fish-market.—This new market, which belongs to the city corporation, and occupies a piece of ground at the junction of Flinders-street with the approach to Prince's Bridge, is on the eve of completion. The building is modern in style. The superstructure is of brick, with a basement of blue-stone. The interior consists of a central nave, with aisles round the four sides of the same, and cellars in the basement. The elevations of the north and east aisles form the façades to Flinders and Swanston streets. They, together with the nave, are faced with white brick, with ornaments and dressings in cement. Four doorways for the use of the public, and two gateways for carts, have each arched openings, with Doric pilasters supporting an entablature running around the two fronts, and broken at the several doorways where pilasters come. A parapet, with pilasters, forms a finish

to each of the façades. Between the doorways, within a series of smaller pilasters, with arches over them, are the windows for lighting the aisles. The nave is separated from the aisles by piers which support arches that carry the upper walls of the nave; these walls are raised to a height of 44 ft., and form a clerestory, in which are inserted sixteen semicircular windows. The building was designed by Messrs. Smith & Watts, architects, they being the successful competitors for the 100*l.* prize awarded by the corporation. The building has been carried out under the supervision of the city surveyor, Mr. Reilly, by Mr. John Falconer, of Fitzroy, at a cost of upwards of 6,000*l.* It has been executed from detail drawings prepared by Mr. John Campbell, of the city surveyor's department.

New Hospital.—The Melbourne Hospital, according to the *Illustrated Melbourne Post*, is both overcrowded and unhealthy; and it is now proposed to build a small hospital in a healthy situation, and on improved principles. The present hospital has 300 beds, and last year 3,000 patients were treated in it. The building is not old, and was lately enlarged. There is a want of ventilation, and hospital gangrene is very common.

Vital Statistics.—The Registrar-General's report on the vital statistics of Melbourne and suburbs for the month and the quarter ending 30th September last have been published. In the month 238 deaths were recorded, 140 (or 59 per cent.) being of males, and 98 (or 41 per cent.) of females. The daily average was 7·94, the greatest number being 14 on the 2nd; the lowest was two on the 30th. Fifty-one per cent. were of children who had not attained their fifth year, against 38 per cent. in September, 1864. More deaths were occasioned by zymotic diseases than by any other class. This circumstance had not occurred previously in any month since last March. The most fatal zymotic disease in the month under review was whooping-cough, which caused 45 deaths, against 30 in August and 19 in July.

The Williamstown Graving Dock, near Melbourne.— The estimated cost of this work is 100,000*l.* It is a yearly progressive one, paid for out of the ordinary revenue of the colony. The present contract was obtained by Messrs. T. Glaister & Co. The excavation for a foundation proved to be of itself a work of some magnitude, as the men had to pass through a porous bluestone rock. The quantity of water which now permeates into the basin formed by the foundation is immense, and necessitates the use of one of Gwynn's No. 4 pumps day and night. The dock is to be 450 ft. long, 50 ft. wide at the bottom, and 80 ft. at the top. The plans for it were drawn by Mr. Wardell, and the works are under the superintendence of the Public Works Department. The length of the portion of the dock now being built is 100 ft., and the amount of the contract 23,000*l.* Cemented concrete, 2 ft. in thickness, has been laid on the bed of the rock, thus forming a solid foundation; and upon this are laid two courses of stone in the invert, one 2 ft. and the other 3 ft. deep. The construction of steps of the docks is now being proceeded with, and about 7 ft. of the masonry is finished, which is equal to about one-third of the work.

THE PROSPECT OF IMPROVED DWELLINGS IN LONDON.

At the last meeting of the Architectural Association, Mr. J. Lemon read a paper "On the Prospect of Improved Dwellings in London," more especially with reference to the habitations of the working classes. Having observed upon the circumstance that very few of such dwellings were ever built under the direction of an architect, he described the pernicious principle upon which "speculative builders" endeavoured to erect the greatest amount of cubical space for the smallest possible outlay. The disastrous effects of bad building, in a sanitary sense, had been exposed so fully from time to time in the *Builder*, that it was unnecessary for him to enlarge upon it. More stringent building regulations were required for the protection of the public, who were often disposed to impute blame to the district surveyor, when, in point of fact, he was in no way responsible. The concealed portions of a building were those which were systematically "scamped" by the speculative builder. The foundations were frequently laid in damp earth, without concrete; planks were often substituted for joists; and care was seldom taken to leave a sufficient space between the ground and the flooring of the basement, while the necessity of providing proper ventilation under the floors was rarely thought of. In Bethnal-green, Bermondsey, and Lambeth, the dwellings of the poor were in a most disgraceful condition. If decent houses for single families could not be provided in those localities, it would be better to erect blocks of buildings, where many could be accommodated under one roof. In Paris matters were managed better in this respect, and the labouring and artisan class were able to get two or three rooms for each family on more reasonable terms than in London (?). He believed that good model lodging-houses might be built to pay 7 per cent., and give sufficient cubical space for health to every inmate. He was in favour of allowing 1,000 cubic feet to each sleeping-room to be occupied by two adults, although he believed that in the Peabody houses recently erected by Mr. Darbishire at Islington, but 800 cubical feet were allowed. He was, of course, aware that many of the lodging-houses built by the agency of philanthropic efforts returned but a very small percentage upon the outlay; but, in advocating the construction of block-dwellings, he regarded the matter purely in the light of an ordinary investment, because he was persuaded that however meritorious philanthropic efforts might be, no very large extension of the system could be realised unless the public were assured that the speculation would yield a fair return upon the capital expended. With regard to materials to be used in cottage building, he suggested that concrete blocks might be used with advantage, as being inexpensive to lay and far less costly than bricks. Mr. Lemon concluded by recommending such a revision of the Building Act as would be a greater protection to the public against the speculative builder.

Mr. Blashill agreed with much that had fallen from Mr. Lemon as to the unsatisfactory working of the Building Act where speculative builders had to be dealt with, and commented upon the causes which had led to the destruction of so many of the dwellings of the humbler classes. As land in the metropolis within a certain radius became more and more valuable, workmen's houses would be pulled down and a better class of building erected on the site for the middle and upper classes. In many cases, houses which had never been well built, rapidly deteriorated, and when the leases fell in the population was driven out, the site cleared, and new streets and improved buildings erected. For his own part, he thought the sooner such clearances were effected the better, as in the natural course of events it was merely a question of time when demolition and re-construction would follow. He was in favour of building well and charging a fair rent, and he believed it would be found in practice that the labouring classes were quite prepared to appreciate the advantages of good building, and to pay accordingly. Large blocks of buildings were, he thought, more desirable in towns than single dwellings; not only for the working classes, but also for those in a superior position of society.

Mr. Redgrave was of opinion that the Society of Arts was entitled to credit for the efforts they had made on behalf of providing improved habitations for the poor. He did not believe the cheap-train system would ever succeed, as workmen generally wished to reside as close as possible to the scene of their labour; but he suggested whether workmen's towns might not be established in the suburbs, where they could have their own shops, reading-rooms, churches, and the like.

Mr. Christian did not see why, in the consideration of this question, so much stress should be laid upon workmen's houses, as the same arguments which applied to labourers were equally applicable to all classes of the poor, who were equally destitute of decent dwelling-places in the metropolis. The barrack system would not, he thought, ever become popular, because it conflicted, more or less, with that innate feeling of independence which was one of the chief characteristics of the English people. In France and Italy every man did not look upon his house or his own room as his castle, as an Englishman did, and consequently barracks might do very well in those countries, but not in England. To suburban sites he thought they must look for the best remedy against over-crowding, and the success which had attended the workmen's trains on the Metropolitan, and London, Chatham, and Dover Railways showed that the men themselves were only too happy to get away into good air and to cleaner habitations. He saw no reason why old dilapidated houses might not be pulled down and good plain structures erected in their stead, which would pay some six per cent. on the investment. So far as philanthropic efforts were concerned, it was, of course, most desirable that they should be encouraged among the wealthy; but if it could be shown that houses for poor people could be built so as to yield a clear six per cent. upon the outlay, many—half philanthropists—people who wished very well to the cause, but would rather not invest their money at one and a half per cent.,—would be found ready to assist in the work. If, on the other hand, respectable dwellings could not be built to pay more than a nominal per-centage, he feared the number of philanthropic builders would be very few and far between.

Mr. J. D. Mathews suggested whether it might not be desirable that architects should learn how to build cheaply, as in many cases lessees whose interest might not extend over more than 40 or 50 years were expected to build houses calculated to stand for a couple of centuries. It did not, he thought, follow as a necessary consequence that cheap building was always bad building. As for making the Building Act more stringent, he did not believe any enactment which the wisdom of Parliament could devise would be a sufficient protection for the public, as the speculative builder would be sure to defeat it. In fact, speculative builders made it a study how not to comply with the regulations of the Act, and to that end their whole faculties were devoted during the hours of social enjoyment.

Mr. Riddett reminded Mr. Mathews that the lessee was bound by certain covenants to regard the interests of the lessor, and that a question of dilapidations might hereafter be raised, which would perhaps make cheap building very dear building in the end.

Mr. North enlarged on the great sanitary advantages to be derived from a conflagration which would destroy all the old dilapidated houses of the metropolis. He could state from experience that houses with five or six rooms, would pay the builder very well. With regard to barrack dwellings, single men could not avail themselves of them, as they could not get their cooking done without assistance from their landlady.

The Chairman (Mr. Edis) did not at all agree in the propriety of the suggestion for building for a generation only. If such a principle had been recognised in bygone ages, our forefathers would not have bequeathed us anything grand to look upon. Bad buildings were generally the result of the non-employment of architects; and for the protection of the public, he was of opinion that in cases where no professional man was engaged, greater power should be given to the district surveyor to interfere. Another fruitful cause of bad building was to be traced to the action, or rather want of action, of local bodies,—vestries, for instance. Of all narrow-minded, ignorant, self-sufficient, and prejudiced bodies, the vestry had a bad pre-eminence; for when complaint was made (as in a recent case), and an officer of health, unmindful of the odium which would attach to himself for doing so, had the courage to denounce a locality as the seed plot of fever and death, some "wretched" vestryman interested in that or similar property was found to get up and defend the abuse, and nothing was done to abate the nuisance. With regard to removing the working classes to the suburbs, he did not think we had any right to say to a poor man, who had worked hard from morning until evening, that he should not get the rest and repose of his home until he had travelled six or seven miles to reach it. How much better it would be to teach them what could be done by a co-operation to ameliorate their condition, and raise them in the social scale. If the working classes would cordially co-operate for their own good, their condition would soon be improved, not only as regarded their dwellings, but in all other respects.

Cottage Hospitals.—A project is in hand for the establishment of a cottage hospital for Congleton. The hospital is proposed to serve for the parishes of Astbury, Biddulph, Swettenham, and Brereton, and to consist of a house or couple of cottages in Congleton, with about eight or ten beds to begin with. The estimated expense is about 200*l.* for furnishing and starting the hospital, and 200*l.* a year afterwards, to be raised by subscriptions.

SCHOOLS OF ART.

The Reading School.—This Institution is now in working order, under the mastership of Mr. Macdonald, of the Oxford School. The committee have provided the requisite desks, materials, gas, &c.

The Nottingham School.—The distribution of prizes to the successful competitors in the different classes during the past session, has taken place in the Assembly-rooms of the new building, Waverley-street. There was a very numerous attendance of the pupils and their friends, and several members of the committee were also present. The chair was occupied by Mr. Richard Birkin, chairman of the committee, and among other gentlemen present were, the mayor and several aldermen. The mayor delivered the prizes to the successful competitors. Mr. F. Fussell, the head-master, explained that the prizes which had been delivered were those of the first and second grade—the third grade of prices being given for masters in London, who were in training. There had been two examinations during the year, in order that the regulations of the Science and Art Department might be complied with. There were also several other prizes which had been awarded by the Department to pupils in public schools, and which in some cases instead of being sent to the School of Art had been sent direct to the pupils themselves. Three medals had also been awarded to the Nottingham School of Art, which had been gained by A. H. Goodall, J. H. Tweltridge, and F. Hill. The national medal had been gained by J. H. Tweltridge, who was now following a very remunerative employment in Mansfield.

The Worcester School.—The fourteenth anniversary of this institution has just been held. The works of the students have been on view for the subscribers and friends, and for the inspection of the public generally. There is a larger display of these works than usual. The modelling, according to the local *Herald*, indicates much care and artistic skill, in statuettes, medallions, foliage, &c., and many students are engaged in this interesting branch of art, including T. Brock, H. Jones, T. Bickerton, T. Bridle, W. Darling, G. Evans, and G. Stanway. Among the paintings on porcelain, mention is made of J. Bradley's dog and W. Porter's wild plants. The late Miss Bibbs's copy of the "Roman Mother," is spoken of as perhaps the best thing of the kind in the school, and Misses Dunn and Walker are said to be very good in fruits and flowers. There are likewise many designs and compositions in colour and architectural studies, and some for gravestones by D. Bloodworth, a mason, and who has only been about a year in the school. The annual public meeting took place at the Guildhall, when the prizes were distributed to the successful pupils. The assembly-room was densely crowded by the pupils and their friends, and great interest was evinced in the proceedings. The Earl of Dudley presided, and amongst those present was the High Sheriff of the county. According to the report,—

"The total number under art instruction during the year, including the pupils of public schools, has been 1,874, showing an increase of eighty-four on the previous year. The schools in connexion with the central institution are the Cathedral School, Queen Elizabeth's Grammar School, St. Peter's School, the British School, and St. Martin's School. The following schools are taught by their own masters, but are visited occasionally by the art master,—the British School, the Railway School, St. John's School, and the Wesleyan School. The number of students attending the central school day classes has been fifty-five, and the night classes 158. The works sent to London obtained twelve bronze medals, one medallion, and two honourable mentions in the national competition."

After the distribution had been completed, Lord Dudley addressed the audience on the advantages which the school afforded to those who lived in the city and county of Worcester. Mr. Binns afterwards remarked that at the last two annual meetings he had the pleasure of announcing a small balance in favour of the school. This year it was the contrary, and he was afraid that the remarks he had made at those meetings had had an unfortunate influence; for no sooner had he reported the fact of there being money in hand, than sixteen persons declined to subscribe as usual.

The Torquay School of Science and Art.—A large and influential public meeting has been held in the British School-room, Torquay, for the purpose of hearing an inaugural address from Mr. Buckmaster, of the Science and Art Department. Mr. A. B. Sheppard occupied the chair. Mr. Buckmaster explained the whole scheme of the Department for promoting a knowledge of science and art. He then proceeded to dwell on the regulations in the recent art minute relating to the teaching of drawing in elementary schools and drawing-classes. Afterwards he spoke of the labours of Leonardo da Vinci, the sculptures of Phidias, and the unwritten histories left in the monuments of Egypt, Assyria, Greece, and Rome, and enforced the necessity of science and art as the two great manifestations of intellectual cultivation and social refinement. He showed how the Assyrians and Egyptians in all their pictorial representations were ignorant of everything which related to perspective; and how the Chinese, who had such exquisite taste with reference to the colour of all natural objects, yet could not put the lines of a building according to the correct principles of perspective. This was the case with all nations until geometry developed the science of perspective. The higher departments of correct art were no doubt intimately connected with science, but this was no reason why elementary drawing should not form part of the education given to children in primary schools.

MANCHESTER ARCHITECTURAL ASSOCIATION.

AN ordinary general meeting was held at the Cathedral Hotel, on Thursday evening, February 1st, the president, Mr. L. Booth, in the chair.

After transacting the usual business, Signor G. Salviati, of Venice, read a paper on "Architectural Mosaics." The lecturer gave an elaborate account of the history of the art, its development, and decline; and concluded with a notice of the manufactory established in Venice by his father, Dr. Salviati, having for its object the revival of this beautiful art. The works in mosaic executed in England by Dr. Salviati were also alluded to, more especially the Wolsey Chapel, Windsor, and the National Memorial to the Prince Consort, in Hyde Park; and as the architect of the Manchester Memorial considers that his design is peculiarly susceptible of mosaic decoration, it is thought that an attempt may be made to procure funds sufficient to commission Dr. Salviati to execute some similar work for this monument. A discussion ensued, and a vote of thanks to the lecturer was passed.

STONE LICH GATE, COLD HANWORTH CHURCH, LINCOLNSHIRE.

THE churchyard of Cold Hanworth is inclosed on the north and west sides by a dwarf wall, 2 ft. 6 in. high, built of rubble stone from a quarry in this neighbourhood, and has piers of Ancaster stone every 10 ft. apart with carved upper parts. The wall is coped with moulded Ancaster stone, on which bold foliated cast-iron standards carry a stout round rod.

At the pathway leading to the church porch, a pair of oak gates framed, and having wrought-iron standards and foliated spikes, are hung by wrought hinges to the large Ancaster stone piers, moulded, chamfered, and gabled on the internal sides, with carved caps on the short columns' shafts. These support a pointed and cusped entrance arch of Ancaster and rubble stone, over which is a projecting oak timber roof covered with Broseley tiles, ridge tiles, and foliated finials. A stone cross rises from the lateral gables of the piers, and the whole has a novel aspect.

The architect is Mr. John Croft, Islington; and the gate was executed by Mr. William Huddlestone, builder, Lincoln.

TYNTESFIELD, NEAR BRISTOL, SOMERSET.

THIS very complete and costly mansion (of which we give a plan and perspective view), just completed, from the designs of Mr. John Norton, architect, is situated about eight miles to the south-west of Bristol, amidst some of the finest scenery of which Somerset can boast. To the west a view of the Bristol Channel is obtained, the north being shortened by abruptly-rising ground, richly wooded; whilst from the south or terrace front are embraced the vale beneath and the distant views of the Dundry and Mendip ranges.

The style adopted is that of the first half of the fifteenth century. The entrance is defined by a lofty square tower, with high-pitched roof and corbelled angle *tourelles*. The lower story forms a groined porch, over which are rooms approached by a newel staircase. At the north-west angle, in the upper or belvidere story, is fixed a clock, by Dent, under a canopy; it is fitted with chimes, and illuminated with gas.

A groined corridor, with marble shafts and carved bosses, conducts to a vestibule, 16 ft. by 18 ft., paved with a mosaic of marble and tiles, separated from the hall by a richly carved and glazed oak screen. The hall is 39 ft. long by 22 ft. wide, with an open roof of English oak, enriched with carving. The height to the plate is 29 ft., and to ridge 43 ft. It is floored with oak and parqueterie. From this hall access is gained to the principal rooms on the ground-floor.

The grand staircase leads to a gallery (both are of Portland stone) running round the hall, and giving access to the principal bedrooms. The soffit of the gallery is panelled and carved, with pateræ of various devices. A richly-wrought and gilt iron railing, with standard lamps at the angles, runs round the gallery, terminating against the newels formed of griotte and green Irish marbles, and surmounted by wrought and jewelled brass gaseliers. The hall chimney-piece is carved in Mansfield stone, with emblematic figures of Prudence, Justice, Temperance, &c., in Maltese stone, with appropriate legends.

The library is entered from the cloister, and has an open oak roof, with principals arched and carved, and the cornice enriched with the motto,—

"En . Dios . mi . empara . y.. esperanza."

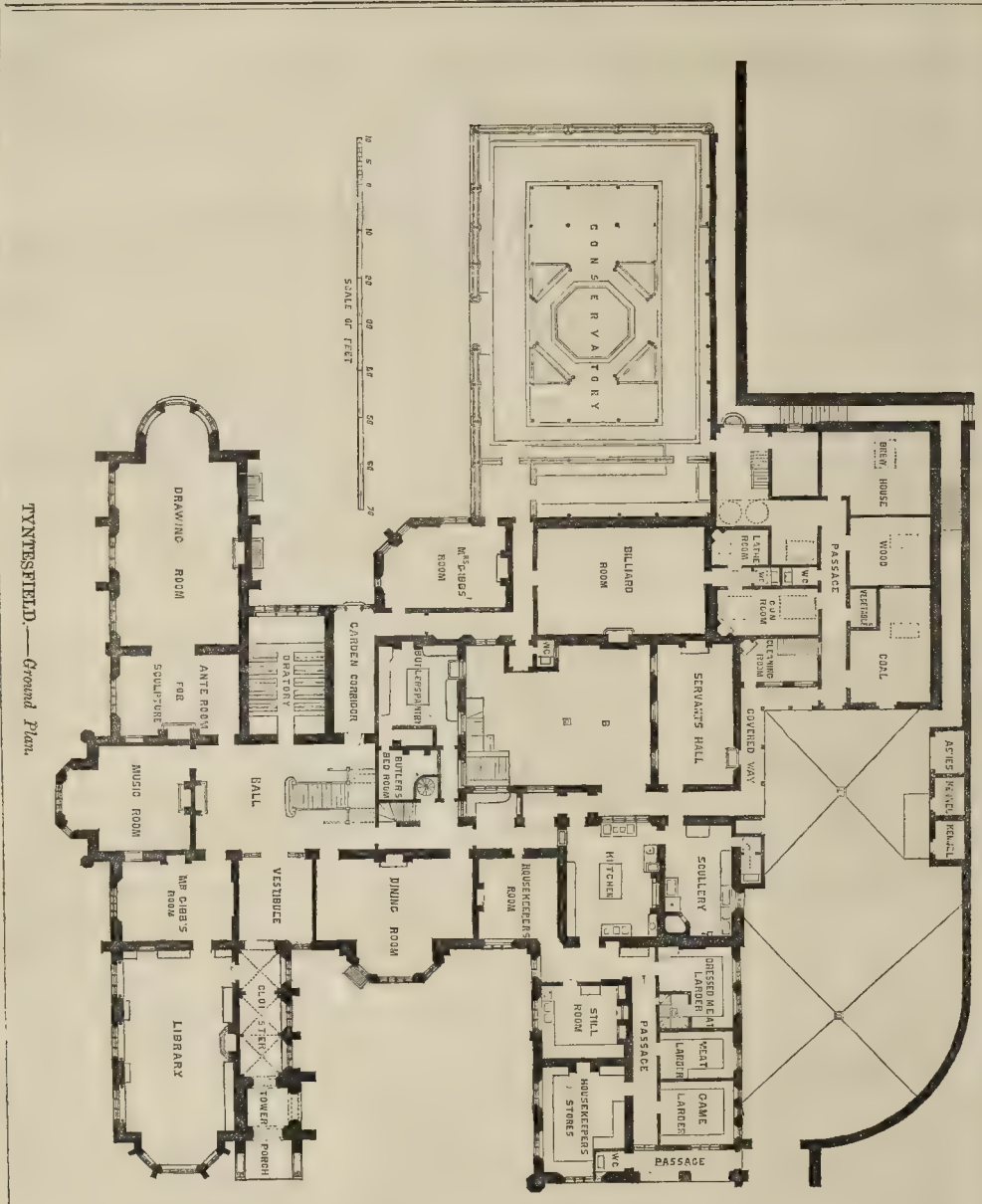
It is 40 ft. long, by 23 ft. 6 in. wide, terminating with a traceried bay window. In the south wall are three high-pointed traceried windows, with marble shafts and bands of encaustic tiles. The morning-room occupies the centre of the south front, and is 22 ft. 6 in. by 19 ft. 6 in. wide, with a bay window 13 ft. wide. This feature is carried up as a tower, in the upper story of which is a study and smoking-room over. The lofty roof is covered with lead, crested.

The drawing-room is approached from the hall through an ante-room for sculpture. It is 40 ft. long by 25 ft. wide, and 26 ft. high to the polygonal ceiling, which is divided into panels of carton pierre for decorations. At the west end a semicircular bay window opens on to the terrace. Three light square-headed and traceried windows are placed in the south wall. The floor is of parqueterie.

An oratory, 26 ft. by 16 ft., opens from the hall. It is panelled in oak, fitted with oak stalls to accommodate fifty persons, and has organ, lectern, and litany desk. It is lighted by three couplet pointed windows, with traceried heads, marble shafts, and filled with Powell's grisaille glass. A corridor leads from the hall to the garden entrance, another corridor to the billiard and gun rooms, conservatory, &c. The billiard-room, 36 ft. long by 23 ft. wide, and 24 ft. high, is lighted by a continuous clerestory with bold dormer windows. The dining-room, 34 ft. by 18 ft., has a large bay window to the east; the ceiling is of ornamental plaster-work; the chimney-piece of polished red and green granite. The servants' hall, 30 ft. 6 in. long by 16 ft. wide, forms the north side of the kitchen court-yard (B), and round it are grouped the domestic offices, forming the north-east wing of the mansion.

The conservatory, 80 ft. long by 50 ft. wide, abuts against the billiard-room, screens the office buildings, and forms a west wing. Octagonal columns, with moulded caps, annulets, and bases,—the former enriched with conventional flowers, rose, lily, and fern,—divide the plan into nave and aisles: the great central feature is an octagon rising into a pear-shaped dome, with a gilt copper cupola, after the model of S. Marco, at Venice, and 50 ft. in height. The eastern division forms an orchid-house. All the framing, girders, roof, &c., are of rich ironwork, resting on a dwarf wall of Bath stone. The glass is of a pale green tint, from a recipe of the late Sir W. Hooker, made specially for the palm-house at Kew; the floor is laid with Minton's tiles, and the beds and stands are arranged to permit of the house being used for promenade on occasions of reception.

The building is constructed of sandstone, quarried on the estate, cased with Bath stone. The drawing-room and library roofs are covered



TYNTESFIELD.—*Ground Plan.*

with slabs from the Box quarries; the main buildings, dormers, &c., with Broseley tiles, laid ornamentally; the towers and oriels with lead. The elevations are varied by the free use of bold angle-turrets, lofty roofs, and bays carried up one or more stories, and by dormers breaking the eaves lines.

A gasometer, by Messrs. J. T. B. Porter & Co., of Lincoln, concealed in the plantation, supplies the mansion and offices, as well as stables and lodges, with gas. A water-wheel supplies a tank sunk in the hill above the mansion with an ample force of water; and from this, pipes supply tanks in the roofs for the use of baths, culinary and other purposes, as also for the hydrants on each floor, as a provision against fire,—in all 180,000 gallons. Three separate boilers on the basement provide the means of warming the halls, corridors, principal rooms, and conservatory. A soft-water tank under the orchid-house preserves the roof waters for the use of the conservatory. There is spacious cellarage in the basement.

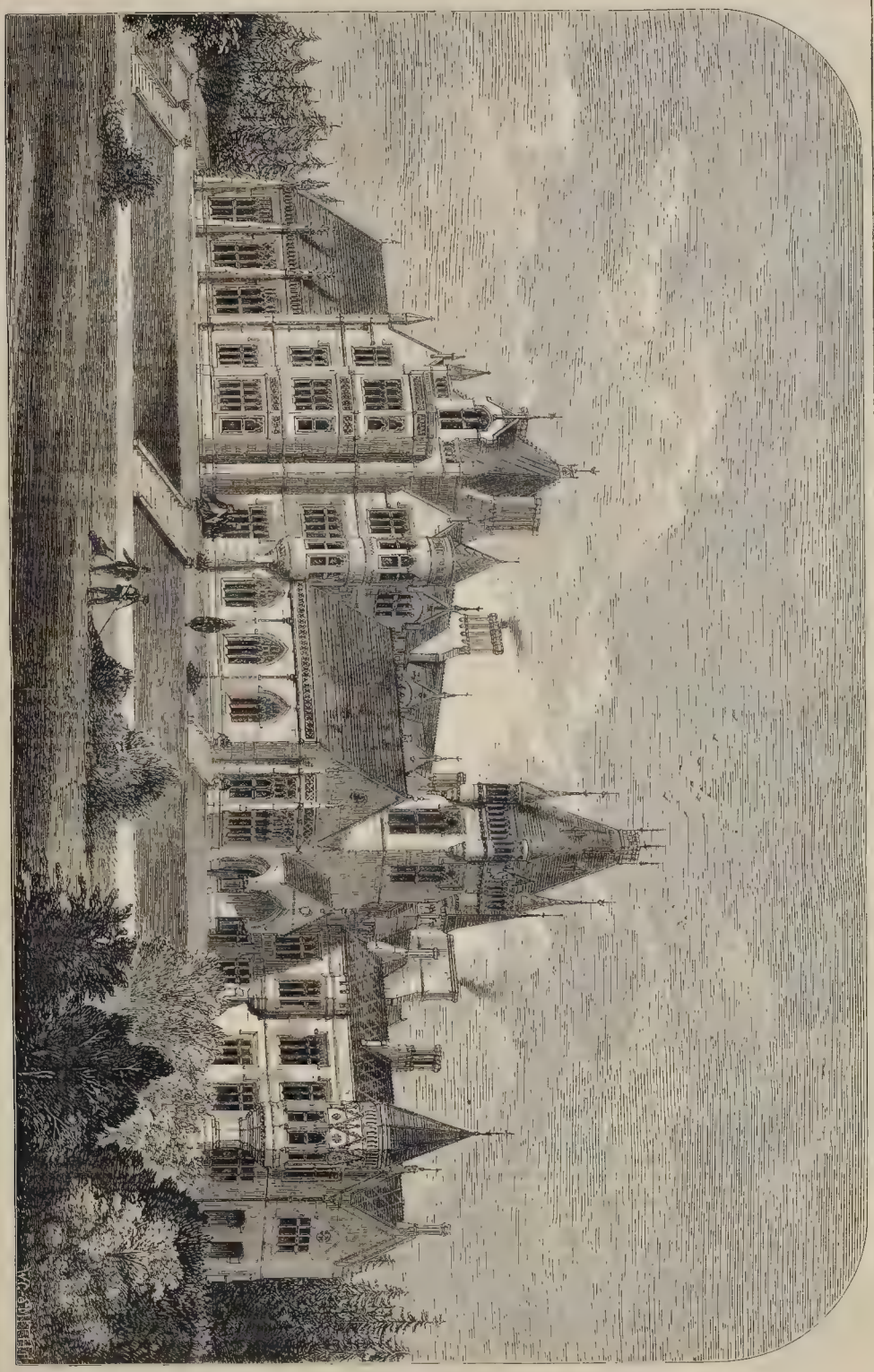
The first floor comprises twenty-two bedrooms, school-room, and visitors' nurseries. The second floor comprises twenty bed-rooms.

English oak has been used for open roofs, doors, and wall-panellings; teak for external doors, and polished ash for internal fittings. The floors are of parquet, Minton's encaustic tiles, and marble. The chimney-pieces throughout are carved in Portland, red Mansfield, granite, statuary, and alabaster, the former inlaid with spars, quartz, and coloured marbles.

The arcaded terrace-walls and garden-seats are worked in pink and grey Forest of Dean stone. The W.C.s are all lined with white glazed tiles. The kitchen is fitted with gas-stoves, hot-plates, and every modern appliance for culinary purposes.

The carving has been executed from the flowers and leaves indigenous to the locality, and some exotic types. The chief carver was Mr. Beates, who has repeated in stone the beautiful forms abounding in the woods and gardens.

The works have occupied the contractors, Messrs. William Cubitt & Co., of Gray's-inn-road, upwards of two years and a half, at a cost of about 70,000*l*. Mr. George Wall acted as clerk of the works for the architect.



TYNTESFIELD, NEAR BRISTOL, SOMERSET.—MR. JOHN NORTH, ARCHITECT.

CIETY FOR HELP TO NEEDLEWOMEN.

A SOCIETY has been established under this e with the additional claim of providing thes for the poor, and so doing good in two ys. It seeks to benefit the poor of any trict in Great Britain by providing them with Her-clothing, for which the making only is arged, in addition to about the half-price of material, the Society defraying the remain- half of the cost of the material and other endant expenses from subscriptions. The rkers consist of the poorest classes, and also gentlewomen who do not possess a settled come amounting to more than 20*l.* per annum, d are principally selected from London and e suburbs. The clothes are distributed through mbers of the Society and sent to the districts here they are most required.

Those only know what misery exists among h London needlewomen who have personally in- ired into it, and there is no doubt that at this oment the distress of these poor people is, be- nd anything, great. The superabundance of eir class, many of them altogether unskilled, the igh price of food, of clothes, and of lodgings, id the introduction of sewing-machines (how- ver temporary the distress induced by the latter ay be), have caused want to exist among them a degree unprecedented.

To carry on the good work funds are needed, id we shall be glad to find some of our readers iving their aid to the honorary treasurer and anager, Mrs. I. H. Barclay, of Harmondsworth, tough. It is proposed to hold a bazaar at Gillis's Rooms, in April next, in aid of the iarity.

MACLISE'S "DEATH OF NELSON."

MANY will hear with great satisfaction that the ouncil of the Art-Union of London have pur- nased from Mr. Maclise, R.A., his original icture (with the copyright), "The Death of elson," from which his great mural work in ne Royal Gallery at the Houses of Parliament as been painted. The picture is of very large ize, and will be an important feature of the pproaching Royal Academy exhibition. The ouncil of the Art-Union of London propose to ngrave it hereafter, in the first style, as a com- anion to the engraving they have already put h hand, from his corresponding picture, "The eeting of Wellington and Blucher after the attle of Waterloo." The disputed fact, by the ay, that the two commanders did meet on that ccasion at the farm known as La Belle Alliance as been settled beyond discussion by a letter rom General Nostitz, one of Blucher's staff- fficers, who was with him on the occasion.

The production of these elaborate and costly ngravings will necessarily occupy several years. t is an undertaking of no ordinary magnitude nd importance, and has an interest that may be ermed national.

PICTURE EXHIBITIONS.

The British Institution.—The present collec- ion consists of 636 pictures and twelve pieces f sculpture. The staple is much the same as on former occasions; but there are fewer excep- ional works compared with some even recent xhibitions here that give tone to the whole. Mr. E. W. Cooke is the chief representative of the Academy, and sends three very agreeable specimens of his art. A picture by Mr. Edwin Long, "The Anthem," suggests somewhat too forcibly the manner of Mr. J. Phillip, but has, nevertheless, a merit of its own. Mr. Gilbert has some pieces of rich colour, good enough to make one regret the overriding mannerism. "The Belle of the Market" (186), by A. F. Patten, will have admirers, and deserves to have them. 272, "View on the Medway," shows that Mr. H. T. Dawson, jun., is following in the good steps of his father. Mr. Cave Thomas sends a highly-wrought picture, to which, as in all his works, he has given much time and thought, "The Return" (308). "Canterbury Cloisters during the Commonwealth" (559), W. F. Yeames, is a praiseworthy work, but the men at drill are over-small for their distance. Though still cold in colour, Miss Kate Swift has made a good advance in (628) "The Wedding of a Dutch Fisherman in the Village Church at Schevening." Some of the heads are admirable, and the effect of the whole is good. Amongst the landscapes there are none better than (590) "A Heath Scene," by E. J. Niemann, and (399), "Amid the Cuchullin Hills, Isle of Skye," G. Gilbert: both exceedingly good works. Mr. Dicksee is more conventional than usual, and in 545, "Joan of Arc, at the Assault of the Tournelles," what has become of the upper part of the left leg? Mr. Lacy's picture of "Margaret of Anjou and the Robber," though open to criticism, is amongst the best works in the collection. Mr. Weekes, Mr. R. Collinson, Mr. Knell, Mr. T. Davidson (Job), Mr. J. J. Wilson, Mr. Bottomley, Mr. Whaite, Mr. Danby, Mr. Jonas Barker, Mr. A. W. Cooper, exhibit pictures that for varying reasons deserve notice.

General Exhibition of Water-colour Drawings. The second collection of water-colour drawings, in the Dudley Gallery, Egyptian Hall, under the above title, is an exceedingly good one, and will have further notice. It comprises 676 works, and shows strikingly the extent to which the art of painting in water-colour is successfully practised.

HOW SHALL THE BED BE PLACED?

A PHYSICIAN at Magdeburg, Dr. Julius von dem Fischweiler, just dead, asserts in his will, that his own great age, 109, is entirely to be ascribed to his constant habit of sleeping with his head towards the north, and the rest of his body in a direction coinciding as closely as possible with that of the meridian, that is, with his heels to the south. From persisting in this habit the doctor considered that the iron contained in our system, finding itself in the direction of the magnetic currents which are constantly flowing over the surface of the globe towards the north pole, becomes magnetised, and thus increases the energy of the vital principle. Without at all understanding this, or assenting, we know well of persons who cannot sleep unless the bed be placed north and south, and it may not be useless to inquire what the observations of others on this point have been. Persons who find themselves restless and unable to sleep at night might try the effect of changing the position of the bed.

SANITARY MATTERS.

Whitehaven.—A series of articles upon the Social and Sanitary Condition of Whitehaven, based upon personal inspection, by a "Special Contributor" to the local *Herald*, has of late been appearing in that paper. In closing the series, the writer says,—"It is impossible not to give marked prominence to the monster evil of overcrowding. If Ennerdale were to be emptied for the purpose of ensuring cleanliness, whilst the present system of overcrowding continues, it would be folly to expect that the rate of mortality should be reduced to its proper level, or that Whitehaven should ever take rank amongst the healthier towns of the kingdom. At present, it is, indeed, a terrible den of human squalor, misery, and premature death. The town requires altering in its structural arrangements, and how that is to be effected is a question which makes one pause. When are we to be blessed with an heir to the princely Lowther property, who will pride himself in being remembered as 'The Good Earl?' Here is a town with a population of 20,000, stifling for want of the power of expansion, and hundreds of whose inhabitants are annually doomed to disease and death, simply because the land in the immediate neighbourhood is the property of a nobleman who either cannot or does not choose to sell. Would that we had amongst us some such gentleman as the Lord Provost of Glasgow, who in his municipal capacity has projected the erection of model dwellings for the accommodation of not less than 30,000 of the poorest residents of that city, and who seems in a fair way of successfully accomplishing his object."

Brighton.—The annual meeting of the Sussex and Brighton Ladies' Sanitary Association has been held, Mr. Merrifield in the chair. The report says,—"In consequence of reports received from their visitors of the existence of serious nuisances, the gentlemen's 'Auxiliary Committee' had in several instances visited the localities thus brought to their notice; and cases of neglect requiring urgent attention had been reported either to the inspector of nuisances or to the town council. Not finding that their representations met with adequate attention, two of the committee, who were medical men, undertook a careful survey of the poorer parts of the town, and reported the result to the committee. The state of things appeared to be so serious, alike in a moral, economic, and social point of view, that the committee at once prepared a memorial, for the signature of influential residents, addressed to the Privy Council, praying for the appointment of an officer of health, and for an official inquiry into the state of the town, and the measures requisite for its amelioration. The memorial had been largely signed. The report concluded with a recommendation that the Association should be re-organised, with a view to the extension of its operations; that its title should be changed to that of the 'Brighton Sanitary Association;' and that a revised statement of its objects and rules should be published." The report was unanimously adopted, and the title of the society changed accordingly.

READING WORKHOUSE COMPETITION.

A MEMORIAL has been sent to the Poor Law Board, signed "James Phillips, Wm. P. Ivey, proposer and seconder of Messrs. Brown's plans," saying:—"We consider that the guardians, having previously reduced the original six competitors to two, viz., Messrs. W. & J. T. Brown and Mr. W. H. Woodman, their decision in favour of the latter gentleman was not given in accordance with *merit*, neither was it with the extent of accommodation afforded, nor with the *best interests* of the ratepayers." In support of these assertions the memorialists allege seven reasons.

ARCHITECTURAL COPYRIGHT IN BELGIUM.

A DECISION has recently been given by the Belgian law courts which throws some light upon the question of property in designs in that country. According to the *Reader*, M. Suys, an architect, has, it appears, erected some law courts in Brussels, the plans of which are claimed by a M. Gérard, who obtained an injunction restraining payment of the sum in the hands of the Minister of the Interior, which in the ordinary course would have been received by M. Suys as his professional fee. M. Suys next brings an action against his opponent to compel him to remove the injunction, and claiming 10,000 francs damages for the injury to his professional reputation. Judgment was given for the defendant, and the court directed M. Suys to pay to M. Gérard the sum claimed. The case was referred to the superior court, who confirmed the decision of the court below, and at the same time condemned M. Suys in the whole of the costs.

SANITARY AND CITY IMPROVEMENT OF EDINBURGH.

THE Lord Provost is not the only designer of sanitary improvements in Edinburgh at present. A very comprehensive scheme for opening up the truly *close* districts on the flanks of the ridge down which the High-street and the Canongate extend from the Castle to Holyrood Palace, has been prepared by Mr. Roderick A. F. A. Coyne, C.E., and submitted to the city authorities. Mr. Coyne also deals pretty freely with the city map in several other districts; but this is the most important portion of his plans, in a sanitary point of view, and it aims, *inter alia*, at the opening up of the two blocks of closes to which Mr. Chambers's much more restricted scheme also relates. Mr. Coyne's plan includes three great lines of street, the longest and intermediate one extending from Grassmarket down the (widened) Cowgate, whence it nears more and more to the ridge of High-street as it crosses South Bridge-street, Niddry-street, and St. Mary's-wynd (between which two last it crosses Mr. Chambers's plan of a comparatively short, oblique, and waving street), running on into the Canongate at the head of St. John's-street, where other two new streets are proposed to be joined with it, one affording an opening to Queen's Park, and the other running back along the other or northern flank of the High-street ridge to Cockburn-street, westward of the North Bridge-street, which it crosses on its way, as it also does the other block of Mr. Chambers's two-fold project. The third line of street runs from Grey Friars Church also eastward, passing the Col-

lege to the Pleasance. The estimated total cost of the two first, and most important, of these plans, including Queen's Park approach, is 168,031*l.* Into the other plans of Mr. Coyne we cannot here enter; but this is certainly an important and well-considered scheme for opening up the very worst districts of the Old Town; and, if the whole scheme be too extensive for the city authorities to grapple with at once, they might at all events begin with the line of the widened Cowgate, and open it up eastward to Canongate, where it would be ready to meet the line from Cockburn-street, as the next most pressing sanitary improvement, following that up by opening out the approach to Queen's Park, so that the miserable denizens of the closes might have it in their power to make an occasional short run from their improved localities direct to the healthful neighbourhood of Salisbury Craigs and Arthur-street.

THE LATE MR. JOHN GIBSON, R.A.

The funeral of this eminent sculptor has been very quietly solemnized at Rome, an attempt of friends and admirers to make a more public demonstration having been declined by those to whom the duty was committed. The only thing like display was the honorary attendance of a guard of French soldiers, who fired a volley over the grave out of respect to the Cross of the Legion of Honour possessed by Mr. Gibson. By his will, the sum of 50*l.* was fixed as the utmost to be expended on a private monument to him. The Prussian Order of Full Merit was sent him, and arrived from Berlin only the day before his funeral.

The chief mourners were Mr. Penryn Williams, the old friend of Gibson, and one of his Roman executors, Mr. Odo Russell, Mr. Webster, R.A., and Mr. Severn, her Majesty's consul. Mr. Spence, his friend, pupil, and almost son, was prohibited by his medical man from following his remains to the grave.

Mr. Gibson's own and other drawings were left to the Royal Academy. By a codicil added May 26, 1865, he bequeathed to the Academy his group in marble of the Wounded Warrior supported by a female figure, then nearly finished; all his works in marble not sold at the time of his death—models in Gesso of his works in marble not sold, except the models of such works as have been presented in marble; all his models in Gesso not executed; the first cast of Venus de Medicis, which was sent to Canova to be executed in marble, and which, when executed, was to replace the noble statue carried off to Paris. Moreover, he bequeathed to the Royal Academy 32,000*l.*, free of testamentary tax, on the following conditions:—"A space sufficient for their reception, and easy accommodation, is to be provided for his works, which are to be open to the use of the students of the Royal Academy, and to be exposed to the public, according to such regulations as to the Council shall seem best."

Thus room, but not a separate room or rooms, for them is the only stipulation.

MR. HENRY LESLIE'S CHOIR.

The first concert of the eleventh season took place at St. James's Hall on Thursday evening, 1st February, in the presence of a crowded and most appreciative audience. An apology for the absence of Mr. Sims Reeves cast a passing shadow over the evening, and the announcement of his indisposition was received with the usual amount of scepticism and scoffing, by those who appear to imagine that the throat of a singer must be insensible to ailment. But the good taste of the majority of the audience soon prevailed, and relieved Mr. Leslie from the embarrassing position in which he was placed. Neither Mr. Wilbye Cooper, who sang Weber's "Thro' Forests," with much taste and expression, nor Mr. Leigh Wilson, could accuse the audience of coldness or prejudice; and we doubt if the great tenor himself could have excited more rapturous applause than that which followed Purcell's "Come, if you dare," sung by the latter gentleman, who was obliged to accede to a tumultuous demand for an encore. Mr. Leigh Wilson is gifted with a superb tenor voice, and if he will be satisfied to believe that he has yet very much to learn, he may attain the highest position in his profession. It is almost needless to speak of the exquisite delicacy and precision which characterized the part-songs, glees, and madrigals; Mr. Leslie has his choir under such thorough control, that it is difficult to award the palm of excellence where all is so near perfection. Specially to be commended, however, were the Elizabethan madrigal, "Flow on, my Tears," and the one which immediately followed it, "As Vesta was,"—the latter, a well-known favourite, being most enthusiastically re-demanded. Of several new compositions produced, Leslie's "How sweet the Moonlight," and Silas's quaint and clever setting of Longfellow's "Christmas Carol," excellent alike in composition and execution, were the most attractive.

Miss Austine, a pupil of Mr. Lindsay Sloper, performed Sterndale Bennett's graceful sketches, "The Lake," "The Millstream," and "The Fountain," and Liszt's difficult arrangement of the airs from "Faust," with considerable skill; but we question the discretion of introducing piano-forte solos in this kind of entertainment, when the poverty of the instrument contrasts so unfavourably with the choral harmony.

Of Miss Ada Jackson, of Clifton, who made her first appearance in London upon this occasion, it is our pleasant duty to record the unequivocal and well-deserved success. She possesses a clear penetrating soprano voice, and sings with unusual purity and chasteness of style, qualities especially demanded in Haydn's exquisite canzonet, "My Mother bids me bind my Hair," which was delivered with the utmost delicacy and refinement of expression. Her intonation, too, is perfectly correct, and another peculiar recommendation she shares in common with the lady under whom she has studied—Madame Sainton-Dolby—must not pass unnoticed, which is the fact that every word in her songs is distinctly and correctly articulated, a most valuable qualification for an English ballad-singer. Miss Jackson prudently declined the honour of an *encore*, which was demanded after each of her songs. Clifton may feel proud of her.

PARIS.

The new Halle aux Cuirs, or leather-market, has been constructed opposite the Amphitheatre of Anatomy, on the banks of the Bièvre, in that quarter of Paris where the tanyards are congregated. It is to be open for commerce next month. The form is that of a parallelogram, 535 ft. by 197 ft., consisting of a ground-floor, an upper story, and an attic. The principal entrance is an archway, composed of a semicircle inscribed in a rectangle; above are the arms of Paris, and on the right and left are two bulls' heads admirably sculptured. Passing through, we enter a court-yard, 1,615 square yards in area, and roofed in with iron and glass. This is to be the "leather exchange," and is furnished, at the further end, with platforms on a level with carts, so as to facilitate loading and discharging. Underneath these quays or platforms are cellars, of a development of 476 ft., for the storage of oils and fatty matter. These are crypts, with groined arches or passages, one of the latter being available for carts, the entrance from without being an inclined plane. At regular distances there are elliptical openings in the arches, with cranes for lowering or raising goods.

There are, also, two lateral court-yards, one having an entrance into the hall of the green skins, furnished with salting and alum pans for kids, &c. The superficies of this is 1,435 square yards. The architect of this building is Mr. Jules Bouchet, and the clerk of the works M. Edme Cor; in it has been incorporated the ancient hospital of the Cent Filles, which has been underpinned, consolidated, and repaired in a durable manner. No pains have been spared to render the new leather-market the most complete of its kind in Europe, including, as it does, a post-office and telegraphic communication, refreshment-rooms, &c.

A new theatre is being built at Passy, capable of holding 2,000 persons; in the same building are to be established a café and a club. In order that the pit may be converted into a ball-room the flooring is to be fitted with raising and lowering machinery similar to that of the French opera-house, invented by one of the stage carpenters, some years ago, for the convenience of the "*bals de l'opera.*"

The report on the situation of the French empire states that, thanks to the severity and promptness of the measures taken by the Government for preserving France from the ravages of the cattle plague, the disease had disappeared since the 5th November of last year, the number of deaths since that date being only 43. Owing, however, to the breaking out of typhus in the Jardin d'Acclimatation, in the Bois de Boulogne, the regulations were again obliged to be put in force by the authorities, the same being extended to all quadrupeds, as well as to horned beasts, with a few exceptions. The state of industry and commerce for the past year in France has resumed its wonted activity since the lowering of discount and the resumption of commercial and maritime relations with America. The iron trade is generally satisfactory: the complaints raised by the manufacturers against foreign machinery have nearly ceased since the duties on iron (pig and bar) have been lowered. There is no cause for complaint except among the French manufacturers themselves, and between them the Government cannot interfere.

MORE DEATHS IN WELLS.

We have often to record very stupid or careless proceedings in clearing out or repairing old wells, but about the worst case we recollect of has just occurred at Chalfont, St. Giles's, Bucks. Two men were set to repair the pumps of a well, 150 ft. deep, at about 136 ft. below the surface; but it was deemed dangerous to descend, on account of the foul air, as a candle went out when let down. One or two pails of fire were then lowered, and the last left to burn all night till burnt out! thus still further increasing the evil, by positively adding to the carbonic gases which had already put out the flame of the candle; and consuming all that remained of the oxygen capable of sustaining either flame, fire, or life. Next day, the well being thus "cleared of the foul air!" one man went boldly down, and was getting on "beautiful" for a little, till he felt "a little queer," and was then hauled up, so far, till he fell off the crutch on which he sat, and was precipitated to the bottom. Another man, who was "in the habit of descending wells," and was therefore supposed to be capable of withstanding the deadly vapours which had cost his fellow-workman his life, was then fastened to a rope and lowered; and, strange to say, he did withstand the deadly influence till he secured his fellow-workman and himself to the rope. They were then hoisted up about 50 ft., when the rope broke, and both fell to the bottom. Air-pumps and hose, which ought to have been got at first, were then obtained; but instead of simply and directly pumping out the carbonic acid, as if it were water, air was merely forced in amongst it. This, however, enabled another man to descend, and he fastened a strap round one of them, who was then hauled up nearly to the mouth of the well, when the strap broke! and once more the poor dead carcass fell to the bottom. At last, on the third day after the first of this extraordinary series of blunders was committed, the two dead bodies were got out. The jury on the inquest returned a verdict of "Accidental death," and recommended that persons descending wells in future should take care to be securely fastened, so that in the event of their being affected by foul air they might be drawn up with safety. That, however, was not the only recommendation they might have given.

TELEGRAPHIC PROGRESS.

It is proposed to form an association to lay down a line of telegraphic wires from London, through Scotland, Shetland, and the Færöe Islands, to Iceland and the western shores of Greenland, across Davis Straits, to the coast of Labrador or Belle Isle, and to communicate through Canada with the vast telegraphic system of the United States and the continent of America. The distances between the stations are, proximately,—Scotland to the Færöe islands, 250 miles; Færöe to Iceland (Berufiord), 240; Iceland to Greenland, 743; Greenland to Labrador, 507; Labrador to Canada (land line), or Greenland to Belle Isle (sea line), 210. The longest stretch of the route would thus be little more than 700 miles. A pamphlet has been issued (Clowes & Sons, printers, Charing-cross), giving an account of the project and the operations of scientific and other authorities on its practicability. By selecting the stations carefully in sheltered positions, where only the line

ll go out of deep sea into shallow grounds, it is lieved that ice will be no hinderance to the complishment of the project or the working of b line.

The Russian journal, the *Messenger*, announces at Mr. Collins, one of the directors of the ssian-American telegraph line, has given, in ublic meeting, some further details of that antic undertaking. The line will encircle the obe if a submarine telegraph can be made be- een London or Paris and New York; otherwise e communication between Paris and New York ust be made by the Russian-American tele- aph, which will run across Behring's Strait. ere are hopes that this line may be terminated 1867.

From the official report of Mr. E. C. Cracknell, superintendent of telegraphs in South Wales, the Colonial Parliament, it appears that the ngth of telegraph lines at present in work roughout the Australian colony of South Wales 2,520 miles, with 3,047 miles of wire, which the completion of the lines in progress, will increased to 2,990 miles of line and 3,517 miles wire. The total cost of the lines in operation the 31st of December, 1864, not including ex- nditure by the colonial architect, was 132,025*l.* e net profit for the year was 6 per cent. e lines in this colony during the summer nths appear to be much more affected by htning than those in the neighbouring colo- s; and it frequently occurs that not only the htning conductors, but the relay coils, are ed by the intensity of the atmospheric arges. To guard against this wholesale de- uction, Mr. Cracknell has arranged a simple tting-out switch, which completely discon- sts the conductors and instruments from the e, leaving only the main battery in circuit. is plan, he says, has been found to work y satisfactorily, and has saved the destruc- n of many instruments, and the consequent ay of business at the several stations so ited.

PARIS UNIVERSAL EXHIBITION, 1867.

A MEMORANDUM of the arrangements for the chinery gallery of the Paris Exhibition, by otain Festing, R.E., is being circulated in a nted form. Instruments and processes of the mmon arts are placed in Group VI., which is ided into twenty classes. A gallery, 115 ft. le and 82 ft. high, is to be provided in the build- g for this group. In breadth this gallery is to be o-divided into a central block, 75½ ft. wide, d two side passages, each 16½ ft. wide, leaving space of a little over 3 ft. at each side for unters and glass cases, placed against the rtition walls. In the middle of this central ock, and running throughout the machine llery, there is to be a platform, 13 ft. wide, pported on columns about 14½ ft. high. From s platform visitors will be able to see at a nce the machines exhibited. The columns of p platform will also carry two parallel main afts for transmitting motion to the various achines, and under the platform will be work- ops for skilled mechanics, whose work is to exhibited as examples of the processes of the mmon arts. The whole machinery gallery is be divided into a number of sections, each of ich will have its own system for supply of itive force.

THE NEW LAW COURTS.

IN a few days the Acquisition of Site Act l practically come into force. The two sts are known, one as the "Courts of Justice ilding," and the other as the "Courts of stice Concentration Site." The old courts d offices of the late Insolvent Court have been ed up in a suitable manner for the purposes the Act. The Lord Chancellor and the other mmissioners assemble in the old court, which been very much improved in appearance, d the new court, called "The Courts of Justice mpensation Court," will be held in the court ere the late Mr. Commissioner Phillips pre- ed. The first statute in the new courts is the h of Victoria, chap. 48, entitled, "An Act to pply Means towards Defraying the Expenses Providing Courts of Justice and the various ices belonging thereto, and for other pur- ses." The cost of erecting the courts will be me by money provided by Parliament to the ent of the value of property surrendered, and relief to the public by the cessation of rents now charged to the public; secondly, by a contribution of 1,291,629*l.* 10s. 5d. three-per-cent. stock, placed out for the suitors of the Court of Chancery; and thirdly, by the taxation of suitors of the courts other than the Court of Chancery to be accommodated in the building. The second statute is the 28th of Victoria, chap. 49, entitled, "An Act to enable the Commissioners of Her Majesty's Works and Buildings to acquire a Site for the Erection and Concentration of Courts of Justice and of various Offices belonging to the same." The Commissioners are empowered to purchase land, and to enter upon the same. Questions of disputed compensations are to be decided by juries; and as to compensations to yearly tenants, such claims are to be determined in the manner prescribed by the 121st section of "The Lands Clauses Consolidation Act, 1845." The limit for the compulsory purchase of land is five years. The commissioners may pull down and remove any buildings on the prescribed lands, and may construct thereon such buildings and works as in their opinion may be necessary.

EMBANKMENT OF THE THAMES.

IN this stupendous undertaking, which, if carried out in good taste, will confer a character of grandeur upon the whole metropolis, it is to be hoped that wide marginal roads will be formed along the quays, affording open and unbarred views of the noble river, and of the many important buildings along the old shore.

The necessity of thoroughfares wide enough for ranges of trees and plantations, at suitable intervals, is on all hands admitted, so that now, in the days of horticultural perfection at which we have arrived, the opening of two central boulevards, north and south of the river, may afford to the whole population the inappreciable accommodation of two straight and open routes to the City, coupled with the satisfaction which no existing thoroughfare offers, of a healthful walk with a beautiful panorama.

Fears have been expressed lest the close obtrusion of large ranges, such as the crescent suggested to mask off the Adelphi, may mar the effect, as the too close approximation of any large structures or terraces to the river certainly would; but there is work enough to be done without pulling down Adelphi-terrace, which at present stands a monument of strength, simplicity, and utility, and which cannot interfere with any well-digested plan for utilizing the foreshore, and making it tributary to the picturesque effect of these works.

There are, however, misgivings lest, after the thrifty manner of modern builders, "adding house to house until there is no space left," the fifty or more acres of reclaimed land may be so constipated with brick and mortar as to give little room for the realization of the ideal embankment so earnestly hoped for, and so much needed in this great commercial city.

Entering on the south side from Westminster Bridge, there is ample room, about 110 ft., for causeway and plantation, but none for buildings, till past Whitehall. The great expanse opens thence to Hungerford. Openings will of course be preserved to the Duke of Buccleuch's Gardens, possibly to Whitehall and the Admiralty; but no niggard spirit should interfere to stint open spaces or intercept the view. Then Somerset House and the Temple Gardens will remain unmasked, and present the old familiar aspect as worn in the days of wherries; but on the south side nothing is revealed save the embankment from Westminster Bridge to the Bishop's Palace, which advances upon the bed of the old Thames about 130 ft. and projects 30 ft. in front of the Surrey arch! Should any portion of this reserve, about 140 ft. wide, be built upon, then vanishes the enchantment of a scene which, if judiciously effected, will excel all other European great cities as to their internal rivages.

The roadway next the splendid quay wall should be 80 ft. wide at least, on the Lambeth side: the views of the City and its churches, and other monuments, will be transcendental from this side; and no portion of the reclaimed embankment ought to be cumbered or obstructed with buildings, however graceful in architecture, on the line drawn from the extreme south end of Westminster Bridge, parallel with the direction of the quay wall.

It is to be regretted that this most unhappy and inappropriate site should have been selected for a sanitary institution. For an incurable hospital it certainly would have been a judicious position; and opposite the illustrious though sunken Houses of Parliament, which are intruded 40 ft. upon the rival range; raised also to a much higher elevation than the latter; both edifices might stand as pillars of Hercules, on either side of a narrow strait, contracting the flood of the river, and screening off the continuity of a vista that if unobstructed must be pleasing.

The Houses of Parliament stand wholly, from the clock-tower, on the bed of Old Thames, occupying an average width of 120 ft.; and the new quay wall, in continuation eastwards nearly ranges with its river front, being set back 40 ft.: therefore this building will terminate the new north esplanade: one half of the elevation will be occulted by the land arch of the bridge; and pity it is that the Houses of Parliament had not been raised on a *pian terreno* of arches; but the architect had no conception of the changes about to be wrought in the vicinage.

If the towering hospital is built on the opposite side, without an interval of at least 80 ft. of roadway, however ornate and effective the structure may be, it will seriously prejudice Mr. Barry's great work, and spoil the embankment on both sides.

The lugubrious effect of fine buildings ranging close to the water's edge is well exemplified in Venice. It would be little better in London, though the ground rises on the north side; but the grand desideratum is increased facility of intercourse for a population now totally traffic-bound. This opportunity now offers as a natural tribute, and not through the violent and costly irruption of railways. Let it not be lost.

QUONDAM.

THE MIDLAND HOTEL AND STATION DESIGNS.

SIR,—In your notice and description of the accepted design for the Midland Hotel and Station, you append a foot-note stating the amounts of the estimates furnished by the several competitors. The great difference in the amounts of those estimates can easily be accounted for by the extent of bed-room accommodation furnished by each design. The estimates under 200,000*l.* may be considered to provide bed-rooms approximating to or in exact accordance with the printed instructions of the company; viz., 150, with a proportionate number of servants' and officials' rooms in addition, as would reasonably be inferred.

My design gave accommodation only for 161 visitors' bed-rooms, 27 dressing-rooms, and 58 servants' rooms for visitors and hotel domestics; hence the comparatively moderate estimate of 164,000*l.* as against 300,000*l.* of the plan chosen by the Board. It is manifest that the addition of two extra stories of bed-rooms to a building of 600 ft. frontage must necessarily give it a vast advantage in dignity and importance of effect over one of less altitude, providing less accommodation.

The exact adherence to printed instructions, as a rule, would fetter too much, and probably defeat the intention of getting the best design out of the profession by public boards; still, the extent of accommodation, involving as it does the ultimate cost of a building, is of such primary importance to shareholders in a commercial undertaking, that it ought not to be left to the individual discretion of the competitors themselves, as in this case.

G. SOMERS CLARKE.

IPSWICH TOWN HALL PLANS.

AT the last meeting of the Ipswich town council, the Estate Committee reported as follows:—

"Your committee have thought it desirable there should be a distinct understanding with Mr. Bellamy as to the remuneration to be received by him as architect of the new town-hall. And they have made the following arrangement with him (subject to the approval of the council), namely, that he should be paid a commission at the rate of 5 per cent. upon the amount paid to the contractor, including the value of the old materials, which are for this purpose agreed to be taken to be of the value of 451*l.*, and that he should also be paid the sum of 5*l.* 5s. for every journey he has to take to Ipswich in connexion with the works, the same to be in full for his time and travelling expenses.

Your committee have also examined and [subject to the approval of the council] have agreed to pay the following charges made by Mr. Bellamy for his professional charges and his expenses up to the present time:—

For several journeys to Ipswich at the request of the committee	£21	0	0
Finished drawings for the council	21	0	0
Journey to Ipswich and copying finished drawings	5	5	0
Journey to Ipswich to meet committee, and give explanation as to working drawings	5	5	0
Duplicate working drawings	15	15	0
	£68	5	0

Your committee recommend that the sum of 200*l.* should be now paid to Mr. Bellamy on account."

Several members objected to the arrangement.

Mr. Grimwade said it would be a dangerous temptation to Mr. Bellamy when he happened to be in London to run down to Ipswich and earn five guineas. The council had to appoint two very expensive officers in addition to

the architect—the clerk of the works, to whom they were going to pay 240*l.*; and the borough surveyor was to receive a considerable sum. Mr. Bellamy had also appointed some gentleman—would they have to pay him?

The Mayor said no.

Mr. G. Mason said Mr. Bellamy was called upon by the committee to send in a set of designs, which the committee approved, and made certain alterations in them, and these alterations they required to be shown on a new and complete plan, to be laid before the council, that they might approve the plan as made by Mr. Bellamy and altered by the committee. That was the explanation of the 21*l.* The charges for travelling expenses were for journeys made at the request of the committee. As to the set of duplicate plans, the usual custom was for the architect to hold the plans as between the builder and the proprietor; but in this case the town-clerk was required to hold the plans, and, therefore, Mr. Bellamy had to have another set for himself; that was an extra for which he was entitled to charge.

Ultimately the report was sent back to the committee for reconsideration.

SMOKE-CONSUMING APPARATUS.

Sir,—I have several manufacturing clients who are anxious to adopt any simple but effective apparatus for the consumption of smoke, having reference especially to the furnaces of short tubular boilers; but they fear that the result may, as in most cases, prove unsatisfactory.

Many of your readers have probably, at some time, had experience in the matter; and, I doubt not, will willingly recommend an apparatus they know to answer its purpose effectively. B. A.

COMPENSATION CASES.

Railway Compensation. — At the Sheriff's Court, Red Lion-square, on the 5th inst., before Mr. Under-Sheriff Burchell, a railway compensation case,—"Butcher *v.* The Midland Railway Company,"—occupied the whole day. Only nine special jurors appeared, and no *tales* was prayed by either side. Mr. Digby Seymour, Q.C., and Mr. Waddy were for the claimants, Messrs. George Butcher and Sydney James Butcher, coal merchants, Wharf-road, Old St. Pancras-road, who claimed 2,000*l.* for the remainder of their lease,—5¼ years,—and for the destruction of their business by the company taking their premises, where they had carried on trade for some years. Mr. Lloyd and Mr. Alfred Wills represented the company, who had made an offer of 750*l.*; but the claimants demanded a special jury to assess the amount to be awarded. Witnesses were examined on both sides; and there was a material difference in the opinion of the valuers as to the property. The theory advanced on the part of the claimants was, that two years' clear profits, amounting to 1,000*l.*, should be given for the annihilation, as it was termed, of the business. Mr. Clark, of Farebrother, Lye, & Clark, stated that the lease of 5¼ years was not a marketable commodity. He would give one year's profits for the remainder of the term, and two years' if it could be shown that the business would be utterly destroyed. One of the witnesses for the company said that he had found that, after compensation was given, persons could always find other premises for their occupations. The jury assessed the compensation at 800*l.*

New Law Courts.—On Tuesday, the first case of compensation was heard, Sir Chas. G. Young, Garter King of Arms, as trustee, *v.* The Commissioners of Public Works and Buildings. It took place at the Old Insolvent Debtors' Court. The property in question was the freehold house 253, Strand, known as the Holyrood Palace Public House. The claim was for 10,926*l.* Difficulty was experienced in obtaining jurymen: and ultimately, by consent of both sides, the compensation was assessed at 8,500*l.*

OPENING OF AN ANCIENT MOUND IN CUMBERLAND: CONCENTRIC CIRCLES.

A few hundred yards on the east side of a remarkable stone monument known as Long Meg and her Daughters, at Maughanby, in Cumberland, there was, till lately, a mound, then rising only about 4 ft. above the surface. This mound was recently in course of levelling, when it was found to contain a large number of cobble stones mixed up with earth, and partly covering some large boulders, one standing, but all the others in a fallen position, which however showed that there had been eight stones planted in a circle of about 18 ft. in diameter. The stones were about 4 ft. each in length. Within the circle was found a rough stone kist, of an oval shape, 3 ft. 9 in. long from east to west, and 2 ft. 4 in. wide from north to south. At the east end of the kist was an urn containing burnt bones and charcoal. Bones were also found in the kist outside the urn. No one acquainted with such finds was present, and no implement or ornament was discovered. What is of most interest, however, in the case is, the fact that on one of the circle boulders there are incised five concentric circles near what must have been the top of the stone when upright. These are thus described by the Rev. Jas. Simpson, vicar of Kirkby Stephen:—

"The diameter of the innermost circle is 4½ in., the next 7 in., the next 10½ in., the next 15 in., and the outermost 19 in. On the side facing inwards and from the south side of the outer circle a line runs off, forming four circular lines, and ending in a central point 1¼ in. from the centre of the other circle. On another stone that has stood on the west side of the circle, there are two incised circles, 4 in. in diameter, with some indistinct marks in the centre. These are dish-shaped. One of these circles is on what would be the top of the stone when standing in its original position; the other is a few inches from the top on the south side. The peculiarity of these concentric circles is that there is no horizontal line starting from a point near the centre and cutting the circumference, as is the case in those circles seen on Long Meg, and others that have been discovered in various parts."

In respect to the grave, or kist, the cobbles, the mound, and the bones, there are curious coincidences with the description of native Australian customs by Captain Wilkes, given in Lubbock's "Prehistoric Times." The Australian savages are said to have a remarkable superstition that "no one ever dies a *natural* death." They have a great dread of witchcraft, and believe in evil spirits. Their dead are arranged in a sitting posture, a practice which seems to have been well-nigh universal at one time. The grave is oval, and implements and weapons are buried in it. The vacancies are filled up with stones, and earth is heaped over the whole, making a mound 8 ft. or 9 ft. high. The natives bury the young and burn the old.

MONUMENTAL.

A sum of 120*l.* has been collected for the purpose of erecting a monument to Tom Sayers. The Marquis of Caermarthen's and the Hon. G. B. Bruce's names appear in the list for 5*l.* each.——The family of the late Dr. Graham, Bishop of Chester, have erected a monument to him in the cemetery at Chester. It is of a Mediæval character, executed in a white stone, and is composed of a square panelled pedestal, resting on a base and two steps, sloping up to an octagonal shaft, terminating in a floriated cross. The monument was designed by and has been executed under the supervision of Mr. Harrison, of Chester, architect.——Mr. Alfred Waterhouse, of Manchester, has submitted a design for the proposed testimonial at Chester to the Marquis of Westminster. It consists of an ornamental Gothic arch, with covered way and tower (intended to supersede the present Eastgate), the eastern front of the tower to bear an effigy of the marquis. The design has not been definitely accepted by the committee. The suggested demolition of the Eastgate has been protested against; it is not an essential for the erection of the proposed memorial.——A monument in St. Peter's, Rome, to the memory of Pius VIII., executed at the cost of the late Cardinal Giuseppe Albani, by the sculptor the Commendatore Tenerani, has been uncovered to the public. This monument is placed at the entry of the sacristy, the door of which is brought into the work. The architectural composition forms three stories. The kneeling Pontiff, with clasped hands, is placed over the door in the lower story; the middle one has statues of Peter and Paul, with figures of Prudence and Justice on the basements in *basso-relievo*; and in the upper compartment the sculptor has placed a sitting figure of the Saviour, looking down and extending his arms towards the earth. This work occupies the only hitherto available space for a Pontifical monument remaining in the Church of St. Peter, which, for many centuries, has been the burying-place of the Roman Pontiffs.——Mr. Foley, R.A., has just completed the model for his bronze statue of Lord Herbert, to be erected in front of the War-office, Pall Mall. The *Art Journal* says,—"This work promises to rank among the very finest portrait-statues its author has produced; and to all acquainted with the unobtrusive bearing and high intellectual refinement characterising the *physique* of the lamented nobleman, it will be a matter of gratification to know how thoroughly such characteristics have been rendered by the artist. The figure, in peer's robes, is standing, the head downcast, absorbed in thought, the face partially supported by the half-closed right hand, while the left upholds the elbow of the former. The drapery forms are rich and varied, but so arranged as to sustain by their repose that sense of meditative abstraction centred in the head. We predict that this, Mr. Foley's first *out*-door work for the metropolis, will tend to revolutionise the sculptural aspect of our thoroughfares."

SCHOOL-BUILDING NEWS.

Piddletown (Dorset).—Schools for both sexes, including infants, with master's residence, have been erected and opened here. The whole of the buildings, the frontage of which measures about 130 ft., are encircled by a boundary wall. Accommodation is afforded for upwards of 300 scholars; and the entire cost, amounting to about 3,000*l.*, has been defrayed by Mr. Brymer. The masonry was executed by Mr. Charles Young, of this village, builder; and the carpentry by Mr. Wellspring, of Dorchester. The architects were Messrs. Wainwright & Heard, of Shepton Mallet.

Kidderminster. — The new Meeting Schools have been re-opened. Mr. R. Thompson has carried out the work of rebuilding under plans prepared by Mr. Smalman Smith, of Stourbridge, architect. The cost altogether has been 1,000*l.*, and from 50*l.* to 100*l.* are still needed. The schools are intended to accommodate 130 boys and the same number of girls.

Wakefield.—New parish church schools are to be erected here. Mr. W. Watson has been appointed the architect. The design is an adaptation of Early English Gothic, and the walls are to be of pitched face stones, and the principal windows of tooled work of an ornamental character. The building comprises a mixed school-room, 65 ft. by 37 ft.; an infants' school-room, 40 ft. by 22 ft. 6 in.; and two class-rooms, 20 ft. by 13 ft. 6 in. each. One of the entrances is surmounted by a bell-turret. The roofs are high pitched, and will be covered with blue and purple slates in bands or patterns, surmounted by an ornamental ridge crest. The estimated cost of the whole is 1,500*l.*

Doncaster.—New National Schools are to be erected here. Mr. Teale, of Doncaster, has been requested to furnish plans for the building: and the estimate which he gives, for the edifice which he proposes, including houses for master and mistress, playgrounds for boys and girls, ornamental fencing, and architect's fees, amounts to 3,800*l.*

DISSENTING CHURCH-BUILDING NEWS.

St. Leonard's, Bromley (Middlesex).—It is proposed to erect a Congregational church and schools in this densely populated neighbourhood. The church, which is to be of brick and stone in the Italian style, is to be erected first, giving accommodation for about 750 persons, including children. Mr. J. W. Morris is the architect.

Preston.—St. George's Church has just received the addition of a baptistery and memorial font. The font is of polished serpentine, and has been made in Cornwall by the Lizard Serpentine Company. The platform is of polished Aberdeen red granite. The flooring of the baptistery is of Minton's glazed tiles, margined with a polished red granite step. The pillars at each end of the baptistery are of cast-iron, with wrought bands and leaf enrichments. The baptistery is separated from the body of the church by an oak parclose. Mr. Holmes, of Lancaster, executed the carving; and Mr. Ladyman, of Preston, the woodwork generally. The style throughout is of the early part of the thirteenth century. Both font and bastistery, in every detail, have been made under the superintendence of, and from designs, sketches, and full-size drawings prepared by Mr. James Hibbert, of this town, architect.

Wolverhampton. — The new Congregational Church, in Queen-street, Wolverhampton, has been opened with divine service. The outside dimensions of the new chapel are 90 ft. by 65 ft., affording seat-room for about 1,250 adults, allowing 20 in. to each person; and a large lecture-room, capable of accommodating 400 persons, is provided underneath. The general character of the architecture is Italian, freely treated. The principal fronts are faced with Pillough stone, the main building ashlar, and

ne basement with coursed work, hammer-ressed on the face. The principal front—that ext Queen-street—consists of a centre and two de wings. The centre contains a large circular-aded Venetian window and a double entrance-oor on the ground story. The side wings con-ain the gallery staircases, and have entrance-oors of corresponding design to the central oorway: over that next Market-street a tower id spire rise to a height of 110 ft. The front, ext Market-street, contains above the basement vo tiers of windows grouped as triplets, and is nished with a cornice blocking course, and rnamental finials. The lower portion of the ain building is rusticated, and the upper por-on enriched with pilasters and engaged columns stone in the window jambs. The plan of the apel internally is a parallelogram, divided to nave and side aisles by two rows of coupled olumns, and having entrance lobbies and stair-ases at the north and south ends. Galleries e carried over the side aisles, and over the rth end of the nave, whilst an organ-gallery provided at the south end. The nave columns e arranged vertically into two architectural ders, the lower one supporting the gallery, id the upper one a lofty clerestory with rcular-headed Venetian windows, and an riched coved ceiling. A chamber for ventila-on is provided over the ceiling of the side lleries. The style in which the interior is nished is in harmony with the exterior, the ve columns having foliated capitals, and the tings generally being of a decorative cha-cter. The entire cost, including a new organ, id the securing the freehold of the land, will between 9,000*l.* and 10,000*l.* The builders ere Messrs. Trow & Sons, of Wednesbury; the rving having been executed by Mr. Frampton, London; and gasfittings by Mr. Thomason, of irmingham; the whole from the plans, and ider the superintendence, of Mr. George Bid-ke, of Wolverhampton, architect.

STAINED GLASS.

St. Barnabas's, Bristol.—A memorial window in process of erection in the chancel of this urch, at the expense of the Rev. J. J. Coles, A., the incumbent of the parish. The east ancel window consists of three lights, and in e centre light is placed the figure of St. Bar-abas. Above is a representation of the Cruci-ion, with the Virgin Mary and St. John at the ot of the cross. In the side lights, and on ther side of St. Barnabas, are the Apostles . Peter and Paul; and over these, flanking the ucifixion, are full-length figures of the two arys. The whole is placed on a geometrical iated ground. The artist was Mr. Bell, of istol.

St. Mary's, Hulme.—The remaining two lights the east window of this church have just been led with stained glass, by Messrs. Hardman, of rmingham, thus completing about two-thirds this work, the tracery in the head of the win-w still being filled with the common glass ich was in the whole window at the time of e consecration of the church. The completed rtion of the window contains eighteen subjects, presenting the principal events in the human e of our Lord. The tracery will be filled in th a representation of our Lord in glory, with gels, evangelists, and saints. The subjects lected are the Annunciation, the Adoration of e Magi, the Presentation in the Temple, the ptism, the Ministration of Angels after the mptation, the First Miracle at Cana, the Ser-on on the Mount, the Transfiguration, the sing of Lazarus, the Last Supper, Washing e Disciples' Feet, the Entry into Jerusalem, e Agony in the Garden, Bearing the Cross, the ucifixion, Nicodemus closing the Sepulchre, e Resurrection, and the Ascension. The win-w is of unusual size—48 ft. high by 25 ft. ide. The cost will be 1,000*l.*, the whole of ich will be borne by one member of the con-egation.

Christ Church, Banbury.—The decoration of e chancel of this building has been completed filling up the two side windows with stained ass, containing angels, with scrolls, &c. The rk was done by Mr. T. Dury, of Warwick, to om was entrusted the central window in mory of the late Prince Consort. The mural corations were by Mr. Cottam, of Banbury.

St. Paul's Church, Warwick.—A stained glass ndow, subscribed for by the parishioners, has en fixed in this church, in memory of an old and respected attendant. The subject selected by the artist, Mr. T. Dury, of Warwick, represents a guardian angel closing the eyes of the departed.

St. Peter's, Newcastle.—A stained glass window by Messrs. Hardman & Co., of London and Birmingham, has just been placed in the south transept of this church, by Mr. Matthew Charles Woods, Jesmond House, and Miss Woods, Eldon-square, to the memory of their mother. The centre light represents the Crucifixion, on either side of which are the figures of the Virgin Mary and St. John. The fixing of the window was done by Mr. Lawson.

St. John's Chapel, Devonport.—The most recent improvement in this chapel has been the erection of a stained memorial window by the Ramsey family. The general aperture of the window is divided into two parts, by means of a mullion composed of Bath stone, and the illustrations are descriptive of Christ blessing little children, and of the patriarch Jacob blessing his sons, and beneath the former the text, "He took them up in His arms, put His hands upon them, and blessed them," is inscribed within an ornamented quatrefoil. Beneath the second illustration are the words:—"The Almighty shall bless thee with blessings of the Heaven above," in a similar form as those on the opposite side. At the summits of both portions of the window are the crests and arms of the Ramsey and Billing families. The whole is surrounded by a foliaged border. Mr. Wailes, of Newcastle-on-Tyne, was the artist. The masonry was executed by Mr. Yelland, stonemason, Devonport, and the window was fixed by Mr. T. Earl.

Books Received.

VARIORUM.

THE National Boiler Insurance Company (Limited): Chief Engineer's Report. 1865. General Offices, St. Ann's-square, Manchester. This report states that the company have acquired an extensive and rapidly-increasing local connexion among boiler owners. No boiler insured by the company had exploded during the past year, although fifty-three serious explosions had occurred in the United Kingdom, destroying forty-seven lives, and injuring seriously eighty-two other persons. Deficiency of water was the chief cause, ten having occurred from this cause, and eight from external corrosion. A good fusible plug, it is remarked, would have prevented most of those arising from want of water. ——"A Scheme for the Supply of Water to Sheffield, Rotherham-cum-Kimberworth, and Doncaster, &c." By Matthew Bullock Jackson, C.E. Westminster: Vacher & Sons. The author's proposal is "to secure for all time the *whole* of the water flowing from the drainage areas of the rivers Derwent, Noe, Westend, Alport, and Ashop, and their tributaries above the requisite level," so as to obviate any necessity of having dangerous reservoirs connected with the supply. The daily supply to Sheffield and its neighbourhood is estimated at 8,500,000 gallons; to Rotherham and neighbourhood, 2,500,000 gallons; and to Doncaster and neighbourhood, 1,000,000 gallons. The total estimated cost of the supply is 495,000*l.*; and the estimated net income 59,906*l.*——"Richard Cobden: a Biography." By John McGilchrist. London: Lockwood & Co. The author of this volume has endeavoured to tell the story of Mr. Cobden's life and public services, as far as possible in his own words; and hence, although there is a good deal of compilation throughout, the result has, to a certain extent, the interest of an autobiographical work. The author also acknowledges his obligations to personal friends and acquaintances of Mr. Cobden, as well as to books already published.——"A Manual for the Classification, Training, and Education, of the Feeble-minded, Imbecile, and Idiotic." By Martin Duncan, M.B., and William Millard. Both of the authors of this volume are connected with the Eastern Counties Asylum for Idiots and Imbeciles,—the former as honorary consulting surgeon, and the latter as superintendent. They have, therefore, had good opportunities of becoming versant practically with their subject; and it is their opinion that a good deal can be done for the improvement of idiots and imbeciles; although of course, where there are organic defects in the brain, these may not be alterable or amendable. Although an idiot, however, may not have the grand commissure of the great brain united in the median line as the corpus callosum, he may, to a certain extent, be teachable, so as to convert him from uncleanly to cleanly habits, and, perhaps, to make a good and steady labourer of him, although he may remain quite incapable of managing and expending the earnings of his industry in a rational and discreet manner. Some idiots and imbeciles may thus not only be made endurable, but even self-supporting members of the human family, and more still than this may yet be done. We recollect, by the way, of a case of two idiot twin-brothers, one of whom happened to get his skull fractured, the chief consequence of which was that he ceased to be an idiot, although his brother never showed any symptoms of change. Fracturing the skull, no doubt, is a heroic remedy which is not likely to be *tried* upon any idiot; but the fact shows that even organic defects producing idiocy may not in themselves be absolutely irremediable, and that some pressure on the brain at one period of life may cease at another, and put an end to the idiocy.

Miscellanea.

THE GUTHRIE MEMORIAL CHAPEL, CLIFTON COLLEGE.—By accident, a paragraph respecting the erection of the Guthrie Memorial Chapel at Clifton College was inserted under the head of "*Dissenting* Church Building." The college is Church of England; and the chapel now building is in memory of the late Rev. John Guthrie, canon of Bristol, chairman of the council.

MUNIFICENCE OF A LATE GLASGOW MERCHANT Mr. Alexander Kay, insurance broker, who died last week, has, we understand, bequeathed the munificent sum of 10,000*l.* for the purchase and maintenance of a public park for Kilmarnock, and also 6,000*l.* to build and endow in the same town two public schools for working men, where a "good plain practical education" will be given.

BRICKWORK.—Long bands of iron hooping are now extensively used inserted along brickwork to give additional strength. I would suggest six slits on the broad surface of each brick (to be formed in the mould) to receive the bent ends of short pieces of iron hooping. Bricks laid side by side, or end ways, can be firmly clutched or *ironed* together by a tap with the trowel. The iron being sunk in an indention level with the brick, with a slight layer of mortar to rectify any surface inequalities, there would be no obstacle to the level setting of the work. For vaults, arches, chimneys, &c., I believe it would prove valuable.—R. TAYLOR.

A BAPTIST CHAPEL DESTROYED AT LUTON.—Just after the congregation left the Round Meeting on Sunday evening, a fierce gust of wind blew down the gable end of a chapel which is being erected by Messrs. A. & T. Smart, at a cost of 2,000*l.* This building, the memorial stones of which were laid by Sir Morton Peto and Mr. J. Everitt, stands close to the old chapel, known as the Round Meeting, the roof of which was smashed in, and the organ which stood in the gallery completely demolished. The front windows of the old building were blown out, and so complete is the wreck that the congregation will have to assemble at a school-room, at some distance, until the new chapel can be completed. The loss is estimated at not less than 300*l.* Had the accident taken place half an hour earlier some hundreds of persons would have been killed or injured.

LORD ST. LEONARDS' ARBITRATION BILL.—On Wednesday evening a delegate meeting of the London trades societies was held at the Bull Inn, Old Bailey, to take into consideration the Bill introduced by Lord St. Leonards into Parliament, entitled "An Act for the Establishment of Equitable Courts of Conciliation and Arbitration." Mr. Danter, of the Amalgamated Engineers, occupied the chair. The Bill having been read in full, a long discussion took place, and eventually the following resolution was adopted:—"That, in the opinion of this meeting, the Bill of Lord St. Leonards for establishing Courts of Conciliation and Arbitration is deserving the careful attention of the trades of the United Kingdom, and we hereby approve of a deputation waiting upon his lordship to consult him upon some uncertain points in the proposed Bill, and that this meeting stand adjourned to receive the report of such deputation."

Aeronautics.—A Parisian speculator proposes to organise a balloon service to ply between the Place de la Concorde and the Champs de Mars during the Universal Exhibition of 1867.

The Local Government Act.—The seventh annual report on the working of the Local Government Act of 1858 has just been published by the Secretary of State for the Home Department. It gives a summary of the business transacted in the office during the year that has elapsed since the last report appeared.

Gas.—The dispute between the Folkestone Gas and Coke Company and the Folkestone Gas Consumers' Company has been settled. All the shares in the latter company have been bought up by the old company, and an offer has been made to supply Shorncliffe Camp with gas at 3s. 9d. per 1,000 ft., provided a specified quantity is taken.

A Wet Dock for Whitehaven.—The subject of a wet dock engaged the attention of the Trustees of the Town and Harbour of Whitehaven, at a special meeting of that body, held last week. Mr. Coode, C.E., was present, having been invited to meet the trustees. Nothing definite, however, was arrived at. A resolution was passed to the effect that the cost of the proposed dock should not exceed 100,000*l.*; and Mr. Coode was instructed to report as to the best site.

Copyright in Works of Fine Art.—A conference, invited by the Society of Arts, was held on the 2nd inst., with reference to an endeavour to procure an amendment of the laws relating to copyright in works of fine art, and especially in engravings. Mr. W. Hawes presided, and Mr. Graves, Mr. Geo. Cruikshank, Mr. Boydell, Mr. H. Bohn, Mr. Godwin, Mr. Roberton Blaine, and others, took part in the proceedings. The Council will doubtless feel sufficiently assured to persevere in the preparation of a Bill for consideration.

Terrible Catastrophe at Cronstadt.—A few days back fifty-four lives were lost at Cronstadt in a very sad manner. At half-past two in the morning a wooden building, constructed on Battery No. 10, serving as a habitation for 250 workmen, took fire, and was in a few moments enveloped in flames. There were three doors to the building, but only one was unlocked, and this opened inwards. The unfortunate men, pressing forward in crowds, kept it closed, and it had at length to be broken down, but fifty-four men had already perished. The rest were rescued with great difficulty.

Progress of the Post-office. — In 1864, 679,084,822 letters passed through the post, being an increase of 37,000,000 over the previous year; and in the same period the number of book-packets and newspapers which were transmitted rose to over 50,000,000, or 7,000,000 more than in 1863. This increase was more than proportionate to the growth of population and multiplication of houses throughout the country. Our correspondence with foreign nations also continues rapidly to expand. The speculative mania of recent years has added to the revenues of the Post-office, in consequence of the vast distribution of circulars to which it has given rise. The Post-office Savings Banks continue to flourish. In London there is 1 depositor to every 7 persons; in the rest of England and Wales, 1 to every 14; in Scotland, 1 to every 17; and in Ireland, 1 to 70; the average for the whole kingdom being 1 to 15.

Lighting up the National Collections.—A meeting, convened by the hon. secretaries of the South London Committee of Museums, and so largely attended that the audience filled, throughout the proceedings, the greater portion of the Lambeth Baths, was held on Friday night, the 2nd inst. Mr. G. Murphy was called to the chair. The chairman read correspondence between himself and Mr. Layard, M.P., as to certain objections of the member for Southwark to the introduction of lights into the British Museum and the National Gallery. Captain E. Dresser Rogers moved, Mr. T. W. Roffey, vestry-clerk of Lambeth, seconded, and Messrs. G. Thorneloe, gas engineer, and Booker (a working man) spoke in support of a resolution of hearty approval of the past action of the South London committee, which was carried without a single token of dissentient feeling. The Rev. Dr. Hugh Allen (rector of St. George-the-Martyr, Southwark) proposed the extension of the movement to the whole of the metropolis, which was adopted with much enthusiasm.

York Fine Arts Exhibition.—The site for the exhibition has been determined upon. It is to be held in the Asylum field in Bootham.

The Liverpool Dock Engineer's Salary.—The Liverpool Dock Board have unanimously agreed to raise the salary of Mr. Lyster from 2,500*l.* to 3,500*l.* a year.

York Minster.—Workmen are now engaged in removing the stonework which enclosed the communion-table, preparatory to the erection of a railing in brass-work, executed by the firm that designed and constructed the Hereford screen.

St. David's Cathedral.—The subscription towards the restoration of St. David's Cathedral is progressing favourably, and the amount already promised is over 9,200*l.* The subscription list is headed with a bequest of 2,000*l.* by the late Rev. J. M. Trehearne.

Health in Large Towns.—The annual rate of mortality last week was 23 per 1,000 in London, 28 in Edinburgh, and 27 in Dublin, 42 in Liverpool, 33 in Manchester, 34 in Salford, 26 in Birmingham, 38 in Leeds, 31 in Sheffield, 33 in Bristol, 33 in Newcastle-upon-Tyne, 26 in Hull, and 29 in Glasgow.

Co-operation.—At the annual meeting of the Manchester and Salford Equitable Co-operative Society, it was stated that the members commenced operations with 100*l.* six years and a-half ago, and had now a capital of nearly 14,000*l.* They started with one shop and fifty members; they have now twelve shops and more than 2,000 members. The business of the past year had exceeded that of 1864 by 5,000*l.*

The Birmingham Gallery of Art.—The Free Libraries and Museums Committee intend, we hear, to open this gallery to the public as early as possible. Though, unfortunately, the town does not possess many works of art, the committee will be able to overcome this difficulty by borrowing pictures for the purpose of exhibition. The authorities of the South Kensington Museum have agreed to contribute.

Liebig on Ventilation.—Liebig suggests that in close rooms and on ship-board deficient ventilation may be compensated for by the use of hydrate of lime. Eighteen or twenty pounds of slaked lime will absorb 38 or 39 cubic feet of carbonic acid gas, which would be immediately replaced by an equal volume of fresh air entering through the crevices. There is nothing very new in this suggestion, however.

Drainage of Oxford.—With regard to the drainage of Oxford, a matter of great interest to all who live on the lower part of the Thames, Mr. Bazalgette has recommended the construction of a main outfall sewer of 6 ft. diameter, just below Sandford Lock, and that the drainage should be carried to Walton Well, where it can be made to flow over the land to the old channel of the river by gravitation, or be diverted to the main outfall sewer by a branch drain.

Steam Fire-engines.—Last week a trial of steam fire-engines, by Messrs. Merryweather, took place at the Surrey Canal, in presence of the Metropolitan Board of Works. The performance of the largest engine, formed on the same principle as the "Sutherland," which gained the first prize at the International Contest, Crystal Palace, 1863, was astonishing, projecting a jet of water, of 6 in. circumference, in the air 338 ft. This engine is the "Portsmouth," and is purchased by her Majesty's Government for service in Portsmouth Dockyard.

TENDERS

For additions to the Roman Catholic Diocesan Seminary, Belfast. Mr. John O'Neill, architect:—

McLaughlin & Harvey	£6,458	5	10
Ross	5,900	0	0
McAuley	5,870	0	0
Connor & Son	5,840	0	0
Murphy	5,295	3	2
Byrne (accepted)	5,090	0	0

For a detached residence in London-road, Enfield. Mr. T. J. Hill, architect. Quantities supplied by Mr. H. W. Broadbridge:—

Woodward	£2,300	0	0
Rivett	2,293	0	0
Bell & Son	2,118	0	0
Webb & Sons	2,059	0	0
Colls & Son	1,984	0	0
Patman, Brothers	1,897	0	0
Fairbead	1,876	0	0
Cushing	1,862	0	

For constructing new sewer, Manor-road, Bermondsey. Mr. Geo. Elkington, surveyor:—

Reddin	£2,480	0	0
Bloomfield	1,750	0	0
Thackeray & Pearce	1,595	0	0
Kelly	1,460	0	0
Kent	1,458	0	0
Parker	1,397	0	0

For Primitive Methodist Chapel at Stratford-upon-Avon. Mr. Thomas T. Allen, architect. Quantities not supplied:—

Court	£446	7	0
Roberts & Son	425	0	0
Price & Holtom	418	14	0
J. & G. Calloway (accepted)	395	0	0

For new manufactory in Drummond-road, Bermondsey, for Mr. James Peek. Messrs. Davison & Scammell, architects:—

Hill & Keddell	£20,244	0	0
Brass	19,894	0	0
Higgs	19,544	0	0
Adamson & Sons	19,516	0	0
Coleman	19,450	0	0
Conder	19,399	0	0
Gammon	19,330	0	0
Hart	19,120	0	0
Macers	19,000	0	0
Trollope	18,943	0	0
Munday	18,590	0	0
Browne & Robinson	18,435	0	0
Dove	18,430	0	0
Rider & Son	18,160	0	0

For erecting a pair of villas at Upper Tooting, Surrey, for Mr. Herbert W. Taylor. Messrs. Wimble & Taylor, architects:—

Colls & Son	£3,374	0	0
Adamson & Son	3,300	0	0
Perry & Co.	3,275	0	0
Marsland & Sons	3,175	0	0
Gulland & Thompson	2,900	0	0

For the erection of two cottages and stables at Mortimer, Berks, for Captain Adams. Messrs. William & J. T. Brown, architects:—

Sheppard	£1,136	0	0
Barnicoat	1,083	0	0
Dodd	1,059	0	0
Strong	1,026	0	0

For two detached villas for Mr. John Peache, Seven Oaks, Kent. Mr. H. Cronk, architect:—

Hyder	£3,565	0	0
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The Builder.

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What the Wild Waves are Saying at the Isle of Wight.

EVERYBODY remembers what Douglas Jerrold said in reference to the English *penchant* for celebrating every event by a public dinner. "If an earthquake were to engulph England to-morrow," said the wit, "the English would manage to meet and dine somewhere, just to celebrate the event." The remark made to us by a friend at Ventnor recalled to mind Jerrold's joke. Alluding to the gradual and certain inroads that the sea is making on the southern side of "The Garden Isle," and more particularly at Ventnor, our friend jocosely said,—"Well, you need not be surprised, when next you come over, to see us all perched on top of St. Boniface Down!" St. Boniface Down is a hill rising 800 ft. above the level of the sea; and, as Ventnor lies immediately at its base, it is only natural to suppose that the inhabitants would make for St. Boniface in any emergency of the kind. For the sake, at least, of the suffering multitudes who annually betake themselves to that delightful resort, in quest of that health which has been denied them elsewhere, let us sincerely hope that no such dire calamity may befal the English Madeira. And yet, it is not to be concealed that there are signs of regret and insecurity, if not of alarm, in Ventnor at the present moment. The sea *is* nearer to St. Boniface, and, consequently, nearer to the town of Ventnor than it was formerly. And it is advancing.

The history of the Isle of Wight furnishes abundant proof that a mightier conqueror than the Romans has set foot on its shores. Neptune has taken possessions that can never be regained. The islanders are being invaded by the great sea-king, and they have not hitherto been able to oppose his progress. The well-known Undercliff itself is the result of a succession of landslips from the chalk downs above. The Undercliff, which may be said to extend from Bonchurch to Blackgang Chine, a distance of about seven miles along the coast, consists of a series of shelves or terraces of chalk, sandstone, and rock, varying from a quarter to half a mile in breadth, and six miles in length, gradually sloping towards the sea, and ending in an esplanade generally 80 ft. or 100 ft. in height above the tide. This extensive alteration was occasioned by what is termed blue slipper, a very soft substratum full of springs, gradually undermining the upper sandstone. It is conjectured that the greater portion of the landslip occurred more than 1,000 years ago; but the undermining process is still going on in those portions of the cliff nearest the sea, though, of course, on a far less gigantic scale. At the eastern end of the cliff, the land between the sea-cliff and the pathway was recently swept away, and may now be seen lying in confused masses on the beach. The great landslip at East End, near Bonchurch, one of the grandest sights in the island, was the result of two landslips, one in 1810, of thirty acres; the other, eight years afterwards, of fifty acres. It is the peculiar formation of the Undercliff, sheltered as it is from all violent winds by the lofty downs above, that gives Ventnor, according to Sir James Clark, its superiority as a resort for invalids suffering from chest complaints. One odd consequence of the precipitous and broken nature of the Undercliff is, that in going to many of the houses, you ascend a flight of steps to reach the front door, while, if you wish to enter by the rear of the house, you will have to descend a corresponding flight. In the reign of Charles I., the small fort at Sandown, erected by Henry VIII., was removed, the sea having threatened to swallow up its "porter and three gunners," with its "eleven pieces of brass and iron ordnance," its "firkin of powder and seventy-eight hagbuts," its "chest of bows and arrows," and other formidable armament. "The remains of its foundations," says an old writer, "are sometimes to be seen when the tide is out, especially after a high spring flood." It is said that the old fort stood no less than 1,000 ft. further into the sea than the present fort, and nearer to the now demolished Royal Heath Villa, where John Wilkes spent the latter years of his life. To the south-east of the neat little village of Bembridge may be noticed a large bed of rock, called Bembridge Ledge, formed by the action of the tide washing the upper portions of the cliff away. On this ledge the ship *Henry Arlington* was wrecked thirty years ago. Once upon a time, long after the Isle of Wight had ceased to be Vectis, and Brading had ceased to be its capital, Brading Haven was a spacious green pasture, where kine were wont to graze. When we saw it, the haven presented a superficial area of seven or eight hundred acres of water, with one or two small crafts floating on its bosom—a very picturesque picture as seen from Brading Downs. At low water, its appearance is widely different. Then you see nothing but a broad expanse of mud, with the river Yar winding its muddy way like a great eel down to the sea. Various but futile attempts, it is said, have been made to reclaim the land. Every visitor to Freshwater has seen the Needles which form the northern point of Scratchell's Bay. There are three rocks so called—huge, misshapen masses of glittering chalk towering amid the blue waters, "like the pillars of some unfinished temple." These rocks are white, but black at their bases, and curiously streaked throughout with blue strata of flints. In the sun they have the appearance of striped silk. There can be no doubt that they once formed the original headland; but the sea, asserting its power, has isolated them from the mainland, and fashioned them into their present rugged and fantastic forms. Just one hundred years ago, the spiral rock, from which these rude giant columns are supposed to have derived their name, fell with a tremendous roar and a concussion that was felt all over the island. This rock, which was 120 ft. high, was known among seamen by the unlucky name of Lot's Wife. A lighthouse, built in 1858, stands on Needles Point, 700 ft. above the level of the sea. It is mounted with ten Argand lamps, and ten plated reflectors, whose light is visible eleven leagues off. The term, "iron-bound coast," does not apply to the Isle of Wight, whatever applicability it may have to other of the sea coasts of the kingdom.*

But let us return and hear what the wild waves have been saying more recently at Ventnor. If their story be not so poetical or romantic in its character as that already given, it may have a more practical importance and application. Ventnor, thirty years ago, was a mere village, "unknown, unhonoured, and unsung." It consisted of only a few huts, and its visitors must have been few and far between. The spiritual wants of the place were not large enough to support a church, while its spiritual wants of another sort were satisfied with one public-house. But Ventnor rose one morning and found herself famous. The highest medical authority in the land gave the opinion that the climate of Ventnor was superior to that of Torquay, or any other place on the south coast. The fortune of Ventnor was made. Year after year the picturesque terraces of the Undercliff were dotted with elegant villas, and the town rapidly increased in size and population: Ventnor is now a bustling town of 5,000 inhabitants. It has six places of public worship, six hotels, and all the luxuries of the age. Of the luxuries of the season, it has perhaps more than most other places. The Ventnorians are, naturally, very proud of Ventnor. They will almost persuade you into the belief that premature death is a thing unknown in the place. The inhabitants all die of that rarest of diseases elsewhere, extreme old age,—provided they do not fall over one of the cliffs. However, it is only proper to state, what must be pretty generally known, that the average death-rate in the Isle of Wight is lower than that of any other watering-place. And Ventnor is undoubtedly one of the healthiest places in the kingdom. Among the recent schemes projected, and partly carried into effect for the improvement of the town, were a pier and jetty, or breakwater. The undertaking, we are sorry to say, has proved a sad failure, and the money,—the enormous sum of 100,000*l.*,—has been literally thrown into the sea. Such, at any rate, is the opinion of a number of persons in Ventnor, who look upon the scheme as a mistake. Both pier and breakwater are of wood, large piles of timber being driven into the beach, and floored over with strong planks in the usual style of wooden piers. The interstices are filled up with stones to strengthen the foundation. The pier is built in the form of a curve, tending towards the breakwater, a sufficient entrance being left for the admittance of small vessels into a basin which answers for the harbour. Stout as the pier looks, it has proved altogether powerless to cope with the insidious waters. In one of its fits of tempestuous wrath, the sea has started nearly every timber, twisting its iron bolts and bars, as a child might twist a pin, and ripping up and coiling its zinc parapet as if it were parchment. There it stands, a complete wreck, and fitting monument of somebody's want of judgment. The breakwater, not being exposed broadside to the full force of the sea, as is the pier, has not suffered to the same extent. But the damage done does not rest here. Certain excavations made for the formation of the pier and harbour disturbed or undermined the foundation of a chalk cliff which overhangs the harbour. The result was a landslip; and the consequence of that, again, has been the ruination of a row of handsome and comparatively new villas situated on the summit of this cliff. These villas, lately comfortable dwellings, are now tenantless ruins, rent from top to bottom, as if they had been torn apart. One villa only has escaped, but how long it may remain intact is a question, since the gable end of another fell to the ground not a fortnight ago. Of the treacherous nature of some portions of the Undercliff there can be no doubt whatever. At the time of our visit, men were engaged in "shoring" with stones a part of one of the lower terraces which had given way. The soil had the colour of Fuller's earth, and looked as unstable as sand.

What more apt illustration of change than the weathercock? What changes like the weather?—

* Nor, strictly speaking, does the phrase apply to the "white cliffs of Albion." We read in last week's paper that, as a consequence of the recent storm and several gales, the violence of the sea has considerably encroached upon the slip of land which connects the eastern cliff with the remainder of the sea-frontage at Dover. The whole of the promenade has disappeared, and a semi-circular inroad has been made upon the carriage-way.

what so fair to-day, what so foul yesterday? This is true of even Ventnor weather. There we were in the English Madeira in the middle of bleak and bare January; but not bleak and bare here. The sea is *not* like glass, and is less like a mirror; but its tiny waves dance in the warm sunshine, and chase and tumble over each other like children playing at catch! A group of fair islanders are instituting a vigorous search among the shingle for "Isle of Wight diamonds." Roses are actually in bloom in the open air; and have we not just left a pleasant parlour, fragrant with the smell of myrtle, hyacinths, and "sweet-scented stocks?" The trees have not lost their leaves, and the miles of ivy hedgerows testify to the wonderful fertility of the soil. There is hardly a breath of wind to disturb the smoke which is curling languidly to the clear blue sky from a score of villas. This is surely summer in winter. The pier lying there, like a stranded ship, presents a strange contrast to the calm beauty of the surrounding scene. It seemed scarcely possible that so sunny a spot could ever be visited by "the fury of the elements." Yet here were unmistakable proofs of an angry sea, and a terrible storm. Those tiny waves, glittering in the sun, may to-morrow grow into black foaming breakers, sweeping over the pier, and making the shingle rattle against the bathing coaches, or tossing it like hail on to the esplanade—"the shingle," as was explained to us with much gravity by a seafaring individual, "being a moveable body, acted upon both by wind and water." These shingles, which have done so much injury to the shores on this side of the island, have a curious history. Sixty years ago the beach at Ventnor, was covered with a beautiful smooth sand. There were no shingles east of Rocken-end, about five miles distant. Now they entirely cover the shore from that place to Bonchurch, and extend to Freshwater in the opposite direction. They have been carried eastwards by the tides, which are said to be more rapid here than formerly, owing probably to the wearing away of many points of land and rocks that projected into the sea, and defended these creeks along the shore. During the recent violent storms, a large island of shingles, several acres in extent, was driven up to the west of the Needles. The shingles or pebbles consist of rounded silicious fragments, about the size of beans. They are of a great variety of colours, and some of them are very beautiful, particularly those known as Isle of Wight diamonds. However, it is the absence of shingle at Sandown and Shanklin, that has made these charming spots superior to Ventnor for sea-bathing. In the interests of visitors, as well as of the inhabitants themselves, we must here allude to a matter about which we heard a good deal of complaint from various quarters. We mean the accumulation of seaweed on the beach. Cart-loads of this article, carried in by spring tides, now lie rotting within a few feet of the favourite promenade of visitors. The smell during our visit was most offensive, and we are told that in warmer weather it is ten times worse. This detestable odour arises of course from the fact that the weed is not growing, and that the water laves it only at spring tides. Can nothing be done to utilize it? Seaweed, as is well known, is a valuable manure for land. What objections there may be to its being so used by the Ventnor agriculturists, we do not know. It is extremely doubtful, at all events, if the sea will, in this instance, turn sanitary commissioner, and carry the rubbish away again. Meantime it is a nuisance to the place, and, as we have said, the people have begun to feel it.

Since a pier is a boon to Brighton, and Ramsgate, and Ryde, and almost every watering-place, there is no need to argue that a pier would be an advantage to Ventnor. It seems evident, however, that the erection must be a stone one, and granite, if possible. Unfortunately for the Isle, her public works have not been particularly successful. Speaking of the new pier at Ryde, a local writer says,—"The new pier was commenced by a company called the Stokes Bay Railway and Isle of Wight Ferry Company. This afterwards merged into the Ryde Quay Company. Altogether their proceedings were enveloped in 'Egyptian darkness.' They carried on the works to the present state, and then mysteriously stopped, probably for lack of means, as well as lack of power. On the whole, the works are no improvement to the town in an ornamental point of view."

At Ashey Down, between Ryde and Newchurch, are the waterworks erected in 1854, "at a ruinous cost, by the over-zealous and misguided Ryde commissioners, notwithstanding the numerous warnings given them at the time by persons whose opinions, to say the least, should have had an impartial hearing." Our present interest being more particularly in Ventnor, we hope that the mistake made there may soon be rectified by the erection of a pier that shall be a service as well as an ornament to the place. What Sir Walter Scott said of the Isle of Wight generally, applies especially to Ventnor and its neighbourhood. He calls it,—"That beautiful island which he who once sees never forgets, through whatever part of the wide world his future path may lead him."

ON THE CONSTRUCTION OF IRON ROOFS.

We have occasionally to record disasters of more or less severity occurring during the erection of iron roofs. Not long ago a portion of the Ludgate-hill Station roof fell in; and still later we hear of the fall of a portion of the roof of the London-road Station at Manchester, of which we give further particulars in our present number. The latter accident was of a somewhat unusually grave character. No less than thirty men engaged at the time upon the upper portion of the roof accompanied it in its disastrous fall, two of them being killed, and many of the entire number dangerously hurt. In neither of these cases does it appear that the accident could be attributed to want of skill or knowledge so far as the designs of the respective roofs were concerned. Indeed, in most cases where iron is employed in any structure, a very considerable margin is allowed in excess of the required strength. The improper fixing, however, of a few ties or struts tends largely towards decreasing the general stability of such structures, and deranges all the precautions and calculations of the engineer. It is, obvious, therefore, that one of the most essential requisites in properly and safely carrying out the construction of roofs is to have the superintendence of a responsible and well-qualified clerk of works, and one who is known to be capable of undertaking the final and satisfactory completion of the undertaking. An iron roof is likely to be much affected by the nature of the masonry upon which it rests, as was evinced some time ago in the fall of the station-roof at Bilbao, in Spain.

Many instances of the falling in of roofs may be fairly attributed to the character of the masonry,—not that this is in every case of doubtful quality, but because the part it plays in having to sustain permanently a very heavy dead-weight is likely to be to some extent overlooked by an inexperienced ironwork contractor.

In the Exhibition of 1862 the walls were in danger of being thrust out by the superincumbent weight of the roof; and it is mentioned in the first volume of the record of that Exhibition by Mr. Hollingshead, that it became necessary to adopt after-precautions, to prevent this occurrence from actually taking place.

Strong iron braces were anchored to the foundation of the inner columns of the galleries, and carried up to the top of the opposite outer columns, and thus the thrust of the roof was effectually counteracted. This vertical cross-bracing was repeated at every 100 ft., or fourth bay; and, by introducing horizontal diagonal bracing under the roof-flats, they were turned into deep horizontal girders, supported at two ends by the braced columns.

Upon the fall of the Bilbao Station roof, it was ascertained that the masonry portion of the structure had not been allowed to become sufficiently consolidated, taking into account the quality it was afterwards discovered to possess, to admit of its being safely encumbered with the weight of the roofing or covering in.

Apart from the causes already suggested, however, as leading to the untimely and, in many cases, the fatal giving way of roofs, there are others which may be attributed to the quality of the metal employed in the superstructure.

No want is more deprecated by engineers of the present day than that of a thoroughly trustworthy iron or steel. The want of a good quality of iron which should, to be serviceable, always possess the same character, in however various and extensive quantities it may be supplied, is already beginning to pave the way for the more general employment of steel.

Standing apart as an almost new and independent style of architecture, we may now see various and extensive buildings, with scarcely any masonry whatever attached to them. In many cases where masonry is employed, it manifestly holds only a subordinate relation to the more important features of the structure. Iron is, moreover, beginning to be very largely used in general and household architecture. The new Pimlico Wheel Works, for example, which have been erected upon the site of the old works, lately destroyed by fire, are almost entirely constructed of iron.

In smaller buildings and in dwelling-houses the adoption of iron is becoming general at those parts where heavy weights rest or great lateral strain has to be borne. It has been ascertained by a series of carefully made experiments that a sudden strain upon a bar of wrought-iron shows a loss of strength in the metal of 18·5 per cent. as compared with what it will endure under a gradual strain. A still more curious result has attended some similar experiments made upon cast-iron. It is yet, in all probability, a very prevalent opinion that cast-iron for some purposes may be more suitable on account of its being supposed to possess greater rigidity, although it may be known not to possess the ultimate strength of wrought-iron. This is, however, proved to have been a fallacy. The relative compressibility of cast and wrought iron under the same load shows that cast-iron may be compressed at this uniform load to double the extent of wrought-iron. The numerous and important improvements which have lately been made, however, in the mixing and manufacture of iron, and in its ready assumption of the properties of steel, are opening the way to a new and untrodden industry. Experiments have lately been made at Mr. Kirkaldy's testing works in Southwark, upon some samples of steel which Messrs. Ordish and Le Feuvre designed to use in some portions of the new suspension-bridge they are erecting over the Moldau in Prague. The results of these experiments have proved in every way satisfactory.

This undertaking, in connexion with the employment of the harder and lighter metals, will be regarded with much interest, as it affords the first example of any work of magnitude in which steel will have been actually employed. Its application to the superstructure of large roofs and its more extended use in the wider fields of engineering may be expected speedily to follow.

The metal upon which these experiments were made is termed Howell's homogeneous metal. Its elasticity is such that a bar only 10 ft. long, elongated 8½ in., and bore the extraordinary strain of 44 tons per square inch, allowing the safest working strain ever yet attained, of 26 tons per square inch, at which strain there was no permanent set. Wrought-iron is known to be almost entirely infusible, but when cut into scraps and put in a crucible along with 5 or 6 ounces of charcoal to every 40 lb. of metal, it will fuse at a high heat and become exceedingly tough and strong. This is the process by which Shortridge, Howell, & Co.'s homogeneous metal is made. In comparison with experiments on wrought-iron, it resulted that weight for weight homo-metal possesses more than double the strength and tenacity of the best wrought-iron, and there is little doubt, therefore, that it will eventually be very largely employed.

Among the more extraordinary innovations upon modern styles of engineering and architecture, as more especially applied to the construction of roofs, is that of the new Midland Railway Terminus about to be erected in St. Pancras, of which we have given some particulars. With the exception of the construction of the vaults, which will alone form a stupendous work in masonry, the whole of the station and roof will be of iron. The length of the station will be 690 ft., with a clear span in width of 240 ft. The side walls will play no part whatever in sustaining the roof, and are built outside it, hiding that portion of the iron work which shows just the commencement of the spring of the iron main ribs from the ground. With the exception, perhaps, of the new Cannon-street Station, there is an ever-present inherent danger in iron arched roofs resting on side walls, for unless the walls are made exceedingly costly and massive, as in the case of the Cannon-street Station, they are likely to affect the stability and set of the superstructure. It is, therefore, more judicious to construct them altogether of iron, where this can be economically carried out without impairing the efficiency of the design. In the case of the roof of the Dublin Exhibition, a novel and ingenious design was effected to divert the lateral

rust of the roof, which superseded the use of e vertical cross-bracing, as introduced to stay e walls of the International Exhibition in 1862. The thrust of the arched roof is conveyed by e buttresses to the second-tier columns, which e strongly secured to the small arched-roof lders, and connected at the bottom to the first-r columns. This arrangement causes a trans-rse strain on the columns, to resist which they e made thicker on the sides exposed to this rain.

The first-tier columns are again firmly con-ected to the transverse bracket-girders at the p, and to girders under the floor-level. A roper examination of the iron portion of the ublin Exhibition would offer an important udy to those engaged in iron architecture, as ost of the engineering details are of an altoge-er new and interesting character.

ENNA IN THE NINETEENTH CENTURY.

THERE is perhaps not one branch of the eral arts and sciences cultivated in the *Kaiser-dt an der Wien*, as the Viennese call the mperial city on the Danube," that has made eater advances during the last twenty years an architecture. The political revolution of 48 was accompanied by a social one. After e conclusion of the thirty years' war the ococo style, as practised by Martinelli, Fischer n Erlach, and Lucas Hildebrandt, became a vourite, as is visible from the palaces, churches, d other public buildings of that period still tant. At the beginning of this century the yle of architecture reverted to the classical, of hich the great protagonist was Peter von obili, at that time president of the Imperial cademy of Arts and Court Architect, who signed and executed the severe Burg-Thor, 's Temple of Theseus in the Volksgarten (an act copy of its prototype at Athens), and other ildings of that class. His successor inclined ore to the Jesuitical style, but it was the great litical storm of 1848 that has had the largest fluence on the taste of the Viennese for archi-ctural beauty. This was first displayed by spending the building of the Lerchenfeld urch and then completing it in the Roman-que style. In consequence of the new politi-d organisation of the monarchy fresh life and gour were instilled into the public mind at ienna, requiring more air and space for their ll development, and this was most easily ob-ined by removing the old and useless ram-rts and bastions surrounding the inner city, id filling up the moat that had not been filled ith water since the last wars with Turkey and e threatened siege of Vienna by barbarous siatic hordes. When that danger passed vay, the moat was cultivated as garden-round and planted with stately rows of poplars at in course of time had reared their heads r above the level of the glacis, and were nearly on a line of height with the lofty bastions at frowned over them.

By these means alone was it possible to gain ch a noble area as the eighteen millions of uare feet (equal to about 414 English acres), id that, too, in the very centre of the city, hich is surrounded by its thirty-four extensive burbs, that have been made available for ilding purposes. A new quarter has sprung , containing many spacious streets, the prin-pal one of which is the Ring-strasse, with a ngth of 13,000 ft., and a uniform width of 0 ft. We directed attention to this movement, id gave some illustrations of the buildings in r papers "Going Along" (vol. xxii.).* As e land was all Government property, the mperor has, no doubt, made a successful specu-tion, for the ground has been sold at enormous ices; but, at the same time, it must be con-ssed that his Majesty has behaved very libe-lly, having given away to the municipality, id other corporate bodies, sites for a new hôtel--ville, the Horticultural Society's Gardens, e Musical Society's Concert-hall, the Artists' lub-house, and an area of 295,000 square feet r public gardens and a park. This was in 858, and the impetus thus given to building eedily extended to all other parts of the etropolis, where new buildings, both public and ivate, have sprung up in all directions, showing e vigour of private enterprise, and exhibiting eecimens of almost every style of architecture, though that of the Renaissance greatly pre-dominates, being adapted for modern private residences of the wealthy and even middling classes of society.

Among the many new buildings that deserve special notice may be mentioned the votive church of St. Saviour, close to the Schotten-Thor, erected as a memorial of gratitude for the escape of the present emperor from the dagger of an assassin, from the designs of the architect Ferstel, and of which we have given a view. It is now being roofed in, two millions of florins having been hitherto spent on the work. The two Gothic towers at the western end are to be carried up to a height of 300 ft. The parish church of the suburb of Weissgerber, was designed by Professor Friedrich Schmidt, and executed at the estimated cost of 450,000 florins (about 45,000*l.*) raised partly by voluntary donations, and partly from the funds of the congregation. The tower, when completed, will be 240 ft. high. Opposite the new Mercantile Academy, in the Ringstrasse, a splendid building is being erected for the conservatory of Music, from the designs of Theophilus Hansen, a Danish architect, formerly in the Greek service, and the builder of the Observatory and other public edifices at Athens. It contains a music-hall, covering an area of 2,000 square feet, surrounded by galleries, the whole capable of affording sitting accommodation for 2,000 persons. Besides this, there is a smaller concert-room, for six hundred persons, a suite of ball-rooms, localities for the directors and officials, and twelve school-rooms for the musical pupils. This building, when completed, will have cost 300,000 florins, or about 30,000*l.* The Artists' Club-house, now in course of construction, promises to show much taste and elegance. It was designed by Friedrich Stache, the president of the Society of Architects at Vienna, and the site, as above stated, was a present from the Emperor. Prizes having been offered for the best designs, the chief premium was awarded to Herr Stache, and the execution of the works entrusted to his care. The new terminus of the Northern Railway Company is a spacious and imposing building, covering an area of 100,000 square feet. The chief platform for passengers is 444 ft. long and 102 ft. wide, flanked at each corner by square towers. It was commenced in 1859, from the designs of the company's engineer-in-chief, Herr Ehrenhaus, and has been lately opened, the works having been executed by F. Hoffmann. Great ingenuity is displayed in the construction of the iron arching of the roof over the great platform. We cannot conclude this description without noticing a noble edifice in the new city park, called the Kur-Salon, and devoted, as the name implies, to the sale of medicinal waters. It is a striking object and cannot fail to attract the attention of strangers: it is built in the Renaissance style. It was designed by Johannes Garben and executed by him at the expense of the municipality, the estimated cost being 310,000 florins, or about 31,000*l.* In the central building is a magnificent saloon, containing an area of 3,600 square feet, whilst one of the wings is fitted up as a suite of refreshment-rooms and the other for the sale of mineral waters, which are always in great request at Vienna, and extensively consumed by numerous real and imaginary invalids.

* See also notice of the new Boulevards, in vol. xxiii., p. 411.

EXCAVATIONS AT ARDEA.

AMONG the most singular of social, not to say antiquarian, curiosities are those desolate sites of once renowned and classic cities on the almost uninhabited sea-coast, presenting scenery so characteristic in its mournful monotony, as that once known as Latium Maritimum, now as the Roman Maremma. To those for whom sympathies with humanity transcend all interests of the *dilettante* class, the indescribable wretchedness and hopeless stagnation found in the poor populations here bound by circumstance to the soil, are realities to leave deeper impression than the monuments of nations, more melancholy than records of vanished greatness; and it may be well doubted whether in all Christendom (at least in Western Europe) can exist at the present day anything analogous to these examples of living decay in the Papal States. Yet in such gloomy pictures there is also the brighter side presented by the simple manners, patient endurance under misery, and, we believe, generally innocent life of these impoverished peasant families, to whom the lines have fallen amidst historic ruins or things of classic association. A visit to Ardea, the capital of the Rutuli, ancient before the Rome of Romulus had birth, and invested with a light of poetic memories through the genius of Virgil, is not one of the least instructive or least worth the tourist's time. Among pleasant excursions to historic spots now facilitated by the railway lines that pass below the Alban Hills, through the country of the Volsci and Hernicians, a ride of twelve miles from Albano takes us across a wide Campagna extent of low downs and plateau-surfaces that gradually subside to the level of the sea, through a desolate landscape, of character beyond description melancholy, suggesting the idea of some mysterious and irretrievable blight, against which no civilization can struggle. But that monotony is varied here and there by the old rambling *tenuta* (farm) with high grey walls, buttresses, and sometimes a tower shooting up from the heavy quadrangular pile, or by the more conspicuous square tower of Mediæval antiquity, long desolate, in some examples of stupendous height, and strikingly conspicuous amid the level waste or low undulating region, like motionless wrecks on a frozen sea. This landscape becomes more cheerful and picturesquely broken up as we advance south-westward; long narrow glens with flat meadows shut in by low rocky boundaries, and scattered clusters of ilex-trees, beginning to present contrasts pleasing after that dreary extent previously traversed.

From a distance of five or six miles Ardea becomes visible, like a cluster of old farms and granaries scattered without plan along a steeply-elevated plateau. At last, when within a short distance, this city's forlorn site is presented to view with singular and striking effect. Along the summit of a precipice that rises abrupt as a line of fortifications, appear a few remnants of antique walls in the massive masonry, with quadrate and regular stone-work, that reminds of the Roman kingly period, interspersed with some still available, though dilapidated, Mediæval defences; above these, a few ponderous piles of dusky grey building and some miserable cottages; central, where an indenture opens like an artificial breach in the rock fortifications, an arched gateway of the same ancient stonework, apparently thrown up by modern hands with inferior skill. Passing through this, we find ourselves, not in a street, but at the end of a narrow ravine sloping upwards between rocks.

Not a human creature was visible, not a sound heard to indicate life at the moment we passed into this silent circuit. Presently, however, we obtained the guidance of a peasant, who looked in about the last stage of *malaria* fever, yet with a good expression in his sallow, wasted face; in his manners pleasing, as well as eager to oblige. Led by him, we first visited the church, a building of some good external features, with an apse and cornice-work of terra-cotta, in style like the twelfth-century work in Roman architecture; the interior less remarkable, and evidently deprived of one aisle, that, if not once existing, must have been projected. The most conspicuous mansion is a grim and spectral-looking villa of the Cesarini princes, now seldom inhabited even by servants, approached by a bridge across low arches, and on the other side fenced by those Mediæval battlements so conspicuous above the rocks. Even here, however, is found a little establishment pretending to be of the *café* species, and a strange sort of den serving as an *osteria*. We passed over the rocks that supply the place of pavement, descending into the ravine at the eastern end of the isolated height, once the acropolis, and now alone occupied by the modern Ardea. Here was presented a wildly lovely scene, amid which rose in dark decay the principal remains of the antique city, consisting of lofty walls in regularly hewn stone, the reddish brown lithoid tufa, in part evidently rebuilt with their original material, but with far less regularity; elsewhere not less evidently, the unshattered relics of a nationality and metropolis more ancient than Rome. Out of an angle of these fortifications advances a ruinous square tower, in similar stonework, but built up in style very inferior,—no doubt a Mediæval adjunct. Beneath runs a wild pathway, winding among low rocks and thickets, and amid such a scene the effect of those antiquities is romantic, with a touch of solemnity.

Hearing from our guide that excavations had at intervals been undertaken by Prince Cesarini, though abandoned of late years, we set out to visit what he described as the chief object thus brought to light. We walked at least a mile;

first, along a road leading to Porto d'Angio, through scenery possessing a certain charm, a fair wildness, with meadows and copses, and glimpses of the sea through the scattered forest-growth along an uninhabited level coast. Leaving the road, to wind round the grassy slopes of a hill, we presently reached the entrance of a tomb, quadrate and so low as to require much stooping, central to a front hewn in the living rock, with some attempt at architectural forms. Passing in, we found a chamber not too extensive to be throughout illumined by the daylight admitted by that narrow doorway, with a flattened arch for ceiling, and walls covered with stucco still perfect; and, along one side, two platforms large enough for bodies, where had been discovered two perfect skeletons; besides which, when the tomb was first opened, were found two marble sarcophagi, with their covers perfect, bearing inscriptions, but no sculptures, on their exterior — now in possession of the Cesarini family, and, alike with the skeletons, removed from this sepulchre,—a spoliation for the visitor to regret. Two much smaller chambers communicate with this outer one,—the narrower of these parallel to it; the other entered by a low ingress at one end. In these, also, are similar platforms for funereal use; and in each interior we see some few remnants of red and blue colour, forming a simple species of border (in one part of the guilloche style, designed in blue) on the stucco. In the outer chamber those marble sarcophagi were placed on the ground, not, like the skeletons, on platforms; and these two modes of entombment must be referred to different epochs.

As to arrangement for the deposit of the dead, these sepulchres resemble the Etruscan; but are much inferior in their ornamental details, nor less so in the formation, alike fashioned, according to both systems, in rock instead of masonry. At different other points, on the same hill-side, we saw where excavation had been just initiated, but soon discontinued as fruitless—nothing, indeed, bearing proof that such projects had been pursued persistingly, or on any large scale; yet the report of our guide, that in tilling the ground he himself and other labourers were constantly finding remnants of construction, showed that no very great efforts would be requisite for securing some result for the excavator's reward.

We are told by Gell, that it was in preparing one of the maps for his valuable work, "Topography of Rome and its Vicinity," that was first verified the extent of the ancient Ardea, at least six times that of the elevated ground over which is strewn the modern village, this being, in fact, the site of the citadel alone, whose principal buildings probably stood in the place of the Cesarini mansion, on the most prominent height, commanding the country towards the sea. Besides the objects above noticed, the sole recognisable features of antiquity here are not, indeed, constructions, but traces of man's work, in adapting the ground to the purposes of a fortified place. The narrow valley that runs round the now-inhabited height forms a natural moat, as the rocky walls rising from this hollow exactly represent a system of strategic defences. Another high table-land, supported on a rocky cincture more extensive than that of the citadel, runs beyond this valley eastward; and under its precipices are some portions of wall in the reticulated masonry well known as of the Roman Imperial period, this elevation being alike surrounded by the sinuous valley, here also serving as a moat. On the other side, towards the sea, is a similar mound, with a rocky cincture, less lofty, and overshadowed by trees, a most picturesque accessory to the scene; and here the rocks are cut into numerous caverns, like sepulchres, suggesting that this site may have been the acropolis, though, indeed, the frequency of like excavations on the hill-sides and along the rocky cincture beneath the citadel itself, leads to suppose that many were formed for other purposes. Some, the more spacious, we must infer to be quarries, from whose material the city was built. We had a study of social life before leaving Ardea, enjoyed in the *osteria* where we obtained refreshment,—home-made bread (no such thing as a public bakery being found here), eggs and cheese, pears and peaches, with palatable wine served to us, in a strange interior like a cavern, though veritably a spacious room lighted only from the doorway, with walls and rafters begrimed by smoke to one sooty tint, and a heap of stones under a high gaping chimney at one corner, available as a fireplace. But not even here was wanting the Madonna picture, painted in tawdry red and yellow on the smoked wall-surface, with its little lamp (not, however, burning) before the figure, like a doll wearing a crown. Our guide and the man who had accompanied us from Albano, with a few other wild-looking but handsome peasants, who ate and drank without speaking, were regaling themselves in the same room; our landlady and waiter being a pretty, smiling woman, with braided hair like a raven's wing, and large gold earrings; evidently, indeed, the life of the establishment, though she had an old husband, who sat silently by the fire. Ardea's present population is, at its maximum (but this we were told in a rather hesitating tone), about 200, but much less during the summer, when *malaria* is the scourge of this coast. Inquiring as to the heat felt here compared with that of Rome, we were answered in a tone that ridiculed the idea of any analogy between two such climates: Rome had the cool summer; *here* only did people know what was heat; and on many a day of that season none, we were told, could go abroad. It surprised us to hear of the spiritual destitution of a place only twenty-two miles from Rome;—to be told that no clergy reside among this poor flock, whose conditions assuredly call for whatever influences from a higher class might enlighten or elevate above the dreary level of work-day existence in such circumstances.

This now indeed fallen city is said to owe its origin to an Argive colony, descended from Danaë ("Æneid," vii., 408). Strabo gives to Ardea the epithet "ancient," and Virgil speaks "Aurunceque manus, Rutuli, veteresque Sicani." It may be inferred that its people, the Arunci and Sicani, were nearly connected, perhaps tribes descended from the same stock. It is in the pages of the great epic poet, rather than in those of any verified history, that Ardea stands out, vivid and potent, before the mind's eye, as capital of the nearest hostile prince, the rival of Æneas in love and warfare. Till the time of Tarquinus Superbus, it seems to have continued a town of some importance, and was besieged by that king, from motives of mere avarice (Liv., l. 1, 58); on occasion of which Roman onset, or rather encampment, during the blockade before her walls, it was that the question arose as to the virtue of their wives between Sextus and Collatinus, with such fatal result in the outrage suffered by Lucretia, and the revolution terminating in the overthrow of kingly government at Rome. Under that city's supreme dominion, Ardea seems to have submitted with little resistance; and so soon did her decline begin, that even in the sixty-seventh year of the Republic, U.C. 312, a colony was sent hither from Rome to repeople the town, already becoming deserted.

Juvenal (Sat. xii.) mentions the droves of elephants kept by the emperors for the spectacles of the amphitheatre, on the meadows near Ardea. Pliny also speaks of these animals (Nat. Hist., l. viii.); and notices the more interesting fact that some pictures were in good preservation, though more ancient than the foundation of Rome, in the Ardea of his time.

Another version of the legend of Ardea given by Dionysius, is that it was founded by one of the three sons of Ulysses and Circe, who gave to this town his own name; and Ovid (Metam. xiv.) adds the poetic fable of a bird springing from the ashes of the city burned down by Æneas, after the death of Turnus, to be known in Latin ornithology by this local name,—

"—— nomen quoque mansit in illa
Urbis: et ipsa suis deplangitur Ardea pennis."

In the year of Rome, 541, this town was one of the twelve colonies which protested disability to furnish the required supply of troops and money for the consuls; in punishment for which the Senate ordered that all those recalcitrant towns should be considered as no longer existing—a *tacita castigatio*, as Livy says, truly in old Roman style. We read in Frontinus, *de Coloniis*, that Hadrian made one of his benevolent attempts to infuse new life into this as into other decayed cities of the Roman *ager*—it seems with no permanent success; and thenceforth began the decline in which Ardea gradually passed away from the historic page. It is assumed by Nibby, that her present utter desolation is due to the incursions of Saracens on this coast, in the ninth and tenth centuries; besides also the influences ascribable to the *malaria* here most pernicious. Pliny mentions the principal temple of this city, dedicated to Juno Regina, and adorned with pictures by Ludius (l. xxxv. c. 3).

THE GAS SUPPLY OF PARIS.

AT the Society of Arts, on Wednesday evening last, Mr. George R. Burnell read a paper on this subject, Mr. Bazalgette presiding. We print the more salient portions of it. Amongst the wonderful adaptations of physical science to the daily usages of life, said Mr. Burnell, there is hardly one which is calculated to excite greater attention than the application of carburetted hydrogen gas to the purposes of illumination. It is essentially a discovery of modern times; for there must be many here present who can recollect the "darkness visible" that enshrouded London streets in the days when oil-lamps were in vogue; but we get so soon accustomed to the enjoyment of luxuries, that very often the first steps that attend their acquisition are forgotten, and we take them as matters of course. Somewhat of this kind of reasoning has been adopted with respect to the use of gas; and the public are inclined to expect that the manufacturers of this article, which has now become almost a necessity of life, should give them the benefit of their experience, without taking into account the cost they must have incurred in acquiring it. The discussions that took place on the occasion of granting the new concession for lighting the city of Paris, and the movement that is at present going on in our own metropolis, seem to have been marked with this spirit; and though the Paris Gas Company has succeeded in obtaining what may be considered as favourable terms in return for the supply of gas, yet the inhabitants of London evidently are disposed to expect that the companies should supply them at such prices as would hardly leave them a fair profit. It therefore struck me that a statement of the conditions under which the Gas Company of Paris have contracted to supply the town with that article of consumption might be of interest, if only to enable the engineer to compare the systems adopted in the two countries with respect to public works; the more especially as it would appear that considerable misapprehension exists with respect to the rights and privileges of our neighbours in this particular matter.

The formation of the one gigantic monopoly that has the privilege of lighting Paris took place in this manner. There had been several companies, that were formed for the supply of the city, which had, from the period of their first establishment, enjoyed a species of districting arrangement, as we should call it, and they agreed to merge their separate capitals in the six companies that had treated with the municipality in the month of December, 1846. In the year 1852, when the empire was first established, the Government thought it to be its interest to encourage the formation of great companies who should possess the means of employing large numbers of workmen, and give rise to the profitable investment of capital. The hygienic effect of the establishments for the manufacture of gas in the interior of the city also weighed with the Government; and they were desirous that at least three or four of these should be removed from their original positions in the centre of the town. Under these circumstances it was suggested to the shareholders of the six companies that their union would be received with pleasure; and then that their application for the prolongation of their concession, that expired at the close of 1863, might be entertained upon conditions that were to be the subject of future deliberation. The consequence of this proceeding on the part of the Government may be described, in substance, to have been that the concession for lighting Paris was granted to the united companies on these terms. The three establishments in the interior of Paris, at the Avenue Trudaine, the Rue du Faubourg Poissonnière, and the Rue de la Tour du Temple, were to be suppressed, and their manufacture was in future to be conducted in the new gas station that was to be erected at La Villette; the canalization of the interior of Paris (understanding by that term the lines of mains and distributing pipes) were to be altered, and made so as to correspond with the probable future demand upon them; the company agreed to pay the town the sum of 8,000*l.* for the privilege of laying their pipes in the public ways; also it agreed to pay the town two centimes a mètre cube, or about 5½d. per 1,000 cubic feet, as a compensation for the *octroi* dues; it moreover agreed to share the profits of the working above 10 per cent. with the municipality of the city of Paris after the expiration of the first sixteen years.

The material and plant that were employed,

hd all the land and buildings devoted to the anufacture, were to remain the property of the ompany at the expiration of the lease, which as fixed at fifty years from the 1st of January, 356, and the company bound itself, in the meanme, to alter the position of their mains, &c., henever the town might require to execute orks for the water supply, sewerage, &c.; so r, indeed, has the lease foreseen the probaility of future operations of this nature, that it rovides for the company's removing their pipes nto any subways that the town may construct, ithout thereby giving rise to any claim for ompensation. For these terms the company grees to supply gas for the public lighting at he following prices:—There are three sets of amps, that are respectively 2¼ in. wide by ¼ in. high, which is paid per hour 0·015 f.; ⅜ in. wide by 1¼ in. high, which is paid per our 0·021 f.; and 3 5/16 in. wide by 1 1/16 in. high, hich is paid per hour 0·030 f. When the gas s sold to the town by mètre, it is paid for at the ate of 0·15 f. the mètre cube, or about 3s. 4½d. per 000 cubic feet; the company is obliged to fix, aint, and repair the lamp-posts and candelabra, at the town furnishes them. For private conamption the company was entitled to charge r the gas supplied at the rate of 0·30 f. per ètre cube, or about 6s. 8¾d. the 1,000 cubic eet, upon agreement of three months' date, rminable at the option of either party; but the arties so receiving the gas cannot employ it ithout the production of the certificate of the erson employed by the town to examine (and ho exercises the right of approving) the fittings hd other apparatus.

It was stipulated that if, during the period of fty years, for which this lease was granted, here should be discovered any new system of ighting, the gas company should be bound to ntroduce it, under conditions that were to be xed by the municipality; or the municipality eserved to itself the right of granting a fresh oncession for the new system of lighting, without being bound to compensate the company in ny way whatever. The quality of the gas is rovided to be such that a lamp of the first series entioned, which would consume 100 litres per our, should give a light equal to 0·77 of a carcel mp burning 42 grammes of rape oil in the our; for the lights of the second category, urning 140 litres an hour, the light is to be qual to 1·10 of that above given; and for the ights consuming 200 litres in the hour, it is rovided that they shall yield 1·72 of the light f a carcel lamp as described. It may be stated hat this standard corresponds very nearly with he English one, of what we should call seven-perm-candle gas.

To enable any one to appreciate the position hat the company occupies under this contract, it is necessary to observe that the coal used in Paris is mostly of Belgian and north of France (gigin; a small portion of cannel, or boghead, is ely introduced when the illuminating power of he gas is below the standard. The average ield of this coal is about, per hectolitre (accordng to the figures that were published by the ompany in the course of the discussion that ook place before the treaty was signed), gas, 2·94 mètres; large coke 31·11 kilogrammes; reeze, 12·07 kilogrammes; tar, 4·50 kilorammes; and ammoniacal liquor of the value of ·036 francs. The quantity of ammonia compounds that are present in the coal is considerable, and the company is obliged to exercise reat precaution in insuring the purification of he gas, in order to comply with the clause in heir treaty which provides that the means they doopt for that purpose should be the best that re known. Yet with all these drawbacks upon he commercial results of the operation, the Paris Gas Company has always paid a good divinand, and the last distribution of profits was at he rate of 19 per cent.; whilst the average ate appears to have been of about 16 per cent.: result that would cause great heart-burnings mith the municipal reformers and the political conomists of our own country, who will not allow any company to divide more than 10 per ent. The capital that is invested in the works consists of share capital 4,000,000 francs, and of onds of the company about 20,000,000 francs; , in all, about 4,160,000*l.*, for a total population of 1,600,000 persons, which would make the rate at which the gas service of Paris is performed about 2*l.* 10s. per head of the inhabitants. his calculation, however, is somewhat in excess f the facts of the case, as the gas company has ately undertaken to supply some of the external illages of the Department of the Seine, such as Romainville, Puteaux, Charville, St. Denis, Maisons Alfort, &c., which form the subject of a separate treaty; but the above calculation may be taken as representing the proportionate price that is incurred in this service. It may be added, that the price that is agreed to be paid by the communes beyond Paris for the lighting is, for the public lamps, 20 centimes per mètre cube, or about 4s. 3½d. per 1,000 ft. c.; for the private lighting, 40 centimes per mètre cube, or 8s. 7d. per 1,000; upon a descending scale that may reach, finally, 6s. 8¾d. per 1,000, in proportion to the consumption. The high price that is agreed to be paid for this service may be explained by the length of main that is unproductive to the company in these cases; but it certainly seems to be exorbitant, when the freedom of the gas from *octroi* dues and other municipal taxes is taken into account.

It may be remarked that the system of regarding the supply of the gas consumed in Paris as a municipal service, has entailed upon the private consumers the necessity of paying a higher price for the gas that they consume than they would naturally do if the service were left to be regulated by the ordinary rules of trade. The municipality, in the exercise of its rights over the surface of the roadway in fact, has only consented to grant the monopoly of the gas supply to the company on the condition of their supplying the public lamps at reduced rates, and of sharing in the profits of the concern after it has been established such a time as is sufficient to relieve it from any chance of failure. It is true that, in this manner, the town authorities will be enabled to devote a portion of the profits arising from the sale of gas to the relief of the other taxation of the town; but this is only an indirect way of making the consumers of gas pay for the water, paving, or other municipal services; and it is objectionable, as the control of those services can never be efficiently performed so long as the total expenses of them are not distinctly brought under discussion.

At present there may be found a great amount of the ammonia compounds in the gas, and it is rather deficient in the illuminating power when compared with the London gas, but this may be owing to the quality of the coal that is used. The effect of the participation of the town in the profits of the company must, however, be such as to superinduce a carelessness on the part of the *employés* who are charged with the verification of the quality of the gas, and of the means adopted for ascertaining the quantities supplied. There is now apparently a great deal of anxiety displayed by the town authorities about the illuminating power and the purity of the gas, for they have organised a complete system of control and superintendence of both the public and private lighting, that appears, at first sight, to be most efficient. There are twenty-one persons who are constantly employed in testing the gas, and who are paid at salaries varying from 200*l.* a-year to 480*l.*, the total sum voted for the wages of these people for the next year being about 1,060*l.*: there are also 130 inspectors of the public lighting, at salaries varying from 200*l.* a-year to 480*l.*, who figure in the town budget for a total sum of 10,480*l.*; and thirty-two inspectors of private lighting, who are charged with the verification of the meters: these are paid salaries varying from 240*l.* to 400*l.* a year, and they figure in the budget for 2,600*l.* The superintendence of this service is, theoretically, very well arranged; it remains to be seen whether it will really operate for the protection of the inhabitants, when the town has a direct interest in the successful results of the company, which it will have when the period of sixteen years, during which the company has the enjoyment of all it can make, shall have expired.

There are in the neighbourhood of Paris, and within the lines of the fortifications, ten gas stations, of different capacities, but all subordinate to the great station of the Villette. These stations are—1. La Villette; 2. Les Ternes; 3. Passy; 4. Vaugirard; 5. Ivry; 6. Chartronne; 7. Belleville; and the three that are situated in the surrounding communes of St. Denis, Boulogne, and Charenton. As was said, the station of La Villette is the most important of these; it suffices for the manufacture of one-third of the gas that is consumed in Paris; the stations of Passy and Vaugirard supply together almost another third; and the other stations contribute about equally to the total consumption. The distribution of the gas from the reservoirs takes place under the pressure of rather more than 1⅛ of an inch during the day-time, and in the night-time of 3⅜ to 3⅝ of an inch. It may be that this pressure may be required to overcome the difference of level of the factory, which is somewhat above the points of delivery in Paris; or it may be accounted for by the small dimensions of the distributing means. The efforts of the company are, however, directed to the remedying this cause of loss, which must always, to a certain extent, act to prevent the due proportion between the mains of distribution and the quantity of gas they would discharge in a given period of time being observed, owing to the interest the company have to continue their working through the pipes that they are bound to yield to the town at the expiration of their lease. By the peculiar arrangements adopted, the Paris Gas Company has reduced the loss that ensues from the excessive pressure that accompanies the distribution of the gas to a minimum. We shall have occasion to revert to this subject; but it may be as well to state that the loss of the gas registered by the station meters, both in private consumption and in public lighting, was, in the year 1864, only 10 per cent.—a most insignificant proportion, if the quantity that is lost by the condensation in the mains, the amount that is not carried to account by the private consumers, and the thousand causes of loss that the gas must be exposed to, are taken into account. The average loss of the London gas companies is at least from 15 to 25 per cent. of the quantity they register at the stations.

It is calculated that the total yield of La Villette station is about equal to five millions of cubic feet per day when the works are in full operation; and the distribution of this quantity takes place in the busiest and most bustling part of the town. The other works do not present anything very particular, excepting perhaps the station at Vaugirard, which is specially reserved as an experimental station, and where the company have been at work for the last three years upon Mr. Siemens' system of economising the heat that is employed to produce the distillation of the coal; hitherto without success, it must be observed. The Paris Gas Company, by their monopoly of the supply, are enabled thus to "try all things" that are proposed in the matter of lighting with the best means and appliances that can be disposed of.

The distribution of gas takes place through mains that are of as large diameter as 3 5/16 ft., exactly one mètre; they are all wrought-iron, upon Chameroy's patent, and in that respect the Paris supply differs from that of London, which, in consequence of Mr. A. Taylor's Act, is compelled to receive its gas supply through cast-iron mains. The Chameroy pipes are put together in lengths of 15 or 16 feet; the joints are riveted and brazed; the whole is then coated with a preserving coat of bitumen, and the joints are made with a male screw on one end, and a thickening out, formed on a mandril, to receive a female screw on the other, which is then packed with gasket and white-lead. The opinions of English engineers are unfavourable to this style of pipe; but the experience of the Gas Company of Paris for the last twenty-seven years seems to be decisive as to its merits in all cases where the soil is of an alkaline nature, and is not charged with water. I was informed by M. Camus, the sub-engineer of the works, who is also an engineer of the Ponts-et-Chaussées, that he had ascertained the wear and tear of 1,000 mètres of wrought and cast iron mains of the same diameter, respectively, in the course of the year 1861, and he found that they presented the following results. He found that the cast-iron showed that the proportion of the leakage that was owing to accidental breakage in the pipes was 1·000, whilst that quantity was, for the wrought-iron, 0·460. The proportion of loss through the use of the pipes by time or depreciation was, for cast-iron, 0·353; for wrought-iron, 0·198. The proportion of loss by shaking of joint was, for the cast-iron pipes, 1·77; for the wrought-iron, 0·520. There may be greater care and attention paid in Paris to the repairs and maintenance of the pipes; but the results of the experiments tried in this case seem to indicate that the cause of the diminished loss upon the registered quantity of gas must be sought for in the use of these mains; and at the present day, when so much attention is forcedly turned to the question of the leakage of gas-pipes, on account of the construction of subways by the Metropolitan Board of Works, the subject acquires additional interest. The house distribution also takes place in Paris through lead service pipe, that must be another cause of diminished leakage; but the private consumer is at liberty to employ whatever system he may think proper after the

passage of the gas through the meter. From the report of the gas company to their shareholders last year, it appears that the total consumption of gas in Paris was about 3,567 millions of cubic feet, for a population that was estimated at 1,650,000; and the company had, in their prevision of an increased demand, increased their manufacturing powers to 4,141 millions. The length of pipes that were employed in the lighting of Paris was 546,861 mètres; that of the annexed zone, of 424,985 mètres; that of the banlieue and the surrounding district, 165,346. The number of public lights supplied by the company for the account of the municipality was 26,849; the number of private subscribers was 59,554, in the year 1863, the last for which I have been able to procure the returns. It may be added, that the lamps that are used for the lighting of the Boulevards are placed at distances of 25 mètres apart on the same line; in the Rue de Rivoli they are about 14 ft. apart; in the courtyard of the Louvre they are about 20 ft. apart; the burners being, in the majority of cases, at 10 ft. above the pavement. The lighting of Paris is, in fact, most brilliantly and lavishly executed, in the best quarters of the town at least; it leaves, however, much to be desired in the poorer portions, which are about as badly lighted as the analogous parts of London.

I have mentioned the desire that the public seem to have at present for the laying of the pipes in the subways that have been constructed by the Metropolitan Board of Works, and have hinted at the provisions that have been introduced into the treaty that prevails between the City of Paris and the gas company, with the object of facilitating the placing of the pipes in that manner. The treaty contains, indeed, a clause to the effect, "that the town reserves to itself the right to displace, and even to remove altogether, at the expense of the concessionnaires, and without any indemnity, the pipes every time that it may think the public interest may require it. If it should suit the municipal administration, during the continuance of the lease, to relieve the public ways of the excavations necessary for the laying of the gas-pipes, and to dispose the sewers so as to receive them, the concessionnaires shall be bound to remove their pipes to the positions prepared for them, at their own expense, upon all the points where the city shall have executed the works for this purpose." Yet with this precaution and this right, the city of Paris does not think of calling upon the gas company to remove their pipes; nay, the water-pipes are in Paris carried into the sewers, which are there rather subways than simply sewers, and the engineers of the city most energetically oppose the introduction of the gas-pipes into them. Experience has shown that there are fatal causes at work to produce the explosion of the escaped gas in these cases, which all the care of the engineers cannot guard against. There have been three accidents, as M. Belgrand informed me, in the gallery of the Rue des Martyrs; there have been two accidents in the court-yard of the Louvre; and the accident that took place last year, the consequences of which I myself saw, on the bridge of Austerlitz, was a fatal commentary upon the danger of the system of laying the gas-pipes in subways. In this case the pipes were carried over the haunches of the bridge in a gallery that had an entrance at either end, that served as a means of ventilation, and it had a means of escape in the middle; the gas was shut off at both ends, and the quantity there was in the pipes allowed to burn off; yet an explosive mixture was formed, and it was set on fire, probably by a workman throwing down a match. Fortunately this occurred in the early morning, and the few people that were passing the bridge were attracted to the side where they could witness the passage of a steamer that happened to be passing; there were consequently no passers-by injured, but two workmen were killed, and several others were carried off to the hospital; the whole length of the pavement of the bridge was blown up for the length of 180 mètres, or 200 mètres, and about 12,000 francs worth of damage done to the bridge. M. Belgrand was, in fact, quite borne out in his opinion, that "in no city where there was anything like a regard for human life, would the notion of carrying the gas-pipes in a covered way be for an instant tolerated." He had, it must be observed, more than eleven years' experience in the Paris subways, and yet, with all the advantage of the most careful superintendence by the agents of the Ponts-et-Chaussées, and the effect of the French law of compensation for accidents, to enforce the observance of the necessary precautions, he did not scruple to come over here to London to give evidence against the scheme of the Metropolitan Board, that is again brought before the public with so much persistency. The fact is, that without a regular system of ventilation, that would entail an enormous outlay, there cannot be any safety in the system of subways as applied to gas-pipes; and the Metropolitan Board do not seem to have contemplated the execution of even the smallest precaution for this purpose.

The Paris Gas Company is managed, as all the important operations of that country of a similar nature are, upon the strictest principles of discipline, order, and superintendence. The administration is composed of a certain number of directors, who are chosen from the body of the shareholders, generally speaking from amongst the original proprietors in the various gas companies that were amalgamated together, and they are assisted in the management by M. Gayffier, ingénieur-en-chef des Ponts-et-Chaussées, and M. Camus, ingénieur-ordinaire of that body, who have under their orders a numerous staff of engineers, chemists, practical men, and clerks, that would frighten any English board of management. Thus the expenses of the salaries to the various people employed in the factory, in the maintenance and laying of the mains, and in the office of the company, was not less than about 88,000*l.* in the course of the year 1863; but at this charge the service is performed with a degree of perfection that we in England have no conception of. The cost of every detail of the manufactory is known to the last centime; the waste that attends the operations of the London companies is unknown; the accounts are kept in the most elaborate manner, and the gas company provide for their own servants with a liberality that we in England have no example of. The result of the system is, that in Paris the gasworks are managed at about 58 per cent. of the total receipts, which may be accounted for by the fact of the great success of the speculation that the directors manage, and by their having no inducement to introduce any great economy in their working in consequence of the participation of the town in the profits of their concern after a certain time. There is, indeed, every inducement for the directors to indulge in expense in the management; none to induce them to save; and as the city of Paris has also a direct interest in knowing the cost of every detail of the fabrication of gas, it is questionable whether at any time the *frais d'administration*, or the office expenses, will be much decreased. This is certain, that the Paris Gas Company is managed with consummate skill; and though we in England would do very unwisely, as I think, to adopt the system that prevails in the neighbouring capital with regard to the supply of gas—because it is founded upon principles of political economy which are, I think, wrong, and it would involve an interference with our private habits, which I think would be intolerable,—yet there are many things that seem to be well deserving our study, and our imitation, in the manner the Paris Gas Company carries out its contract. The system at Paris is, in fact, designed for the atmosphere of France; it would fail if introduced here, where "every man does what he likes in his own eyes."

At the close of the paper a discussion ensued. We give a report of it under another heading.

GAS PIPES AND SUBWAYS.

At the termination of the paper on the Supply of Gas to Paris,—

Mr. Godwin said they must be much obliged to Mr. Barnell for his admirable paper. Some important facts had been brought before them in a very interesting manner, but he was not able himself to agree with that gentleman in what appeared to be his leading object in the paper, viz., that it should make us more satisfied with what was done for us in England. It was not likely that Englishmen would put up with such a preposterous arrangement as was made for the inhabitants of Paris. The notion of tying the inhabitants down for fifty years to take this gas at 6s. 8½d. per 1,000 ft. (with allowances and deductions), notwithstanding any inventions and arrangements for cheapening it that might arise, seemed perfectly ridiculous. It was true if any new mode of lighting were introduced, the municipality could call upon the gas company to put it into practice, or could do so themselves without making compensation. After all, however, the people of Paris at that moment paid very little more for their light than in London. He was assured, on the best evidence, that the light there was much superior; in other words, that a certain number of cubic feet of gas in Paris gave more light than the same number of feet of the gas of many of the London companies, who, even at the present day, supplied an article that was very far from satisfactory. It was true the municipality of Paris partook of an advantage to the extent of 5½d. per 1,000 ft. and divided the profits beyond 10 per cent. after sixteen years; but thus they had an interest in keeping up this price. It was not likely, however, that we should permit such an arrangement; and yet we were, perhaps, not much better off with our arrangement than the Paris people. It occurred to him some years ago to initiate a movement against the high price charged by the gas companies in England, and against their management. It went on for a considerable time and was taken up by others, but it brought him nothing but personal abuse, and even such an instance as a man holding a large number of gas shares, at whose house he was visiting, putting a pistol to his head and saying if it were not for the consequences he would blow his brains out, because the course Mr. Godwin had been taking was likely to ruin him and his family. A few years after, that very person derived 25 per cent. more from his shares than he did when that movement began. The gas companies took the usual course of opposing improvements and keeping up the price, but they were forced into a movement which damaged some of the old companies, and this would be the case again if they persisted in their opposition to the gas-pipes being laid in the subways formed for them. He regarded it as idle to say that the escape of gas could not be guarded against. They were told that the escape from the mains was still very great, as was manifest from the state of the soil round the joint of an old gas-pipe; the loss to the companies was great;—the damage to health would be great, by-the-bye;—and in order that they might go on laying down pipes with bad joints and other careless arrangements, they brought forward the evidence of one French engineer to prove that explosions were a necessary consequence of pipes being laid in subways. In the case of Nottingham the system had been carried out without damage, and he was satisfied that this plan was a perfectly practicable one, and it would be a disgrace to the companies if they persisted in opposing its adoption. He spoke from long and careful consideration of the subject. In factories he had seen as much as half a mile of pipes of iron and of softer metal running through the different rooms, but there was no escape of gas, because the joints were properly made. He was satisfied, if the gas mains were laid in the subways, and a proper system of ventilation provided, the plan could be adopted. At present the public were subject to the perpetual annoyance of disturbances of the streets; for example, within three years Long-acre had been almost closed for traffic on five occasions during the laying of gas and water pipes and the construction of sewers. All that nuisance might be avoided by using the subway; and notwithstanding Mr. Barnell's eloquent endeavours, they must persist in pressing this matter on the attention of the gas companies; and if they would not afford the public redress, it was to be hoped the legislature would do so.

Mr. Thomas Hawksley entirely disagreed with the gentleman who had just addressed the meeting. He (Mr. Hawksley) had had thirty-five years' practical experience of this subject, having been the engineer of the Nottingham Gas Works, to which Mr. Godwin had alluded. He would tell them the real facts of the case. The subway at Nottingham was a little pitiful channel, of about 200 yards in length, and the gas-pipe which was laid on it was four inches in diameter, the street having very few houses, and, consequently, there were very few branches from that pipe. It so happened, also, that this little channel had a rise in the short length he had stated of very nearly 40 feet, and consequently it ensured for itself a tolerably good ventilation.* He need hardly say that these were circumstances which did not apply at all to such a place as the metropolis. It was remarkable how great were the apprehensions of the work-

* A paragraph from our correspondent at Nottingham in our present number will show the worth of this observation.

men of the gas company in reference to this subway, for they would not go into it unless the gas was shut off, and even then they used a safety-lamp. They were told that gas had been laid in subways, and that gas had been lighted in them without danger; but the danger was occasioned by the insidious escape of gas by leakage, and when this occurred in any confined space, an explosive compound was formed, which was liable to produce a most serious disaster, particularly in a subway, where the whole street might be bodily raised up, and the passers-by would run the risk of being injured, if not killed. A good deal had been said about the escape of gas in the streets, but he would assert that it did not reach to anything like 5 per cent.; in general it was much less. What was called leakage was simply the loss which a gas company sustained upon the gas, as ascertained, in the first place by the meter at the stations, and in the second by the money which the gas company received. A thousand and one things happened between the station meter and the receipt of the money by the company. In the first place, there was leakage at the works, which was very considerable. In the next place, there was the consumption of gas upon the premises, which was to be counted by millions of feet a year, and which very few gas companies took into account. Then the gas went into the mains, from which there was a very slight escape indeed, and that escape passed into the soil, where it was absorbed without danger. A great loss occurred from the service-pipes, much more than from the mains of the company. That was a loss which ought as far as possible to be prevented, and if gas companies generally used lead pipe instead of wrought-iron for the services, as was done in many cases with great success, they would not suffer in this way. The gas eventually went to the meter, which professed to measure the whole that passed through it, but it often did not, and any defect of the meter, whether wet or dry, was against the gas company. Then there was all the surreptitious and fraudulent consumption of gas, which in a great city was not inconsiderable. Then, further, there was the waste in the public lamps, which was greater than any other for this reason: each lamp was a consumer with only one light, and the pipe must be as full of gas for that consumer as for a private consumer using ten or twenty lights, and thus there would be a greater proportion of leakage. All these things put together went by the general name of leakage, whilst the escape from the mains of a well-managed company was not more than 2½ per cent. Mr. Hawksley instanced the case of a gas company in Denmark whose works he superintended, and in which the whole leakage, over a period of three years, did not average 5 per cent., and at Nottingham, before the introduction of Lord Redesdale's Meter Act, the leakage was as low as 8 per cent., but owing to the operation of that Act it had latterly been as much as 14 per cent. The way in which accidents would happen in subways was this:—A gas company alone could not control all the operation of the subway; other workmen would be employed there who might be the occasion of accidents. If the streets of London were generally subwayed, he had no hesitation in saying that with 2,000 miles of subway, there would not be a day without an explosion, if the gas main were laid in them; and it would be impossible, in the nature of things, to prevent this, if they had gas-pipes in the subways. They must have workmen there, and they would also have the London thieves there, to the great peril of the jewellers' shops, which were contiguous to the subways. Passing now to what had been said with regard to the gaslights in Paris, he would say he did not find anything better there than we had at home. The quality of the gas, the mode of manufacture, the amount of production, and the system of distribution, were in every respect inferior to what we had here; and, above all, the price of gas was fifty per cent. higher than our maximum price. The French system of political economy was the worst that could possibly be adopted. It was a system by which the municipality was bribed to participate in the profits on high prices, and the consequence was that those who consumed gas were made to pay a portion of the taxes of those who did not do so. The same thing had been attempted with various degrees of success, and want of success, in this country, a notable example of which existed—and to a certain extent still exists—at Manchester, but under modified circumstances. For many years the corporation of Manchester charged a very much higher price for their gas than the companies in the surrounding towns, and the money so obtained was applied to municipal purposes. The consequence was a certain portion of the community were taxed for the benefit of the other portion. For a time that system went on very well, but it ultimately gave rise to a violent class agitation, which it was always desirable to avoid; one portion of the community was arraigned against the other on the price of gas, and that went on for several years, and at last resulted in the gas consumers beating the non-consumers, and then the price of gas was brought down to something like a reasonable amount. To go into a comparison of the systems in France and England would occupy too much time. All he would say on that point was—Paris was a much better lighted city than London, but the Paris gas in illuminating power was inferior to ours. The fact was, in Paris, the people lived, not as we did, one alongside the other, but one above the other, and the consequence was the population there was distributed over a much shorter length of streets. In Paris they had one lamp to every sixty persons; so that in the principal streets the lights were brought very close to each other; but it did not thence follow that because the city was better lighted, the gas was better. Its inferiority was accounted for by the description of coals they used; they, nevertheless, made as good gas as they could under the circumstances, and they took good care to use the kind of burner which gave the most perfect combustion. This was a matter which was neglected in London, but we were improving in that respect; and when we paid as much attention to these details as was done in Paris, the London gas would give a greater amount than that in Paris.

Dr. Wyld remarked that in the present advanced state of science there might be no practical difficulty in the employment of the subways of cities as channels for the laying of gas and water mains, so as to prevent the constant annoyance arising from breaking up the streets for those purposes. He argued that equally in subways, as in large ramifications of pipes in hotels, &c., the exercise of the olfactory nerves would always sufficiently indicate an escape of gas to a dangerous extent; and in the case of the mains of a gas company, the great thing to be attended to was the proper jointing of the pipes, by which the escape of gas into the subways would be effectually prevented.

Mr. Gore, having had some experience in the laying of gas mains in this country and abroad, was inclined to think that the promoters of the subway system were at the present moment somewhat in the dark on that question. He could quite understand that in situations where there was a sufficient current of air to carry off the escaped gas there could be no explosion; but it did not follow that in a subway the current of air would be so rapid as to have this effect. Having been engaged, in 1861, in laying down gas mains in Valparaiso, the geological formation in some parts was such that at 6 inches below the surface of the soil granite was reached, and through that material a channel had to be chipped away of sufficient depth to admit of the gas main being laid down. Theoretically that would be supposed to form a very beautiful channel in which to lay the pipes, but a reference to the books of the company would show that the cost of repairs in that channel alone amounted to 75 per cent. more than in double the length at other parts of the town where the pipes were laid in a different material. Mr. Hawksley had very properly said that the soil was the best safeguard against the escape of gas, and at the same time it formed the best elastic cushion on which to lay pipes. In laying pipes in a subway, there must be a number of rigid fixed points or brackets on which they must rest, and there would be a severe vibration occasioned by the traffic passing overhead; the effect of which on cast-iron mains so supported would, in a very short period, be very serious, in causing leakage at the joints. He (Mr. Gore) was now engaged in preparations for lighting with gas the city of Mexico, and he had visited every establishment at which he thought he could gain information. Amongst others he had met gentlemen connected with the subways in Paris, and on his mentioning the subject to them, they strongly advised him not to carry the mains through subways.

Mr. W. Macfarlane was not satisfied, upon the evidence adduced by Mr. Burnell, as to the undesirability of the employment of subways for the laying of gas mains, nor did the observations of the last speaker satisfy him more on the same point. He thought if they were not prepared to alter the material of the pipes they must alter the construction of the joints; for if they put pipes in a subway with the present system of jointing, there would be a liability to great escapes of gas. There, was, however, no reason why an improvement should not be made in this respect. The question was whether iron was the proper material for the pipes, unless the interior were coated with a preservative substance; and if, besides this, a better system of joints were introduced, he had no doubt that subways might be used for gas-pipes without danger.

Mr. Burnell, in reply upon the discussion, would simply refer to the observation of Mr. Godwin that the practical objection to the use of subways for gas mains rested on the sole testimony of one French engineer, M. Belgrand. Upon that he would remark that he had referred especially to that gentleman because he was the principal engineer in that department in Paris, and had had the largest practical experience in the laying of gas-pipes in subways. He might mention that M. Belgrand's evidence on that point was confirmed by the opinions of M. Dupuit, who formerly occupied the position of M. Belgrand, by those of MM. Mouton and Huet, engineers of the Ponts-et-Chaussées, and also by M. Leloup, inspecteur des eaux, as well as MM. Gaffiier and Camus. The only evidence in Paris anything like favourable to the subways was that of the architect of the Louvre. Therefore, on the one side they had the evidence of engineers who had been practically concerned in the laying of pipes, and on the other side they had only the evidence of an architect. He could only say further, as to the quality of the Paris gas, it was very much below that of London. In the former city the gas was called seven-candle gas, and in the latter the standard of illumination was eleven candles.

The Chairman said they must all feel indebted to Mr. Burnell for his interesting paper. It contained a large number of facts which could not fail to be of service to all who were interested in gas works. He confessed that on the topic which had received the largest amount of attention, he personally entertained some strong views. He was not at all afraid, though he had heard of explosions in the Paris subways, of such occurrences taking place in this country. If that room were closed up and the gas allowed to escape into it, there would be danger of explosion; but if the upper windows were left open, with free ventilation from the bottom of the room, he should have no fear of this. Such a strong current of air might not be agreeable in a house, but it would not be objectionable in a subway. He had been present when gas was lighted in a subway, and when, according to the views of some of his friends, an explosion should have taken place; but there was a sufficient current of air through it to almost blow out the flame of the gas. While that was the case, there could be no fear of explosion from confined gas; and he was surprised to hear gentlemen say that proper attention had not been paid to that matter in the subways already constructed. It was true, as had been observed, that the subways were quite large enough for the entrance of thieves; but he had not yet heard of any depredations upon property through that means, and it would require the removal of a considerable amount of brickwork and other material to effect an entrance to contiguous premises. He was sure all would agree that subways, if safe, must be of great public advantage. They could not fail to be a great benefit to the gas companies. He did not expect any great change to be effected without considerable opposition and discussion; but good resulted from this, for thus attention was drawn to any weak points, and those who had to conduct the improvements were led to avoid dangers that might otherwise arise. While so many advantages were held out he was persuaded that nothing would prevent an improvement from going on. Since this subject was first mooted he had seen great changes in public opinion, and in the minds of gas engineers themselves; and many who were opposed to subways—even amongst the engineers in Paris—were now looking forward to a better state of things, and even made propositions for introducing gas-pipes into the subways. He hoped a further discussion would take place on this subject, and that some of his friends would be led to modify their views. He was sure they would feel that a cordial vote

of thanks was due to Mr. Burnell for his valuable paper.

A vote of thanks was then passed and acknowledged.

RAMBLING IN DUBLIN.

IMMEDIATELY beside Werburgh is Hoey's-court, famous as the birth-place of Dean Swift. The house is one of a few very old brick buildings, in no way remarkable in appearance, yet No. 9, Hoey's-court, has been looked at, scanned, sketched, and re-visited by travellers and strangers from all nations. Passing on through Bride-street and Patrick's-close we reach St. Patrick's Cathedral, the scene of Swift's labours. Externally, it is an imposing spectacle. Its massive granite steeple, and the lofty tower from which it springs, its pinnacles and flying buttresses, its windows and its deeply recessed doors and their hooded mouldings and corbel heads, all combined, render it an object for study. In the interior are Swift's tablet and bust, the tablet erected to the memory of his man-servant, that of his unfortunate love, "Stella;" and those of Curran and Ogle. The old Earl of Cork's monument, with its curious group of coloured entities, is somewhat fantastic; though unartistic, it is unique and old-fashioned in its way. Captain Boyd's statue, by Farrell, is a good piece of sculpture. The commander of the *Ajax* is here represented in a position, and in conjunction with everything that was necessary to personate the man and perpetuate his memory—size, expression, attitude, in all boldness; and in every minutia attendant, correctness: Farrell has added to his fame in perpetuating that of his subject.

Outside and around, save the Cathedral itself, there is nothing to please, but much to pain and aggravate.

The locality and its offshoots and alleys are filthily dirty and dilapidated. Surely St. Patrick's is like the jewel in the toad's head. Could it be transplanted elsewhere, or could elsewhere be made to surround it, it would indeed be a boon.

Nicholas-street, Patrick-street, Bull-alley, which ought to be called Butchers'-alley, and the several narrow lanes here and about, need cleansing. Dirt, dirt, dirt; animal and vegetable refuse, disfigure the thoroughfare. Until a new street is made from Aungier-street, straight, say, with York-street, communicating directly with Stephen's-green, Patrick's Cathedral and its improvements will be buried and destroyed by the retrograde property that surrounds it.

A few minutes' walk brings me into the Coombe, in that locality known as the "Liberties." This is the old city where once Irish trade and manufactures flourished. Ten thousand looms, whose shuttles danced with weft and web, whirled and smacked the year round here, time ago. Silk and satin, poplin and tabinet, frieze and corduroys, were woven, and imported in bales from the Thames to the Tiber; but the echoes of the Dublin "Liberties" now speak not of the loom or the spinning-wheel. The sepulchral voices that come forth from this living Golgotha of the buried alive, amid the tiles and pavements of those forlorn lanes and alleys, are utterings of exhausted nature, the final efforts of crucified souls in the mortal throes of misery and desolation. I walk up and down those sweltering passages, and listen to the details of indigent industry here crushed by distress; I grope out the truth, and would flash it manfully in the face of the world, that truth may out and one part of the kingdom know how the other part lives.

There is little trade now, indeed, in these "Liberties," or has been for several years. The staple trade of this quarter of Dublin declined after the Act of Union. The sanitary condition of the Coombe and Liberties, common report says, was always bad, and personal observation confirms it in many particulars. I have not heard of such an officer as an inspector of nuisances, nor do I remember ever coming in contact with an officer of health, but I have met one or two functionaries termed relieving officers; though their duties appeared to me to consist more in collecting than distributing.

The scavenging work of the corporation being done by contract, the Liberties are paid small attention to, their streets and lanes are but half swept, and sometimes not at all; but the city in general being a healthy one, a tainted or neglected locality of course weighs small against the whole. I have refrained from particularising in the above exact spots by name, for the simple reason that the large district known as the Coombe and Liberties embraces many spots alike, and altogether the district is in a bad condition.

Returning through Frances-street, which is an old and busy thoroughfare, Thomas-street is entered, the main thoroughfare of the southern side.

A new Roman Catholic church is here erecting, by the Augustinian order. The door and windows are of red or Runcorn stone; the mouldings are well cut, the members closely fitted, and the work, as far as it has gone, is well done; but the introduction of this stone, I fancy, will not prove advantageous in the end, however useful or easily worked it may be for ornamental purposes or in saving working expenses in the beginning. The church is built on the site of an old priory of the order, which dates back several centuries, and which had extensive ramifications. On farther to the left is Catherine's Church, an old building, plain, and the least classical in the exterior. It has a clock-tower. In the street opposite the church was the spot where Robert Emmet was hanged, in 1803, as the leader of the insurrection of that year. Emmet was the betrothed of Sarah Curran, the daughter of John Phillpot Curran, and he is the subject of Moore's lines, "Breathe not his Name;" while his beloved was the "Broken Heart," of Washington Irving's story.

James-street is next entered,—a good business street,—off which is the Four Courts Marshalsea, or Debtors' Prison, lately the abode of some Irish editors and female lawyers; Mrs. Catherine Winter, to wit, with her interminable suit of "Stubber *v.* Stubber." Dickens's Miss Flit, in Chancery, who used to come and go when she liked at Lincoln's Inn, was not a greater bore, poor thing, than was Mrs. Catherine to Chief Justice Monahan, whom she teazed, tormented, and thumbscrewed.

Golden Bridge Cemetery is behind the barracks, and belongs to the directors of Glasneven Cemetery. It was the Roman Catholic burying-place previous to the opening of Prospect; but the havoc made by the ravages of the first cholera, in 1831-32, so packed the burial-ground as to necessitate its closing up. Latterly, graves are opened for others than those whose relatives are interred there. This system is most unjust, for the ground that is now opened for strangers has been already paid for, perhaps thrice over, by parties who never registered the graves: but what boots it, they were poor and plague-stricken?—

> "Rattle his bones over the stones,
> He's only a pauper whom nobody owns."

Inchicore works are next reached, belonging to the engineering and fitting department of the Great Southern and Western Railway. Turning my back to the country, I proceed home by a parallel road at some distance. There is a thriving co-operative store, conducted on the English principle, at Inchicore, doing seemingly well. The new Kilmarnham Gaol is massive and gloomy, like all its kind. Re-crossing the Circular-road, I enter the grounds of the Royal Hospital, the Irish Chelsea. The main building is surmounted by a sort of clock steeple; a somewhat conspicuous object, from its height and form.

The edifice underneath is elegant and lofty in its interior, and the open roof is a good specimen of oak framing. Some fine carvings by Grinling Gibbons are pointed out. These grounds were said to belong to the Knights Templars originally. Of the truth I know not. Beside the ground of the Royal Hospital is the antique burial-place popularly known as "Bully's Acre." A stone is pointed out where an Irish monarch is supposed to rest. Donnely, the noted Hibernian pugilist, is sleeping his last here. Bully's Acre is held by many to be the place where Robert Emmet was buried by stealth. This place has been closed up for years.

For a public park, the Phœnix is one of the most extensive in Europe. In circuit it is several miles. It is mostly under green sward, interspersed with trees. Here and there plantations, shrubberies, and copses are railed in. There is a level plateau known as "The Fifteen Acres," where reviews were for a number of years held in honour of the anniversary of Waterloo. The Phœnix is intersected by some roads which lead through the country. The residence of the Viceroy, known as the "Viceregal Lodge," is situated in the park, as every one knows.

"Where is St. Michan's Church, my boy?" "Turn down to your right, sir, and go down straight, and it is near the bottom of the street." I was not long in reaching it. I had not an opportunity on this occasion of viewing its celebrated vaults, which possess the property of preserving its dead for years intact in flesh and feature. But common report tells as much. The ground of St. Michan's is not the only ground possessing this preservative quality. It is ascribed to the nature of the soil. St. Michan's has Irish political memories. The bodies of the headless brothers Sheares, who were executed in 1798, are said to be in these vaults. The often-disputed question of Robert Emmet's burial-place receives matter from an uninscribed tomb in the churchyard here; but whether it is that of the noble but unfortunate leader of the Irish insurrection or not, Irish writers are not agreed. "Where is Emmet really buried?" has elicited nearly as much discussion as "Who was Junius?"

And here we are, reader, again at the back of the Irish Four Courts; but before we enter let us have a peep across Church-street Bridge. Yonder compo-fronted structure was whilom Homes's hotel, of Queen Anne farthing memory. The lucky George, who stumbled across this unlucky wealth, began to speculate in building. The Royal Arcade, which extended from College-green to Suffolk-street, and which was a little promenade of fancy shops, sprang forth under his magic wand, but was soon afterwards burned down. The hotel did not long subserve the original desire. It has passed through a variety of vicissitudes,—political, polemical, and commercial.

The Great Agitator threatened and cajoled here; and Conservative as well as Democratic tribunes have mounted the rostrum in advocacy of their own nostrum for Ireland's salvation.

Here for awhile, a quarter of a century since, the Irish hemisphere was convulsed with the spectral appearance of the White Quakers, a unique religion, led by one Joshua Jacob, and his wife Abigail, Beale. I remember in my juvenile days seeing some of the fraternity in the streets, all in white, with the exception of the shoes, which were made of a description of brown leather. Homes's Hotel was the head-centre and rendezvous of this curious sect, who rivalled Adam and Eve, by going about within doors in a state of innocent nudity, with the exception of some slight vagaries. They afterwards became an excellent and industrious body, cultivated some ground in the village of Chapelizod, near Dublin; but they eventually died out. Homes's building is now transformed into a wool-store and something else.

The old Pill-lane has nearly disappeared, in making a thoroughfare at the back of the Courts of Law. It was a remarkable locality once, rife with trade, and a very Billingsgate of impudence, as it is still in its upper and remaining end. Irish fishwives are politicians after a fashion, and have the "gift of the gab." O'Connell often threatened them with the authorities.

Here and around for a considerable extent, embracing Greek-street, Church-street, Mary's-lane, Fisher's-lane, Boot-lane, Beresford-street, and its contiguous opens, the state of those localities is very bad. Filthy pavements, offensively stinking back yards, tenements in a ruinous condition, with dirt, dirt, jaggedness and raggedness, and wretchedness predominant. The corporation seem to forget that there are such places as I have mentioned; consequently, the atmosphere and the elements, the wind, the rain, and the sun in turn become the purifiers and the destroyers.

The vegetable markets in Mary's-lane and May-lane are wholly unfitted for the purpose. They are too small, and are unprovided with the proper requisites of that trade. The approaches are too narrow and confined.

The removal of that part of Pill-lane behind the Law Courts was a step in the right direction. There is much work for an energetic corporation who would become less parliamentary and more municipal in their duties.

A peep into the hall of the Four Courts in term time presents a busy scene and a motley assemblage. Lavater and his disciples could not pick out a better place for the proper study of mankind—MAN—than the hall of the Irish Law Courts. Pregnant packets and brieflless bags,—the florid looking, the phlegmatic, the languid, the sallow, the immoveable, the fidgety, loquacity, taciturnity, eccentricity,—all combined, find embodiment, and present themselves for study in the hall of the Irish Four Courts.

The public squares of Dublin add to the beauty of the city, and are of course a great acquisition in a sanitary point of view; Mountjoy and Rutland on the north side, and Merrion

and Fitzwilliam squares on the south. But these squares are open to much improvement in their condition and management. They exist alone for the benefit of the wealthy and the *élite* of the surrounding neighbourhood. Their interests should be bought up by the corporate authorities, and all of them should be free to the working population, who have been found latterly, when given like privileges, to be more conservative in guarding such property than the nurses and the children of the respectable families that have daily entered.

The new buildings on the site of the Dublin Exhibition building of 1853 are, as far as good masonry is concerned, undeniable. But the National Gallery and its companion Institute, externally, are bare and meagre skeletons of classic taste. There is nothing impressive or elevating in these buildings, although they were evidently intended, from their nature, when first designed, to represent in their fulness what they do not.

On Stephen's Green South, the Catholic University occupies the fine old granite-fronted mansion, once the residence of the celebrated "Buck Whalley," in the last century, called otherwise "Jerusalem Whalley," from the fact of his once making a wager that he would play ball against the walls of Jerusalem and return to Dublin within the year, a feat which he accomplished (not easy in those times) considerably within the time. In a straight line with this side of the green, you are led out through Leeson-street to the world-known village of Donnybrook, the *locale* of the famous fair, of which the song says, –

"An Irishman all in his glory was there,
With his sprig of shillelagh and shamrock so green."

The Donnybrook road is a rapidly-improving quarter, since the recurrence of the fair has all but disappeared. The Winter Garden, lately the busy scene of the Exhibition, is a few minutes' walk from the green, having its entry in Earlsforth-terrace. It is built on the site of the old Coburgh Gardens, — a spot noted for public meetings once: the last and most noted, which was held at the instance of O'Connell, was suppressed by the order of Lord Anglesea, when viceroy of Ireland.

Dublin, on the whole, is a healthy city, and is not unfavourably situated; but there are districts on its northern and southern extremities sorely neglected by its corporate authorities. Improvements drag their slow length along, and projects are proposed and agreed to, but are years before they make their appearance.

The city needs many new streets, to pierce through reeking purlieus and to carry the fresh invigorating winds of heaven into quarters where unbearable exhalations and fetid odours hold sway. Like the Thames, the Liffey needs to be purified, or kept from being offensive in the summer. In an embanked river like the latter the difficulty is small. If the corporation have the will, they have plenty of means; and the way to do it has more than once been pointed out. Plans for rendering the Liffey navigable for some miles were also shown years ago, but no steps were taken in the matter.

Capital and labour will yet work miracles in favour of Irish trade and commerce; and if that great fear was got rid of concerning security which has taken possession of several speculative minds, the city and country at large would grow and prosper. House-building for some years in the metropolis has moved apace, and ship-building has begun lately to develop itself, after the eclipse of half a century. With the reclamation of the waste lands, the opening up of the industrial resources, and the utilization of the mineral capacities of the country, Dublin would become a great manufacturing capital, and she is fitted in every way to become one.

C. H. C.

FROM LAUNCESTON, TASMANIA.

THE Town-hall, which is newly erected, stands on an allotment of land at the junction of St. John and Cameron streets, specially granted by the Government to the municipal council for that purpose. It is a prominent object in the street architecture of the northern capital of Tasmania. The elevation is an adaptation of the Corinthian order of architecture, and has a frontage to St. John-street of 76 ft., and to Cameron-street of 52 ft. The principal front is towards St. John-street, the centre forming a grand piazza, approached from the street by a flight of steps the whole length of the colonnade, and forming the entrance to the municipal offices. Connected by this piazza are two wings, in which are placed the staircases approaching the large council-chamber or town-hall. The roof and cornice of the piazza are supported on four Corinthian columns and pedestals, each the entire height of the building, and the remainder of the rear messengers' apartments. The whole area of the upper floor forms the council-chamber or town-hall, 72 ft. by 40 ft. and 20 ft. high, lighted chiefly from the roof by lofty dome lights, surmounting the three centre compartments of a panelled ceiling. There is also a window at the southern end. The building, which is of brick, stuccoed on the outside with cement, is surrounded by an ornamental iron railing, which was cast at the foundry of Mr. W. Peter, Launceston. The cost of the building and furniture therein exceeds 6,000*l*. Mr. Peter Mills was the architect, and Messrs. S. Galvin & Francis the contractors.

A SELF-LOADING SHIP.

M. DE CORAUX, a Lyonnese, has invented and constructed a ship which can load or unload itself automatically in forty minutes. The captain and mechanician are the only living crew on board, the working and manipulation of the vessel and cargo being all performed by steam applied to most ingenious machinery. The loading is carried on by trucks and wagons, which can contain corn, flour, bales, cattle, horses, barrels, &c. The vessel is, as may be expected, of a peculiar disposition; but its exterior bears all the signs of sea-worthiness. The great revolution is on the deck and in the interior. The former is covered with lines of rail, reaching from one extremity to the other, while, at midships, there are two turntables. Front and rear are two or four immense cages, containing eight, twelve, or sixteen wagons, of the same size as our railway-wagons. The rails on which the wagons rest are adapted exactly to the rails of the deck. A cable is hooked to the wagons, which traverse the deck throughout its length, and the stern of the boat having been previously placed on a level with the quay, which is also furnished with rails, or may be, perhaps, a portion of a terminus, the wagons glide without the least interruption from the vessel to the land, and *vice versâ*.

BOMBAY EXHIBITION.

A MODEL by Mr. Salter, the well-known modeller, has been on private view at his residence, which we could wish to have been more publicly displayed.

The model in question has been prepared from the design of Mr. T. Roger Smith, for an International Exhibition hall, at Bombay. We hear that the plans were completed, and the building actually contracted for, so far back as April, 1865, when the panic at Bombay arose. This stopped the works when barely commenced, and it is still undecided whether the building will be erected or not. In the mean time the design is of great interest to those engaged in architectural or engineering business for India, or any hot country. The idea suggested by the model is that of deep and grateful shade. Roof rises above roof almost more as a growth than as an edifice, and the peculiar requisites of the climate of Bombay, involving protection from heat, resistance to the fury of the monsoons, and provision for the tropical rainfall, have been attended to in a manner which the different circumstances under which Exhibition buildings have been erected in Europe have not hitherto called forth. It is to be regretted that the model, being required for India, must be despatched without waiting for further exhibition in this country.

RAILWAYS BEYOND JOHN O'GROAT'S HOUSE.— A Scottish nobleman, who is connected by property with the Orkney Isles, has offered, it is said, to subscribe 60,000*l*. for the construction of railways in Orkney,—on Pomona, the chief isle, on which Kirkwall, the capital, stands, we presume; unless, indeed, it be intended to connect some of the lesser isles which most closely adjoin each other, by railway, which is not so likely.

CHAPEL ROYAL, SAVOY, STRAND.

THE Chapel Royal of the Savoy derives its name from the ancient palace built for Peter, Count of Savoy, and uncle of Queen Eleanor, in the middle of the thirteenth century. At that time, according to Stowe, "There was no mansion to bee compared with it in beautie and statelinesse."

The greater part of that palace was laid in ruins during its occupation by John of Gaunt, in the rebellion of Wat Tyler. The manor descended to John's son, Henry of Bolingbroke, on whose accession to the throne as Henry IV. it was vested in the Crown as part of the Duchy of Lancaster, and acquired its peculiar dignity and privilege as a royal precinct. Upon the accession of Henry VII., the Palace was endowed and appropriated for the uses of a hospital, and the walls of the present chapel were built.

Charles II. converted the hospital into a military and marine infirmary, and the chapel did duty as a place for holding barrack services.

In 1702, the hospital was dissolved and in part destroyed. The chapel was granted for the use of the inhabitants of the precinct; the Sovereign retaining all rights of patronage and direction in the affairs of the chapel, and defraying all expenses connected with it.

Under this rule the chapel has, from time to time, been restored; the most considerable changes finding place in the year 1860, under the advice of Sir George Grey, then her Majesty's Chancellor of the Duchy of Lancaster. A hideous gallery at the south end was removed; high pews exchanged for open seats; an entrance at the north end, treading almost upon the steps of the altar, closed up and transferred to the south end.

The ceiling, nearly resembling the contemporary one of the sister chapel in St. James's Palace, was redecorated, and the curious and carved ornaments of its 138 quatrefoil panels recoloured and regilded.

The gains of this costly restoration were utterly lost in the fire which consumed all but the walls of the chapel, in July, 1864. The work of the present restoration was entrusted to Mr. Sydney Smirke, R.A. (who, it is needless to say, has done his duty well), and was executed by Messrs. Myers & Son. The interior arrangements of the chapel are only slightly altered; an elongation of the chancel and a new entrance into the sacristy being the chief changes. The old and richly-emblazoned ceiling has been exchanged for one exactly similar in style and colour, but differing in the details of its design.

An elaborate framing of chestnut wood, with gilt mouldings, encloses a ground of blue,—semée with gold stars,—and of white, the ancient livery colours of the house of Lancaster.

The panels over the altar and chancel are occupied by sacred devices. The panels towards the south are filled in with the heraldic bearings of the Earls and Dukes of Lancaster, from Henry III. to Queen Victoria.

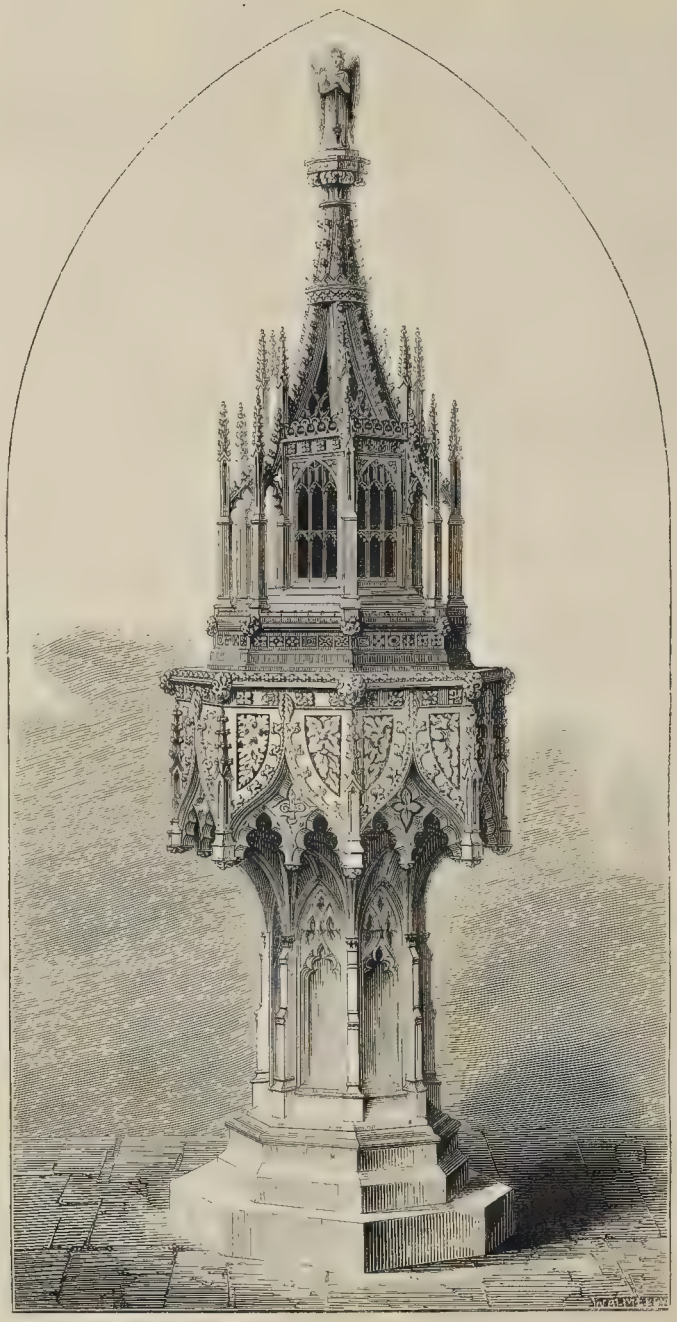
The painted glass window is erected in part as a restoration of a former one, and in part as a memorial of the late Prince Consort. It contains five principal figures,— St. Mary the Virgin, St. Mary Magdalene, St. John the Baptist, and St. John the Evangelist. The central opening has a figure of our Lord. The following inscription surrounds it:—

"Hanc fenestram ex dono in colarum hujus Precincti vitreis ornatam, A.D. MDCCCXLIII, igne cum ipso sacello diratam, A.D. MDCCCLXIV. In memoriam Principis Consortis de novo ornari Victoria Regina MDCCCLXVI."

The ceiling and window were executed by Mr. Thomas Willement, F.S.A. The font was presented to the chapel by Mrs. De Wint, in memory of her husband, Peter De Wint, and her brother, W. Hilton, R.A. The font and its canopy are from a design by Mr. Edward Blore, and are beautifully executed by Mr. James Forsyth, of Edward-street, Hampstead-road. The font is of Caen stone, and the canopy is carved in wainscot oak. The pulpit, supplied by Messrs. Cox & Son, is a gift to the chapel, from the family of Mr. Burgess. The reredos is a faithful and excellent copy of the former one, and has been well executed by Messrs. White, of the Vauxhall-road.

The organ, replacing one presented by her Majesty, in 1843, excels its predecessor, both in point of size, and beauty of tone. It is built by Willis.

We must not omit in our notice, brief as it is, allusion to the zealous regard for the church shown by the present chaplain, the Rev. Henry White.



THE SAVOY CHAPEL, STRAND.—*Font and Cover.*



THE CHAPEL ROYAL, SAVOY, STRAND: AS RESTORED.—MR. SYDNEY SMIRKE, R.A., ARCHITECT.

SOCIETY FOR HELP TO NEEDLEWOMEN.

A SOCIETY has been established under this title with the additional claim of providing clothes for the poor, and so doing good in two ways. It seeks to benefit the poor of any district in Great Britain by providing them with under-clothing, for which the making only is charged, in addition to about the half-price of the material, the Society defraying the remaining half of the cost of the material and other attendant expenses from subscriptions. The workers consist of the poorest classes, and also of gentlewomen who do not possess a settled income amounting to more than 20*l.* per annum, and are principally selected from London and the suburbs. The clothes are distributed through members of the Society and sent to the districts where they are most required.

Those only know what misery exists among the London needlewomen who have personally inquired into it, and there is no doubt that at this moment the distress of these poor people is, beyond anything, great. The superabundance of their class, many of them altogether unskilled, the high price of food, of clothes, and of lodgings, and the introduction of sewing-machines (however temporary the distress induced by the latter may be), have caused want to exist among them to a degree unprecedented.

To carry on the good work funds are needed, and we shall be glad to find some of our readers giving their aid to the honorary treasurer and manager, Mrs. I. H. Barclay, of Harmondsworth, Slough. It is proposed to hold a bazaar at Willis's Rooms, in April next, in aid of the charity.

MACLISE'S "DEATH OF NELSON."

MANY will hear with great satisfaction that the Council of the Art-Union of London have purchased from Mr. Maclise, R.A., his original picture (with the copyright), "The Death of Nelson," from which his great mural work in the Royal Gallery at the Houses of Parliament has been painted. The picture is of very large size, and will be an important feature of the approaching Royal Academy exhibition. The Council of the Art-Union of London propose to engrave it hereafter, in the first style, as a companion to the engraving they have already put in hand, from his corresponding picture, "The Meeting of Wellington and Blucher after the Battle of Waterloo." The disputed fact, by the way, that the two commanders did meet on that occasion at the farm known as La Belle Alliance has been settled beyond discussion by a letter from General Nostitz, one of Blucher's staff-officers, who was with him on the occasion.

The production of these elaborate and costly engravings will necessarily occupy several years. It is an undertaking of no ordinary magnitude and importance, and has an interest that may be termed national.

PICTURE EXHIBITIONS.

The British Institution.—The present collection consists of 636 pictures and twelve pieces of sculpture. The staple is much the same as on former occasions; but there are fewer exceptional works compared with some even recent exhibitions here that give tone to the whole. Mr. E. W. Cooke is the chief representative of the Academy, and sends three very agreeable specimens of his art. A picture by Mr. Edwin Long, "The Anthem," suggests somewhat too forcibly the manner of Mr. J. Phillip, but has, nevertheless, a merit of its own. Mr. Gilbert has some pieces of rich colour, good enough to make one regret the overriding mannerism. "The Belle of the Market" (186), by A. F. Patten, will have admirers, and deserves to have them. 272, "View on the Medway," shows that Mr. H. T. Dawson, jun., is following in the good steps of his father. Mr. Cave Thomas sends a highly-wrought picture, to which, as in all his works, he has given much time and thought, "The Return" (308). "Canterbury Cloisters during the Commonwealth" (559), W. F. Yeames, is a praiseworthy work, but the men at drill are over-small for their distance. Though still cold in colour, Miss Kate Swift has made a good advance in (628) "The Wedding of a Dutch Fisherman in the Village Church at Schevening." Some of the heads are admirable, and the effect of the whole is good. Amongst the landscapes there are none better than (590) "A Heath Scene," by E. J. Niemann, and (399), "Amid the Cuchullin Hills, Isle of Skye," G. Gilbert: both exceedingly good works. Mr. Dicksee is more conventional than usual, and in 545, "Joan of Arc, at the Assault of the Tournelles," what has become of the upper part of the left leg? Mr. Lacy's picture of "Margaret of Anjou and the Robber," though open to criticism, is amongst the best works in the collection. Mr. Weekes, Mr. R. Collinson, Mr. Knell, Mr. T. Davidson (Job), Mr. J. J. Wilson, Mr. Bottomley, Mr. Whaite, Mr. Danby, Mr. Jonas Barker, Mr. A. W. Cooper, exhibit pictures that for varying reasons deserve notice.

General Exhibition of Water-colour Drawings. The second collection of water-colour drawings, in the Dudley Gallery, Egyptian Hall, under the above title, is an exceedingly good one, and will have further notice. It comprises 676 works, and shows strikingly the extent to which the art of painting in water-colour is successfully practised.

HOW SHALL THE BED BE PLACED?

A PHYSICIAN at Magdeburg, Dr. Julius von dem Fischweiler, just dead, asserts in his will, that his own great age, 109, is entirely to be ascribed to his constant habit of sleeping with his head towards the north, and the rest of his body in a direction coinciding as closely as possible with that of the meridian, that is, with his heels to the south. From persisting in this habit the doctor considered that the iron contained in our system, finding itself in the direction of the magnetic currents which are constantly flowing over the surface of the globe towards the north pole, becomes magnetised, and thus increases the energy of the vital principle. Without at all understanding this, or assenting, we know well of persons who cannot sleep unless the bed be placed north and south, and it may not be useless to inquire what the observations of others on this point have been. Persons who find themselves restless and unable to sleep at night might try the effect of changing the position of the bed.

SANITARY MATTERS.

Whitehaven.—A series of articles upon the Social and Sanitary Condition of Whitehaven, based upon personal inspection, by a "Special Contributor" to the local *Herald*, has of late been appearing in that paper. In closing the series, the writer says,—"It is impossible not to give marked prominence to the monster evil of overcrowding. If Ennerdale were to be emptied for the purpose of ensuring cleanliness, whilst the present system of overcrowding continues, it would be folly to expect that the rate of mortality should be reduced to its proper level, or that Whitehaven should ever take rank amongst the healthier towns of the kingdom. At present, it is, indeed, a terrible den of human squalor, misery, and premature death. The town requires altering in its structural arrangements, and how that is to be effected is a question which makes one pause. When are we to be blessed with an heir to the princely Lowther property, who will pride himself in being remembered as 'The Good Earl?' Here is a town with a population of 20,000, stifling for want of the power of expansion, and hundreds of whose inhabitants are annually doomed to disease and death, simply because the land in the immediate neighbourhood is the property of a nobleman who either cannot or does not choose to sell. Would that we had amongst us some such gentleman as the Lord Provost of Glasgow, who in his municipal capacity has projected the erection of model dwellings for the accommodation of not less than 30,000 of the poorest residents of that city, and who seems in a fair way of successfully accomplishing his object."

Brighton.—The annual meeting of the Sussex and Brighton Ladies' Sanitary Association has been held, Mr. Merrifield in the chair. The report says,—"In consequence of reports received from their visitors of the existence of serious nuisances, the gentlemen's 'Auxiliary Committee' had in several instances visited the localities thus brought to their notice; and cases of neglect requiring urgent attention had been reported either to the inspector of nuisances or to the town council. Not finding that their representations met with adequate attention, two of the committee, who were medical men, undertook a careful survey of the poorer parts of the town, and reported the result to the committee. The state of things appeared to be so serious, alike in a moral, economic, and social point of view, that the committee at once prepared a memorial, for the signature of influential residents, addressed to the Privy Council, praying for the appointment of an officer of health, and for an official inquiry into the state of the town, and the measures requisite for its amelioration. The memorial had been largely signed. The report concluded with a recommendation that the Association should be re-organised, with a view to the extension of its operations; that its title should be changed to that of the 'Brighton Sanitary Association;' and that a revised statement of its objects and rules should be published." The report was unanimously adopted, and the title of the society changed accordingly.

READING WORKHOUSE COMPETITION.

A MEMORIAL has been sent to the Poor Law Board, signed "James Phillips, Wm. P. Ivey, proposer and seconder of Messrs. Brown's plans," saying:—"We consider that the guardians, having previously reduced the original six competitors to two, viz., Messrs. W. & J. T. Brown and Mr. W. H. Woodman, their decision in favour of the latter gentleman was not given in accordance with *merit*, neither was it with the extent of accommodation afforded, nor with the *best interests* of the ratepayers." In support of these assertions the memorialists allege seven reasons.

ARCHITECTURAL COPYRIGHT IN BELGIUM.

A DECISION has recently been given by the Belgian law courts which throws some light upon the question of property in designs in that country. According to the *Reader*, M. Suys, an architect, has, it appears, erected some law courts in Brussels, the plans of which are claimed by a M. Gérard, who obtained an injunction restraining payment of the sum in the hands of the Minister of the Interior, which in the ordinary course would have been received by M. Suys as his professional fee. M. Suys next brings an action against his opponent to compel him to remove the injunction, and claiming 10,000 francs damages for the injury to his professional reputation. Judgment was given for the defendant, and the court directed M. Suys to pay to M. Gérard the sum claimed. The case was referred to the superior court, who confirmed the decision of the court below, and at the same time condemned M. Suys in the whole of the costs.

SANITARY AND CITY IMPROVEMENT OF EDINBURGH.

THE Lord Provost is not the only designer of sanitary improvements in Edinburgh at present. A very comprehensive scheme for opening up the truly *close* districts on the flanks of the ridge down which the High-street and the Canongate extend from the Castle to Holyrood Palace, has been prepared by Mr. Roderick A. F. A. Coyne, C.E., and submitted to the city authorities. Mr. Coyne also deals pretty freely with the city map in several other districts; but this is the most important portion of his plans, in a sanitary point of view, and it aims, *inter alia*, at the opening up of the two blocks of closes to which Mr. Chambers's much more restricted scheme also relates. Mr. Coyne's plan includes three great lines of street, the longest and intermediate one extending from Grassmarket down the (widened) Cowgate, whence it nears more and more to the ridge of High-street as it crosses South Bridge-street, Niddry-street, and St. Mary's-wynd (between which two last it crosses Mr. Chambers's plan of a comparatively short, oblique, and waving street), running on into the Canongate at the head of St. John's-street, where other two new streets are proposed to be joined with it, one affording an opening to Queen's Park, and the other running back along the other or northern flank of the High-street ridge to Cockburn-street, westward of the North Bridge-street, which it crosses on its way, as it also does the other block of Mr. Chambers's two-fold project. The third line of street runs from Grey Friars Church also eastward, passing the Col-

lege to the Pleasance. The estimated total cost of the two first, and most important, of these plans, including Queen's Park approach, is 168,031*l.* Into the other plans of Mr. Coyne we cannot here enter; but this is certainly an important and well-considered scheme for opening up the very worst districts of the Old Town; and, if the whole scheme be too extensive for the city authorities to grapple with at once, they might at all events begin with the line of the widened Cowgate, and open it up eastward to Canongate, where it would be ready to meet the line from Cockburn-street, as the next most pressing sanitary improvement, following that up by opening out the approach to Queen's Park, so that the miserable denizens of the closes might have it in their power to make an occasional short run from their improved localities direct to the healthful neighbourhood of Salisbury Craigs and Arthur-street.

THE LATE MR. JOHN GIBSON, R.A.

The funeral of this eminent sculptor has been very quietly solemnized at Rome, an attempt of friends and admirers to make a more public demonstration having been declined by those to whom the duty was committed. The only thing like display was the honorary attendance of a guard of French soldiers, who fired a volley over the grave out of respect to the Cross of the Legion of Honour possessed by Mr. Gibson. By his will, the sum of 50*l.* was fixed as the utmost to be expended on a private monument to him. The Prussian Order of Full Merit was sent him, and arrived from Berlin only the day before his funeral.

The chief mourners were Mr. Penryn Williams, the old friend of Gibson, and one of his Roman executors, Mr. Odo Russell, Mr. Webster, R.A., and Mr. Severn, her Majesty's consul. Mr. Spence, his friend, pupil, and almost son, was prohibited by his medical man from following his remains to the grave.

Mr. Gibson's own and other drawings were left to the Royal Academy. By a codicil added May 26, 1865, he bequeathed to the Academy his group in marble of the Wounded Warrior supported by a female figure, then nearly finished; all his works in marble not sold at the time of his death—models in Gesso of his works in marble not sold, except the models of such works as have been presented in marble; all his models in Gesso not executed; the first cast of Venus de Medicis, which was sent to Canova to be executed in marble, and which, when executed, was to replace the noble statue carried off to Paris. Moreover, he bequeathed to the Royal Academy 32,000*l.*, free of testamentary tax, on the following conditions:—"A space sufficient for their reception, and easy accommodation, is to be provided for his works, which are to be open to the use of the students of the Royal Academy, and to be exposed to the public, according to such regulations as to the Council shall seem best."

Thus room, but not a separate room or rooms, for them is the only stipulation.

MR. HENRY LESLIE'S CHOIR.

The first concert of the eleventh season took place at St. James's Hall on Thursday evening, 1st February, in the presence of a crowded and most appreciative audience. An apology for the absence of Mr. Sims Reeves cast a passing shadow over the evening, and the announcement of his indisposition was received with the usual amount of scepticism and scoffing, by those who appear to imagine that the throat of a singer must be insensible to ailment. But the good taste of the majority of the audience soon prevailed, and relieved Mr. Leslie from the embarrassing position in which he was placed. Neither Mr. Wilbye Cooper, who sang Weber's "Thro' Forests," with much taste and expression, nor Mr. Leigh Wilson, could accuse the audience of coldness or prejudice; and we doubt if the great tenor himself could have excited more rapturous applause than that which followed Purcell's "Come, if you dare," sung by the latter gentleman, who was obliged to accede to a tumultuous demand for an encore. Mr. Leigh Wilson is gifted with a superb tenor voice, and if he will be satisfied to believe that he has yet very much to learn, he may attain the highest position in his profession. It is almost needless to speak of the exquisite delicacy and precision which characterized the part-songs, glees, and madrigals; Mr. Leslie has his choir under such thorough control, that it is difficult to award the palm of excellence where all is so near perfection. Specially to be commended, however, were the Elizabethan madrigal, "Flow on, my Tears," and the one which immediately followed it, "As Vesta was,"—the latter, a well-known favourite, being most enthusiastically re-demanded. Of several new compositions produced, Leslie's "How sweet the Moonlight," and Silas's quaint and clever setting of Longfellow's "Christmas Carol," excellent alike in composition and execution, were the most attractive.

Miss Austine, a pupil of Mr. Lindsay Sloper, performed Sterndale Bennett's graceful sketches, "The Lake," "The Millstream," and "The Fountain," and Lizst's difficult arrangement of the airs from "Faust," with considerable skill; but we question the discretion of introducing piano-forte solos in this kind of entertainment, when the poverty of the instrument contrasts so unfavourably with the choral harmony.

Of Miss Ada Jackson, of Clifton, who made her first appearance in London upon this occasion, it is our pleasant duty to record the unequivocal and well-deserved success. She possesses a clear penetrating soprano voice, and sings with unusual purity and chasteness of style, qualities especially demanded in Haydn's exquisite canzonet, "My Mother bids me bind my Hair," which was delivered with the utmost delicacy and refinement of expression. Her intonation, too, is perfectly correct, and another peculiar recommendation she shares in common with the lady under whom she has studied—Madame Sainton-Dolby—must not pass unnoticed, which is the fact that every word in her songs is distinctly and correctly articulated, a most valuable qualification for an English ballad-singer. Miss Jackson prudently declined the honour of an *encore*, which was demanded after each of her songs. Clifton may feel proud of her.

PARIS.

The new Halle aux Cuirs, or leather-market, has been constructed opposite the Amphitheatre of Anatomy, on the banks of the Bièvre, in that quarter of Paris where the tanyards are congregated. It is to be open for commerce next month. The form is that of a parallelogram, 535 ft. by 197 ft., consisting of a ground-floor, an upper story, and an attic. The principal entrance is an archway, composed of a semicircle inscribed in a rectangle; above are the arms of Paris, and on the right and left are two bulls' heads admirably sculptured. Passing through, we enter a court-yard, 1,615 square yards in area, and roofed in with iron and glass. This is to be the "leather exchange," and is furnished, at the further end, with platforms on a level with carts, so as to facilitate loading and discharging. Underneath these quays or platforms are cellars, of a development of 476 ft., for the storage of oils and fatty matter. These are crypts, with groined arches or passages, one of the latter being available for carts, the entrance from without being an inclined plane. At regular distances there are elliptical openings in the arches, with cranes for lowering or raising goods.

There are, also, two lateral court-yards, one having an entrance into the hall of the green skins, furnished with salting and alum pans for kids, &c. The superficies of this is 1,435 square yards. The architect of this building is Mr. Jules Bouchet, and the clerk of the works M. Edme Cor; in it has been incorporated the ancient hospital of the Cent Filles, which has been underpinned, consolidated, and repaired in a durable manner. No pains have been spared to render the new leather-market the most complete of its kind in Europe, including, as it does, a post-office and telegraphic communication, refreshment-rooms, &c.

A new theatre is being built at Passy, capable of holding 2,000 persons; in the same building are to be established a café and a club. In order that the pit may be converted into a ball-room the flooring is to be fitted with raising and lowering machinery similar to that of the French opera-house, invented by one of the stage carpenters, some years ago, for the convenience of the "*bals de l'opera.*"

The report on the situation of the French empire states that, thanks to the severity and promptness of the measures taken by the Government for preserving France from the ravages of the cattle plague, the disease had disappeared since the 5th November of last year, the number of deaths since that date being only 43. Owing, however, to the breaking out of typhus in the Jardin d'Acclimatation, in the Bois de Boulogne, the regulations were again obliged to be put in force by the authorities, the same being extended to all quadrupeds, as well as to horned beasts, with a few exceptions. The state of industry and commerce for the past year in France has resumed its wonted activity since the lowering of discount and the resumption of commercial and maritime relations with America. The iron trade is generally satisfactory: the complaints raised by the manufacturers against foreign machinery have nearly ceased since the duties on iron (pig and bar) have been lowered. There is no cause for complaint except among the French manufacturers themselves, and between them the Government cannot interfere.

MORE DEATHS IN WELLS.

We have often to record very stupid or careless proceedings in clearing out or repairing old wells, but about the worst case we recollect of has just occurred at Chalfont, St. Giles's, Bucks. Two men were set to repair the pumps of a well, 150 ft. deep, at about 136 ft. below the surface; but it was deemed dangerous to descend, on account of the foul air, as a candle went out when let down. One or two pails of fire were then lowered, and the last left to burn all night till burnt out! thus still further increasing the evil, by positively adding to the carbonic gases which had already put out the flame of the candle; and consuming all that remained of the oxygen capable of sustaining either flame, fire, or life. Next day, the well being thus "cleared of the foul air!" one man went boldly down, and was getting on "beautiful" for a little, till he felt "a little queer," and was then hauled up, so far, till he fell off the crutch on which he sat, and was precipitated to the bottom. Another man, who was "in the habit of descending wells," and was therefore supposed to be capable of withstanding the deadly vapours which had cost his fellow-workman his life, was then fastened to a rope and lowered; and, strange to say, he did withstand the deadly influence till he secured his fellow-workman and himself to the rope. They were then hoisted up about 50 ft., when the rope broke, and both fell to the bottom. Air-pumps and hose, which ought to have been got at first, were then obtained; but instead of simply and directly pumping out the carbonic acid, as if it were water, air was merely forced in amongst it. This, however, enabled another man to descend, and he fastened a strap round one of them, who was then hauled up nearly to the mouth of the well, when the strap broke! and once more the poor dead carcass fell to the bottom. At last, on the third day after the first of this extraordinary series of blunders was committed, the two dead bodies were got out. The jury on the inquest returned a verdict of "Accidental death," and recommended that persons descending wells in future should take care to be securely fastened, so that in the event of their being affected by foul air they might be drawn up with safety. That, however, was not the only recommendation they might have given.

TELEGRAPHIC PROGRESS.

It is proposed to form an association to lay down a line of telegraphic wires from London, through Scotland, Shetland, and the Færöe Islands, to Iceland and the western shores of Greenland, across Davis Straits, to the coast of Labrador or Belle Isle, and to communicate through Canada with the vast telegraphic system of the United States and the continent of America. The distances between the stations are, proximately,—Scotland to the Færöe islands, 250 miles; Færöe to Iceland (Berufiord), 240; Iceland to Greenland, 743; Greenland to Labrador, 507; Labrador to Canada (land line), or Greenland to Belle Isle (sea line), 210. The longest stretch of the route would thus be little more than 700 miles. A pamphlet has been issued (Clowes & Sons, printers, Charing-cross), giving an account of the project and the operations of scientific and other authorities on its practicability. By selecting the stations carefully in sheltered positions, where only the line

will go out of deep sea into shallow grounds, it is believed that ice will be no hinderance to the accomplishment of the project or the working of the line.

The Russian journal, the *Messenger*, announces that Mr. Collins, one of the directors of the Russian-American telegraph line, has given, in a public meeting, some further details of that gigantic undertaking. The line will encircle the globe if a submarine telegraph can be made between London or Paris and New York; otherwise the communication between Paris and New York must be made by the Russian-American telegraph, which will run across Behring's Strait. There are hopes that this line may be terminated in 1867.

From the official report of Mr. E. C. Cracknell, the superintendent of telegraphs in South Wales, to the Colonial Parliament, it appears that the length of telegraph lines at present in work throughout the Australian colony of South Wales is 2,520 miles, with 3,047 miles of wire, which on the completion of the lines in progress, will be increased to 2,990 miles of line and 3,517 miles of wire. The total cost of the lines in operation on the 31st of December, 1864, not including expenditure by the colonial architect, was 132,025*l*. The net profit for the year was 6 per cent. The lines in this colony during the summer months appear to be much more affected by lightning than those in the neighbouring colonies; and it frequently occurs that not only the lightning conductors, but the relay coils, are fused by the intensity of the atmospheric charges. To guard against this wholesale destruction, Mr. Cracknell has arranged a simple cutting-out switch, which completely disconnects the conductors and instruments from the line, leaving only the main battery in circuit. This plan, he says, has been found to work very satisfactorily, and has saved the destruction of many instruments, and the consequent delay of business at the several stations so visited.

PARIS UNIVERSAL EXHIBITION, 1867.

A MEMORANDUM of the arrangements for the machinery gallery of the Paris Exhibition, by Captain Festing, R.E., is being circulated in a printed form. Instruments and processes of the common arts are placed in Group VI., which is divided into twenty classes. A gallery, 115 ft. wide and 82 ft. high, is to be provided in the building for this group. In breadth this gallery is to be sub-divided into a central block, 75½ ft. wide, and two side passages, each 16½ ft. wide, leaving a space of a little over 3 ft. at each side for counters and glass cases, placed against the partition walls. In the middle of this central block, and running throughout the machine gallery, there is to be a platform, 13 ft. wide, supported on columns about 14½ ft. high. From this platform visitors will be able to see at a glance the machines exhibited. The columns of the platform will also carry two parallel main shafts for transmitting motion to the various machines, and under the platform will be workshops for skilled mechanics, whose work is to be exhibited as examples of the processes of the common arts. The whole machinery gallery is to be divided into a number of sections, each of which will have its own system for supply of motive force.

THE NEW LAW COURTS.

IN a few days the Acquisition of Site Act will practically come into force. The two Acts are known, one as the "Courts of Justice Building," and the other as the "Courts of Justice Concentration Site." The old courts and offices of the late Insolvent Court have been fitted up in a suitable manner for the purposes of the Act. The Lord Chancellor and the other commissioners assemble in the old court, which has been very much improved in appearance, and the new court, called "The Courts of Justice Compensation Court," will be held in the court where the late Mr. Commissioner Phillips presided. The first statute in the new courts is the 28th of Victoria, chap. 48, entitled, "An Act to supply Means towards Defraying the Expenses of Providing Courts of Justice and the various Offices belonging thereto, and for other purposes." The cost of erecting the courts will be borne by money provided by Parliament to the extent of the value of property surrendered, and of relief to the public by the cessation of rents now charged to the public; secondly, by a contribution of 1,291,629*l*. 10s. 5d. three-per-cent. stock, placed out for the suitors of the Court of Chancery; and thirdly, by the taxation of suitors of the courts other than the Court of Chancery to be accommodated in the building. The second statute is the 28th of Victoria, chap. 49, entitled, "An Act to enable the Commissioners of Her Majesty's Works and Buildings to acquire a Site for the Erection and Concentration of Courts of Justice and of various Offices belonging to the same." The Commissioners are empowered to purchase land, and to enter upon the same. Questions of disputed compensations are to be decided by juries; and as to compensations to yearly tenants, such claims are to be determined in the manner prescribed by the 121st section of "The Lands Clauses Consolidation Act, 1845." The limit for the compulsory purchase of land is five years. The commissioners may pull down and remove any buildings on the prescribed lands, and may construct thereon such buildings and works as in their opinion may be necessary.

EMBANKMENT OF THE THAMES.

IN this stupendous undertaking, which, if carried out in good taste, will confer a character of grandeur upon the whole metropolis, it is to be hoped that wide marginal roads will be formed along the quays, affording open and unbarred views of the noble river, and of the many important buildings along the old shore.

The necessity of thoroughfares wide enough for ranges of trees and plantations, at suitable intervals, is on all hands admitted, so that now, in the days of horticultural perfection at which we have arrived, the opening of two central boulevards, north and south of the river, may afford to the whole population the inappreciable accommodation of two straight and open routes to the City, coupled with the satisfaction which no existing thoroughfare offers, of a healthful walk with a beautiful panorama.

Fears have been expressed lest the close obtrusion of large ranges, such as the crescent suggested to mask off the Adelphi, may mar the effect, as the too close approximation of any large structures or terraces to the river certainly would; but there is work enough to be done without pulling down Adelphi-terrace, which at present stands a monument of strength, simplicity, and utility, and which cannot interfere with any well-digested plan for utilizing the foreshore, and making it tributary to the picturesque effect of these works.

There are, however, misgivings lest, after the thrifty manner of modern builders, "adding house to house until there is no space left," the fifty or more acres of reclaimed land may be so constipated with brick and mortar as to give little room for the realization of the ideal embankment so earnestly hoped for, and so much needed in this great commercial city.

Entering on the south side from Westminster Bridge, there is ample room, about 110 ft., for causeway and plantation, but none for buildings, till past Whitehall. The great expanse opens thence to Hungerford. Openings will of course be preserved to the Duke of Buccleuch's Gardens, possibly to Whitehall and the Admiralty; but no niggard spirit should interfere to stint open spaces or intercept the view. Then Somerset House and the Temple Gardens will remain unmasked, and present the old familiar aspect as worn in the days of wherries; but on the south side nothing is revealed save the embankment from Westminster Bridge to the Bishop's Palace, which advances upon the bed of the old Thames about 130 ft. and projects 30 ft. in front of the Surrey arch! Should any portion of this reserve, about 140 ft. wide, be built upon, then vanishes the enchantment of a scene which, if judiciously effected, will excel all other European great cities as to their internal rivages.

The roadway next the splendid quay wall should be 80 ft. wide at least, on the Lambeth side: the views of the City and its churches, and other monuments, will be transcendental from this side; and no portion of the reclaimed embankment ought to be cumbered or obstructed with buildings, however graceful in architecture, on the line drawn from the extreme south end of Westminster Bridge, parallel with the direction of the quay wall.

It is to be regretted that this most unhappy and inappropriate site should have been selected for a sanitary institution. For an incurable hospital it certainly would have been a judicious position; and opposite the illustrious though sunken Houses of Parliament, which are intruded 40 ft. upon the rival range; raised also to a much higher elevation than the latter; both edifices might stand as pillars of Hercules, on either side of a narrow strait, contracting the flood of the river, and screening off the continuity of a vista that if unobstructed must be pleasing.

The Houses of Parliament stand wholly, from the clock-tower, on the bed of Old Thames, occupying an average width of 120 ft.; and the new quay wall, in continuation eastwards nearly ranges with its river front, being set back 40 ft.: therefore this building will terminate the new north esplanade: one half of the elevation will be occulted by the land arch of the bridge; and pity it is that the Houses of Parliament had not been raised on a *pian terreno* of arches; but the architect had no conception of the changes about to be wrought in the vicinage.

If the towering hospital is built on the opposite side, without an interval of at least 80 ft. of roadway, however ornate and effective the structure may be, it will seriously prejudice Mr. Barry's great work, and spoil the embankment on both sides.

The lugubrious effect of fine buildings ranging close to the water's edge is well exemplified in Venice. It would be little better in London, though the ground rises on the north side; but the grand desideratum is increased facility of intercourse for a population now totally traffic-bound. This opportunity now offers as a natural tribute, and not through the violent and costly irruption of railways. Let it not be lost.

QUONDAM.

THE MIDLAND HOTEL AND STATION DESIGNS.

SIR,—In your notice and description of the accepted design for the Midland Hotel and Station, you append a foot-note stating the amounts of the estimates furnished by the several competitors. The great difference in the amounts of those estimates can easily be accounted for by the extent of bed-room accommodation furnished by each design. The estimates under 200,000*l*. may be considered to provide bed-rooms approximating to or in exact accordance with the printed instructions of the company; viz., 150, with a proportionate number of servants' and officials' rooms in addition, as would reasonably be inferred.

My design gave accommodation only for 161 visitors' bed-rooms, 27 dressing-rooms, and 58 servants' rooms for visitors and hotel domestics; hence the comparatively moderate estimate of 164,000*l*. as against 300,000*l*. of the plan chosen by the Board. It is manifest that the addition of two extra stories of bed-rooms to a building of 600 ft. frontage must necessarily give it a vast advantage in dignity and importance of effect over one of less altitude, providing less accommodation.

The exact adherence to printed instructions, as a rule, would fetter too much, and probably defeat the intention of getting the best design out of the profession by public boards; still, the extent of accommodation, involving as it does the ultimate cost of a building, is of such primary importance to shareholders in a commercial undertaking, that it ought not to be left to the individual discretion of the competitors themselves, as in this case.

G. SOMERS CLARKE.

IPSWICH TOWN HALL PLANS.

AT the last meeting of the Ipswich town council, the Estate Committee reported as follows:—

"Your committee have thought it desirable there should be a distinct understanding with Mr. Bellamy as to the remuneration to be received by him as architect of the new town-hall. And they have made the following arrangement with him (subject to the approval of the council), namely, that he should be paid a commission at the rate of 5 per cent. upon the amount paid to the contractor, including the value of the old materials, which are for this purpose agreed to be taken to be of the value of 451*l*., and that he should also be paid the sum of 5*l*. 5s. for every journey he has to take to Ipswich in connexion with the works, the same to be in full for his time and travelling expenses.

Your committee have also examined and (subject to the approval of the council) have agreed to pay the following charges made by Mr. Bellamy for his professional charges and his expenses up to the present time:—

For several journeys to Ipswich at the request of the committee	£21	0	0
Finished drawings for the council	21	0	0
Journey to Ipswich and copying finished drawings	5	5	0
Journey to Ipswich to meet committee, and give explanation as to working drawings	5	5	0
Duplicate working drawings	15	15	0
	£68	5	0

Your committee recommend that the sum of 200*l*. should be now paid to Mr. Bellamy on account."

Several members objected to the arrangement.

Mr. Grimwade said it would be a dangerous temptation to Mr. Bellamy when he happened to be in London to run down to Ipswich and earn five guineas. The council had to appoint two very expensive officers in addition to

the architect—the clerk of the works, to whom they were going to pay 240*l.*; and the borough surveyor was to receive a considerable sum. Mr. Bellamy had also appointed some gentleman—would they have to pay him?

The Mayor said no.

Mr. G. Mason said Mr. Bellamy was called upon by the committee to send in a set of designs, which the committee approved, and made certain alterations in them, and these alterations they required to be shown on a new and complete plan, to be laid before the council, that they might approve the plan as made by Mr. Bellamy and altered by the committee. That was the explanation of the 21*l.* The charges for travelling expenses were for journeys made at the request of the committee. As to the set of duplicate plans, the usual custom was for the architect to hold the plans as between the builder and the proprietor; but in this case the town-clerk was required to hold the plans, and, therefore, Mr. Bellamy had to have another set for himself: that was an extra for which he was entitled to charge.

Ultimately the report was sent back to the committee for reconsideration.

SMOKE-CONSUMING APPARATUS.

Sir,—I have several manufacturing clients who are anxious to adopt any simple but effective apparatus for the consumption of smoke, having reference especially to the furnaces of short tubular boilers; but they fear that the result may, as in most cases, prove unsatisfactory.

Many of your readers have probably, at some time, had experience in the matter; and, I doubt not, will willingly recommend an apparatus they know to answer its purpose effectively. B. A.

COMPENSATION CASES.

Railway Compensation. — At the Sheriff's Court, Red Lion-square, on the 5th inst., before Mr. Under-Sheriff Burchell, a railway compensation case,—"Butcher *v.* The Midland Railway Company,"—occupied the whole day. Only nine special jurors appeared, and no *tales* was prayed by either side. Mr. Digby Seymour, Q.C., and Mr. Waddy were for the claimants, Messrs. George Butcher and Sydney James Butcher, coal merchants, Wharf-road, Old St. Pancras-road, who claimed 2,000*l.* for the remainder of their lease,—5¼ years,—and for the destruction of their business by the company taking their premises, where they had carried on trade for some years. Mr. Lloyd and Mr. Alfred Wills represented the company, who had made an offer of 750*l.*; but the claimants demanded a special jury to assess the amount to be awarded. Witnesses were examined on both sides; and there was a material difference in the opinion of the valuers as to the property. The theory advanced on the part of the claimants was, that two years' clear profits, amounting to 1,000*l.*, should be given for the annihilation, as it was termed, of the business. Mr. Clark, of Farebrother, Lye, & Clark, stated that the lease of 5¼ years was not a marketable commodity. He would give one year's profits for the remainder of the term, and two years' if it could be shown that the business would be utterly destroyed. One of the witnesses for the company said that he had found that, after compensation was given, persons could always find other premises for their occupations. The jury assessed the compensation at 800*l.*

New Law Courts.—On Tuesday, the first case of compensation was heard, Sir Chas. G. Young, Garter King of Arms, as trustee, *v.* The Commissioners of Public Works and Buildings. It took place at the Old Insolvent Debtors' Court. The property in question was the freehold house 253, Strand, known as the Holyrood Palace Public House. The claim was for 10,926*l.* Difficulty was experienced in obtaining jurymen: and ultimately, by consent of both sides, the compensation was assessed at 8,500*l.*

OPENING OF AN ANCIENT MOUND IN CUMBERLAND: CONCENTRIC CIRCLES.

A few hundred yards on the east side of a remarkable stone monument known as Long Meg and her Daughters, at Maughanby, in Cumberland, there was, till lately, a mound, then rising only about 4 ft. above the surface. This mound was recently in course of levelling, when it was found to contain a large number of cobble stones mixed up with earth, and partly covering some large boulders, one standing, but all the others in a fallen position, which however showed that there had been eight stones planted in a circle of about 18 ft. in diameter. The stones were about 4 ft. each in length. Within the circle was found a rough stone kist, of an oval shape, 3 ft. 9 in. long from east to west, and 2 ft. 4 in. wide from north to south. At the east end of the kist was an urn containing burnt bones and charcoal. Bones were also found in the kist outside the urn. No one acquainted with such finds was present, and no implement or ornament was discovered. What is of most interest, however, in the case is, the fact that on one of the circle boulders there are incised five concentric circles near what must have been the top of the stone when upright. These are thus described by the Rev. Jas. Simpson, vicar of Kirkby Stephen:—

"The diameter of the innermost circle is 4½ in., the next 7 in., the next 10½ in., the next 15 in., and the outermost 19 in. On the side facing inwards and from the south side of the outer circle a line runs off, forming four circular lines, and ending in a central point 14 in. from the centre of the other circle. On another stone that has stood on the west side of the circle, there are two incised circles, 4 in. in diameter, with some indistinct marks in the centre. These are dish-shaped. One of these circles is on what would be the top of the stone when standing in its original position; the other is a few inches from the top on the south side. The peculiarity of these concentric circles is that there is no horizontal line starting from a point near the centre and cutting the circumference, as is the case in those circles seen on Long Meg, and others that have been discovered in various parts."

In respect to the grave, or kist, the cobbles, the mound, and the bones, there are curious coincidences with the description of native Australian customs by Captain Wilkes, given in Lubbock's "Prehistoric Times." The Australian savages are said to have a remarkable superstition that "no one ever dies a *natural* death." They have a great dread of witchcraft, and believe in evil spirits. Their dead are arranged in a sitting posture, a practice which seems to have been well-nigh universal at one time. The grave is oval, and implements and weapons are buried in it. The vacancies are filled up with stones, and earth is heaped over the whole, making a mound 8 ft. or 9 ft. high. The natives bury the young and burn the old.

MONUMENTAL.

A sum of 120*l.* has been collected for the purpose of erecting a monument to Tom Sayers. The Marquis of Caermarthen's and the Hon. G. B. Bruce's names appear in the list for 5*l.* each.——The family of the late Dr. Graham, Bishop of Chester, have erected a monument to him in the cemetery at Chester. It is of a Mediæval character, executed in a white stone, and is composed of a square panelled pedestal, resting on a base and two steps, sloping up to an octagonal shaft, terminating in a floriated cross. The monument was designed by and has been executed under the supervision of Mr. Harrison, of Chester, architect.——Mr. Alfred Waterhouse, of Manchester, has submitted a design for the proposed testimonial at Chester to the Marquis of Westminster. It consists of an ornamental Gothic arch, with covered way and tower (intended to supersede the present Eastgate), the eastern front of the tower to bear an effigy of the marquis. The design has not been definitely accepted by the committee. The suggested demolition of the Eastgate has been protested against; it is not an essential for the erection of the proposed memorial.——A monument in St. Peter's, Rome, to the memory of Pius VIII., executed at the cost of the late Cardinal Giuseppe Albani, by the sculptor the Commendatore Tenerani, has been uncovered to the public. This monument is placed at the entry of the sacristy, the door of which is brought into the work. The architectural composition forms three stories. The kneeling Pontiff, with clasped hands, is placed over the door in the lower story; the middle one has statues of Peter and Paul, with figures of Prudence and Justice on the basements in *basso-relievo*; and in the upper compartment the sculptor has placed a sitting figure of the Saviour, looking down and extending his arms towards the earth. This work occupies the only hitherto available space for a Pontifical monument remaining in the Church of St. Peter, which, for many centuries, has been the burying-place of the Roman Pontiffs.——Mr. Foley, R.A., has just completed the model for his bronze statue of Lord Herbert, to be erected in front of the War-office, Pall Mall. The *Art Journal* says,—"This work promises to rank among the very finest portrait-statues its author has produced; and to all acquainted with the unobtrusive bearing and high intellectual refinement characterising the *physique* of the lamented nobleman, it will be a matter of gratification to know how thoroughly such characteristics have been rendered by the artist. The figure, in peer's robes, is standing, the head downcast, absorbed in thought, the face partially supported by the half-closed right hand, while the left upholds the elbow of the former. The drapery forms are rich and varied, but so arranged as to sustain by their repose that sense of meditative abstraction centred in the head. We predict that this, Mr. Foley's first *out*-door work for the metropolis, will tend to revolutionise the sculptural aspect of our thoroughfares."

SCHOOL-BUILDING NEWS.

Piddletown (*Dorset*).—Schools for both sexes, including infants, with master's residence, have been erected and opened here. The whole of the buildings, the frontage of which measures about 130 ft., are encircled by a boundary wall. Accommodation is afforded for upwards of 300 scholars; and the entire cost, amounting to about 3,000*l.*, has been defrayed by Mr. Brymer. The masonry was executed by Mr. Charles Young, of this village, builder; and the carpentry by Mr. Wellspring, of Dorchester. The architects were Messrs. Wainwright & Heard, of Shepton Mallet.

Kidderminster. — The new Meeting Schools have been re-opened. Mr. R. Thompson has carried out the work of rebuilding under plans prepared by Mr. Smalman Smith, of Stourbridge, architect. The cost altogether has been 1,600*l.*, and from 50*l.* to 100*l.* are still needed. The schools are intended to accommodate 130 boys and the same number of girls.

Wakefield.—New parish church schools are to be erected here. Mr. W. Watson has been appointed the architect. The design is an adaptation of Early English Gothic, and the walls are to be of pitched face stones, and the principal windows of tooled work of an ornamental character. The building comprises a mixed school-room, 65 ft. by 37 ft.; an infants' school-room, 40 ft. by 22 ft. 6 in.; and two class-rooms, 20 ft. by 13 ft. 6 in. each. One of the entrances is surmounted by a bell-turret. The roofs are high pitched, and will be covered with blue and purple slates in bands or patterns, surmounted by an ornamental ridge crest. The estimated cost of the whole is 1,500*l.*

Doncaster.—New National Schools are to be erected here. Mr. Teale, of Doncaster, has been requested to furnish plans for the building: and the estimate which he gives, for the edifice which he proposes, including houses for master and mistress, playgrounds for boys and girls, ornamental fencing, and architect's fees, amounts to 3,800*l.*

DISSENTING CHURCH-BUILDING NEWS.

St. Leonard's, Bromley (*Middlesex*).—It is proposed to erect a Congregational church and schools in this densely populated neighbourhood. The church, which is to be of brick and stone in the Italian style, is to be erected first, giving accommodation for about 750 persons, including children. Mr. J. W. Morris is the architect.

Preston.—St. George's Church has just received the addition of a baptistery and memorial font. The font is of polished serpentine, and has been made in Cornwall by the Lizard Serpentine Company. The platform is of polished Aberdeen red granite. The flooring of the baptistery is of Minton's glazed tiles, margined with a polished red granite step. The pillars at each end of the baptistery are of cast-iron, with wrought bands and leaf enrichments. The baptistery is separated from the body of the church by an oak parclose. Mr. Holmes, of Lancaster, executed the carving; and Mr. Ladyman, of Preston, the woodwork generally. The style throughout is of the early part of the thirteenth century. Both font and bastistery, in every detail, have been made under the superintendence of, and from designs, sketches, and full-size drawings prepared by Mr. James Hibbert, of this town, architect.

Wolverhampton. — The new Congregational Church, in Queen-street, Wolverhampton, has been opened with divine service. The outside dimensions of the new chapel are 90 ft. by 65 ft., affording seat-room for about 1,250 adults, allowing 20 in. to each person; and a large lecture-room, capable of accommodating 400 persons, is provided underneath. The general character of the architecture is Italian, freely treated. The principal fronts are faced with Pillough stone, the main building ashlar, and

the basement with coursed work, hammer-dressed on the face. The principal front—that next Queen-street—consists of a centre and two side wings. The centre contains a large circular-headed Venetian window and a double entrance-door on the ground story. The side wings contain the gallery staircases, and have entrance-doors of corresponding design to the central doorway: over that next Market-street a tower and spire rise to a height of 110 ft. The front, next Market-street, contains above the basement two tiers of windows grouped as triplets, and is finished with a cornice blocking course, and ornamental finials. The lower portion of the main building is rusticated, and the upper portion enriched with pilasters and engaged columns of stone in the window jambs. The plan of the chapel internally is a parallelogram, divided into nave and side aisles by two rows of coupled columns, and having entrance lobbies and staircases at the north and south ends. Galleries are carried over the side aisles, and over the north end of the nave, whilst an organ-gallery is provided at the south end. The nave columns are arranged vertically into two architectural orders, the lower one supporting the gallery, and the upper one a lofty clerestory with circular-headed Venetian windows, and an enriched coved ceiling. A chamber for ventilation is provided over the ceiling of the side galleries. The style in which the interior is finished is in harmony with the exterior, the nave columns having foliated capitals, and the fittings generally being of a decorative character. The entire cost, including a new organ, and the securing the freehold of the land, will be between 9,000*l.* and 10,000*l.* The builders were Messrs. Trow & Sons, of Wednesbury; the carving having been executed by Mr. Frampton, of London; and gasfittings by Mr. Thomason, of Birmingham; the whole from the plans, and under the superintendence, of Mr. George Bidlake, of Wolverhampton, architect.

STAINED GLASS.

St. Barnabas's, Bristol.—A memorial window is in process of erection in the chancel of this church, at the expense of the Rev. J. J. Coles, M.A., the incumbent of the parish. The east chancel window consists of three lights, and in the centre light is placed the figure of St. Barnabas. Above is a representation of the Crucifixion, with the Virgin Mary and St. John at the foot of the cross. In the side lights, and on either side of St. Barnabas, are the Apostles SS. Peter and Paul; and over these, flanking the Crucifixion, are full-length figures of the two Marys. The whole is placed on a geometrical foliated ground. The artist was Mr. Bell, of Bristol.

St. Mary's, Hulme.—The remaining two lights of the east window of this church have just been filled with stained glass, by Messrs. Hardman, of Birmingham, thus completing about two-thirds of this work, the tracery in the head of the window still being filled with the common glass which was in the whole window at the time of the consecration of the church. The completed portion of the window contains eighteen subjects, representing the principal events in the human life of our Lord. The tracery will be filled in with a representation of our Lord in glory, with angels, evangelists, and saints. The subjects selected are the Annunciation, the Adoration of the Magi, the Presentation in the Temple, the Baptism, the Ministration of Angels after the Temptation, the First Miracle at Cana, the Sermon on the Mount, the Transfiguration, the Raising of Lazarus, the Last Supper, Washing the Disciples' Feet, the Entry into Jerusalem, the Agony in the Garden, Bearing the Cross, the Crucifixion, Nicodemus closing the Sepulchre, the Resurrection, and the Ascension. The window is of unusual size—48 ft. high by 25 ft. wide. The cost will be 1,000*l.*, the whole of which will be borne by one member of the congregation.

Christ Church, Banbury.—The decoration of the chancel of this building has been completed by filling up the two side windows with stained glass, containing angels, with scrolls, &c. The work was done by Mr. T. Dury, of Warwick, to whom was entrusted the central window in memory of the late Prince Consort. The mural decorations were by Mr. Cottam, of Banbury.

St. Paul's Church, Warwick.—A stained glass window, subscribed for by the parishioners, has been fixed in this church, in memory of an old and respected attendant. The subject selected by the artist, Mr. T. Dury, of Warwick, represents a guardian angel closing the eyes of the departed.

St. Peter's, Newcastle.—A stained glass window by Messrs. Hardman & Co., of London and Birmingham, has just been placed in the south transept of this church, by Mr. Matthew Charles Woods, Jesmond House, and Miss Woods, Eldon-square, to the memory of their mother. The centre light represents the Crucifixion, on either side of which are the figures of the Virgin Mary and St. John. The fixing of the window was done by Mr. Lawson.

St. John's Chapel, Devonport.—The most recent improvement in this chapel has been the erection of a stained memorial window by the Ramsey family. The general aperture of the window is divided into two parts, by means of a mullion composed of Bath stone, and the illustrations are descriptive of Christ blessing little children, and of the patriarch Jacob blessing his sons, and beneath the former the text, "He took them up in His arms, put His hands upon them, and blessed them," is inscribed within an ornamented quatrefoil. Beneath the second illustration are the words:—"The Almighty shall bless thee with blessings of the Heaven above," in a similar form as those on the opposite side. At the summits of both portions of the window are the crests and arms of the Ramsey and Billing families. The whole is surrounded by a foliaged border. Mr. Wailes, of Newcastle-on-Tyne, was the artist. The masonry was executed by Mr. Yelland, stonemason, Devonport, and the window was fixed by Mr. T. Earl.

Books Received.

VARIORUM.

The National Boiler Insurance Company (Limited): Chief Engineer's Report. 1865. General Offices, St. Ann's-square, Manchester. This report states that the company have acquired an extensive and rapidly-increasing local connexion among boiler owners. No boiler insured by the company had exploded during the past year, although fifty-three serious explosions had occurred in the United Kingdom, destroying forty-seven lives, and injuring seriously eighty-two other persons. Deficiency of water was the chief cause, ten having occurred from this cause, and eight from external corrosion. A good fusible plug, it is remarked, would have prevented most of those arising from want of water.——"A Scheme for the Supply of Water to Sheffield, Rotherham-cum-Kimberworth, and Doncaster, &c." By Matthew Bullock Jackson, C.E. Westminster: Vacher & Sons. The author's proposal is "to secure for all time the *whole* of the water flowing from the drainage areas of the rivers Derwent, Noe, Westend, Alport, and Ashop, and their tributaries above the requisite level," so as to obviate any necessity of having dangerous reservoirs connected with the supply. The daily supply to Sheffield and its neighbourhood is estimated at 8,500,000 gallons; to Rotherham and neighbourhood, 2,500,000 gallons; and to Doncaster and neighbourhood, 1,000,000 gallons. The total estimated cost of the supply is 495,000*l.*; and the estimated net income 59,906*l.*——"Richard Cobden: a Biography." By John McGilchrist. London: Lockwood & Co. The author of this volume has endeavoured to tell the story of Mr. Cobden's life and public services, as far as possible in his own words; and hence, although there is a good deal of compilation throughout, the result has, to a certain extent, the interest of an autobiographical work. The author also acknowledges his obligations to personal friends and acquaintances of Mr. Cobden, as well as to books already published.——"A Manual for the Classification, Training, and Education, of the Feeble-minded, Imbecile, and Idiotic." By Martin Duncan, M.B., and William Millard. Both of the authors of this volume are connected with the Eastern Counties Asylum for Idiots and Imbeciles,—the former as honorary consulting surgeon, and the latter as superintendent. They have, therefore, had good opportunities of becoming versant practically with their subject; and it is their opinion that a good deal can be done for the improvement of idiots and imbeciles; although of course, where there are organic defects in the brain, these may not be alterable or amendable. Although an idiot, however, may not have the grand commissure of the great brain united in the median line as the corpus callosum, he may, to a certain extent, be teachable, so as to convert him from uncleanly to cleanly habits, and, perhaps, to make a good and steady labourer of him, although he may remain quite incapable of managing and expending the earnings of his industry in a rational and discreet manner. Some idiots and imbeciles may thus not only be made endurable, but even self-supporting members of the human family, and more still than this may yet be done. We recollect, by the way, of a case of two idiot twin-brothers, one of whom happened to get his skull fractured, the chief consequence of which was that he ceased to be an idiot, although his brother never showed any symptoms of change. Fracturing the skull, no doubt, is a heroic remedy which is not likely to be *tried* upon any idiot; but the fact shows that even organic defects producing idiocy may not in themselves be absolutely irremediable, and that some pressure on the brain at one period of life may cease at another, and put an end to the idiocy.

Miscellanea.

The Guthrie Memorial Chapel, Clifton College.—By accident, a paragraph respecting the erection of the Guthrie Memorial Chapel at Clifton College was inserted under the head of "*Dissenting* Church Building." The college is Church of England; and the chapel now building is in memory of the late Rev. John Guthrie, canon of Bristol, chairman of the council.

Munificence of a Late Glasgow Merchant.—Mr. Alexander Kay, insurance broker, who died last week, has, we understand, bequeathed the munificent sum of 10,000*l.* for the purchase and maintenance of a public park for Kilmarnock, and also 6,000*l.* to build and endow in the same town two public schools for working men, where a "good plain practical education" will be given.

Brickwork.—Long bands of iron hooping are now extensively used inserted along brickwork to give additional strength. I would suggest six slits on the broad surface of each brick (to be formed in the mould) to receive the bent ends of short pieces of iron hooping. Bricks laid side by side, or end ways, can be firmly clutched or *ironed* together by a tap with the trowel. The iron being sunk in an indention level with the brick, with a slight layer of mortar to rectify any surface inequalities, there would be no obstacle to the level setting of the work. For vaults, arches, chimneys, &c., I believe it would prove valuable.—R. Taylor.

A Baptist Chapel destroyed at Luton.—Just after the congregation left the Round Meeting on Sunday evening, a fierce gust of wind blew down the gable end of a chapel which is being erected by Messrs. A. & T. Smart, at a cost of 2,000*l.* This building, the memorial stones of which were laid by Sir Morton Peto and Mr. J. Everitt, stands close to the old chapel, known as the Round Meeting, the roof of which was smashed in, and the organ which stood in the gallery completely demolished. The front windows of the old building were blown out, and so complete is the wreck that the congregation will have to assemble at a school-room, at some distance, until the new chapel can be completed. The loss is estimated at not less than 300*l.* Had the accident taken place half an hour earlier some hundreds of persons would have been killed or injured.

Lord St. Leonards' Arbitration Bill.—On Wednesday evening a delegate meeting of the London trades societies was held at the Bull Inn, Old Bailey, to take into consideration the Bill introduced by Lord St. Leonards into Parliament, entitled "An Act for the Establishment of Equitable Courts of Conciliation and Arbitration." Mr. Danter, of the Amalgamated Engineers, occupied the chair. The Bill having been read in full, a long discussion took place, and eventually the following resolution was adopted:—"That, in the opinion of this meeting, the Bill of Lord St. Leonards for establishing Courts of Conciliation and Arbitration is deserving the careful attention of the trades of the United Kingdom, and we hereby approve of a deputation waiting upon his lordship to consult him upon some uncertain points in the proposed Bill, and that this meeting stand adjourned to receive the report of such deputation."

Aeronautics.—A Parisian speculator proposes to organise a balloon service to ply between the Place de la Concorde and the Champs de Mars during the Universal Exhibition of 1867.

The Local Government Act.—The seventh annual report on the working of the Local Government Act of 1858 has just been published by the Secretary of State for the Home Department. It gives a summary of the business transacted in the office during the year that has elapsed since the last report appeared.

Gas.—The dispute between the Folkestone Gas and Coke Company and the Folkestone Gas Consumers' Company has been settled. All the shares in the latter company have been bought up by the old company, and an offer has been made to supply Shorncliffe Camp with gas at 3s. 9d. per 1,000 ft., provided a specified quantity is taken.

A Wet Dock for Whitehaven.—The subject of a wet dock engaged the attention of the Trustees of the Town and Harbour of Whitehaven, at a special meeting of that body, held last week. Mr. Coode, C.E., was present, having been invited to meet the trustees. Nothing definite, however, was arrived at. A resolution was passed to the effect that the cost of the proposed dock should not exceed 100,000*l.*; and Mr. Coode was instructed to report as to the best site.

Copyright in Works of Fine Art.—A conference, invited by the Society of Arts, was held on the 2nd inst., with reference to an endeavour to procure an amendment of the laws relating to copyright in works of fine art, and especially in engravings. Mr. W. Hawes presided, and Mr. Graves, Mr. Geo. Cruikshank, Mr. Boydell, Mr. H. Bohn, Mr. Godwin, Mr. Roberton Blaine, and others, took part in the proceedings. The Council will doubtless feel sufficiently assured to persevere in the preparation of a Bill for consideration.

Terrible Catastrophe at Cronstadt.—A few days back fifty-four lives were lost at Cronstadt in a very sad manner. At half-past two in the morning a wooden building, constructed on Battery No. 10, serving as a habitation for 250 workmen, took fire, and was in a few moments enveloped in flames. There were three doors to the building, but only one was unlocked, and this opened inwards. The unfortunate men, pressing forward in crowds, kept it closed, and it had at length to be broken down, but fifty-four men had already perished. The rest were rescued with great difficulty.

Progress of the Post-office. — In 1864, 679,084,822 letters passed through the post, being an increase of 37,000,000 over the previous year; and in the same period the number of book-packets and newspapers which were transmitted rose to over 50,000,000, or 7,000,000 more than in 1863. This increase was more than proportionate to the growth of population and multiplication of houses throughout the country. Our correspondence with foreign nations also continues rapidly to expand. The speculative mania of recent years has added to the revenues of the Post-office, in consequence of the vast distribution of circulars to which it has given rise. The Post-office Savings Banks continue to flourish. In London there is 1 depositor to every 7 persons; in the rest of England and Wales, 1 to every 14; in Scotland, 1 to every 17; and in Ireland, 1 to 70; the average for the whole kingdom being 1 to 15.

Lighting up the National Collections.—A meeting, convened by the hon. secretaries of the South London Committee of Museums, and so largely attended that the audience filled, throughout the proceedings, the greater portion of the Lambeth Baths, was held on Friday night, the 2nd inst. Mr. G. Murphy was called to the chair. The chairman read correspondence between himself and Mr. Layard, M.P., as to certain objections of the member for Southwark to the introduction of lights into the British Museum and the National Gallery. Captain E. Dresser Rogers moved, Mr. T. W. Roffey, vestry-clerk of Lambeth, seconded, and Messrs. G. Thorneloe, gas engineer, and Booker (a working man) spoke in support of a resolution of hearty approval of the past action of the South London committee, which was carried without a single token of dissentient feeling. The Rev. Dr. Hugh Allen (rector of St. George-the-Martyr, Southwark) proposed the extension of the movement to the whole of the metropolis, which was adopted with much enthusiasm.

York Fine Arts Exhibition.—The site for the exhibition has been determined upon. It is to be held in the Asylum field in Bootham.

The Liverpool Dock Engineer's Salary.—The Liverpool Dock Board have unanimously agreed to raise the salary of Mr. Lyster from 2,500*l.* to 3,500*l.* a year.

York Minster.—Workmen are now engaged in removing the stonework which enclosed the communion-table, preparatory to the erection of a railing in brass-work, executed by the firm that designed and constructed the Hereford screen.

St. David's Cathedral.—The subscription towards the restoration of St. David's Cathedral is progressing favourably, and the amount already promised is over 9,200*l.* The subscription list is headed with a bequest of 2,000*l.* by the late Rev. J. M. Trehearne.

Health in Large Towns.—The annual rate of mortality last week was 23 per 1,000 in London, 28 in Edinburgh, and 27 in Dublin, 42 in Liverpool, 33 in Manchester, 34 in Salford, 26 in Birmingham, 38 in Leeds, 31 in Sheffield, 33 in Bristol, 33 in Newcastle-upon-Tyne, 26 in Hull, and 29 in Glasgow.

Co-operation.—At the annual meeting of the Manchester and Salford Equitable Co-operative Society, it was stated that the members commenced operations with 100*l.* six years and a-half ago, and had now a capital of nearly 14,000*l.* They started with one shop and fifty members; they have now twelve shops and more than 2,000 members. The business of the past year had exceeded that of 1864 by 5,000*l.*

The Birmingham Gallery of Art.—The Free Libraries and Museums Committee intend, we hear, to open this gallery to the public as early as possible. Though, unfortunately, the town does not possess many works of art, the committee will be able to overcome this difficulty by borrowing pictures for the purpose of exhibition. The authorities of the South Kensington Museum have agreed to contribute.

Liebig on Ventilation.—Liebig suggests that in close rooms and on ship-board deficient ventilation may be compensated for by the use of hydrate of lime. Eighteen or twenty pounds of slaked lime will absorb 38 or 39 cubic feet of carbonic acid gas, which would be immediately replaced by an equal volume of fresh air entering through the crevices. There is nothing very new in this suggestion, however.

Drainage of Oxford.—With regard to the drainage of Oxford, a matter of great interest to all who live on the lower part of the Thames, Mr. Bazalgette has recommended the construction of a main outfall sewer of 6 ft. diameter, just below Sandford Lock, and that the drainage should be carried to Walton Well, where it can be made to flow over the land to the old channel of the river by gravitation, or be diverted to the main outfall sewer by a branch drain.

Steam Fire-engines.—Last week a trial of steam fire-engines, by Messrs. Merryweather, took place at the Surrey Canal, in presence of the Metropolitan Board of Works. The performance of the largest engine, formed on the same principle as the "Sutherland," which gained the first prize at the International Contest, Crystal Palace, 1863, was astonishing, projecting a jet of water, of 6 in. circumference, in the air 338 ft. This engine is the "Portsmouth," and is purchased by her Majesty's Government for service in Portsmouth Dockyard.

TENDERS

For additions to the Roman Catholic Diocesan Seminary, Belfast. Mr. John O'Neill, architect:—

McLaughlin & Harvey	£6,468	5	10
Ross	5,900	0	0
McAuley	5,870	0	0
Connor & Son	5,840	0	0
Murphy	5,295	3	2
Byrne (accepted)	5,090	0	0

For a detached residence in London-road, Enfield. Mr. T. J. Hill, architect. Quantities supplied by Mr. H. W. Broadbridge:—

Woodward	£2,300	0	0
Rivett	2,293	0	0
Bell & Son	2,118	0	0
Webb & Sons	2,059	0	0
Colls & Son	1,964	0	0
Parman, Brothers	1,897	0	0
Fairhead	1,876	0	0
Cushing	1,862	0	

For constructing new sewer, Manor-road, Bermondsey. Mr. Geo. Elkington, surveyor:—

Reddin	£2,489	0	0
Bloomfield	1,750	0	0
Thackeray & Pearce	1,595	0	0
Kelly	1,460	0	0
Kent	1,458	0	0
Parker	1,397	0	0

For Primitive Methodist Chapel at Stratford-upon-Avon. Mr. Thomas T. Allen, architect. Quantities not supplied:—

Court	£446	7	0
Roberts & Son	425	0	0
Price & Holtom	418	14	0
J. & G. Calloway (accepted)	395	0	0

For new manufactory in Drummond-road, Bermondsey, for Mr. James Peek. Messrs. Davison & Scammell, architects:—

Hill & Keddell	£20,244	0	0
Brass	19,894	0	0
Higgs	19,544	0	0
Adamson & Sons	19,516	0	0
Coleman	19,450	0	0
Conder	19,399	0	0
Gammon	19,330	0	0
Hart	19,120	0	0
Macers	19,000	0	0
Trollope	18,943	0	0
Munday	18,590	0	0
Browne & Robinson	18,435	0	0
Dove	18,430	0	0
Rider & Son	18,160	0	0

For erecting a pair of villas at Upper Tooting, Surrey, for Mr. Herbert W. Taylor. Messrs. Wimble & Taylor, architects:—

Colls & Son	£3,374	0	0
Adamson & Son	3,300	0	0
Perry & Co.	3,275	0	0
Marsland & Sons	3,175	0	0
Gulland & Thompson	2,900	0	0

For the erection of two cottages and stables at Mortimer, Berks, for Captain Adams. Messrs. William & J. T. Brown, architects:—

Sheppard	£1,136	0	0
Barnicoat	1,063	0	0
Dodd	1,059	0	0
Strong	1,026	0	0

For two detached villas for Mr. John Peache, Seven Oaks, Kent. Mr. H. Cronk, architect:—

Hyder	£3,555	0	0
Stevens	3,350	0	0
Yates	2,958	0	0
Hoadley	2,890	0	0
Wiltshire	2,875	0	0
Potter	2,860	0	0

TO CORRESPONDENTS.

W. & T.—M. L.—W. D. L. M.—R. A. F. C.—H. F.—H.—P. & K.—T. R. C.—G. W.—P. S.—Mr. W.—C. C. H.—H. H.—T. J. A.—T. J. H.—F. B.—C. N.—T. K.—T. O.—F. C.—G. S.—J. O. N. R.—J. GN.—A. D.—G. R. R.—S. (we seldom illustrate designs not to be executed).—T. L. J. (it would be difficult to make such an arrangement safe).—W. P. (next week).—M. O. T. (ditto).—H. I. W. (ditto).—J. R. (a meeting is to be held, when he can state his views).—B. B. (no reason to doubt the correctness of the amount stated).—A. & P. (too late).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

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[Advertisement.]

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II. F. Webster, R.A.—Spring, engraved by Pelee.
III. W. W. Story.—A Sibyl, engraved by R. W. Stodart.

The Literary Contributions.

1 John Ruskin, M.A.—The Cestus of Aglaia
2. W. P. Bayley.—Visits to the Paradise of Artists.
3 William Chaffers, F.S.A.—Saxon, Arabic, Persian, and Early Venetian Glass, with 12 specimens.
4 F. W. Fairholt, F.S.A.—Ancient Brooches and Dress Fastenings, with 18 examples.
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The Builder.

VOL. XXIV.—No. 1202.

What the Wild Waves are Saying at the Isle of Wight.

EVERYBODY remembers what Douglas Jerrold said in reference to the English *penchant* for celebrating every event by a public dinner. "If an earthquake were to engulph England to-morrow," said the wit, "the English would manage to meet and dine somewhere, just to celebrate the event." The remark made to us by a friend at Ventnor recalled to mind Jerrold's joke. Alluding to the gradual and certain inroads that the sea is making on the southern side of "The Garden Isle," and more particularly at Ventnor, our friend jocosely said,—"Well, you need not be surprised, when next you come over, to see us all perched on top of St. Boniface Down!" St. Boniface Down is a hill rising 800 ft. above the level of the sea; and, as Ventnor lies immediately at its base, it is only natural to suppose that the inhabitants would make for St. Boniface in any emergency of the kind. For the sake, at least, of the suffering multitudes who annually betake themselves to that delightful resort, in quest of that health which has been denied them elsewhere, let us sincerely hope that no such dire calamity may befal the English Madeira. And yet, it is not to be concealed that there are signs of regret and insecurity, if not of alarm, in Ventnor at the present moment. The sea *is* nearer to St. Boniface, and, consequently, nearer to the town of Ventnor than it was formerly. And it is advancing.

The history of the Isle of Wight furnishes abundant proof that a mightier conqueror than the Romans has set foot on its shores. Neptune has taken possessions that can never be regained. The islanders are being invaded by the great sea-king, and they have not hitherto been able to oppose his progress. The well-known Undercliff itself is the result of a succession of landslips from the chalk downs above. The Undercliff, which may be said to extend from Bonchurch to Blackgang Chine, a distance of about seven miles along the coast, consists of a series of shelves or terraces of chalk, sandstone, and rock, varying from a quarter to half a mile in breadth, and six miles in length, gradually sloping towards the sea, and ending in an esplanade generally 80 ft. or 100 ft. in height above the tide. This extensive alteration was occasioned by what is termed blue slipper, a very soft substratum full of springs, gradually undermining the upper sandstone. It is conjectured that the greater portion of the landslip occurred more than 1,000 years ago; but the undermining process is still going on in those portions of the cliff nearest the sea, though, of course, on a far less gigantic scale. At the eastern end of the cliff, the land between the sea-cliff and the pathway was recently swept away, and may now be seen lying in confused masses on the beach. The great landslip at East End, near Bonchurch, one of the grandest sights in the island, was the result of two landslips, one in 1810, of thirty acres; the other, eight years afterwards, of fifty acres. It is the peculiar formation of the Undercliff, sheltered as it is from all violent winds by the lofty downs above, that gives Ventnor, according to Sir James Clark, its superiority as a resort for invalids suffering from chest complaints. One odd consequence of the precipitous and broken nature of the Undercliff is, that in going to many of the houses, you ascend a flight of steps to reach the front door, while, if you wish to enter by the rear of the house, you will have to descend a corresponding flight. In the reign of Charles I., the small fort at Sandown, erected by Henry VIII., was removed, the sea having threatened to swallow up its "porter and three gunners," with its "eleven pieces of brass and iron ordnance," its "firkin of powder and seventy-eight hagbuts," its "chest of bows and arrows," and other formidable armament. "The remains of its foundations," says an old writer, "are sometimes to be seen when the tide is out, especially after a high spring flood." It is said that the old fort stood no less than 1,000 ft. further into the sea than the present fort, and nearer to the now demolished Royal Heath Villa, where John Wilkes spent the latter years of his life. To the south-east of the neat little village of Bembridge may be noticed a large bed of rock, called Bembridge Ledge, formed by the action of the tide washing the upper portions of the cliff away. On this ledge the ship *Henry Arlington* was wrecked thirty years ago. Once upon a time, long after the Isle of Wight had ceased to be Vectis, and Brading had ceased to be its capital, Brading Haven was a spacious green pasture, where kine were wont to graze. When we saw it, the haven presented a superficial area of seven or eight hundred acres of water, with one or two small crafts floating on its bosom—a very picturesque picture as seen from Brading Downs. At low water, its appearance is widely different. Then you see nothing but a broad expanse of mud, with the river Yar winding its muddy way like a great eel down to the sea. Various but futile attempts, it is said, have been made to reclaim the land. Every visitor to Freshwater has seen the Needles which form the northern point of Scratchell's Bay. There are three rocks so called—huge, misshapen masses of glittering chalk towering amid the blue waters, "like the pillars of some unfinished temple." These rocks are white, but black at their bases, and curiously streaked throughout with blue strata of flints. In the sun they have the appearance of striped silk. There can be no doubt that they once formed the original headland; but the sea, asserting its power, has isolated them from the mainland, and fashioned them into their present rugged and fantastic forms. Just one hundred years ago, the spiral rock, from which these rude giant columns are supposed to have derived their name, fell with a tremendous roar and a concussion that was felt all over the island. This rock, which was 120 ft. high, was known among seamen by the unlucky name of Lot's Wife. A lighthouse, built in 1858, stands on Needles Point, 700 ft. above the level of the sea. It is mounted with ten Argand lamps, and ten plated reflectors, whose light is visible eleven leagues off. The term, "iron-bound coast," does not apply to the Isle of Wight, whatever applicability it may have to other of the sea coasts of the kingdom.*

But let us return and hear what the wild waves have been saying more recently at Ventnor. If their story be not so poetical or romantic in its character as that already given, it may have a more practical importance and application. Ventnor, thirty years ago, was a mere village, "unknown, unhonoured, and unsung." It consisted of only a few huts, and its visitors must have been few and far between. The spiritual wants of the place were not large enough to support a church, while its spiritual wants of another sort were satisfied with one public-house. But Ventnor rose one morning and found herself famous. The highest medical authority in the land gave the opinion that the climate of Ventnor was superior to that of Torquay, or any other place on the south coast. The fortune of Ventnor was made. Year after year the picturesque terraces of the Undercliff were dotted with elegant villas, and the town rapidly increased in size and population: Ventnor is now a bustling town of 5,000 inhabitants. It has six places of public worship, six hotels, and all the luxuries of the age. Of the luxuries of the season, it has perhaps more than most other places. The Ventnorians are, naturally, very proud of Ventnor. They will almost persuade you into the belief that premature death is a thing unknown in the place. The inhabitants all die of that rarest of diseases elsewhere, extreme old age,—provided they do not fall over one of the cliffs. However, it is only proper to state, what must be pretty generally known, that the average death-rate in the Isle of Wight is lower than that of any other watering-place. And Ventnor is undoubtedly one of the healthiest places in the kingdom. Among the recent schemes projected, and partly carried into effect for the improvement of the town, were a pier and jetty, or breakwater. The undertaking, we are sorry to say, has proved a sad failure, and the money,—the enormous sum of 100,000*l.*,—has been literally thrown into the sea. Such, at any rate, is the opinion of a number of persons in Ventnor, who look upon the scheme as a mistake. Both pier and breakwater are of wood, large piles of timber being driven into the beach, and floored over with strong planks in the usual style of wooden piers. The interstices are filled up with stones to strengthen the foundation. The pier is built in the form of a curve, tending towards the breakwater, a sufficient entrance being left for the admittance of small vessels into a basin which answers for the harbour. Stout as the pier looks, it has proved altogether powerless to cope with the insidious waters. In one of its fits of tempestuous wrath, the sea has started nearly every timber, twisting its iron bolts and bars, as a child might twist a pin, and ripping up and coiling its zinc parapet as if it were parchment. There it stands, a complete wreck, and fitting monument of somebody's want of judgment. The breakwater, not being exposed broadside to the full force of the sea, as is the pier, has not suffered to the same extent. But the damage done does not rest here. Certain excavations made for the formation of the pier and harbour disturbed or undermined the foundation of a chalk cliff which overhangs the harbour. The result was a landslip; and the consequence of that, again, has been the ruination of a row of handsome and comparatively new villas situated on the summit of this cliff. These villas, lately comfortable dwellings, are now tenantless ruins, rent from top to bottom, as if they had been torn apart. One villa only has escaped, but how long it may remain intact is a question, since the gable end of another fell to the ground not a fortnight ago. Of the treacherous nature of some portions of the Undercliff there can be no doubt whatever. At the time of our visit, men were engaged in "shoring" with stones a part of one of the lower terraces which had given way. The soil had the colour of Fuller's earth, and looked as unstable as sand.

What more apt illustration of change than the weathercock? What changes like the weather?—

* Nor, strictly speaking, does the phrase apply to the "white cliffs of Albion." We read in last week's paper that, as a consequence of the recent storm and severe gales, the violence of the sea has considerably encroached upon the slip of land which connects the eastern cliff with the remainder of the sea-frontage at Dover. The whole of the promenade has disappeared, and a semi-circular inroad has been made upon the carriage-way.

what so fair to-day, what so foul yesterday? This is true of even Ventnor weather. There we were in the English Madeira in the middle of bleak and bare January; but not bleak and bare here. The sea is *not* like glass, and is less like a mirror; but its tiny waves dance in the warm sunshine, and chase and tumble over each other like children playing at catch! A group of fair islanders are instituting a vigorous search among the shingle for "Isle of Wight diamonds." Roses are actually in bloom in the open air; and have we not just left a pleasant parlour, fragrant with the smell of myrtle, hyacinths, and "sweet-scented stocks?" The trees have not lost their leaves, and the miles of ivy hedgerows testify to the wonderful fertility of the soil. There is hardly a breath of wind to disturb the smoke which is curling languidly to the clear blue sky from a score of villas. This is surely summer in winter. The pier lying there, like a stranded ship, presents a strange contrast to the calm beauty of the surrounding scene. It seemed scarcely possible that so sunny a spot could ever be visited by "the fury of the elements." Yet here were unmistakable proofs of an angry sea, and a terrible storm. Those tiny waves, glittering in the sun, may to-morrow grow into black foaming breakers, sweeping over the pier, and making the shingle rattle against the bathing coaches, or tossing it like hail on to the esplanade—"the shingle," as was explained to us with much gravity by a seafaring individual, "being a moveable body, acted upon both by wind and water." These shingles, which have done so much injury to the shores on this side of the island, have a curious history. Sixty years ago the beach at Ventnor, was covered with a beautiful smooth sand. There were no shingles cast of Rocken-end, about five miles distant. Now they entirely cover the shore from that place to Bonchurch, and extend to Freshwater in the opposite direction. They have been carried eastwards by the tides, which are said to be more rapid here than formerly, owing probably to the wearing away of many points of land and rocks that projected into the sea, and defended these creeks along the shore. During the recent violent storms, a large island of shingles, several acres in extent, was driven up to the west of the Needles. The shingles or pebbles consist of rounded silicious fragments, about the size of beans. They are of a great variety of colours, and some of them are very beautiful, particularly those known as Isle of Wight diamonds. However, it is the absence of shingle at Sandown and Shanklin, that has made these charming spots superior to Ventnor for sea-bathing. In the interests of visitors, as well as of the inhabitants themselves, we must here allude to a matter about which we heard a good deal of complaint from various quarters. We mean the accumulation of seaweed on the beach. Cart-loads of this article, carried in by spring tides, now lie rotting within a few feet of the favourite promenade of visitors. The smell during our visit was most offensive, and we are told that in warmer weather it is ten times worse. This detestable odour arises of course from the fact that the weed is not growing, and that the water laves it only at spring tides. Can nothing be done to utilize it? Seaweed, as is well known, is a valuable manure for land. What objections there may be to its being so used by the Ventnor agriculturists, we do not know. It is extremely doubtful, at all events, if the sea will, in this instance, turn sanitary commissioner, and carry the rubbish away again. Meantime it is a nuisance to the place, and, as we have said, the people have begun to feel it.

Since a pier is a boon to Brighton, and Ramsgate, and Ryde, and almost every watering-place, there is no need to argue that a pier would be an advantage to Ventnor. It seems evident, however, that the erection must be a stone one, and granite, if possible. Unfortunately for the Isle, her public works have not been particularly successful. Speaking of the new pier at Ryde, a local writer says,—"The new pier was commenced by a company called the Stokes Bay Railway and Isle of Wight Ferry Company. This afterwards merged into the Ryde Quay Company. Altogether their proceedings were enveloped in 'Egyptian darkness.' They carried on the works to the present state, and then mysteriously stopped, probably for lack of means, as well as lack of power. On the whole, the works are no improvement to the town in an ornamental point of view."

At Ashey Down, between Ryde and Newchurch, are the waterworks erected in 1854, "at a ruinous cost, by the over-zealous and misguided Ryde commissioners, notwithstanding the numerous warnings given them at the time by persons whose opinions, to say the least, should have had an impartial hearing." Our present interest being more particularly in Ventnor, we hope that the mistake made there may soon be rectified by the erection of a pier that shall be a service as well as an ornament to the place. What Sir Walter Scott said of the Isle of Wight generally, applies especially to Ventnor and its neighbourhood. He calls it,—"That beautiful island which he who once sees never forgets, through whatever part of the wide world his future path may lead him."

ON THE CONSTRUCTION OF IRON ROOFS.

We have occasionally to record disasters of more or less severity occurring during the erection of iron roofs. Not long ago a portion of the Ludgate-hill Station roof fell in; and still later we hear of the fall of a portion of the roof of the London-road Station at Manchester, of which we give further particulars in our present number. The latter accident was of a somewhat unusually grave character. No less than thirty men engaged at the time upon the upper portion of the roof accompanied it in its disastrous fall, two of them being killed, and many of the entire number dangerously hurt. In neither of these cases does it appear that the accident could be attributed to want of skill or knowledge so far as the designs of the respective roofs were concerned. Indeed, in most cases where iron is employed in any structure, a very considerable margin is allowed in excess of the required strength. The improper fixing, however, of a few ties or struts tends largely towards decreasing the general stability of such structures, and deranges all the precautions and calculations of the engineer. It is, obvious, therefore, that one of the most essential requisites in properly and safely carrying out the construction of roofs is to have the superintendence of a responsible and well-qualified clerk of works, and one who is known to be capable of undertaking the final and satisfactory completion of the undertaking. An iron roof is likely to be much affected by the nature of the masonry upon which it rests, as was evinced some time ago in the fall of the station-roof at Bilbao, in Spain.

Many instances of the falling in of roofs may be fairly attributed to the character of the masonry,—not that this is in every case of doubtful quality, but because the part it plays in having to sustain permanently a very heavy dead-weight is likely to be to some extent overlooked by an inexperienced ironwork contractor.

In the Exhibition of 1862 the walls were in danger of being thrust out by the superincumbent weight of the roof; and it is mentioned in the first volume of the record of that Exhibition by Mr. Hollingshead, that it became necessary to adopt after-precautions, to prevent this occurrence from actually taking place.

Strong iron braces were anchored to the foundation of the inner columns of the galleries, and carried up to the top of the opposite outer columns, and thus the thrust of the roof was effectually counteracted. This vertical cross-bracing was repeated at every 100 ft., or fourth bay; and, by introducing horizontal diagonal bracing under the roof-flats, they were turned into deep horizontal girders, supported at two ends by the braced columns.

Upon the fall of the Bilbao Station roof, it was ascertained that the masonry portion of the structure had not been allowed to become sufficiently consolidated, taking into account the quality it was afterwards discovered to possess, to admit of its being safely encumbered with the weight of the roofing or covering in.

Apart from the causes already suggested, however, as leading to the untimely and, in many cases, the fatal giving way of roofs, there are others which may be attributed to the quality of the metal employed in the superstructure.

No want is more deprecated by engineers of the present day than that of a thoroughly trustworthy iron or steel. The want of a good quality of iron which should, to be serviceable, always possess the same character, in however various and extensive quantities it may be supplied, is already beginning to pave the way for the more general employment of steel.

Standing apart as an almost new and independent style of architecture, we may now see various and extensive buildings, with scarcely any masonry whatever attached to them. In many cases where masonry is employed, it manifestly holds only a subordinate relation to the more important features of the structure. Iron is, moreover, beginning to be very largely used in general and household architecture. The new Pimlico Wheel Works, for example, which have been erected upon the site of the old works, lately destroyed by fire, are almost entirely constructed of iron.

In smaller buildings and in dwelling-houses the adoption of iron is becoming general at those parts where heavy weights rest or great lateral strain has to be borne. It has been ascertained by a series of carefully made experiments that a sudden strain upon a bar of wrought-iron shows a loss of strength in the metal of 18·5 per cent. as compared with what it will endure under a gradual strain. A still more curious result has attended some similar experiments made upon cast-iron. It is yet, in all probability, a very prevalent opinion that cast-iron for some purposes may be more suitable on account of its being supposed to possess greater rigidity, although it may be known not to possess the ultimate strength of wrought-iron. This is, however, proved to have been a fallacy. The relative compressibility of cast and wrought iron under the same load shows that cast-iron may be compressed at this uniform load to double the extent of wrought-iron. The numerous and important improvements which have lately been made, however, in the mixing and manufacture of iron, and in its ready assumption of the properties of steel, are opening the way to a new and untrodden industry. Experiments have lately been made at Mr. Kirkaldy's testing works in Southwark, upon some samples of steel which Messrs. Ordish and Le Feuvre designed to use in some portions of the new suspension-bridge they are erecting over the Moldau in Prague. The results of these experiments have proved in every way satisfactory.

This undertaking, in connexion with the employment of the harder and lighter metals, will be regarded with much interest, as it affords the first example of any work of magnitude in which steel will have been actually employed. Its application to the superstructure of large roofs and its more extended use in the wider fields of engineering may be expected speedily to follow.

The metal upon which these experiments were made is termed Howell's homogeneous metal. Its elasticity is such that a bar only 10 ft. long, elongated 8½ in., and bore the extraordinary strain of 44 tons per square inch, allowing the safest working strain ever yet attained, of 26 tons per square inch, at which strain there was no permanent set. Wrought-iron is known to be almost entirely infusible, but when cut into scraps and put in a crucible along with 5 or 6 ounces of charcoal to every 40 lb. of metal, it will fuse at a high heat and become exceedingly tough and strong. This is the process by which Shortridge, Howell, & Co.'s homogeneous metal is made. In comparison with experiments on wrought-iron, it resulted that weight for weight homo-metal possesses more than double the strength and tenacity of the best wrought-iron, and there is little doubt, therefore, that it will eventually be very largely employed.

Among the more extraordinary innovations upon modern styles of engineering and architecture, as more especially applied to the construction of roofs, is that of the new Midland Railway Terminus about to be erected in St. Pancras, of which we have given some particulars. With the exception of the construction of the vaults, which will alone form a stupendous work in masonry, the whole of the station and roof will be of iron. The length of the station will be 690 ft., with a clear span in width of 240 ft. The side walls will play no part whatever in sustaining the roof, and are built outside it, hiding that portion of the iron work which shows just the commencement of the spring of the iron main ribs from the ground. With the exception, perhaps, of the new Cannon-street Station, there is an ever-present inherent danger in iron arched roofs resting on side walls, for unless the walls are made exceedingly costly and massive, as in the case of the Cannon-street Station, they are likely to affect the stability and set of the superstructure. It is, therefore, more judicious to construct them altogether of iron, where this can be economically carried out without impairing the efficiency of the design. In the case of the roof of the Dublin Exhibition, a novel and ingenious design was effected to divert the lateral

thrust of the roof, which superseded the use of the vertical cross-bracing, as introduced to stay the walls of the International Exhibition in 1862.

The thrust of the arched roof is conveyed by the buttresses to the second-tier columns, which are strongly secured to the small arched-roof girders, and connected at the bottom to the first-tier columns. This arrangement causes a transverse strain on the columns, to resist which they are made thicker on the sides exposed to this strain.

The first-tier columns are again firmly connected to the transverse bracket-girders at the top, and to girders under the floor-level. A proper examination of the iron portion of the Dublin Exhibition would offer an important study to those engaged in iron architecture, as most of the engineering details are of an altogether new and interesting character.

VIENNA IN THE NINETEENTH CENTURY.

THERE is perhaps not one branch of the liberal arts and sciences cultivated in the *Kaiserstadt an der Wien*, as the Viennese call the "imperial city on the Danube," that has made greater advances during the last twenty years than architecture. The political revolution of 1848 was accompanied by a social one. After the conclusion of the thirty years' war the Rococo style, as practised by Martinelli, Fischer von Erlach, and Lucas Hildebrandt, became a favourite, as is visible from the palaces, churches, and other public buildings of that period still extant. At the beginning of this century the style of architecture reverted to the classical, of which the great protagonist was Peter von Nobili, at that time president of the Imperial Academy of Arts and Court Architect, who designed and executed the severe Burg-Thor, the Temple of Theseus in the Volksgarten (an exact copy of its prototype at Athens), and other buildings of that class. His successor inclined more to the Jesuitical style, but it was the great political storm of 1848 that has had the largest influence on the taste of the Viennese for architectural beauty. This was first displayed by suspending the building of the Lerchenfeld church and then completing it in the Romanesque style. In consequence of the new political organisation of the monarchy fresh life and vigour were instilled into the public mind at Vienna, requiring more air and space for their full development, and this was most easily obtained by removing the old and useless ramparts and bastions surrounding the inner city, and filling up the moat that had not been filled with water since the last wars with Turkey and the threatened siege of Vienna by barbarous Asiatic hordes. When that danger passed away, the moat was cultivated as garden-ground and planted with stately rows of poplars that in course of time had reared their heads far above the level of the glacis, and were nearly on a line of height with the lofty bastions that frowned over them.

By these means alone was it possible to gain such a noble area as the eighteen millions of square feet (equal to about 414 English acres), and that, too, in the very centre of the city, which is surrounded by its thirty-four extensive suburbs, that have been made available for building purposes. A new quarter has sprung up, containing many spacious streets, the principal one of which is the Ring-strasse, with a length of 13,000 ft., and a uniform width of 180 ft. We directed attention to this movement, and gave some illustrations of the buildings in our papers "Going Along" (vol. xxii.).* As the land was all Government property, the Emperor has, no doubt, made a successful speculation, for the ground has been sold at enormous prices; but, at the same time, it must be confessed that his Majesty has behaved very liberally, having given away to the municipality, and other corporate bodies, sites for a new hôtel-de-ville, the Horticultural Society's Gardens, the Musical Society's Concert-hall, the Artists' Club-house, and an area of 295,000 square feet for public gardens and a park. This was in 1858, and the impetus thus given to building speedily extended to all other parts of the metropolis, where new buildings, both public and private, have sprung up in all directions, showing the vigour of private enterprise, and exhibiting specimens of almost every style of architecture, though that of the Renaissance greatly predominates, being adapted for modern private residences of the wealthy and even middling classes of society.

Among the many new buildings that deserve special notice may be mentioned the votive church of St. Saviour, close to the Schotten-Thor, erected as a memorial of gratitude for the escape of the present emperor from the dagger of an assassin, from the designs of the architect Ferstel, and of which we have given a view. It is now being roofed in, two millions of florins having been hitherto spent on the work. The two Gothic towers at the western end are to be carried up to a height of 300 ft. The parish church of the suburb of Weissgerber, was designed by Professor Friedrich Schmidt, and executed at the estimated cost of 450,000 florins (about 45,000*l.*) raised partly by voluntary donations, and partly from the funds of the congregation. The tower, when completed, will be 240 ft. high. Opposite the new Mercantile Academy, in the Ringstrasse, a splendid building is being erected for the conservatory of Music, from the designs of Theophilus Hansen, a Danish architect, formerly in the Greek service, and the builder of the Observatory and other public edifices at Athens. It contains a music-hall, covering an area of 2,000 square feet, surrounded by galleries, the whole capable of affording sitting accommodation for 2,000 persons. Besides this, there is a smaller concert-room, for six hundred persons, a suite of ball-rooms, localities for the directors and officials, and twelve school-rooms for the musical pupils. This building, when completed, will have cost 300,000 florins, or about 30,000*l.* The Artists' Club-house, now in course of construction, promises to show much taste and elegance. It was designed by Friedrich Stache, the president of the Society of Architects at Vienna, and the site, as above stated, was a present from the Emperor. Prizes having been offered for the best designs, the chief premium was awarded to Herr Stache, and the execution of the works entrusted to his care. The new terminus of the Northern Railway Company is a spacious and imposing building, covering an area of 100,000 square feet. The chief platform for passengers is 444 ft. long and 102 ft. wide, flanked at each corner by square towers. It was commenced in 1859, from the designs of the company's engineer-in-chief, Herr Ehrenhaus, and has been lately opened, the works having been executed by F. Hoffmann. Great ingenuity is displayed in the construction of the iron arching of the roof over the great platform. We cannot conclude this description without noticing a noble edifice in the new city park, called the Kur-Salon, and devoted, as the name implies, to the sale of medicinal waters. It is a striking object and cannot fail to attract the attention of strangers: it is built in the Renaissance style. It was designed by Johannes Garben and executed by him at the expense of the municipality, the estimated cost being 310,000 florins, or about 31,000*l.* In the central building is a magnificent saloon, containing an area of 3,600 square feet, whilst one of the wings is fitted up as a suite of refreshment-rooms and the other for the sale of mineral waters, which are always in great request at Vienna, and extensively consumed by numerous real and imaginary invalids.

* See also notice of the new Boulevards, in vol. xxiii., p. 411.

EXCAVATIONS AT ARDEA.

AMONG the most singular of social, not to say antiquarian, curiosities are those desolate sites of once renowned and classic cities on the almost uninhabited sea-coast, presenting scenery so characteristic in its mournful monotony, as that once known as Latium Maritimum, now as the Roman Maremma. To those for whom sympathies with humanity transcend all interests of the *dilettante* class, the indescribable wretchedness and hopeless stagnation found in the poor populations here bound by circumstance to the soil, are realities to leave deeper impression than the monuments of nations, more melancholy than records of vanished greatness; and it may be well doubted whether in all Christendom (at least in Western Europe) can exist at the present day anything analogous to these examples of living decay in the Papal States. Yet in such gloomy pictures there is also the brighter side presented by the simple manners, patient endurance under misery, and, we believe, generally innocent life of these impoverished peasant families, to whom the lines have fallen amidst historic ruins or things of classic association. A visit to Ardea, the capital of the Rutuli, ancient before the Rome of Romulus had birth, and invested with a light of poetic memories through the genius of Virgil, is not one of the least instructive or least worth the tourist's time. Among pleasant excursions to historic spots now facilitated by the railway lines that pass below the Alban Hills, through the country of the Volsci and Hernicians, a ride of twelve miles from Albano takes us across a wide Campagna extent of low downs and plateau-surfaces that gradually subside to the level of the sea, through a desolate landscape, of character beyond description melancholy, suggesting the idea of some mysterious and irretrievable blight, against which no civilization can struggle. But that monotony is varied here and there by the old rambling *tenuta* (farm) with high grey walls, buttresses, and sometimes a tower shooting up from the heavy quadrangular pile, or by the more conspicuous square tower of Mediæval antiquity, long desolate, in some examples of stupendous height, and strikingly conspicuous amid the level waste or low undulating region, like motionless wrecks on a frozen sea. This landscape becomes more cheerful and picturesquely broken up as we advance south-westward; long narrow glens with flat meadows shut in by low rocky boundaries, and scattered clusters of ilex-trees, beginning to present contrasts pleasing after that dreary extent previously traversed.

From a distance of five or six miles Ardea becomes visible, like a cluster of old farms and granaries scattered without plan along a steeply-elevated plateau. At last, when within a short distance, this city's forlorn site is presented to view with singular and striking effect. Along the summit of a precipice that rises abrupt as a line of fortifications, appear a few remnants of antique walls in the massive masonry, with quadrate and regular stone-work, that reminds of the Roman kingly period, interspersed with some still available, though dilapidated, Mediæval defences; above these, a few ponderous piles of dusky grey building and some miserable cottages; central, where an indenture opens like an artificial breach in the rock fortifications, an arched gateway of the same ancient stonework, apparently thrown up by modern hands with inferior skill. Passing through this, we find ourselves, not in a street, but at the end of a narrow ravine sloping upwards between rocks.

Not a human creature was visible, not a sound heard to indicate life at the moment we passed into this silent circuit. Presently, however, we obtained the guidance of a peasant, who looked in about the last stage of *malaria* fever, yet with a good expression in his sallow, wasted face; in his manners pleasing, as well as eager to oblige. Led by him, we first visited the church, a building of some good external features, with an apse and cornice-work of terra-cotta, in style like the twelfth-century work in Roman architecture; the interior less remarkable, and evidently deprived of one aisle, that, if not once existing, must have been projected. The most conspicuous mansion is a grim and spectral-looking villa of the Cesarini princes, now seldom inhabited even by servants, approached by a bridge across low arches, and on the other side fenced by those Mediæval battlements so conspicuous above the rocks. Even here, however, is found a little establishment pretending to be of the *café* species, and a strange sort of den serving as an *osteria*. We passed over the rocks that supply the place of pavement, descending into the ravine at the eastern end of the isolated height, once the acropolis, and now alone occupied by the modern Ardea. Here was presented a wildly lovely scene, amid which rose in dark decay the principal remains of the antique city, consisting of lofty walls in regularly hewn stone, the reddish brown lithoid tufa, in part evidently rebuilt with their original material, but with far less regularity; elsewhere not less evidently, the unshattered relics of a nationality and metropolis more ancient than Rome. Out of an angle of these fortifications advances a ruinous square tower, in similar stonework, but built up in style very inferior,—no doubt a Mediæval adjunct. Beneath runs a wild pathway, winding among low rocks and thickets, and amid such a scene the effect of those antiquities is romantic, with a touch of solemnity.

Hearing from our guide that excavations had at intervals been undertaken by Prince Cesarini, though abandoned of late years, we set out to visit what he described as the chief object thus brought to light. We walked at least a mile;

first, along a road leading to Porto d'Angio, through scenery possessing a certain charm, a fair wildness, with meadows and copses, and glimpses of the sea through the scattered forest-growth along an uninhabited level coast. Leaving the road, to wind round the grassy slopes of a hill, we presently reached the entrance of a tomb, quadrate and so low as to require much stooping, central to a front hewn in the living rock, with some attempt at architectural forms. Passing in, we found a chamber not too extensive to be throughout illumined by the daylight admitted by that narrow doorway, with a flattened arch for ceiling, and walls covered with stucco still perfect; and, along one side, two platforms large enough for bodies, where had been discovered two perfect skeletons; besides which, when the tomb was first opened, were found two marble sarcophagi, with their covers perfect, bearing inscriptions, but no sculptures, on their exterior—now in possession of the Cesarini family, and, alike with the skeletons, removed from this sepulchre,—a spoliation for the visitor to regret. Two much smaller chambers communicate with this outer one,—the narrower of these parallel to it; the other entered by a low ingress at one end. In these, also, are similar platforms for funereal use; and in each interior we see some few remnants of red and blue colour, forming a simple species of border (in one part of the guilloche style, designed in blue) on the stucco. In the outer chamber those marble sarcophagi were placed on the ground, not, like the skeletons, on platforms; and these two modes of entombment must be referred to different epochs.

As to arrangement for the deposit of the dead, these sepulchres resemble the Etruscan; but are much inferior in their ornamental details, nor less so in the formation, alike fashioned, according to both systems, in rock instead of masonry. At different other points, on the same hill-side, we saw where excavation had been just initiated, but soon discontinued as fruitless—nothing, indeed, bearing proof that such projects had been pursued persistingly, or on any large scale; yet the report of our guide, that in tilling the ground he himself and other labourers were constantly finding remnants of construction, showed that no very great efforts would be requisite for securing some result for the excavator's reward.

We are told by Gell, that it was in preparing one of the maps for his valuable work, "Topography of Rome and its Vicinity," that was first verified the extent of the ancient Ardea, at least six times that of the elevated ground over which is strewn the modern village, this being, in fact, the site of the citadel alone, whose principal buildings probably stood in the place of the Cesarini mansion, on the most prominent height, commanding the country towards the sea. Besides the objects above noticed, the sole recognisable features of antiquity here are not, indeed, constructions, but traces of man's work, in adapting the ground to the purposes of a fortified place. The narrow valley that runs round the now-inhabited height forms a natural moat, as the rocky walls rising from this hollow exactly represent a system of strategic defences. Another high table-land, supported on a rocky cincture more extensive than that of the citadel, runs beyond this valley eastward; and under its precipices are some portions of wall in the reticulated masonry well known as of the Roman Imperial period, this elevation being alike surrounded by the sinuous valley, here also serving as a moat. On the other side, towards the sea, is a similar mound, with a rocky cincture, less lofty, and overshadowed by trees, a most picturesque accessory to the scene; and here the rocks are cut into numerous caverns, like sepulchres, suggesting that this site may have been the acropolis, though, indeed, the frequency of like excavations on the hill-sides and along the rocky cincture beneath the citadel itself, leads to suppose that many were formed for other purposes. Some, the more spacious, we must infer to be quarries, from whose material the city was built. We had a study of social life before leaving Ardea, enjoyed in the *osteria* where we obtained refreshment,—home-made bread (no such thing as a public bakery being found here), eggs and cheese, pears and peaches, with palatable wine served to us, in a strange interior like a cavern, though veritably a spacious room lighted only from the doorway, with walls and rafters begrimed by smoke to one sooty tint, and a heap of stones under a high gaping chimney at one corner, available as a fireplace. But not even here was wanting the Madonna picture, painted in tawdry red and yellow on the smoked wall-surface, with its little lamp (not, however, burning) before the figure, like a doll wearing a crown. Our guide and the man who had accompanied us from Albano, with a few other wild-looking but handsome peasants, who ate and drank without speaking, were regaling themselves in the same room; our landlady and waiter being a pretty, smiling woman, with braided hair like a raven's wing, and large gold earrings; evidently, indeed, the life of the establishment, though she had an old husband, who sat silently by the fire. Ardea's present population is, at its maximum (but this we were told in a rather hesitating tone), about 200, but much less during the summer, when *malaria* is the scourge of this coast. Inquiring as to the heat felt here compared with that of Rome, we were answered in a tone that ridiculed the idea of any analogy between two such climates: Rome had the cool summer; *here* only did people know what was heat; and on many a day of that season none, we were told, could go abroad. It surprised us to hear of the spiritual destitution of a place only twenty-two miles from Rome;—to be told that no clergy reside among this poor flock, whose conditions assuredly call for whatever influences from a higher class might enlighten or elevate above the dreary level of work-day existence in such circumstances.

This now indeed fallen city is said to owe its origin to an Argive colony, descended from Danaë ("Æneid," vii., 408). Strabo gives to Ardea the epithet "ancient," and Virgil speaks "Auruncaeque manus, Rutuli, veteresque Sicani." It may be inferred that its people, the Arunci and Sicani, were nearly connected, perhaps tribes descended from the same stock. It is in the pages of the great epic poet, rather than in those of any verified history, that Ardea stands out, vivid and potent, before the mind's eye, as capital of the nearest hostile prince, the rival of Æneas in love and warfare. Till the time of Tarquinus Superbus, it seems to have continued a town of some importance, and was besieged by that king, from motives of mere avarice (Liv., l. 1, 58); on occasion of which Roman onset, or rather encampment, during the blockade before her walls, it was that the question arose as to the virtue of their wives between Sextus and Collatinus, with such fatal result in the outrage suffered by Lucretia, and the revolution terminating in the overthrow of kingly government at Rome. Under that city's supreme dominion, Ardea seems to have submitted with little resistance; and so soon did her decline begin, that even in the sixty-seventh year of the Republic, U.C. 312, a colony was sent hither from Rome to repeople the town, already becoming deserted.

Juvenal (Sat. xii.) mentions the droves of elephants kept by the emperors for the spectacles of the amphitheatre, on the meadows near Ardea. Pliny also speaks of these animals (Nat. Hist., l. viii.); and notices the more interesting fact that some pictures were in good preservation, though more ancient than the foundation of Rome, in the Ardea of his time.

Another version of the legend of Ardea given by Dionysius, is that it was founded by one of the three sons of Ulysses and Circe, who gave to this town his own name; and Ovid (Metam. xiv.) adds the poetic fable of a bird springing from the ashes of the city burned down by Æneas, after the death of Turnus, to be known in Latin ornithology by this local name,—

"—— nomen quoque manet in illa
Urbis: et ipsa suis deplangitur Ardea pennis."

In the year of Rome, 541, this town was one of the twelve colonies which protested disability to furnish the required supply of troops and money for the consuls; in punishment for which the Senate ordered that all those recalcitrant towns should be considered as no longer existing—a *tacita castigatio*, as Livy says, truly in old Roman style. We read in Frontinus, *de Coloniis*, that Hadrian made one of his benevolent attempts to infuse new life into this as into other decayed cities of the Roman *ager*—it seems with no permanent success; and thenceforth began the decline in which Ardea gradually passed away from the historic page. It is assumed by Nibby, that her present utter desolation is due to the incursions of Saracens on this coast, in the ninth and tenth centuries; besides also the influences ascribable to the *malaria* here most pernicious. Pliny mentions the principal temple of this city, dedicated to Juno Regina, and adorned with pictures by Ludius (l. xxxv. c. 3).

THE GAS SUPPLY OF PARIS.

At the Society of Arts, on Wednesday evening last, Mr. George R. Burnell read a paper on this subject, Mr. Bazalgette presiding. We print the more salient portions of it. Amongst the wonderful adaptations of physical science to the daily usages of life, said Mr. Burnell, there is hardly one which is calculated to excite greater attention than the application of carburetted hydrogen gas to the purposes of illumination. It is essentially a discovery of modern times; for there must be many here present who can recollect the "darkness visible" that enshrouded London streets in the days when oil-lamps were in vogue; but we get so soon accustomed to the enjoyment of luxuries, that very often the first steps that attend their acquisition are forgotten, and we take them as matters of course. Somewhat of this kind of reasoning has been adopted with respect to the use of gas; and the public are inclined to expect that the manufacturers of this article, which has now become almost a necessity of life, should give them the benefit of their experience, without taking into account the cost they must have incurred in acquiring it. The discussions that took place on the occasion of granting the new concession for lighting the city of Paris, and the movement that is at present going on in our own metropolis, seem to have been marked with this spirit; and though the Paris Gas Company has succeeded in obtaining what may be considered as favourable terms in return for the supply of gas, yet the inhabitants of London evidently are disposed to expect that the companies should supply them at such prices as would hardly leave them a fair profit. It therefore struck me that a statement of the conditions under which the Gas Company of Paris have contracted to supply the town with that article of consumption might be of interest, if only to enable the engineer to compare the systems adopted in the two countries with respect to public works; the more especially as it would appear that considerable misapprehension exists with respect to the rights and privileges of our neighbours in this particular matter.

The formation of the one gigantic monopoly that has the privilege of lighting Paris took place in this manner. There had been several companies, that were formed for the supply of the city, which had, from the period of their first establishment, enjoyed a species of districting arrangement, as we should call it, and they agreed to merge their separate capitals in the six companies that had treated with the municipality in the month of December, 1846. In the year 1852, when the empire was first established, the Government thought it to be its interest to encourage the formation of great companies who should possess the means of employing large numbers of workmen, and give rise to the profitable investment of capital. The hygienic effect of the establishments for the manufacture of gas in the interior of the city also weighed with the Government; and they were desirous that at least three or four of these should be removed from their original positions in the centre of the town. Under these circumstances it was suggested to the shareholders of the six companies that their union would be received with pleasure; and then that their application for the prolongation of their concession, that expired at the close of 1863, might be entertained upon conditions that were to be the subject of future deliberation. The consequence of this proceeding on the part of the Government may be described, in substance, to have been that the concession for lighting Paris was granted to the united companies on these terms. The three establishments in the interior of Paris, at the Avenue Trudaine, the Rue du Faubourg Poissonnière, and the Rue de la Tour du Temple, were to be suppressed, and their manufacture was in future to be conducted in the new gas station that was to be erected at La Villette; the canalization of the interior of Paris (understanding by that term the lines of mains and distributing pipes) were to be altered, and made so as to correspond with the probable future demand upon them; the company agreed to pay the town the sum of 8,000*l.* for the privilege of laying their pipes in the public ways; also it agreed to pay the town two centimes a mètre cube, or about 5½*d.* per 1,000 cubic feet, as a compensation for the *octroi* dues; it moreover agreed to share the profits of the working above 10 per cent. with the municipality of the city of Paris after the expiration of the first sixteen years.

The material and plant that were employed,

and all the land and buildings devoted to the manufacture, were to remain the property of the company at the expiration of the lease, which was fixed at fifty years from the 1st of January, 1856, and the company bound itself, in the meantime, to alter the position of their mains, &c., whenever the town might require to execute works for the water supply, sewerage, &c.; so far, indeed, has the lease foreseen the probability of future operations of this nature, that it provides for the company's removing their pipes into any subways that the town may construct, without thereby giving rise to any claim for compensation. For these terms the company agrees to supply gas for the public lighting at the following prices:—There are three sets of flames, that are respectively $2\frac{1}{4}$ in. wide by $1\frac{1}{2}$ in. high, which is paid per hour 0·015 f.; $2\frac{1}{2}$ in. wide by $1\frac{1}{2}$ in. high, which is paid per hour 0·021 f.; and $3\frac{5}{16}$ in. wide by $1\frac{13}{16}$ in. high, which is paid per hour 0·030 f. When the gas is sold to the town by mètre, it is paid for at the rate of 0·15 f. the mètre cube, or about 3s. $4\frac{1}{2}$d. per 1,000 cubic feet; the company is obliged to fix, paint, and repair the lamp-posts and candelabra, but the town furnishes them. For private consumption the company was entitled to charge for the gas supplied at the rate of 0·30 f. per mètre cube, or about 6s. $8\frac{3}{4}$d. the 1,000 cubic feet, upon agreement of three months' date, terminable at the option of either party; but the parties so receiving the gas cannot employ it without the production of the certificate of the person employed by the town to examine (and who exercises the right of approving) the fittings and other apparatus.

It was stipulated that if, during the period of fifty years, for which this lease was granted, there should be discovered any new system of lighting, the gas company should be bound to introduce it, under conditions that were to be fixed by the municipality; or the municipality reserved to itself the right of granting a fresh concession for the new system of lighting, without being bound to compensate the company in any way whatever. The quality of the gas is provided to be such that a lamp of the first series mentioned, which would consume 100 litres per hour, should give a light equal to 0·77 of a carcel lamp burning 42 grammes of rape oil in the hour; for the lights of the second category, burning 140 litres an hour, the light is to be equal to 1·10 of that above given; and for the lights consuming 200 litres in the hour, it is provided that they shall yield 1·72 of the light of a carcel lamp as described. It may be stated that this standard corresponds very nearly with the English one, of what we should call seven-sperm-candle gas.

To enable any one to appreciate the position that the company occupies under this contract, it is necessary to observe that the coal used in Paris is mostly of Belgian and north of France origin; a small portion of cannel, or boghead, is only introduced when the illuminating power of the gas is below the standard. The average yield of this coal is about, per hectolitre (according to the figures that were published by the company in the course of the discussion that took place before the treaty was signed), gas, 22·94 mètres; large coke 31·11 kilogrammes; breeze, 12·07 kilogrammes; tar, 4·50 kilogrammes; and ammoniacal liquor of the value of 0·036 francs. The quantity of ammonia compounds that are present in the coal is considerable, and the company is obliged to exercise great precaution in insuring the purification of the gas, in order to comply with the clause in their treaty which provides that the means they adopt for that purpose should be the best that are known. Yet with all these drawbacks upon the commercial results of the operation, the Paris Gas Company has always paid a good dividend, and the last distribution of profits was at the rate of 19 per cent.; whilst the average rate appears to have been of about 16 per cent.: a result that would cause great heart-burnings with the municipal reformers and the political economists of our own country, who will not allow any company to divide more than 10 per cent. The capital that is invested in the works consists of share capital 4,000,000 francs, and of bonds of the company about 20,000,000 francs; or, in all, about 4,160,000*l.*, for a total population of 1,600,000 persons, which would make the rate at which the gas service of Paris is performed about 2*l.* 10s. per head of the inhabitants. This calculation, however, is somewhat in excess of the facts of the case, as the gas company has lately undertaken to supply some of the external villages of the Department of the Seine, such as Romainville, Puteaux, Charville, St. Denis, Maisons Alfort, &c., which form the subject of a separate treaty; but the above calculation may be taken as representing the proportionate price that is incurred in this service. It may be added, that the price that is agreed to be paid by the communes beyond Paris for the lighting is, for the public lamps, 20 centimes per mètre cube, or about 4s. 3½d. per 1,000 ft. c.; for the private lighting, 40 centimes per mètre cube, or 8s. 7d. per 1,000; upon a descending scale that may reach, finally, 6s. $8\frac{3}{4}$d. per 1,000, in proportion to the consumption. The high price that is agreed to be paid for this service may be explained by the length of main that is unproductive to the company in these cases; but it certainly seems to be exorbitant, when the freedom of the gas from *octroi* dues and other municipal taxes is taken into account.

It may be remarked that the system of regarding the supply of the gas consumed in Paris as a municipal service, has entailed upon the private consumers the necessity of paying a higher price for the gas that they consume than they would naturally do if the service were left to be regulated by the ordinary rules of trade. The municipality, in the exercise of its rights over the surface of the roadway in fact, has only consented to grant the monopoly of the gas supply to the company on the condition of their supplying the public lamps at reduced rates, and of sharing in the profits of the concern after it has been established such a time as is sufficient to relieve it from any chance of failure. It is true that, in this manner, the town authorities will be enabled to devote a portion of the profits arising from the sale of gas to the relief of the other taxation of the town; but this is only an indirect way of making the consumers of gas pay for the water, paving, or other municipal services; and it is objectionable, as the control of those services can never be efficiently performed so long as the total expenses of them are not distinctly brought under discussion.

At present there may be found a great amount of the ammonia compounds in the gas, and it is rather deficient in the illuminating power when compared with the London gas, but this may be owing to the quality of the coal that is used. The effect of the participation of the town in the profits of the company must, however, be such as to superinduce a carelessness on the part of the *employés* who are charged with the verification of the quality of the gas, and of the means adopted for ascertaining the quantities supplied. There is now apparently a great deal of anxiety displayed by the town authorities about the illuminating power and the purity of the gas, for they have organised a complete system of control and superintendence of both the public and private lighting, that appears, at first sight, to be most efficient. There are twenty-one persons who are constantly employed in testing the gas, and who are paid at salaries varying from 200*l.* a-year to 480*l.*, the total sum voted for the wages of these people for the next year being about 1,060*l.*: there are also 130 inspectors of the public lighting, at salaries varying from 200*l.* a-year to 480*l.*, who figure in the town budget for a total sum of 10,480*l.*; and thirty-two inspectors of private lighting, who are charged with the verification of the meters: these are paid salaries varying from 240*l.* to 400*l.* a year, and they figure in the budget for 2,600*l.* The superintendence of this service is, theoretically, very well arranged; it remains to be seen whether it will really operate for the protection of the inhabitants, when the town has a direct interest in the successful results of the company, which it will have when the period of sixteen years, during which the company has the enjoyment of all it can make, shall have expired.

There are in the neighbourhood of Paris, and within the lines of the fortifications, ten gas stations, of different capacities, but all subordinate to the great station of the Villette. These stations are—1. La Villette; 2. Les Ternes; 3. Passy; 4. Vaugirard; 5. Ivry; 6. Chartronne; 7. Belleville; and the three that are situated in the surrounding communes of St. Denis, Boulogne, and Charenton. As was said, the station of La Villette is the most important of these; it suffices for the manufacture of one-third of the gas that is consumed in Paris; the stations of Passy and Vaugirard supply together almost another third; and the other stations contribute about equally to the total consumption. The distribution of the gas from the reservoirs takes place under the pressure of rather more than $1\frac{1}{2}$ of an inch during the day-time, and in the night-time of $3\frac{1}{2}$ to $3\frac{3}{4}$ of an inch. It may be that this pressure may be required to overcome the difference of level of the factory, which is somewhat above the points of delivery in Paris; or it may be accounted for by the small dimensions of the distributing means. The efforts of the company are, however, directed to the remedying this cause of loss, which must always, to a certain extent, act to prevent the due proportion between the mains of distribution and the quantity of gas they would discharge in a given period of time being observed, owing to the interest the company have to continue their working through the pipes that they are bound to yield to the town at the expiration of their lease. By the peculiar arrangements adopted, the Paris Gas Company has reduced the loss that ensues from the excessive pressure that accompanies the distribution of the gas to a minimum. We shall have occasion to revert to this subject; but it may be as well to state that the loss of the gas registered by the station meters, both in private consumption and in public lighting, was, in the year 1864, only 10 per cent.—a most insignificant proportion, if the quantity that is lost by the condensation in the mains, the amount that is not carried to account by the private consumers, and the thousand causes of loss that the gas must be exposed to, are taken into account. The average loss of the London gas companies is at least from 15 to 25 per cent. of the quantity they register at the stations.

It is calculated that the total yield of La Villette station is about equal to five millions of cubic feet per day when the works are in full operation; and the distribution of this quantity takes place in the busiest and most bustling part of the town. The other works do not present anything very particular, excepting perhaps the station at Vaugirard, which is specially reserved as an experimental station, and where the company have been at work for the last three years upon Mr. Siemens' system of economising the heat that is employed to produce the distillation of the coal; hitherto without success, it must be observed. The Paris Gas Company, by their monopoly of the supply, are enabled thus to "try all things" that are proposed in the matter of lighting with the best means and appliances that can be disposed of.

The distribution of gas takes place through mains that are of as large diameter as $3\frac{5}{16}$ ft., exactly one mètre; they are all wrought-iron, upon Chameroy's patent, and in that respect the Paris supply differs from that of London, which, in consequence of Mr. A. Taylor's Act, is compelled to receive its gas supply through cast-iron mains. The Chameroy pipes are put together in lengths of 15 or 16 feet; the joints are riveted and brazed; the whole is then coated with a preserving coat of bitumen, and the joints are made with a male screw on one end, and a thickening out, formed on a mandril, to receive a female screw on the other, which is then packed with gasket and white-lead. The opinions of English engineers are unfavourable to this style of pipe; but the experience of the Gas Company of Paris for the last twenty-seven years seems to be decisive as to its merits in all cases where the soil is of an alkaline nature, and is not charged with water. I was informed by M. Camus, the sub-engineer of the works, who is also an engineer of the Ponts-et-Chaussées, that he had ascertained the wear and tear of 1,000 mètres of wrought and cast iron mains of the same diameter, respectively, in the course of the year 1861, and he found that they presented the following results. He found that the cast-iron showed that the proportion of the leakage that was owing to accidental breakage in the pipes was 1·000, whilst that quantity was, for the wrought-iron, 0·460. The proportion of loss through the use of the pipes by time or depreciation was, for cast-iron, 0·353; for wrought-iron, 0·198. The proportion of loss by shaking of joint was, for the cast-iron pipes, 1·77; for the wrought-iron, 0·520. There may be greater care and attention paid in Paris to the repairs and maintenance of the pipes; but the results of the experiments tried in this case seem to indicate that the cause of the diminished loss upon the registered quantity of gas must be sought for in the use of these mains; and at the present day, when so much attention is forcedly turned to the question of the leakage of gas-pipes, on account of the construction of subways by the Metropolitan Board of Works, the subject acquires additional interest. The house distribution also takes place in Paris through lead service pipe, that must be another cause of diminished leakage; but the private consumer is at liberty to employ whatever system he may think proper after the

passage of the gas through the meter. From the report of the gas company to their shareholders last year, it appears that the total consumption of gas in Paris was about 3,567 millions of cubic feet, for a population that was estimated at 1,650,000; and the company had, in their prevision of an increased demand, increased their manufacturing powers to 4,141 millions. The length of pipes that were employed in the lighting of Paris was 546,861 mètres; that of the annexed zone, of 424,985 mètres; that of the banlieue and the surrounding district, 165,346. The number of public lights supplied by the company for the account of the municipality was 26,849; the number of private subscribers was 59,554, in the year 1863, the last for which I have been able to procure the returns. It may be added, that the lamps that are used for the lighting of the Boulevards are placed at distances of 25 mètres apart on the same line; in the Rue de Rivoli they are about 14 ft. apart; in the courtyard of the Louvre they are about 20 ft. apart; the burners being, in the majority of cases, at 10 ft. above the pavement. The lighting of Paris is, in fact, most brilliantly and lavishly executed, in the best quarters of the town at least; it leaves, however, much to be desired in the poorer portions, which are about as badly lighted as the analogous parts of London.

I have mentioned the desire that the public seem to have at present for the laying of the pipes in the subways that have been constructed by the Metropolitan Board of Works, and have hinted at the provisions that have been introduced into the treaty that prevails between the City of Paris and the gas company, with the object of facilitating the placing of the pipes in that manner. The treaty contains, indeed, a clause to the effect, "that the town reserves to itself the right to displace, and even to remove altogether, at the expense of the concessionnaires, and without any indemnity, the pipes every time that it may think the public interest may require it. If it should suit the municipal administration, during the continuance of the lease, to relieve the public ways of the excavations necessary for the laying of the gas-pipes, and to dispose the sewers so as to receive them, the concessionnaires shall be bound to remove their pipes to the positions prepared for them, at their own expense, upon all the points where the city shall have executed the works for this purpose." Yet with this precaution and this right, the city of Paris does not think of calling upon the gas company to remove their pipes; nay, the water-pipes are in Paris carried into the sewers, which are there rather subways than simply sewers, and the engineers of the city most energetically oppose the introduction of the gas-pipes into them. Experience has shown that there are fatal causes at work to produce the explosion of the escaped gas in these cases, which all the care of the engineers cannot guard against. There have been three accidents, as M. Belgrand informed me, in the gallery of the Rue des Martyrs; there have been two accidents in the court-yard of the Louvre; and the accident that took place last year, the consequences of which I myself saw, on the bridge of Austerlitz, was a fatal commentary upon the danger of the system of laying the gas-pipes in subways. In this case the pipes were carried over the haunches of the bridge in a gallery that had an entrance at either end, that served as a means of ventilation, and it had a means of escape in the middle; the gas was shut off at both ends, and the quantity there was in the pipes allowed to burn off; yet an explosive mixture was formed, and it was set on fire, probably by a workman throwing down a match. Fortunately this occurred in the early morning, and the few people that were passing the bridge were attracted to the side where they could witness the passage of a steamer that happened to be passing; there were consequently no passers-by injured, but two workmen were killed, and several others were carried off to the hospital; the whole length of the pavement of the bridge was blown up for the length of 180 mètres, or 200 mètres, and about 12,000 francs worth of damage done to the bridge. M. Belgrand was, in fact, quite borne out in his opinion, that "in no city where there was anything like a regard for human life, would the notion of carrying the gas-pipes in a covered way be for an instant tolerated." He had, it must be observed, more than eleven years' experience in the Paris subways, and yet, with all the advantage of the most careful superintendence by the agents of the Ponts-et-Chaussées, and the effect of the French law of compensation for accidents, to enforce the observance of the necessary precautions, he did not scruple to come over here to London to give evidence against the scheme of the Metropolitan Board, that is again brought before the public with so much persistency. The fact is, that without a regular system of ventilation, that would entail an enormous outlay, there cannot be any safety in the system of subways as applied to gas-pipes; and the Metropolitan Board do not seem to have contemplated the execution of even the smallest precaution for this purpose.

The Paris Gas Company is managed, as all the important operations of that country of a similar nature are, upon the strictest principles of discipline, order, and superintendence. The administration is composed of a certain number of directors, who are chosen from the body of the shareholders, generally speaking from amongst the original proprietors in the various gas companies that were amalgamated together, and they are assisted in the management by M. Gayffier, ingénieur-en-chef des Ponts-et-Chaussées, and M. Camus, ingénieur-ordinaire of that body, who have under their orders a numerous staff of engineers, chemists, practical men, and clerks, that would frighten any English board of management. Thus the expenses of the salaries to the various people employed in the factory, in the maintenance and laying of the mains, and in the office of the company, was not less than about 88,000*l.* in the course of the year 1863; but at this charge the service is performed with a degree of perfection that we in England have no conception of. The cost of every detail of the manufactory is known to the last centime; the waste that attends the operations of the London companies is unknown; the accounts are kept in the most elaborate manner, and the gas company provide for their own servants with a liberality that we in England have no example of. The result of the system is, that in Paris the gasworks are managed at about 58 per cent. of the total receipts, which may be accounted for by the fact of the great success of the speculation that the directors manage, and by their having no inducement to introduce any great economy in their working in consequence of the participation of the town in the profits of their concern after a certain time. There is, indeed, every inducement for the directors to indulge in expense in the management; none to induce them to save; and as the city of Paris has also a direct interest in knowing the cost of every detail of the fabrication of gas, it is questionable whether at any time the *frais d'administration*, or the office expenses, will be much decreased. This is certain, that the Paris Gas Company is managed with consummate skill; and though we in England would do very unwisely, as I think, to adopt the system that prevails in the neighbouring capital with regard to the supply of gas—because it is founded upon principles of political economy which are, I think, wrong, and it would involve an interference with our private habits, which I think would be intolerable,—yet there are many things that seem to be well deserving our study, and our imitation, in the manner the Paris Gas Company carries out its contract. The system at Paris is, in fact, designed for the atmosphere of France; it would fail if introduced here, where "every man does what he likes in his own eyes."

At the close of the paper a discussion ensued. We give a report of it under another heading.

GAS PIPES AND SUBWAYS.

At the termination of the paper on the Supply of Gas to Paris,—

Mr. Godwin said they must be much obliged to Mr. Barnell for his admirable paper. Some important facts had been brought before them in a very interesting manner, but he was not able himself to agree with that gentleman in what appeared to be his leading object in the paper, viz., that it should make us more satisfied with what was done for us in England. It was not likely that Englishmen would put up with such a preposterous arrangement as was made for the inhabitants of Paris. The notion of tying the inhabitants down for fifty years to take this gas at 6s. 8½d. per 1,000 ft. (with allowances and deductions), notwithstanding any inventions and arrangements for cheapening it that might arise, seemed perfectly ridiculous. It was true if any new mode of lighting were introduced, the municipality could call upon the gas company to put it into practice, or could do so themselves without making compensation. After all, however, the people of Paris at that moment paid very little more for their light than in London. He was assured, on the best evidence, that the light there was much superior; in other words, that a certain number of cubic feet of gas in Paris gave more light than the same number of feet of the gas of many of the London companies, who, even at the present day, supplied an article that was very far from satisfactory. It was true the municipality of Paris partook of an advantage to the extent of 5½d. per 1,000 ft. and divided the profits beyond 10 per cent. after sixteen years; but thus they had an interest in keeping up this price. It was not likely, however, that we should permit such an arrangement; and yet we were, perhaps, not much better off with our arrangement than the Paris people. It occurred to him some years ago to initiate a movement against the high price charged by the gas companies in England, and against their management. It went on for a considerable time and was taken up by others, but it brought him nothing but personal abuse, and even such an instance as a man holding a large number of gas shares, at whose house he was visiting, putting a pistol to his head and saying if it were not for the consequences he would blow his brains out, because the course Mr. Godwin had been taking was likely to ruin him and his family. A few years after, that very person derived 25 per cent. more from his shares than he did when that movement began. The gas companies took the usual course of opposing improvements and keeping up the price, but they were forced into a movement which damaged some of the old companies, and this would be the case again if they persisted in their opposition to the gas-pipes being laid in the subways formed for them. He regarded it as idle to say that the escape of gas could not be guarded against. They were told that the escape from the mains was still very great, as was manifest from the state of the soil round the joint of an old gas-pipe; the loss to the companies was great;—the damage to health would be great, by-the-bye;—and in order that they might go on laying down pipes with bad joints and other careless arrangements, they brought forward the evidence of one French engineer to prove that explosions were a necessary consequence of pipes being laid in subways. In the case of Nottingham the system had been carried out without damage, and he was satisfied that this plan was a perfectly practicable one, and it would be a disgrace to the companies if they persisted in opposing its adoption. He spoke from long and careful consideration of the subject. In factories he had seen as much as half a mile of pipes of iron and of softer metal running through the different rooms, but there was no escape of gas, because the joints were properly made. He was satisfied, if the gas mains were laid in the subways, and a proper system of ventilation provided, the plan could be adopted. At present the public were subject to the perpetual annoyance of disturbances of the streets; for example, within three years Long-acre had been almost closed for traffic on five occasions during the laying of gas and water pipes and the construction of sewers. All that nuisance might be avoided by using the subway; and notwithstanding Mr. Barnell's eloquent endeavours, they must persist in pressing this matter on the attention of the gas companies; and if they would not afford the public redress, it was to be hoped the legislature would do so.

Mr. Thomas Hawksley entirely disagreed with the gentleman who had just addressed the meeting. He (Mr. Hawksley) had had thirty-five years' practical experience of this subject, having been the engineer of the Nottingham Gas Works, to which Mr. Godwin had alluded. He would tell them the real facts of the case. The subway at Nottingham was a little pitiful channel, of about 200 yards in length, and the gas-pipe which was laid on it was four inches in diameter, the street having very few houses, and, consequently, there were very few branches from that pipe. It so happened, also, that this little channel had a rise in the short length he had stated of very nearly 40 feet, and consequently it ensured for itself a tolerably good ventilation.* He need hardly say that these were circumstances which did not apply at all to such a place as the metropolis. It was remarkable how great were the apprehensions of the work-

* A paragraph from our correspondent at Nottingham in our present number will show the worth of this observation.

men of the gas company in reference to this subway, for they would not go into it unless the gas was shut off, and even then they used a safety-lamp. They were told that gas had been laid in subways, and that gas had been lighted in them without danger; but the danger was occasioned by the insidious escape of gas by leakage, and when this occurred in any confined space, an explosive compound was formed, which was liable to produce a most serious disaster, particularly in a subway, where the whole street might be bodily raised up, and the passers-by would run the risk of being injured, if not killed. A good deal had been said about the escape of gas in the streets, but he would assert that it did not reach to anything like 5 per cent.; in general it was much less. What was called leakage was simply the loss which a gas company sustained upon the gas, as ascertained, in the first place by the meter at the stations, and in the second by the money which the gas company received. A thousand and one things happened between the station meter and the receipt of the money by the company. In the first place, there was leakage at the works, which was very considerable. In the next place, there was the consumption of gas upon the premises, which was to be counted by millions of feet a year, and which very few gas companies took into account. Then the gas went into the mains, from which there was a very slight escape indeed, and that escape passed into the soil, where it was absorbed without danger. A great loss occurred from the service-pipes, much more than from the mains of the company. That was a loss which ought as far as possible to be prevented, and if gas companies generally used lead pipe instead of wrought-iron for services, as was done in many cases with great success, they would not suffer in this way. The gas eventually went to the meter, which professed to measure the whole that passed through it, but it often did not, and any defect of the meter, whether wet or dry, was against the gas company. Then there was all the surreptitious and fraudulent consumption of gas, which in a great city was not inconsiderable. Then, further, there was the waste in the public lamps, which was greater than any other for this reason: each lamp was a consumer with only one light, and the pipe must be as full of gas for that consumer as for a private consumer using ten or twenty lights, and thus there would be a greater proportion of leakage. All these things put together went by the general name of leakage, whilst the escape from the mains of a well-managed company was not more than 2½ per cent. Mr. Hawksley instanced the case of a gas company in Denmark whose works he superintended, and in which the whole leakage, over a period of three years, did not average 5 per cent., and at Nottingham, before the introduction of Lord Redesdale's Meter Act, the leakage was as low as 8 per cent., but owing to the operation of that Act it had latterly been as much as 14 per cent. The way in which accidents would happen in subways was this:—A gas company alone could not control all the operation of the subway; other workmen would be employed there who might be the occasion of accidents. If the streets of London were generally subwayed, he had no hesitation in saying that with 2,000 miles of subway, there would not be a day without an explosion, if the gas main were laid in them; and it would be impossible, in the nature of things, to prevent this, if they had gas-pipes in the subways. They must have workmen there, and they would also have the London thieves there, to the great peril of the jewellers' shops, which were contiguous to the subways. Passing now to what had been said with regard to the gaslights in Paris, he would say he did not find anything better there than we had at home. The quality of the gas, the mode of manufacture, the amount of production, and the system of distribution, were in every respect inferior to what we had here; and, above all, the price of gas was fifty per cent. higher than our maximum price. The French system of political economy was the worst that could possibly be adopted. It was a system by which the municipality was bribed to participate in the profits on high prices, and the consequence was that those who consumed gas were made to pay a portion of the taxes of those who did not do so. The same thing had been attempted with various degrees of success, and want of success, in this country, a notable example of which existed—and to a certain extent still exists—at Manchester, but under modified circumstances. For many years the corporation of Manchester charged a very much higher price for their gas than the companies in the surrounding towns, and the money so obtained was applied to municipal purposes. The consequence was a certain portion of the community were taxed for the benefit of the other portion. For a time that system went on very well, but it ultimately gave rise to a violent class agitation, which it was always desirable to avoid; one portion of the community was arraigned against the other on the price of gas, and that went on for several years, and at last resulted in the gas consumers beating the non-consumers, and then the price of gas was brought down to something like a reasonable amount. To go into a comparison of the systems in France and England would occupy too much time. All he would say on that point was—Paris was a much better lighted city than London, but the Paris gas in illuminating power was inferior to ours. The fact was, in Paris, the people lived, not as we did, one alongside the other, but one above the other, and the consequence was the population there was distributed over a much shorter length of streets. In Paris they had one lamp to every sixty persons; so that in the principal streets the lights were brought very close to each other; but it did not thence follow that because the city was better lighted, the gas was better. Its inferiority was accounted for by the description of coals they used; they, nevertheless, made as good gas as they could under the circumstances, and they took good care to use the kind of burner which gave the most perfect combustion. This was a matter which was neglected in London, but we were improving in that respect; and when we paid as much attention to these details as was done in Paris, the London gas would give a greater amount than that in Paris.

Dr. Wyld remarked that in the present advanced state of science there might be no practical difficulty in the employment of the subways of cities as channels for the laying of gas and water mains, so as to prevent the constant annoyance arising from breaking up the streets for those purposes. He argued that equally in subways, as in large ramifications of pipes in hotels, &c., the exercise of the olfactory nerves would always sufficiently indicate an escape of gas to a dangerous extent; and in the case of the mains of a gas company, the great thing to be attended to was the proper jointing of the pipes, by which the escape of gas into the subways would be effectually prevented.

Mr. Gore, having had some experience in the laying of gas mains in this country and abroad, was inclined to think that the promoters of the subway system were at the present moment somewhat in the dark on that question. He could quite understand that in situations where there was a sufficient current of air to carry off the escaped gas there could be no explosion; but it did not follow that in a subway the current of air would be so rapid as to have this effect. Having been engaged, in 1861, in laying down gas mains in Valparaiso, the geological formation in some parts was such that at 6 inches below the surface of the soil granite was reached, and through that material a channel had to be chipped away of sufficient depth to admit of the gas main being laid down. Theoretically that would be supposed to form a very beautiful channel in which to lay the pipes, but a reference to the books of the company would show that the cost of repairs in that channel alone amounted to 75 per cent. more than in double the length at other parts of the town where the pipes were laid in a different material. Mr. Hawksley had very properly said that the soil was the best safeguard against the escape of gas, and at the same time it formed the best elastic cushion on which to lay pipes. In laying pipes in a subway, there must be a number of rigid fixed points or brackets on which they must rest, and there would be a severe vibration occasioned by the traffic passing overhead; the effect of which on cast-iron mains so supported would, in a very short period, be very serious, in causing leakage at the joints. He (Mr. Gore) was now engaged in preparations for lighting with gas the city of Mexico, and he had visited every establishment at which he thought he could gain information. Amongst others he had met gentlemen connected with the subways in Paris, and on his mentioning the subject to them, they strongly advised him not to carry the mains through subways.

Mr. W. Macfarlane was not satisfied, upon the evidence adduced by Mr. Burnell, as to the undesirability of the employment of subways for the laying of gas mains, nor did the observations of the last speaker satisfy him more on the same point. He thought if they were not prepared to alter the material of the pipes they must alter the construction of the joints; for if they put pipes in a subway with the present system of jointing, there would be a liability to great escapes of gas. There, was, however, no reason why an improvement should not be made in this respect. The question was whether iron was the proper material for the pipes, unless the interior were coated with a preservative substance; and if, besides this, a better system of joints were introduced, he had no doubt that subways might be used for gas-pipes without danger.

Mr. Burnell, in reply upon the discussion, would simply refer to the observation of Mr. Godwin that the practical objection to the use of subways for gas mains rested on the sole testimony of one French engineer, M. Belgrand. Upon that he would remark that he had referred especially to that gentleman because he was the principal engineer in that department in Paris, and had had the largest practical experience in the laying of gas-pipes in subways. He might mention that M. Belgrand's evidence on that point was confirmed by the opinions of M. Dupuit, who formerly occupied the position of M. Belgrand, by those of MM. Mouton and Huet, engineers of the Ponts-et-Chaussées, and also by M. Leloup, inspecteur des eaux, as well as MM. Gagffier and Camus. The only evidence in Paris anything like favourable to the subways was that of the architect of the Louvre. Therefore, on the one side they had the evidence of engineers who had been practically concerned in the laying of pipes, and on the other side they had only the evidence of an architect. He could only say further, as to the quality of the Paris gas, it was very much below that of London. In the former city the gas was called seven-candle gas, and in the latter the standard of illumination was eleven candles.

The Chairman said they must all feel indebted to Mr. Burnell for his interesting paper. It contained a large number of facts which could not fail to be of service to all who were interested in gas works. He confessed that on the topic which had received the largest amount of attention, he personally entertained some strong views. He was not at all afraid, though he had heard of explosions in the Paris subways, of such occurrences taking place in this country. If that room were closed up and the gas allowed to escape into it, there would be danger of explosion; but if the upper windows were left open, with free ventilation from the bottom of the room, he should have no fear of this. Such a strong current of air might not be agreeable in a house, but it would not be objectionable in a subway. He had been present when gas was lighted in a subway, and when, according to the views of some of his friends, an explosion should have taken place; but there was a sufficient current of air through it to almost blow out the flame of the gas. While that was the case, there could be no fear of explosion from confined gas; and he was surprised to hear gentlemen say that proper attention had not been paid to that matter in the subways already constructed. It was true, as had been observed, that the subways were quite large enough for the entrance of thieves; but he had not yet heard of any depredations upon property through that means, and it would require the removal of a considerable amount of brickwork and other material to effect an entrance to contiguous premises. He was sure all would agree that subways, if safe, must be of great public advantage. They could not fail to be a great benefit to the gas companies. He did not expect any great change to be effected without considerable opposition and discussion; but good resulted from this, for thus attention was drawn to any weak points, and those who had to conduct the improvements were led to avoid dangers that might otherwise arise. While so many advantages were held out he was persuaded that nothing would prevent an improvement from going on. Since this subject was first mooted he had seen great changes in public opinion, and in the minds of gas engineers themselves; and many who were opposed to subways—even amongst the engineers in Paris—were now looking forward to a better state of things, and even made propositions for introducing gas-pipes into the subways. He hoped a further discussion would take place on this subject, and that some of his friends would be led to modify their views. He was sure they would feel that a cordial vote

of thanks was due to Mr. Burnell for his valuable paper.

A vote of thanks was then passed and acknowledged.

RAMBLING IN DUBLIN.

Immediately beside Werburgh is Hoey's-court, famous as the birth-place of Dean Swift. The house is one of a few very old brick buildings, in no way remarkable in appearance, yet No. 9, Hoey's-court, has been looked at, scanned, sketched, and re-visited by travellers and strangers from all nations. Passing on through Bride-street and Patrick's-close we reach St. Patrick's Cathedral, the scene of Swift's labours. Externally, it is an imposing spectacle. Its massive granite steeple, and the lofty tower from which it springs, its pinnacles and flying buttresses, its windows and its deeply recessed doors and their hooded mouldings and corbel heads, all combined, render it an object for study. In the interior are Swift's tablet and bust, the tablet erected to the memory of his man-servant, that of his unfortunate love, "Stella;" and those of Curran and Ogle. The old Earl of Cork's monument, with its curious group of coloured entities, is somewhat fantastic; though unartistic, it is unique and old-fashioned in its way. Captain Boyd's statue, by Farrell, is a good piece of sculpture. The commander of the *Ajax* is here represented in a position, and in conjunction with everything that was necessary to personate the man and perpetuate his memory—size, expression, attitude, in all boldness; and in every minutia attendant, correctness: Farrell has added to his fame in perpetuating that of his subject.

Outside and around, save the Cathedral itself, there is nothing to please, but much to pain and aggravate.

The locality and its offshoots and alleys are filthily dirty and dilapidated. Surely St. Patrick's is like the jewel in the toad's head. Could it be transplanted elsewhere, or could elsewhere be made to surround it, it would indeed be a boon.

Nicholas-street, Patrick-street, Bull-alley, which ought to be called Butchers'-alley, and the several narrow lanes here and about, need cleansing. Dirt, dirt, dirt; animal and vegetable refuse, disfigure the thoroughfare. Until a new street is made from Aungier-street, straight, say, with York-street, communicating directly with Stephen's-green, Patrick's Cathedral and its improvements will be buried and destroyed by the retrograde property that surrounds it.

A few minutes' walk brings me into the Coombe, in that locality known as the "Liberties." This is the old city where once Irish trade and manufactures flourished. Ten thousand looms, whose shuttles danced with weft and web, whirled and smacked the year round here, time ago. Silk and satin, poplin and tabinet, frieze and corduroys, were woven, and imported in bales from the Thames to the Tiber; but the echoes of the Dublin "Liberties" now speak not of the loom or the spinning-wheel. The sepulchral voices that come forth from this living Golgotha of the buried alive, amid the tiles and pavements of those forlorn lanes and alleys, are utterings of exhausted nature, the final efforts of crucified souls in the mortal throes of misery and desolation. I walk up and down those sweltering passages, and listen to the details of indigent industry here crushed by distress; I grope out the truth, and would flash it manfully in the face of the world, that truth may out and one part of the kingdom know how the other part lives.

There is little trade now, indeed, in these "Liberties," or has been for several years. The staple trade of this quarter of Dublin declined after the Act of Union. The sanitary condition of the Coombe and Liberties, common report says, was always bad, and personal observation confirms it in many particulars. I have not heard of such an officer as an inspector of nuisances, nor do I remember ever coming in contact with an officer of health, but I have met one or two functionaries termed relieving officers; though their duties appeared to me to consist more in collecting than distributing.

The scavenging work of the corporation being done by contract, the Liberties are paid small attention to, their streets and lanes are but half swept, and sometimes not at all; but the city in general being a healthy one, a tainted or neglected locality of course weighs small against the whole. I have refrained from particularising in the above exact spots by name, for the simple reason that the large district known as the Coombe and Liberties embraces many spots alike, and altogether the district is in a bad condition.

Returning through Frances-street, which is an old and busy thoroughfare, Thomas-street is entered, the main thoroughfare of the southern side.

A new Roman Catholic church is here erecting, by the Augustinian order. The door and windows are of red or Runcorn stone; the mouldings are well cut, the members closely fitted, and the work, as far as it has gone, is well done; but the introduction of this stone, I fancy, will not prove advantageous in the end, however useful or easily worked it may be for ornamental purposes or in saving working expenses in the beginning. The church is built on the site of an old priory of the order, which dates back several centuries, and which had extensive ramifications. On farther to the left is Catherine's Church, an old building, plain, and the least classical in the exterior. It has a clock-tower. In the street opposite the church was the spot where Robert Emmet was hanged, in 1803, as the leader of the insurrection of that year. Emmet was the betrothed of Sarah Curran, the daughter of John Philpot Curran, and he is the subject of Moore's lines, "Breathe not his Name;" while his beloved was the "Broken Heart," of Washington Irving's story.

James-street is next entered,—a good business street,—off which is the Four Courts Marshalsea, or Debtors' Prison, lately the abode of some Irish editors and female lawyers; Mrs. Catherine Winter, to wit, with her interminable suit of "Stubber *v.* Stubber." Dickens's Miss Flit, in Chancery, who used to come and go when she liked at Lincoln's Inn, was not a greater bore, poor thing, than was Mrs. Catherine to Chief Justice Monahan, whom she teazed, tormented, and thumbscrewed.

Golden Bridge Cemetery is behind the barracks, and belongs to the directors of Glasneven Cemetery. It was the Roman Catholic burying-place previous to the opening of Prospect; but the havoc made by the ravages of the first cholera, in 1831-32, so packed the burial-ground as to necessitate its closing up. Latterly, graves are opened for others than those whose relatives are interred there. This system is most unjust, for the ground that is now opened for strangers has been already paid for, perhaps thrice over, by parties who never registered the graves: but what boots it, they were poor and plague-stricken?—

> "Rattle his bones over the stones,
> He's only a pauper whom nobody owns."

Inchicore works are next reached, belonging to the engineering and fitting department of the Great Southern and Western Railway. Turning my back to the country, I proceed home by a parallel road at some distance. There is a thriving co-operative store, conducted on the English principle, at Inchicore, doing seemingly well. The new Kilmarnham Gaol is massive and gloomy, like all its kind. Re-crossing the Circular-road, I enter the grounds of the Royal Hospital, the Irish Chelsea. The main building is surmounted by a sort of clock steeple; a somewhat conspicuous object, from its height and form.

The edifice underneath is elegant and lofty in its interior, and the open roof is a good specimen of oak framing. Some fine carvings by Grinling Gibbons are pointed out. These grounds were said to belong to the Knights Templars originally. Of the truth I know not. Beside the ground of the Royal Hospital is the antique burial-place popularly known as "Bully's Acre." A stone is pointed out where an Irish monarch is supposed to rest. Donnely, the noted Hibernian pugilist, is sleeping his last here. Bully's Acre is held by many to be the place where Robert Emmet was buried by stealth. This place has been closed up for years.

For a public park, the Phœnix is one of the most extensive in Europe. In circuit it is several miles. It is mostly under green sward, interspersed with trees. Here and there plantations, shrubberies, and copses are railed in. There is a level plateau known as "The Fifteen Acres," where reviews were for a number of years held in honour of the anniversary of Waterloo. The Phœnix is intersected by some roads which lead through the country. The residence of the Viceroy, known as the "Viceregal Lodge," is situated in the park, as every one knows.

"Where is St. Michan's Church, my boy?" "Turn down to your right, sir, and go down straight, and it is near the bottom of the street." I was not long in reaching it. I had not an opportunity on this occasion of viewing its celebrated vaults, which possess the property of preserving its dead for years intact in flesh and feature. But common report tells as much. The ground of St. Michan's is not the only ground possessing this preservative quality. It is ascribed to the nature of the soil. St. Michan's has Irish political memories. The bodies of the headless brothers Sheares, who were executed in 1798, are said to be in these vaults. The often-disputed question of Robert Emmet's burial-place receives matter from an uninscribed tomb in the churchyard here; but whether it is that of the noble but unfortunate leader of the Irish insurrection or not, Irish writers are not agreed. "Where is Emmet really buried?" has elicited nearly as much discussion as "Who was Junius?"

And here we are, reader, again at the back of the Irish Four Courts; but before we enter let us have a peep across Church-street Bridge. Yonder compo-fronted structure was whilom Homes's hotel, of Queen Anne farthing memory. The lucky George, who stumbled across this unlucky wealth, began to speculate in building. The Royal Arcade, which extended from College-green to Suffolk-street, and which was a little promenade of fancy shops, sprang forth under his magic wand, but was soon afterwards burned down. The hotel did not long subserve the original desire. It has passed through a variety of vicissitudes,—political, polemical, and commercial.

The Great Agitator threatened and cajoled here; and Conservative as well as Democratic tribunes have mounted the rostrum in advocacy of their own nostrum for Ireland's salvation.

Here for awhile, a quarter of a century since, the Irish hemisphere was convulsed with the spectral appearance of the White Quakers, a unique religion, led by one Joshua Jacob, and his wife Abigail, Beale. I remember in my juvenile days seeing some of the fraternity in the streets, all in white, with the exception of the shoes, which were made of a description of brown leather. Homes's Hotel was the head-centre and rendezvous of this curious sect, who rivalled Adam and Eve, by going about within doors in a state of innocent nudity, with the exception of some slight vagaries. They afterwards became an excellent and industrious body, cultivated some ground in the village of Chapelizod, near Dublin; but they eventually died out. Homes's building is now transformed into a wool-store and something else.

The old Pill-lane has nearly disappeared, in making a thoroughfare at the back of the Courts of Law. It was a remarkable locality once, rife with trade, and a very Billingsgate of impudence, as it is still in its upper and remaining end. Irish fishwives are politicians after a fashion, and have the "gift of the gab." O'Connell often threatened them with the authorities.

Here and around for a considerable extent, embracing Greek-street, Church-street, Mary's-lane, Fisher's-lane, Boot-lane, Beresford-street, and its contiguous opens, the state of those localities is very bad. Filthy pavements, offensively stinking back yards, tenements in a ruinous condition, with dirt, dirt, jaggedness and raggedness, and wretchedness predominant. The corporation seem to forget that there are such places as I have mentioned; consequently, the atmosphere and the elements, the wind, the rain, and the sun in turn become the purifiers and the destroyers.

The vegetable markets in Mary's-lane and May-lane are wholly unfitted for the purpose. They are too small, and are unprovided with the proper requisites of that trade. The approaches are too narrow and confined.

The removal of that part of Pill-lane behind the Law Courts was a step in the right direction. There is much work for an energetic corporation who would become less parliamentary and more municipal in their duties.

A peep into the hall of the Four Courts in term time presents a busy scene and a motley assemblage. Lavater and his disciples could not pick out a better place for the proper study of mankind—Man—than the hall of the Irish Law Courts. Pregnant packets and briefless bags,—the florid looking, the phlegmatic, the languid, the sallow, the immoveable, the fidgety, loquacity, taciturnity, eccentricity,—all combined, find embodiment, and present themselves for study in the hall of the Irish Four Courts.

The public squares of Dublin add to the beauty of the city, and are of course a great acquisition in a sanitary point of view; Mountjoy and Rutland on the north side, and Merrion

and Fitzwilliam squares on the south. But these squares are open to much improvement in their condition and management. They exist alone for the benefit of the wealthy and the *élite* of the surrounding neighbourhood. Their interests should be bought up by the corporate authorities, and all of them should be free to the working population, who have been found latterly, when given like privileges, to be more conservative in guarding such property than the nurses and the children of the respectable families that have daily entered.

The new buildings on the site of the Dublin Exhibition building of 1853 are, as far as good masonry is concerned, undeniable. But the National Gallery and its companion Institute, externally, are bare and meagre skeletons of classic taste. There is nothing impressive or elevating in these buildings, although they were evidently intended, from their nature, when first designed, to represent in their fulness what they do not.

On Stephen's Green South, the Catholic University occupies the fine old granite-fronted mansion, once the residence of the celebrated "Buck Whalley," in the last century, called otherwise "Jerusalem Whalley," from the fact of his once making a wager that he would play ball against the walls of Jerusalem and return to Dublin within the year, a feat which he accomplished (not easy in those times) considerably within the time. In a straight line with this side of the green, you are led out through Leeson-street to the world-known village of Donnybrook, the *locale* of the famous fair, of which the song says,—

"An Irishman all in his glory was there,
With his sprig of shillelagh and shamrock so green."

The Donnybrook road is a rapidly-improving quarter, since the recurrence of the fair has all but disappeared. The Winter Garden, lately the busy scene of the Exhibition, is a few minutes' walk from the green, having its entry in Earlsforth-terrace. It is built on the site of the old Coburgh Gardens,—a spot noted for public meetings once: the last and most noted, which was held at the instance of O'Connell, was suppressed by the order of Lord Anglesea, when viceroy of Ireland.

Dublin, on the whole, is a healthy city, and is not unfavourably situated; but there are districts on its northern and southern extremities sorely neglected by its corporate authorities. Improvements drag their slow length along, and projects are proposed and agreed to, but are years before they make their appearance.

The city needs many new streets, to pierce through reeking purlieus and to carry the fresh invigorating winds of heaven into quarters where unbearable exhalations and fetid odours hold sway. Like the Thames, the Liffey needs to be purified, or kept from being offensive in the summer. In an embanked river like the latter the difficulty is small. If the corporation have the will, they have plenty of means; and the way to do it has more than once been pointed out. Plans for rendering the Liffey navigable for some miles were also shown years ago, but no steps were taken in the matter.

Capital and labour will yet work miracles in favour of Irish trade and commerce; and if that great fear was got rid of concerning security which has taken possession of several speculative minds, the city and country at large would grow and prosper. House-building for some years in the metropolis has moved apace, and ship-building has begun lately to develop itself, after the eclipse of half a century. With the reclamation of the waste lands, the opening up of the industrial resources, and the utilization of the mineral capacities of the country, Dublin would become a great manufacturing capital, and she is fitted in every way to become one.

C. H. C.

FROM LAUNCESTON, TASMANIA.

THE Town-hall, which is newly erected, stands on an allotment of land at the junction of St. John and Cameron streets, specially granted by the Government to the municipal council for that purpose. It is a prominent object in the street architecture of the northern capital of Tasmania. The elevation is an adaptation of the Corinthian order of architecture, and has a frontage to St. John-street of 76 ft., and to Cameron-street of 52 ft. The principal front is towards St. John-street, the centre forming a grand piazza, approached from the street by a flight of steps the whole length of the colonnade, and forming the entrance to the municipal offices. Connected by this piazza are two wings, in which are placed the staircases approaching the large council-chamber or town-hall. The roof and cornice of the piazza are supported on four Corinthian columns and pedestals, each the entire height of the building, and the remainder of the rear messengers' apartments. The whole area of the upper floor forms the council-chamber or town-hall, 72 ft. by 40 ft. and 20 ft. high, lighted chiefly from the roof by lofty dome lights, surmounting the three centre compartments of a panelled ceiling. There is also a window at the southern end. The building, which is of brick, stuccoed on the outside with cement, is surrounded by an ornamental iron railing, which was cast at the foundry of Mr. W. Peter, Launceston. The cost of the building and furniture therein exceeds 6,000*l*. Mr. Peter Mills was the architect, and Messrs. S. Galvin & Francis the contractors.

A SELF-LOADING SHIP.

M. DE CORAUX, a Lyonnese, has invented and constructed a ship which can load or unload itself automatically in forty minutes. The captain and mechanician are the only living crew on board, the working and manipulation of the vessel and cargo being all performed by steam applied to most ingenious machinery. The loading is carried on by trucks and wagons, which can contain corn, flour, bales, cattle, horses, barrels, &c. The vessel is, as may be expected, of a peculiar disposition; but its exterior bears all the signs of sea-worthiness. The great revolution is on the deck and in the interior. The former is covered with lines of rail, reaching from one extremity to the other, while, at midships, there are two turntables. Front and rear are two or four immense cages, containing eight, twelve, or sixteen wagons, of the same size as our railway-wagons. The rails on which the wagons rest are adapted exactly to the rails of the deck. A cable is hooked to the wagons, which traverse the deck throughout its length, and the stern of the boat having been previously placed on a level with the quay, which is also furnished with rails, or may be, perhaps, a portion of a terminus, the wagons glide without the least interruption from the vessel to the land, and *vice versâ*.

BOMBAY EXHIBITION.

A MODEL by Mr. Salter, the well-known modeller, has been on private view at his residence, which we could wish to have been more publicly displayed.

The model in question has been prepared from the design of Mr. T. Roger Smith, for an International Exhibition hall, at Bombay. We hear that the plans were completed, and the building actually contracted for, so far back as April, 1865, when the panic at Bombay arose. This stopped the works when barely commenced, and it is still undecided whether the building will be erected or not. In the mean time the design is of great interest to those engaged in architectural or engineering business for India, or any hot country. The idea suggested by the model is that of deep and grateful shade. Roof rises above roof almost more as a growth than as an edifice, and the peculiar requisites of the climate of Bombay, involving protection from heat, resistance to the fury of the monsoons, and provision for the tropical rainfall, have been attended to in a manner which the different circumstances under which Exhibition buildings have been erected in Europe have not hitherto called forth. It is to be regretted that the model, being required for India, must be despatched without waiting for further exhibition in this country.

RAILWAYS BEYOND JOHN O'GROAT'S HOUSE.—A Scottish nobleman, who is connected by property with the Orkney Isles, has offered, it is said, to subscribe 60,000*l*. for the construction of railways in Orkney,—on Pomona, the chief isle, on which Kirkwall, the capital, stands, we presume; unless, indeed, it be intended to connect some of the lesser isles which most closely adjoin each other, by railway, which is not so likely.

CHAPEL ROYAL, SAVOY, STRAND.

THE Chapel Royal of the Savoy derives its name from the ancient palace built for Peter, Count of Savoy, and uncle of Queen Eleanor, in the middle of the thirteenth century. At that time, according to Stowe, "There was no mansion to bee compared with it in beautie and statelinesse."

The greater part of that palace was laid in ruins during its occupation by John of Gaunt, in the rebellion of Wat Tyler. The manor descended to John's son, Henry of Bolingbroke, on whose accession to the throne as Henry IV. it was vested in the Crown as part of the Duchy of Lancaster, and acquired its peculiar dignity and privilege as a royal precinct. Upon the accession of Henry VII., the Palace was endowed and appropriated for the uses of a hospital, and the walls of the present chapel were built.

Charles II. converted the hospital into a military and marine infirmary, and the chapel did duty as a place for holding barrack services.

In 1702, the hospital was dissolved and in part destroyed. The chapel was granted for the use of the inhabitants of the precinct; the Sovereign retaining all rights of patronage and direction in the affairs of the chapel, and defraying all expenses connected with it.

Under this rule the chapel has, from time to time, been restored; the most considerable changes finding place in the year 1860, under the advice of Sir George Grey, then her Majesty's Chancellor of the Duchy of Lancaster. A hideous gallery at the south end was removed; high pews exchanged for open seats; an entrance at the north end, treading almost upon the steps of the altar, closed up and transferred to the south end.

The ceiling, nearly resembling the contemporary one of the sister chapel in St. James's Palace, was redecorated, and the curious and carved ornaments of its 138 quatrefoil panels recoloured and regilded.

The gains of this costly restoration were utterly lost in the fire which consumed all but the walls of the chapel, in July, 1864. The work of the present restoration was entrusted to Mr. Sydney Smirke, R.A. (who, it is needless to say, has done his duty well), and was executed by Messrs. Myers & Son. The interior arrangements of the chapel are only slightly altered; an elongation of the chancel and a new entrance into the sacristy being the chief changes. The old and richly-emblazoned ceiling has been exchanged for one exactly similar in style and colour, but differing in the details of its design.

An elaborate framing of chestnut wood, with gilt mouldings, encloses a ground of blue,—semée with gold stars,—and of white, the ancient livery colours of the house of Lancaster.

The panels over the altar and chancel are occupied by sacred devices. The panels towards the south are filled in with the heraldic bearings of the Earls and Dukes of Lancaster, from Henry III. to Queen Victoria.

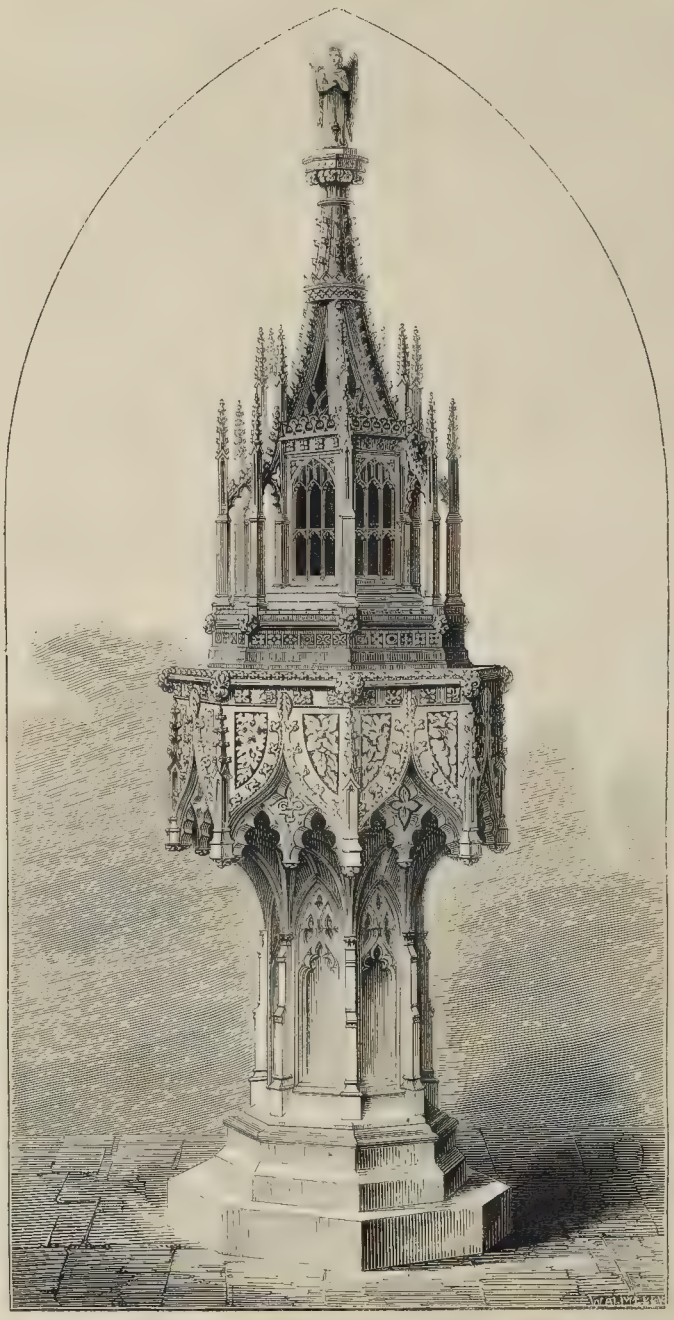
The painted glass window is erected in part as a restoration of a former one, and in part as a memorial of the late Prince Consort. It contains five principal figures,—St. Mary the Virgin, St. Mary Magdalene, St. John the Baptist, and St. John the Evangelist. The central opening has a figure of our Lord. The following inscription surrounds it:—

"Hanc fenestram ex dono in colarum hujus Precincti vitreis ornatam, A.D. MDCCCXLIII, igne cum ipso sacello dirutam, A.D. MDCCCLXIV. In memoriam Principis Consortis de novo ornari Victoria Regina MDCCCLXVI."

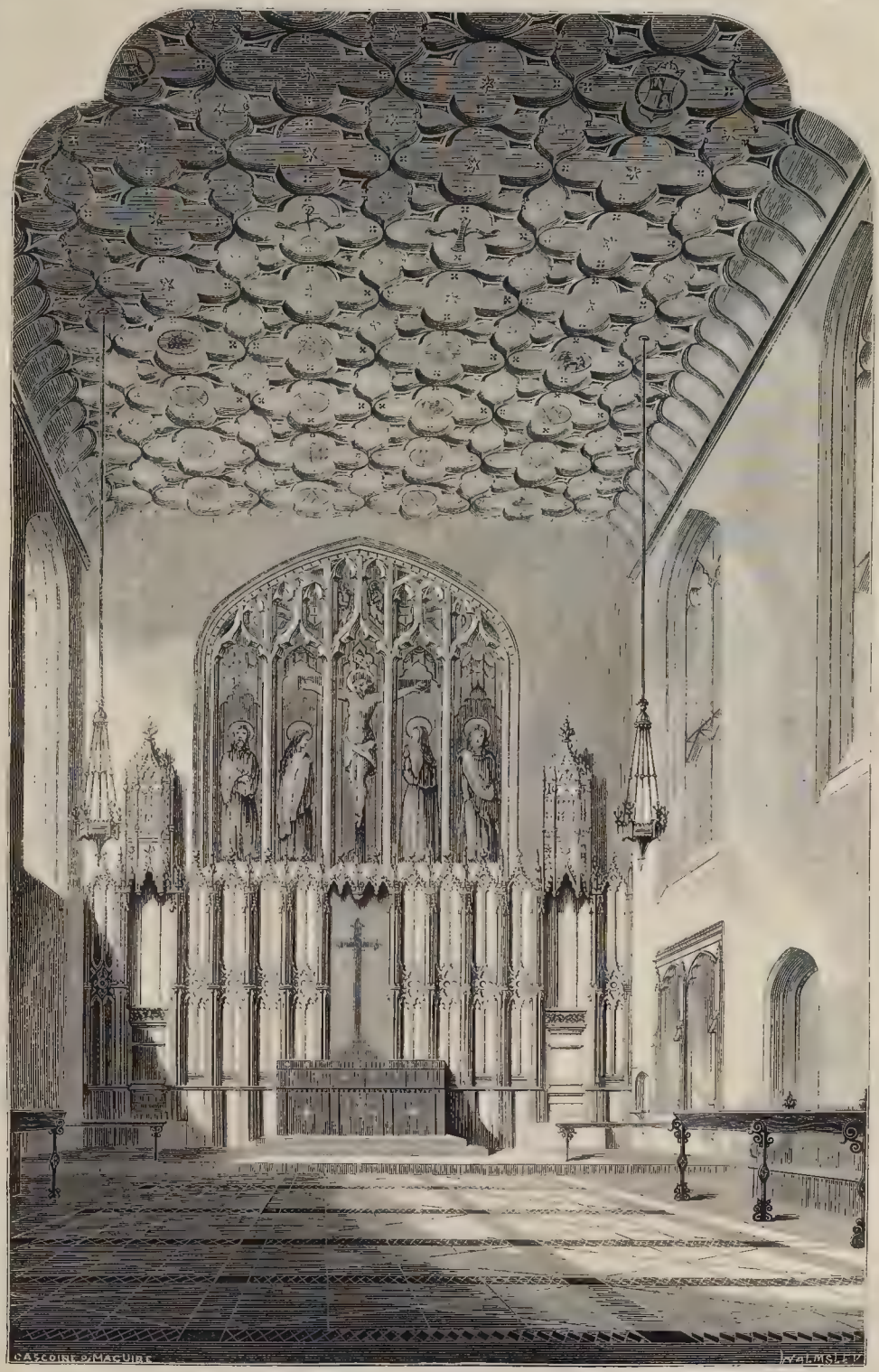
The ceiling and window were executed by Mr. Thomas Willement, F.S.A. The font was presented to the chapel by Mrs. De Wint, in memory of her husband, Peter De Wint, and her brother, W. Hilton, R.A. The font and its canopy are from a design by Mr. Edward Blore, and are beautifully executed by Mr. James Forsyth, of Edward-street, Hampstead-road. The font is of Caen stone, and the canopy is carved in wainscot oak. The pulpit, supplied by Messrs. Cox & Son, is a gift to the chapel, from the family of Mr. Burgess. The reredos is a faithful and excellent copy of the former one, and has been well executed by Messrs. White, of the Vauxhall-road.

The organ, replacing one presented by her Majesty, in 1843, excels its predecessor, both in point of size, and beauty of tone. It is built by Willis.

We must not omit in our notice, brief as it is, allusion to the zealous regard for the church shown by the present chaplain, the Rev. Henry White.



THE SAVOY CHAPEL, STRAND.—*Font and Cover.*



THE CHAPEL ROYAL, SAVOY, STRAND: AS RESTORED.—MR. SYDNEY SMIRKE, R.A., ARCHITECT.

PROPOSED NEW THEATRE, LEEDS.

A SITE and plans for a new theatre in Leeds, have been obtained. The ground chosen as the site for the new theatre is in Park-place. The plans have been prepared by Messrs. Moore & Sons, of Sunderland, and Mr. Backhouse, of Leeds. The auditorium adopted is circular, gradually curving outwards to the proscenium to a width on the box tier of 44 ft., and on that of the gallery tier of 48 ft., with a depth from the stage to the back of the pit, of 52 ft. The dress circle will be projected some small distance into the body of the house beyond the gallery curve, so as to assume, with its canopy, the appearance of a balcony.

The respective accommodation accorded to visitors will be as follows:—Private boxes, 84; family ditto, 40; dress circle, 90; pit, 1,000; gallery, 1,300; total, 2,514 persons. The gallery will have backs to the seats: the pit seats will have backs also.

It is not proposed to devote the building exclusely to the drama, in fact, it is to be constructed expressly so that, when necessary, it may be used either for grand concerts, oratorios, or public meetings.

VENTILATION OF CEILINGS.

THE *Builder* of December 23rd last, p. 911, contained a communication from Dr. D. O. Edwards upon a project for the adit of smoke from buildings by means of a *horizontal vomitorium*, in lieu of the ordinary perpendicular chimney-shafts. The practical objections to this scheme were very summarily stated in the concluding editorial remark; but an idea occurred to me in reading the letter, which I have since been able to work out so satisfactorily as to be justified in offering a suggestion, which I cannot but think may prove exceedingly useful.

The portion of Dr. Edwards's scheme which may be turned to valuable account consists in the tube with apertures at each end, into which his intention would be to lead the various smoke-flues.

Without discussing the practicability of contriving such an apparatus as he proposes, and of overcoming the probably insurmountable difficulties of soot, and interference of one chimney with another, I can point out in what manner, and for what other almost equally important object the idea can be used.

The simple ventilation of ceilings is an important matter, and so far as I have seen no scheme could be so effective and so easily applied as the provision of a zinc tube between the floor timbers, opening by a large funnel-shaped aperture (ornamentally treated as to its perforated face as you like) in the centre of the ceiling, and discharging into the open air. Thousands of such tubes have possibly been applied, but the difficulty has generally been to secure the adit of heated air, and prevent the down-draught caused by the inward rush of the cold external atmosphere. Various contrivances may be seen to attempt to effect this,—some by connecting the tube with a flue at side of the chimney, a costly and not always practicable mode; and others by wind-guards, patent caps, and the like, attached to a perpendicular pipe more or less high, into which the horizontal hot-air duct is made to open. Few of these work well, and they are unsightly and otherwise objectionable.

A case in my own professional experience having recently occurred, I have thought it worth while to state the simple mode I have used, which works so satisfactorily under circumstances almost exceptionally difficult, that I feel a principle may almost be said to be established thereby.

The particular instance is of a room, small and low-pitched, in which gas is burning many hours in the evening, and in which the ordinary channels of ventilation by doors and windows are so situated as to render recourse to them generally impossible. In this case an aperture 12 in. diameter has been made in the ceiling immediately over the gas-burner, and in this aperture is placed an ordinary metal basin inverted, with its opening level with the ceiling, and covered with a perforated metal disc. The bottom of the basin has been cut out to receive a zinc tube 4 in. diameter, flattened to a little more than an inch in depth, on account of the necessity to cross and cut into each rafter instead of lying between them. This tube is carried out into the open air through the external wall, and projects about an inch into a wooden tube or box, 3 ft. long and about 6 in. square, placed horizontally, and fastened against the wall. Each end of this box is open, but is filled with very fine wire-gauze.

As soon as this tube was fitted to its place, a perceptible upward current of the air within the room was noticed against the perforated opening in the ceiling, and the same continues steadily and unvaryingly to exist. Its escape is as palpable during the day as in the evening when the gas has been lighted, and the atmosphere of the room is sufficiently and most agreeably relieved. Before trying this, other contrivances had been placed at the end of the hot-air tube; but try what the owner would, the in-rush of cold air was too great for the feeble efforts of the escaping hot air to repel. I find that the effect greatly depends upon the fineness of the gauze, which in this case has been formed out of an ordinary wire-blind.

The situation of discharge had, in this particular instance, much against it, being surrounded by buildings, and exposed to very strong eddies and draughts of wind.

The ordinary air-bricks which are inserted in walls for the admission of cold air might be contrived to lead into openings in the ceiling, and by having externally a case contrived upon the principle of the one I have described, provision could be made for escape of heated air. Professional brethren may, moreover, see how easily this method is applicable as an architectural feature upon a building, either in the form of a string-course or band in one continuous length, with perforated ends, or by being broken into sections, and treated ornamentally, as individual feeling may suggest. I can only state that the applied result has been so satisfactory and uniform in this particular instance, that I think the principle well worth more extended trial. The *rationale* of action is easily intelligible, and is well explained in the communication of Dr. Edwards, from which this hint has been taken.

GERVASE WHEELER.

SUBWAYS AND OTHER IMPROVEMENTS, NOTTINGHAM.

THE town council of this borough have, during the last six or seven years, constructed two subways under the new streets which have lately been formed in the very heart of the town, and a few days ago almost unanimously instructed Mr. Tarbotton, the corporation surveyor, to build another subway under a new street in the centre of the town, which is now in progress. These subways are similar in principle to the Garrick-street subway in Covent Garden, of which we gave illustrations, but vary in detail. Hitherto, as we understand, these have been highly successful; but in consequence of the support Mr. Tarbotton rendered the Metropolitan Board of Works on the occasion of their application to Parliament on this question two years ago, the gas and water company, we are told, have refused to use the subway last made here. The corporation are highly indignant, and intend to pursue the system, nevertheless, in all their new streets. A large amount of work has been done in Nottingham, in street improvements, at a very large cost; also in sewerage.

SANITARY MATTERS.

Sheffield.—In a court in Thomas-street, containing twelve houses, according to the local *Independent*, there have been nine deaths from fever since the early part of November. In all, more than twenty persons have been attacked in the yard, seven having been prostrated in one house alone. The only house that has escaped the contagion, remarks our authority, is one with windows to the front as well as back, and therefore capable of through ventilation; and the escape seems to be due to the judicious care of the mother, who has not only kept the house well ventilated, but taken the precaution to change her dress before going among her children, after visiting and assisting her fever-stricken neighbours. There have been other cases of fever in the neighbourhood.

Liverpool.—At the usual weekly meeting of the health committee, the medical officer of health reported that the number of deaths registered in the borough of Liverpool during the week ending February 3rd, 1866, was 378, or 237 in the parish, and 141 in the out-townships, being an increase of forty on the corrected averages of the last ten years. In reply to a question put by the chairman, Dr. Trench said one thing was evident, that the slightest fall in the thermometer meant a high death-rate. In reference to diarrhœa and all those diseases which depended on the ferment of decomposing matter, it was perfectly convincing that the want of rain increased the death-rate in those diseases, so much so that in the last annual report he had given the rating of the barometer day by day according to the daily deaths by diarrhœa. The evils resulting from the sewage would be magnified in hot weather and dry weather, for the compressed gases rose and fell with the barometer. The chairman remarked that those facts should be brought before the sub-committee on the health of the town.

Manchester.—Amongst the notes of the Registrar-General in his last quarterly return, is a report on the sanitary condition of Manchester by a local registrar in the Deansgate sub-district, in which the reporter says:—"The unhealthiness of Manchester is due to its vitiated atmosphere. We have had an unusually dry season, and an extraordinary amount of sickness, with excessive mortality. Nothing but the constant rain we have in ordinary years makes a residence within its bounds tolerable. The air is well washed often, and we survive. . . . . We have fever amongst us, and cholera at our doors. We know how fatally these are promoted and extended by the evils which we see and recognise, and yet fear to touch. Unhappily, the value of human life is outweighed by other considerations. The evils of a polluted city atmosphere exist in concentrated force in the courts, alleys, and confined overcrowded rooms in which so many of our labouring population live; and these are more difficult to deal with. The air is stagnant, and, as the courts and alleys are closed at one end (blind alleys), there is no possibility of ventilation, unless artificial openings are made. But a foul atmosphere is not disagreeable to a large class of working people, who enter it with indifference; and it is almost impossible to get them to open their windows. Though they are amply supplied with water, extreme uncleanliness of person, dress, and home, is also matter for much regret. For this, no remedy exists but education; and the clergy of all denominations hold a power which they might exercise most beneficially in the inculcation of sanitary lessons. At the present time benevolence can hardly find a nobler field. Dirt and squalor are the enemies of religion as much as of health."

Sunderland.—The sanitary chairman of this town, it may be recollected, stated in reply to observations in our pages, that there was not a pig in the entire town. What, then, does a recent recommendation of the sanitary committee itself mean,—"that Mr. Humphrey be authorised to take all necessary proceedings to have pigstyes in Cage Hill, Monkwearmouth, removed, or the nuisance caused by them abated?" If there be no pigs there can be no pigsties—except perhaps human ones, of which there are a superabundance, according to their own medical officer, Dr. Evans (who, by the way, confirms the truth of other statements in the *Builder*). In a recent memorial, he says,—"I regret to have to report to you that fever has greatly increased in the district during the last eight or ten days. It has hitherto been extremely localised, but it is now more diffused, and I doubt not, under present circumstances, will yet spread to spots where it may not be wanted. It would be an insult to inform educated gentlemen that nothing exists without a cause, and that the causes of typhus are more or less, if not entirely, removable. If you ask me their nature, I have simply to direct your attention to the horrible stench that has been given off during the last fortnight (especially in the evenings) by the outlets of your deep drainage. If you ask the misinformed people themselves what they suppose to be the cause of their misfortunes, they will give you, one and all, the same reply,—'It's the smell behind the door.' I will content myself with summarising what I believe to be the causes of a visitation that has now been with us eighteen or twenty months, and which I am sorry to say gives us no encouragement to hope for its immediate extinction. I here arrange these causes in the order of their importance, according to my own views and experience. 1st, overcrowding; 2nd, water-closets without water; 3rd, gully-holes in house

passages; 4th, slaughter-houses with putrid offal; 5th, poisonous gases from outer drains; 6th, defects in construction of dwellings; 7th midden steads. The causes of these modern plagues,—typhus and cholera,—are the same in their essential nature as the causes of the plagues of old, dirty persons, dirty dwellings, impure air, impure water, errors of drainage, overcrowding of houses and narrowing of lanes, with accumulation of filth, whether it be on the surface of your streets or behind the doors of slaughter-houses. The public health imperatively demands that supervision should be placed in experienced and enlightened if not in professional hands; for in this important matter technical skill and scientific knowledge are more or less essential, together with a large share of humanity and freedom from prejudices."

HOUSES FOR THE WORKING CLASSES.

At a time when 16,000 houses, threatened by new railway Bills affecting the metropolis, may be doomed to follow thousands already demolished, it is gratifying to observe that the subject is exciting an increased interest, and that there is now a prospect of something worth speaking of being done towards the replacement of so many of the people's homes.

A Bill has been brought into Parliament to enable the Public Works Loan Commissioners to make advances towards the erection of dwellings for the labouring classes in populous places, and various meetings are being held, and proceedings taken, with the view of advancing the same important purpose of providing the working classes with improved substitutes for the dwellings of which they are being deprived.

Mr. Peabody, in the letter wherein he announced the noble gift of 100,000*l.*, in addition to the 150,000*l.* previously given, expresses his entire approval of what his trustees have done.

"Taking the joint capital of the two gifts, he remarks, at a minimum of 250,000*l.*, it will form a fund, the operation of which is intended to be progressive in its usefulness as applied to the relief of the poor of London (so correctly defined in your recent report), without exclusion in consequence of religious belief or political bias. It will, therefore, act more powerfully in future generations than in the present, and it is intended to endure for ever . . . .

It is my desire that my trustees for the time being may seek out and secure at such rates as the state of the fund may warrant, such freehold sites, within ten miles of the present Royal Exchange, as may appear eligible, both on account of salubrity of position and proximity to the great centres of labour and railroad accommodation, due regard being had to the probable burden of taxation . . . .

The trustees shall be at liberty, should they consider it needful, to set apart space adjacent to the building and suitable for school-houses for the children of the families holding tenements. But such schools must be so organised as carefully to exclude sectarian influences . . . .

As some of these dwellings will probably be at inconvenient distances from good markets, I would also suggest to my trustees to consider the propriety, in localities where it may seem to be required, of providing within the buildings, or near to them, apartments in which the tenants may organise co-operative stores for supplying themselves with coal and other necessary articles for their own consumption, subject to such regulations as, in the judgment of my trustees, may be needful . . . .

I entertain a strong and earnest hope that the project will so commend itself to the sympathies and judgment of the inhabitants of London, as to insure on their part that interest and co-operation which will secure to future generations of the poor those comforts which, with the blessing of Providence, it is my object to bestow upon them."

At a meeting of noblemen and gentlemen, held in the Discussion-room of the Metropolitan Club, there was a full attendance to consider the subject of dwellings for the working classes. The Marquis Townshend was voted to the chair; and Lord Ebury, the Right Hon. W. F. Cowper, M.P., Mr. Arthur Otway, M.P., and other gentlemen were present.

Letters from the Bishop of London, Lord Stanley, and others, sympathising with the object of the meeting, and expressing regret at being unable to attend, were read; and then

Mr. W. H. Robinson explained the plans of a company uniting the efforts of the moneyed and the working classes in the following manner:—The capital to be 100,000*l.*, with power to increase, divided into shares of 10*l.* each. The shares to be of two classes, the first payable by calls during two years, so as to be taken up by capitalists or others; the second to be payable by weekly instalments, to suit the working men; the management to be in the hands of trustees, and directors to be elected by the shareholders; the houses to be erected chiefly for dwellings in flats, upon improved designs; small houses also to be erected in the suburbs; the buildings to be mortgaged or sold when built, and the proceeds applied in the erection of additional buildings; working men to have the opportunity, by relinquishing shares or otherwise, to purchase their own tenement; the whole operations to be based on purely commercial principles. Mr. Robinson stated that this plan had been approved by a large public meeting at Lambeth in November, and that a committee of working men had since been occupied in arranging details. They would make their report to a second public meeting at Lambeth Baths. What was wanted now was the co-operation of gentlemen of wealth and position to supplement the endeavours of the working men.

The meeting at the Lambeth Baths was also presided over by the Marquis of Townshend, in the absence of the Earl of Shaftesbury. At this meeting the report from the committee was received and adopted. There was a very large attendance. The chairman was supported by a number of the vestrymen and influential inhabitants of the south of London. The Rev. T. B. Owen moved the following resolution:—"That in order to meet the pressing need for house accommodation in London, it is, in the opinion of this meeting, desirable that immediate steps be taken to form a company under the Limited Liability Act, for the purpose of erecting improved dwelling-houses for the working classes, and that this meeting pledges itself to support such a company." This was carried, together with another appointing a committee to carry out the formation of the company.

The fifth ordinary general meeting of the Improved Industrial Dwellings Company was held in the Mansion-house, on Saturday, Mr. Alderman Waterlow in the chair. Among the gentlemen present were Sir Charles Fox, Mr. J. L. Briscoe, M.P., Aldermen Finnis and Stone, &c.

From the report for the last half-year it appears that the lease of a valuable piece of land, situated in City Garden-row, City-road, has been secured for the company, and three blocks of buildings are in course of erection thereon, which will, when completed, comprise ample accommodation for about seventy-two families. This will involve an expenditure of about 9,600*l.*, towards which about 6,500*l.* have been subscribed. It is expected that these dwellings will be completed and ready for occupation by midsummer next. The directors report that the whole of the property of the company comprised in the four estates mentioned in previous reports at Wapping, Southwark, Bagnigge Wells, and King's Cross, are fully completed and occupied at the present date. The directors proposed payment of a dividend at the rate of five per cent. per annum upon the paid-up capital, and in concluding regretted to state that Lord Stanley had been necessitated, by the pressure of legislative and other duties, to retire from his position as chairman of the company. In doing so his lordship assigned his shares, to the amount of 1,000*l.*, for the benefit of certain charities at King's Lynn. On the remainder of the present capital being subscribed, the directors contemplated extending the basis of the company by the issue of shares of less nominal value than at present, and it was thought that by this means working men may be induced to invest their savings, and gradually acquire an interest in the company.

The weekly rental now accruing to the company is about 63*l.* 7*s.*, giving a gross rental of 3,294*l.* 4*s.* It was often remarked that a large number of small rents were difficult to collect, but there had only been 29*s.* of bad debts since the company was originated.

In addition to what we have already stated, we may mention that a deputation, representing several of the metropolitan Boards of Guardians, carrying out resolutions to which we adverted in our last, had an interview on Tuesday afternoon with the Right Hon. C. P. Villiers, M.P., president of the Poor-law Board, respecting the dwellings of the poorer classes in London. Lord Enfield, Mr. Lumley, Mr. Farnall, Poor-law commissioner, and Mr. Rawlinson, sanitary commissioner, were also present. The memorial presented pointed to the fact, that for the new law courts 3,082 persons of the labouring classes and poor would be removed, in addition to 1,093 persons not of the labouring class, and that no provision had been made for compensation to these poor persons about to be deprived of their lodgings, or for their future accommodation. Railway and other works being so destructive of small house property, it was unsafe to rely wholly upon either the usual "supply and demand" hypothesis, or on the exertions of philanthropists, and that the Government which sanctions the removal of the poor man's home should in some way make provision for his future dwelling-place. Without offering any suggestions themselves, they directed attention to the three following recommendations of the report of the committee of the Society of Arts on Dwellings for the Labouring Classes:—

"1. That corporations, limited owners, &c., should have increased power to sell land for the erection of dwellings for labourers, under conditions as to proper drainage, ventilation, and sanitary regulations. 2. That the Public Loan Commissioners should be authorised to lend money, at a rate not exceeding 3½ per cent. per annum, for building dwellings for the labouring classes, under suitable guarantees, and with due regard to sanitary arrangements. 3. That in all future Railway Acts and Acts for Local Improvements, when houses inhabited by the working classes are destroyed under compulsory powers, such companies should be compelled to provide, within a convenient distance, other dwellings in lieu of those destroyed."

Mr. Villiers promised the attention of the Government to the subject.

FALL OF ROOF, LONDON-ROAD STATION, MANCHESTER.

On the 7th inst. the City Coroner, concluded the inquest on the bodies of Thomas Garston Sherwood and Mark Russell, who were killed by the falling, on the 23rd ult., of part of the large iron roof that is being constructed at the London-road Railway Station. Elaborate reports were made by Mr. Brunlees, C.E., and by Capt. Tyler. After a long inquiry, the jury returned a verdict of Accidental Death.

Mr. Brunlees, in his report, said,—

"The roof in course of erection is 656 ft. long and 190 ft. wide, the width being divided into two spans of 95 ft. each. It is supported longitudinally by three lines of lattice girders 6 ft. in depth, divided into eight bays by the cast-iron columns upon which the girders are carried. Six of these bays, forming the portion still standing, are of the following spans:—The three first, beginning at the looking-office or west end, are 77 ft. 10 in. each; the fourth, 76 ft.; the fifth and sixth, 78 ft. 5 in. each. The two remaining bays were 88 ft. 4 in. each. The bay which fell was the seventh from the west end, and the last or eighth was subsequently taken down. With regard to the main roof itself, I calculate the weight of the structure to be 13½ tons on each principal, and, adding to this the pressure due to a high gale of wind, and the weight of 12 in. of snow, the maximum load on any principal would be 26 tons. Under this load, no part of the roof is subjected to a greater strain in tension than 4 tons per square inch, and no greater strain in compression than 2 tons per square inch. All the work is well executed, and the materials are of good quality. I am therefore satisfied that the roof itself is amply strong, and did not in any way contribute to the cause of the accident. Of the three lines of girders supporting the roof, the outer ones rest upon the side walls of the station, consequently there can be no question as to their sufficiency. Respecting the centre line of girders, I will first of all state the results of my investigation of the portion now standing, the largest spans of which are 78 ft. 5 in., being the two immediately on the west side of that which fell. The load on these girders due to the weight of the structure is 79·75 tons each, to which I add 12 tons as the vertical pressure due to wind and snow, making a maximum load of 91·75 tons. With this load the strain on the top flange of the girder will be 4·4 tons per square inch in compression; on the bottom flange, 4·6 tons per square inch in tension; on the cast-iron vertical struts, 3·2 and 1·6 tons respectively in compression; and on the diagonal bars between each strut, 5·5 and 7 tons respectively in tension. The vertical pressure on the end castings which connect the girder with the columns is 2·64 tons per square inch. The strains on the diagonal bars are somewhat greater than I consider advisable, and the use of cast-iron in forming the connexion between the girders and the columns is certainly not advisable. The cast-iron end pieces, as before stated, have only to carry 2·64 tons per square inch of vertical pressure, but when the girder deflects, or it may be buckles, a transverse strain is brought upon them which they are not calculated to resist with certainty. All these girders are and have been since the accident temporarily propped, and I consider that they should be permanently strengthened. Proceeding now to the girder in the bay which fell, I will first state the strains to which it would have been subjected with the completed roof and an allowance for wind and snow. The weight due to the structure would be 98·4 tons, to which I add for wind and snow 15 tons, making a maximum load of 113·4 tons. With this load there would be a strain on the top flange of 4·7 tons per square inch in compression, a strain of 6·4 tons per square inch on the bottom flange in tension, strains on the struts of 3·9, 2·4, and 1·6 tons respectively in compression, and strains on the diagonals of 9·5, 8, and 4 tons respectively in tension. The vertical pressure on the end castings would be 3·3 tons per square inch. The same observations which I have made with regard to the 78 ft. 5 in. span as to the strains on the diagonals and the defective connection with the columns, apply with equal force to this girder. It now remains to consider the load on the girder, and the strains to which it was subjected at the time of the accident. I estimate the load then upon the girder at 88·49 tons. With this load the strain on the top flange would be 3·7 tons per square inch in compression, the strain on the bottom flange would be 5 tons per square inch in tension, the strains on the struts would be 3·3, 1·8, 1·2, 1·9, and 2·9 tons per square inch respectively in compression, and the strains on the diagonals would be 9·0, 7·9, 3·0, 3·0, 6·7, and 7·7 tons per square inch respectively in tension. The vertical pressure on the end castings would be 2·8 and 2·4 tons per square inch respectively in compression. It will be observed that the strains on the diagonals are excessive even with a partial load. I am not, however, of opinion that the excess was sufficient to cause a sudden failure of the

girder, but it would cause a great deflection. I found the girder well put together, and the iron is of good quality. I have before stated that I consider the connection between the girders and the columns defective. This connexion is made in the following manner:—The ends of the girder are formed of cast-iron vertical struts, which are attached to the top and bottom flanges by 1¼ in. bolts passing through the angle irons and the struts. The girder rested on a projection on the column 3 in. wide, and was bolted to the column by four 1¼-in. bolts passing through lugs on the end casting, through the column, and through similar lugs on the end casting of the girder of the next bay. After the girder was in its place and bolted up, a wrought-iron key was driven in grooves formed for the purpose between the column and the end casting. The ultimate cause of the accident was the fracture of the end castings, which left the girder unsupported except by the small projection on the column under the bottom flange, which was of no value inasmuch as the whole vertical pressure is taken at the top of the end castings. Although the ultimate cause of the accident is apparent, we have no actual evidence to show the primary causes, but these may be assumed to be threefold. First, we have a girder with a tendency to deflect to a great extent from the very flat angle at which the diagonal bars are placed, and the small amount of metal in these bars. Second, the girder is weak laterally, and buckling may have caused an undue strain on the end castings. Third, the high gales immediately preceding the accident may have bent the girder laterally, and produced a nipping strain on the castings. In my opinion, any one of these causes, or probably all of them combined, acting with the leverage due to half the length of the girder, have produced such an undue strain upon the end castings as to cause their fracture. But, whatever may have been the circumstances which immediately produced the failure of the girder, it is evident that the introduction of cast-iron was the main defect in its construction, and led to the accident."

MARYLEBONE.

THE monthly report on the health of the parish of Saint Marylebone during January, 1866, by John Whitmore, M.D., medical officer of health, and chemical examiner of gas for the parish, has been printed by order of the vestry. The health of the district is not so bad as to require notice. Under the head of open spaces, and in respect to that portion of the old parochial burial-ground, which lies on the north side of Paddington-street, the reporter says:—"The amount of space which it occupies cannot be much less than an acre and a half, and I have often thought, how great would be the improvement and how little the desecration, if all the tombstones were levelled, as they are in St. Margaret's churchyard, Westminster, and the entire space converted into a recreation ground for the children of the poor in the neighbourhood. In the filthy, densely crowded courts which abut upon this space, more particularly York-court, there are scores of young children pining away for the want of fresh air, to whom a romp in the sunshine would be a source of infinite delight," and enable them to "pick up—so to speak—during the day time in the open air, strength enough (and to spare) to resist the baneful effects of the foul atmosphere which they breathe at night, and by such means materially increase their chances of growing up into vigorous maturity."

METROPOLITAN BOARD OF WORKS.

VENTILATION OF SEWERS: EMBANKMENTS.

AT a recent meeting of the Board, a report was brought up from the Main Drainage Committee recommending that the committee be authorised to offer a premium of 250 guineas for the best plan for neutralizing and rendering harmless the offensive and poisonous gases in sewers. It was moved as an amendment, "That inasmuch as a large sum of money has been recently expended in the Main Drainage works of the metropolis, it is not at present expedient to incur any further expense, until, after a fair trial of them, it is shown that offensive gases are generated in the sewers after the Main Drainage works are completed." After some discussion, the chairman put the question, when there appeared for the motion 14, against it 13; but as this did not constitute a majority of the members present (the chairman not voting), there was no order upon the question.

The chief engineer presented his monthly report on the progress of the works of the Thames Embankment, Low-level Sewer, North, &c.:—

"*North Side of the Thames.*—Thames Embankment (Contract No. 1) between Westminster and Waterloo Bridges.—The works that have been executed in connexion with this contract comprise about 3,391 ft. in length of timber and iron caisson dams, either completed or in various stages of progress. The completed works comprise about 1,337 ft. in length of the Low-level Sewer, 284 ft. of the sewer for intercepting the smaller drains formerly discharging on the foreshore of the river, and 916 ft. of the subway. About 409,000 cubic yards of earth and other like materials, obtained partly from the land and partly from the river, have been filled in behind the walls and in the embankment generally. The approximate cost of the work done, materials on the ground, and plant, is 205,063*l.*, or 13,633*l.* in excess of the previous month, but a portion of this sum is, however, due to progress made prior to the past month. Of the total amount the proportionate sum of 161,424*l.* is for works, 51,915*l.* for materials, and 51,664*l.* for plant.

Thames Embankment (Contract No. 2) between Waterloo Bridge and Temple Gardens.—During the past month, within the completed dams in front of Somerset House and the Temple steamboat-pier, 909 cubic yards of concrete have been deposited, 60 rods of brickwork built, and 7,538 cubic feet of granite bedded. The eastern dam will shortly be completed. About 3,546 cubic yards of good binding material have been filled in for the 20-ft. backing. The approximate value of the works completed, and of the materials and plant on the ground is 169,350*l.*, of which the sum of 5,165*l.* is due to the progress made within the past month. Of the total month the proportionate sum of 131,703*l.* is for work done, 17,630*l.* for materials, and 20,017*l.* for plant.

Low-level Sewer.—About 607 ft. of the main line and 134 ft. of the Old Ford branch sewer have been completed in the past month, making a total length of nearly 4¼ miles of sewers constituted under this contract, the approximate value of which is 185,361*l.*, or 6,940*l.* for the work done in the past month.

Abbey Mills Pumping Station.—The internal and external walls have been built up to an average height of 7 ft. above the concrete, and sixteen holding-down stones, containing in all 1,000 cubic feet of Bramley stone, have been prepared, dressed, and bedded. The quantity of concrete deposited outside the walls, and within the vacant spaces inside the buildings, is 844 yards, and the number of rods of brickwork built, 197 yards. The approximate value of the work completed is 16,173*l.*, of which the sum of 2,741*l.* represents the progress made in the past month. Portions of the machinery continue to arrive on the ground from Messrs. Rothwell's foundry.

South Side of the Thames.—Thames Embankment (Contract No. 1).—About 1,365 ft. run of piling in the dam, and 1,600 ft. in the staging, have been driven to an average depth of 16 ft. About 149,000 cubic feet of timber and 77 tons of cast-iron pile-shores have been used in this work, and there are about 41,000 cubic feet of timber on the ground ready for use. The approximate value of these preliminary works is estimated at 20,000*l.*

J. W. BAZALGETTE, Engineer."

This report was received and ordered to be entered on the minutes.

Several other matters were disposed of, and the Board adjourned.

At the last meeting of the Metropolitan Board of Works, the tenders for the deepening and reconstructing the Grove Sewer, Hammersmith, and for constructing a new sewer in High-street, Fulham, were as follow:—Mr. J. C. Pearce, 7,057*l.*; Messrs. J. and S. Williams, 7,000*l.*; Mr. Edward Redding, 7,553*l.*; Mr. Edward Thirsk, 9,000*l.*; Mr. James Bloomfield, 9,500*l.*; Mr. Joseph Niblett, 8,500*l.* On the motion of Mr. Freeman, the tender of Messrs. J. & S. Williams was accepted, subject to the usual inquiries.

PROPOSED BUILDERS' CLERKS' SOCIETY.

READERS who are interested in the endeavour to establish a "Builders' Clerks' Society," to aid the necessitous aged and fatherless, have doubtless noticed that a meeting is to be held, for the expression of opinions, in the school-room, Peter-street, Bishopsgate-street, on this, Saturday, the 17th inst., at five o'clock. We mention it again, nevertheless. The desirability of joining it to some existing society will doubtless be discussed with other obvious propositions. Why should not the Builders' Benevolent Institution supply the want, and so save the cost of fresh staff and meeting-place?

BETHNAL GREEN AGAIN!

ANOTHER death has been caused by the dens here, that of Mary Clarke, otherwise White, aged 36 years, at No. 3, Reform-square. The house No. 2 in that *square* was occupied by nine persons—all had the fever, and the father was dead. At the door of No. 3 stood, when the jury visited it, a boy, who took off his cap, and showed that all his hair had been shaved off for fever. He stated that twelve persons occupied the house, and that seven of them had typhus. Mr. F. J. Gant, pathological anatomist to the Royal Free Hospital, said that he made a post-mortem examination of the body of the deceased, and found the cause of death to be disease of the brain. But the condition of the place in which she lived would tend to accelerate death. Defective drainage, the accummulation of vegetable and other refuse, and the state of the closets would produce typhoid fever. Typhus and typhoid fevers were eminently preventible diseases. Mr. George Haycock said that he was divisional surgeon of Bethnal-green. He had attended persons in four houses in that square. Typhus and typhoid had been raging there. He had eighteen cases in two houses. He inserted the facts about Reform-square in his medical relief-book, which he sent to the guardians about three months ago. The coroner, in summing up, said that it was manifest that the condition of the houses in question was such as to engender disease and cut short life. The jury returned a verdict,—

"That the deceased was found dead from the mortal effects of disease of the brain, and that her said death was accelerated by overcrowding, want of sufficient water supply, defective drainage, the dirty and unhealthy condition of the premises, and general neglect of sanitary arrangements: and the said jurors do further say that the intimation made by the medical officer of the district of the condition of the premises ought to have received immediate attention, and that greater facility should be afforded to the poor in obtaining medical orders in urgent cases."

ROYAL HORTICULTURAL SOCIETY.

THE general meeting of this society was held on Tuesday last, the Duke of Buccleuch, president, in the chair. The Report of the Council read congratulated the members on the improved position of the society as compared with its position last year. It said,—

"The Fellows will have remarked with pleasure that progress is being made towards the completion of the structures of the garden at South Kensington. A considerable portion of the spandrels of the arches of the Upper Arcades has been filled with terra-cotta bas-reliefs, and a contract has been accepted for the completion, before the out-door season commences, of the frieze ornamental work of the same arcades. This decoration, it will be remembered, forms a portion of the work undertaken at the commencement of last year by H. M.'s Commissioners for the Exhibition of 1851.

In their arrangements for the coming season the Council have endeavoured to work out the idea of uniting science and art. The past labours of this Society have been the source from which the other nations of Europe have chiefly derived their knowledge of the practice of sound gardening; and there is everything to encourage it in the endeavour to retain and increase the prestige it has already gained."

"It is with pleasure that the Council announce to the Fellows that the spacious hall for all kinds of meetings connected with the promotion of arts and sciences is about to be erected, under the patronage of the Queen and the presidency of the Prince of Wales, on the vacant site between the Conservatory and Hyde Park. It will be an amphitheatre like the Colosseum at Rome, capable of seating 6,000 persons with great comfort, and affording ample and suitable space for flower-shows and horticultural gatherings."

The advantages the Fellows will have in connexion with the forthcoming International Horticultural Exhibition were pointed out.

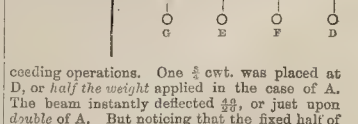
A discussion ensued as to the expediency of opening the gardens to the public for five days in the week during the months of September and October, at the charge of 3d. each for admission, as was done last year, and it was ultimately resolved that in lieu of that arrangement the gardens should be opened *free* to the public *one* day in each week during the two months named.

STRENGTH OF TIMBER BEAMS.

HEREWITH I forward, for insertion in the *Builder*, the results of some few experiments recently made by me, upon the strength of beams, to find a *practical* reply to the question put by "A Student," in page 878 of last year's volume.

A piece of yellow fir, 7 ft. 6 in. in length, and 2 in. square, was placed to represent a beam with its ends loose, having a clear span of 7 ft. between the supports. Two weights, ¾ cwt. each, were suspended as close as possible at the middle of the length. The deflection just exceeded an inch, being $\frac{21}{20}$. I call this, experiment A. When the two ¾ cwts. were placed half-way between the middle and one of the supports, the beam deflected at that point $\frac{12}{20}$; this I call B. When but one of the ¾ cwts. was placed there, it deflected at that point only $\frac{7}{20}$; this I call C.

The piece of wood was then shifted so as to project as an arm, for half its length, or 3 ft. 6 in. only. A rough diagram will explain the succeeding operations. One ¾ cwt. was placed at D, or *half the weight* applied in the case of A. The beam instantly deflected $\frac{42}{20}$, or just upon *double* of A. But noticing that the fixed half of the beam was being unduly strained, I had the arm shifted to a better bearing, and secured still



more firmly. On being tested again with the same weight, it deflected $\frac{36}{20}$, or *almost three-quarters more* than that of the beam A.

Applying the same weight at E, that is, in the middle of the length of the arm, the arm deflected at that point $\frac{125}{20}$. With the like weight placed at F, the deflection at that point was $\frac{215}{20}$. With the same weight at G, the deflection at that point was $\frac{5}{20}$.

Again placed loose on its supports, 7ft. apart, the beam was loaded at two points dividing the length into three equal parts, the deflection in the middle of the length of the beam was $\frac{10}{20}$, with one $\frac{1}{4}$ cwt. at each point (H). But with the $\frac{3}{4}$ cwt. at each point, the deflection was $\frac{18}{20}$ (I). The beam was, as a last trial, again proved with the weights as in A, with the same result as at first, indicating that the elasticity had not been affected, and that no deduction for loss of power is to be made from the various results.

The two main results, then, are,—I, that the beam deflected $\frac{3}{20}$ with $1\frac{1}{2}$ cwt.; and, II, that the arm of half the length deflected $\frac{36}{20}$ with $\frac{3}{4}$ cwt., or equal to 1·8 in.

Not having Fenwick's work mentioned by Mr. Tarn (p. 895 of last year's volume), I cannot work out the formula given by him, as the letters E and I are not explained; but Gregory's "Mechanics for Practical Men," edit. 1862, p. 388, gives the formula $\frac{432 \cdot l^3 \cdot w}{m \cdot b \cdot d^3} = D$. Working this out in the case of the beam in question, I obtain the formula in figures

$$\frac{432 \times 343 \text{ ft.} \times 168 \text{ lb.}}{\left\{\begin{array}{l}2{,}016{,}000 \text{ lb.} \times 2 \text{ in.} \times 8 \text{ in.} \\ \text{(red or yellow fir)}\end{array}\right.} = D,$$

or deflection in inches: that is, deflection = ·77175. Or, if 1,460,000 for m be taken, as given as the lowest quantity for red pine, by Rankine, in "Civil Engineering," the result is 1·065,—a quantity not differing so very much from the experiment which showed a full inch.

Now where does science teach me the amount of the deflection of the arm? Barlow said, until 1851, that it would be *double* the deflection of the beam: then ·77175 × 2 = 1·54350; and 1·065 × 2 = 2·130; neither of which results is very satisfactory with the actual fact of 1·8 inches. The new edition (1851) of Barlow says that the deflection of the arm will be *equal* to that of the beam; but the experiment clearly contradicts this authority. I am, therefore, inclined to put entire faith in the result given from numerous experiments made with perfect apparatus by Barlow, which does not seem to have been affected by other researches during his lifetime; and to take the *double* as the safest guide.

Not being thoroughly satisfied with experimenting on one piece of timber, I have tried another, of a different size and somewhat different material; the opportunity and material for both having been obligingly furnished by Mr. Henry Burton, on his premises at Aldersgate-street. This second beam was provided as Memel, 10 ft. in length, 2 in. wide, and 3 in. deep, being slightly more than the proportion of 5 : 7,—that of the strongest form for a beam. The clear span was 9 ft.; and, with the ends loose as before, the beam deflected $\frac{1.8}{20}$ of an inch with $1\frac{1}{2}$ cwt. in the middle (L). With a $\frac{3}{4}$ cwt. placed at one-third of the length from each support, the deflection in the middle was $\frac{7.5}{20}$ (M). With $1\frac{1}{2}$ cwt. placed at one-third from one support, the deflection was at that point $\frac{7}{20}$ (N); while at the middle the deflection was $\frac{8}{20}$ (O).

With regard to the arm; one part, 5 ft. 6 in. long was securely fixed, when the projecting portion, 4 ft. 6 in., deflected, with $\frac{3}{4}$ cwt. at P (as in above diagram), $\frac{2.5}{20}$ in., or *just about three-quarters* (= $\frac{23.75}{20}$) *more* than that of the beam L. The same weight at Q gave a deflection of $\frac{5.25}{20}$ at that point. At R of $\frac{1.8}{20}$ at that point. At S of $\frac{1.23}{20}$ at that point.

The two main results of this experiment, then, are,—I, that the *beam* deflected $\frac{1.8}{20}$ with $1\frac{1}{2}$ cwt.; and II, that the arm of half the length deflected $\frac{23.5}{20}$ with $\frac{3}{4}$ cwt.; or 1·17 in.

Working out the deflection, L, with the formula as above given, we have $\frac{432 \times 729 \text{ ft.} \times 168 \text{ lb.}}{1{,}460{,}000 \text{ lb.} \times 2 \text{ in.} \times 27 \text{ in.}}$ = deflection or ·67, and the actual experiment gives ·65; but it must be noticed that I have again used the lowest modulus of elasticity for red pine, not Memel, as given by Rankine. Using the figures 1,957,750, as given by Tredgold for Memel, the resulting deflection is ·500. The inference might be drawn that the piece of wood was a weak specimen of Memel. I was glad to find that the two sets of experiments agree. But if any of your readers think that I could have carried them further, possibly they will spend an hour or two on an improved series, and communicate the result. But, perhaps, this *practical* reply will be found a satisfactory answer to the question so usefully propounded by "A Student," who will now probably be led to doubt the accuracy of the "thorough *mathematical* investigation" on which Fenwick, according to Mr. Tarn, arrived at conformity with the statement in the new edition of Barlow's *Treatise on the Strength of Timber*, 1851, which renders that edition of questionable utility from the necessity for making corresponding alterations in the text. Perhaps, however, some scientific friends may be able to explain wherein lies the difference of the results of the carefully executed experiments with those of the mathematical investigations.

WYATT PAPWORTH.

ARCHITECTURAL EXAMINATIONS.

THE following candidates have passed the voluntary architectural examinations (established by the Institute of British Architects) for 1866: Class of Distinction—Thomas Henry Watson (Associate R.I.B.A.). Class of Proficiency—James Stanning Edmeston, Frederick Hunt (Temp. Stud. R.I.B.A.), R. Stark Wilkinson (ditto), and Thomas Wonnacott.

The Pugin Travelling Studentship for 1866 has been awarded to Mr. Hubert J. Austin, of 20, Spring-gardens.

GREAT FOSTERS, NEAR EGHAM.

AN interesting specimen of Elizabethan domestic architecture near London, is about to change hands. Great Fosters, or Great Foster House, so called to distinguish it from Little Fosters near, bears the date of 1575 on the Royal arms over the doorway. It is situated on the road from Egham to Stroud, and has now only fifteen acres of land pertaining to it, though originally Foster Farm adjoining must have belonged to it. The fore-court, tiled floor of the dining-room, one carved mantel-piece, and a few wainscoted rooms and carved sideboards and chests, still remain; and all the windows of the front are still in their original state, but some of the windows of the back or lawn-front have been modernised. The old moat, banks, and slopes also still remain; and we believe that the new purchaser, Lieutenant-Colonel Halkett, formerly of the Guards, a son of the late Sir Hugh Halkett, intends to restore the mansion, as far as possible, to its original condition. The tradition about the place is, that it was dwelt in or built by a Judge Foster, one of Queen Elizabeth's judges, who gave his name to the place. Another tradition is, that the Queen herself at one time resided there, and the Royal arms and date of 1575, favour this notion, 1558 having been the year of the Queen's accession. Perhaps some of our antiquarian readers may know something of the history of the place. The last possessor of it was the late Mr. George Frederick Furnivall, of Egham, the medical attendant of Shelley and his wife during their residence at Marlow, and about whom a paragraph lately went the round of the papers.

HAVRE AND ROUEN.

AT Havre, the demolitions necessary for the Rue de la Halle and its junction with the Rue François I., necessitate the destruction of the ancient house wherein Bernardin de St. Pierre first saw the light. This house is situated in the Rue de la Corderie, and bears the numbers 47 and 49, and was constructed in 1658 with a true magnificence for that epoch, remaining now one of the most ancient and important habitations of old Havre so dear to Richelieu. Bernardin de St. Pierre was, after Rousseau, the father of the modern descriptive style in prose, a style followed up closely by Chateaubriand and Sand. When the author of "Paul et Virginie" was born, the 19th January, 1737, his father, who claimed a lineal descent from the celebrated Eustache de St. Pierre, was director of the messageries or diligence service between Rouen and Paris. M. Verjon, into whose hands this property fell, caused, in 1820, a marble tablet to be affixed to the front of the house, with the following inscription:—"Ici naquit Jacques Henri Bernardin de Saint Pierre, l'an 1737."

At Rouen, a new station is being constructed, for the Rouen and Amiens Railway, called the Northern Terminus. It is remarkable for the difficulties met with in the work, and for the gigantic operations necessary to combat them, being placed, at Rouen, at the extremity of the Champ de Mars, at the end of the narrow valley which extends to the foot of the mountain on which stands the chapel of Bon-Secours. The site of the station is on the side nearest the town, bordered by an abundant water-course flowing through marshy grounds. The slightest excavation made in these lands is instantly filled with water, and it is on soil of this character that solid and durable foundations have to be established. This is to be accomplished by means of piers of brickwork, sunk in the following manner. A well is first sunk and kept clear of water by one of M. L. Coignard & Co.'s centrifugal pumps, which lifts also mud and gravel with the greatest ease. A circle of wood is then let down to the bottom, and on it is built a tube of brickwork, or chimney, laid in cement and quite watertight. The weight of the masonry is sufficient to cause the frame to descend a certain depth, and when it has ceased to descend of its own accord, a man descends and excavates with a pick the soil from under the frame, so as to facilitate its descent; at the same time, brickwork is added to the upper portion of this brick-pile, according as it descends. When a firm footing has at last been obtained, this hollow pillar is filled with concrete, thus forming a solid pier on which will rest a portion of the intended structure. There will be at least 140 or 150 of these piers sunk at an average of 20 ft. below the surface; they will bear the weight of the series of vaultings which are to form the base of the foundations thus raised above the level of the floods, left free to circulate round the piers. Our readers will remember a similar mode of building practised in India.

LIGHT AND AIR CASE.

PARISH *v.* WILKINSON.

MR. GLASSE and Mr. Waller moved in this case (Vice-Chancellors' Courts, Feb. 10) for an injunction to restrain the obstruction of light and air from the premises of the plaintiffs, who were pickle manufacturers, at No. 5, Monster-street, Regent's-park. The building in question formed a sort of single apartment or warehouse, and along the back of the wall, at the highest part immediately below the eaves, a range of opaque glass windows had been put in, with three or four additional panes at the end, and it was a portion of these latter windows, nearest the front of the building, which was alleged to be darkened by a building erected by the defendant, who was an upholsterer in Bond-street, for uses connected with his trade. It appeared that the wall now complained of was contemplated in June, 1865, and was actually commenced in November; and Mr. Bull, the defendant's agent, applied to the plaintiffs or their agent, Mr. Baker, as to the obstruction of light which would take place, and the wall on the 5th of January, being continued, was, by extra workmen (it was alleged), completed between 6 and 12 o'clock on the evening of the 6th, and this bill was filed and the injunction moved for.

The Vice-Chancellor observed that the Court was slow to grant a mandatory injunction—that is, an order involving the removal of what had been done, but no doubt such gross and oppressive cases might occur as to warrant such an order, and he should not lay down any rule that the Court had not such power on a proper case being made for it. Here if Mr. Bull had lulled the parties into security by his letter, it might have been a question whether a mandatory injunction ought not to be granted; but that was not, and, indeed, could not be so, the letter being in course of post when the building was proceeding. The plaintiffs, or their agents, might have known some months ago what was intended; but the first suggestion as to the obstruction came from the defendant. There was no case for an injunction, and the motion must stand over till the hearing; costs to be costs in this cause.

CHURCH-BUILDING NEWS.

Leeds.—The movement for the increase of church accommodation in Leeds is progressing. Another church has been resolved upon for the populous district of Newtown. The design for the building has been submitted to competition, and the successful architects are Messrs. Adams & Kelly, of Leeds. The period of the style selected by the architects is that of the thirteenth century. The plan of the church comprises a clerestoried nave and chancel, both with aisles. The chancel is terminated with a semicircular apse. A bell-turret is placed at the west end.

The nave is divided from its aisles by an arcade of five bays supported on piers with moulded bases and capitals, and is separated from the chancel by two framed trusses with carved braces resting on corbel shafts. Two-light traceried windows together with the single-light cusp window, of the clerestory and large west window, will light the nave and aisles. The chancel is lighted by five two-light traceried windows in apse. The roofs of the nave and chancel are of framed rafters covered with slating, in alternate coloured bands, surmounted with an ornamental ridge cresting. The church is to accommodate 600 persons. The seats are open benches. The walls throughout are of stone, faced externally with hammer-dressed wall-stones, with stone dressings and bands, and finished internally with plaster. The internal dimensions are:—Length, including chancel, 101 feet; width, including aisles, 47 ft. 6 in.; height, from nave floor to under-side of ridge, 50 ft. The church is to cost 3,000*l.*

Warwick.—Lord Leycester's Chapel, which has been undergoing repairs during the past eighteen months, has now been re-opened for divine service. The restorations have been carried out under the superintendence of Mr. Garner, of Wasperton Hill; Mr. Kyte, of Barford, being the builder, and Mr. Roome the clerk of the works. The old roof has been substituted by one in oak, carved and moulded. The floor is laid with encaustic tiles. In the east end of the chapel six additional stained-glass windows have been placed. The number of stalls for the brethren has been considerably increased, and the building heated with a hot-water apparatus. Additional support has been given to the arched tower and the stonework generally. A carved screen is to be erected at the west end.

Balsall Heath.—St. Paul's Church, Balsall Heath, has been re-opened, on the completion of the work of enlargement. The plans were prepared by Mr. E. Holmes, architect, which have now been carried out. About 200 additional sittings have been obtained, exclusive of seats for school children. This has been effected by the erection of a new south aisle, and by extending the west gallery. An organ-chamber has been built on the south side of the chancel, the case of which will form a feature under the arch in the south wall of the chancel. The choir has been rebuilt and deepened, and stalls for the singers have been provided on each side. All the alterations have been carried out in the Decorated style, with materials similar to those used in the other parts of the structure. The font has been moved to the east end of the south aisle. Four three-light windows, with varied traceried heads, afford light to the new aisles, and at the west end the original east window has received some adornment by the addition of a head moulding and some little carving. An additional staircase to the gallery has been provided at the south-west corner. The most important alteration, in an architectural point of view, is the substitution, in lieu of plaster, of a moulded and carved chancel arch, supported by marble shafts, with carved caps and corbels, the gift of Mr. Thomas Simcox. The east window, which is divided into five compartments, has been filled with stained glass, as a memorial window; it is from the manufactory of Messrs. Hardman & Powell, the subject being the conversion of St. Paul. A triple sedilia, of an ornamental character, each seat being separated from the other by serpentine marble shafts, with carved caps, and covered by cusped arches and moulded labels, with carved crockets and finials, is placed in the south wall of the chancel. On the north side is a credence. The original stone communion-rail has been brought forward in a line with the east wall of the nave, forming a dwarf chancel screen and a new communion rail of oak, supported by brass and iron standards, has been fixed in lieu of the old. The oak rail was the gift of Mr. Horsley, and the standards were presented by Messrs. C. Smith & Son, architectural metal workers. The original roof of the chancel has been decorated by Mr. Whitworth, from designs by the architect. The chancel floor is laid with encaustic and plain tiles, from the works of Mr. Godwin, of Lugwardine. All the seats in the new part are stained deal. The gas-fittings in the chancel and south aisles are from Messrs. Winfield & Co.; and Haden's hot-air apparatus has been fitted up. Mr. Green was the clerk of the works.

Jarrow.—Sir Walter and Lady James have subscribed 2,100*l.* towards the restoration of the church of the Venerable Bede at Jarrow, viz., 1,500*l.* towards the chancel and tower, and 600*l.* towards the nave. Other subscriptions have also been made.

Banbury.—It is very much desired to complete Christ Church by adding the spire, and a meeting of the parishioners has been held in the vestry for the purpose of making arrangements to raise the required sum, 1,000*l.*, towards which 250*l.* have already been promised.

Rainham.—The church has been re-opened for divine service, after being closed for five months for the purpose of being repewed. This has been carried out under the superintendence of Mr. A. D. Gough, of London, architect. Mr. Stump, of Brompton, was the contractor.

Tarporley.—The chancel of the church here, which has been for some months past undergoing extensive repairs, has been formally re-opened by the bishop of the diocese. At the request of the late rector and an influential committee of the principal parishioners, designs for the restoration of the whole church were prepared two years ago by Mr. J. S. Crowther, of Manchester, architect; and it was decided to commence with the chancel and north chancel aisle (the south aisle having been restored at the expense of the Arden family). Mr. R. Beckett, of Hartford, was the contractor.

Malvern.—The domestic chapel in connexion with Rhydd Court, the residence of Sir E. A. H. Lechmere, bart., recently opened, was commenced by Mr. Hansom, architect of the Malvern College; but that gentleman, from ill-health, being unable to complete it, it was finished, and the interior decorations arranged, by Mr. R. Norman Shaw, of London. It is divided into three parts,—the chapel destined for the use of the household of Sir Edmund Lechmere, the ante-chapel (in which are forty chairs for neighbours from various farms and cottages a long way from the parish church and near the Rhydd), and the organ chamber. The chapel is separated from the ante-chapel by a low stone wall, which will ultimately be surmounted by a light metal screen. The reredos is divided into three compartments, the centre having an alabaster cross, set with marbles of different colours. The other compartments contain, the one the letters I.H.S., and the other X.P.C., in mosaics, set in gold mosaic. The mosaic work was executed in Venice by Signor Salviati, the carving being done by Mr. Earp, of London. The last window is by Messrs. Clayton & Bell: subjects, The Nativity, Crucifixion, and Ascension of our Saviour. The interior of the chapel is still incomplete.

Willenhall.—New cemetery chapels have been erected by the Burial Board. They are in the Gothic style. The walls are of brickwork, with Bath stone dressings. Coloured bands and cornices of moulded bricks have been introduced in the exterior and interior. The arches over the doors and windows are of deep red bricks, with springers and key stones of Bath stone. The north gable is surmounted by a bell-cot, having an ornamental finial of wrought iron. The roof is covered with red, blue, and brindled tiles, set in patterns, and having an ornamental ridge crest. The works have been executed by Mr. D. Evans, builder, from designs, and under the supervision of Mr. J. R. Veall, architect, Wolverhampton.

PROVINCIAL NEWS.

Sheffield.—New premises for the Sheffield and Rotherham Banking Company are about to be erected. The directors invited a number of architects to send in plans for a new bank, to be erected on the site of the old premises in Church-street. The design sent in by Messrs. Flockton & Abbott, of this town, was approved, and it is now being carried out. The aim of the architects was to produce a suitable front, which should take its place becomingly among the other buildings in the same street (the Cutlers' Hall and the Hallamshire Bank), and be effective and business-like, without excessive decoration. The style of architecture selected is the Italian. The bank will have a frontage to Church-street of about 70 ft., and the elevation will exceed that of the Cutlers' Hall. The front will be of Darley-dale stone, and the introduction of sixteen pillars of polished red granite will effectively embellish the design. The principal features of the exterior are those suggested by the purposes of the building, and are formed mainly by the banking-room with its entrance, and the general meeting-room on the first floor. The banking-room will be a large and lofty apartment, well lighted. Its dimensions are 55 ft. by 34 ft., and 21 ft. high; the total floor space being 1,835 ft. as compared with 625 ft., the floor space of the old banking-room. It is lighted by large and lofty windows at each end; and, although these would in themselves have admitted a fair amount of light, the architects have thought it desirable to provide in addition, a roof light for the central portion, so that the light throughout may be not only good, but equal. The dimensions of the room will admit of a counter 50 ft. long, the old counter being 20 ft. in length. Mr. Niell, of Bradford and Sheffield, is the contractor for the work.

Gloucester.—The Spread Eagle Hotel has been rebuilt and opened by a limited liability company. The architects were Messrs. Medland, Maberley, & Medland, of Gloucester. The style is modern Gothic. The cost of the work, which was contracted for by Mr. O. Estcourt, also of Gloucester, is estimated at between 7,000*l.* and 8,000*l.*

Redcar.—A site for the projected promenade pier has been chosen, at the foot of King-street, where the beach terminates in a cliff a few feet high, at which place they intend to erect a sea-wall 100 ft. to the westward, and 60 ft. broad, as a promenade, and which is intended to be an esplanade to the pier. The pier itself is to be commenced before April next, and is to be built of iron, running out to sea a distance of 1,200 ft. or thereabouts, sufficiently far for steamboats and pleasure-boats to effect an easy landing at all times of the tide. Efficient landing-stages are to be erected at the outermost end. The cost is estimated at 10,000*l.*

Bath.—The new central police station in the Orange-grove is now occupied. A carriage-entrance with great gates leads in by a *porte-cochère*, within which the prison van will be enclosed on the setting down or taking up of prisoners. Direct from this *porte-cochère* a large central stone hall is entered, in which are an inspector's office and a prisoner's dock. Under this hall, on the basement, are the lamp-room and other offices for the constables, while the upper floor, or story, approached by a stone staircase, is appropriated as offices for the chief of police, with rooms on either side for the detectives and clerks. A door from the stone hall opens on sufficient parade room, lighted and ventilated exclusively from above; and from this apartment again is a communication with the station proper. This latter consists of a central corridor and six large-sized cells partially vaulted with stone, but also lighted and ventilated from above. At the end of this corridor a stone staircase leads to the basement (in which is placed the heating apparatus) where is a number of small cells, in which prisoners committed for trial are locked up previously to their being placed "on their deliverance" in the dock at the Quarter Sessions. An arched stone passage leads from the cells immediately underneath the markets direct to the Guildhall. The contractors were Messrs. Hibbard & Long for the masonry, Mr. Clark for the carpentry, Mr. May for the plumber's work, Messrs. Glass & Gould for the smith's work, and Mr. Packer for the painting and glazing. The whole was designed and has been carried out under the supervision of Mr. Charles E. Davis, the city architect.

Merthyr.—It is now determined that the town-hall shall be erected opposite the Castle Hotel. For a long time the majority held to the view that the Market-square was the place best suited, but there has been a growing distaste to close the only open spot in the town. It is rumoured that there will be other alterations, of which this of the town-hall will be the forerunner. The school-rooms will be improved, the church tower built, and bells placed therein; further, the wall will probably be removed.

North Shields.—The new hall in Saville-street, North Shields, built by the Loyal British Flag Lodge of Odd Fellows, M.U., the foundation-stone of which was laid in June last, has been publicly opened. The building is of brick, with stone dressings. On the ground-floor are two large shops, and the hall above is 54 ft. in length, 29½ ft. in breadth, and 23 ft. in height. It will accommodate about 720 persons, 120 of whom will be seated in an eastern gallery. Connected with the hall is a committee-room as well as an ante-room, and two rooms for the keeper. The interior of the hall is lighted principally by a sun-light, containing thirty-three burners. The architect of the building is Mr. T. Forrest, and the contractor Mr. J. Coulson. The cost of the structure is about 1,500*l.*, of which sum nearly 500*l.* have yet to be obtained.

STAINED GLASS.

St. John's, Welburn.—The Howards have perpetuated the remembrance of their deceased relative, the late Earl of Carlisle, by inserting a new western window in the newly-erected Church of St. John, Welburn, near Castle Howard, the late earl having reared this church as a memorial of his mother, the late Countess of Carlisle. The window is Decorated, and has four lights, divided by a transom, the upper half being devoted to illustrations of incidents in the life of the patron saint, and the lower to others in the life of Lazarus. The nieces of the late earl, the Hon. Misses Lascelles, have inserted a similar window in the south transept, also in memory of the deceased, the subject selected being Christ as the Good Shepherd,—an allusion to the close identity of the late earl with the Reformatory movement.

Tewkesbury Church.—Eight more windows of stained glass have been added to this church, as the gift of Mr. W. Kyle Westwood Chafy Chafy. They are the work of Mr. Frederick Preedy. Among the subjects delineated are the Annunciation, the Nativity, the Baptism, the Benediction of the Children, and the Good Shepherd.

Doncaster Parish Church.—Messrs. Ward & Hughes, of London, have completed a stained-glass window in this church, presented by Sir Isaac Morley, knight, in memory of his father, and other members of his family. The window is in the north aisle, between the one filled in by Dr. Vaughan's lay readers and that to the memory of Mr. Bower. This completes the windows in both the north and south aisles. Three important incidents in the life of Joseph are chosen,—the interpretation by Joseph to Pharaoh, king of Egypt, of his dream; the finding of the cup in Benjamin's sack; and the meeting of Jacob and Joseph. The interpretation of the dream is somewhat minutely represented.

St. Paul's, Birkenshaw, Leeds.— The east window of this church has been filled with painted glass, the erection of which is intended to perpetuate the memory of the late incumbent, the Rev. H. J. Smith, M.A. The window is in the Late Pointed style, and is of considerable magnitude. It is composed of four principal openings, and tracery of a simple design. The principal spaces in the central lights are filled respectively with pictorial representations of subjects from the New Testament; and are, on the left side, "Our Saviour blessing little Children," and on the right, "Christ's Charge to Peter," with the texts, "Suffer little children, &c.," and "Feed my sheep, &c.," inscribed beneath. Within spaces of a similar architectural character under the central openings are represented angels in a kneeling posture bearing scrolls inscribed, "Blessed are the dead which die in the Lord, for they rest from their labours, and their works do follow them." The principal subjects already mentioned are surmounted and enclosed by canopies enriched with brilliant colours. The side openings are occupied by life-size figures of the apostles, "Peter and Paul," each bearing a book, and their respective emblems, the keys and sword: they stand under canopies of a somewhat different description from those which frame the subjects in the centre lights. A canopied space under the figure of St. Paul contains a representation of the conversion of that saint on his way to Damascus, with the inscription, "Saul, Saul, why persecutest thou me?" The corresponding space under the figure of St. Peter contains the call of Peter, with the text, "Follow me, and I will make ye fishers of men." The main tracery openings contain figures of the four Evangelists, and in adjacent smaller spaces are represented their respective emblems. The other openings contain the Lamb and Vexillum, Pelican, and the sacred monograms, I.H.S., I.H.C., and A. & O. The window was executed by Messrs. R. B. Edmundson & Son, of Manchester.

Holy Trinity, Winchester.—The parishioners of this district church, headed by the incumbent, the Rev. G. A. Seymour, M.A., recently subscribed for the purpose of filling one of the windows, as a memorial of the late Mr. R. C. Gale. The sum subscribed was quite ample to fill in two windows, one at the south and one at the north, the first containing a New Testament scene—the return of the prodigal son; and that to the north one from the Old Testament—the finding of Moses—both bearing in the heads also an angelic figure carrying the motto, "Alleluia, Alleluia." The family of the deceased gentleman have also caused another south window to be filled as their memorial. The scene in this is from the New Testament, "The Good Shepherd," and is generally similar in effect to the other. The stained glass was arranged and executed by Messrs. Clayton & Bell, of London.

Cheadle Church, Cheshire.—This church has been embellished with a stained-glass window, of three lights (9 ft. long by 1 ft. 6 in. wide), which has been placed on the south side of the chancel by Mr. George Peel, of Brookfield, in memory of the late Mrs. Peel. The design is taken from the life of our Lord: on the left is represented Jesus, sitting with Mary, holding the Sacred Book at His feet, and Martha standing attentively watching and listening to the words addressed to her (St. Luke, x. 30 to 42). The subject in the centre illustrates the Resurrection, with the three Marys at the Tomb, the Angel appearing. (St. Mark, xvi. 4 to 6). The subject of the right hand light is Mary when she comes to the sepulchre, and Christ appears to her in the garden. (St. John, xx. 15 to 17). The spaces above the subjects are filled with canopy-work. At the base of the left and right hand openings are two angels adoring, holding scrolls, with the following text:—"Blessed are the dead which die in the Lord." Under the centre one is placed the Peel coat of arms, with a shield of pretence, bearing the arms of the deceased. The three compartments at the bottom of the window are surrounded with architectural canopy-work and placed on diapered, ruby, and blue backgrounds. The style of the window is of the latter part of the fourteenth century. The artist was Mr. Charles A. Gibbs, of London.

Holy Trinity Church, Whitehaven.— All the windows, nearly fifty in number, have been filled with coloured glass. In the chancel, a large window, containing two subjects,—the Resurrection and the Last Supper,—has been inserted. At either end is a memorial window, executed in the same style. The one, erected by Mrs. Dixon, in memory of her late husband, has for its principal subject "Christ Stilling the Storm;" and the other, placed by the Misses Grisdale, in memory of their parents, is "The Raising of Lazarus." Messrs. Chance, Brothers, of Birmingham, were the artists employed. The cost of the chancel and the side windows has been defrayed by the congregation, the Earl of Lonsdale, and a few other friends.

Books Received.

Warne's Coloured Texts. Designed by JOHN MARCHANT. F. Warne & Co.

THESE texts, a dozen in number, are executed in oil-colour printing, by Kronheim's process, and are intended, we suppose, for the walls of schools and other meeting-places. The execution is better than the design. To deal successfully with colour, a man must be born with the power.

VARIORUM.

THE first number of *The Universal Financial Review*, contains some plain speaking and some useful advice. It proposes to make honest inquiry into the merits of every new company, to investigate the character of promoters, to sift guarantees, and do many other things that would serve the public if properly performed. There are difficulties in the way, but these are recognised and are not insurmountable.——An interesting sketch of the History of Caricature will be found in the current *Quarterly*. It includes a few pages on foreign caricaturists. ——The current No. of *Fraser's Magazine* contains a paper on "The Indigent Class—their Schools and Dwellings," by Miss Frances Power Cobbe, which keeps alive the discussion of the question. The writer agrees with Mr. Thos. T. Taylor in urging the necessity for buying up overcrowded and pestilential districts, and granting compulsory powers to local boards and town councils to enable them to do so.——*The Argosy* is going on well. No. III., the last published, is the best. Mr. Chas. Reade's story increases in interest. The ladies muster strongly: we have in this part Miss Isa Craig, Miss Bessie Parkes, Miss Rossetti, Miss Amelia Edwards, and others.—— "Results of the Creosoting Process for Preserving Timber under Mr. John Bethell's Patent. Offices, King William-street, London Bridge." In this pamphlet Mr. Bethell invites attention to his well-known process which has now been twenty-five years in use. The pamphlet contains pretty good evidence of the success of the process, which is in extensive use on railways, foreign as well as British, for sleepers. Much of the timber has been down from twenty to twenty-five years.—— "The Brown Book for 1866. London: Saunders, Otley, & Co." This is a very useful metropolitan guide and reference-book, especially for the use of visitors to London, as it contains a great variety of information as to hotels and boarding-houses, *restaurants*, amusements, exhibitions, post-offices, institutions, societies, &c. Were it not that the theatrical people themselves, in their advertisements, never state the locality of the theatre, far less the prices, we might ask the editor of "The Brown Book" why he does not do so. We are convinced that simply on this account much money is lost to theatres, not merely from visitors, but from Londoners also, especially from not knowing, or from forgetting, precisely, where the theatres are situated. If "The Brown Book" requires to give (as it does) the address of the British Museum or the National Gallery, surely it is at least as necessary to give the address of Her Majesty's Theatre, and others as well. We are glad to see that our former suggestions have not been overlooked. ——The sixth volume of "Penny Readings," just now published (F. Warne & Co.), completes the first series, and contains an index for the whole. It is a capital selection, and will serve as well for railway reading and waiting-room tables as for the amusement of assembled numbers in front of the Institute platform.—— "Walker's Pronouncing Dictionary," with Webster's definitions and Worcester's improvements, and all for a shilling. It is edited by Dr. Austin Nuttall, and published by F. Warne & Co.—— "Castaway on the Auckland Isles. From the private Journals of Captain Thomas Musgrave, together with some Account of the Aucklands. Edited by Mr. J. J. Shillinglaw." This is a narrative of the wreck of the *Grafton*, and of the escape of the crew, after twenty months' suffering, and serves to show the good stuff of which our seamen are made. The story is full of interest.

Miscellanea.

READING SCHOOL OF ART.—We are requested to correct a statement as to the mastership of this school in our impression of the 10th instant. Mr. C. R. Havell has been the head-master of this school since its opening in 1860, and is so still.

TRACTION ENGINES AND GREAT LOADS.—Two traction engines, supplied by Messrs. Aveling & Porter, were employed successfully in transporting from the Great Western railway premises to their destination, the two masses of granite which will form the base and column of the Wellington Memorial at Strathfieldsaye. The weight of one carriage, with its load, was about 40 tons.

ROYAL GALLERY OF ILLUSTRATION.— Mr. German Reed, after running the "Peculiar Family" for a year, is about to resort to novelty. A new entertainment, by Mr. F. C. Burnand, is in active preparation; and Mr. John Parry will describe the incidents of "A Wedding Breakfast." Mrs. Roseleaf's "Little Evening Party," the most admirable thing of the kind ever done, will therefore be given for only a few nights more.

MARLOW MEN.—The *Reading Mercury* says,—"In a late number of the *Builder*, under the head of 'Newcastle Cemetery,' were published the awards of premiums for the best designs of building for the above cemetery. The first premium was awarded to Messrs. Bellamy & Hardy, of Lincoln; the second to Mr. Stallwood, of Scarborough. Mr. Stallwood being closely connected with and a native of Marlow, his friends have reason to be proud of his attainments and perseverance, inasmuch as his design was prepared after business hours, and successfully competed with some of the largest firms in this county. This is not the first time Marlow has sent forth eminent men, as a proof of which we may mention Sir Morton Peto, who was educated at Marlow; also Mr. Edwin Clark, the designer of the Menai Straits Tubular Bridge; also Mr. Latimer Clark, who invented the electric telegraph to India, &c., &c. These were all natives of and educated at Marlow."

Halifax Surveyorship.—Mr. T. D. Barry, C.E., Leamington, has been appointed the borough surveyor and waterworks manager, at a salary of 400*l.* per annum. Mr. Wm. Wood, Halifax, was appointed the assistant surveyor, at 150*l.* Mr. Stevenson has resigned the post of borough engineer.

Liverpool Architectural Society.—At the fortnightly meeting of this society, held on Wednesday, the 7th inst., the paper for the evening was read by Mr. Oppenheimer, of Manchester, and several specimens of Austrian parquetry were shown by that gentleman. Mr. Waddington, who represented the Manchester Patent Plaster Foundation Company, exhibited some specimens of their new invention in plastering. Its chief recommendations claimed were imperishability and freedom from expansion or contraction.

Sewer Accident at Walham-green.—In a deep cutting connected with the sewerage opposite the Swan brewery at Walham-green the earth gave way on Wednesday in last week, burying a man, whose legs became fixed beneath some timber. As the earth was still falling, his fellows refused to go down to relieve him, and Mr. John Hill, of Fulham, a corporal of the 1st Middlesex Engineers, volunteered to descend, and, with a trowel merely and his finger-ends, till the nails and flesh were torn off, he laboured on till the poor fellow was liberated, after twelve hours, without any very serious injuries.

Vestry Report on Chelsea.—The ninth annual report of the vestry of the parish of Chelsea, under the Metropolis Local Management Act, 1855, has been printed, by Bell, 133, King's-road. The medical officer of health's report states that the death rate of each district remains very much the same as at his last report. Typhus fever has been infesting the back-to-back houses in Mermaid's-yard and other such localities, generally over-crowded; but, on the whole, the parish has been comparatively free from fever. The Chelsea vestry report is always an elaborate one, including everything, apparently, connected with the doings of the vestry and its officers. It extends to nearly 400 pages: and does credit to Mr. Charles Lahee, the vestry clerk.

Charing-cross Hotel Company (Limited).—The directors of the Charing-cross Hotel Company have issued a report of a very favourable character. It is stated the house has been well filled from the beginning, and numerous applications for apartments have constantly been declined. The trade receipts from all sources during the seven months and a half ending 31st December, 1865, amounted to 46,482*l.* 3*s.* 1*d.*; and after placing 2,000*l.* to the credit of the reserve fund for depreciation and renewals, there remains a balance of 13,265*l.* 5*s.* 5*d.*, and the directors recommend that a dividend be declared at the rate of 12 per cent. per annum, or 15*s.* per 10*l.* share, free of income-tax, for the seven months and a half, leaving 1,265*l.* 5*s.* 5*d.* to be carried over to the next half-year. The directors, at the meeting on Monday, February 12th, passed a special resolution, enabling them to borrow the additional sum of 20,000*l.* Great complaints are made as to the want of attention found by visitors. The directors should see to this in time.

Damages to Buildings by the late Gales.—At Doncaster, the centre pinnacle on the north side of the tower of the parish church, and the smaller one next to that, at the south-eastern angle, were blown down, and much damage thereby done to the leadwork and to the parapet wall of the south transept.——Two houses have been unroofed at Hartlepool, and four children buried in the ruins.——At South Stockton, the puddling sheds of the North Yorkshire Iron Works were blown down, and one man killed and two others seriously if not mortally injured.——The steeple of St. Nicholas, at Newcastle-upon-Tyne, rocked to and fro in the gales, that it was expected every moment to fall. The council and churchwardens are still at loggerheads as to the repair and restoration of this church. It is suggested that the plan adopted in 1644, by the mayor, to secure this very steeple, when the Scots threatened to batter it down,—namely, filling it with Scottish prisoners,—should be repeated with the council and churchwardens, during gales of wind.——The spire of St. James's Church, Leith, which was just on the eve of completion, has been damaged by the swaying to and fro of the scaffolding.

Destruction at Wells.—All who know the charming walk by the moat which surrounds the Bishop's Palace, in Wells, a picturesque and delightful spot, will hear with dismay that because two or three of the fine trees here were blown down recently, the other trees are being hewed down ruthlessly. Can nothing be done to save those that are as yet untouched?

Non-compressibility of Water.—It is often necessary, before re-melting cast-iron, to reduce large masses of it to pieces. This, by the method ordinarily used, is both troublesome and difficult. The *Scientific Review* says,—A simple and ingenious mode of producing the required fracture has been recently used in France. It consists in drilling a hole in the mass of cast-iron for about one-third of its thickness, and filling the hole with water, then closing it with a steel plug, which fits very accurately, and letting the ram of a pile-driver fall on the plug. The first blow separates the cast-iron into two pieces.

The Scandinavian Exhibition Building at Stockholm.—It was lately reported by the Stockholm correspondent of the *Morning Post* that the building in course of erection for the Great Exhibition to be held in July would not be sufficiently large to answer all the purposes for which it was intended; and it is now found that even with the projected additions it will not be large enough. It has therefore been deemed necessary to procure new plans, which will make the building twice the size that had been originally intended. In the Exhibition of 1817, the number of exhibitors only amounted to 215; but it has now reached 2,200.

Liverpool Improvements. — In the town council last week, Mr. Alderman Stewart took up the subject of the report of the architect and surveyor as to acquiring portions of the site of Compton House, &c., for the widening of Church-street and Basnett-street. The proposed improvements will involve the payment by the Corporation of the sum of 8,500*l.* The report was agreed to. Mr. Alderman Stewart also moved the adoption of the report of the architect and surveyor as to adapting Newsham House for judges' lodgings, and recommendation, in substitution of the resolution authorising the erection of a new building, to adapt Newsham House for that purpose, as suggested by the architect and surveyor, at a cost not exceeding 2,000*l.* This motion was also carried.

The Portrait Exhibition. — "A Reader" says,—The communications in your pages on the subject of portraits for the intended Exhibition, remind me of a notice, in Sir B. Burke's "Heraldic Visitations" (1855, 2nd series, i., 197), of Barbavilla House, Collins Town, county Westmeath, the seat of Mr. W. B. Smyth. It was built, in 1730, by William Smyth, son of William Smyth, Bishop of Kilmore (one of those formerly alluded to in your pages),—and contains, among other relics, "a very good Sir Peter Lely, of Sir John Povey, Lord Chief Justice of Ireland, 1676—9, the father-in-law of Wm. Smyth, Bishop of Kilmore and Ardagh." This portrait has never, probably, been either engraved or photographed, and would therefore have at least the interest of novelty; but as the difficulty of the commissioners will doubtless be in the superabundance of paintings offered, the owner might perhaps not be inclined to present it for acceptance.

King John's Palace, Southampton.—We are glad to be told that the reported destruction of King John's Palace is not correct. Mr. Dutton Smith, writing of these remains, says:—"The *two* structures on either side of the postern gate as the spectator enters Blue Anchor-lane constitute the palace of King John. They were erected early in the twelfth century, and are acknowledged to be [amongst] the earliest specimens of domestic architecture existing in England. The building to the right (entering the postern) is 50 ft. long and 40 ft. broad; it has in the north wall the remains of a fine Norman fireplace, and to the west a doorway, with three windows, with a window and door on the north. The other building to the left is 16 ft. long on the western side, and 45 ft. in breadth, with a Norman doorway on the south and a window and door of the same date on this side. The lane (10 ft. wide) separating the houses is steep in its descent, and leads direct to a flight of steps at the water's edge, where many a proud galley has waited for its kingly freight and the beauty of courts; but the beauty of the courts adjoining are certainly *not now* proverbial."

Improvements in Parliament-street.—In the Commons, Mr. Cowper, has brought in a Bill to enable the Chief Commissioner of Works to acquire the buildings between King-street and Parliament-street, as far as Charles-street.

Shrewsbury General Market.—In reply to the advertisements in the *Builder* and the local papers, for plans to be sent in on or before the 31st of January, the committee have received fourteen in number. The plans are deposited in the large room of the town-hall, for inspection by the public.

Gravesend.—The company formed some time since for the building of a large hotel at the corner of Harmer-street and the Terrace, have commenced operations by taking possession of the Assembly Rooms, which the company have purchased. The company is styled the Royal Alexandra Hotel Company (Limited). Another company is in course of formation, the design of which is to build a hotel on Windmill-hill, make pleasure-gardens there, and erect villas around the hotel.

Morecambe.—The contract for the erection of a sea-wall in front of the Green at Morecambe has been taken. The contractor is Mr. John Turner, of Morecambe, who undertakes to execute that portion of the wall commencing at a point opposite the Queen's Hotel, and stretching as far as Northumberland-street, for the sum of 690*l.* The portion of the wall which the Midland Company have undertaken to erect themselves is of considerable extent—from Northumberland-street to the Jetty—and it will cost, it is said, 1,000*l.*

The Institution of Engineers in Scotland. At the meeting on Wednesday, the 14th, the following medals awarded for papers read during Session 1863-64 were to be presented: — the Marine Engineering Medal, to Mr. James R. Napier, for his paper "On the Incrustation of Marine Boilers;" the Railway Engineering Medal, to Mr. John Downie, for his paper "On Renewing the Substructures of Railway Bridges and Viaducts, without Stopping the Traffic;" the Institution Medal, to Mr. James M. Gale, C.E., for his paper "On the Glasgow Waterworks." The Institution would be asked to decide what paper read during Session 1864-65 is entitled to the Institution Medal.

As to Ventilation. — The effect of compressed air in determining the entrance of a large quantity of air from the atmosphere, was curiously exemplified by a recent experiment of M. Galibert, according to the *Scientific Review*. He took one of those bags which he uses with his respiratory apparatus, holding about twenty-six gallons, and having an apparatus at the top about 4 in. wide; and, holding the apparatus open, projected into the middle of it, during four or five seconds, a small puff of air compressed by the mouth and lips. After this he closed the aperture by pressing the edges together with his fingers, then shook the bag, and struck the bottom of it against the ground. It was now one-third full of air,—that is, contained nearly nine gallons, while the air which had caused the entrance of this large quantity did not amount to half-a-pint. He repeated this operation twice, which caused the bag to become quite full of air. The development of this principle might tend to useful results in ventilation.

New Mode of Sawing Stone.—Instead of the saw ordinarily employed, a disc of lead, kept well covered with emery, has been used for some time past in France with great success and economy. The lead is cast on a circular plate of cast iron, of sufficient thickness and diameter, and pierced with holes, which, by means of the lead with which they become filled in the casting, unite together strongly the thin sheets of lead at its two sides, which are joined also at the circumference of the disc. The emery falls from a reservoir above the disc, and the surplus is conveyed into a trough underneath, whence it is brought back to the vessel which feeds the disc. This apparatus is either moved on a carriage to the rock which is to be cut, or the block of stone is brought up to it on a carriage. A saw of this description, about 3 ft. 6 in. in diameter, driven by a 4-horse power, was found to move through Carrara marble at the rate of about 2½ inches per minute, and through Normandy granite at the rate of nearly an inch in the same time; and the cost of cutting was scarcely the one-sixth of that with the ordinary method.—*Scientific Review.*

CONGREGATIONAL MEMORIAL HALL. — The Independents are about to erect a "Nonconformist Memorial Hall" in Cannon-street, London. The building is expected to cost 80,000*l*. The site alone costs 48,000*l*.

OPERATIVE HOUSE PAINTERS.—The Wolverhampton Operative House Painters' Society has just served a notice upon the master painters claiming a rise of wages, half-holiday on Saturdays, and other privileges. Last year the wages were increased by 2s. per week.

COMMUNICATION BETWEEN RAILWAY GUARDS AND PASSENGERS.—Mr. H. B. Sheridan has given notice that on Tuesday, the 27th of February, he will move for leave to bring in a Bill to compel the directors of railway companies to provide efficient means of communication between the travellers and the guards in charge of railway trains. The communication, as we have for many years urged, to be really efficient, must be direct and personal, and not solely by telegraphing, of any description.

THE POOR IN THE METROPOLIS.—In the House of Commons, on Tuesday, Lord Cranbourne asked the president of the Poor Law Board whether it was his intention to introduce any measure for more effectually securing the execution of the laws relating to the poor in the metropolis. Mr. Villiers said, in answer to the inquiry,—"I beg to state, that it is my intention to introduce a measure for more effectually securing the execution of the laws relating to the poor in the metropolis, and that this measure will be substantially based on the recommendations of the select committee appointed by the last Parliament to inquire into this matter."

CITY OFFICES COMPANY. The foundation-stone of the City offices, now in course of erection for this company, was laid in the presence of the members of the Board and the directors, by Mr. Edward Masterman, one of the directors. The stone laid was one of the granite bases to support the columns on each side of the entrance-doors. It was bedded on a block of Portland stone, in which was formed a cavity to contain the coins of the present reign, the prospectus and papers of the company, &c., over which was placed the following inscription, engraved upon a plate of strong lead:—"The first stone of this building, erected by the City Offices Company (Limited), and extending from Bishopsgate-street Within to Old Broad-street, was laid on the 1st of February, in the year of our Redemption, 1866." Messrs. Frederick John & Horace Francis are the architects to whom the building is entrusted.

KEYING BRICKS.—By the simple and not novel invention of moulding common bricks with dovetailed grooves in various ways, by means of which they can be more firmly cemented together, a decided improvement in the construction of brick walls appears to have been secured, at little or no additional cost, and, indeed, to the saving of the cost of iron bonding. The patentee is Mr. T. L. Jowett, of Swansea, architect. His specification includes the manufacture in any plastic material. The various applications of such an invention will be very obvious to our professional readers; but we may instance a secondary or incidental one: thus, by inserting pieces of wood, flush with the plaster, in the grooves before setting, joiners' work, or any ornamental work requiring nailing, can be easily fixed. The bricks can all be made and used as common bricks, and architects and engineers can specify them without breaking existing contracts.

THE CENTRAL ARGENTINE RAILWAY.—We find from the report presented at the second meeting of the Central Argentine Railway Company, that the works on this interesting and important line are proceeding satisfactorily, and that before the end of the year 1867, we shall have the entire length of the line, 247 miles, completed. The terminus at the port of Rosario occupies a river frontage of large extent. It is with great satisfaction we also note that the recent disputes between the Brazilian Government and Uruguay have not in the least degree affected the interests of the company: the calls upon the 50,000 shares have been regularly paid, and there seems reason to believe that the greater exploit which Mr. Wheelwright contemplates,—namely, the prolongation of the Central Argentine Railway across the entire country to Chili, and thus forming a highway for the traffic between the Atlantic and the Pacific,—will be attended with success.

A TOWN-HALL FOR SOUTHWARK.—The necessity of obtaining for Southwark a town-hall or public-meeting place, with suitable offices, is being urged.

THE DONCASTER BOROUGH SURVEYORSHIP.—In consequence of increasing duties attached to this office, the council in committee have unanimously resolved to increase Mr. Anelay's salary from 150*l*. to 200*l*.

ACCIDENTAL EXTINCTION OF FIRE.—Fire was discovered to have broken out in one of the offices in Exchange-buildings, Cathcart-street, Greenock. The flooring had taken fire in consequence of a stove not having been properly raked out on the previous night, and the flooring around having been burned, the stove had fallen into the office beneath, and had ignited the woodwork there. Fortunately the heat had melted a water-pipe, and in consequence the water extinguished the fire before any very serious damage had been done.

HOUSES FOR HERTFORD.—Houses have been much and long wanted in Hertford. According to the local *Mercury*, it is now proposed to form a company (under limited liability), for the purpose of acquiring suitable building sites immediately adjacent to the town, and erecting thereon good villa residences. The company will be started with a subscribed capital of 20,000*l*., and to build as many villas as this sum will enable the company to complete. Some of these may be let, others will be sold, and the capital thus released employed in building new houses. The shares are to be 10*l*. each, and we understand they will not be called up in less than two years.

THE PALESTINE EXPLORATION FUND.—There is a further report from Captain Wilson, in charge of the first exploring party of the association, dated Banias (Cæsarea Philippi), Jan. 2. The positions of Damascus, Kankab, Jeba (not marked on the maps), Banias, and the junction of the Hasbany and Banias rivers, have been fixed astronomically. Plans have been made of the great Mosque at Damascus, of Bab-Shurky (the Roman Eastern Gate), and of the Mound of Tel Salhiyeh. Excavations had been made in three places in the mound, but with no decisive result, except the discovery of one sculptured slab of a quasi-Assyrian character. Photographs have been taken of the Mosque at Damascus, and various other objects of interest.

A HEAVY CONTRACT.—The Judicial Committee of the Privy Council have given an important decision against the Government of South Australia, relative to a claim made by a contractor whose name we have not learnt, but who is related to Mr. D. Johnston, of Maidstone, for the sum of 110,000*l*., as part of a contract for constructing a railway from Geelong to Ballarat, with a large viaduct called the Moorabad. The contract was for 1,375,000*l*., and 10 per cent. was to be reserved as a guarantee for its completion. The railway was completed three years ago to the entire satisfaction of the Government; but a question arose in consequence of the wording of the contract as to their liability to pay the 10 per cent. The question was tried before the Supreme Court in Melbourne, and decided against the contractor. It was then removed from Melbourne to this country, to be tried before the highest court, and their lordships have delivered judgment in favour of the contractor for 7,000*l*. more than was claimed.

THE CROYDON IRRIGATION SYSTEM FOR BANBURY.—A long letter has appeared in the *Banbury Guardian*, in which Mr. James Cadbury explains the Croydon system, and suggests its applicability to the Banbury sewage. He says that this town promises "all the means requisite to carry out works of great utility to the land, to purify and render perfectly wholesome and sweet all the drainage that passes through the sewers of Banbury; and, instead of the polluted stagnant pools lately afflicting every one, we may have a pure river of water abounding with animal and vegetable life." In conclusion, he says:—"With these facts and conclusions I trust we may be able to meet the adverse decision of the Chancery suits, with a disposition to reconcile our situations as not only honourable, but as likely to prove beneficial to the country at large, and to show how thoroughly right the decision was to maintain all our rivers in an unpolluted state. The same question is greatly agitating American cities, which will soon apply the same means for their own benefit."

SHOCKING ACCIDENT WITH MOLTEN PEWTER.—In Aldersgate-street, London, fifteen men have been seriously, and it is feared some fatally, scalded by molten pewter. The premises belonged to Mr. Maw, surgical instrument maker. It appears that at the top of the building is what is in the trade termed a pit, which, at the time of the accident, contained, it is stated, about three tons weight of molten metal. Standing round the pit with their hot moulds, for the purpose of filling them, were ten of the workmen, and five others were standing some distance off. Whilst the men were thus employed the metal was suddenly blown up by something explosive in the molten mass, breaking the skylight at the top of the house, and falling upon every person near. Fourteen persons were removed to St. Bartholomew's Hospital. The opinion of some of the sufferers is that during the gale of the previous day rain had by some means fallen into or around the pit of metal.

THE YORK MANSION HOUSE.—The reception-rooms on the ground-floor have been decorated. Originally two rooms, they present excellent examples of wood panelling prevalent at the period of the erection of the Mansion House (1726), from designs by the Earl of Burlington. At some subsequent period the partition-wall was removed, and replaced by a Tudor arch and large folding-doors. These doors now being dispensed with, open out an apartment about 50 ft. by 20 ft., and 13 ft. high. The work was entrusted to Mr. Worthington, of York, decorator. The prevailing colours adopted are Naples yellow, relieved with complementary tones of colour and gold. The painted ornaments on the large plain wood cornice are such as were used at the period in enriched work. The dado panels are black, relieved with lines and ornaments of the wall colour, and bordered with a subdued green and maroon, fret and petræ, the whole resting on a deeper coloured plinth. The oil paintings that were in different patterned frames, and were hung over the panel mouldings have been taken out of the frames and let into the wall panelling. The doors are painted crimson, highly polished, and the mouldings gilded. The architraves of the doors, the framework and spandrels of the arch, and the shutters are painted light grey, relieved with gold. The detail drawings and paintings of cameo, &c., are by Mr. T. Stockton Worthington, lately a pupil at the York School of Art.

TENDERS

For new schools for St. John's Church, Battersea, for Rev. E. Thompson. Mr. G. U. Page, architect. Quantities supplied:—

Creswell	£1,860 0 0
Mulliner & Cooper	1,820 0 0
Palmer	1,819 10 0
Gammon & Sons	1,775 0 0
Newman & Mann	1,756 0 0
Lathey, Brothers	1,730 0 0
Champion	1,657 0 0
Bass	1,620 0 0

For erecting church at Charlton, Kent. Mr. W. Wiggington, architect. Quantities supplied:—

	No. 1 Design.	No. 2 Design.
Killby	£6,231 0 0	£5,386 0 0
Axford & Willier	6,204 0 0	5,358 0 0
Myers	5,939 0 0	5,243 0 0
Ennor	5,915 0 0	5,216 0 0
Simpson & Co	5,833 0 0	5,174 0 0
Abraham	5,469 0 0	4,813 0 0

Alterations to Simpson's Hotel, Strand. Messrs. Finch Hill & Parsire, architects. Quantities supplied:—

Simpson	£8,050 0 0
Browne & Robinson	7,950 0 0
Myers & Son	7,775 0 0
Killby	7,720 0 0
Holland & Hannan	7,672 0 0
Brass	7,143 0 0

For sewers in North-street and Lower North-street. Mr. Joseph Pattisson, surveyor.

Stansfield	£1,137 0 0
Redding	1,058 0 0
Whittick	975 0 0
Neave (accepted)	869 0 0

For a villa residence for Mr. Angrave, at East Leake, Notts. Quantities furnished. Messrs. Shenton & Baker, architects, Leicester:—

Porter	£4,150 10 0
Bland	4,145 0 0
Neale & Sons	3,900 0 0
Osborne Brothers	3,825 0 0
Hutchinson & Son	3,132 19 0

For elastic web factory, Brougham-street, Leicester, for Messrs. Jones, Brothers. Mr. W. S. Burton, architect:—

Chambers	£860 0 0
Hutchinson	802 0 0
Johnson	775 5 6
Eagle	772 0 0
Cox	750 0 0
Wright (accepted)	738 4 0

The Builder.

VOL. XXIV.—No. 1203.

The Manufacture of Casuals and Convicts

FRESH revelations, say the newspapers,—fresh and horrible revelations! A graphic and admirable description is given of the inmates of a casual ward, and it is supposed that the public are informed, for the first time, of the character and condition of an underlying stratum of metropolitan society and of its extent: two hundred of the homeless boys of the London streets are brought together to sup at the St. Giles's Refuge for Destitute Children, and the fact is "revealed," again for the first time one might suppose, that there is in our streets a mass of valuable raw material, capable of being worked up into men able to do good suit and service to the State, which is lost—or, worse than lost, becomes a pest to society—for want of timely aid and needful culture. Truly disheartening must this be to those who for long years have been demanding attention to the state of things proved by these two incidents; disheartening to all who would see the evils remedied. The gathering of boys at the Refuge was a sad and curious sight; and must have astonished those who had not seen the same boys in their haunts. Dirty, diseased, half-naked, and wholly wretched, there were gathered some of the future pests of society,—the raw material (little blame to them) of thieves and murderers. "We are all good friends here," said Lord Shaftesbury to the boys, "so now be candid and tell me the truth. All those who have been in prison hold up your hands?"—About thirty did so.

"Let those who have been in prison twice do so."—Some eight or ten replied.

"Those who have been in prison three times."—This time four or five held up their hands.

"Those who slept at home last night."—Four or five.

"Where did the rest sleep?"—A shout, "Refuges, workhouses, and lodgings."

"You sleep where you can?"—All: "Yes, yes."

"How do you live?"—"Begging, selling fuzees, anything, anything."

"Would you like to get out of your present condition?"—Shouts of "Yes, yes!"

"Supposing—I only say supposing—that in the Thames there was a great ship, large enough for a thousand of you—would you like to go there to school, to learn trades, some of you for her Majesty's navy, some for the merchant navy; would you like that?"—The reply was a chorus of "Yes, we should; yes, yes!"—whether truthfully or not we will not inquire.

A paper on the "Education of Neglected and Destitute Children," by the Rev. W. L. Clay, was read on Wednesday evening last at a meeting of the Social Science Association, and provoked an earnest discussion, in which Miss Carpenter, Mr. Vaughan (the Police Magistrate), Mr. Hastings, and others interested in the subject, took part. A strong feeling was manifested in favour of making education compulsory, and as to the necessity, at any cost, of providing the means of culture for the destitute children of the metropolis, and our large towns. In London alone there are 60,000 of them. No private efforts can reach the dark depths of this frightful evil.

A strong effort to prevent, to put down the existing manufactories of convicts, should now be made. As we wrote seven years ago, "It is an act of injustice to allow thousands of ignorant and destitute children, both male and female, to go to almost certain destruction, without an effort to save them.

Let us look at the matter in a practical point of view. We want good artisans,—our colonies want them even more,—offer money for them. Would it not be better, wiser, cheaper, for the country to turn the neglected infant population of our cellars and streets into men of this class, instead of allowing them to become, as they unquestionably must become if uncared for, rogues and thieves, if nothing worse, to plunder honester men, and to be ultimately, caught, tried, convicted, and maintained in prison, or a penal settlement,—all at the cost of the State?" And, again, "Improve the homes, and teach the children, and we shall soon lessen the numbers of the 'dangerous classes,' prevent much suffering and misery, and enable men and women to live out the term of their natural lives, and to play their proper part in increasing the sum of general wealth and general happiness."

Here is the brief history of a criminal career given by an old offender himself to the Rev. W. C. Osborn, of Bath:—

"I have been told a thousand times to go and get work, but it was never said to me during twenty years, while in or out of prison, 'I'll give you work.' Hence I have cost the country some two thousand pounds, and I expect to cost a great deal more yet. *I was sent to gaol for two months when a boy for stealing a loaf of bread, and no one cared for me.* I walked to the seaports, but in vain. I tramped, sore-footed, thousands of miles when I was a lad, in order to get honest employment, but it did not answer. I was tempted to steal. I stole. I was imprisoned. I was sent to Bermuda. I have learnt the trade of a professional thief, and now I intend to follow it. I believe all philanthropy to be a mockery, and religion to be a delusion, and I care neither for God nor man. The gaol, penal servitude, and the gallows, are all the same to me."*

This is, probably, the history of thousands; and who is to be blamed? How was the boy who would "tramp sore-footed thousands of miles to get honest employment" transformed into a man who disbelieved humanity,—who scoffed at religion, and consequently defied the laws of God and man? The process is now going on in our streets in hundreds of cases: convicts are being manufactured wholesale.

Long ago we said, "Many years have passed since we first pressed on the attention of the public the fact that the extent and danger of the undercurrents of London society were not duly known and understood: that, lying in the dark shadows of London, bred in town swamps, and living in the midst of vice, ignorance, dirt, and social degradation, an army of rough and desperate men and women existed, unsuspected and uncared for. They are to be counted in thousands. An execution or a local riot sometimes brings them into daylight and the streets; but at ordinary times they are to be found only where they live massed together, and under such conditions that improvement is impossible. We have shown some of these slums, and how they act on the condition and character of the inmates; the effect on the children born in them; and the danger to all constantly resulting from the existence of such a state of things. From these vice-producing quarters the prisons are supplied, and in these places the convict, when liberated from prison, finds his base of operations in continuing what with him is viewed as the business of his life. These spots, this aggregation, are well known to the police and authorities, and it seems strange that they should be allowed to remain without some efforts at suppression and distribution." †

In a miserable room the other day, in a miserable court, near Golden-lane, we found five children, the eldest a boy, ten years old: the mother was out looking for work as a basket-woman; the father had run away. A bundle of rags in one corner formed the general bed. The children were weakly and sickly; instructed only in evil; knowing nothing of good, or that what they did know *was* evil. The boy had been decoyed away once: will be so again. He will be led to pilfer: sent to gaol: come out a more ambitious thief: will cost the country hundreds of pounds, and die early of disease or the hangman. Three headings would give the positions of thousands during a short life,—

A Casual,
A Convict,
A Corpse.

It is perfectly easy and natural to get from bad to worse: scarcely possible in such cases to get from bad to better. If we would have sound and honest men and women, who make a sound and honest state, we MUST look after the children.

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* Quoted by Miss Carpenter in "Our Convicts," a valuable work (Longman, Green, & Co.) to which we would direct serious attention.

† See, also, "Another Blow for Life," p. 65.

ARCHITECTURE IN LIVERPOOL.

THOUGH we have, in a measure, recovered from the reign of Fosterian dulness, the classical influences linger long and grievously. It is a remarkable fact, that most of our palatial piles take their character, unfortunately, not from the inward necessities—like the architecture of the human frame—but from some conventional notion regarding what will constitute a handsome building. While these ideas exist it were impossible for us to strike out any marked and lasting pathway that would lead us to a more homogeneous conformity of architectural style and principle. While some seek for what is new, others complain that what they seek is impossible of attainment. Why so? Is the human mind exhausted that it should remain architecturally fallow so long? Or is it that we have been employing our time in making baby-houses, decorated with the stuck-on appendages which, in the language borrowed from millinery, are appropriately termed "dressings?" In the very term "dressings" lies a deep-seated misconception of the "true principles;" for architectural decoration is thought to be a thing to be put off and on and changed with the fashion, as we change our clothes. Now, this architectural tailoring is not architecture,—it is a mere frittering and trifling with what should possess innate force. Were we not too stuffed up with self-sufficiency to take a lesson from the Divine Architect, what different motives would animate our designs. Conceive what a Frankenstein monster would be the product of our brain did we attempt to breathe life into clay and call it man. The exterior form would be modelled according to our fancies, and then the head, the lungs, and the liver rammed in as best we might. What an object we should produce!—a human carpet-bag stuffed with all the rags and shreds we could lay hands on,—an *object* most grievously ludicrous, to which the words, "What a piece of work is man! How noble in reason!—how infinite in faculties! In form and moving how express and admirable! In action how like an angel!—in apprehension how like a god!—the beauty of the world!—the paragon of animals!"—would read like the most biting satire. "In form and moving how express and admirable!" In these few words the poet has pierced the heart of nature, and laid bare the very foundations of creative design. Could we apply these words to any *building*—"In form and purpose how express and admirable," it would be the highest praise that could possibly suggest itself to the mind. But, on the contrary, what do we find? Yes!—we say it advisedly, we find generally the form bears little or no relation to the living organism which it encloses, and contains no articulation—no bone base, clothed with life and beauty—no true symmetry—no brains—no mind: a mere crusta—a shell, into which a homeless snail has crept for shelter. Such, we grieve to say, is a true representation of the purposeless, wandering architecture of the day. Then let us apply a few homely, vigorous common-sense principles to it, and set out on a new track of exploration, under the guidance of a compass that never fails—honest intention with earnest conviction.

The most favourable specimens that can be

cited of the Liverpool Venetian manner we take to be Richmond and Hargreaves Buildings, in Chapel-street. There is a certain boldness of character due to the deeply-recessed window openings most favourable to vigour of effect; and the principle adopted of gaining the light and shade by deep reveal mouldings is the one most suited to the exigences of city architecture. Had there been more study and refinement—more attention to prominence and subordination of parts in the details—more appreciation of gradation and half-tints in the shadows, these buildings might have taken a much higher rank than can, in their present state, be justly assigned to them. Though there is no attempt at picturesque composition, such as is seen even in designs so classic as those of Cockerell's—a treatment which would do most towards helping us out of the mire of uniformity—such is not absolutely essential, as may be seen in The Albany, to the creation of a meritorious composition. There are, it should be understood, two classes of architectural composition; the one rectangular and dependent upon largeness and breadth of parts—regularity in their distribution—simplicity and subordination of masses, combined with purity and effectiveness of detail. If such a style be adopted in preference to the other, owing its character to outline and effective grouping, it should be accompanied by the most judicious and tasteful treatment of those portions upon which the individuality of the design is stamped. Now, what we have most to find fault with in the Liverpool Venetian is the want of careful selection in the mouldings and ornamentation, and an absence of affinity between the several parts and details of the same design. For instance, in the Queen Insurance Buildings, in Dale-street, the upper range of the round arched windows possess shafts in the reveals the capitals of which perform no real or apparent purpose, being merely stuck under the hollow archivolt; and there is too marked an absence of legitimate intention in most of the details. Why should the brackets supporting the balcony spring out of panels? Is there any reason that it should be so? We confess that we can see none; and it would appear as if the architect, having got to the end of his tether, or, rather, *rope*,—with which he has so freely decorated his works, had been compelled, in sheer despair of creating novelty, to revert to the commonest order of detail.

We are sorry,—very sorry,—it is out of our power to commend highly the works so freely springing up about the Exchange. There is no variety in them. First, Mr. A. puts up a building with a handsome stone front. Then, Mr. B.'s clients, not to be outdone, put up another handsome building, with another handsome stone front, alongside; and the process is repeated from street to street, from year to year, in the most unvarying manner. Neither Mr. A.'s clients nor Mr. B.'s clients, and they number the most influential portion of the population, appear to have the remotest conception that possibly Mr. C. may be equally talented, though his hair be not so gray,—from the racking influence of the enormous brain-work. Were they even as great as Michelangelo, or as clever as Wren, with so much work their powers of design would be severely taxed; and it is extremely questionable if architecture would not suffer from the monopoly. No one can deny, least of all ourselves, the improved character of the modern building in this town; but it is, we think, an improvement due more to the amount of stonework and superior character of the building, than to any telling excellence of design. There is no life,—no break,—no skyline,—no roof to be seen; nothing but a dull, level uniformity, extremely tiring when once the mind has succeeded in grasping the few ideas of which these buildings are the embodiment. How different is Venice; or, to come nearer home, how different is Chester! There we see a pleasing variety of form and skyline,—a picturesque individuality of character, distinguishing each house and shop; and, though the design is not in all cases as good as can be wished, it is still most refreshing in contrast with most of the modern work in our great towns. Should we, therefore, besprinkle our beloved streets with half-timbered shops, projecting over covered ways? Such could not be for a moment contemplated, our wants are so different from those of a sleepy Mediæval city, waking up under the influence of commerce and railway communication. Yet withal it would not be difficult to get valuable hints at the expense of so short a railway ride. Let some bold mind take up the subject, and, disregarding the weight and power of local authority and architectural precedent, introduce some of the spirit of the old work, which would now actually act as a revolutionary innovation. We believe not in copyism of Gothic forms any more than those of Classic; but we do believe in the healthy influence of a return to the spirit and principle of the old work. If, on the one hand, the distribution of purely Classic forms and properties, as pointed out in Cockerell's work, proves so much more pleasing than the symmetrical forms into which, in our early days, we were taught to throw the several parts of a composition, how much more effective would it become when wedded to the details of a style in which the spirit of the picturesque finds its body and abiding-place! Were we infused with this spirit, so far from injuring the internal convenience of our buildings by dragging in holus-bolus distinctive features of another age, such as narrow-mullioned windows, and tracery that cannot be managed,—a method quite as bad in principle as the use made in the Classic of entablatures and columns, sticking them about window openings with which they can have no possible connexion,—we should take the requirements of the property both as to convenience of arrangement and light as the basis upon which to found our design. For the production of true architecture that shall prove a source of pleasure to this and future ages, it requires a fine appreciation of the analogies of form, and an appropriateness of treatment of decoration to the exigencies of structure; the necessities and the construction should, together in fact, suggest the nature of the ornamentation, and the selection of fitting forms of expression. As in writing, there exists a feeling of appropriateness in the words and the sound of the words to the subject: so the mouldings and ornaments,—the architect's words,—should add force to the design, and, in fact, tell their own story.

The Temple, in Dale-street, is one of the few attempts to break up and vary the monotony of prevailing composition. Unfortunately, it is unsuccessful artistically. The detail is not at all worthy of admiration, containing, as it does, so strong an infusion of Elizabethanesque. The tower is poor and meagre in conception and detail, and the domed roof anything but a piquant termination. In our opinion it is, as a design, far below Richmond and Hargreaves Buildings. This is most distressing, for, when an architect does depart from the safe and broad highway of the continuous cornicione and fails, it is apt to generate a fear and trembling in those who would otherwise diverge into the picturesque by-paths of architecture.

In the Exchange-court there are several good points, some of the detail being inspired by Gothic example, and adapted to the style. Here, again, we meet with a finicking spirit and absence of vigour. In the ground-floor the ornamentation of the rustication is specially unfortunate. In fact, it is rustication only in name, not in spirit. Contrast this with the bold rustication of the Pesaro Palace, at Venice. In the one, where strength should predominate weakness reigns; in the other, a bold, plain, vigorous substructure forms a grand base whereon the ornamental superstructure stands.

Among the worst specimens of Liverpool Venetian may be classed the North-western Bank, in Dale-street, and the termination of the Temple, in Temple-court. The broken pediment of the one—broken to form a frame for a ragged urn,—and the whole character of the detail of the other, place them outside of criticism. There is not a single building we can think of in the centre of the town which shows a thorough appreciation of the picturesque. There is some tolerable Italian, much commonplace Italian, and more bad Italian. In Brunswick-buildings—a milk-and-water version of the Farnese Palace,—in the commonplace *façade* of the Corn Exchange,—in the rows of brick and stone offices, alternating with Compo-Italian, in Water-street, down to the meagre details of the old Tower-buildings and the florid character of the new, with its Venetian windows, enclosed in straggling three-quarter columns and entablatures, supported on corbels, alike display a taste the influence of which is monotonous, barren, and dejecting. Most people feel it, but cannot describe the cause. Let them, then, visit any of our old cathedral towns, any of the old villages in the south of England, and study the remains of the old work, and feel the influence of the picturesque grouping sure to be met with—a grouping as much the result of accident as design, and they will return freshened in spirit, and every way happier and more-to-be-envied beings.

Probably some of our readers may think our criticisms directed merely against Liverpool architects. Such, however, is not our aim and object. We have higher game in view and nobler aspirations,—the demolition of the surprising fortress of bad taste which has, through years of plodding toil, been raised firm in its base and strong in its walls, its ramparts bristling with a host of half-breeds—half-builder, half-surveyor—ready to sally forth and mop up any unfortunate wight who has the temerity to bring his pea-shooter to bear upon it. Battering-rams of criticism, Armstrong-shells of witticism strike harmlessly or explode innoxiously against its massive face. But a mine is being dug under it which will in time be sprung, and when a shower of stink-pots is hurled against the brave garrison, any young and enterprising forlorn hope may lead the assault against the citadel with some small hopes of success. We have dealt in hard words, but not undeserved; and not the slightest personal feeling against any individual has added sting to our satire. But we must deal in particulars, and never a battle occurs but some one is killed or hurt. If we mourn for the past we yet look for some bright streaks in the future. Any young man, with a real love for his profession,—uneaten up by the desire for present money-getting,—if he work in faith and wait with patience, may be sure that some opportunity will occur, by example, for him to put to flight the prevailing local notions. Only let us have one good picturesque building, and we shall soon have streets that may vie for beauty with any in Venice or Nuremberg. The spirit of commerce need not necessarily be opposed to the spirit of the picturesque, as most of the great emporiums of commerce and manufacture of the Middle Ages show. We have grown up on a wrong system: people do not see the ugliness that surrounds them, simply because they have never been used to anything better. The nine days of puppyhood may pass away, and the public eye be opened. We heartily pray for that day, and we do not, as some people imagine, think we shall have to wait for it until the millennium.

Liverpool.

THE FOLIAGE OF THE ART-KINGDOM.*

An impression of the desirability of taking natural forms for models in art-work has been working its way in men's minds for, say, 500 years, now carried out triumphantly, now nearly suppressed, again gaining ground, again being supplanted to take stronger hold than ever. This feeling has a much greater antiquity; but the limited power of drawing possessed in very old times showed forms so removed from nature that we do not credit the artists with any desire to reproduce her outlines; although we should, doubtless, not go far astray if we looked upon early art not so much as a realization of ideal forms as an attempt to render natural ones, just as the gesture-language and sign-writing were inarticulate efforts which uncounted centuries have since perfected into our elaborate grammars and free and flowing caligraphy. We are certain, however, that after the commotions occasioned by the obliteration of nations and overthrowing of emperors, Europe, in the so-called dark ages, was in possession of a certain art-power, full of traditions of extinct peoples, but still vital. In the fourteenth century we find the strong desire to produce natural forms spreading through the art-world as the flames spread on a prairie on fire. All traditions succumbed to the intensity of the aspiration. Every branch of art in painting and sculpture obeyed the impulse; and accordingly we find carvings in stone and wood, paintings on panels, plaster, canvas, and glass, as well as smiths' work, presenting evidence of a study of nature on the part of their respective producers. The seed of this grand leading idea germinated in Italy, the fruit of it is to be found all over Europe. As we have said, there have been seasons when artists have turned again to the storehouses of early art for inspiration, ransacking overthrown cities, exhuming buried relics, and emptying catacombs for models; and on the other hand, there have

* "Art-foliage, for Sculpture and Decorations; with an Analysis of Geometric form, and Studies from Nature of Buds, Leaves, Flowers, and Fruit." By James K. Colling, author of "Gothic Ornaments," &c. London: 150, Hampstead-road, N.W. 1865.

been instances where the portrayal of natural objects has been carried on with a want of discrimination amounting to indiscretion; but, through all this time the true relation of nature to art has not been quite overlooked. As at Melrose, where there are some grotesque absurdities, we are pretty sure to come upon parts in a large building where the idea of re-producing natural forms for ornamental purposes has been grasped in its purity: although we may alight upon a cat or pig playing the bagpipes in rare instances, we generally find side by side with the eccentricity work of surpassing interest. No one remembers the gurgoyles at Melrose when they are in the cloisters:—

"Nor herb, nor floweret glisten'd there,
But was carved on the cloister arches as fair."

There is something more than a mere imitation aimed at in such reproductions: there is a sort of permanent praise expressed, as well as avowal that the works of the Creator are the grandest of models. A contemplative mind would infuse as well as feel a large amount of religious sentiment in them. In our own day we have seen much vigorous advocacy of the principle of applying natural forms to ornamental purposes, and occasionally we have been called upon to note examples of work on which the artist has adopted the suggestion. Among the foremost in this field as advocate of the principle and director of work executed by its codes we must indicate Mr. Colling, the author of a volume on art-foliage now before us. This apt designer, however, is too wise not to see that imitations of nature must not be too literal. He sees that natural foliage carved by the hand, be it ever so cunning, without the assistance of the head, would be a failure, and less effective for its purpose than a copy of any of the conventional precedents which were made, in the first instance, with the mind of their producers. The purposes of art require that certain geometric lines should be observed in the arrangement of groups intended for the ornamentation of parts of a whole; and these lines, which he calls the skeleton of the composition, should be arranged to converge or diverge, depend or climb, according to what is required of them, and then made the basis of a design from nature. In other words, it would be of no use to carve a branch or a sprig in the exact form in which we pulled it from the tree, and place it upon the cap of a column or end of a bench as ornamentation. We must first arrange the leading lines in positions which would give it the appearance of having been adapted to the special purpose it was to fulfil. Again, ornament intended to be placed near the eye must be treated with a different manipulation to that destined for heights considerably above it. The greater the height the fewer the lines, which, consequently, must be correspondingly bolder.

Mr. Colling accuses the modern carver of doing too much to his work,—of not being able to see when it is finished. Every object is executed with so much complication of light and shade, produced by so many lines, that by the time it is pronounced finished, all boldness and breadth of effect are lost, and occasion is given for the remark that such work looks better when it is half done than when completed. This is, doubtless, true of stone carvings destined for heights; but wood-carvers may, notwithstanding the stricture, rejoice that the empire of circumstances is wide enough to admit of the practice of the finest workmanship as well as the boldest. Mannerism is much a matter of eye-sight. A short strong sight leads to the production of work of exquisite delicacy; a longer range of vision naturally tends to the execution of work better calculated for distances. This disagreement between the execution of the carving and the position from which it is to be viewed, is sometimes the consequence of errors in judgment or choice of a subject. If strawberry-leaves on a ducal coronet are proportionate, they cannot be so on the finial of a spire. Nor, we expect, could Mr. Colling point out the kind of execution that would render one of his own designs effective, representing a snail upon the foliage of a stone crocket. Common sense requires that minute objects should be reserved for near inspections, and larger forms used for distances. Magnifying small objects for the purpose of rendering them visible from afar, is but a lame expedient when all creation lies before us. Such foliage as that of the vine, the chestnut, the sycamore, or of such large-leaved plants as the coltsfoot, should be reserved for elevations and distances, while more medium-sized leaves should be adopted for medium heights, and minute foliage, like that of the "day's-eye," the violet, "the lippes of cowes," clover, or the golden dew-goblet we call buttercup, used for eye-lines.

If we might reduce form as analytical chemists reduce organic substances, we might say it consisted of but two lines in various combination, the one straight, the other curved; but for ordinary purposes it is sufficient to go as far as Mr. Colling goes, when he says that all curved and straight lines, of whatever kind, are based upon the geometrical forms of the triangle, the square, the pentagon, and the circle, with their compounds. These geometric forms pervade nature as well as art. The circle, as he notes, is to be seen in the sun and the moon, as well as in the iris of the eye and in the daisy and sunflower; concentric circles in the onion and in sections of the wood of trees; the square in the stems of plants and in the crystals of minerals; the pentagon in the starfish; and the hexagon in the honeycomb of the bee and cells of other insects. The triangle is rarer in natural forms, if we except the outline of hills. Mr. Collings can only point to the common sedge as an example of its occurrence; a cross section of a Brazilian nut would, however, furnish another instance. These few forms, with their subtle compounds and combinations, are the groundwork of geometric ornamentation; when dividing wall surfaces into parts, we know them as diaper-work; when repeated in a continuous direction, we call the pattern so produced a border; and when concentrated in a single figure, we use the technical appellation, centre. There are in a building objects to be ornamented which cannot be grouped under either of these heads, and which therefore call for especial treatment. Wall surfaces may be covered with diapers; margins, mouldings, string-courses, cornices, and friezes can be ornamented with adaptations of borders; bosses, corbels, and keystones may be treated as varieties of centres; but spandrels, panels, capitals, finials, crockets, brackets, and stall-elbows call for further skill in design. These are objects to which foliage can be gracefully applied. That they should always be copies of ancient examples would be disastrous; but that they should be always devised on recognised principles is highly desirable. Mr. Colling renders students of ornamentation a service when he does so much to elucidate these principles. For the skeleton form on which to arrange the ornament of a spandrel he recommends three obvious lines issuing from the centre and running to the points of the triangle; and in a similar manner he indicates certain bases for the other objects mentioned, deeming success in composition to depend upon the design following such leading lines. Mr. Colling urges that there are two great principles in nature,—regularity and irregularity,—which should be vigilantly observed in art. Regularity pleases the eye by conveying a certainty that necessary conditions are fulfilled; whilst irregularity affords a medium for the representation of freedom, vigour, and bountifulness. A substratum of regularity must be obvious in a design, or an unmeaning confusion would be the result. He quotes a remark made by Professor Kerr, to the effect that "regularity in nature was carried out with, one might almost say, invariable irregularity; and in foliage there were two principles in constant operation, one being the regularity with which every object had been designed, the other the irregularity with which it was developed." This is the pith of Mr. Colling's teaching. Base a design upon regular principles, as Nature bases her operations upon inviolable rules; but in the development of it bring as much skill and fancy to bear as you have at command. In his own designs he makes a few departures from the first of these rules by placing the buds of one plant upon the same stem as the leaves of another; but he defends this eccentricity on the score of precedent. Out of the hundreds of designs and sketches from nature it would, however, be curious to find no eccentricities. We may here mention that the illustrations are made from drawings on zinc by the author and his assistant, Mr. Davis; and that, in addition to some five hundred representing foliage, there are many scores of borders taken from Assyrian, Egyptian, Chinese, Japanese, Greek, Roman, and other examples, as well as some hundred and fifty woodcuts in the text.

Form has a poetical speech. This is symbolism. Not the least interesting part of Mr. Colling's book is his reading of the symbolism upon a mummy case. To the ordinary observer, who is no Egyptologist, the ornament in question appears but eight rows of formal patterns, some of which resemble arrays of quills, others little quadrangles of colour placed in contrasted blocks; and another, groups of balls, alternating with tufts of plumage or foliage according to the fancy of the interpreter. Properly read, it is almost a confession of faith. The rows of quills are the closed buds of the lotus, the sacred lily of the Egyptians, appearing through the water (expressed by wavy lines), and the balls and plumage are the expanded flower, significant of the waters having subsided. As the plentiful appearance of the lotus denoted a renewal of vegetable life with an abundant harvest, a representation of the sacred flower could be looked upon as an emblem of a new life in a land of plenty. Our Mediæval forefathers were great symbolists, as in fact is every nation with whom literary acquirements are not cultivated. If, as it is said, pictures are the books of the simple, signs and symbols are their first lesson in reading. Mr. Colling gives a few designs in which a symbolic meaning is couched, such as groups of foliage illustrative of the parables of the lilies of the field, the wheat and the tares, and the good and the bad tree; and he repeats the remark that another branch of symbolism, heraldry, might be more used than it is at the present day as a decorative feature. In "ye olden time" a noble or gentleman as surely placed his coat of arms, or crest, over his entrance gateway or portal, as a tradesman now places his name above his shop-door; but this distinctive custom has fallen into abeyance as far as "town houses" are concerned, the lion at Charing-Cross (we hope not doomed) being about the last of his species.

The artist, the sculptor, the decorator, and the manufacturer, have all been considered in the selections of foliage given; nor has the taste of the antiquary been overlooked. Thus, in a chapter on the acanthus-leaf, the student is directed to look beyond the Greeks to that Lydian nation, the Etruscans, who emigrated from Asia Minor twelve or thirteen centuries B.C., as the probable importers of the crude form of this leaf. The author has looked through the Assyrian sculptures in vain for it, although finding the vine, the fig, the palm, a tree fern, the fir, the lily, and a grass-like plant he takes for millet; and observing that the affinity it bears to the outline of the thistle, the common holly, the endive, and sea-holly, is equal to the resemblance it has to the common acanthus, he comes to the conclusion that the Greeks did not copy any one leaf, but aimed at the production of a perfect one, just as in the human form they called one beauty from one specimen and others from further examples, till they succeeded in the realization of loveliness beyond that found in any one individual. This mode of proceeding, he concludes, is the only way in which decorative foliage can ever be lifted out of its present degraded position. He traces the old art-currents with much discrimination, showing how, on the division of the great Roman Empire, Byzantium appears to have been full of Greek sympathies, and consequently retained the peculiarly sharp and spiky-lobed acanthus of the Greeks, while Roman art rounded the edges and lobes till it assumed a softened character. Norman art being tinged with Byzantine rather than Roman influences, the type of classic feeling rudely lingering in it is accounted for. But the purely Greek acanthus has its varieties. A stele, at Athens, apparently of early workmanship, shows comparatively but little of the vigorous life and sharp and pointed outlines of the foliage on the monument of Lysicrates. Neither of these, however, possesses more resemblance to the natural leaf than the other, leaving us free to believe that it was the family of sharp prickly-lobed foliage that was conventionalised, rather than any individual of it.

Though flowers were freely used by English Mediæval artists, we have but few examples of fruit as ornament. The Renaissance, indeed, was profuse in its use of festoons and masses of fruit; but English Mediæval art, like our climate, was more chary of it. The horse-chestnut, when bursting, is supposed to have suggested the ball flower of the Decorated period; as the pea-pod, split and twisted, showing the peas within, is thought to have been the model of the twisted riband and bead ornament. If we except these, with the berries of the thorn, maple seeds, acorns, and nuts, the grape is the only fruit that is at all common. But Mr. Colling shows many specimens of fruit possessing singularly geometric configurations, such as the fruit of the spindle-tree

the thorn-apple, the star aniseed, and the seed of the melon, which look invitingly suggestive to designers. If it is only for showing us the collection it has taken him years to make, he must be considered a promoter of the interests of the particular branch of art he has chosen for his investigations. But our author has done more than this. If he has not quite accomplished the task he proposed to himself, of laying down definite rules for the guidance of the art-workman, he has removed a great many stumbling-blocks out of the way, and widened and lighted the road.

SIR C. EASTLAKE, P.R.A., AND MR. GIBSON, R.A.

ON Thursday evening, the 15th inst., Professor Westmacott, R.A., commenced his annual course of lectures on sculpture, at the Royal Academy. Before proceeding with his subject, he made the following interesting and appropriate remarks on the losses the Academy has so recently sustained:—

"It is not our custom here to make any special reference to the changes that occur in the course of time in the list of those who, as members of the Royal Academy, have gained the higher honours in our profession. Some reason may be found for this, first, in the English dislike of demonstration, or to any public exhibition of sentiment; and next, in the difficulties which might occasionally attend such notices coming from contemporaries. The comments on the merits of a departed member might fall into the category of a mere ceremony, or degenerate into common-place, and partake of the too general flatness of the *éloge* got up 'to order.'

But there may be occasions when this general, if safe, rule may be departed from; and it seems but consistent, as well as respectful to the memory of those who have been taken from among us, to make some allusion at this, the first time of my addressing the students this session, to the great loss the Academy has so recently sustained by the death, first, of Sir Charles Eastlake, who for so long a period, and os greatly to his own honour and our advantage, held the distinguished office of President of this Institution; and then, scarcely one short month afterwards, of Mr. Gibson, the sculptor, also an eminent member of the Royal Academy.

I do not make this reference with any intention of entering upon a review of their merits as artists, even if I could presume to think myself qualified to undertake so difficult and so invidious a task. They have been amongst us too recently for this to be necessary. Their works are well known to you; and their position in the republic of art, and the places they are ultimately to occupy as artists who have left their mark on their age, cannot be safely established by contemporary opinion. It is when the influence of intimate personal impressions and associations shall have passed away, and when the judgment can act unbiassed by the feelings, that the just measure of future fame and honour can be awarded to any who, it may be thought, have special claims to a more than passing remembrance. Thus must it be with respect to those members of our body, who, we believe,—and there is no harm in saying this,—deserve to be remembered in our annals as having contributed, in no slight degree, to make the character of the English artist both known and respected.

Personally, I refer to the subjects of these remarks with great yet mournful interest; for my acquaintance with both was of nearly forty-five years' standing. When, a very young man, scarcely out of my boyhood, I went to Italy, I found Eastlake and Gibson, both considerably my seniors, settled in Rome; not simply as students, but even at that time exercising their respective professions as established artists; and I shall always remember their kindness to me when I was, as it were, a stranger and unknown, and when such notice was of no little value.

Sir Charles Eastlake was recognised by all qualified judges as one of the most learned and accomplished members of the profession of art. He was a scholar, and a linguist. He spoke French, Italian, and German with fluency; and his literary taste was regulated and refined by his acquaintance with the best authors, ancient and modern. This was shown both in his writings and in the elaborate finish of his public speeches and addresses, which always bore evidence of a cultivated mind, of patient care and reflection, and the most scrupulous regard to exactness of expression. His knowledge of the history of his own art, and his thorough acquaintance with its practice, in all ages, made him one of the most competent and trustworthy authorities in all those subjects on which his extensive and varied information could be brought to bear. You, the students of the Royal Academy, have often listened in this place to the useful and, I will add, elegant addresses our late president was in the habit of delivering on those occasions when, as at the distribution of prizes, the highest official of the Academy is expected to offer his remarks upon your works, and to give you the benefit of his experience and advice upon the various branches of your study. You must remember that, whatever special topic the president selected for the particular occasion, every sentence of his address contained matter worthy of your deepest attention, and abounded with practical information of the most valuable kind. All present felt that nothing was advanced that was not the result of most mature consideration, a profound knowledge of the principles of art, and thorough acquaintance with technical details; while, at the same time, all was clothed in the most clear and scrupulously correct language. Of his private character this is hardly the time or place to speak; but as the chief object in introducing the subject at all is in the way of example to the rising generation of artists, it is gratifying to feel that our late president combined with the high attainments already noticed, the feelings, the habits, and the manners which constitute the character of a gentleman. In this respect, also, his was an example that all may endeavour to imitate; and I cannot do otherwise than impress upon those who mean to adopt art as a life occupation, to remember how compatible these valuable and conciliatory, if secondary, qualities are with the most devoted love for, and successful practice of, art. By his extensive acquirements, by the knowledge he was known to possess, both literary and technical of art, and by his honourable and upright conduct and generally courteous manner, the late president dignified the office to which his brother academicians had raised him. And let me add that, while his colleagues in the Royal Academy entertain a grateful sense of his services during the time he occupied their chair, in maintaining the rights and independence of the Academy, and in his care for the well-being of art, artists in general must equally have felt that in Sir Charles Eastlake they had a public and acknowledged representative who worthily upheld the social character of the profession in the eyes of the world.

In Mr. Gibson, gentlemen, you have an example of what any young student may accomplish by energy, patient industry, and entire devotion to his art. Of extremely humble origin; without any of the advantages of education, such as distinguished the last subject of my remarks; and for many years almost without means, this artist was truly the architect of his own fortune; and he raised himself entirely by his own efforts and talent to a deservedly eminent position. As soon as he could, but not till he was about thirty years of age, he went to Italy, yearning to see the originals of the great works in his art which were preserved in Rome; and also because he could there live and pursue his art, not only at a less expense than in England, but with infinitely greater facilities of study. He continued to reside there for above forty-five years, as a congenial soil for his object in life, only occasionally and rarely visiting England. He found himself breathing, in Rome, what some writer has happily called an "atmosphere of art." There he could hear art talked of as the most general subject of interest; there he could mix freely and intimately with the artists of all nations; while in the galleries and museums of Rome, Florence, and Naples, he could contemplate at his ease the masterpieces of the greatest schools in which the art to which he was devoted had been practised. His happiness was wrapped up in the study of these the great works of ancient sculpture: and it may almost be said, without exaggeration, these were the objects of his idolatry. This exclusive devotion to ancient examples it has been thought had its drawbacks as well as its advantages; inasmuch as it seems to have led Gibson to a somewhat too servile adhesion to merely classical subjects for the sake of their form in art. His efforts were directed, perhaps too exclusively, to imitate the productions of the Greeks, instead of endeavouring to catch from them the inspiration of the Beautiful, and to carry its spirit into original invention. Wanting that comprehensive largeness of mind which a more general education both in literature and the principles of esthetics might have given him, he was content to think that the mere correctness and technical beauty of art-representation fulfilled all necessary requirements. Thus, for the most part, he confined himself to repeating the traditions of a bygone age, accepted at second hand, rarely exercising his art upon subjects that could engage modern sympathies.

That his works were carefully studied, and exhibit a full knowledge of the beauty and perfection of the human form, every one must admit who has examined this artist's productions with the attention they deserve. Students will do well to recognise here an example they may follow with advantage; and, as they aspire to take in due time an honourable position as artists, let them, as one of the surest means towards that end, imitate the earnest, untiring industry which characterized the life of this eminent sculptor.

Mr. Gibson gained, deservedly, the respect and consideration of all persons, of all ranks and of all nations, who professed an interest in art. All who visited his *studio*,—and no one who visited Rome omitted to do so,—felt that they were only paying well-merited homage to the veteran English sculptor who had attained, by his own energy and talent, a position of high distinction.

It may be recorded here that he, like Eastlake and Mulready, received the honourable decorations of foreign courts, and his statue has been placed among the worthies in art whom the King of Bavaria has selected for this high compliment.

We, gentlemen, may, and do feel gratified that, while the success of Gibson conferred so much honour upon himself and his country, we, the members and students of the Royal Academy, can proudly count him amongst those who have done credit to this Institution — our '*Alma Mater*'—of which he was for above thirty years so worthy a member.

May such memories incite a noble ardour in those who are now beginning their career as artists; and may you, the students whom I now have the pleasure to address, while aiming yourselves,—at least I will hope so,—to deserve the honours these eminent men achieved, reflect upon the means they employed for acquiring their distinction,—and, as far as your opportunities enable you, go and do likewise."

MASTERS AND MEN.

Shrewsbury. — The Shrewsbury Operative House Painters' Association have sent in an appeal to their employers for an advance of 4d. per day on the present rate of wages, and the privilege of leaving work at four o'clock on Saturday afternoon. They make this appeal, they state, in consequence of the extremely high price of provisions, asserting also that the present average rate of wages is considerably lower than that of other towns.

Newcastle.—At a large meeting of the joiners and carpenters of Newcastle, it has been resolved to issue circulars to the carpenters and joiners of Newcastle and Gateshead, to see whether a demand should be made for an increase of their wages from 25s. to 28s. or 30s. a week, and also, when the notice for the advance should be given.

Edinburgh.—The fifth annual dinner of the Association of Employers in the Building Trades of Edinburgh and vicinity has been held. A large and influential number of its members were present. Deputations from the associations of Stirling and Dundee, and visitors from other districts, were also present. The various local associations in Scotland have joined with similar associations in England in forming a general Builders' Association. The secretary of the General Association gave a report of progress at head-quarters in Birmingham and neighbourhood, and intimated that the trade circular or newspaper, which the Association agreed to publish, would be ready for its first issue early in March. Dean of Guild Shennan, president of the Edinburgh society, occupied the chair, and Mr. A. Forbes, vice-president, officiated as croupier. The evening was spent in a harmonious manner.

Sheffield.—The threatened strike of the Sheffield file grinders is assuming a more serious aspect. Two or three other trades unions in the town have determined to support the

grinders, who themselves announce that they have enough of money in hand to support them for four or five months. The masters have subscribed a fund of 5,000*l.*, and are determined to resort to a lock-out if necessary.

Hull.—A strike amongst the operative engineers of Hull is anticipated. They have demanded an advance of 6d. per day, which their employers are unwilling to concede.

Stockton, Middlesborough, &c. — The men employed in the iron shipbuilding trade at these places, are at present on strike for the "nine hours movement." There are from 500 to 600 hands out at Stockton, and the blacksmiths and joiners were to come out. The employers at all the yards threatened a general lock-out in the event of the men failing to accede to their proposals made in notices posted in the several yards, so that the number of men out was nearly doubled. The blast-furnace men at Messrs. Bolckow & Vaughan's Branch Iron Works, Middlesborough, have asked for an advance of 20 per cent. in their wages. It is stated that the masters are unwilling to accede to this demand, and it is rumoured that an ironmasters' meeting, held at Middlesborough, was to consider this matter. The plasterers of Stockton have left off work, in consequence of the masters refusing to advance their wages 6d. per day. Some of the workmen have resumed work at the old price.

Gloucester.—The Gloucester branch of the Amalgamated Engineers' Society has had its annual dinner. Including members from Cheltenham, there were nearly a hundred present. Mr. Clay, the secretary, presided; Mr. G. Wilgraham was the vice-chairman. The chairman said, in 1851 the engineers', machinists', millwrights', smiths', and patternmakers' societies amalgamated, and established branches throughout England, Ireland, Scotland, and Wales, to the number of 287. In Australia there were six branches; in New Zealand one; in Queensland, one; in Canada, four; in Malta, one; in the United States, seven; and in France, one. Since then the Amalgamated Engineers had given 4,947*l.* to trades not connected with the society; had paid 265,775*l.* to members out of work; 101,342*l.* to sick members; 29,713*l.* for funeral money, &c.; and 5,580*l.* to members in distress. Besides this, the society had given 10,600*l.* to members unable to follow their employment from accident, and 21,751*l.* as superannuation to members who had been in the society eighteen years. The funds in hand in September, 1865, amounted to 106,687*l.* 3s., and the number of members was 31,078.

Manchester.—The moulders' workmen are still out, demanding the advance of 2s. per week, which means making 36s. per week the minimum. Some of the foundries have ceased working, and others are being worked by new hands at the old rates. The Masters' Defence Association is being formed, the fundamental rule of which is mutual engagement not to give employment to men who have turned out from other shops on strike.

THE NOTTINGHAM SUBWAYS.

I HAVE read the discussion which took place on Wednesday evening in last week, at the Society of Arts, on the occasion of Mr. Burnell's paper on the Gas Supply of Paris, and beg to endorse the remarks made by Mr. Godwin in reference to the question of laying gas-mains in subways.

The subways of Nottingham having been alluded to, I will give some information as to their construction, extent, and use; and as the Corporation of this borough have for some time given considerable attention to the subject, their experience may have some little value.

The first subways formed were in Victoria-street and Queen-street, and have an aggregate length of about 550 ft. These new streets were made in the centre of the town, and being the first of a series of extensive town improvements, the corporation were desirous of introducing the best means of preventing the constant breaking up of the surfaces of the public streets for drainage, gas, water, and other services.

The subway is 10 ft. wide and 7 ft. high, and was completed three years ago, and therein were laid the sewers and branch drains, and the gas and water mains and services. The subway is well ventilated, no escape of gas or water has to my knowledge taken place, though the interior has been constantly visited and worked in by the men employed by the corporation and gas and water companies for branch drains and service-pipes. I have never observed a safety-lamp used, or heard of its necessity; and I have seen gas service connexions made with an open light, even with a gas-light obtained direct from the main, immediately contiguous to the branch in course of being attached. Hitherto the workmen alluded to have had at all times free access to the subway.

The second subway was made under Listergate, the greatest thoroughfare in Nottingham, after the same had been widened and improved at an enormous cost to meet the increasing traffic. This subway is somewhat similar to the first, but with improved details as to ventilation, access, and internal convenience; and therein the main sewer of that part of the town is built with service connexions, and also the telegraph wires are therein fixed. For some reason the gas and water companies have declined to use it, and have, instead, deliberately ripped up the street with four trenches for two lines (each) of gas and water mains.

The corporation (as stated by a correspondent of yours last week) are highly annoyed, but, notwithstanding, have decided to construct a similar subway under a third street improvement, now in progress.

The advantage of subways (if safe for gas-pipes) is universally admitted, and their most earnest opponents have failed to show any case against them for water, telegraph, and similar purposes (*vide* Minutes of the Select Committee, June, 1864); but in respect of gas-mains, there undoubtedly is possible danger (as in every place to which gas is conducted), unless sufficient means of ventilation are provided, and the best modes employed in making *and continuing* the joints of mains and service-pipes.

I entirely believe in the statement of Mr. Hawksley, that in a well-managed company the escape from the main is very slight indeed (say from 2½ per cent. to 5 per cent.), but I venture to contend that in a well-regulated subway, escape from the mains, to become dangerous, need not take place at all, for the following reasons:—1stly. That they are not subjected to the perpetual vibration caused by street traffic (in a subway there is no vibration). 2ndly. That they are not constantly disturbed by excavations around and under them for services and drainage operations. 3rdly. That they are under regular inspection, and the joints can be recaulked when necessary, or bitumenized or varnished from time to time. 4thly. That oxidation would be less rapid. Furthermore, if an insidious escape of gas happened, an ordinary ventilation would prevent serious consequences.

The wrought-iron services are the greatest promoters of leakage; and during a daily experience of underground works for the last eleven years, I have scarcely ever found a perfect service-pipe which was not new, or nearly so. The lime of the pavement concrete and the damp of the soil destroy the pipe, and the traffic loosens the joints.

Now, this may be prevented by using lead services; but in a subway the destructive influences mentioned would not operate to anything like the same extent with wrought-iron, and renewal would be readily accomplished.

It has been stated, that under the present system escaped gas is absorbed by the soil, and that soil forms the best cushion on which to lay the pipes. If this be the opinion of gas companies, the subway plan offers no impediment, as on the side of the subway intended for gas-mains, the same may be imbedded to any required extent; in fact, this is already the case in Covent Garden subway.

Leakage by endosmose action has been advanced, but if gas companies prove all their pipes, as they profess to do, the pressure employed in gas-mains will be altogether insensible.

It is true if a large pipe be accidentally broken the same damage might arise as if the casualty occurred in a street or any other place, but if large operations were in progress in the subway, corresponding precautions would (and could most easily) be taken to meet the contingency of accident; and it is only reasonable to expect that in a large system of subways the control and management thereof would be in the hands of a single and responsible authority.

It is the interest and duty of corporations and other bodies having the charge of the highways and streets of large towns, to prevent as much as possible their constant ravishment; and if the subways now proposed will effect this object without detriment to the companies, they ought to be compelled by the Legislature to adopt them; and I think it rather exhibits a want of fairness and public spirit for the gas and water companies combinedly to oppose them (the latter company without a shadow of pretence) without giving those trials which the Metropolitan Board and the Nottingham Corporation have so generously and earnestly offered.

It should be understood that the so-called subways in Paris are simply sewers above the water-level, in which the gas and water mains are fixed, and not subways proper, as those in England.

M. O. TARBOTTON, M. Inst. C.E.,
Corporation Surveyor.

THE CHURCH OF ST. NICHOLAS, GLOUCESTER.

THE south door or principal entrance to this church is in the Norman style, with zigzag mouldings, and, as is often the case, has been allowed to remain, when other work of the same period has been removed. The semicircular space between the arch and the lintel of the door beneath, had long been covered by the plaster and whitewash of the last century. On clearing away this, a slight recess in the form of a stilted arch, containing a figure of an Agnus Dei in a standing posture, and sculptured in low relief, was discovered in a good state of preservation. On either side of the recess foliage scroll-work was carved. The head of the lamb is surrounded by a nimbus bearing a cross. The staff of the banner is also surmounted by a cross, beneath which is a diminutive flag, in the form of a quarter-circle, with an indented edge. Contrary to the usual design, the staff is placed perpendicularly by the side of the body, instead of being supported obliquely by the left forefoot, which holds an appendage placed beneath the breast, and resembling a Norman shield, on which are slightly incised the outlines of some leaves, possibly intended for those of the olive, and emblematical of peace, joy, and comfort.

THE MONKS' CHAPEL, NORWICH.

THE Monks' Chapel, off Elm-hill, is the most recent building of importance which has been erected in this city. It is the first erection for what will be a large missionary establishment, comprising schools and cloisters, and an industrial home for the congregation of "St. William, the boy Saint of Norwich."

We take notice of it, because there are many points which prevent its being so hackneyed as religious buildings in general are.

It stands 16 ft. parallel to the longest side of the premises, and 10 ft. from the north end; thus there is room for an aisle some day when the intrados of the nave arcade will be cleared away, opening four bays of 14 ft. by 20 ft. high. The buttresses will then be carried over the aisle, and cut away from their present position. The ground on the other side is irregular, but the adjoining property is very narrow, so perhaps the aisle will be completed on the other side as well some day: then the chapel would be 60 ft. wide, interrupted by six pillars. It is now 30 ft. clear by 78 ft. in length, 34 ft. by 92 ft. outside. At the north gable, where the tower will stand, there are sacristy and vestry on the ground-floor, and monks' choir and organ-chamber above; the gable is pierced with five openings to admit the sound; these are screened from view by the baldachin over the high altar; the upper portion of the gable is panelled for frescoes of the annunciation, manifestation, and ascension.

The monks reach their choir by a flight of stairs outside the building, under which stairs is a doorway and passage between the north gable and the raised footpace of the high altar. Under an arch which carries the super-altar are two doorways 4 ft. apart; the wall between them, with the partition-wall between sacristy and vestry, as a buttress as far as the doorway communicating between these two forms the pier, which, together with the wall on which the slab rests, forming the high altar, will, it is intended, carry a spire of stone on marble shafts, as canopy to the throne and tabernacle.

This passage also communicates with the opposite outside of the chapel, and by a flight of steps with the chancel floor, which is 4 feet above that of the chapel.

The high altar, 10 ft. in length, is raised on a triple footpace. A staircase leads behind the sedilia to the floor of choir and organ, and on the other side of the chancel, stairs lead from

this floor to the top of the screen, on which are the ambones for the gospels, &c. These stairs are screened from view, and hidden by piers of chancel arch. The side altars are under the screen, which entirely covers them, forming two separate baldachins.

The chancel-arch, 25 ft. span, 40 ft. high, is tied across on a level with the floor of the screen with an iron rod, and one reaches from the crown of the arch to this rod, and is partly hidden by the rood crucifix. The arch passes behind one of the principals of the roof, the framing of which is boarded. The first bay of the nave is appropriated to lay choir, footpaces of side altars, and ascent to chancel. It is divided from the rest of the nave by a plain brick wall, leaving about 50 ft. by 30 ft. for the congregation. The wall-plates are 23 ft., the ridge 50 ft. The clerestory windows above wall-plate are couplet lancets with a circular aperture above, entirely carried out in splayed bricks. The south gable is a handsome piece of brickwork, as the buttresses which project inwards divide three archways, also temporarily blocked up. Over the centre one is a wheel window, over the side ones panels for frescoes. The tracery of this window consists of three lancets, over which is an elongated vesica, and a circle above, on either side of which two more vesicæ pisces, and a fourth on the top; the four spandrels contain drain pipes, which admit light and reduce the heaviness. The window is 9 ft. wide, 13 ft. high, and 14 in. deep. All mullions are 14 in.; all the bricks next the light are splayed. The buttresses are arched over it.

The roof is framed like the pons asinorum in Euclid, and boarded and slated. All arches are semicircular, and stilted on from one to four courses, excepting the chancel arch, which is three-quarter, and the lights in the windows and the arch over the high alter, which are equilateral. The spandrels and arches of the nave overhang the 4½-in. pilasters 2½ in. and thus help the buttresses to keep up the roof. The style is simple and solid, and pretty evenly divided between Norman and First Pointed. "Brother Brannock" was the architect; Messrs. Lacey & Son were the builders.

BOLTON.

After some months of delay and protracted discussion, the town council have advanced an important step in the erection of the projected new town-hall, having determined to place its entire length along the Market-square instead of the end of the building being in that position; the tower proposal being retained. The new plan involves some important alterations, increasing the area to be covered from 2,875 to 3,000 square yards, and making the cost as follows: The building (including 7,000*l.* for a tower), 54,000*l.*; fittings and contingencies, 14,500*l.*; land for the site, 24,000*l.*; total cost, 92,500*l.*——The arrangements for carrying out the munificent offer of Mr. Ormrod, to expend 30,000*l.* on a new parish church for the town, are rapidly approaching completion. The vestry have also a scheme for the enlargement of the present parish church schools, by which it is proposed to devote room for the congregation during the pulling down of the old and the erection of the new church. The proposed extension will cost about 2,000*l.*, and make the schools double their present width: the roof of the upper room will also be raised considerably. A committee has been appointed to raise the 2,000*l.* by public subscription. The architect, Mr. Paley, expects to take the church in hand in the first week after Easter.

PROPOSED REVOLUTION IN GAS-MAKING.

The prospectus of a tentative effort to revolutionise gas-making has been issued for private circulation. The promoters entitle their undertaking "The Gas-Heat and Pure Light Company, Limited," and restrict their efforts now to raise a small capital for the purpose of putting two patents obtained by Mr. Isham Baggs, C.E., to a practical test. The principal features of the patents are that two usable gases, hydrogen and carbonic oxide, are producible from burning coke and water; a ton of the first yielding above 40,000 cubic feet of carbonic oxide, and another ton of the coke producing, from the known decomposition, in burning coke, of the necessary quantity of water, far more hydrogen gas than 40,000 cubic feet. Both of these gases are conveyed into the same holder; and then, without further treatment for purification, which it is said they do not require, being absolutely pure, they are ready for consumption in three ways;—1st, by giving out intense heat; 2nd, yielding a pure and brilliant light entirely free from sulphurous acid, ammonia, or bisulphide of carbon; and 3rd, by furnishing working power in quantity sufficient for all manufacturing purposes. As to the mode by which the gases are produced from the retort free of impurities, we find that iron is employed in their preparation, the iron, as intended, being recoverable and useable *ad infinitum*. It is the intention of the promoters of the company and of their engineer, Mr. T. A. Hedley, to construct, in the first instance, works upon a small scale, but yet of sufficient dimensions to demonstrate the thorough practicability of the invention, and its immediate usefulness as a cheap and available source of intense and controllable heat, applicable to a variety of manufactures and useful purposes, and also suitable as an ordinary medium of brilliant and economical illumination.

WHAT RAILWAY COMPANIES ARE GETTING TO.

The Metropolitan District Railway Company present a Bill which is to confer on them power to underpin or otherwise strengthen any houses within 100 ft. of their railway. The Board of Trade suggest that it may deserve consideration whether the company ought to be allowed, without the consent of the persons interested, to put a buttress or shore or other stay above the surface of the ground against a house which they do not intend to purchase, as the object of the clause appears to be to preclude persons from claiming compensation on account of their houses being injuriously affected, and compel them to accept in lieu of it such strengthening as the company provide. The Pneumatic Despatch Company have already obtained powers to lay down tubes under the streets of the metropolis for the conveyance of despatches. They now ask powers which will enable them to convey passengers and goods. The Bill proposes that they shall have power to purchase compulsorily vaults and cellars without purchasing the houses to which they are attached. This Bill asks also the unprecedented power to take buildings or land compulsorily, if authorised by the mere certificate of the Board of Trade. The owner of property taken from him compulsorily, is not to have the right to have either the question of the necessity for taking it or the amount of compensation decided by a jury. A single arbitrator appointed by the Board of Trade is to settle the question of compensation. Modest; certainly!

SOCIETY FOR BUILDERS' CLERKS.

The meeting of builders' clerks, for the formation of a benevolent society, took place on Saturday last, at the School-room, Peter-street, Bishopsgate. The chair was taken by Mr. A. J. Wheatley (Messrs. Lee & Sons), who, in a few remarks, showed the necessity of forming such a society, and stated the results that had so far attended the endeavours to establish it. Mr. T. Peto Ward (the writer of the first letter on the subject in our pages) read a paper setting forth his ideas of the objects to be attained. This was followed by a discussion, the warmth of which showed the interest with which the subject is taken up by the class represented.

Although not numerous, the meeting well represented the principal building firms of London; and a committee was formed, to frame rules, and get the society into working order.

NEW MASONIC HALL, IPSWICH.

The new Masonic Hall in Brook-street, Ipswich, has been consecrated and opened. The building stands back from the street, and abuts upon the passage leading to St. Stephen's Churchyard. It is of red brick, and has no external pretensions to notice. The building consists of entrance-hall, banqueting-room, lodge-room, ante-room, and robing-room, a committee-room (upstairs), and a hall-keeper's residence, which fronts the churchyard. The whole building is 93 ft. in length. In the centre of the floor of the entrance-hall is a diamond stone, bearing in illuminated characters the names of the various donors, whose gifts embellish the hall. There are various emblematic designs about the building. The lodge-room is 45 ft. long, 22 ft. wide, and 17 ft. high. At the eastern end is an alcove, consisting of two Doric columns of Parian marble, supporting an enriched arch, with pomegranates, lilies, and emblems pertaining to the various degrees in masonry, keyed in with a Masonic stone, in which is sculptured the All-seeing Eye, the radiations of which will, when finished, be enriched with gold. The canopy of the alcove is studded with stars, which will be gilt, on a ground of cerulean blue. The ornaments upon the span of the arch will also be in gold. A daïs will be erected, on which will sit, beneath the canopy, the W.M. of the lodge and brethren who have qualified themselves to occupy that position. The means of lighting the room by day is by two large margin ceiling-lights, with Masonic mouldings and fluted and coloured glass. At the western end is the organ gallery. The furniture of the room harmonizes with its character. Masonic colours,—crimson, purple, and sky-blue,—have been used throughout. The builder was Brother J. A. Pettitt. The stonework was done by Brother Chinnock (Tovell, Chinnock, & Co.); the gas, &c., by Brother Lucas. Brother C. T. Townsend designed many of the decorations.

THE PRINCE CONSORT NATIONAL MEMORIAL.

A general meeting of the committee for managing the fund raised by the citizens of London and others towards a national memorial of the Prince Consort was held at the Mansion House on Monday, the Lord Mayor acting as chairman, and there being also present Mr. Alderman Wilson, Sir S. M. Peto, M.P., Sir C. W. Dilke, M.P., the Hon. Arthur Kinnaird, M.P., ex-Sheriffs Croll and Twentyman, Mr. Godwin, Mr. William Hartridge, and the three honorary secretaries—the Rev. Michael Gibbs, Mr. Goodman, and Mr. S. Brown. A report from the sub-committee was read, from which it appeared that contributions to the amount of 56,765*l.* 13s. 3d. had been received towards the fund, of which 2,410*l.* had been paid in since the last meeting; that various sums had from time to time been placed out at interest, and that a further sum of 3,200*l.* had been received as interest, thus making a total of upwards of 59,000*l.*; that of that sum 54,242*l.* had been transferred to the trustees nominated by her Majesty for carrying out the national memorial, and that 673*l.* had been paid on the trustees' account for expenses connected with the designs, of which it will be remembered six were approved and submitted for the selection of the Queen and the Royal family. A resolution was unanimously passed by the meeting to transfer a further sum of 2,500*l.* for the purposes of the proposed memorial.

BUILDING IN SCOTLAND AND IN LONDON.

The subject of improved dwellings for the working classes, which engaged the attention of the Architectural Association last week, is one the importance of which can hardly be overrated; and anything that may tend to throw additional light upon the subject will, I doubt not, be acceptable to your readers.

The system of building on leases, which is in general practice in many parts of England, is, I think, accountable, in a great measure, for "the pernicious principle upon which speculative builders proceed." The suggestion by Mr. J. D. Matthews, "whether it might not be desirable that architects should learn how to build *cheaply*, as in many cases lessees, whose interest might *not extend over more than forty or fifty years*, were expected to build houses calculated to stand for a couple of centuries," calls up the further suggestion, whether the system of building upon terminating leases at all is a good one.

A few years ago I accompanied an English builder,—who visited this city (Edinburgh) for the first time,—in his sight-seeing, and amongst other things he expressed a desire to see some buildings in progress, as he was anxious to inspect the mode of construction, &c., adopted

here. I accordingly took him to a site where a row of workmen's houses were in different stages of progress, and he expressed surprise at the substantial and durable manner in which they were constructed; adding, that "he could not see how they would pay, as they would be as good at the end of the lease as at the beginning;" but his surprise somewhat abated when I told him they were built under a *perpetual* lease or "feu." Now, sir, I am not "a limb of the law," and do not know the system of conveyancing which appertains south of the Tweed; but it appears to me that our system is much more advantageous to the *general public*, and I will endeavour to explain it as shortly and clearly as I can.

Land is held in Scotland either by a charter from the Crown or from a "subject superior." In the case of Crown holdings the annual duties are generally "blank," or merely nominal; and the subjects are, with few exceptions, the large estates of the ancient families or their successors. These landed proprietors may dispose of their property in parcels, by granting "Feu-charters" to "Feuars," of whom they are the "subject superiors." In some instances the feuar pays a large sum at entry, and a small annual duty, sometimes so small that it is to be paid "if asked only;" but in large cities ground feued for building purposes is disposed of at an annual duty, according to situation, of from 2s. 6d. to 1*l.* 1s. per foot of frontage, and for villas from 10*l.* to 40*l.* per acre. The whole of the New Town and the suburbs of Edinburgh are built upon this tenure.

This system has many advantages: the builder does not require to encroach upon his capital in order to purchase land; he has not even to pay any duty till the building is completed. A person purchasing a house can, in like manner, acquire it, for all time coming, by paying the cost of the building merely, and the annual feu, and the ground is his, to all intents and purposes, so long as he pays the feu, and I never heard of an instance where the property lapsed to the superior from failure to do so. The feu charter has certain conditions attached to it, such as that the feuar must build according to a certain plan, so that houses of a different class may not be mixed together; that he must not carry on any trade in the building to be erected; and so on. But the conditions are such as to conduce to the general amenity of the district, and are not of an oppressive nature; for, were they made so, they would militate against the feuing of the ground. The superior sometimes sells the feu duties, and the feuar can thus free himself from the annual payments. Feu duties are considered first-class investments, and many of them are purchased by insurance offices and public bodies having funds to invest.

Our system of building in flats does not seem to find favour with you. It is certainly superior to the "barrack system," which "conflicts more or less with that innate feeling of independence which is one of the chief characteristics of the English people."

A flat contains all the requisites of a separate dwelling. It is shut off from the rest of the tenement; has its own kitchen and every other requisite; and it has this advantage, that a man wishing to be independent, can secure the accommodation he requires without being put to the necessity of sub-letting. But, sir, I have seen the flat system, in its worst form, in operation in the west end of London. I have been in houses were three separate floors were occupied by three separate families, having the kitchen *in common*; and I was told that such a circumstance was far from being rare. When land is becoming so valuable in and around the metropolis, it is certainly worth while to sacrifice something to economy; and this can be done by building three or four residences upon the space usually occupied by one. A SCOTSMAN.

NEW BUILDINGS IN MONTREAL.

IN an illustrated supplement of the *Montreal Gazette*, containing engravings of various churches and other important buildings erected in that locality, we observe a massive and handsome range of premises in St. Peter-street, named Caverhill's buildings, put up during the past season. The block comprises three warehouses, now completed externally, with the exception of the cornice. The buildings run through from street to street, having windows and good entrances on St. Alexis-street. Each warehouse is 32 ft. by 130 ft. clear, and six stories in height, including basement. The heights of the various stories are as follows: basement, 9 ft. in clear; ground-floor, 15 ft.; first-floor, 14 ft.; second-floor, 12 ft.; third-floor, 10 ft.; fourth-floor, 10 ft. The front on St. Peter-street is an elaborate composition in the Italian palazzo style, bold and massive in character, being designed to meet the peculiar requirements of the material used—a local limestone. The height, from the pavement to the top of the cornice, is 80 ft. The frieze and cornice terminating the whole is of galvanised iron, with cast zinc ornaments. The front on St. Alexis-street is also of Montreal limestone. The interior is laid out to suit the requirements of the different occupants. The whole of the different flats are heated by Gulds' steam-heating apparatus, and all the various fittings required will be of the most modern and approved character. The contractors are as under: for stone-work, Messrs. Perrault & Perrault; carpenters' work, Mr. Laird Patton; brick-work, Mr. John Bulmer; plastering, Mr. Metevier; galvanised ironwork, Messrs. Prowse & Macfarlane; painting, Mr. Robert Wright. The architects are Messrs. Thomas, Bros.

CITY OF LONDON LUNATIC ASYLUM.

THE new lunatic asylum for the city of London, which has been erected at the cost of the Corporation at Stone, near Dartford, is now ready for the reception of patients. The asylum has been erected at a cost of about 65,000*l.*, from designs by Mr. Banning, the late City architect, and is intended to accommodate 250 patients. It is situated on an elevated piece of ground about a mile and a half from Dartford, overlooking the Thames, and commanding a view of the surrounding country for miles. It is fitted up with baths and lavatories, laundries and workshops, and surrounded by spacious grounds tastefully laid out. Bagatelle-boards and other games and means of recreation are provided for the inmates; and, in short, all the appliances for comfort and convenience which have been adopted of late years in the best-regulated establishments for the treatment of persons afflicted with insanity in all its varied forms. Nearly five years have been spent in its construction.

COMPETITIONS.

Dublin Masonic Hall.—The first premium has been awarded to Mr. Edward Holmes, and the second to Mr. Deane. Both designs are Italian in style. Thirteen architects sent in designs.

Perth Hotel. — The directors of the North British Railway Company propose to erect a large hotel at Perth Station, and invited designs. Twenty-four sets have been sent in by English and Scottish architects. Messrs. Geo. Beattie & Son, architects, are reporting on them for the directors.

New Courts of Law.—In reply to Mr. C. Bentinck, Mr. Cowper said the designs for the new courts of justice and offices would be selected by competition among architects. As the preparation of those designs would require very protracted and minute study in order to meet the special requirements of the courts and offices, competition would be restricted to a small number of architects, and the selection of the architects would be entrusted to a committee, which would include eminent members of the legal profession and members of the Government. Mr. Cowper has since stated that the architects chosen to compete are Messrs. E. Barry, Hardwick, Scott, Street, Waterhouse, and Wyatt. There is a strong impression prevalent that this list should be enlarged.

PROVINCIAL NEWS.

Newcastle-upon-Tyne.—For some time past much inconvenience has been experienced in the neighbourhood of East Clayton-street, Nelson-street, Nun-street, and Grainger-street, in consequence of the greatly-increased number of farmers' and gardeners' carts which have attended the green market weekly with garden produce. At first the Green Market Proper was held in East Clayton-street, but latterly it has extended gradually to the other streets just mentioned, until they have at length nearly caused a complete blockade to the ordinary traffic in and through those streets. To obviate this inconvenience as much as possible, the corporation have resolved to set apart the enclosed space for the future purposes of the market, so as to leave the thoroughfares uninterrupted. The piece of ground selected for the purpose is situated on the north side of East Clayton-street, the spot, indeed, where formerly were gardens belonging to Green-court, and which for some time past has been enclosed as waste ground with a blank wall. The whole of this ground will be levelled, drained, and paved; the few old erections which stood upon it, and on the Green Court side of it, having been pulled down to make room for the improvement. The new market will be bounded on the side just mentioned with a wall, through which will be two entrances; while on the Clayton-street frontage will be erected ten open shops, a single story high, for the sale of vegetables, the plans including also two entrances on this side. At first the enclosure will be without a roof; but preparations are to be made by the erection of walls, column-stones, and otherwise, for covering it in hereafter. The area of the market, without that part covered by the shops, will be rather more than half an acre. The contract has been let by the corporation to Mr. John Simpson, of this town, contractor, who has commenced operations.

Oxford.—The Randolph Hotel, at the corner of Magdalen and Beaumont Streets, is now completed and opened. We have already given an illustrated account of this edifice in the *Builder*, but we may here state that Mr. Wilkinson, of Oxford, was the architect, and Messrs. Kirk & Parry, of London, the contractors; that the style is Gothic, and the building contains 200 rooms and offices. There are five stories besides the basement, and the material is white brick with stone dressings, Portland stone staircase, &c.——A "Home," dedicated to St. Mary, has been commenced in Oxford, and has received the cognizance of the Bishop of Oxford and a large number of the clergy and laity. The "Home" is commenced on a site of two acres to the north of Oxford, and his lordship, in the presence of a great number of "Sisters of Mercy" and choristers, has laid the foundation-stone.

Bradford (*Yorkshire*).—Proposals are being made, says the local *Observer*, which, if adequately responded to, will issue in the Bradford Theatre Royal rising again from a shabby condition of boards to rank as a permanent stone edifice, under a "Theatre Royal Company, Limited."

A MONUMENT TO KEPLER, AT WEIL.

SOME time ago a committee of scientific men was formed at Stuttgart for the purpose of erecting a monument to the memory of the astronomer Kepler in his native town of Weil, situated in the Black Forest. Subscriptions and donations from all parts flowed in in such an unexpected manner—nearly all of the sovereigns of Germany having cordially responded to the appeal, and contributions having been received from the Imperial Observatories at St. Petersburg, Vienna, and Paris—that the work could be commenced; and Herr A. Kreling, Director of the School of Art at Nuremberg was commissioned to send in a design, which he has done, and the model is considered so satisfactory that the execution of the casting has been entrusted to the bronze-founders Messrs. Lenz and Herold, at Nuremberg. Kepler is represented in a sitting posture, leaning on a celestial globe, and holding in one hand a scroll (on which are engraved his discovery of the laws of nature about ellipses), and in the other a pair of compasses. In the niches of the pedestal are figures in bronze of his instructor Maestlin, his friend and protector Tycho de Brahe, his predecessor Copernicus, and his faithful collaborator the mechanician Jobst Byrg, with whose assistance he constructed the great telescope with which he confirmed Galileo's discovery of Jupiter's satellites. The principal figure is 9 ft. high, and the smaller ones in the pedestal 5 ft., all of bronze, whilst the pedestal is made of a fine-grained sandstone, and the total height of the monument is 24 ft.

CREWE HALL.—This mansion, recently greatly injured by fire, is to be forthwith restored. Mr. E. M. Barry is the architect engaged.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the meeting, February 14th, Mr. H. S. Cuming in the chair,—

The Rev. C. E. Mackenzie Walcott submitted to the meeting a carefully-prepared list, entitled "Fasti Cicestrenses." It has been compiled by him to complete,—so far as Chichester is concerned,—the work begun by Peter le Neve, and enlarged by Mr. Duffus Hardy. With great pains Mr. Walcott has collected the names of the dignitaries of Chichester Cathedral from its foundation under William the Conqueror, and of all the prebendaries from the fourteenth century, or from the first endowment of the prebends. In some instances this information is carried back nearly as far as that concerning the dignitaries. The value attaching to such a work was pointed out from the facility which a collection of ancient authentic names affords in the determination of dates in undated documents, and it was moreover shown to be highly suggestive in examples of names taken from it; for instance, that of John Brackenbury, master of the new work of St. Mary Strood, chancellor of Chichester in 1483, and prebend of Lincoln, who was, it is highly probable, the builder of the Brackenbury Tower at Barnard Castle, for the designation of which Surtees could find no reason except it were built by some member of a family of that name which was seated in the neighbourhood. A somewhat similar suggestion pointed to the probability that the beautiful Market-cross of Chichester was designed by John Cloos, the dean, who died in 1500, and seems to have been a member of the same family as Nicholas Cloos, the *præfectus* of the work of King's College Chapel at Cambridge.

FROM SCOTLAND.

Edinburgh.—The work of restoring the old city cross, in the space within the railing on the north side of St. Giles's Cathedral, is in progress. The pedestal has been built, and a scaffold put up for the purpose of facilitating the erection of the shaft, the materials of which have been taken down from the position which they occupied for upwards of a century in the lawn at Drum, and conveyed to the new site.——The *Scotsman* announces the death of Mr. David Elder, "the father of marine engineering in the Clyde."

THE UNION BANK OF LONDON, CHANCERY-LANE.

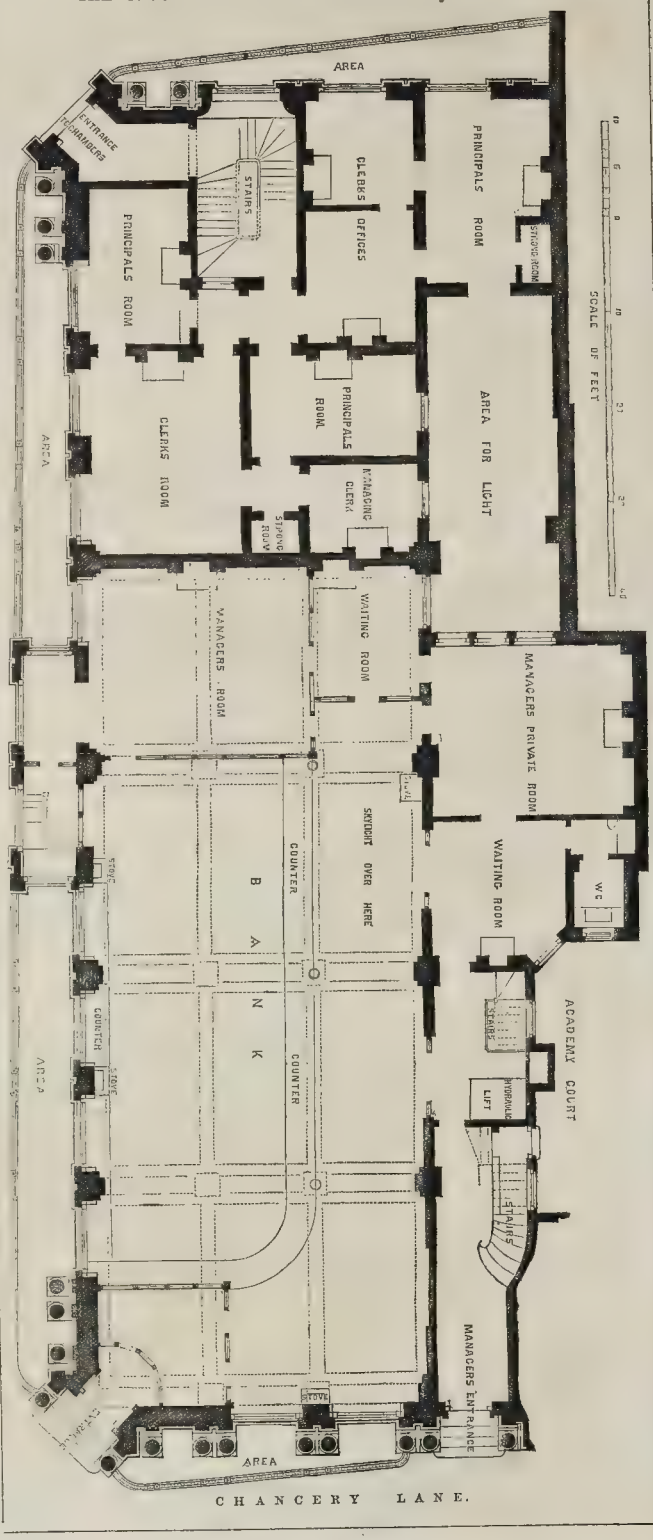
A building of considerable size and pretensions has been erected for the Union Bank Company, at the corner of Carey-street and Chancery-lane. The longer front, shown chiefly by the accompanying engraving, is in Carey-street, and extends 143 ft. The length of the front in Chancery-lane is 50 ft. The building is faced with Portland-stone; the shafts of the columns to the bank entrance are of polished red granite. The front displays three orders, Tuscan, Doric, and Corinthian. The bank-room on ground-floor (seen in the plan), is 90 ft. by 35 ft., and 19 ft. in height: a part of it is partitioned off by mahogany glazed screens, for the manager's room and waiting-room. There are also two other rooms adjoining the bank-room, devoted to the use of the manager. The remaining portion of the ground-floor is divided into sets of chambers or offices, having an entrance at the corner of Carey-street and Star-yard.

The manager's apartments are situated at the east end of the building, having an entrance in Chancery-lane, and consist of the several rooms on the first, second, and attic stories; the remaining portions of the building on these floors being divided into offices.

In the basement are strong rooms, for security of bank property, with hydraulic lift for raising and lowering it.

Fresh air is admitted into the bank-room through a perforated enrichment at the angles of piers, and the foul air is extracted partly by means of a pump, worked by hydraulic power, through a perforated enrichment in the soffits of the principal beams of ceiling, and partly by three sun-burners. The whole of the floors are fire-proof, on Fox & Barrett's principle. Mr. F. W. Porter was the architect, and the builders were Messrs. Trollope & Sons. The total cost has been about 30,000*l*.

THE UNION BANK OF LONDON.—*Plan of Ground Floor.*





THE UNION BANK OF LONDON, CHANCERY LANE.—MR. F. W. PORTER, ARCHITECT.

BRISTOL ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.

The annual meeting of this society was held on Tuesday, the 13th instant, Mr. E. W. Godwin, vice-president, in the chair.

In moving the adoption of the report, the chairman spoke of the efforts they had made to induce the corporation to preserve the house in Small-street, which was of great value and interest to antiquaries and architects, as a specimen of the architecture of the fourteenth, fifteenth, and sixteenth centuries. He had heard since he entered that room that the house in Small-street was doomed.

Mr. Wills referred to the proceedings of the town council with reference to the Assize Courts, and stated that it was a mistake to say that it had been resolved to demolish the house in Small-street. The council had come to no resolution on the subject.

Mr. W. Poole King referred to the same subject, confirming Mr. Wills's statements. But he deprecated their being too hard on the council in this matter. He hoped the house in question would yet be preserved, and would continue in its present state.

The chairman then read a paper on "Dress." He contrasted the ugliness and bad taste of our present fashions with the beauty and elegance of the costumes of the early periods of our history. In treating of modern costume, the second leading division of his paper, the lecturer noted, as characteristics of it, the great variableness of fashion, which was due, not to any desire for artistic beauty, but simply to caprice and vanity.

NEW METROPOLITAN PARKS.

No measure could be more conducive to the sanitary condition of the people, and conservative of the aspect of the twelve-mile radius now covered with 300,000 houses, than the establishment of parks accessible to the inhabitants of every busy district.

Victoria Park, which now assumes the appearance of fair hortulan gardens, demonstrates what such improvements effectuate upon the health and appearance of the locality; and the inclosure and embellishment of that park proposed for the Stepney direction, as it is in the midst of the densest labouring population, promises even happier results, in the improved condition of a valuable section of the industrial community, hitherto too much neglected.

Besides these advances, the inclosure of many suburban commons, such as Peckham Rye, Wimbledon, &c., are in agitation, but these, like Hampstead Heath and Greenwich, are too far from the central lines of industry to be useful to the denizens who are restricted to their own immediate vicinages, except on Sundays.

Battersea alone is accessible by rail and river, and clearly proves how popular such ornate gardens are sure to become; and also throughout all our parks and public spaces the culture of trees and flowers exercises good influence.

It is too true that efforts have been made to stint and abstract from public use many of the commons vicinal to London; but it is to be hoped that liberal minds engaged in resisting such encroachments in every neighbourhood so menaced, will combine to resist such spoliation and public wrong. The nearer to the centre any public park may be the more valuable it is; and therefore, whilst we endeavour to stop any invasion of free park, so it ought to be the care of all to increase, where possible, the extent of the ancient liberties we possess, and even to add to their boundaries; the only exception being the enlargement of such lateral causeways as Birdcage Walk, when by a narrow strip thrown out, both park and road seem to be enlarged.

Who can predicate where the great metropolis will stop its extensions? Hyde Park and the Gardens were, twenty years back, suburban; now even they are circumvented with houses, and far ultrapassed. These open spaces are the glory of London; and considering the value they bestow upon our City, both in the view of natives and foreigners, every rood of the precincts ought to be held sacred, and no opportunity should be lost if such should offer for their enlargement.

The Bayswater and Kensington roads bound the north and south sides, Park-lane the east, and Kensington Palace Gardens the west; but there is a park nearly in continuation, situated on a great elevation, more varied as to grounds, with fine timber, and a noble mansion of ancient date and pretensions. This, if purchased and thrown open, would add a wondrous value to the whole rising and aristocratic districts which surround it, and at the same time to the credit of the country.

Camden-hill is the healthiest, highest, and most beautiful position so near the centre; it contains perhaps about 100 acres of park still undisposed of, and the noble old baronial mansion might, by improvement and some additions, be made a palace most suitable for any of the royal family, having a circuit of some ten acres in reserve, the rest being thrown open. The Bayswater and Kensington roads connect Holland Park with the gardens on the north and south, and a wide central line of communication might be made, at little expense, to cross the elevated portion of Camden-hill, as a direct entrance and as a continuous rural walk of over two miles. Public money might be expended on investments less profitable than this, which might prove to be a most admirable location for the heir apparent, and would be a boon to the public.

Quondam.

SANITARY MATTERS.

Liverpool.—At the meeting of the Health Committee last week some discussion as to sanitary arrangements in houses took place, in course of which it was stated that there was a want of traps to the sewers in the better order of houses as well as those of the poor. Rain pipes were scarcely ever trapped, and not often the connexion between privies and sewers, so that cottages at the backs of good streets are made unwholesome by emanations from the sewers connected with the houses in front. The borough engineer was directed to report on the ventilation of the tributary sewers.

Leeds.—Among a number of other cases recently brought before the magistrates by the nuisance inspector, was a complaint against the owners of fourteen cellar-dwellings in Union-court, where fever has raged unceasingly. Mr. Beardshaw, one of the medical officers of the district, stated that in his opinion, in order to put a stop to the fever in the town, these cellar-dwellings must be closed. The magistrates ordered the immediate closing of the cellars, and undertook to provide temporarily for the lodging of the seventy-three women and children who lived in them.

Salford.—At an inquest on the body of the wife of a joiner residing in a cellar in Norton-street, Salford, it was stated in evidence that the dwelling was not fit for the occupation of a dog, and one of the jurors said that there were other habitations in the borough which were in an equally unhealthy state. The jury returned a verdict of "Found dead from the effects of sleeping in a damp and cold cellar." The matter has been reported to the sanitary committee of the Salford council.

PROPOSED MUSEUM OF BUILDING APPLIANCES.

Our readers will have seen an advertisement in previous numbers of the *Builder*, setting forth an intention to establish, in the Conduit-street Galleries, a museum for the reception of drawings, prospectuses, models, &c., of all matters pertaining to the numerous trades connected with building, with the view of giving architects, engineers, surveyors, builders, and others, gratuitous information regarding all such matters on application.

The promoters pledge themselves to afford gratuitous access to such information to all applicants, and thus to open up to inventors and manufacturers a legitimate and recognised channel for making their productions known to those best qualified to appreciate and use them. The promoters look for their remuneration from a large number of subscribers, who, in return for an annual payment of two guineas, will be entitled to deposit in the museum, circulars, drawings, or prospectuses, to occupy a space not exceeding 16 in. long, by 10 in. wide, and 2 in. deep.

We have ourselves at various times urged the value such a museum (on the largest scale) would be to the profession, and are therefore well disposed to aid any honest and intelligent endeavour, as this appears to be, in that direction. We learn that two of the galleries are positively let, by the Architectural Union Company, to Mr. D. O. Boyd, for the purpose; so that manufacturers and others who think well of the proposition, and are disposed to assist in bringing it to bear for their own advantage, should *at once* go into communication with the promoters.

PREMIUMS FOR ESSAYS AND DESIGNS ABROAD.

Looking through the last number of the *Gazette des Architectes*, *we see announcements of several competitions, that show considerable liberality. Thus the Lyons Academy of Sciences and Fine Arts offer a gold medal, worth 1,500 francs (60*l.*) for an "Essay on the History of Painting, Sculpture, Architecture, and Engraving, from the Time of the Renaissance." The Royal Academy of Belgium offer prizes for the best essays on several subjects. For that on the first subject, "The History of Mural Painting and its Application to Architecture," the prize is 1,200 francs (48*l.*). For an "Essay on the Various Modes of Teaching Drawing practised from the Time of the Ancients up to the present Day," 32*l.*; and for one on "Rubens as an Architect," 24*l.* The question involved in the last subject is an interesting one. Antwerp and Brussels contain various edifices, the design of which is attributed to Rubens. The question is, whether the tradition be correct, or whether the style observable in these buildings is to be attributed merely to the influence of the painters' works. The writers will have to examine both hypotheses. For the city of Rheims the town council desire designs for a new theatre, and they name as the first premium 12,000 francs (480*l.*), in the event of the city architect carrying out the work: if the successful candidate superintend his own design, the premium is to merge in the usual commission. For the second best design the premium is 3,000 francs (120*l.*).

UNDERGROUND RAILWAYS FOR PARIS.

The French metropolis has just been placed in a state of great excitement by the project of M. Edoux, the civil engineer, who proposes to effect as great a revolution under that city as M. Haussmann, the Prefect, has done above-ground. His plan is to construct a system of subterranean railways diverging from the Palais Royal as the common centre, and connected at their ends by an outside circle. One line is to go down the Rue de Rivoli, under the Place de la Madeleine and the Rue Tronchet to the railway terminus of St. Lazare; another is to go under the central Market-halls, and thence either under or over the Seine to the terminus of the Orleans railway. From the Market-halls a branch is proposed to be carried under the Boulevard de Sebastopol and the Boulevard de Strasbourg to the termini of the Northern and Strasbourg Railways. A second branch is to go under the Boulevards and the Place de la Bastille to the termini of the Vincennes and the Lyons Railways; and finally, a line is projected from the Palais Royal, under the Champs Elysées, to the Bois de Boulogne.

FROM IRELAND.

Downpatrick.—The new lunatic asylum for Down is progressing. It will consist of a central building, surmounted by circular turrets and clock tower upwards of 100 ft. in height, with wings and returns. In this central building will be the dwelling of the resident physician, the matron's apartments, the board-room, and the dining and recreation hall, which will be 90 ft. long by 45 ft. wide. This hall will rise to the full height of the building, and will have a gallery, the approaches to which will be by stairs from the circular turrets. The two wings and returns will contain day-rooms, single rooms, dormitories, lavatories, and bath-rooms, and will attain an elevation of about 40 ft. from the base. A corridor from the wings passes through the central building, thus affording communication

* The numbers of this work received since our comments upon it contain a larger amount of interesting matter (whether accidentally or not) than was the case with many previous numbers.

along the entire length of the structure. The infirmaries are at the extreme end of each wing, and are approached by a one-story passage. At the rear of the building will be the office-houses, —the laundry, the drying-rooms, the stores, the boiler-house, and fuel-shed. Here also will be placed the workshops for the industrial pursuits in which certain of the patients may be employed. The different portions of the building will be cut off from each other by fireproof sections, on the same principle on which ships are built in separate water-tight compartments. The front will be of red and white brick, and the rear of blue stone and red brick. The plinths in the front are of white brick, as are also the coignes; and all the corners, both in front and rear, are of Scottish sandstone. The extreme length of the buildings is about 828 ft., and their depth from front to rear about 500 ft.; and they with their yards will occupy an area of nearly five acres. The contractors are Messrs. F. & P. M'Gaughey, of Omagh, who have for the last twenty years been employed on various works for the War Department in Dublin and other parts of Ireland. The architect is Mr. H. Smyth, county surveyor. The red bricks are from Mr. John Moore's Ravenhill works at Belfast, and the white brick from Garnkirk, Glasgow. The blue stone is obtained at Islandbawn, about three miles distant from the Asylum grounds; the sand from Ballyhossett; and the lime from Carlingford.

HEREFORD CATHEDRAL BELLS.

THESE bells have been formally set agoing by the Appleton ringers. It seems probable that the peal in Hereford Cathedral, soon after the erection of the central tower, consisted of a few large bells. It appears that the fifth bell, which has just been re-cast *fac-simile*, was the treble of six bells. The other bells have all been re-cast since the Reformation, with the exception of the ninth and the tenor. Before the addition of the small bells and the recasting of others the inscriptions on the large bells stood thus in 1680:

1. Treble (St. Katherine's bell), same as at present.
2. Laudate Deo in simbalis sonoris, 1622. I.P. God send me to sing. Gulielmus Stephanus me fecit.
3. (St. John's bell) Soli Deo imortali sit gloria.
4. Gloria Deo in excelsis.
5. (St. Richard's bell) Wilhelmus Warwicke, &c., as at present.
6. Sancte Cuthberte, &c., as at present.

The inscriptions on the bells now, read thus:

1. We were made *Teu* in the year 1697.
2. God prosper this Church, and all the members, 1698.
3. T. Wooton, T. Rogers, W. Watts, A. Oatley, E. Bulkeley, Canons, 1698.
4. God prosper the Church of England, A. R. 1697.
5. Sum rosa pulsata mundi Katerina vocata. This bell was recast by Mears and Stainbank, London, and the peal re-hung by White and Sons, by subscription, A.D. 1865.
6. Stephanus Bansstre me fecit.
7. Let us ring prosperity to the Church of England, A. R. 1697.
8. Johannis Tyler, Decanus, Herefordiensis, A.R. 1697.
9. Gulielmus Warwike construxit me in sanctæ Trinitatis honorem.
10. Sancte Cuthberte, ora pro nobis.

The pitch of the tenor is C sharp, Philharmonic pitch. The weight is estimated at about 40 to 43 cwt. Very few bells in England larger than this are swung in peal,—probably less than 20 in number. The peal has been re-hung by Messrs. White. Messrs. Mears & Stainbank re-cast the fifth bell, the tone of which has proved to be in harmony with that of the others. Slight alterations are being made in the wheels in order to prevent any slipping of ropes in future. It is 25 years since these bells were rung in peal till now.

PUBLIC WORKS DEPARTMENT IN INDIA.

SIR,—You were good enough to insert a letter of mine on the subject of the civil engineers appointed to the Department of Public Works for India from England in November, 1864. Since that time, the department has undergone the reorganisation that had been so long expected, and to which many were looking forward with hopes that it would put matters on a better footing than before. I was just going to send you the details of the "*ridiculus mus*" that has been produced after such a protracted labour, when I saw the able letter of your correspondent "C.E." in your impressions of October 21st and November 4th, 1865, pointing out all the disabilities under which civil engineers still labour, and the result of the reorganization scheme as far as civil engineers in particular are concerned,—viz., raising the pay of assistants 50 rupees per *mensem*; and I am sure that we ought all to feel grateful to you for opening your columns to the discussion of our grievances, both on account of the benefit it may do us by letting the home authorities know the great disadvantages of our position, as well as to prevent any more victims from presenting themselves through sheer ignorance of what awaits them.

Your correspondent's letter, however, was written before the finishing-stroke of the reorganisation was made public; and, as it will probably have the effect of reducing in future the number of military candidates for the Department of Public Works, will indirectly affect civilians, as more of them will be required to fill vacancies.

The measure I allude to is, fixing a maximum salary to each departmental grade, beyond which no officer (no matter what his military rank) will be allowed to draw pay. These maximum salaries are as follow:—

	Military.	Civil.
	Rupees per Mensem.	Rupees per Mensem.
Chief Engineers:—		
1st class	2,500	2,500
2nd class	2,000	2,000
3rd class	1,850	1,750
Superintending Engineers:—		
1st class { 1st grade	1,800	1,600
{ 2nd grade	1,650	1,400
2nd class { 1st grade	1,550	1,200
{ 2nd grade	1,350	1,000
Executives:—		
1st grade	1,250	900
2nd grade	900	750
3rd grade	750	600
4th grade	600	500
Assistants:—		
1st grade	500	400
2nd grade	450	300
3rd grade	450	200

This rule is not to have retrospective effect, and officers at present drawing higher rates of pay will continue to do so until promoted to the departmental rank which will entitle them to an increase according to the revised scale. This will prevent probably one-third of the officers in the department from receiving any increase of pay for three years; and will, it is greatly to be feared, prove a sore temptation to the authorities to promote these officers at the expense of civilians. At the same time this rule will probably, after some time, indirectly benefit the latter, as I before mentioned; and it is not improbable that a few steps may go by some of the older officers in the lower grades resigning. This alteration, like all half measures, satisfies no one, and a grand opportunity has been lost by Government of conciliating *us*, without doing any more injury to the military engineers, by making this maximum salary at once the consolidated pay of all persons in the department; and the very fact that such an obviously just measure was not carried ont, while the reorganization was under consideration, goes far to prove that justice is not to be expected as long as all the higher appointments are exclusively filled by military men. This would cost very little to carry out; and were we granted in addition the more liberal leave and pension rules accorded to natives in the Educational Department, the Government might be sure of attracting a large number of the most promising young engineers in England, which they certainly will not do in future, as the profession generally becomes aware of the unfair treatment they must expect.

ANOTHER VICTIM.

Bengal, December 26th, 1865.

CHIMNEY SWEEPING.

YOU would do a good service to many of your readers if you would invite some of your correspondents to communicate their experience for or against any mode of sweeping chimneys with sharp angles. In answer to a former letter, you referred to the previous numbers of your journal: I can find no notice of the subject last year; but in 1864 two machines are spoken of,—I think evidently from theory and not from experience. The first would, I think, destroy most chimneys in a few sweepings; the account of the other, on the principle of an inflated ball, does not give any description by which it could be made, nor any reference by which it could be procured; it seems rather a hint to inventors than a notice of anything that had been adopted in practice. Since the last Act, much experience must have been gained which at the present time would be most valuable. Any system which assumes an existing communication between the top and the bottom of the chimney, would be of little use as that very communication is one main difficulty of the subject.

T. B. N.

LAND SOCIETIES.

SIR,—Will you permit me to make a correction of some figures, contained in my paper read before a meeting of the Society of Arts, and which was made the subject of a valuable leader in your journal of the 10th instant. The figures were all given as they had been before given by me in a paper read at the Social Science Congress last October, held at Sheffield, and of course the returns would extend only to that date. As most societies publish their reports at the end or beginning of the year, it would necessarily happen that the returns quoted by me in every instance would come up to the end of 1864. The comparison would be fair, as it would take all the societies quoted at the same date.

Will you oblige me by giving, as a correction to my figures, those now given by Mr. Gruneisen up to February 3rd, 1866; viz., number of shares of 50*l.* each, 23,737; subscribed capital, 1,189,350*l.*; cash received since the formation of the society, 902,501*l.* 12*s.* 11*d.*; estates purchased, 68; number of acres, 960; number of allotments, 5,661; amount of land sold, 438,505*l.* 9*s.* 5*d.*; cash advanced to members on security, to enable them to purchase land, houses, or to build, 347,713*l.* 10*s.* 1*d.*

As to the increase in the business of the other societies quoted, I will leave it to those who are interested in the subject to consult the several balance-sheets. I much regret that I was obliged to omit even the mention of many flourishing societies.

T. BEGGS.

HOW KEEP DRY WALLS?

SIR,—The long continuance of strong winds and driving rain has so saturated the brick and stuccoed walls of my house that I am desirous to know of a good remedy. The aspect is south, and the wind hangs so much in that quarter, that the wall has small chance to dry. Three coats of Carson's paint were laid on last summer. The walls have been washed with Rausome's Silicate of Soda and Lime for five or six years.

W.

LIGHT AND AIR.

IN the two cases, Arden *v.* Parry, and Edwards *v.* Parry, in the Court of Chancery, the plaintiffs moved for an injunction to restrain the defendant from erecting a wall adjoining the premises of his theatre in Holborn, which would cause an obstruction of light and air to some houses at the back, situated in Warwick-court.

A mass of evidence by surveyors, &c., was adduced to show that houses in Warwick-court, three or four in number, must necessarily be affected by the proposed erection, thereby damaging the interests of the plaintiff Arden, who is the landowner, and the other plaintiff, who is the landlord of the houses in question.

For the defendant, affidavits of surveyors were read, which were to the effect that, so far from injuring the premises, the proposed wall would have the very opposite effect, by the removal of the present wall, which obstructed the light and air to a greater extent than would be done by the wall the defendant desired to build for the completion of his theatre. The counsel also contended that the proposed wall would not be more than 9 ft. in height over the old wall; and even if any injury were inflicted, it was inappreciable; and that the plaintiff should seek for a remedy at law by an action for damage.

During the progress of the case, the judge, Sir J. Stuart, frequently interfered by suggesting that some arrangement should be made between the litigants; and it was ultimately agreed, on the proposal of counsel for the defendant, that a certain reduction in the height of the wall, and other modifications, should be referred to the architects and surveyors engaged for both parties.

Subsequently, two of the gentlemen deputed tendered their opinion, and the Vice-Chancellor decided that an injunction should issue restraining Mr. Parry from erecting the theatre otherwise than in conformity with a modification of his original plan.

ON THE VENTILATION OF BUILDINGS.

SIR,—The excellent papers by Dr. Edwards, on a "Smoke-Vomitorium" for chimneys, which have recently been published, touch incidentally on a question which has for some years occupied at intervals much of my attention,—that of the ventilation of buildings,—a subject little understood, or even appreciated, by the public, and too often neglected by the architect. We moderns, with our increasing tendency towards purely intellectual work, entailing an addition to the number of hours spent in-doors, are content to build those apartments in which we pass our days and our nights much as our forefathers did, save that we diminish the size of our rooms, contract our chimney-openings, and in other respects also, relating to ventilation, build for the worse. We are thus left to choose between the horns of a dilemma,—either to suffer a slow but sure deterioration of stamina from the habitual breathing of an impure atmosphere, or to incur the risk of results, scarcely less serious, which attends our frantic efforts to dilute the poisoned air in our apartments by throwing open the windows and doors, and admitting those chill currents which, in forcible and beautiful metaphor, have been called "the cold hand of death."

Dr. Edwards's device appears to have been intended primarily to ensure the uninterrupted discharge of the products of combustion from the top of a chimney, but, by implication, it seems calculated, if the results of his experiments on a small scale are borne out in ordinary

practice, to improve the ventilation of our rooms, in so far as the continuous circulation of air through them towards the fire is concerned;—but here it stops.

The theoretically simple and beautiful modes of ventilation laid down in works which treat on this subject are, so far as my reading has extended, not only incomplete in some of the more important points, but, being founded, for the most part, solely on the principle of specific levity, are also subject, in practice, to many conditions of failure. The same objection may be made to all the special contrivances which have hitherto been put before the public, by which the effort is made to attain, at a trivial expenditure of money and labour, a result that can only be compassed by taking an enlarged view of the question, and extending our resources so as to cope with all its difficulties.

To devise such a mode of building as shall attain the desired end, without exhibiting any serious defects, is still a problem to be practically solved, and every step which facilitates the accomplishment of this is an advance in the direction of a satisfactory issue to one of the greatest, though, at the same time, one of the most ignored questions of our day.

As a farther contribution toward the solution of this important problem, I will ask leave to sketch the outlines of a system of construction which, based upon well-known laws of nature, and upon a knowledge of the disturbances to which these, in their action, are exposed, acquired by numerous observations on the circulation of air in our houses as ordinarily built, and by special experiment, has, for some time, been developing itself in my mind: and here let me lay down those which I conceive to be the essential conditions of efficiency, which every successful system must more or less completely satisfy.

I. *To maintain a constant circulation of air through rooms, whether inhabited or not, and equally (or sufficiently so), with or without the aid of a fire.*

II. *That the action of the system shall not be liable to be deranged by the changing conditions of the atmosphere, either within or without.*

III. *As the air admitted into our apartments is frequently derived from others which are noxiously charged with carbonic acid and animal effluvia, it is necessary that the supplies be drawn directly from the external atmosphere.*

IV. *While ensuring that an ample volume of pure air shall continuously circulate through an apartment, the system must regulate its temperature and control its velocity so that it shall be attended by none of the ill effects of a draught.*

V. *It must prevent the possibility of smoke descending a chimney and entering a room.*

VI. *It must be self-acting, as simple as possible, and little, if at all, liable to derangements.*

VII. *It must be sufficiently flexible to be capable of adaptation to all kinds of building in which ventilation is required.*

VIII. *It must not be too costly.*

In devising a system of natural ventilation (and no other is applicable to the majority of cases, or necessary in any), it is needful never to lose sight of this one general rule:—Never to oppose,—always to co-operate with nature. We will, therefore, proceed to lay a groundwork of established principles,—for the most part well-known, if not trite,—in accordance with which we must work.

1. It is a law of nature, which has no permanent exceptions, that a reservoir, whether of air or water, may have an infinite number of tributaries, but only one emissary.

When a room is provided with two or more distinct outlets for its rarified air, if they do not otherwise conflict, one of them is almost certain to become an inlet. It is on this principle that Watson's Patent Syphon-Ventilators, which have been used with success in many situations, are constructed.

2. That the products of respiration and combustion, while newly exhaled, are specifically lighter than the average of the air in an apartment, and rise toward the ceiling; but that, as they cool, they, in their turn, become the heavier of the two, and descend to the floor.

3. That, as gases receive or part with heat, they expand or contract in volume.

4. That the motion of fluids in pipes, &c., is affected by their calibre, length, inclination, continuity or discontinuity of direction, the figure of their internal cross-section, and the degree of smoothness of their inner surface.

That, if the air be abstracted from an apartment, the vacuum will, if permitted, be supplied from another source; and, *vice versâ*, if air be forced into such an apartment, it will drive out an equal portion of that which was previously therein.

But the working of a system designed to act in accordance with these laws alone will, unless guarded by special provisions, be liable to derangement from disturbing influences, which must be diverted from their antagonistic tendencies, and made to co-operate towards the desired end. We will now consider what these are.

Close observation has long satisfied me, as it has Dr. Edwards, that the circulation of air in a house is controlled chiefly by the currents of the external atmosphere, even when these latter are comparatively gentle. In many cases, in some of which the chimney was constructed specially with a view to drawing the smoke and air upward, I have found the same descending,—even passing downwards through the floor, and that without any great violence of wind; and have arrived, as the result of frequent trials, at the general principle that, if the apertures in the sides of a covered enclosure, which is provided with a chimney, are on the windward side, the air will enter it through these, and will pass up the vertical flue; but if they are on the leeward side, the air will descend the flue, and will issue from the building through those apertures. This may easily be explained: the wind, eddying round the sides and over the roof of the structure, creates a partial vacuum on its leeward side, which the air rushes from within to fill, and the only mode of restoring the equilibrium is by a fresh supply descending the flue, which, as its top is usually horizontal, is neutral as respects the general horizontal direction of the wind.

Having thus far cleared the way, I will now proceed to describe, as distinctly as is possible without the aid of diagrams, a mode by which, I think, all the desired ends may be attained with unerring uniformity, provided the details are carried out with due regard to correct proportions and judicious arrangement. To combine conciseness with lucidity the following description is clothed somewhat in the form of a specification.

(*a.*) *The Smoke-flue.* — Provide every room which contains a fire-place with a properly constructed smoke-flue, terminating upward in a chimney-shaft which, near its top, should be of circular or polygonal section. Surround the vertex of the same by a projecting collar of sufficient width, in the form of a truncated cone or pyramid, whose sides incline at an angle which experience shall discover to be the best, and meet the internal surface of the flue in a sharp edge all round its extremity.

The use of this collar is to deflect the wind upward, and thus to suck the smoke out of the shaft. The writer's experiments indicate that the angle of 45° with the horizontal is, approximately, the best. The frequent failure of appliances of a pattern somewhat similar to that of this collar is due to causes which the complementary parts of this system are intended to remove.

(*b.*) *The Exhaust-flue for Air.*—Construct, side by side with the smoke-flue, an air-flue, commencing at the junction of the chimney-breast with the ceiling, and terminating upward in a shaft of a pattern exactly similar to that appropriated to the chimney. Open a communication between its lower extremity and the room by an aperture situated either at the top of the chimney-breast or in the centre of the ceiling: in the latter case, the connexion with the flue will be effected by means of a channel constructed between the ceiling and the floor above it.

In special cases, it may be found to be desirable, in order to ensure the efficiency of this duct, to allow it to receive heat from the chimney through a thin intervening diaphragm of tile or other suitable material.

(*c.*) *The Air-supply Flues.*—Provide every room that has a fireplace with two of these flues, one for the purpose of feeding the fire with oxygen, the other to conduct fresh air into the room. Carry up both of these above the roof (they had better be lower than the chimney-tops), and there let each divide, by a gradual outward curvature, into four distinct branches, pointing toward the corners of an imaginary square, each branch terminating in a bell-mouthed orifice, having either a horizontal aspect, or, for the sake of compactness, one with somewhat of an upward inclination. Lead that supply-flue which is appropriated to the service of the fire to some point either under or immediately in front of the grate, and there construct suitable apertures to allow the air which is thus conducted to communicate with the fire. Carry the other flue, if practicable, to that side of the room which is farthest from the outlet into the suction-flue, and there let it terminate in a horizontal air-channel, running round as great a length of the skirting as may be, and communicating with the room, at suitable intervals, by means of openings through the skirting, which should be filled with perforated zinc, or with ornamental gratings. If it be found to be generally desirable, lead this supply-flue, by an inverted syphon-bend, to some hot plates or tiles, warmed by the fire, where the temperature of the passing current may be raised to 60° or thereabout, before it is discharged into the room.

These two flues form the distinguishing feature of the scheme. Firstly, the branched tops are intended to intercept the wind, in whatever direction it may blow, and to deflect it downward into the air-supply shaft. The difficulty attending the occurrence of a disposition to exhaust on the leeward side is, in this case, obviated by the mode of constructing these terminals, which always present an equal area of openings toward the windward and the leeward sides. In order to avoid any tendency to stagnation in the descending current when it leaves the branches and enters the single flue, and, consequently, the risk of it being sucked out of the leeward branches, it will probably be best to make the sectional-area of the single flue but little, if any, greater than that of two of the branches united. Secondly, by providing the fire, which seizes on the lion's share of the air, with an independent supply, the volume of this which is necessary for the purposes of ventilation is reduced to a small fraction of that which at present finds its way through doors and windows; so that, by this means alone, the chief source of draught is cut off. The little that remains may be still farther rendered imperceptible by diffusion, by making the apertures in the skirting as numerous and as ample as possible:—indeed, within reasonable limits, it is impossible to be too liberal in this respect. With this precaution, it is very probable that, without any previous elevation of temperature, the gentle diffused stream of air would become sufficiently warmed immediately on entering the room. Thirdly, the recess in which combustion is carried on is invested, to a great extent, with the character of an independent apartment; so that the conflict which would otherwise disturb the action of the two outlets, viz., that for the smoke, and that for the exhausted air, is avoided.

In the foregoing description I have omitted, for the most part, all those details which are not of critical importance, and which must be designed in accordance with the peculiar requirements of each case. The system therein expounded appears calculated to fulfil all the conditions of the problem which we have attempted to solve, and, while maintaining its consistency as a whole, is susceptible of an infinite variety of modifications in detail, so as to accommodate itself to the demands of every kind of habitable structure, under almost every conceivable circumstance, and it leaves untouched,—being unaffected by any improvement that may be made therein,—the question of the economical warming of buildings. It may be well to state that nothing which has been here advanced is based upon theory alone, but that every peculiarity of construction which has not its analogue in the present mode of building, has been subjected to the test of careful experiment. It is matter for regret that, from the woeful lack of observations, on a comprehensive scale, in this branch of science, it is impossible, at present, to furnish any reliable formulæ for the guidance of architects in fixing on the best proportions for details, which will necessarily depend upon the exigencies of each particular class of building.

To conclude;—it will be seen that this system has a three-fold security for its action,—

1st. The specific levity of the heated gases;

2nd. The suction of these up the exhaust-flues by means of the wind acting on the conical collar;

3rd. The impulse given to them by the downward current created in the supply-flues by their generally lower temperature, and by the action of the wind on the mouth-pieces;—

that, to escape the risk of disturbing the operations of the ventilating appliances, windows and doors should be made to fit in a workmanlike manner, and should be habitually closed, as, from the great purity in which the air of a room will be maintained, it will be quite unnecessary to open these except for purposes of communication;—and that, with any efficient system of ventilation, the lower the ceiling of a room is, within reasonable limits, the better.

C. W. Dymond, C.E.

"HOW SHALL THE BED BE PLACED?"

Sir,—I felt much interest in some remarks in your paper of the 10th inst. (p. 103), headed "How shall the Bed be placed?" Years ago I suffered much from nervous irritation, and consequent loss of sleep. I fancied that I slept better in certain rooms than others; and, after trying to ascertain why, came to the conclusion that a great deal depended upon the position of the bed.

For twenty-five years and upwards I have had my bed placed with the head to the north, or as near that point as I can; and, if I cannot have it north, I place it north-east, with as much north as I can get. When I sleep from home I pull out the bedstead from the wall and turn it to the desired point as nearly as I can, finding great advantage. Many of my friends, knowing my fancy, take care to put me in a room with the bed in the right position. They smile at my whim: I sleep, and smile at their unbelief.

The experience of a man who has lived to the age of 109 is, to a person already predisposed to believe, conclusive; and to any poor fellow who cannot sleep, this hint is worth the trial. I trust that those who do try may find it as successful as it is with me. T. P.

EGYPTIAN PYRAMID FORMS.

Sir,—After reading your number for the 10th inst., I beg to refer Mr. G. Thurnell to the late Sir W. Hamilton's paper on the subject of the Egyptian Heptagon, in the *London Philosophic Magazine* for February, 1864, wherein he quotes and illustrates the late M. Rœber's diagrams, published by his son, from fifteen to twenty years ago. M. Rœber shows the same semicircular results of "the extreme and mean ratio" division, and applies it constantly to the plans of the temples and pyramids, stating that the Great Pyramid has its leading lines in the proportion of the *square roots* of whole numbers. Indeed, Mr. Thurnell's results are reducible to this interesting group:—

Ch. A E : ch. B E :: 1 : m ; = A C = $\frac{1}{2}(\sqrt{5}-1)$.
B C = $\frac{1}{2}(\sqrt{5}-1)^2 = \frac{1}{2}(3-\sqrt{5}) =$ A C² numerically.
C E² = $\frac{1}{2}(\sqrt{5}-1)^4 = \sqrt{5}-2 =$ A C³; whence
A C : C E : B C :: m^2 : m^3 : m^4

My friend, Mr. Perigal, likewise hit upon Mr. Thurnell's method about a year ago. I possess M. Rœber's three publications, which are all highly interesting, and have made a MS. translation of the same. S. M. Drach, F.R.A.S.

*** A communication from Mr. Garbett on the same subject we are forced to postpone.

CHURCH-BUILDING NEWS.

Bedlington (Northumberland).—It has been resolved to restore the venerable tower of the ancient church of St. Cuthbert, which has fallen into a state of disrepair, almost to a dangerous extent. A subsidence has taken place in the foundation of the tower, which is leaning considerably to one side. It is proposed, therefore, to underset the foundation, and to take down a portion of the tower and rebuild it. The tower is an interesting specimen of Norman architecture, and can boast of a very fine west window, elaborately carved and moulded. The chancel arch is pointed, but has Norman mouldings. Mr. Thomas Oliver, of Newcastle-on-Tyne, is the architect appointed to superintend the restoration.

Newbury.—A meeting of the building committee of the parish church restoration has been held, for the purpose of deciding who should execute the restoration and improvements in St. Nicholas's Church, in accordance with the plans of Mr. Woodyer, the architect. The contract of Messrs. Wheeler, stonemasons, of Reading, and Messrs. Adey & Son, builders, of Newbury, were accepted; Messrs. W. & G. Boyer, of Newbury, being entrusted with the plumbing work. The alterations will be commenced forthwith.

Luton.—We understand that Mr. John Shaw Leigh, of Luton Park, Bedfordshire, has resolved to restore and make free and open to all, the ancient parish church of Luton. The cost of restoration and re-seating will exceed 2,000*l.*

Maidenhead.—The new spire of All Saints' Church, Boyn-hill, has been dedicated. The church has only been erected a few years, and a tower and spire in the Early English style of architecture have just been added. The architect was Mr. G. E. Street, of London, and the builder, Mr. Silver, of Maidenhead. The ironwork was supplied by Mr. Leaver, of Maidenhead. At present there are no bells in the tower, but it is hoped that they will be put up in the course of a few months.

Lutterworth (Leicestershire).—Efforts are being made to restore the parish church of Lutterworth, where Wickliffe, the reformer, was rector at the time of his death. The church is now in such a dilapidated state that it is not safe for the continuance of public worship.

Books Received.

The Homes of the Working Classes, with Suggestions for their Improvement. By James Hole, Hon. Sec. of Yorkshire Union of Mechanics' Institutes, &c. Published under the sanction of the Society of Arts. London: Longmans & Co.

In 1864 the Society of Arts held a conference on the subject of the dwellings of the working classes, to which representatives of the Institutes in union with it were invited. The committee of the Leeds Mechanics' Institution, feeling the importance of the question, decided to aid the discussion by the experience of their own town. The mayor of Leeds (Mr. J. D. Lucccock), as president, offered a prize (ultimately awarded to Mr. Hole), for an essay on this subject. This essay was publicly read in January, 1865, and its publication in the local newspapers at the time aided in directing public attention to the bad sanitary condition of a large portion of the dwellings of the working classes, and to the moral evils connected therewith.

Since then the scope of the essay has been enlarged, and it now forms a goodly volume of more than 200 pages, illustrated by a number of engravings.

The experience of the writer, as director of a large building society, and as a member of the Leeds Model Cottage Association, has given him some insight into the various difficulties with which this great topic is surrounded.

The author has also made good use of the *Builder*, with honourable acknowledgment, here and there, which is more than we can say of all who are just now dealing with the subject. The volume goes pretty fully into all such important points as the conditions of healthy dwellings and neglect of drainage; ventilation, external and internal, and necessity of light; and as to water supply, and removal of nuisances: paving he seems to have overlooked in this connexion, important though it be. The author also speaks of the evils of back-to-back houses, and treats of model villages in the neighbourhood of towns, and near the lines of railway; and describes all such plans as those of Mr. Alderman Waterlow, Mr. Hare, and Mr. Twining, and the improved cottage dwellings of Mr. Salt, at Saltaire, and Mr. Akroyd, at Akroydon, both in the north of England; as also Copley; and improved lodging-houses in Leeds, Huddersfield, and London. Some of them are already illustrated in our pages. The advantages of building societies, as illustrated in Halifax, Leeds, Birmingham, and London, are treated of with reference to the principle of self-help by working men. Of the philanthropic doings of Mr. Akroyd, of Halifax, in connexion with building societies, as a part of his plans, Mr. Hole says:—

"He originated a scheme, simple enough when stated, but capable of almost indefinite extension, and which in the hands of large or small employers of labour, or of benevolent men anxious to raise the status of the working man, or of the working classes themselves, might accomplish an object productive of the highest social benefit. The problem which Mr. Akroyd set himself to solve cannot be better stated than in his own words:—

'How a limited outlay of capital may materially assist in raising the general standard of workmen's houses in any locality to an extent far beyond the original capital employed.'

This problem Mr. Akroyd solved by availing himself of the advantages offered by an excellent building society in Halifax; or, rather, he supplemented them by an arrangement calculated very materially to increase the benefits which such societies are capable of conferring. His plan was this:—

'To purchase a suitable plot of land for a building site [Akroydon]; to obtain designs from an able architect for building blocks of dwellings, eight or ten to each; and to find parties who were willing to take up each successive block, forming themselves into a Building Association for that purpose, in connexion with the Halifax Permanent Benefit Building Society, which would advance three-fourths of the capital required.'

Mr. Akroyd bought a suitable plot of land, obtained designs not only excellent in a sanitary point of view, but also architecturally beautiful. He undertook to provide plans, to defray all expenses connected with the contracts and supervision, and to guarantee the fulfilment of the contract within the estimate.

These were liberal concessions; but a more important one still remains to be mentioned. Where the purchaser is of good character, but unable to advance the one-fourth of the purchase-money, the payment to the building society is spread over fifteen years, instead of twelve years: and Mr. Akroyd guarantees the first three years' subscriptions to the building society, after which his guarantee ceases, as the building society then possesses sufficient security against loss, in the mortgage of the property.

* * * * * * *

Mr. Akroyd suggests that under this system the munificent donation of 150,000*l.* by Mr. Peabody to improve the dwellings of the poor of London, if thus supplemented by benefit building societies to the extent of three-fourths of the value, might have been made the means of building four times the amount of houses, assuming that a sufficient number of working men could be found to take up the dwellings.

From his own experience he is convinced that,—

'If the attempt bring no profit, or even occasion pecuniary loss, in no other way can the same benefits be conferred upon working men at so slight a loss—benefits which entail no degradation and wound no self-respect, but, on the contrary, confer independence, whilst the achievement of that independence constitutes a *habit* of saving, most useful in after-life. A rich reward will accrue to the promoters in the contemplation of the comfort, happiness, and social improvement which they will have helped to provide for the industrious and most deserving portion of the community.'"

The plates which accompany the volume include a bird's-eye view of Akroydon as frontispiece, with elevations, plans, and details of the houses. Amongst the illustrations are also a bird's-eye view of Copley village, with elevation and plan of buildings; a bird's-eye view of West Hill Park, Halifax, with plans; cottages at Saltaire; model cottages at Leeds; Langbourne Buildings, erected for Mr. Waterlow; suburban dwellings for the labouring classes; &c.

Besides the several subjects to which we have referred, and various others in the body of the volume, there are appendices on the Familistery of Guise and the Cités Ouvrières of Mulhouse, with references to the *Builder*; a chapter on Leeds, transferred from the prize essay; and on several other cognate subjects.

Altogether this volume includes an excellent and comprehensive *résumé* of the subject of the homes of the working classes, although (and it is no discredit to the work to say so) it does not contain much matter that has not already been treated of in our own pages.

Miscellanea.

Hampstead, Highgate, and Charing Cross Railway.—The Bill for this line has been read a second time in the Commons. Mr. Hughes has threatened to oppose every metropolitan railway Bill till some general provision, either under an amended Lands Clauses Consolidation Act, or otherwise, be made for giving the occupiers of dwellings, without agreements, compensation for being ruthlessly turned out of house and home, as they now are, by railway companies.

Madresfield New Parish Church.—It is but a few years ago that the new and costly church of Madresfield was erected, and yet we now hear that it is to be forthwith destroyed and a new one erected some two or three hundred yards distant, and in the burial-ground, a faculty having been procured for that purpose. The new building had already exhibited signs of dilapidation, and the site on which it stood was damp and otherwise objectionable. The windows and other portions of the structure will be made available in the new church. Style, Decorated; architect, Mr. Preedy. The expense to be borne by the Beauchamp family.

The Penzance Public Buildings.—At the annual meeting of the shareholders, the directors in their report stated their regret that the works were behind time. The delay is mainly attributed to the difficulty of procuring dressed granite, the whole of which, however, the contractors, Messrs. Olver, believe will be ready by Lady-day. The architect, Mr. J. Matthews, stated that he believed both Messrs. Olver and Messrs. Freeman had done all they could to expedite the building. Messrs. Freeman had advanced wages, in some cases 20 per cent., while the building was in hand. Money for a large organ is being subscribed. One of Messrs. Olver's carpenters was killed the other day by slipping from a scaffolding while moving a plank. The footing was slippery, and the man stood with his heels to the edge of the scaffolding, and fell on the rafters below.

DRAINAGE.—The Royal Agricultural Society offers for competition, in each province of Ireland, a gold medal, or bronze medal with 10*l.*, to the landlord or occupier who shall have drained the largest quantity of land in the best manner—not less in any case than 25 acres—between the 31st of October in one year and the 31st of December in the following year. A challenge cup—General Hall's—value 50*l.*, is to be competed for by the winners of the provincial gold medals, and to become the property of whomever wins it three times.

SHARING WITH THE WORKMEN.—We are asked to mention that, at a meeting of the directors of Greening & Co. (Limited), held at Manchester, on the 12th inst., it was resolved to recommend and support, at the first ordinary meeting of shareholders, an arrangement to the effect that, whenever the net profits in any one half-year exceed 7½ per cent. upon the gross paid-up capital of the company, then for every additional 2½ per cent. dividend or bonus paid to the shareholders upon their capital, a dividend or bonus of 2½ per cent. shall be paid to every person employed by the company upon the amount of wages earned by him or her in the same half-year.

THE FEMALE SCHOOL OF ART, QUEEN'S-SQUARE. The formation of a life-class at this school seems to merit observation. A preliminary meeting has been held at the New Gallery. Mr. E. T. Parris, the well-known artist, addressed the meeting, and, in the course of his remarks, enlarged on the importance to students who have passed through the usual course in the school of continuing their studies in the higher branches of art by drawing and painting from the living draped figure. It appears that Mr. Parris has undertaken the guidance of the students, affording them the advantage as they proceed of instruction on sound principles, and of such a knowledge of anatomy as is necessary for the artist. The class is to commence on Monday, the 19th of February.

RENTING HOUSES INFESTED WITH BUGS.—In the Court of Queen's Bench, an action, Campbell *v.* Lord Wenlock, has been tried, in which the plaintiff claimed 500 guineas for the rent of a furnished house, No. 49, Eaton-place, taken by the defendant, but left as not habitable. From the evidence it appeared that bugs (not a few) were found in several of the rooms, and Mr. H. Tiffin, the noted bug-killer, who called himself a "professor of natural philosophy," and said he had studied the subject for thirty-four years, and belonged to an establishment of 150 years' standing, gave evidence of a general kind as to the natural history and habits of the insect. The judge, however, did not seem to think the evidence sufficient to show that the house was so much infested as to be uninhabitable, and said that if the state of things could be easily remedied, the tenant ought to do it. The jury accordingly returned a verdict for the plaintiff.

TELEGRAPHIC REFORM. — A petition on this subject is to be presented to Parliament by Mr. M'Laren, one of the members for Edinburgh. The petitioners "complain not only of the high rates charged by the existing companies for the transmission of messages, of frequent and vexatious delays in the delivery, and of their inaccurate rendering, but also that many important towns, and even whole districts, are unsupplied with the means of telegraphic communication." They suggest that "the existing companies might be amalgamated under the sanction of an Act of Parliament, which might fix the maximum rate or rates of dividend and a moderate maximum tariff. Another means of effecting improvement would be the passing of a general Act, authorising, under proper regulations for the public interest, the erection of telegraphic posts along any public way throughout the United Kingdom. A third mode would be by the Government assuming the management of telegraphic communication, and extending the lines; so that they might at least include all the more important towns and villages,—such, for example, as have Money-order Offices. The successful result of the reduction of the rates of postage, and the close analogy between the post-office and telegraphic system, justify the expectation that the adoption of a uniform tariff—say of 6d. for 20 words—would, within a few years, leave a surplus revenue, while it would be also a great boon to the community." The petitioners "earnestly desire that a royal commission should be appointed to inquire into the present system of telegraphic communication, with a view to its improvement."

THE BELFAST ARCHITECTURAL AND ENGINEERING ASSOCIATION.—At the meeting of this Association, held on the 2nd inst., Mr. Macassey read a paper on "Subaqueous Foundations," which elicited a discussion.

LIFTING A BUILDING OF FIVE STORIES. — In Chicago a building 80 ft. by 160 ft., five stories high, and weighing 27,000 tons, has recently been raised 2 ft. from its original foundations. It was done by means of 1,580 screws placed underneath the building and turned simultaneously. The work occupied three days.

PROPOSED MUSEUMS AT SOUTH KENSINGTON.—The Chancellor of the Exchequer has stated that the Government will shortly propose two votes for the disposal in part of the site at South Kensington,—one for the erection of a building for the reception of the collection from the British Museum, and the other for the erection of a building for the reception of patent collections.

MEMORIAL TO GUSTAVUS BROOKE, THE TRAGEDIAN.—It is proposed to erect a light-house on a part of the coast to be afterwards determined, and also a building in connexion with the Royal Dramatic College, to the memory of the late Mr. G. V. Brooke, who was drowned in the *London* on his way to Melbourne. A committee have been appointed, who number among them, Mr. J. L. Toole, Mr. Paul Bedford, and Mr. Anson.

DESTRUCTION OF ST. MABE CHURCH BY LIGHTNING.—The parish church of St. Mabe, near Falmouth, which dates from 1276, was struck by lightning on Saturday morning, and has received such severe damage, it is stated, as to be beyond repair. The square tower of granite blocks was shaken to its base, one of the pinnacles thrown down, and a window forced out. The roof is damaged, the walls and foundation greatly shaken, the south-west angle of the fabric protruding considerably, while every window save one has been destroyed or greatly injured.

GAS.—The Stafford Gas Company have declared a dividend of 10 per cent. on their old shares, and 8 per cent. on new, although they reduced their price in October last to 4s. 2d. per 1,000 cubic feet.——The Bury St. Edmund's Gas Company reduced the price of their gas in July last, from 5s. 10d. to 5s., and have now declared a dividend of 10 per cent. on old shares, and 7½ per cent. on new, besides a further sum of 2s. per share on the old shares by way of arrears.——The Redhill Gas Company have declared a dividend of 7 per cent., free of income-tax. The works require to be enlarged in consequence of the steadily increasing consumption.

FAMILY OF THE LATE JOHN BRITTON.—The death, on the 11th instant, at Hope Cottage, Windmill-road, Croydon, Surrey, of Mr. Richard Britton, brother of our late much-esteemed friend, John Britton, is announced. The *Devizes Gazette*, says,—Born at Kington St. Michael, Wilts, in 1784, the deceased gentleman, like the author of the "Beauties of Wiltshire," "Cathedral Antiquities," &c., entered the battle of life at an early age; and by dint of industry and perseverance, eventually achieved a good position as a gold and silver smith. For many years he lived in retirement, and was much respected; and by his death the line of generation is closed in which figured John Britton, whose antiquarian works obtained a wide fame, and whose memory is perpetuated by a memorial window erected in Salisbury Cathedral.

JERUSALEM.—At the last weekly meeting of the Royal Institution, a lecture was delivered by Colonel Sir Henry James, "On the Ordnance Survey of Jerusalem," on which occasion his Royal Highness Prince Arthur was in the chair. A contour map of Jerusalem and of the immediate neighbourhood, and sections and plans showing the geological character of Judea and the course of the water supply in former times, were exhibited to illustrate the various points touched on. A great part of the time was occupied with exhibiting, by the aid of the electric lamp, a number of interesting photographs taken by Captain Wilson. Several views of the dome of the mosque built over the cave supposed to have been the tomb of our Saviour were shown, also photographs of different parts of the walls of the city, for the purpose of proving by the similarity of the character of the architecture that the structures were erected at the same period. Some of the stones are upwards of 20 ft. long.

TYNTESFIELD, NEAR BRISTOL.—In our account of this building, we said the floors are of "parquetry." We are asked to add that they are of "Arrowsmith's solid parquet flooring."

SUBWAYS AND THE COMPANIES.—Mr. J. Locke has presented a petition to the House of Commons from the vestry of St. George-the-Martyr, Southwark, praying the House to pass an Act to render it illegal for public companies and others to break up streets in which subways have been or shall be constructed for the purpose of laying gas or water-pipes or telegraph wires.

FIRE AT HOLY TRINITY CHURCH, PADDINGTON.—On Sunday afternoon, the Rev. Mr. Donne was officiating in this church, when cries arose that the roof of the church was on fire. This proving to be correct, messengers were despatched for the parish fire-engines, which were speedily on the spot, followed soon afterwards by engines from the Baker and Regent-street stations. With considerable difficulty the fire was extinguished, and then it was discovered that about 14 ft. of the roof, immediately over the chancel, was entirely consumed; and that the fire originated (of course) through the defective state of the flue, connected with the stove which warms the interior of the church.

PROFESSOR TYNDALL ON HEAT.—At the Royal Institution, Professor Tyndall has been delivering a course of lectures on "Heat" to large audiences. He states that as heat is simply the vibration of the ultimate particles of all bodies, the less that vibration the greater the sensation of cold. Ice contains much heat, and will liquify and boil solid carbonic acid. There is no evidence that any substance on this earth has ever been deprived of all its heat, but the point at which that result is obtained is believed to be 273 degrees below the zero of the Centigrade scale. The Professor charged the lecture-room largely with moisture, and in the course of his experiments formed clouds, snow, ice, and hoar frost. By artificial means, he imitated the geysers of Iceland, a great flood of hot water and steam shooting up through a hole in the middle of a large iron basin. Finally, he reproduced, on a small scale, the Strokr, an irritable boiling spring, which exerts its powers whenever lumps of dirt or large stones are dropped into its mouth.

CHINESE LABOURERS.—The scaffolding for the purpose of covering in the court is proceeding rapidly, the chief supports being now completed, and the upper part in process of being covered with light bamboos placed about 2 ft. apart. These act as supports for the matting, which is all double, having lining formed of the millet stalk. Some of these sheets of matting are fitted on bamboo frames, which are not intended to be moved; while others are so arranged that by halliards they can be pulled open or shut like window-blinds, thus enabling the court to be covered or uncovered according to temperature, rain, or other circumstances. The skill and ingenuity which the men display is remarkable. They move about on the top of this work, some 40 ft. from the ground, with the agility of monkeys, and run up and down the straight poles like squirrels, using only their hands and the soles of their feet. A leg of mutton on the top of a greasy pole would stand a poor chance of remaining long an object of competition amongst Pekin scaffold-constructors. The framework is secured only by ropes and twine, and great economy is exercised in picking up and removing the portions that are in excess, several little boys going round in the evening before the men leave, and picking up all the scraps that have been cut off and thrown down. The Chinese workmen display great expertness in throwing materials from one to the other to a considerable height. I noticed this to-day amongst the scaffold men, and it recalled to my memory having seen one of the masons' labourers take a spadeful of mortar, and throw it, spade and all, to a man on the roof of a house, who caught it without dislodging a particle of the mortar. The paperhangers, also, are very expert in throwing up sheets of paper, with one side covered with paste, ready for being put on the wall. Their paper for room purposes is very good, the "satin pattern" being that most commonly used. Paper of this kind is not kept in rolls, as with us, but in squares of about 12 in. by 10 in. One man stands by a table and applies the paste, and then adroitly throws the sheet up to another one, who fixes it on the wall.—*Pekin and the Pekinese. By D. F. Rennie, M.D.*

Chapel Royal, Savoy.—We were accidentally wrongly informed on the spot as to the pulpit. It was executed by Mr. A. Robinson, from drawings by Mr. Smirke.

Fountains in Bordeaux.—Four monumental fountains are about to be erected in Bordeaux, at a cost of 120,000 francs (4,800*l.*). Two of these, executed in marble and bronze, will be from designs by the late M. Visconti.

Military Lunatic Asylum, Netley Hospital. At the meeting of contractors held at the War Office, Pall-Mall, last week, Messrs. Waghorn & Richardson were elected as the surveyors to prepare the quantities in conjunction with the Government surveyor.

Artisans' and Labourers' Dwellings.—Mr. McCullagh Torrens has obtained leave to bring in a Bill to provide better dwellings for labourers. It will propose that the Treasury shall lend money for the purpose at 3½ per cent., and allow thirty years for repayment.

Royal Scottish Academy's Exhibition.—The annual exhibition of the Royal Scottish Academy was opened at Edinburgh on Saturday last. The catalogue embraces 923 works of art. The exhibition as a whole is fully up to the usual standard.

Liverpool Selling its Sewage.—At a meeting of the Liverpool town council lately, a concession, for twenty-five years, of the town sewage was granted to a public company. This company are to undertake, at their own cost, all the sewage arrangements of the town. For the first ten years, the *concessionnaires* will pay nothing, but after that all profits above 10 per cent. are to go to the Corporation.

The late Lord Palmerston.—The Chancellor of the Exchequer is to move on this Thursday that the House consider a humble address, praying her Majesty's consent to the erection of a monument, in St. Peter's Collegiate Church, Westminster, to the late Right Hon. Viscount Palmerston, with an inscription setting forth the public esteem for, and attachment to, the noble lord, and their sense of the loss which the country has sustained by his death.

Rotherham.—Preliminary steps are being taken for providing a new market-hall for this town.——A movement has also been set on foot to provide a people's hall for Rotherham and Masborough. A company, with a capital of 3,000*l.*, in 1*l.* shares, is being got up for the purpose.——Complaints of the bad quality of the Rotherham gas are rife, and an opposition company is threatened. The present price is 4s. per 1,000 cubic feet. This is thought too much for gas so near to coal-pits as the locality is.

Exhibition of Arts and Manufactures in Manchester.—On Monday, the 26th instant, the Exhibition of the Manchester District Art Workmen's Association at the Royal Institution will be opened, when an inaugural address will be delivered in the Lecture Theatre by Lord Houghton, under the presidency of Sir James P. Kay Shuttleworth. We are informed that the articles exhibited are of a very interesting character, manifesting an improvement in the artistic taste and ingenuity of the working classes since the Exhibition of last year. The objects of the Exhibition are stated to be "to foster and encourage the available talent and inventive skill of the district, the wise employment of spare hours, and the general elevation of the artisan." It is to be hoped that an aim so desirable may be attained.

The City Traffic.—In the Court of Common Council, Mr. M'George, at last meeting, brought forward a series of resolutions having reference to the terribly overcrowded state of the City, and the danger and inconvenience thereby occasioned to the public; and he proposed that the subject should be referred to the Improvement Committee, for them to consider whether it would not be desirable to enter upon a comprehensive plan of improvement in the widening and formation of streets; also to consider whether it would not be expedient to apply to Parliament for power to levy a rate to carry out improvements, many of which were now so urgently required by the extension of our commerce and for the public safety; and also to consider as to the various public works now in progress and those already authorised by Parliament, the number of houses removed or to be removed, the number of streets affected, and the length of time allowed for their completion, and to report to the Court forthwith. The resolutions were unanimously agreed to.

Mr. Thomas Savin.—The suspension was announced last week of Mr. Thomas Savin, the railway contractor, well known for his extensive undertakings. The liabilities are estimated at 2,000,000*l.*, and the nominal assets at 3,000,000*l.*

Fine Art Exhibition at the Hague.—An exhibition of works of fine art will take place at the Hague from the 4th of June next to the 15th of July. Three gold medals will be awarded amongst the foreign contributors, and four to native artists. The prices of works intended for sale are to be sent.

Bolsover.—We are told that it is in contemplation to build a mechanics' hall here, which will be of advantage to this ancient little place. The Wesleyans are building a Gothic chapel in the centre of the village, to seat near upon 400 people, and the Primitive Methodists have also just erected a commodious chapel in Cotton-street to seat over 200. It is anticipated that at no distant period Bolsover will become a thriving little town. It certainly needed improvement when we were last in it.

The Loan of Works of Art.—A Bill has been printed and brought into the House of Lords by Lord Stanley of Alderley, providing that the owner for the time being of any work of art may, without incurring any responsibility for any consequent loss or injury, lend such work to the Lord President for the time being of her Majesty's Privy Council, for any period not exceeding twelve months, to be exhibited to the public by him or by his direction, at the proposed exhibitions of national portraits, and the Universal Exhibition of Paris next year.

Mr. O'Neil's Lecture at the Academy.—On Monday, the 12th, there was a large gathering in the great room of the Academy, to hear the first of a series of lectures on art, which Mr. O'Neil has been appointed to deliver. Velasquez, Tintoretto, Titian, and the like, are the men whom Mr. O'Neil would hold up to the admiration and the emulation of the student; while, at the same time, he would never allow him to forget his own individuality, or to trust to other eyes that which, to be helpful and blissful, ought to be seen by his own.

Whitchurch.—The Working Men's Hall, the gift of Mr. A. Worthington, has been formally opened. It is in the Elizabethan style, and contains a lecture-room, which will seat from 200 to 250 persons; committee and class rooms, reading-room, and smoke-room, lavatory, cooking kitchen, &c., and attached to it is ground for out-door games. The cost of the building, approaches, playground, &c., will be about 2,000*l.* It has been about twelve months in the building. Mr. Latham, of Nantwich, was the architect; and Mr. Jenkin, of Whitchurch, the builder.

Launch of the "Ross Winans" Cigar Ship.—This remarkable structure has been launched from the yard of Mr. Hepworth, at Cubitt Town. It has been built for Messrs. Winans, from designs for which they are the patentees, being the fourth upon the same principle. There is accommodation on board for thirty passengers. The idea of her inventors is that such vessels would be of the utmost value for carrying mails and passengers; would travel with great speed and steadiness; and that, were such vessels employed, we might have daily mails to and from America.

A Suburban Village and General Dwelling Company, Limited.—A new company has been started by the Rev. Jabez Burns, D.D., Dr. Hardwicke, deputy coroner for central Middlesex, Mr. Linnæus Banks, and other gentlemen, for the purpose of providing new dwellings for various classes, but especially the working-classes of the metropolis, on suburban sites. The capital will be 1,000,000*l.* in 100,000 shares of 10*l.* each, with calls limited to 1*l.* in three months. The company propose to purchase estates (and they are said to have already the option of purchasing several) on which to erect complete suburban villages, with due attention to sanitary laws; to the separation yet association of different classes in one village community; and to facilities for every one to become a purchaser of his own dwelling, on various scales of payment, in the form of rent. The company are said to have the refusal of one estate capable of yielding 70,000,000 of bricks, with actual advantage to the property as a site for their building purposes. The architects of the company are Messrs. Banks & Barry, and the surveyors Messrs. Leifchild & Cheffins. The temporary offices are at 4, Queen-street-place, Cannon-street West, E.C.

TENDERS

For residence, at Stoneygate, Leicester, for Mr. H. Brown. Mr. W. S. Burton, architect:—

The Building.

Hextall	£426	3	6
Wright	410	0	0
Ratcliffe	392	0	0
Lewitt	389	15	0
Johnson	386	14	0
Hutchinson	380	0	0
Beaver	369	0	0
Alphin	365	10	6
Winkles (accepted)	355	0	0

Plumbing, Glazing, &c.

Whitmore (accepted)	37	15	0

Painting.

Kellett (accepted)	13	17	6

Accepted for two houses, Humberstone-road, Leicester, for Mr. R. Williamson. Mr. W. S. Burton, architect:—

Newman (Brickwork)	£450	0	0
Harford, Brothers (Masonry)	38	14	10
Wormell (Slating)	44	0	0
Nichols (Plastering)	76	0	0
Alphin (Carpentry)	370	0	0
Hill (Plumbing and Glazing)	68	10	0

For Quelfurling Farm House, near Tetbury, Gloucestershire, for the Right Hon. Lady Cowper, exclusive of building stone and carriage. Mr. T. S. Lansdown, architect:—

Weeks	£1,240	10	0
Restall	1,057	12	0
Bridges	1,032	0	0
Cordy	1,001	0	0
Barrett	958	0	0
Phillips	898	0	0
Liddiote (accepted)	894	0	0

For alterations to three cottages, Prospect-place, Swindon, for Mr. E. Valless. Mr. T. S. Lansdown, architect:—

Barrett	£398	15	0
Phillips (accepted)	388	0	0

For alterations to Benthorn House, near Purton, for Mr. J. W. Sadler, exclusive of building stone, and cartage, &c. Mr. T. S. Lansdown, architect:—

Brown	£389	10	0
Frampton	360	0	0
Gray	345	0	0
Barrett	342	5	0

For restoring and reseating St. John's at Sepulchre Church, Norwich. Mr. W. Mear, architect:—

Pegg	£373	0	0
Wright (accepted)	368	0	0

Accepted for alterations and additions to Prospect House, Filey, for Mr. W. Shaw, Malton. Mr. John Gibson, architect:—

For Bricklayer's, Mason's, Plasterer's, and Slater's Work.

Sawdon	£83	10	0

For Carpenter and Joiner's Work.

Huxby	£89	0	0

For Plumber's, Glazier's, and Painter's Work.

Philbskirk	£27	10	0

For Smith and Iron Work.

Bulmer	£13	7	6

For alterations to Nos. 8 and 9, John-street, Berkeley-square. Mr. J. T. Christopher, architect. Quantities not supplied:—

Clarke & Co.	£1,683	0	0
Cowland	1,678	0	0
Arnold	1,664	0	0

For new warehouse, Pudding-lane, City. Mr. R. W Edis, architect:—

Manley & Rogers	£1,894	0	0
Sharpington & Cole	1,697	0	0
Browne & Robinson	1,410	0	0
King & Sons	1,340	0	0
Conder	1,227	0	0

For the restoration of Billinghurst Church, Sussex. Mr. R. W. Edis, architect:—

Wadey & Sons (including new seats, &c.), accepted	£1,302	0	0

For alterations at the Royal Clarence Hotel, Exeter, for Mr. W. Birkett. Mr. W. Wills, architect:—

Luscomb	£304	0	0
Kenshole	298	0	0
White	294	15	0
Stafford (accepted)	287	10	0

For rebuilding part of a house, No. 16, Princes-street Mile-end New Town, on the Whitechapel Charity Estates. Mr. G. H. Simmonds, architect:—

Read & Son	£235	0	0
Cuthwaite	225	0	0
Woods, Brothers	214	0	0
Langmead	190	0	0
Tolley	187	0	0

TO CORRESPONDENTS.

Deflexion of Beams (in type) — Pyramid Geometry (ditto) — R. M. E.—M. O. T.—J. H.—F. T. M. —P.—F. A. N.—J. A.—Messrs. E.—J. S.—T. L. J.—J. R.—W. W.—E. O. G.—H. D. M.—S. D. W.—J. W. H. E. S.—T. S. L.—T. R.—W. & R. — E. W. T. —T. T.—C. N.—F. R.—H. W. — Mr. P.— T. W. —J. D. P. — C. R. C.—F. W.—A. R.—T. F.—W. S.—Old Rusty.—L. R. N.—Earth Closets (we cannot give addresses) —B. P. C. (plan shall be engraved. Send some further particulars).—T. E. (the contractor has no right to retain the drawings).—X. Y. Z. (half a year's rent is not an unusual charge).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

Note.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

The Builder.

VOL. XXIV.—No. 1204.

A Paper of Paragraphs.



KENSINGTON and Brompton will be in a bustle at the beginning of April, when the National Portrait Exhibition will be opened; and this bustle will scarcely have subsided when it will be renewed by the International Horticultural Show; to say nothing of a possible Royal ceremony in connexion with the Central Hall of Arts and Sciences proposed to be erected on the plot of land, belonging to the Exhibition Commissioners, between the conservatory in the Royal Horticultural Gardens and the Kensington High-road, and nearly opposite to the Prince Consort Memorial, now in slow progress. For the purchase of stalls and boxes in the Hall, the sum of 47,300*l.* has been already subscribed, the price for a box in the first tier in perpetuity being 1,000*l.*, payable by instalments; for one in the second tier, 500*l.*; and for a stall in the amphitheatre, 100*l.* The Hall,—which is to be available for, amongst other purposes connected with science and art, congresses (both national and international), performances of music, *conversazioni*, and exhibitions of works of art and industry,—consists, according to the published plan, of an arena, an amphitheatre, and two tiers of boxes, with a spacious corridor above these, affording room for the exhibition of pictures and sculpture. The building is an oval in plan, about 270 ft. one way and 215 ft. the other; is to accommodate 5,600 persons; and is estimated to cost 200,000*l.*, exclusive of the value of the land, which will be granted by the Commissioners for 999 years, at a merely nominal rent. The Commissioners will also guarantee a considerable part of the money required for the building, provided the public subscribe the remainder needed, say 150,000*l.*, by May, 1867. If we understand rightly, the design adopted by the promoters of the undertaking, was made by the late Captain Fowke. They will now, doubtless, call in for their aid the best professional advice that can be obtained: at any rate, they will be unwise if they do not.

The Portrait Exhibition is beginning to get into shape. It will consist of about 1,000 pictures,—there is not room for more in the remnant of the 1862 Exhibition Building (adjoining the south side of the Horticultural Gardens), in which they are being hung,—and will illustrate the notabilities of Great Britain, up to the end of the reign of King James II.; in other words, the year 1688. Of its completeness, so far as it goes, or its incompleteness, the time has not come to speak. We are quite satisfied, however, that whether looked at in the aspect of art, or in the aspect of history, it will be found full of interest, pleasure, and instruction. We may hope that hints in our own pages have not been altogether useless.

Another good thing is contemplated at Brompton, a thing calculated to be of much advantage. The Lords of the Committee of Council on Education have decided on producing a Universal Catalogue of all books from the invention of printing, relating to or calculated to aid the study of the fine arts. They have invited the co-operation of a number of gentlemen, as a Committee of Advice, and Mr. J. H. Pollen is to act as secretary. The idea appears to have grown out of the necessity of forming such a catalogue of works for the Art Library in the South Kensington Museum, as would not be made useless by the almost daily increase of this most valuable collection, to the importance and accessibility of which we have before drawn attention. The new catalogue will be a universal record of printed art-books known to exist up to the period of its completion, wherever they may happen to be at the time. A reader would thus find a clue, not only to the works he was looking for in the actual collections of the library, but to other works bearing on his course of studies which had not been obtained, but which had been ascertained to form part of other libraries, whether public or not, either in our own or in any foreign country. All names of rare books would have a reference given to the libraries in which they are to be found. By this means also the deficiencies of the Art Library would be demonstrated, and provision made for its ultimate completion. It can scarcely be questioned that such a catalogue would prove a valuable acquisition to art literature throughout the world, and would have such an international interest as to justify her Majesty's Government in inviting the co-operation of other Governments towards its accomplishment. We shall look forward to its progress with the greatest interest. Several knotty questions will have to be settled before starting: as, for example, to what classes of works should the collection be limited? What kind of works, not strictly art works, are necessary to an Art Library intended for general use? How shall it be decided, if works containing only scattered notices or information are to be admitted, which of them is or is not admissible? And, larger question still, where would such a catalogue stop? With the aid they have in view, right solutions will doubtless be arrived at. Where there is no difficulty to be overcome, there is no credit to be gained.

As a sum of money is set down in the Civil Service Estimates for the Museum proposed to be erected on the site of the 1862 Exhibition Building, it may be concluded that operations will soon be commenced there. As the architect to whom the first premium in this case was awarded is unhappily dead, it will be but common justice to place the matter in the hands of the gainer of the second premium, Professor Kerr; the more so as the superiority of his plan appears to have been strongly advocated by the officers of the Museum even during the lifetime of the more successful competitor.

The same document,—the Civil Service Estimates,—shows that although it is premature to state that the Chancellor of the Exchequer intends to restore the Westminster Chapter-house, he certainly desires to do so, and proposes to ask the House for a first grant towards it. 7,000*l.* is the sum named for preliminary works. The woodwork now lumbering up the interior should at once be cleared away, so that we may see what is really left of the old structure and its decorations. The destroyed stonework should be renewed, — such as the roof and in the windows;—and we should then be in a position to discuss as to how much or how little of modern decoration should be permitted.

The resolution of the House of Commons, the other evening, praying Her Majesty to permit the erection of a monument in Westminster Abbey to the memory of the late Lord Palmerston, brought from Mr. Beresford Hope a very proper expression of demand that the monument should be worthy of the statesman and of the pile in which it is to stand. We sincerely wish so too. Sir John Pakington alluded to the obvious unseemly delay, often commented on, in the erection in St. Paul's Cathedral of the monument to the Duke of Wellington, ordered by Parliament a dozen years ago. What is Mr. Stevens about? Some explanation is due to the public and to himself. He showed the possession of high qualities and induced strong hopes, but years are passing away without the expected fruition. Our sculptors generally appear slipping out of position. They should wake up. Her Majesty has already, in reply to the House, commanded the erection of a monument to Palmerston.

We mentioned last week the names of the architects who had been invited to compete for the honour and profit of erecting the proposed new Law Courts. We may add, that the outlay they are to contemplate in preparing designs is 850,000*l.* It is to be hoped that we shall have something good for the money: not architecture of the moment, but architecture for any time, architecture of principles. As is written on the frontispiece in Lebrun's "Théorie de l'Architecture Grecque et Romaine,"—"*En Architecture, lorsque le Principe est absent, les produits sont constamment ruineux et défectueux.*"

The following six architects have been nominated to submit designs in competition, as well for the enlargement and re-arrangement of the present National Gallery as for an entirely new building:—Messrs. Brodrick, Banks & Barry, Pennethorne, Scott, Street, and M. D. Wyatt. The designs are to be submitted in October next.

The conditions offered to competitors, in both cases, are not thought to be quite satisfactory, we hear, but will doubtless be made so on representation. Both lists should be enlarged, so as at any rate to include architects who have gained honours in previous Government competitions.

Will the Royal Academy go to Burlington House after all, and build for modern art a proper palace? They do not know themselves; how, therefore, should we? They do not believe that the Government are in earnest in the matter, and naturally enough, therefore, they refuse to discuss what may never need solution.

Concerning Burlington House, we have had more than one suggestion that great advantage would be gained by the removal of the railings in front of it, in Piccadilly, and we would gladly aid in bringing this about. Some few feet of the railing have already been taken away for a drinking-fountain, and we can see no sound reason why the remaining part of this iron-work should not be taken down. Pedestrians would be greatly benefited; the present footway being inconveniently insufficient. We have little doubt that Mr. Cowper, whose disposition towards such improvements is well known, will give the subject candid consideration. There will be no need of "railing" to get his attention.

Mr. Cowper very properly and vigorously defended the Metropolitan Board of Works in the House of Commons on Monday night when they were attacked, through Mr. Tite, for asking leave to postpone the Thames Embankment (Approaches) Bill until the 18th of this month, with the view of obviating the necessity of touching Northumberland House. We should grieve to lose Northumberland House notwithstanding the sneers of Mr. Locke, who could see nothing about it but a lion with a stiff tail. What led this gentleman to abuse Mr. Tite so coarsely as he did is not so obvious as the aforesaid tail. It was certainly not Mr. Tite's tale, for that was perfectly simple. He stood there to communicate the request of the Metropolitan Board, and to give clearly and pithily their very good

reasons for making it. A fitting road from Charing Cross down to the Embankment may surely be formed without destroying the only one of the old Strand houses remaining. What the Board of Works intend to do with the fine river frontage between Northumberland House and the Savoy Chapel may very properly be looked after.

The President of the Institute of Architects, who also had a spar with the past president, said an architect employed by the Board of Works was to erect upon the site "a hideous crescent." There is probably some little misunderstanding about this: the Board of Works are surely not about to become builders on their own account. It is true, they might, nevertheless, dictate the elevations; but they would surely not prevent the adoption of anything better than their own *datum* scheme if it were proposed to them.

At the Institute, by the way, the proposal of the Council to recommend for the second time, so soon after the first, Mr. Butterfield for the Royal Gold Medal, has been received with disfavour;—and at the last meeting Mr. Digby Wyatt was proposed in opposition by a memorial from Mr. Owen Jones. The election will take place next Monday evening, and will be sharply contested. The members of the Institute must give consideration to the course to be hereafter adopted in the appropriation of the medal, or it will become difficult to keep the honour at the right standard.

Talking of medals, we may note that the Council of the Art-Union of London have determined on the production of medals in commemoration of Gibson and Sir Richard Westmacott. The first will be confided to Mr. Joseph Wyon; the second, to Mr. Leonard Wyon; while Mr. George Adams has in hand for them a medal of Dyce. With the note that there has been a rush of subscribers, as we expected, for copies of "The Story of the Norman Conquest," we will end our paper of paragraphs.

COMPENSATION TO OUSTED OCCUPIERS.

A NEW and genial member of the House of Commons has already done good service on behalf of a class who have been sore sufferers from recent legislation, and for whom we have often spoken. If we count up the number of the members who represent the various metropolitan districts, and bear in mind that the great bulk of their constituencies consists of persons engaged in trade, it may seem absurd to say that the shop-keepers of London have been unrepresented in the House of Commons. Yet their most important interests have been so entirely neglected hitherto, that Parliamentary powers have been taken, again and again, empowering the recipients to destroy long-established and thriving businesses without redress and without compensation.

It will be well remembered by those who took interest in the first introduction of the railway system into this country, that the opposition of the landowners was one of the greatest difficulties with which the engineer had to contend. Not only did the great territorial magnates compel him to keep at a respectful distance from their parks and ornamental property, but such prices and such compensation were demanded at every step as to make a very considerable item in the cost per mile of the new roads. The towns, indeed, in most instances, succeeded in keeping the new accommodation offered to their traffic at bay, and termini were fixed in suburbs to the great inconvenience of the mass of travellers.

With the growth of a generation who have heard the steam-whistle in their cradles, the need of a more rational mode of determining the centres of traffic has become apparent, and large central stations are everywhere superseding the original inconvenient localities. Nowhere has this necessity for better accommodation been more felt than in the metropolis, and nowhere, in consequence, have so many schemes, more or less to suit the public convenience, been set on foot. London is gradually becoming pierced in every direction; and the most novel means of transport, which has reduced the enormous cost of purchasing a site by invading the dominions of the rats, affords such an example of punctuality in its trains, and of comfort and even luxury in its carriages, as very much to make amends for the discomfort incident to its level.

In the exercise of their powers for the purchase of land, the metropolitan railway companies appear for the most part to have been actuated by a wise desire to avoid litigation. But while the owners of metropolitan property have been thus fairly dealt by, the case has been otherwise with reference to the occupiers. Premises occupied by the proprietors of long-established businesses have been bought and destroyed, and the occupier, to whom the position was everything, has been left to seek elsewhere for accommodation, or, in other words, to begin the world again, without any compensation for so great an injury.

It may not be in many instances that this has occurred, but the case of one may be the case of any, and there is not a retail tradesman of large business in London who is not deeply interested in preventing such an injustice. It was on this ground that Mr. Hughes opposed the second reading of a Metropolitan Railway Bill, and received, as the condition of withdrawing his opposition, the pledge of the insertion of a clause to provide for compensation in such cases. The attention of members and of those who return members, cannot be too scrupulously directed to the passage of this and of similar measures.

In a constitution of ancient growth, like our own, there may and must exist many anomalies, and many imperfections. Nor is it the habit of the English people to trouble themselves overmuch about that which may be theoretically imperfect, so long as it causes little practical inconvenience. Those who have given much attention to the subject are best aware how little the character of a representative assembly is affected by the form of the machinery that returns its members, and how much more a body, like the House of Commons, reflects the tone and the temper of the times than it does that of any individual constituencies. But chief among those time-honoured anomalies at which our children will wonder, is that of private legislation,—the barbarous, haphazard-manner in which laws affecting the whole empire are patched together, piecemeal, by individual members of both Houses of Parliament. It is generally admitted that hardly any Act of Parliament can be fully understood in all its bearings, even by the legal profession, until it has undergone the ordeal of the law courts, and until the judges have declared what were the intentions of the Legislature, and thus supplemented the crazy working of committees on Bills.

In such a state of legislative anarchy, the patient, careful watch of members who fear the result of hasty legislation, is of the utmost value. The respectability of representative institutions, and the immediate welfare of the country, are alike impaired when an interested or an ill-considered scheme is foisted through Parliament, or bungled and patched in committee. The best political augury will be drawn from indications that members of Parliament are aware that reform, like charity, should begin at home.

ATTRACTIVE HOMES.

IT is only in the realms of fiction that we find very limited means habitually associated with attractive homes. In that bright land, however, it appears that poverty is a very hotbed for the rapid growth of a perception of the superior value of beauty of form and colour to that of costliness of material. No sooner does the lovely daughter of a banker, or speculative merchant, find that her parent's means have vanished, than she sets herself to beautify the humble cottage to which they are obliged to retreat, in the second volume of the novel in which her vicissitudes are related. The charms of the fine town mansion, a luxurious country-house, with equipages, plate, pictures, cabinets, velvet-pile carpets, damask hangings, and other household "effects," as the auctioneers have it, appear as nought compared to those gradually produced in the new home under the slight fingers of its mistress. Indeed, after considering the taste she displays, and the bewitching results she effects with but the expenditure of a few pence or shillings, as the case may be, we cannot wonder that the rich lover, whom she has magnanimously released from his engagement when she first hears of the alteration in her father's fortunes, admires her more than ever when he at last succeeds in finding the retreat to which she has studiously withheld all clue. If the heroine be already a wife, we find her, when suddenly deprived of the large income allotted her in the opening of the story, if possible, still more tenderly solicitous to make the new poor home attractive. We are led on, in fact, to feel that it is a prettier place and more desirable abode than the superbly furnished residence in which her lot and that of her husband were first cast. And when, at the close of the third volume, the exigencies of fiction require that their former wealth should accrue to them, it seems almost a harder fate to be reinstated in the favour of Fortune than it was to be deserted by that fickle lady. We have read of nieces and also of granddaughters effecting the same fairy-like beautifulness in the poor homes of the relatives with whom their lives were associated; therefore it is clear that it is not an exaltation of sentiment derived only from very exceptional circumstances that is alone capable of these costless successes in decoration. It is a recognised fact, in fiction, that a home need be neither ugly, squalid, nor gloomy, because the owner of it has a small income. In that fanciful kingdom price forms no component part of beauty; and the most consoling and gratifying results are effected, with the most trifling expenditure, by the simple unison of the heart, brain, and industry of the heroine.

What are the means at the disposal of these imaginary ladies? We glean from the narratives of their adventures that they have availed themselves principally of elegant forms, harmonious colouring, and orderly arrangement. To the scanty furniture collected, with these requisites in view, we generally find added some simple yet elegant home-made upholstery, a few drawings or prints, a musical instrument (the choice arbitrarily lying between a harp and a guitar), and a vase of fresh flowers. We note, too, that window decoration is frequently introduced, either by means of climbing plants trellised against the external walls, the leaves and loose sprays of which invariably patter against the panes, or of a few richly-coloured flowering-plants upon the window sills. The latter, by the way, are not unfrequently the means by which lovers trace out the hiding-places of their impoverished mistresses: we can call to mind at least three instances in which the particular selection of flowers cultivated in the window-sill has led to the identification and subsequent happiness of their owners. Nor is it the parlour only that is so pretty. Fiction delights in kitchens. The spotless hearth, with the favourite cat basking in the firelight; the flickering glow reflected in the array of pots and pans, all polished as so many helmets might have been in days of yore; the three-tiered dresser laden with rows of plates and lines of cups and jugs; the well-scoured table; the eight-day clock in the corner in its grave brown case, are pointed out, by those unveiling such sanctuaries, with the minuteness with which the possession of a priceless Flemish interior by a *grand-maître* would call attention to its details. Here order and cleanliness are the presiding genii. If the forms of the various metal vessels or the colours or designs of the ware displayed on the dresser would make any appreciable difference in the aspect of the picture, fiction-painters have not found out the secret. We are shown a ruddy glow, a clean floor, and an orderly arrangement of culinary vessels; and we accept the word-sketch as intensely suggestive of cosy comfort.

We are going to ask why these fascinating facilities for making the best of everything need belong only to fiction? Why can we not transfer to real life this power of making humble homes attractive? Of course something must be allowed for the previous cultivation of the dexterous decorators. But granting this, why should we agree to a general acquiescence in the belief that a house must be dismal and dowdy upon which no large outlay can be made, and that all charm and cheerfulness are a matter of money? Take away the harp or guitar, and there is yet a very different grouping of objects in these fictitious homes to that found in ninety-nine small houses out of a hundred. We should not be afflicted with the gaudy, sprawling-patterned Kidderminster carpet, the circular claw-table covered with oil-cloth, the hideous horse-hair bottomed mahogany chairs and stony-looking and stable-smelling sofa to match, the floriated fender before the fireplace, and the Rococo framed looking-glass above it, that we should be sure to find in the parlour of nearly every house in a row of small suburban houses. These doleful monstrosities are reserved for the flavouring of real life: no one alludes to them as fiction, doubtless from a feeling that they would be too oppressive to the great majority of readers, who look for agreeable entertainment at the hands of their authors. If we pursue our investigations into those homes where there is no circular claw-

table nor horse-hair and mahogany furniture, but where one room does duty for "parlour, kitchen, and all," the surface of things will appear still more dingy. We shall see, probably, a large turned-up bedstead made to look very much like a chest of drawers, and a chest of drawers which, consequently, bears a great resemblance to a turned-up bedstead. Both these articles are likely to be surmounted by tea-trays, on which Valentine subjects are depicted. It is scarcely probable that there will be a looking-glass over the mantel-piece here, but its place will be doubtless filled by a sampler, framed and flanked by a couple of black paper miniatures, or by a stuffed bird in a glass case, or by a coarse print varnished instead of glazed; and on the mantel-shelf we may expect to see a few flat-irons, and a brass candlestick or two, interspersed with crockery dogs, shells, a lucifer-box, and other oddments. The delf made so much of in a kitchen is stowed away, with the provisions, out of sight in a crowded cupboard, at the bottom of which there are generally saucepans, and often coal-dust. The centre of the room is unoccupied, the stateless chairs being ranged against the walls, and the sole small square or oblong table placed before the window. Dr. Syntax in search of the picturesque would have given up his task in despair if localities of such homes as these had been allotted to him as his field of operations. Yet such abodes,—the homes of thriving mechanics in full health and work (and the best of their class),—are to be counted by tens of thousands. Is it impossible to introduce in them the elements of attractiveness? The fair Alice or Eleanor of fiction would realize at a glance the blunt that would come to the keenest feelings if placed under the daily influence of a home so much the reverse of captivating. What can possess Mary Jane or Sarah Ann to take no steps to improve it?

We are not baying the moon, as admirers of the "divine Williams" might suppose. It is possible to make very pleasant homes in very unpromising places. There are few people but can number one or two such nooks within their experience. One would think it difficult to fix upon a more disagreeable place to live in than a mews, yet we remember to have met with as pretty a parlour, up a step-ladder, over a coach-house in a Mayfair-mews, as one would care to see. It is true that we learned that its occupants had seen better days and better quarters; but the fact of the possibility of making such an unpromising dwelling present a pleasing appearance remains. Lady Holland relates that Sidney Smith suggested patchwork as an inexpensive means of contributing towards the effective decoration of a house, and that she and her sister accordingly made patchwork window-blinds for their Yorkshire parsonage, which were the admiration of all who saw them; but let Mary Jane or Sarah Ann attempt patchwork, and instead of a mosaic-like pattern of pleasing design we are sure to see, at least in nineteen cases out of twenty, some higgledy-piggledy abomination that is suggestive only of rags and tatters. We do not say that they are to be blamed for being incapable of first-class artistic efforts without previous instruction; but they certainly ought to be pitied, and require to be assisted.

The assistance that we suggest should be offered consists of the exhibition of illustrations of different modes in which houses can be furnished artistically and comfortably for very small sums. We have seen the model cottages of the great Prince Consort at the first Exhibition; and we have seen the noble elaboration of the "idea" in the Peabody buildings present, and hope for a further development of it in those to come. We now submit that there can be but few objects we could show in our frequent exhibitions of art and industry more likely to be conducive to the comfort, cheerfulness, and health of a large proportion of the population than specimens of desirable "interiors" of houses for the working classes and people of small means. We allude, especially, to groups of furniture in which the greatest procurable amounts of comeliness, durability, and economy are combined, which, while pleasant to the eye would not be impossible or imprudent to the pocket of the educated mechanic about to set up housekeeping. One who was deemed wise in his generation endeavoured to inculcate a general conviction that the household goods of the labouring classes should be made of materials that would permit of their use by father, son, grandson, and great-grandson. To this end oak was recommended for tables, bedsteads, and wainscots; yew-tree, or oak, for chairs; and pewter and wood for plates, dishes, and mugs. Not "a miserable deal board," not a piece of crockery-ware, not a glass of any description, was to be seen in the cottage home of Cobbett's model labourer. Every item upon which his eye fell was to be strong and useful, and plain in its colour and form. We would improve upon this teaching. The proposition that a man should hand down his furniture to his descendants is, of course, admirable, but it is obscured by the difficulty of making one man's household goods serve, say, for his six sons and their families, as well as by the occasion he would have for the use of it himself for many years after his sons and daughters would require separate homes. To sit at the head of the same table at which his great-grandfather sat before him would be, doubtless, a source of constantly-recurring pleasure to many a mind; but as two great-grandsons of the same man could not do this, there are, clearly, great multitudes to be provided with household necessaries from some other source. On the other hand, there is so much golden hope enjoyed in the formation of a new home, such bright anticipations of the beatitudes of the new life to be led in it, so legitimate a field for the expression and gratification of individual tastes, that it is doubtful whether an absolutely new home is not preferable to an old one filled with retrospective associations. Of this, however, we are certain, we must take the old ones as we find them, but we can make the new ones exactly what we choose. To be more precise, every one can make the best he can out of the materials within his reach. Now we would extend the limited variety of possibilities within the means of persons with small incomes or with small savings made for the purpose. Instead of the second-hand piece of furniture, perhaps seized and sold for somebody else's rent, we would make it possible to purchase a new, graceful, durable object to serve the same object for the same money, or less. Most of our readers will be able to recall the hard choice that was presented to the youthful artist who wished to invest a shilling in water-colours before the Society of Arts called into existence the admirable box that can now be procured for that sum. We contend, that quite as great an improvement could be effected in cheap household furniture by the same competitive means, or the production of a sufficient demand.

We seem to have made many changes in modern furniture without much advancement. Surely we abandoned a useful plan when we left off making drawers to our tables, for they formed convenient and easily accessible places for the deposit of small articles. Those of our predecessors, too, must have been very unwise who banished the highly decorative dresser from the principal apartment in the house to the kitchen. As it is, the housewife who has any choice china keeps it locked up because she has no suitable place on which to display it out of reach of children. Again, why have we given up as altogether worthless the cunning device of box seats or benches? and why have we not introduced the *miserere*, or hinged seat, into our houses in such places, for instance, as window recesses? We do not seem to have improved in the economy and utilization of space in any perceptible degree; and yet, in towns, space is every day getting more and more valuable, and less likely than ever to fall to the lot of people with limited means. The great four-post bedstead, with its waste space below untidily occupied by boxes and lumber, remains the popular model of a bedstead still, as its imitation in iron and brass will testify. To divide this waste space into compartments, with drawers for the orderly disposal of the family possessions in the way of linen, &c., has not yet occurred to the upholsterers' mind. Nor is it likely to do so unless there be some special call made upon his contriving and inventive faculties. Thinking most of the small homes consisting of but one, two, or three rooms, we deplore neglect of opportunities to make the most of space. A sitting-room is scarcely worthy of the name that has not an arm-chair on each side of the hearth, but these need not be skeleton seats: they might be furnished with sliding wells or receptacles for the needlework or other private possessions of their respective owners.

We would remove the last century prejudices against every kind of wood but oak. The "miserable deal board" is in reality a very excellent article in its way. We were shown a short time since a bed-room fitted up by an earl for his own occasional occupation at the seaside, in which every piece of furniture, save the iron bedstead, was made of the white wood in question. Dressing-table, washstand, drawers, towel-rails, and chairs were as spotless as the crests of the waves beating on the shore, and the very height of cleanliness seemed attained. We do not, however, recommend deal in its natural tint for general use; for it is not our intention to dictate either the materials or forms of the improved furniture we think so desirable. We leave this to the different departments of the various trades concerned. Our share of the reform is the advocacy of its need,—an advocacy we have expressed for years; and the suggestion that the international and industrial exhibitions offer a grand opportunity for the education of millions in the matter of furnishing their homes so as to render them healthy, comfortable, and attractive. National habits being dissimilar, a Frenchman's idea of a model home would not be identical with that of an Englishman's; but there are so many people who would be more impressed with a lesson taught hundreds of miles from home, than that to be learnt next door to them, that we need scarcely consider the locality of the Exhibition. We may be well content if it is at the illustration of the world's progress to be shown us next year by the Emperor of the French, that we see chambers fitted up with artistical furniture at stated low prices. We would include in these "interiors" every appliance that would tend to lessen the labour of keeping such houses clean, as well as a few elegant, yet low-priced ornaments, to make them pleasant to the eye; and we would especially look to the general arrangement or disposition of the whole. In fine, we would give Mary Jane an opportunity of seeing the best way of furnishing a room with the ten or twenty pounds in hand, or in that of her intended; and we prophesy there would not be in future such a contrast between her home and that of her fictitious sisters reduced to similar circumstances.

MESSRS. PHILLIPS'S PATENT GIRDERS.

FOR some time past several interesting experiments on rolled iron beams of peculiar construction have been progressing at Mr. Kirkaldy's works, Southwark, of which our readers may desire to have some particulars. Mr. Kirkaldy's machine (a patent), we may say at starting, is a beautiful work, from the foundry of Greenwood & Batley, of Leeds.

Several years have elapsed since the Continental architects and builders began the adoption of rolled iron beams in place of the ordinary wooden girders and joists, and found advantages in the substitution, not only in respect of cost, but also in the facility they obtained for working out conceptions which never could have had an actual existence under the old mode of construction.

Now, why have we not more generally adopted the use of so convenient a material as rolled iron? Years ago we suggested to the Government the offering of a large premium for improvements in the mode of rolling iron. The fact is that, with our practical habit of regarding things, the builder is popularly believed to be the best judge of what is necessary. He is supposed to be at least practical; and the opinions of such a one will tell with people, in spite of the representations of architects,—men specially educated to discriminate between the fitness and unfitness of things for the purpose intended. And so we find that, although every architect knows that cast-iron girders are really dearer than wrought-iron girders, inasmuch as they require more than double the weight to furnish equal strength, and even then that cast-iron girders cannot be relied on through defects inherent in their manufacture, yet at this very moment we may behold them placed in more than one costly erection progressing in the metropolis, introduced, we suppose, for some consideration for client's whim or builder's convenience. But, although it is a fair subject of inquiry why the use of rolled iron has not received more attention at our hands, it may be stated at the outset that the vast improvement of riveted plate joists and girders over any of the preceding kinds of cast-iron or wooden beams in use, and the facilities existing for their construction, justified their retention till it could be demonstrated that a better thing was at hand to replace them.

Few departments of engineering have had the benefit of actual experiments to the same extent as this one of girder construction. Witness the

labours of Professor Hodgkinson, Mr. Fairbairn, and others; yet, till recently, we were without any definite knowledge of the properties of the rolled beams and their combinations. Mr. Homan, while engaged in making a series of tests for the purpose of obtaining reliable data in practice, noticed the tendency of all these beams to yield laterally before their full resistance was developed, and sought to obtain the required lateral resistance by riveting a plate on the top flange. Every previous experiment showed that, by supporting the beam back and front in such a manner that it could only yield vertically, the load might be increased 40 per cent. Thus a beam 8 in. deep, with flanges of 2½ in. placed on supports 20 ft. apart, sustained about 4 tons on the centre before yielding sideways and becoming crippled; while the same beam "cradled," or supported laterally, took 5½ tons before breaking. After the plate had been riveted on the top flange, the same kind of beam took 7 tons without showing the slightest fracture, and merely exhibiting a considerable set vertically. Other results were obtained equally striking. By doubling the depth of a beam, we double the resistance, other things being equal; and so when increased strength beyond that furnished by one beam was required, it was usual to place two together, either alongside or on each other; for example, if one beam were equal to 4 tons, two beams were equal to 8 tons, and experiment showed that such was actually the case. Two of these beams, 8 and 2½, were therefore riveted together one upon the other, and the lateral deflection was sought to be remedied as before by riveting a plate 8 in. wide by 3-8ths thick on the top flange. The beam now formed was 16 in. deep, and it was expected to be equal to 10 tons on the centre, when placed as before on supports 20 ft. apart. On applying the strain it was found that 16 tons produced no sensible set, and at 20 tons the beam failed only by lateral twisting, the iron being sound and uninjured. Here, then, was a novelty. We have examined the various authorities on this subject of beams, and have conversed with several persons who have had great experience in designing girders, without finding any notice or previous knowledge of this singular result; indeed, it is useless to attempt to understand the properties of these girders on any ordinary hypothesis. The real explanation probably lies in the fact that the web plate, usually considered as not contributing to the strength of the riveted plate girders by reason of the attachment to the flanges being merely mechanical, actually enters into the work of the patent girder, united as it is to the flanges by the superior attachment of the natural cohesion of the metal. Taking, then, the web of these girders as forming an important element in their ultimate resistance, we are able to understand and accept as probable what would otherwise appear extraordinary. In order to arrive at their relative value, compared with the ordinary riveted beam, we will apply the well-known formula of Mr. Fairbairn, $W = \frac{adc}{l}$, where W = weight, A = area of lower flange, D = depth of girder, L = length, and C is a constant, the value of which depends on the form of beam and must be ascertained by experiment; whence it follows that the higher the value of C, the greater the value of the beam for the same sectional area. A simple web plate, with angle-iron on top and bottom, gives a constant of 60; an additional plate on the top and bottom flanges increases it to 75; that is, the strength of the girder is increased in that ratio. A box beam or cellular girder gives a constant of 80, and these respective values are singularly correct when applied to ordinary iron and workmanship; if any deviation is found the cause exists in altered conditions, whether in the quality of the metal or workmanship. We use this formula because it is based on actual experiments, and for years has stood the test of practice; moreover, we understand that it applies with great consistency to the new form of girder. We have said that Mr. Fairbairn's experiments established the values of riveted girders at 60, 75, and 80, the difference depending on their form. The rolled beams made by the Butterly Company give 57 to 88 as constants; the tests we have seen applied to the Belgium beams give higher results; but the difference probably depends on the fact, that the flanges were smaller, and the distribution of the metal such as to enable a larger amount of work to be done in proportion to the sectional area.

Among the experiments recently made at Mr. Kirkaldy's works, we will take two, as best illustrating the subject, and will compare them with the given results of riveted plate girders of corresponding sectional area, and consequently of a like weight per foot run. A rolled beam, 8 in. deep, with lower flange of 2½ in., and with a plate 6 in. by ⅜ in., riveted on top flange, the whole weighing 22 lb. per foot run, was placed on the machine at 20 ft. distance between the supports. Now, if we had to design a riveted plate beam of corresponding weight, and if we were seeking the best distribution of the parts with the view of obtaining the greatest amount of strength, we should make the web-plate 9 in. by ¼ in. thick, the bottom angles 2 in. by 2 in. and ⅜ in. thick, and the top angles heavier, to equalize the compressive strain of the top flange with the tensile strain of the lower flange, say, 2 in. by 2 in. and $\frac{5}{16}$ in. thick. Such beam, weighing 22 lb. per foot run, would break with about 3½ tons applied on the centre, with a span of 20 ft. A strain of 4 tons was at once applied on the centre of the patent beam, and after a short time withdrawn, without any appreciable set; 5 tons were then applied, and on being withdrawn a set to the extent of $\frac{1}{10}$ in. was found to have taken place. The load was then increased to 6 tons and 7 tons, the set increasing to 4 in., but without the least fracture or injury to the beam beyond the set in the centre. If we now apply the formula to find the constant, taking area of flange at 1 in., we have $C = \frac{wl}{ad} = \frac{7 \times 240}{1 \times 8} = \frac{1680}{8} = 210$, and this figure indicates the value of the constant in the formula $W = \frac{adc}{l}$. The second illustration presented was a girder formed of two similar beams, of 8 in. depth by 2½ in. width of flange, riveted together, with a plate on the top flange of 8 in. width by ⅜ in. thickness, the whole weighing 40 lb. per foot run.

For a corresponding sectional area of ordinary riveted girder, we may take a web-plate of 12 in., with bottom angle-irons of 3 in. by ½ in. thick, and top angles of 3 in. by ½ in. thick, to equalize the strains as before, such a girder would weigh 10 lb. per foot run, and would break with 9 tons applied on the centre. The patent girder was placed at 20 ft. between supports, like the first, and 10 tons weight applied on the centre, without even a perceptible deflection, although the delicate register of the testing machine showed deflection, and even set, in an infinitely small degree, when the weight was removed. The weight was then increased successively to 12, 14, and 16 tons, the set registered at this last weight being ½ in., and ultimately increased to 20 tons, when signs of yielding by compression were apparent near the upper part of the web-plate. On attempting to increase the strain it became evident that the girder could not be broken, although by twisting a severe crippling might result. Again applying the formula to ascertain the constant, $C = \frac{wl}{ad} = \frac{20 \times 240}{1 \times 16} = \frac{4800}{16} = 300$, we obtain a constant of 300, against the riveted beam of similar sectional area taken at 75.

The profession will probably desire to see some of these girders tried against girders of the old forms, made of similar iron, and under the same machine, before they admit a great superiority. Enough, however, has certainly been shown to encourage the Messrs. Phillips to persevere in bringing the invention prominently before the public.

STREET ARCHITECTURE IN LIVERPOOL AND ELSEWHERE.

IN itself a design may be good; and yet, considered in reference to its surroundings, it is quite possible for it to be ineffective and out of place. And, to draw a parallel, an individual may be upright,—we always assume that *buildings* will be,—honest, and worthy; but, with all these good qualities, it is quite possible, from an inattention to, or want of consideration for, others, or the rules of polite society, he may be thought offensive and bearish. There is such a thing as a gentlemanly building—a building that does not wrap itself up in its own importance, or crow over and jostle all the other buildings in the same street; or, in a misanthropic spirit, being continually engaged in introspection, set at defiance public opinion, and reserve all its favours for those only who have the key of the portal. A man may, in a measure, be known by the house he builds, as well as by the company he keeps; and the bearish spirit says, "What the d——e have the public to do with me? I'll make the outside like a box, plain as a pikestaff, with square holes shoved through." The flashy man is known by the gin-palace character of the decoration; and, as in real life, he who simply snarls Mrs. Grundy a defiance, usually possesses more sterling merit than the man of banners and tin trumpets, flourishing the one and blowing the other, specially in the face and ears of his own particular friends, and generally for the benefit of what is known as the public.

IN the shop architecture it is that the modern spirit of flash holds high revel. Why shops should be specially devoted to bad taste is to us a mystery. In public-houses the case is different: association of ideas is alone sufficient to produce it. Though, again, in the old time, hostelries were tasteful buildings; but then, hostelries were respectable institutions, — public-houses, the homes of those who *do* beers or do worse. A good, tasteful shop is a want in Liverpool and in most other places. It seems as if the counter prescribed the taste; indeed, to so low an ebb has art-feeling come, that every one but the architect does prescribe the taste. We recollect well ourselves holding the opinion that there was a style for everything—a style for public buildings, a style for shops, a style for villas, a style for public-houses—the most luminous reasons being given for particular choice. Well, this is an idea acted upon by our architects, and acquiesced in by the public, until this day. How the notion arose is obvious to any one who has studied modern art—not its rise and fall—for never having risen, it never could fall. Since the Cinque-cento period, when the spirit of revival took the place of genuine art creation, the world has seen the dead bones of antiquity dug up and reburied—reburied and dug up—as if we were searching for the remains of some lost friend; and, being unable to establish his identity, had kept turning him over and over in a half-dubious frame of mind, never knowing with certainty what we had really dropped upon. The language of classic art being very limited, suited well the capacities of those content to copy, for its grammar could be mastered with little effort; but the human mind, unfortunately for those of a contented disposition, will not consent to stand still. It is a machine that must always be in motion: if it cannot move forward it must move backward; and, when it has no real materials to work upon, goes grinding itself to pieces on memories. People could not long remain contented with the Renaissance, the high-sounding title given to the works of the great Italian masters. Michelangelo and Raffaelle were pure artists—not builder artists, like the workmen who preceded them, and consequently did not establish their style upon structural principles; and, though their works often possessed great qualities, the style possessed not the elements of growth and development within itself. It was born at once into full maturity, and did not pass through the natural stages so necessary for the perfect development of anything good and great. The dullest people tire of repetition; and, upon the unearthing of any forgotten remains of antiquity, what was called a new style arose. So unpliant were all these antique packing-cases found to be, that, though they suited, in a measure, one particular purpose more than another, they could not, without distortion and rending, be fitted to contain everything that had to be thrust into them. Thus it came about that the Temple or Columnar style could be more easily fitted to public buildings; and, by the aid of judicious dodging and concealment, be made to convey somewhat of the impression of those grand old monuments of Greece and Rome, the Parthenon or the Pantheon. It seems to us almost a waste of words to argue against such a low method; yet, as the world has shown, it is actually necessary to do so. We do not want either Classic or Gothic, as generally understood: we want an effective architecture, carried out upon true and honest principles; and it happens that such architecture would be economical and beneficial, both intellectually and morally. The greater part of the world seem content to live as if they possessed only one or two faculties, and a genuine love of the beautiful, for itself, is an exceptional phenomenon, to be prized when met with.

To obtain ideas for an effective system of street architecture it is not necessary to go very far.

The study of a few of Prout's views on the Continent would supply materials to a practically imaginative mind, which could, with the suggestions which always arise in the proper planning of a house, be made to yield a far superior quality of work to that we generally see. We have a few of his views at present on the table. One is a street in Nuremberg. There are a few projections in the form of bay-windows shown; but this is not what catches the eye, and gives character to the architecture. On the contrary, the several buildings are lineable and flush, as they ought generally to be in good street architecture. It is apparent the houses have been built at different periods: they are distinct and individual in character, and evidently, not being subject to Corporate restrictions or designed by Corporate surveyors, rise to different heights, and are very irregular in the levels of the floors and windows. This is quite unorthodox; and if they were in Liverpool we assume they would soon be pulled down. The detail is generally very bad; but the grouping possesses the essence of the picturesque. The first house presents a large-gabled dormer corbelled out into the street; the second has a dormer with a conical roof; the third, a hipped octagon dormer projecting like a hood, and so on, ending with a house with a hooded roof, very simple and effective. There is no striving after effect. Each man has followed his own taste, but adopted the same principle of design. In fact, the motive was the offshoot of the age, not the man. Thus we see a telling outline in the street, though all the houses or shops are perfectly flush on the face—the breaks being vertical as they should be. Our architects seem quite unaware of the value of a vertical break, but always seem striving to throw the plan into fantastic forms that prove in every way injurious to breadth of effect. We have said the details of these buildings are in themselves bad; but this need not prevent us profiting by the valuable hints they afford. The view in Caen also shows that a building may be eminently picturesque, yet with detail of the most Rococo character. Contrary to our designedly picturesque buildings, in which bad detail is combined with the most artificial distribution of the masses, these Continental streets seem to assume picturesque forms of themselves, as crystals, in cooling, assume their shape and character. There is another view of Prout's, in Rouen, perhaps more picturesque than any we have mentioned, and more decidedly Gothic. There is a greater variety in the heights of the buildings—prominent eaves, different pitches of roof, varied dormers and chimneys. Where one building rises above another it does not disclose an unfinished bare wall, but is broken up and diversified by the perspective of the dormers and roof immediately before it. They all seem to be complete buildings in themselves, not detached fronts stuck on. You might argue from now to doomsday with the orthodox architect, and he would not believe it possible to do anything better than what we see every day; and it is a curious phenomenon, showing the state of form-blindness to which people may arrive who ought to know better—who ought to feel enthusiasm for their profession—that nearly all Liverpool architects think Liverpool one of the most beautiful places on God's earth. We pity such distorted patriotism; and, as we love our town, we wish to improve it, and raise it to its proper art position. We verily believe the architects are more to blame than the public. No one who practises street architecture seems imbued with a healthy feeling. Could anything contrast more strongly with the plain, simple, unpretending dormers of Rouen and Nuremberg than the disgustingly-formal and ill-designed dormers of Henderson's shop and the Basnett-street front of the old Compton House, which an over-enthusiastic reporter described as "a magnificent arcaded front." Presumedly picturesque forms dressed in discarded classic livery, are worse than the most level commonplace, for the ornamental vulgar is a depth decidedly lower than any sort of commonplace. What a field for the beautiful lies in the space about St. Peter's Church! But what do we meet with? Facing us, on the east side, is what builders call a Gothic job, than which there is nothing more execrable, though expensive, to be found in the town. There is the Blue Coat School, perhaps the most respectable-looking of the lot; but as regards art, *nil*. Then there is the New Bank, rising up above everything in all its majestic ugliness. Then there are Wilmer's-buildings,—a warehouse front,—not to be despised on that account; but, as far as the little attempt at ornamentation goes, as bad as any. A few moulded bricks would have been better than the little bit of cement work. On the west side is a more ambitious attempt at coloured brickwork; but there is an entire absence of feeling; and, on the north side, the best thing to be seen artistically is the void where Compton House used to be. Of St. Peter's Church it is unnecessary to say anything: all seem to know that is bad. Now, imagine all this destroyed; the church replaced with even a square brick tower like that of St. James-the-Less in London, by Street; the Gothic *job* by the Insurance Office opposite the Bank of England, in Manchester, the work of Waterhouse; the coloured brick building by something more in the style of Pugin's Priests' College at Rock Ferry. Imagine the Bank to be like many of the buildings erected by Deane and Woodward; or like that in Dublin, designed by Digby Wyatt, and illustrated in the *Builder* some time since: Willmer's-buildings, with moulded brick reveals and coloured brick surface decorations, brick corbelled eaves or parapet and splayed arches, and instead of skylights, buttressed dormers, such as Murray delighted in: imagine,—and this is the most difficult to do,—a range of shops on the north side of Church-street, designed in the spirit of Jacques Cœur's House at Bourges, which any one may see by peeping into Norman Shaw's interesting "Sketches on the Continent." "All this is very fine," we hear our old hands exclaiming; "but it won't do." Won't it, though?—Just try! The experiment should be made: the crucibles, retorts, and chemicals are all ready, and we only want the manipulation of the chemist to bring out the refined gold. If the amalgam of the architect's mind should, when the ore has been reduced, extract the precious metal, the reign of beauty would commence. LIVERPOOL.

A MODEL CITY IN 1916.

At the last meeting of the Liverpool Architectural Society (Mr. J. Boult in the chair), a paper by Mr. S. Huggins was read, entitled,—"Letters from the New Capital of Australia, by Scammozzi Smith, architect; written to his friends in London during the summer and autumn of 1916." It was chiefly descriptive of the architectural features of an imaginary future capital of Australia—a great empire supposed to be developed out of our colonies in that country. The constitution was represented as that species of limited monarchy which is most correctly characterised as an idealisation of our own—our own British constitution corrected and purified to the utmost. The aristocracy is an aristocracy of intellect, not of birth, elevation to the peerage being the reward exclusively of eminent service to society—not in law, war, or politics only, but in any branch of art, of science, or of literature. A full description was given of the magnificent city, the architectural beauties of which have attracted to it a party of English architects and their friends, of whom the supposed writer of the letters is one. They approach it by water and land, on the central or municipal quarter, which is an island, and there learn that, by the river which flows round it, and a canal, both of which are spanned by numerous bridges, the whole city is formed into five departments, all separated from each other by water. They are appropriated as follows:—The centre is the department of the local government of the city; the north quarter is devoted to commerce; the east is the trade quarter; the south is the aristocratic or palatial quarter; the west is the literary or collegiate quarter. Besides these, which properly belong to the city, there is the isolated quarter without the walls on the south side, appropriated as the seat of government and legislature, containing the houses of Parliament and all government offices. A magnificent road conducts to it. A peculiarity of the trade quarter is that the trading streets, all of which are placed in its centre, are formed on the Chester-row principle—an arrangement greatly contributing to artistic beauty, and securing deep shadow to the front, so much wanting in the shop-fronts of old England. In the aristocratic quarter no shop, workshop, office, or place of business of any kind is allowed to show itself; and no house is to be built below a certain size and value per annum, regulations submitted to cheerfully by all classes, under the conviction that it is essential to the making Shaksperia what all desire it should be, a uniformly beautiful city. Some of the finest buildings in the collegiate quarter are the palaces of the poets, artists, philosophers, and literati; where men who have achieved a certain rank in any liberal pursuit are honourably lodged, receiving apartments for themselves and families, with a certain stipend annexed to them; for which they are not expected to do anything in return "that," to use the words of W. S. Lander, "they may not incline, nor be obligated to any vile or lowly occupation;" that the lamp of literature and genius may ever be kept alive, and that there may be ever in the land a succession of those heirs of fame. The general principle of street arrangement in the different departments of the city is this:—From a grand central and circular place or open area, the main streets, eight in number, of great width and making equal angles with each other, radiate to the extremities of the district, terminating either in the river or at the wall, through which they pass by a gateway to the suburbs. These radiating streets are crossed by a series of fine concentric ones, which, however, are not repeated to the extremities, but give place to subordinate systems of radiation from centres on a smaller scale, the radiating lines of which variously terminate in those of the larger, in the last of the great concentric streets, or at the river wall. The great radiating lines are noble avenues, which bring the healthful breeze into and thoroughly ventilate the city. But nowhere is the country—that is to say, nature—crowded out. It pervades the city to its very centre; which it is the better enabled to do by the absence of everything that could contaminate the air. Round all public buildings and at the intersection of most of the great streets ample areas are provided whose grass and shrubs refresh the eye. The public park or garden is described, and also the public cemetery, which are both represented as truly artistic features of the neighbourhood. They are profusely decorated with high-class sculpture; on mention of which the writer takes occasion to remark that nothing had given him a higher idea of the pure taste and intellectuality of the people than their fondness for, and extensive employment of, the art of sculpture, which he conceived to be more abstract, spiritual, and ideal than her sister art of painting. Though in solid material, it was so unlike the body, the mere form of which it imitated—so calm, so pure—that it would stand for a portrait of the soul rather than of the body, as such a high-class statue seemed to him to be the divinest work of man's hand; in saying which he was not placing sculpture above poetry, which was a direct communication of soul with soul without the intervention of manual labour or skill. The writer attributed the extraordinary success of the people in art to the prevalence among them generally of a clearer idea of the proper end and aim of human life. It was perceived that wealth and happiness are not identical; that money is but a very subordinate means of attaining to that *summum bonum* of life. Wealth was sought with diligence, but it was generally sought and used as a means of obtaining something higher—something more nearly allied, and more immediately conducing, to happiness—as health, leisure for self-culture, acquisition of knowledge, and cultivation of the intellectual and moral faculties; the power of diffusing education, of advancing the arts and sciences, drying the tears of sorrow and distress, and promoting the higher and lasting interests of humanity. They pursue knowledge for its own sake and its ennobling influences; and the ardent love of it that is engendered has naturally led to the more general and uniform cultivation of the intellect—that is, of the entire intellect—among all classes, by which all the mental faculties are more or less brought into play, and by which are constantly produced that rare balance of imagination and the reasoning powers in which the perfection of the human intellect will be found to consist.

ST. NICHOLAS'S CHURCH STEEPLE, NEWCASTLE-UPON-TYNE.—Another attempt to obtain funds for the restoration of this ill-used steeple is now being made; a public meeting having been held in the church vestry, the vicar in the chair, when a subscription was resolved upon to raise the two or three thousand pounds requisite, beginning with the 500*l.* offered by the Corporation, and the 200*l.* offered by the Churchwardens, together with a few smaller sums promised at the meeting. It is to be hoped this last resource will not prove abortive like so many previous attempts to get through with this small affair.

ITALIAN NOTES.

THE long-talked-of project for the enlargement and improvement of Florence has at last assumed more definite form to the public apprehension, at least as a project, through the printed report of the Syndic to the "Giunta Communale," or municipal council, and the total estimate, 34,580,000 francs, does not seem excessive, considering all that is contemplated. Among the several plans announced, only one, applicable to a particular quarter, is yet positively approved. Much is aimed at in the way of embellishing, opening street lines, and adding to the public convenience or safety; as (with the former object) the new approach to the Pitti Palace, the new laying out of the Cascine park, &c. In the latter objects, the works for protection against inundations, so frequent and often disastrous in Florence; the aqueduct, a great desideratum, for bringing water from the mountains into the city's heart (estimate, seven million francs); the building of a great market for all comestibles; the widening of the Ponte alle Grazie, oldest of the bridges over the Arno, and indeed one of the most ancient structures in Florence, founded 1237. And among projects affecting edifices of monumental character, is one for additions to the senate-house, in the Uffizi; another for adapting to present uses the Communal Palace, a fine old castellated building of the thirteenth century, ascribed to Arnolfo del Cambio. Most important, as it may affect the city's aspect at a chief centre, is the plan for a new "Lung' Arno," or extent of quays on the river's left bank, to be carried westward from the old towered gateway, Porta S. Niccolo, at the extreme eastern point on that side, involving the necessity of sweeping away certain clusters of irregular picturesquely-piled old houses that rise immediately out of the water, and add a striking feature to that most beautiful scene presented by Florence and her mountain background from the actual quays on the Arno's right bank. We observe that in this report a certain number of projects are classed together as secondary, others as primary in importance; the estimates for the former, which are of high amount, not included in the 34½ millions of indispensable outlay.

Other lately published statistics that supply notes for our pages relate to the Italian universities and other schools supported by Government. From these pages we learn that in the Schools of Fine Art the number of posts of Royal foundation is at present 225, only two being of private foundation; the annual subvention for Schools of Painting, Sculpture, and Architecture, 46,563 francs; for that of Engraving on Copper, 2,428 francs; for that of Music, 79,178 francs; over and above which outlay are the several pensions to students of narrow means, mostly at 30 francs per month, and of number not determined: in the total but a small expenditure for such interests on the part of a Government charged with the destinies of the *par excellence* land of the arts in Europe! Not the less is it true, however—and we have frequently had to mention facts relevant to this,—that in the interests of public monuments and promotion of artistic objects, what this Government has done, and is now aiming at, may be pronounced worthy of its position and antecedents, indeed beyond all that might be expected when we remember its financial embarrassments. It is well known how, after a faint struggle to defend the standard of the Tiara, the city of Orvieto was transferred from Papal possession to the Italian monarchy. At that time works were found initiated, and to some degree carried out, on the façade of the glorious Duomo, the pride and marvel of that otherwise obscure place; and so far from allowing such undertaking to languish, this Government has since promoted it vigorously; so that as well the more ancient frescoes of the interior as the complicated bas-reliefs on the façade are now renewed, or in course of being so, wherever time had inflicted injury. We had a glimpse of these works when *en route* at Orvieto on a journey in the summer of '64; and have just learnt from a recent visitor that they are still in steady progress, directed with intelligence and taste, a report conformable to our own impression during a brief study of the marvellous building on our last visit to it. Those elaborate reliefs, illustrating the entire story of Revealed Religion down to the Last Judgment, its dread and final scene, are the work of different artists, of early date in the fourteenth century, and the greater number have been ascribed by Italian critics to Fra Guglielmo Agnelli, a pupil of Niccolo Pisano, who was engaged at Orvieto up to the year 1304. In the same manner has this Government succeeded to another, and worthily carried out what that other had initiated, in the works at Milan Cathedral; and we might add to the list of its undertakings in this line the restorations of S. Eustorgio in that city, and those in progress at the Arezzo Duomo. Turning to Florence, we have indeed cause to deplore the non-fulfilment in respect to the long-promised façade of her Duomo, the subscription towards which, that had realized a not inconsiderable amount, being now at a stand-still, and as far as we are informed, the feeling now prevalent is that nothing more should be given till the public receive some guarantee that the undertaking is really in advancement, has become a tangible certainty, and that one of the numerous designs exhibited, season after season, has been chosen for accomplishment. When this subscription was first set on foot, contributors were given to understand that by the end of six years all would be ready, at least for the builders' labourers to commence: a much longer interval has elapsed since then; a dynasty has fallen and been replaced by another; but beyond the ceremony of laying the first stone, no other stone of the sacred structure has yet been set up. It is but fair to the committee responsible, however, to take notice of their arrangement, that those who desire may be at liberty to withdraw the sums contributed.*

At Genoa has been opened a competition of architects for a new façade and new elevation at another side of the Annunziata, that superb church which presents all the splendour of the modern Italian decorative style. Designs are to be given in before the 30th of April next, and the two most approved to be rewarded with prizes of 3,000 and 1,200 francs; also a lower prize, to be bestowed for any composition that might be chosen, though not answering to the highest theoretic requirements,—rather a singular provision! The Tuscan Academy of Art and Manufacture has taken steps towards securing a worthy representation for Italy in the Great Exhibition of this year at Paris; providing that in each province the most remarkable productions, both natural and artistic, should be sought after, and reported upon by long committees; juries appointed to determine the choice of what is most commendable; and after this ordeal, selections finally made among all objects brought under consideration,—a method well devised, but requiring very complex organization. The question has been proposed by Government to this academy, whether a bronze cast of the "David" of Michelangelo should be erected in the largest hall of the "Pretorio," among the objects there classified as a Mediæval museum; and the directors reply by advising that a plaster of that statue should first be set up in the destined place, in order that effect may be estimated before a final decision is passed. The bronze in question was executed, a few weeks ago, at the Royal Foundry here, under the direction of Papi, a well-known artist in this walk, and with signal success. The journals announced it as a public event; and an account of the occasion in print might have reminded of Benvenuto Cellini's memoirs, telling, as it did, of the religious earnestness with which all hands were applied to the task, the prayerful ejaculations, and the thankful joy at the prosperous issue. In one hall of that museum at the Pretoria, we see the frescoes of Andrea del Castagno, transferred from the Pandolfini Villa at Legnaia, and for a time left in a magazine on the Uffizi premises, where they were seen by Messrs. Crowe & Cavalcaselle, who gave an intelligent critique on this curious series, which consists of colossal figures, historic and ideal,—Dante, Petrarch, Boccaccio, Farinata, Acciaiuoli (the Seneschal of Naples, and founder of the Certosa, near Florence), Esther, Tomiris, the Cumæan Sibyl,—characterized by that sinister and sombre aspect peculiar to this artist's creations, but with a vigour and originality that entitle them to class among his best: stern and stately, they look like forms which, by torch-light or moonlight, would become spectral to a degree terrific. We are glad to be now persuaded (thanks mainly to those writers on art history) that their artist was *not* the assassin of his co-labourer, Dominico Veneziano. We still hear of the honours paid to the memory of Massimo d'Azeglio, of a monument in the Campo Santo decreed by deliberation of the magistracy at Pisa, of an exhibition of all obtainable pictures by his hand (and on the canvas the illustrious statesman displayed no common skill) at the Carignano Palace, the former Parliament-house, in Turin. The Society for Dramatic Encouragement at Florence has offered 1,000 francs for the ablest "Essay on the Italian Theatre;" the same society, by which prizes are annually bestowed for the best original tragedies and comedies successfully produced on the stage, but which, in the last instance, pronounced that none of those submitted to its judgment were found deserving of such honours.

* We have engraved, and shall shortly publish, a view of the design selected as the best in the last competition.

THE YORKSHIRE FINE ART AND INDUSTRIAL EXHIBITION BUILDING.

THE site question has been decided and progress is being made with preliminaries to the opening on 1st of July. The drawings of the building have been so far completed that, along with the specifications, they have been on view at the office of Mr. Taylor, of York, architect. The area which the building will occupy will be about an acre and a half. The principal feature will be a central hall 200 ft. long by 80 ft. wide, which will be divided into a nave 50 ft. wide and a couple of aisles each 15 ft. in width. There will also be a projecting gallery, 18 ft. wide, entirely round the large hall, access to which will be gained by four wide staircases,—one at each corner. The nave of the central hall will be divided into fourteen longitudinal compartments, with semi-circular arched ribs 50 ft. high, and supporting a lantern skylight in which ventilation will be provided. Five large windows will also give access to light at each end, and skylights will be carried along the whole extent of the aisles of the nave. In the central hall, aisles, and gallery it is proposed to display the principal objects of attraction. On one side of the central hall will be the picture galleries, which will consist of five rooms, two of them 60 ft. by 30 ft., two 40 ft. square, and one 85 ft. by 30 ft. The building will stand back from the palisades in the front of Bootham Field about 150 ft., and will present a frontage of 300 ft. or thereabouts. As to the external features in the elevation towards Bootham the principal object will be the gable of the large tower, which will rise in the centre with a clock-turret to the height of 90 ft. The picture galleries and rooms for the exhibition of curiosities will extend on each side of this and terminate at each end with a conical-roofed building, forming a kind of tower. The building will be framed of wood throughout, which in the front elevation will be dressed, and the whole of the roofing will be covered with felt.

PYRAMID GEOMETRY.

IT is quite conceivable that, in these days o "Egyptology" rampant, and claims for inspired inches, gallons, and chaldrons,—which, according to the *Saturday Review*, have driven no "undevout astronomer," but even a Scottish Astronomer Royal, mad,—many readers of Herodotus without notes might, on making the discovery which Mr. Thurnell explains in the *Builder*, claim it, like him, as a novelty. But I certainly cannot imagine how he could do so after reading the late Mr. Taylor's extraordinary production (probably a heavy attempt at a satire on Egyptology, which it well deserves). Without having read that work, or ever intending to read it, I find, on opening it at random, these passages, p. 296:—"He [Herodotus] says that each face of the Pyramid is equal to the square of the height. Now, this is true, when the angle of the face" [with the ground] "is equal to 51° 49′ 46″." Appendix, p. 32, quoting Herodotus,—"four-sided, each face, on every side, is eight plethra, and the height is equal." . . . . "In the content of each face are eight plethra, and in the content of the square of the height are eight plethra. The angle required to make the square of the height = the content of each face is 51° 49′ 46″." This repeated angle, by the way, Mr. Taylor calculated too much by 8 seconds; and both Sir J. Herschel and Professor Piazzi Smyth, copying the above figures, have reasoned on them as correct to seconds. Mr. Thurnell, has given the true value, 51° 49′ 38·3″. It is the angle of the only right-angled triangle that can have its sides in *geometrical* progression; just as the

triangle of 3, 4, and 5 is the only one having them in *arithmetical* progression.

Sir John Herschel, writing to the *Athenæum*, April 23, 1860, after noticing Taylor's original suggestion, that the circumference of base was meant to be to the height as the circumference of a circle to its radius, says the mean of Perring's and Brettel's measures of casing-stone angle is 51° 51′ 8″, and this "differs by *only a single second* from the angle whose cotangent is the length of an arc of 45°;" that is, from the angle Taylor's new theory requires. Professor Smyth, by the way, in the *Edinburgh Transactions*, 1864, p. 672, gives this same angle as 51° 51′ 14·3″. Cannot the two greatest authorities get within 6″ of each other? Sir John then proceeds thus: "By a very remarkable coincidence, which Mr. Taylor has the merit of having pointed out, the same slope, or one practically undistinguishable from it (51° 49′ 46″)"—[he should have said 38″]—"belongs to a pyramid characterized by the property of having each of its faces = the square described upon its height. This is the characteristic relation which Herodotus distinctly tells us it was the intention of its builders that it should embody, and which we now know that it did embody, in a manner quite as creditable to their workmanship as the solution of such a problem was to their geometry. This problem, however, has no relation to that of the rectification of the circle. The coincidence is one as purely accidental as anything relating to abstract number can be; and although, in solving the one problem, which we know they did intend, they at the same time, practically speaking, resolved another, which stands in no rational connexion with it, or any connexion beyond happening to have, very approximately, the same numerical solution,—we are not entitled to conclude that they were aware of this coincidence, and intending to embody *both* results in their building." Not only so, but I hope presently to make it clear, sir, that we are as yet very far from entitled to conclude that the pyramid builder was aware of, or meant to embody *either*; nor have we a shadow of proof, however creditable their workmanship, that the geometry of either the pyramid builders or any Egyptian of Herodotus's time was adequate to solving this problem,—a case of the eleventh of Euclid's Second Book.

That Herodotus and his guides meant what both Taylor and your correspondent have understood him to mean, has never been doubted, I suppose, by his annotators, for centuries past. His words are doubtless very elliptical, and apt to convey at first sight, to modern readers, the false notion that the *plethron*, instead of an acre, was a long measure, eight of which went to each side of the pyramid's plan, and eight also to its height, in some sense, either vertical or along the face or edge. No one who had seen the rudest sketch of any Egyptian pyramid could suppose this applied to any but the last kind of height, that measured along the edge; and even this would give a proportion very boldly and conspicuously steeper than any pyramid in Egypt. It would give, probably, the only form of pyramid likely to be built in any other country (that of Cains Cestius, for instance), for it would give the most symmetrical and commonest one in nature; half a regular octohedron, as a crystal of alum, of fluor, and of innumerable common minerals; one in which the five points would touch a circumscribed hemisphere, the vertical height equal the semi-diagonal, the opposite edges meet at a right angle, and every angle between any two adjacent lines be 60°. But when Mr. Fergusson tells us in his "Handbook of Architecture," p. 218, "The most plausible theory seems to be that, the faces of the pyramids were intended to be *practically* four equilateral triangles laid against one another," and that "with any other people than the Egyptians this might be considered a sufficient explanation. . . . . But the Egyptians were such excellent mathematicians, and such perfect builders in those times," readers must be puzzled to know what he calls perfect building. Every tyro knows that the faces of the above-described *natural* form, must be inclined to the base only a quarter of a degree less than 55°,—strictly 54° 44′ 8″,"—and surely there is no race in the world, building so badly, either in stone or wood, that if they meant "practically" to produce the above form, they would, in some twenty different trials, make the angle that should be a quarter short of 55°, always between 51° and 52½° in every case!

A change of a degree, be it observed, in the inclination of the Great Pyramid's face, requires above 26 ft. in the vertical height, or else above 40 ft. in the whole base breadth (160 ft. in the circumference). Mr. Fergusson is probably, therefore, the first who ever thought it a "plausible theory" that 51° were meant "practically" for a quarter less than 55°. His other three suggestions are of course incompatible with this, but equally so with each other. Very probably the Egyptian priests, who divided most things, even their cubit measure, into seven, may have conceived, as he thinks, the preposterously inconvenient division of the circle and right angle by the same mystical number. But if any *one* of the angles he marks in his pyramid diagram, was meant to contain an exact number of these sevenths, then *no other* of them could do so, even with the roughest approximation attempted in *any* nation's building. If, as he also suggests, the inclination of face to horison was to equal that of edge to axis, then *none* of them contained sevenths. And, above all, I must insist, that, if the angle between edge and axis was, as he calls it, 4 of the septenary modules, that between opposite edges was not exactly 7½; that even in the age of Cheops, however remote we place it, 7½ was not the exact double of four.

The true meaning of Herodotus, and the solution of the easy problem it presents, have been worked doubtless by Greaves, and all Mr. Thurnell's authorities, except Mr. Fergusson, though the only regular solution I can at the moment lay hand on is in a pamphlet by the architect Röber, "Die Ægyptischen Pyramiden," Dresden, 1855, whose sole diagram is identical with what appeared in the *Builder* of Feb. 10, and so are its numbers, but continued three decimals further. Before this or any other theory can be tested, or either the geometry or workmanship of ancient builders be appraised, the plain essential is, that we have measurements, either of lines or angles, proved by their own correspondences to be at least as accurate as those of the builders. Or rather, we must be able to prove that we measure *more* accurately than they built. Now, so far is this from yet being the case with pyramid measurers, that if we calculate the angles of rise, from the bases and "original heights" of Col. Vyse and Mr. Perring, we find, for the Great Pyramid, an angle a full *third of a degree* short of their observed one; while that of the Second Pyramid comes out some 18 minutes lower, and that of the Third, nearly a quarter of a degree lower than their observations. These errors are all in the same direction, and so are the discrepancies between the same measures and those of the lengths of slope; but, what is still stranger, all in the contrary direction. If we square their horizontal and vertical measures, and add the squares, the roots of their sums come out thus:—

	Great Pyramid. Feet.		Second. Feet.		Third. Feet.
Half-base line	382·	...	353·87	...	177· +
Vertical height	486·75	...	454·	...	218·
Slope calculated thence	614·03	...	579·6	...	280·8 +
,, measured	611·	...	572·5	...	278·2
Deficiency	3·03		3·1		2·6 +

In every case the slope is roundly *a yard* too little! as if measured with tapes that stretch; but now, if to calculate the angles we had combined, instead of the horizontal and vertical lines, the horizontal and inclined (which are plainly more likely to be correct than the vertical, the most difficult of all to measure well), these angles would plainly have all come out still lower, and, therefore, farther from Colonel Vyse's values than above. The combination of the vertical and slope, omitting the base, would have screwed up each angle to nearer, though still not within several minutes of his figures; but this is omitting the very measures, the ground lines, that are plainly easiest, and should be allowed the most weight of any.

Professor Smyth and Sir John Herschel are talking, then, of the credit to the ancient architects, of correspondences to "*a single second*," before our measurers can be sure of their measures to *half degrees!* We never can *prove* the builders more accurate than ourselves, whether they were so or not. The whole difference between the solutions of the Herodotean problem and of Taylor's, though not so small as Sir John supposed, is yet comprised, we see, at the widest, in *one minute and a half;* so that the testing of either theory must require measures trustworthy to at least single minutes. Nor is this an extravagant demand in the case of the *Second* (and even other pyramids that retain some casing stones high up), seeing that a minute answers to above 5 in. vertical at the top, or 4 in. horizontal at the foot. Far less accuracy than that attained half a century ago, in our Ordnance surveys, would give us values reliable to a few seconds!

I will now place in order of magnitude all the inclinations given in the work of Colonel Vyse, together with those resulting from several notable geometric relations, including all those I have seen suggested, in the *Builder* or elsewhere.

TABLE OF EGYPTIAN GRADIENTS,

Theoretic and Actual.

	°	′	″	Differences. °	′
I. STEEPER THAN ANY ENTIER PYRAMID.					
Slope of *four inclined* on *one horizontal*	75	31			
Walls of Pyramid of Reegah	75	20			11
Walls of Pyramid of Meydoon	74	10		1	10
Slope of *seven vertical* to *two horizontal*	74	4			6
Walls of chief Pyramid at Saccara	73	30			34
Slope of *seven inclined* on *two horizontal*	73	24			6
Ruined Pyramid bases, Biahmoo	63	30		9	54
Slope of *two vertical* to *one horizontal*	63	26	6		4
Steepest Brick Pyramid, Dashoor	57	20	2	6	6
Angle *marked on an arc by its radius*	57	17	45		2
The Natural Pyramid (Mr. Fergusson's "*most plausible theory*")	54	44	8	2	33
Slope of "*5 horizontal to 7 vertical*"	54	27	45		26
Lower Story of South Stone Pyramid, Dashoor (Vyse)	54	14	46		13
The Commensurables, 3, 4, 5, as half-base, height, and slope	53	7	48	1	6
II. ORDINARY PYRAMID PITCHES.					
Second Pyramid (Vyse or Perring's angle measure)	52	20	0		
Small Pyramids, Gizeh (ditto), 52° 15′ to	52	10	0	10	0
Seven horizontal to nine vertical	52	7	31	2	29
Second Pyramid (by Vyse's base and height measures)	52	2	45	7	15
Pyramid of Reegah, upper casing	52			2	45
Taylor's suggestion (half circumference : height :: π : 1)	51	51	14	8	46
Ditto (Archimedes's approximation, :: 22 : 7)	51	50	34		40
Herodotus's tradition (face area = square of height)	51	49	38		56
Second Pyramid of Abousir (Vyse's angle measure)	51	42	35	7	3
Second Pyramid of Saccara (by base and height)	51	40	14	2	21
North Pyramid of Abousir (ditto)	51	35	0	5	14
GREAT PYRAMID, Gizeh, by the base and height measures	51	31	48	3	12
Fergusson's first suggestion (seventh of a circle)	51	25	43	6	5
GREAT PYRAMID, Hamilton's angle	51	23	46	1	57
Mediæval theory, "4 horizontal to 5 vertical"	51	20	25	3	21
North Brick Pyramid, Dashoor (Vyse's angle measure)	51	20	25		0
Half-base : slope :: height : base	51	19	50		35
GREAT PYRAMID, the French angle	51	19	1		46
Ditto, by Vyse's base and slope	51	18	16		48
Third Pyramid (Vyse's angle)	51	0	0	18	16
Ditto, by base and slope	50	24	30	35	30
Small Pyramid, Dashoor	50	11	41	12	49
Slope of *Five horizontal* to *six vertical*	50	11	40		1
Fergusson's third suggestion (half-base : slope :: axis : edge)	49	56	23	15	17
Commensurables, 3, 1, 5, as half-base, slope, and edge	48	35	20	21	3
Base area = a circle whose radius is the height	48	27	7	8	13
Fergusson's second suggestion (edge inclined to axis one-seventh of a circle)	48	26	17		50
III. EXCEPTIONALLY LOW PITCHES.					
North Stone Pyramid, Dashoor (Vyse's angle measure)	43	36	11		
Commensurables, 20, 21, 29, *as height, half-base, and slope*	43	36	10		1
Upper Story of South Stone Pyramid, Dashoor	43			36	10
IV. INCLINATIONS OF PASSAGES. GROUP I.					
Eighth Pyramid, Gizeh (Vyse and Perring)	34	5			
Slope given by 3 *horizontal to 2 vertical*	33	41	24	23	36
Seventh Pyramid, Gizeh	33	35		6	24
Sixth Pyramid, Gizeh	30	0		215	
Slope of "*1 vertical to 2 inclined*"	30	0		0	
Elevation of Earth's axis at Gizeh	29	59		1	
Commensurables, 15, 8, 17, as base, vertical, and slope	28	4		115	
Ninth Pyramid, Gizeh	28	0			4
North Stone Pyramid, Dashoor	27	56			4
Altered Pyramid, Dashoor, W. passage	26	36		80	
Eighth Pyramid, Gizeh, inner passage	26	35		1	
Slope of *2 horizontal to 1 vertical*	26	34		1	
GREAT PYRAMID, ascending passage	26	18		16	
Altered Pyramid, Dashoor, N. passage	26	10		8	
Third Pyramid, Gizeh	26	2		8	
South Pyramid of Abousir	26	0		2	
Second Pyramid. Entrance	25	55		5	
Slope of *5 inclined to 2 vertical*	23	34		141	
Chief Pyramid at Saccara	23	20		14	
Slope of *5 horizontal to 2 vertical*	21	48		92	
Second Pyramid, Caviglia's Passages	21	40		8	

Now, I cannot but ask, with this bird's eye view before us, where have we any evidence *yet* of the Egyptians "embodying" in these works any geometry, or any theoretic or liberal science at all? What single problem have they approximated *so nearly* as they have the most common cases of the contractor's foremanlike rule of thumb, "two to one," or so many horizontal to so many vertical? The more we compare all the measures, the more decidedly is the evidence *against* their having ever followed any more refined rule than our vulgarest work-

men; unless, perhaps, in having discovered that certain other triads of numbers besides 3, 4, 5, would fit as a right-angled trigon, such as 8, 15, 17, and 20, 21, 29, while our artisans have a superstition that 3, 4, 5, are the only ones. Now these ratios they plainly discovered by *mechanical experiment* only. The hypothenuse to 4 and 5 (their favourite ratio between base and perpendicular) is 6·4031, which they could not distinguish by measurement from 6·4. They evidently believed that 40, 50, and 64 made a right-angled triangle; and hence, that a pyramid with this half section had the property,—Half-base : height : : slope : base; for as 40 : 50 : : 64 : 80.

Even Mr. Fergusson's *Natural* pyramid, which I once thought they had aimed at in the commencement of the ugly altered pyramid of Dashoor, was not, you see, approached so nearly as the vulgar engineerish "*five to seven.*" This "rule of thumb" was all that the beginners of that work thought of; and so was "*four to five*" all that Cheops meant. What the guides told Herodotus, cannot prove, with much deference to Sir John Herschel, that the founders solved any such problem, or "did intend" to solve it, nor even that any Egyptian before Euclid ever solved it. The only thing it proves is that some land-measurer had observed this coincidence, and it forthwith became one of the marvels of the *ciceroni*; just as we read it was one of the marvels of some *Great Eastern* of her day, that when her finished tonnage was reckoned, it came out = the date of the year. That the Great Pyramid was meant simply to rise 5, on 4 horizontal, is as plain as that its passage, which has so tormented the astronomers, instead of being directed to any pole-star, was simply to descend "*one in two!*" But you will ask why I have called this "the Mediæval theory," and thereby hangs another sly joke of Fate which is worth relating.

Perhaps it would puzzle some if they were asked wherein Cheops is one of the "dead but sceptred sovereigns," and what he has done to our modern world. Now, I propose to demonstrate exactly what he still governs, and *all* that he governs among us. M. Viollet-le-Duc has shown that the mosque-builders of Cairo copied the proportion of all their arches (the earliest refined or æsthetic pointed arches known) from the Pyramids within sight: that is, they made the span and rise as 8 to 5, like the base and height of the Pyramid. He also shows that our Crusaders copied, and brought to the West, this proportion of pointed arch, and made it the standard one of Early French Gothic, if not of the first Gothic everywhere. Now the first pointed window-heads regulated the proportion of the glazing quarries, as any child may observe that these were made to fit into the angle of the two chords drawn from the point of the arch to its springings. So their standard proportion of height to breadth is 5 to 4. The heraldic bearing called a *lozenge* was nothing but a quarry of glass, called in France by the same name; and in the Heraldry of the *Encyc. Metrop.* I find an old herald's dictum accordingly, that "all authorities are agreed that the height and breadth of the true lozenge must be as 5 to 4." Well, but what are heraldic lozenges to men of the nineteenth century? A great deal, sir. Much more before many eyes than they were in the Middle Ages. If you play at cards with a Spaniard, you will find that instead of the knave of diamonds, you have the knave of *lozenges*. Lozenges of gules do more unto men of the nineteenth century than to any knight that ever fell in a tournament. Now, who has regulated their form for us? You see, if we cannot trace

> "Imperial Cæsar, dead and turn'd to clay,
> Stopping a hole to keep the wind away,"

we can most rigorously trace the proud imagining of poor Cheops's mind, till we find our "King of Diamonds" is demonstrably he; and all he hath done at last is to rule the form of spots on one fourth of all our club cards, from the ace to the knave!

E. L. GARBETT.

P.S. The property above pointed out, in a base and perpendicular as 4 : 5, is even *more* remarkable in each of the other gradients, for which I conceive the outer slopes to have been meant, as the following comparison will show:—

Half Base.	Perpendicular.	Slope.	
4	5	6·4031 = 6·4	+ ·0031
5	7	8·6023 = 8·6	+ ·0023
7	9	11·4017 = 11·4	+ ·0017
5	6	7·8064 = 8·666	— ·0002
21	20	29·	

So that, in whole numbers, we have,—

	Base.	Height.	Slope.	
Great P. and 6 others...	40	25	32	true within $\frac{1}{1000}$
Second P. and 5 others	70	45	57	" " $\frac{1}{4000}$
Small Dashoor P.....	75	45	59	" " $\frac{1}{4000}$
Steepest Stone do.	50	35	43	" " $\frac{1}{2000}$
Flattest do.	42	20	29	EXACT.

I have no doubt these were the proportions intended, and that by comparing the absolute measures, we shall have the Egyptian cubit or foot more exactly than any other ancient standard.

Mr. Drach, I see, has also referred Mr. Thurnell to Röber's identical solution of the problem. With regard to Röber's other theories, I shall believe they used the heptagon when any example of that figure shall be found in their works. It is rare enough in *any* architecture. An early window in St. John's Church, Winchester, has the only septfoil I know, in England or France, though fourteen seems now the established number of spokes for our hind carriage-wheels.

E. L. G.

SPIRE OF ST. PAUL'S, BEDFORD.

A CORRESPONDENT says,—The tower and spire of this church are now taken down for re-building, in pursuance of the alterations agreed upon. The fine roof of the church had previously been well replaced from ascertained danger in 1848. In the case of the tower, it proved not a day too early; the symptoms of danger had appeared from large cracks, which had been too much slighted. Some Norman work was found, supposed to have been removed from the celebrated "Castle;" but the general masonry was about the worst Mediæval work ever known, the stones being held together by a muddy substance, with scarcely a symptom of lime, though not wanting in the neighbourhood; and it is a great wonder it could stand so long. A Bedford paper (alluding to a terrible crash elsewhere fifty years ago) suggests that this might be a useful hint towards the examination of other towers (which was most carefully done in the instance of St. Saviour's, Southwark, about fifteen years ago), where there might exist not unlikely danger.

CLARE COUNTY LUNATIC ASYLUM.

THIS building, in common with the majority of those in Ireland the purpose of which is similar, has been erected on a site selected for its salubrity, most desirable for its command of cheerful scenery, and its convenience to the main road of the county, to accommodate the lunatic poor for whom it is intended.

The site consists of about 40 acres of land within a mile of Ennis, on the Gort-road, at the northern side of the town. The building faces the south, towards which the ground slopes gently. The character of the building is simple and bold, and suits very well for works of the class; there is a central tower of good outline; the windows generally are circular-headed, have plain square architraves surrounding them stopped on square sills. A little more finish is given to the central or official department than the rest, otherwise there is nothing striking as an architectural composition.

It consists of a front centre building containing the official residences and public rooms, two wing buildings for the patients, with two airing courts at the rear of each, and a rear centre building containing the dining-hall, kitchen, laundry, and other offices: the front and rear centre buildings are connected by covered corridors.

The extreme length is 600 ft., of which the front centre building occupies 80 ft., the wing buildings extend 200 ft. at each side, where they return about 100 ft., the remainder of the length being occupied by the infirmaries.

The extreme depth of the building at the centre is 330 ft., and embraces the kitchen and laundry offices, with the rear and front centre buildings. The day-rooms average in size 40 ft. by 24 ft. The dining and recreation hall is 56 ft. by 30 ft., and the height of two stories, with an open roof.

A series of day-rooms, on the ground-floor, dormitories on the upper floors, connected by passages of moderate width, have been adopted. It is thought, with the sanction of the Board of Control, which in Ireland takes the place of the Commissioners of Lunacy, that this arrangement in separating the day and night accommodation of the patients, and otherwise assimilating their circumstances to those of ordinary life, is preferable to the usual corridor, or "ward system," as it is termed.

The infirmary buildings are placed at the extreme ends of the wings, having yards and airing sheds: in connexion therewith they have also separate entrances and staircases.

At the rear, connected with the airing courts of the male wing is a working ground, with suitable carpenters', shoemakers', tailors', and other workshops, opening to the same; at the other side of the kitchen and stable-yard, and connected with the airing courts of the female wing is the drying-ground, communicating at one end with the laundry offices. Suitable sheds and latrines are provided for all the airing courts.

The front centre building, which projects about 50 ft. from the wings, is placed at a higher level, and with a terrace front, admits of a basement, in which the kitchens and offices for the physician and matron are placed.

The chapel, which has a vestry and separate entrances for male and female patients, is situated on the first-floor at the rear of the front centre building.

The ground-floors of the wings are chiefly appropriated for day-rooms and single-rooms. The day-rooms nearest to the centre, at each side, are for the tranquil patients; those more distant for the refractory. These latter are mostly intended to sleep in single rooms, situated in the returns of the wings. The refractory patients all through will be separated from the rest. The tranquil patients will sleep on the upper floor, chiefly in dormitories; and the middle class of patients will occupy the first or middle floor, where day-rooms and dormitories are provided for them.

The attendants' rooms are placed next the dormitories, with glazed doors between, and are in the proportion of one attendant to thirteen patients on an average.

The whole number of patients for which accommodation is provided is 260; and 25 ft. superficial are provided in the day-rooms for each patient, and 50 ft. superficial in the dormitories, the ceilings being 12 ft. in height.

Infirmary accommodation is provided for one-tenth of the whole number of patients, and single rooms in the proportion of 30 per cent. The water-closets, baths, and lavatories are placed together in projections, in order to simplify the arrangement of the drainage and water supply, and to keep those offices as much as possible separated from the inhabited apartments.

Two staircases with solid wells, waiting and reception rooms, together with side entrances for patients and their friends, are provided for each wing.

The kitchen, 33 ft. by 30 ft., adjoins a scullery and a boiler-house. The laundries and wash-houses are at one side of the kitchen court, and the kitchen stores and workshops at the other side with the attendants' dining-room and the female servants' rooms overhead. On the first floor of the range of buildings, having a separate entrance and staircase, are the storekeepers' rooms.

The farm offices, steward's house, and stables for the board of visitors, are to comprise a separate detached block of buildings, and a house for the gardener will be erected in a retired part of the grounds.

The walls are built of the local light-blue limestone, and the outside walls are lined with brick of the locality, the quoins and dressings neatly chiselled. Sandstone is used for staircases and door-sills; and, as a check to the spread of fire, should such ever happen, stone sills, resting on arches, are set across the corridors at intervals of about 40 ft. The cross walls which there occur are carried up to the underside of the slating. The plates for the floors throughout are carried on stone corbels, and wood lintels are very sparingly, if at all, used.

The roofs of the dining-hall, kitchen, and laundry are formed with open timber framing, and have louvred ventilators.

The floors of the water-closets, lavatories, and baths are formed of Valentia slate.

Almost throughout the entire building the interior is plastered.

The windows have wood sashes, except those to the single rooms for refractory patients, which are of wrought-iron. The ventilation is to be effected by flues from each room, carried into horizontal galvanized iron air-trunks in the roofs, thence into the side towers, in each of which a

shaft is carried up, with fire-place at bottom, to ensure an upward current.

It is intended to have a heating apparatus under each wing, from which warm air may be supplied to each room, in connexion with the system of ventilation. The day-rooms, dormitories, dining-rooms, residences, and some of the single rooms will have fireplaces.

The site affords considerable facility for obtaining water from the river Fergus, and a steam-pump is proposed to supply the principal cisterns at a high level, over the kitchen. Cisterns are also placed over the lavatories and baths. The rain-water will be collected in underground tanks.

These buildings were chiefly designed by Mr. W. Fogerty, architect, of Dublin, and are being completed under the joint superintendence of Mr. J. Fogerty, of Limerick, and Mr. A. C. Adair, the county surveyor of Clare. To this latter gentleman are entrusted the arrangements for the water-supply, the bath and lavatory fittings, and the drying-closets.

The amount of the present contract, exclusive of boundary-wall, gate and other lodges, farm offices, baths, water-closets, and engineering works, is about 29,000*l.*; but it is estimated that when these additional works are completed, the total cost will amount to 35,000*l.* Mr. Michael Meade, of Dublin, is the contractor, and Mr. Fitzgerald clerk of the works. It is expected that the whole will be completed within a year from the present date.

THE EAST INDIA CLUB, ST. JAMES'S-SQUARE.

The East India United Service Club has just entered into possession of its new club-house. The old building, No. 14, St. James's-square, had long been found too small for the increasing numbers of the Club, and the members therefore decided to rebuild No. 15, St. James's-square, and add it to their former house, No. 14. Mr. Charles Lee was their architect. The façade is of an ordinary Italian type. The interior of the club-house has been fitted throughout with the conveniences supplied by modern ingenuity, and is to be handsomely decorated.

The East India United Service Club was originally founded in 1848, to meet the wants of the various services which collectively administer the Indian Government. It has, however, gradually lost its exclusively Indian character, more especially since the transfer of our Eastern Empire to the Queen, and it has now on its rolls many officers belonging to the home forces. The Club numbers upwards of 1,700 members, of whom generally about 800 are in England. The new building has been designed to accommodate over 1,000 members. The works have been executed by Messrs. George Myers & Sons; and the furniture was supplied by Messrs. Holland & Sons. Mr. Alfred Howard acted as clerk of the works.

NEW UNION WORKHOUSE, MORPETH.

The foundation-stone of the new workhouse at Morpeth was laid on Wednesday, the 21st ultimo, by Lady Elizabeth Grey. The site of this building is both salubrious and picturesque, on the banks of the River Wansbeck. One boundary line faces the main street; the opposite extremity is lapped by the stream. The workhouse will consist of several groups of buildings placed in three leading lines, the first lining the street frontage, the second occupying a central position on the site, and the third facing the river. Throughout the disposition of the different classes, the officials will occupy central positions in the various buildings, having the male inmates always on the left hand, and the females on the right. Thus in the length of frontage the entrance-gateway will give admission to a covered way into a large pebble paved court-yard. From this passageway will depart, on the one hand immediately behind the porter's apartment, the way to the wards for the female probationers and vagrants; and on the other, beyond a waiting-room and staircase leading to a spacious board-room on an upper floor, the way to the wards and yards for the male probationers and vagrants. The master and mistress of the establishment will be located in the centre of the main house, having the same arrangement with regard to the sexes made throughout, from basement to attics. The sick will be accommodated in the third block of building, near the water's edge. Separate isolated accommodation for infectious cases will be provided, as well as male and female itch wards, and a dead house. Plans and elevations, showing these arrangements, were deposited beneath the foundation-stone. Mr. F. R. Wilson, Alnwick, is the architect; Messrs. Middlemas and Stafford are the contractors.

PULLING DOWN AND BUILDING UP IN HAMBURG.

Great excitement has been caused by an association of building speculators having bought up a large tract of house property in the very heart of the city, for the purpose of pulling down the buildings and erecting new ones on the site. Some idea of the extent of this enterprise may be formed from the fact of no less than 987 families (comprising about 4,000 persons) having received notice to quit on the 1st of May. The premises in question consist of old tumble-down houses, situated in narrow lanes, blind alleys, and small courts, known by the euphonious appellation of the "Gängeviertel," tenanted by squalid inhabitants of the very poorest and most wretched classes, accustomed to the inconveniences of foul air and close but cheap quarters. The original plan was to make a public thoroughfare leading from the Grosse Bleichen to the Grossneumarkt, which was greatly needed, and would have proved a great facility for communication between two important quarters of the city; but for this purpose they required from the State a subvention of a million marks banco, as indemnity for the ground given up for streets 60 ft. wide, which was refused by the Legislature. Under these circumstances the projectors have altered their plans, and now intend to make private streets and courts, with which the authorities have no power to interfere. As the commerce and industry of the city are increasing annually in a most unparalleled ratio, so the population is ever growing larger, more particularly among the working classes, who are attracted from all parts of the interior of Germany and the surrounding countries by the high price paid for skilled labour at Hamburg. It cannot be denied that there is in consequence a great scarcity of dwellings suited for the requirements and within the reach of the working classes, and it will be apparent that this scarcity will be greatly increased on the 1st of May, when 4,000 persons more will be obliged to find other suitable lodgings. To obviate this dilemma to some extent, a provisional committee of patriotic and influential gentlemen has just been formed for the purpose of getting up a joint stock company, to be called "The Building Association of 1866," with a capital of 1,000,000 marks, in 2,000 shares of 500 marks each, for the purpose of building small houses and tenements suited for mechanics and their families, and to be let to them at rents giving a return of not more than 5 per cent. per annum. According to the prospectus issued, the company is to declare itself "constituted" as soon as one half of the shares are taken. The proposal seems to find encouragement, and is warmly supported by the better part of the local press.

TEMPERANCE BUILDINGS IN THE NORTH.

Sunderland.—The advocates of the temperance movement in Sunderland are now making strenuous efforts on behalf of their cause, and are, on the whole, so generally successful, that the bold scheme of erecting a public building is now in a fair way of being realised. The building is to be erected at a cost of 10,000*l.*, and will be called the "Victoria Hall and Temperance Institute." It will occupy a good site at the north end of the Toward road, facing the new extension park, and easy of access to the public. The length of the building, which runs north and south, will be 260 ft., by a medium width of 75 ft., and in addition to containing a grand hall, with dress circle and gallery, capable of accommodating 2,000 people, will include a smaller lecture-hall, in which 600 can be seated, besides refreshment-rooms, club-rooms, anterooms, and news-room. The extreme north end is furnished with a clock tower, which will rise to a height of 160 ft. The style adopted is Gothic, and Mr. Hoskins, of Darlington, is the architect.

Seaton Carew.—The Temperance Society here have decided upon supplying a want long felt in this neighbourhood, by erecting a Temperance Hall on the site of the old Boat-house. Attached to the lecture-hall is a reading-room, &c., which will be used as a Mechanics' Institute. Mr. Hoskins is the architect. The building is of Early English character.

THE PARIS EXHIBITION OF 1867 AND ARCHITECTURE.

Such of our readers as agreed with us in the expression of regret that architecture, notwithstanding the good and useful presence of Mr. Beresford Hope, was not represented by a professional architect on the English Commission in support of the coming Paris Exhibition, will be glad to hear that Mr. William Tite, M.P., has been added to the list, having been unanimously elected a Commissioner on the motion of Lord Granville.

SHOP-FRONT IN NEW BOND STREET.

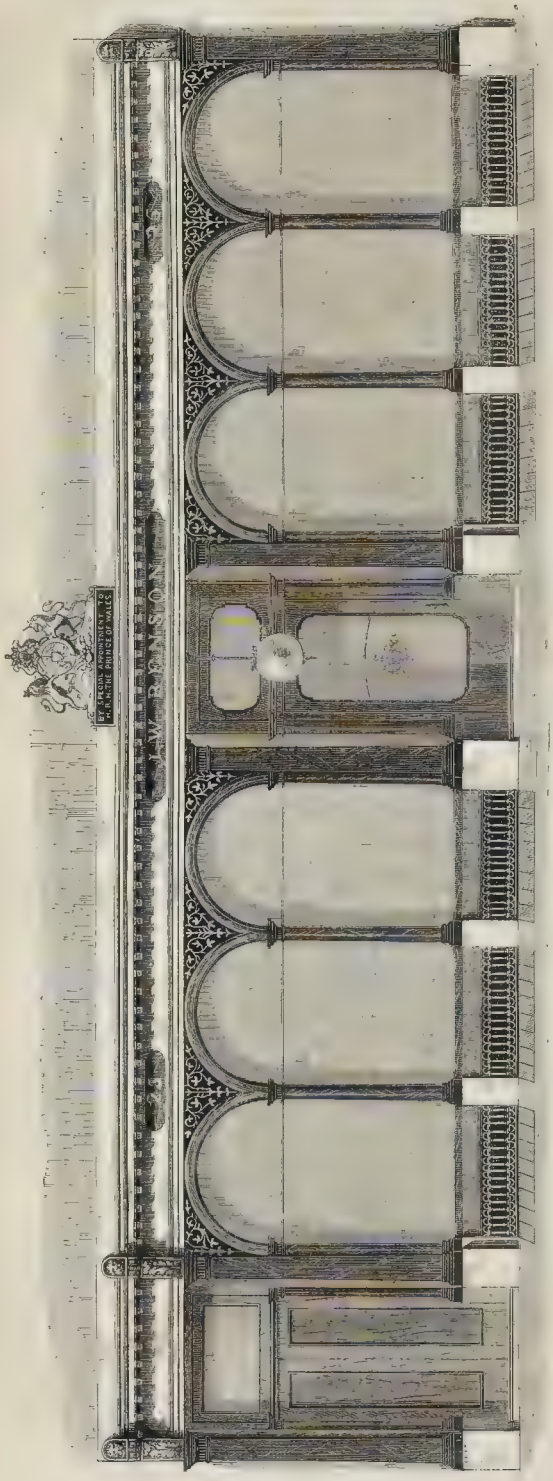
MR. BENSON'S PREMISES.

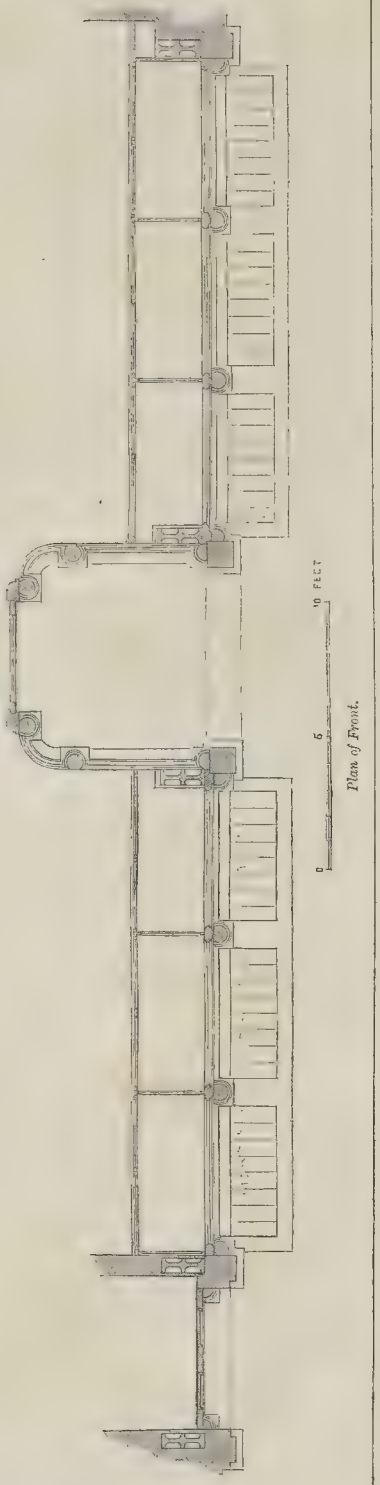
In Bond-street, Old and New, several handsome shop-fronts have been recently erected. Comptroller Sir Thomas *Bond*, of Peckham, who built the first part of the street, on the site of Clarendon House, two years before the "Glorious Revolution" of 1688, and ruined himself by so doing, would not know it again. New Bond-street, as its title tells, came after, say 1721. In this part of the well-known thoroughfare, the latest of the alterations has been carried out by Messrs. John Drew & Co., of Hatton Garden, under the directions of Mr. Cockerell, architect, for Mr. J. W. Benson, of Ludgate-hill, the well-known watch and clock maker, at premises formerly the banking-house of Sir W. P. Call, Marten, & Co. Originally in all its arrangements essentially intended for private occupation, considerable difficulties were presented during the progress of the alterations, all of which, however, were of course surmounted.

Those who knew the house before its alteration, will recollect the unsightly railings which guarded the areas in its front. These have been removed, and the area spaces covered over with York stone, supported by strong wrought-iron T bars, while light is admitted to the basement by means of six cast-iron horizontal frames, glazed with rough plate-glass. The whole of the brickwork, which occupied the position now devoted to the shop-front, together with the partition and party-walls inside have been cleared away, and in this operation good use was made of Drew's patent shoring needles. These walls have been replaced by strong cast-iron stanchions, which, secreted in the front, fixed on York stone templates, carry wrought-iron girders, 2 ft. deep, and 14 in. wide, running the whole length of the front, and cased in with tiles and mastic where not bedded in the wall.

The front itself, as seen in our illustration, consists of two windows, each 21 ft. long, divided by a spacious lobby, the floor of which is laid with encaustic tiles, with a margin of Sicilian marble. The entablature, extending along the whole length of the front, is of Portland stone, supported by columns and pilasters of Lizard serpentine marble, on rubbed Portland stone bases. These columns have fluted and gilt caps and moulded bases, the arches being also moulded, and the spandrels engraved and gilt. The frieze on the entablature contains black marble tablets, on which the name and number are cut in, and gilt. The front is illuminated at night by lamps placed in the shop above the inner cases of the windows, and is secured by means of Francis's revolving iron shutters, which descend behind the marble columns, so that these are still visible when the shop is closed. The entrance-lobby is fitted up inside with polished mahogany columns, and the stanchions supporting the girders are hidden by silvered glass, which also gives a light and handsome appearance to this portion of the front. The interior decorations of the walls and ceilings were designed and executed by Mr. Hatfield, of Marlborough-street, and are most tasteful and elegant.

The shop-front commends itself to attention by a design that avoids the cavernous insecure aspect of the majority of such formations, and by the richness of the materials employed.

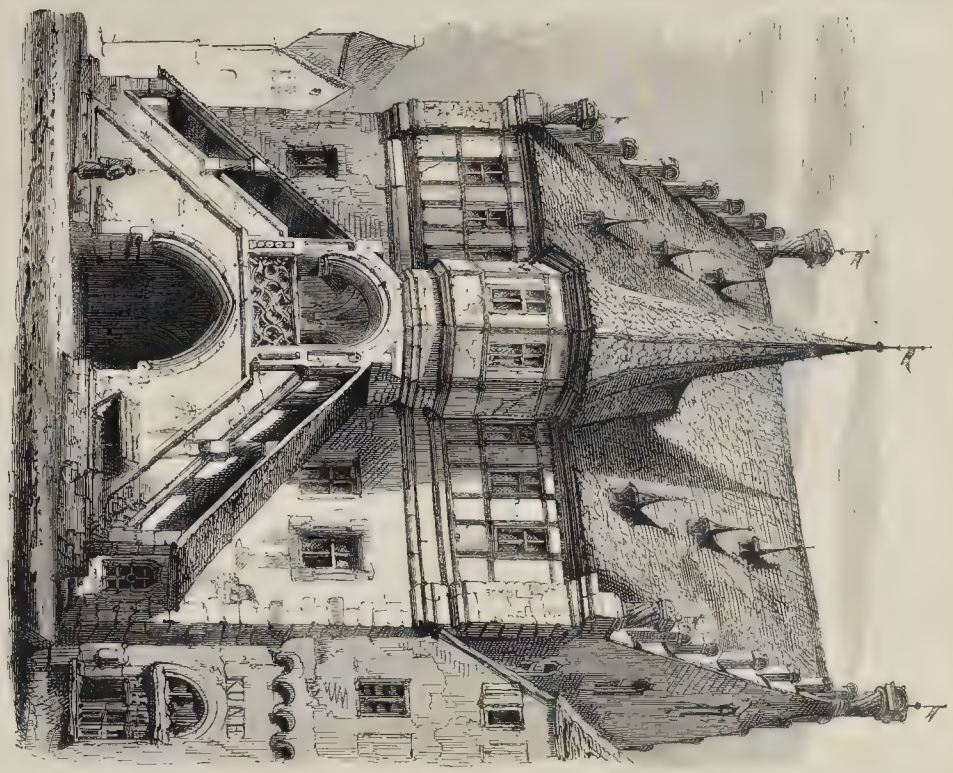




Plan of Front.

LONDON STREET ARCHITECTURE: MR. BENSON'S SHOP-FRONT, BOND STREET.—MR. COCKERELL, ARCHITECT.

TOWN HALLS IN FRANCONIA.



Rathhaus at Dettelbach.



Rathhaus at Volkach.

TOWN HALLS: FRANCONIA.

IN the most northern portion of the kingdom of Bavaria, called Franconia, is an ancient and exceedingly interesting town little visited by English travellers, and remarkable as having been the capital of one of the most wealthy ecclesiastical states in Europe previous to the general revolution at the commencement of this century.

Würzburg, although now reduced to the level of a provincial town, and shorn of most of its ecclesiastical splendour, is still a noble city; its cathedral, twenty-five churches, sumptuous palace, and delightful gardens, make it well worthy of a visit, and one of the most desirable places of residence in Germany. I do not, however, intend to occupy space with a description of Würzburg itself, but to make a few remarks upon a series of most interesting villages, or "dwarf cities" in its immediate neighbourhood. These towns or villages are all situated in the valley of the Main, and occur at about every two or three miles along the banks of that river, between Würzburg and Schweinfurth, a distance of about twenty miles. The first of these towns, starting from Würzburg, is Heidingsfeldt; it is a walk of about one mile and a half. The walls are tolerably perfect, and two singular gates remain, ornamented with the imperial eagle surmounted with an enriched Gothic canopy of fifteenth-century work. The streets are picturesque, and the parish church is a fine cruciform building with a Romanesque nave and tower. On the opposite side of the river is Randesachre, an unimportant village, with a Romanesque church, remains of an old Dominican convent, and some curious timber houses.

Passing Eiblestadt, Somerhausen, and Winterhausen,—which latter contains a fountain, surmounted with a bronze statue of a knight in full armour of the sixteenth century, and two grand stone houses of the same date,—Ochsenfurth is reached, one of the most perfectly preserved Mediæval towns in Germany. It is entirely surrounded with walls, protected by very lofty towers and gateways. There is a fine old bridge of very early date. The streets are singularly quaint; the houses all being built with projecting stories, supported upon stone corbels. The "Pfarrkirche," or parish church, in the centre of the town, is a noble fourteenth-century building, with a lofty Romanesque tower, and a beautiful Late chapel in the churchyard. On the east side of the Market-place is the Town-hall: on various portions of the façade are the dates 1497, 1498, 1499. The projecting clock turret, and external staircase, are pretty specimens of the architecture of that date.* The council-chamber, on the left-hand side of the principal entrance, is a fine old room, lighted by six large square-headed windows, very elaborately moulded; the ceiling is flat, and supported upon carved oak beams and stone corbels. This room, together with many others in the building, contains the whole of its ancient furniture: the tables are particularly good in design. In one room is a stove of glazed green tiles coeval with the building. The staircase is oak, and several of the upper chambers are panelled with the same material. At one angle of the building is a fine statue of the "Madonna," with the original lamp and bracket.

At the extreme west end of the town is a curious old hospital, of very large dimensions. It is a large rectangular building, with a tower and spire on its eastern side: it is a fine specimen of a Mediæval building of this class.

Two or three miles further on is Markt Biret, containing a curious street and gateway.

The next town, at a distance of about two miles from Markt Biret, is Sulzfeldt. It is a very small place, containing only 500 inhabitants; it is, however, entirely surrounded with walls, its towers and gateways remaining quite perfect. There is a Late church and rath-haus. Small as this place is, it still glories in the dignity of a town, and has its mayor and corporation.

Within sight of Sulzfeldt is Kitzingen, a large town, of about 7,000 inhabitants, with four churches—two Catholic and two Protestant. The Catholic parish church, rath-haus, and an old custom-house, are interesting buildings. The houses are chiefly built of stone, and many of them date from the sixteenth century.

The next place of interest is Dettelbach. In general appearance it very much resembles the former towns, except that it possesses more towers to its walls, and more gates, all perfect, than any of the others. The parish church is a very singular building, with an apse at both ends, and two towers on the south side, one square and the other circular in plan. They are about 10 ft. apart, and and connected at the top by a kind of wooden bridge or gallery. The interior of the church has been dreadfully modernized. The rath-hans is a very striking building. The entrance is by a double flight of steps, which lead to an open vaulted porch, the upper story of which is broached into an octagon, forming a very pretty little chapel. The council-chamber is in the upper story: it is a remarkably beautiful room. The deep-splayed windows are ornamented with carved medallions and wonderfully intricate interpenetrating mouldings. The ceiling is semi-hexagon in section, with arched principals and moulded purlins, without rafters. One or two other rooms are similar in general arrangement, but not so rich in detail. A river passes under this building from north to south, and a street through it from east to west, so that it forms a kind of covered bridge. Outside the town is an old Franciscan convent, with a Late Third Pointed church, in one span, with bold vaulting and a remarkable marble pulpit.

A few miles further along the river is another very interesting town, Volkach. Its gates are very remarkable. The outer gate is flanked by two slate-capped towers. This leads to the barbican, which is very large, and surrounded by a wooden gallery. Opposite to the outer gate is a lofty stone tower, through which the inner gate is pierced. The parish church, externally, is a good specimen of late fifteenth-century architecture. Internally, however, it has been entirely ruined with stucco and whitewash. The town-hall is remarkable for its singular resemblance to that at Dettelbach. It is, however, of later date, and far inferior in detail. Just outside the town are a series of "stations of the cross," leading to an old pilgrimage church. The first three of these "stations" are fifteenth-century work, and are very similar to the celebrated ones at Nuremberg. The church is a most interesting fifteenth-century building, with very rich details.

Volkach is about 14 miles from Würzburg; and I doubt if any 14 miles of ground in Europe contain so many interesting towns, villages, churches, and other objects of antiquity as these 14 miles on the banks of the Main. In my next letter I hope to give you a more detailed account of the churches in the towns which I have just described.

H. W. BREWER.

* We shall give a view of these in an early number.

RAILWAY VIADUCTS.

INSTITUTION OF CIVIL ENGINEERS.

AT a recent meeting, Mr. John Fowler, president, in the chair, the first paper read was on "The Craigellachie Viaduct," by Mr. W. H. Mills.

This viaduct was constructed for the purpose of carrying the Morayshire Railway over the River Spey, at Craigellachie, Banffshire, the engineers being Mr. Samuel and the author. It consisted of three spans of 57 ft. each on the north bank, and one span of 200 ft. over the main channel of the river; ordinary boiler-plate girders constituting the former, and the latter being of wrought-iron on the lattice principle. The piers and abutments were of solid ashlar masonry, and the works were arranged for a single line of railway. It was stated that the Spey was one of the largest and most rapid rivers in Scotland, and was also subject to sudden and heavy floods, the water sometimes rising 6, 8, or 10 ft. in as many hours.

In designing the viaduct, it was necessary to provide an uninterrupted channel for the free passage of rafts, and to construct the piers and abutments so as to be able to withstand the blows and pressure from any blocks of ice, or floating timber that may be brought down during floods. The channel of the river was at ordinary seasons 180 ft. broad, and 4 ft. deep in the centre. The height to the underside of the girders from the usual water level was 20 ft. The bed of the river consisted of coarse gravel interspersed with large irregular boulders, overlying a compact layer of gravel and clay. A timber-pile cofferdam could not, therefore, be advantageously employed, and it was decided to use cast-iron cylinder foundations for the main pier, small river pier, and main abutment, and thick beds of concrete for the small land pier and abutment. The cylinders in the main pier and abutment were 5 ft. in diameter, and in the small river pier 4 ft. 3 in. in diameter. They were in two equal lengths, and formed, when bolted together, one complete cylinder 13 ft. 6 in. in length. Their size was sufficient to allow a man to work inside, the large boulders being broken up with wedges, and removed in pieces, with the excavated material. These girders were parallel throughout, and their depth was 17 ft. 4 in. The top and bottom members were T shaped, the width across being 3 ft., and they were composed of horizontal plates, a vertical plate, and four angle irons. A single system of lattice-bars was used for each girder, consisting of angle-irons varying in section according to position and relative strain. The main girders were 17 ft. apart from centre to centre, and they carried the railway on the lower flange. The cross girders were of wrought iron 12 in. deep and 4 ft. apart, the rails being carried upon longitudinal timbers bolted to the cross girders. The lattice-girders were held together laterally by five wrought-iron diaphragms, securely fastened to the main girders at the top, bottom, and sides. The lattice-girders and the plate-girders for the smaller spans were riveted together at the main pier, and formed thus one continuous system. At the main piers the girders were bolted down to the masonry, while at the other piers and at the abutments the girders rested upon turned cast-iron rollers.

The results of several experiments showed that the average breaking-weight of the plates was 22·39 tons per square inch, and of the angle-irons 24·16 tons per square inch. The effective sectional area of the bottom member, deducting for cover plates, rivets, &c., was 70 square inches, giving a tensile strain of 4·1 tons per square inch. The effective section of the upper member, without deducting for cover-plates, was 75·74 square inches, which gave a compressive strain of 3·78 tons per square inch. The total cost had amounted to 12,199*l.*, or equal to 29*l.* 10*s.* per lineal foot.

The second paper read was on "The Grand River Viaduct, Mauritius Railways," by Mr. W. Ridley.

It was stated that the length of this viaduct, from abutment to abutment, was 620 ft., and that this distance was divided into five openings of 116 ft. each in the clear. The height from the level of the rails to the surface of the water was 129 ft. 9 in. Each pier was composed of two cast-iron cylinders, each 10 ft. in diameter, resting upon masonry foundations, and filled with concrete; the works being for a single line of railway. Mr. Hawkshaw was the consulting engineer to the government of Mauritius, and the contractors for these railways were Messrs. Brassey & Co., for whom Mr. Longridge acted as resident agent. In constructing the piers of this viaduct, cylindric rings 9 ft. high were divided into five segments each, and were bolted together by internal flanges. It was resolved that the foundation should be formed of blocks of concrete, and that sufficient excavation for one block only should be taken out at a time. Tarpaulins were laid in the bottom, and for 4 ft. up the sides of the excavation, for the purpose of preventing the numerous springs of water from washing out the cement; and this plan was found to answer perfectly, five distinct blocks being thus successively laid.

The segments for the first rings of each pier were lifted into their places by means of sheer legs and tackle, and in two cases the second rings also; but subsequently a mast, with a cross-tree and struts, mounted on a frame inside the cylinder, and free to revolve easily when required, was employed. As each ring was completed, the mast, with its supporting frames, was lifted, the time occupied in effecting this being about four hours and a half. Eleven pairs of rings were thus placed on No. 1 pier, thirteen each on Nos. 2 and 3, and ten on No. 4. The heights to the top of the last ring on each pier were respectively 99 ft., 117 ft., 117 ft., and 90 ft. The weight of each segment lifted was 32 cwt., and one set of men in one day completed one ring and raised the mast.

Piers Nos. 1 and 4 were filled with concrete from the adjoining abutments. A single contractor's rail, weighing 23 lb. per lineal yard, rested on two frames, that on the abutment being higher than the one on the pier, and on this rail a box with a false bottom was made to travel, by a sheave rolling over it. The box contained 7 cubic feet, and weighed, when filled, 8½ cwt.; as soon as the contents were discharged, the box

was drawn back by a rope. At piers Nos. 2 and 3, the concrete was lifted by means of an endless ladder, of iron, worked by a small engine. At every alternate joint was fixed, by angle pieces and diagonal stays, a light deal shelf, sufficiently large to hold a basket containing nearly a cubic foot of concrete. When these baskets arrived at the tops of the piers, they were lifted off and emptied, and were returned on the undersides of the shelves. By the former method 50 cubic yards were completed daily, whilst by the endless ladder about 40 cubic yards were deposited in the same time, with one hundred men working at each. The concrete was carried to a height of 3 in. above the tops of the cylinders, and consequently bore the whole weight, the cylinders merely serving the purpose of a casing, and preventing the concrete from crushing laterally.

The girders were sent from England in sections of about 12 ft. long, which on arrival were transported to the Mahébourg side of the river, and were riveted together in lengths of 36 ft. to 48 ft. A gullet was here excavated to the level of the abutment, and extending backwards to a distance of about 280 ft., it then rose at a slope of about 1 in 5 to the formation level. In this gullet the first lengths of girders were to have been built, and as they were pushed forward, the succeeding sections were to be brought down the incline and added on. The arrangement for launching the girders was, however, considerably modified in England; but this modification, simple and effective as it appeared to be, and good as it was theoretically, practically proved a failure, and eventually had to be abandoned. The original plan was then resorted to. A line of flat-bottomed permanent-way rails, laid on longitudinal timbers, resting on cross sleepers, was placed under the centre of each girder. At every 12 ft. a balk of timber, forming a skid, was placed transversely across the rails, and the girders were wedged up upon these balks. On the undersides of these balks, and over that part which would bear upon the rails, a thin plate of iron was fixed by two bolts, the heads of which were flush with the surface of the top, whilst the nuts projected underneath, and came up close to the inside edges of the rails, acting as guides to keep the girder in line when travelling. When the girders were ready to be moved, the rails were well greased, and men were placed at the ends of each skid with sledge-hammers to keep striking it to prevent sticking, as well as to assist in starting. The rails were laid throughout the gullet, to within 5 ft. of the face of the abutment, the underside of the rails being level with the surface of the masonry. When the skids arrived at the end of the rails, they dropped, and were removed. On the top of the bed plates the bearing plates for the permanent expansion rollers were bolted. These plates were tapered off at the ends, so as to allow the rollers to enter and to pass freely in and out. The latter were linked together, and after they travelled over, the plates were taken out and returned, and linked on to the rollers just entered, and were gradually drawn in under the girders. Short keel-pieces were followed up on the rollers, as the girders advanced, by men stationed on a scaffold. The launching was accomplished by means of powerful tackle and winches, and so effectual that in one day the girders travelled 12 ft. every fifteen minutes; subsequently they were advanced 108 ft. in four hours, and the last span was completed in six hours and twenty minutes, the entire length of the girders, 630 ft., moving quite freely. The roadway girders, plates, and permanent way were then laid, and in fourteen days after the launching was finished, trains were running over the viaduct. The girders were fixed to the centre pier, while they rested upon rollers at the other piers and at the abutments, and so were free to expand and contract. The total weight of the superstructure was 560 tons, of which the roadway weighed 147 tons; and the total weight of ironwork in the piers, including bed plates, expansion rollers, &c., was 993 tons.

THE OAK.

THE oak, when well grown, is the largest and most majestic of all British trees. Viewed either as an object of gigantic and rugged beauty in our forests and woodlands, or, when felled, as timber of the utmost utility and endurance for public buildings, ships, &c., it is second to no other native tree. It has always been the delight of the landscape painter to introduce this tree in the woodland prospect, and to all lovers of nature it presents an unceasing and ever-varying charm; whether seen in the calm summer, with herds of deer reposing under the shade of its ample branches, in the driving storms of autumn and winter, with its contorted branches covered with snow, or its entire structure reduced to a gigantic shell, it is always an intense object of interest to the artist. Nor to the landscape artist alone has it been a subject of study and attention, but from the earliest times we find the sculptor, the ornamentalist, and stone carver representing in detail its foliage and fruit.

In our cathedrals and churches, in boss, finial, capital, and truss, we constantly see plaited and intricate groups of the leaves and acorns of this tree. There are very few large oaks to be seen near London, and for one to fully realise the immense size this tree will sometimes attain, a visit should be paid either to Sherwood or the New Forest. Here they may be seen in all their varieties of growth, their enormous spiral trunks seeming to form an inseparable part of the earth from which they spring, their huge twisted limbs and bright green foliage forming a prospect never to be forgotten. One of the most striking features in the general aspect of the tree is its irregular writhing branches (one of which has been known to weigh more than 5 tons), often reaching to within a few feet of the ground: —

> "Twined and twisted,
> Finger'd and fisted,
> Like one who had look'd on wringing hands
> Till his hands were wrung in his sleep."

But how many plain things are there intimately connected with the oak tree, wholly ignored by sculptors and decorative designers,—things valuable and characteristic in themselves, but passed over by those who have "eyes and see not!"

Foremost are the two distinct forms of oak,—one with the acorns without stalks and the leaves with stalks; the other with the *acorns* supported on stalks and the *leaves* without them,—the latter *Quercus pedunculata*, and the former *Quercus sessiflora* (misprinted by Gwilt,* who evidently copied it from some old botanical book, and mistook the long "s" for a "j," "*jessiflora*.") Now, as all oaks belong to either one or other of the above forms, we imagine it would be correct to indicate a knowledge of this simple fact in any work of ornamental painting or sculpture. The flowers that precede the acorns and grace the tree in the early spring seem uniformly set aside, though well worthy of examination for their artistic merits. The observer of small things who may have wandered in our oak forests at the fall of the year, has probably noticed the falling acorns rattling in every direction as the trees are shaken by the autumn winds. Amongst the dead leaves of this season the fruit readily germinates, and is then worth examination. The shell splits, and the moisture of the earth causes the first rootlet to emerge from the acorn. This rootlet is fiery crimson, tipped with transparent creamy white, and is an object well worth observing.

The only true English flowering parasite,—viz., the semi-succulent mistletoe,—sparingly occurs on this tree. It graces the tree at all seasons, flowering in the spring, and bearing its white berries in the autumn and winter. It is said that the mistletoe gathered from the oak was the only kind used by the Druids in their religious ceremonies. This may be the case, or it may not; but, at the present time, the parasite is far more common on other trees. It has seldom been sculptured as an ornament for the Christian Church, as being a relic of former idolatry, and is seldom or never used (on very slender grounds) as a Christmas decoration for our churches. It, however, occurs as an ancient sculptured ornament in Bristol Cathedral.

That there was considerable foundation for the many old tales of magic connected with this tree, a knowledge of the natural history of the oak itself sufficiently proves. At certain times and under special conditions, this tree might certainly be regarded by the credulous as truly "enchanted."

One of the most singular of these peculiarities is the growth of the remarkable fungoid excrescence known as *Fistulina hepatica*, so called from its very close and often startling resemblance to a great lump of liver hanging from the side of the trunk. It resembles a huge liver in every respect; the colour is precisely the same, and, if incised, a red, blood-like juice profusely flows from the wound: but not only in outward aspect is it a counterpart of flesh, but in its taste and meat-like qualities it so resembles meat, as to be nearly the same thing. It is esculent and nutritious, and has been aptly compared by a competent authority to a "vegetable beef-steak." It grows on all parts of the trunk and exposed roots. When very young it is exceedingly like a strawberry: and so close is the similarity, when growing on the roots, that the specimens might be readily mistaken by the most observant. In its next stage it is about the size of a large tongue, to which it bears a great likeness; so that the expression of "tongues in trees" would no longer be a figure of speech to the wanderer in an oak forest. The hurricanes of winter will sometimes blow a gigantic oak bodily down, if exposed to the fury of the wind, and will either tear it out partially by the roots, or snap it off close to the ground. Should the tree be alive, this broken part of the stem is just the *habitat* the above plant loves, on which it readily grows, and generally in great profusion, closely similating the viscera of some gigantic animal, with the red, blood-like juice trickling over the broken and ruptured trunk.

It would be out of place here, as well as difficult, to give a list of all the creatures to be found on the oak tree alone, or in oak forests, owing to their large numbers; but the lover of nature and art would be at no loss if he made the subject his study. The well-known gall, however, may be mentioned here, so common on oak-leaves; living and dead, and so like a ripe red cherry in colour and size when matured. At first it is yellowish green and succulent, ultimately becoming tougher, exceedingly brilliant in colour, and large in size. The curious, if not otherwise engaged, may find the creature inside that forms this parasitic gall of the oak, and the parasite of the second degree may be found in the home of this parasite of the first degree. From the above it will be seen that in any ornamental composition where the oak is figured there need be no lack of brilliant colour. If another instance is wanting, reference might be made to the spawn of *Helotium aruginosum*, so common on old dead oak branches; it penetrates and stains the wood in every direction, and entirely through from one side to the other, and is verdigris green in colour, of a particularly agreeable shade. It was once in considerable request amongst cabinet-makers, under the name of green oak, for the so-called Tunbridge ware; but now, although equally abundant in oak woods, it appears to have fallen into disuse.

In large capitals, and in masses of sculpture where plants are introduced, how cold and vapid does all appear where the sculptor has confined himself to a mere copy of a few flowers and leaves without tale or meaning, and showing no knowledge whatever of the things beyond a mere dead copy of form or colour. It is true that no common tree or weed grows in this country but tells some instructive tale to the observer of its life and uses, either valuable or dangerous; or of the things that live upon it.

We might fill this number of the *Builder* with a list of the associations of the oak tree, its use for building houses, ships, and many other things,—its bark used for tanning, its fruit formerly used as food by the ancient Britons, the fondness of hogs for the acorns, the hunting for truffles in oak forests (with hogs on the Continent, and with dogs here), and numberless uses of this tree, dead or alive. W. G. S.

* "Encyclopædia of Architecture," page 462.

THE ARCHITECTURAL ASSOCIATION.

THE usual meeting of members was held on Friday evening (the 16th ult.), at the House, in Conduit-street.

The chair was occupied by the president, Mr. R. W. Edis.

The following gentlemen were elected members of the Association:—C. J. Jones, Robert Stephenson, and Robert Brass.

Mr. Frederick Farthing was, on ballot, elected registrar and collector of the Association.

Mr. J. T. Lyon read a paper entitled, "Points of essential Difference between Creative and Imitative Art." Having explained the distinction between the words "creative" and "imitative," he proceeded to point out the fallacy of comprising decoration with ornamentation, which, so far from being convertible, were really and significantly different. Decoration and orna-

mentation might be carried out in three ways, either by simply creating, by creating and imitating, or simply by imitating. It seemed to be a law that everything which man created ought to be made with due regard to order. Order was the first essential of creative art: in pure imitative art it was, however, just the reverse. Disorder was an essential feature of imitative art. All architectural works were based on the law of order; and the same law seemed to have been carried out in the best works of art of all ages. It was by the combination of creative and imitative art that the highest perfection was to be gained, but the confusion of the two led to the most mischievous results. The character of a nation, so far as art was concerned, might be ascertained from the commonest works of everyday-life. In the block letters used by tradesmen over their doorways, the principle of falseness in art was carried to an extreme by the shading and perspective of the letters. In such cases there was a confusion of creative and imitative art which was never allowed to exist in any other age but our own. In support of these views he directed attention to drawings of vases, scrolls, &c. He considered that this confusion was much to be deplored. He did not believe that the people of this country were indifferent as to whether they were to have good or bad art. On the contrary, he believed they only required the necessary art education to make them love good and true art. It was probable that in many cases some sacrifice of beauty might be made in attempting to adhere rigidly to true principle; still, truth was of greater consequence than beauty. He expressed his surprise that the word "distorted" had not been applied by art critics to flat painting, and referred to Japanese, Egyptian, and Greek art to show the extent to which distortion was carried. He subsequently referred to the laws which should govern the artist in stained glass, and pointed out the error of attempting to make pictures through that medium. In conclusion, he combated the common idea that principles might differ because tastes might disagree. All art was based upon the principles of truth, and those principles had governed the artists of all ages and all countries.

In the course of the discussion which followed, Mr. Lewes said, he could not agree in thinking that creative art required bad drawing and distortions.

Mr. L. W. Ridge thought that the principles communicated by the author of the paper had the advantage of being in a low condition at present. He was of opinion that the great object was to draw a distinction in sculpture and painting between pictures and decorations. Every one admitted that the statues set up in the streets of London looked extremely uncomfortable, and he thought it would be better to put backgrounds to them, if possible. They should remember, that in creative art decorations were required for particular purposes, and that therefore simplicity should be studied. Creative art appealed, on that ground, to favourable consideration.

The Chairman thought that, with regard to the question of creative and imitative art, they ought not to go back to the days of Japanese and Egyptian art in all their abominable distortions. The beauty of all descriptions of art consisted in its being as near truth as possible. The man who undertook to design creative art, whether in the round or flat surface, should have the love of nature to inspire him.

REMEDY FOR DAMP WALLS.

THE late rains have penetrated the walls of hundreds of houses, and we have received more than our usual number of letters, asking for a preventive,—generally not easy. We printed one such letter last week, but have received no fresh statement of experience of any particular remedy in reply to meet the demand. We repeat a recipe given before in our pages, concerning the value of which very strong statements have been made, especially, however, with regard to its use on brickwork. We should be glad to hear what has been the result of its use on stonework:—

Three-quarters of a pound of mottled soap to one gallon of water. This composition to be laid over the brickwork steadily and carefully with a large flat brush, so as not to form a froth or lather on the surface. The wash to remain twenty-four hours, to become dry.

Mix half-a-pound of alum with four gallons of water: leave it to stand for twenty-four hours, and then apply it in the same manner over the coating of soap. Let this be done in dry weather.



From the most remote records we learn that the old-established and appointed marks which defined the limits or boundaries of properties were preserved with almost sacred care. In the Scriptures a punishment greater than that which can be inflicted by mortal hands is threatened to those who remove their neighbours' land-marks.

As regards the boundary lines of states and nationalities, they have from the earliest days been a source of difficulty and the cause of unceasing disputes, often settled by the spilling of seas of blood. In connexion with great countries nature has marked out the limits, which seem destined—for a time at any rate—to have peculiar interests and to require separate forms of government: the ranges of mountains, the courses of important rivers, the interposition of deserts and sterile plains, the girdling of the sea have had the effect, in a measure, of determining the outline of nations, and also of establishing the peculiarities of language. In our sea-bordered land the general boundary is distinct. There are, however, outlying islands away from the main shores of Great Britain and Ireland which might admit of dispute; but even at home the pages of history, and the careful observations of the antiquary, will show the difficulties we have had respecting boundary lines which formerly defined the territories of kings, most of whom were fighting and struggling for an extension of their power and rule: fortunately those days of internal strife have passed away, and the numerous points once fortified with castles and barriers have become the peaceable marks which divide county from county.

Nor are the boundaries of boroughs, cities, and estates without a considerable amount of importance. These also have been and still are matters not easy rightly to establish. In England, Doomsday Book did much to define the extent of the Church and other lands; but when there were no water-courses or ranges of hills, stones of peculiar form, trees of great antiquity and size, and other striking natural objects were selected; and as time rolled on other stones were placed and inscribed which caused the bounds of estates to be more clearly seen. All this was only done after many a quibble and feud; but now, owing to the labours of land surveyors, and to the engraving of the Board of Ordnance maps, we shall have the bounds of even small properties so clearly established that it will be impossible for lawyers themselves to differ on the subject.

In former volumes of the *Builder* there is reference made to stones placed in various parts of the metropolis which mark the outlines of parishes and record various events. Many of these, which have use as well as interest, are in a state of neglect and decay; and if a little attention be not directed to these objects, it may be necessary to resort to the old custom of thrashing certain of the school-boys at different points of the debateable lands, in order to fix these points in the memories of the rising generation. To some extent the amalgamation of the small city parishes and the provision of plans on a large scale will, in course of time, render those marks less necessary: they will always, however, be objects of curiosity.

Throughout the country there are land-marks which have been useful for the direction of wayfarers, many of which have been renewed from time to time during several generations. Amongst these are "finger-posts," which are placed at the junctions of cross-roads and in other situations where an indication of the way and distance to surrounding places is of the greatest value to the pedestrian, especially in parts of the country where the population is thinly scattered. As the turnpike-roads became more frequented, the guide-posts were placed in greater numbers, and for the most part they were kept clearly painted and in good repair. The mile-stones became also of value, not only to the foot, but also to the stage-coach and carriage travellers.

To note the decrease of the number of miles to London, or to some other termination of a journey, in the old days of travelling, often beguiled the time; and they are, even now, of value to those who still in considerable numbers keep to the road. We do not know the date at which mile-stones were first brought into use; but we have not noticed any of the lettering which seems older than the time of George I. or George II.'s reign. Those marks which were cut upon the stones most readily procured from the neighbouring quarries, were more or less perishable, and many became speedily defaced and unreadable. At the beginning of the present century, more permanent materials were provided for this purpose. Some were formed of slate, into which raised letters and figures of metal were placed. Others were made of cast metal altogether; but these seem to have been often cracked, and in other ways damaged by mischievous people; and in many directions now the mile-stones have been allowed to fall into a very bad state, and are far more difficult to decipher than inscriptions of Anglo-Roman time. Finger-posts, for the most part, are even in a worse condition: the indicators are often broken, and the paint is allowed to perish from the effects of the weather, and in consequence of the want of a little timely renovation. This is not an expensive work, and would be an aid to many of those poor travellers who, in larger numbers than might be generally supposed, still wander along the public roads.

In Denmark, where railways are only beginning to spring into existence, the roads are excellent, and the distances are marked by handsome mile-stones;—a small round pillar, on a pedestal of granite, resting on a square green mound of earth, the front of each shows the number of miles; while over it, in colours, is the king's monogram surmounted by a crown. The finger-posts for the cross-roads are also very substantial and in good taste. A bronze column supports a post of the same metal, on which, in large golden letters, is displayed the name of the town or village indicated. A little attention should be given to the mile-stones and finger-posts still standing in England.



ARCHITECTURAL INSTITUTE OF SCOTLAND.—A meeting of the Architectural Institute of Scotland was held in the Royal Exchange, Edinburgh, on the evening of Monday, the 26th of February, when the report by the council in regard to the Lord Provost's proposed sanitary improvements in the city was read, and the plans of the proposed alterations were exhibited.

PARIS SEWERS.

M. DUMAS, president of the Society of Encouragement, gave at one of the last meetings an account of the sewerage works undertaken during the last years by the municipal administration of Paris. The main project comprises two great collector sewers, one on the right and the other on the left bank of the Seine, both uniting so as to have a common outlet into the river at Asnières. The first of these is terminated; the second is nearly so; there only remaining 300 mètres to be completed. This could have been finished long ago but for the indecision of the engineers as to whether or not the drainage of the Pantheon-hill would be continued by the Rue Saint Victor, as proposed at the commencement. Now, it has been arranged that the drainage will follow the Rue des Ecoles, so that the 300 mètres above alluded to can be put in hand and completed by August of this year.

The inhabitants of the river shores at Asnières have complained—not without reason—of the emanations arising from the outlet of the sewer, but the cause of complaint will be removed when the second part of the programme of the Paris drainage is executed. This is to consist in the establishing of a weir down the river, the effect of which will be to raise, in the interior of the town, the level of the Seine to 1 m. 50 c. above the *étiage*, or present lowest level, and thus to prevent the emanations produced during the dry days of summer. This barrage will have also the effect of diminishing the number of days during which the navigation of the river is annually stopped for want of water, while it will serve to create a motive power of 1,000 horses, capable of lifting the discharge of the Asnières sewer to a higher level, whence it can be distributed to a distance, either as liquid manure, or for the silting up of some waste lands.

M. Dumas also drew attention to the analogy between London and Paris relative to the sewage, that of London being the most difficult to deal with, containing as it does solid matter as well as surface drainage. He remarked that, by a curious coincidence, the English engineers appointed to study the question, had arrived at a conclusion identical with that of the Paris authorities. In both cases a collecting sewer has been constructed at each side of the river: in London, the products will be carried by a common channel to the neighbourhood of the sea; in Paris, they will be conducted to a region which, though fully determined upon, M. Dumas excused himself for not divulging.

GERMANY.

Prussia.—A day or two before the close of the old year, one of the most ancient feudal castles still extant, was destroyed by an accidental conflagration; for a fire broke out in the roof of Putbus Castle, the family seat of Prince Putbus, situated in the island of Rügen, lying off the Prussian coast in the Baltic. It was celebrated for containing many valuable relics of the Middle Ages, among which was a large collection of carved works of art in gold, silver, wood, and amber, large quantities of the latter commodity being annually cast up on that exposed coast, and though now claimed as royal property, were for many centuries the exclusive perquisites of the princes of Putbus. The original building was constructed for defensive purposes, and has successfully withstood many attacks and sieges on the part of the Sea Kings, Vikings, and other predatory hordes of the then formidable Norsemen, but the castle had been lately renovated and embellished by the father of the present owner.

Wurtemberg.—A favourable crisis in the long-projected restoration of the beautiful ancient Gothic cathedral at Ulm, on the Danube, has taken place by the vote of the Second Chamber, granting the Government a sum of 50,000 florins (about 4,200*l.*) for that purpose. The sum is to be applied in the first instance to the west front of the tower, the restoration of which was commenced some twenty years ago, but soon after given up for want of funds; and secondly to the fundamental repairs of the roof of the choir, which is in a very dilapidated and unsafe condition. These are just the works considered as most pressing, and strongly recommended in the report made by the architects, Schmidt, of Vienna, and Denzinger, of Regensburg, who were officially consulted on the subject.

Stuttgart.—The lately-endowed Professorship for Engineering Science at the Polytechnic School has been given to Herr von Kaven, professor of architecture at Hanover, with the rank and title of architectural councillor (Oberbaurath). It is, however, understood, that he will only enter on the duties of his new appointment in the course of next summer.

Baden.—The new Hall of Industry (Gewerbe-Halle), at Carlsruhe, will be opened in May. This institution is formed for the double object of exhibiting to the public all the latest technical improvements in the various branches of mechanical industry, and containing a collection of articles of raw produce of different countries adapted to manufacturing enterprise, but little known in Germany. There will also be a public library, as well as a permanent exhibition of the newest inventions in machinery and tools calculated to economise manual labour.

Frankfort.—The principal street, known as the "Zeil," is to be considerably lengthened, for which purpose several blocks of old houses will be removed. The expense of this projected improvement is estimated at two millions of florins, or about 170,000*l.*——An agreement has been entered into between the senate and the French engineer Kind, of Paris, who for the sum of 150,000 florins undertakes to sink an artesian well in the principal square, to supply the city with pure water, the want of which has long been inconveniently felt by the inhabitants.——The trustees of the Staedel Institution invite architects to send in designs and plans for a new picture gallery, to be erected on the ground now occupied by the Zoological Gardens.

THE MINERAL OIL MOVEMENT.

A REPORT has been made in New York to "the Petroleum Light Company," by Colonel Julius W. Adams, engineer, as to experiments made on the use of petroleum as fuel, in combination with steam, for the heating of steam-boilers. Mr. Cyrus Field, Mr. Horace Greeley, and other gentlemen witnessed the experiments, which have been carried on for some months, and are considered to be satisfactory. The oil and steam are conducted to a mixer, or retort, adjoining the furnace-burners beneath the steam-boiler, and are there mixed before passing through the burners, which are ninety in number and small in size. The oil and steam are entirely under the control of the attendant, and can at pleasure be made to extend to a volume of flame, filling the furnace and large flues with flame, or reduced to the flicker of an expiring lamp, by the mere turning of a tap. From the time of admitting the oil into the pipe-coil, steam was raised in the boiler, at atmospheric pressure, in twenty-nine minutes. No smoke or unpleasant smell was perceptible, and the combustion was complete and entirely manageable. To determine the precise economic value of the oil as fuel in comparison with coal, further experiments are considered to be necessary; but the evaporating power of the oil is found to be in the ratio of 29·33 to 8·16, or 3·6, weight for weight with coal. The advantages of the oil as a fuel for marine engines are thus summed up:—

"Rapidity with which steam may be raised—reduced dimensions of boiler and furnace below that required for coal—the continuous firing effected by feeding the fuel through a pipe into the furnace, thereby preventing the great loss of heat in the furnace every time a fresh supply of coal is thrown on, and the rush of cold air upon the opening of the furnace-doors—the freedom from smoke, cinder, ash, or refuse of any kind, which in coal reaches from 7 per cent. to over 16 per cent. of the whole amount. In the ability to command a forced fire almost instantly, without a forced draught, which, under some circumstances at sea, is of vital importance. In dispensing with the numerous class of coal-heavers, stokers, &c., and all the inconvenience of raising clinkers and ash from the furnace-rooms; and, finally, the diminished space occupied in the storage of the fuel."

There is a district in Scotland, west of Edinburgh, which now goes by the name of "the Scottish petrolia." It consists mainly of oil-bearing shale. Bleak upland farms have been found to be mines of wealth, estates at one time unsaleable have realised fabulous prices, and quiet rural villages have suddenly found themselves growing into important mining centres. Foremost among the men who have profited by this new industry, of course omitting the inventor of the process, Mr. Young, who has just retired with a fortune, is Sir James Simpson, who is reputed one of the most fortunate men of the day in the success of his commercial enterprises, in several of which he has embarked money. In one concern in which the fortunate professor is engaged, and which is reputed to have made its capital several times over in a year or two, one of the partners is also owner of the property, getting a lordship of 2s. 6d. on every cartload of the valuable stuff lifted from his ground. Everywhere in the district the landowners are boring in search of the precious strata, with variable success. A little property was inherited, which sold for something under 2,000*l.*, just before Mr. Young had tapped the district. This bleak bit of moorland is said to be now worth 200,000*l.*

THE TRADES MOVEMENT.

London.—A crowded meeting of operative engineers employed in the districts of Poplar, Limehouse, and Blackwall, has been held in furtherance of the movement for an advance of wages. Upwards of 1,000 society and non-society men were present. The chairman said the object of the meeting was to ascertain whether the men in the eastern districts were prepared to co-operate with the other districts in requesting an advance in the present rate of wages, and, if so, to what extent they were willing to go. A resolution for an advance of 10 per cent. on the present rate of wages was passed and ordered to be sent to an intended aggregate meeting as the opinion of the eastern districts.

Birmingham.—A general meeting of employers in the building trades of Birmingham has been held, Mr. Cresswell presiding over a large assemblage, at which all the leading firms were represented. Notices of alteration of rules submitted by the various workmen employed in the trade had been printed and circulated amongst the members of the association. The carpenters and joiners, bricklayers, house painters, masons, and labourers all claim an advance of wages or a reduction of the hours of labour, or both. A report was read which recommended that, under the provision of the present rules, the demands made by the carpenters and joiners, bricklayers, and labourers, be referred to arbitration. That in reference to the notice given by the operative painters, the committee understand that the master plumbers, glaziers, and painters have had a meeting on the subject, and recommend that the secretary be instructed to open communication with their secretary, with a view to take common action in the matter. As the notice from the masons had only lately come to hand, the committee recommended that the consideration of it be postponed until Monday, the 19th March next. The report was received and adopted unanimously, and the committee was authorised to carry out their proposal of a reference to arbitration.——A case of intimidation in the building trade has been brought before the Birmingham police-court, when Wm. Carrol, secretary to the Birmingham Operative Labourers' Society, was committed for six weeks' imprisonment for having threatened Mr. Robert Harris (firm of Harris & Price), builders, that unless Kelly, a non-society man in their employ, was immediately discharged, all their other men should be made to leave, which threat he afterwards carried into execution.

Manchester.—Several of the members of the building trades in this city have given their employers notice for an advance of wages this spring, and in one instance, that of the stone-masons, for a reduction in the hours of labour, namely, to stop working at 12 o'clock on Saturdays, instead of 1 o'clock, as at present. The employers say they find themselves in a very difficult position. They are hampered and embarrassed with trade regulations as to number of apprentices, largely-increased payment for overtime, and many other vexatious rates that check the carrying on of their business with either pleasure or profit. They allege, too, that architects are rapidly introducing more labour into their designs. A large meeting of the masters throughout the country is, we understand, to be held in Manchester next month, with a view to adopt some common action in the way of resisting further encroachments. It is to be hoped, however, that a strike will be avoided by a conciliatory disposition and friendly intercourse between the employer and the employed on that occasion.

Durham.—A satisfactory termination of differences, between the masons of Durham and their employers, has been brought about by the operatives personally seeking and obtaining an interview with their employers. After the several interests connected with the trade had

been taken into consideration, and the rules submitted by the men, together with those by the masters, calmly discussed, rules for the wages of the men and the hours of labour were agreed to by the masters and the deputation, these rules to remain in force for twelve months. By this arrangement a threatened strike has been avoided.

Newcastle-upon-Tyne.—A large meeting of the workmen of Newcastle and Gateshead has been held, in support of the nine hours movement, when resolutions to that effect were carried with acclamation.

Galashiels.—The journeymen slaters of Galashiels have asked for and received an advance per week from 20s. to 22s. 6d. in wages.

MEMORIAL OF THE LATE ARCHDEACON OF LINDISFARNE.

THE committee entrusted with the memorial-fund raised by the friends and parishioners of the late Archdeacon of Lindisfarne, aware that a porch to his church at Eglingham was one of the improvements he projected, but did not live to accomplish, have resolved that the memorial they purpose to erect should fulfil this intention. They have accordingly requested Mr. F. R. Wilson, the architect by whom the chancel of the church was restored some three years since, to carry this scheme into execution. The new porch is in the Early English style, with an entrance to the west. The gables will be surmounted with ornamental crosses; and it is hoped the funds will admit of stained glass in the windows.

FOREIGN HONOURS TO ENGLISH ARTISTS.

THE King of Italy has conferred the title of "Baron" on Mr. S. S. Kirkup, an English artist residing at Florence, whose attention of late years has been directed to the investigation and illustration of the poems of Dante.*

The administrative committee of the Dutch Royal Academy of Fine Arts has just named Professor Donaldson a Member of that Academy at Amsterdam.

THE "ARTISANS AND LABOURERS' DWELLINGS ACT."

THE Bill which under this title has been brought in by Mr. McCullagh Torrens provides that, upon the application of twenty ratepayers of any town, parish, or district, or by resolution of local authority adopted at a public meeting summoned in the usual manner, the Principal Secretary of State for the Home Department, on being satisfied that the deaths in the three years last preceding exceed three in the hundred [*per annum*, we suppose], shall direct an inquiry to be made by one of the Inspectors appointed under the Local Government Act, 1858, as to the sanitary condition of any street or streets, and of any house or houses, within the limits of such town, parish, or district; and the Inspector shall be required to state to what extent the dwellings inquired into are unfit for human habitation, and how far it may be needful that the same should be removed, with a view to the erection of permanent and healthful houses, suitable for the accommodation of persons subsisting by daily or weekly wages. If the recommendations contained in the report be not shown to the satisfaction of the Secretary of State to be unfitting or unnecessary, he shall require the local authority to take measures for complying with the same, or certain portions thereof, within a reasonable time, to be mentioned in such order; on which the local authority shall, without delay, cause plans and estimates to be duly prepared, of the cost of the pulling down of the houses which shall have been condemned as unfit for human habitation, and of building on the same, or some adjacent site, dwellings proper for the healthful accommodation of a number of persons, not less than that of the persons and families previously residing in the houses which shall have been removed; and such estimates shall be forwarded to the Secretary of State, without whose approval, signified in writing, no portion of the work proposed shall be begun. This being obtained, the local authority may get money from the "Consolidated Fund" at 3½ per cent., to be repaid by yearly instalments in a period not exceeding thirty years. The ownership and management of such dwellings are to be vested in the local authority. We conclude, though it is not very clear, that the owners of the property taken are to be treated with under the Lands Clauses Acts. The owner should have power himself within a given time to render the houses habitable. The Bill requires careful consideration, but has in it the germ of a much-needed measure.

* An old Correspondent of our own, Dr. Barlow, had also a title conferred upon him lately by the Italian King.

FREE TRADE IN ART.—THE LAW COURTS COMPETITION.

SIR,—Among our present multitudinous array of art difficulties, nothing presses so hardly on my own mind as the not being able to find out readily what is orthodox and proper, and what is not. I sometimes try to get out of this difficulty by taking the very *last* public utterances of any one received authority. I therefore most humbly trust that I am now in the right road, and at any rate starting fairly and on beaten ground. Mr. Ruskin would seem to have now left off writing thick volumes, to contribute to newspapers, and to the delivery of addresses at fine-art societies and working men's meetings. One of his very last and most emphatic statements at one of these gatherings was this—and to it I ask your earnest attention, for its importance cannot be overstated—"that the great curse of modernism in all art and architectural matters is 'competition!'" Will you kindly allow me a word or two on this theme at the present juncture,—a few very plain words?

I must first, before coming to the main point, cite the authority of another eminent public teacher on this subject of "competition," the late Mr. Cobden. But a very short time before his ever-to-be-lamented death, he said of, or rather to, Mr. Gladstone,—"We have now succeeded nearly in releasing from the prejudices and hinderances of ages the materials of the earth, which can now come and go as they will; the next work is to do the same by 'labour;' let that be as free, as clear of monopoly and privilege. Who will do this?"

A very few weeks before Mr. Cobden's death, I could not resist the putting the question to him as to what he precisely meant by this emphatic statement, and to what particular labour he referred? Slave labour, Irish cabin labour, dockyard labour, lawyers' and architects' clerks' labour, or art-labour generally; and as to whether he admitted a painter or architect to be a labourer or a capitalist. I believe this was a new subject to Mr. Cobden; for I fear that, with other political economists, he rather regarded art-architecture and painting as a sort of grown-up toy-work, and only fitted for large-sized children. He confessed that he had not thoroughly thought of the subject in this new light, and that it required a great deal of thinking. I venture to say, now is the time when this subject may well occupy our thoughts a little, and that present circumstances may help, if fairly looked at, to bring into light this hitherto hidden subject. If at starting I may be allowed a definite opinion, it would be "that the greatest possible curse that art or architecture at any time can labour under is monopoly and privilege, and the *absence of competition*; and that what is now to be striven for is *free trade in art and architecture.*" I think, also, that art-architecture, as well as painting, is and must be the result of personal labour, and does not admit of any transfer or exchange. A building is a stone picture, and you must paint it yourself as though it were a picture in colours; and thus it is labour and work, and not the mere result of the labour or work of others, or the result of the employment of capital, as the digging a trench or wheeling a barrow. I mean here, of course, the indicative means, directions, and drawings to and for the executive workmen. I cannot ask you to allow me to dwell on mere principles of art action, important and new as they may be, and not a little interesting, but must proceed to apply them to the exigency of the moment. Everybody knows that there is to be a new set of law courts, whole streets have been pulled down to make way for them; and the great questions then are,—who is to do them? how are they to be done? In what style of art? Are they to be the work of our acknowledged leading architects or that of their clerks? Who are they that are privileged to compete for them, and who are they who are to labour at the competition drawings? And, lastly, when done, whose work is it? All these are momentous questions, and cannot be answered all at once. Let us try at one or two of them. One has already been answered, sir, in your last week's number, where we are told that but six of our leading architects are to be privileged to respond to this demand on professional labour; and a more unfair selection, as I take it, could not have been made, or a more inconsistent one. Let us either have *fairness* and a free-trade competition, or *consistency* and a uniform unfair and privileged monopoly. Messrs. Hardwick, E. Barry, Street, Scott, Waterhouse, and T. H. Wyatt are the strangely favoured few out of the many well-known members of the Royal Institute of British Architects. There is something truly wonderful in this list, looked at artistically and politico-economically. But the most extraordinary omission in it, as it appears to me, is this, that neither of the learned professors of architecture at King's College and University College is in the list; for what is the crying architectural want of the time in which we live? Why the improvement of those dull assistants who will be such important elements in this very competition. These learned professors are almost daily employed in the teaching and polishing of these stupid pupils and clerks, and are so far and in reality the life and future hope of professional action; is it not, therefore, truly wonderful that *such* should be excluded? Free trade in architecture! I sincerely hope that there may yet be in this competition a little fairness before it is too late, and that we may have the opportunity of judging how far "*competition*" is a blessing or a curse in matters architectural; for there can be no manner of doubt that architecture is now passing through a very painful phase, and the beginning of a better future will and must spring up *economically* as a higher order of labour or work; and that labour, competitive and personal,—in short, the perpetuation and enlargement of "the curse" of competition.

One word more in conclusion, to suggest a plan and to help architectural fine art out of its present debasement and degradation. Competion drawings, as all know, are made up of a number of useless elevations, sections, and plans, which no one ever looks at, the judgment dwelling and centring on the main elevation, section, and principal floor plan as guides to the rest. Would not these three drawings in all cases of simple competition be enough? Any competent judge would readily and without fail see enough in these drawings to decide relative merit. If this system were to be adopted in competitions, it would enable numbers to compete who are now excluded. Such drawings, of course, being *autographs*, and the *bonâ fide* work of those whose names appear in the corners. What an interest there would be in all this! Our architectural exhibitions and Royal Academy room would show thus a series of art-signatures and art-writing by the hands of those whose names they bear, and not whole wall-spaces covered with art-forgeries, the standing disgrace and shame of this art-transitional nineteenth century. A few words in the House of Commons by Mr. Tite would do this work; for the public have but to be told authoritatively how things are, and how they ought to be, to insist on what is fair and true.

C. BRUCE ALLEN.

DEFLEXION OF BEAMS.

WILL you permit me to make a few observations with regard to the experiments on this subject recorded by Mr. Papworth in your number for the 17th inst. (p. 123), having paid some attention to the problem in question. Referring to the edition of 1845, p. 81, of "Barlow," I find that the author says, "Hence we conclude that the deflexion of a beam fixed at one end in a wall and loaded at the other, is double that of a beam of twice the length, supported at both ends and loaded in the middle with a double weight." But Mr. Papworth is incorrect in calling this "the result given from numerous experiments made with perfect apparatus by Barlow;" the whole of the formulæ being ob-

tained by mathematical *reasoning*, and not as the result of *experiment*, which *reasoning* has been shown by all later investigators to be inaccurate. Most of the formulæ given by writers on the strength of materials are obtained by mathematical induction, and experiments are instituted in order to find the values of certain constants (varying according to the *material* of which the beams are composed), so as to make them applicable for practical purposes.

I would also call Mr. Papworth's attention to the table 73, pp. 110, 111, of "Barlow," in which experiments very similar to his own are recorded. The first set of beams are all "very dry," and have been "six years in store" (taking only those reported "sound"); each is 2 in. square and projects 5 ft. The second set of specimens "were kept wet," and had also been "six years in store." The actual deflexions are not given, but on the previous page the mode of experimenting is explained; the beam being bent over a semicircle of oak 6 in. radius. In the "very dry" beams the "arc received" is $3\frac{3}{8}$ in. average, and in those "kept wet" the average is $2\frac{1}{4}$ in. So that the actual deflexion must have been at least twice as much in the former as in the latter. I refer to these experiments to show how necessary it is to take into consideration the *condition* of the timber at the time the experiment is made; and also that experiments on one or two beams are quite insufficient to settle the question.

The numerous experiments recorded by Barlow were made with a view of ascertaining the *breaking weight* of beams, so that the deflexions given are not such as can be calculated by formulæ; for, as Fenwick remarks, at page 82, "in practice only very small flexions are admitted," certain quantities being rejected in the investigation as being very small and unimportant when the deflexions are small, but which become appreciable when the deflexions are large; the real practical use of the formula being to ascertain what weight may be laid on a beam without producing perceptible deflexion. The only experiments given by Barlow which will allow of comparison with the formula are seen in table 70, p. 106. These were made by Col. Beaufoy, at Deptford Dockyard, on twenty-five pieces of Riga fir, all cut from the same tree, each piece being 2 in. square, and projecting 4 ft. from the wall, and weighted at the outer end. The mean weight laid on was 98 lb., and the mean of the deflexions of the twenty-five specimens was 1° 22′, "measured on a graduated arc of the same radius as the beam, viz. 4 ft." The vertical deflexion, therefore, is $48 \times \sin 1° 22' = 1{\cdot}145$ in. Now the formula given by Fenwick, p. 86 (omitting weight of beam) is, deflexion $= \frac{4\ W\ l^3}{E.\ b\ d^3}$, where b, d, and l, are all in inches, and E is the *modulus of elasticity*, say 2,000,000, the highest number for fir.

From this formula we get deflexion = 1·355 in. which is $\frac{2}{11}$ in. *more* than the experiments give, the timber being, no doubt, of first-rate quality. Barlow remarks, "It appears from all these experiments that the deflexions are very nearly in the ratio of the weights, till about one half, or a little less than one half the weight, is laid on, after which they become more rapid, and very irregular." So that experiment shows the formula would not be correct in this case if W exceeded 98 lb.

In experiments of this sort great care is necessary to have the beam firmly wedged into the wall, as described by Barlow at p. 114, as the least play will nullify the results. The formula which Mr. Papworth quotes from "Gregory" is identical with that given by "Fenwick," only in the former the length is in *feet*, and in the latter in *inches*, and I is the moment of inertia of the section; so that the formula applies to all forms of section, and in the rectangle $I = \frac{1}{12} bd^3$. In calculating the deflexion of a beam fixed at one end, and loaded with a weight, W, at the other, $\frac{3}{8}$ of the weight of the projecting beam should be added to W.

E. WYNDHAM TARN, M.A.

MR. PAPWORTH'S letter may render some service, if it lead practical men to make experiments on the deflection of timber. Those whose acquaintance with the calculus, and whose leisure, may enable them to follow the elegant process by which deflection (or rather the *law* of deflection) is mathematically found, will not hesitate to affirm the correctness of the formulæ given, and the conclusions drawn, by Mr. Tarn (p. 886 of your last volume), quoting from Mr. Fenwick; conclusions no more peculiar to those gentlemen than the opinion that two and two make four. By *correctness* I mean, that if you grant the premisses, you cannot escape the conclusion.

Of course, with a right formula we may have a wrong *modulus*; and here is a weak point. We want extensive, accurate, systematic experimenting, to get at something like reliable average *moduli* of elasticity for different descriptions of timber. Not but that, when all is done, there will remain wide scope for observation and practical judgment in the endless varieties of elastic strength that occur even in one and the same kind of timber.

Again, the formulæ go on the assumption that the piece of timber is *perfectly uniform* in size and elasticity throughout, with no tendency to bind irregularly or to twist.

With regard to the beam having one end fixed in a wall, the fixture must be *absolute*, and this is not an easy thing to ensure.

If a piece of timber, such as your last correspondent describes (p. 123), were supported in the middle, and a $\frac{3}{4}$ cwt. hung at each end, 3 ft. 6 in. from the support, and a mean taken of the deflections where the weights hung, I think the experimenter would be in a better position to test the accuracy of the theorists.

To examine the first set of experiments reported by Mr. Papworth, and compare the results with theory:—Let us accept the fact that the piece of fir deflected $\frac{21}{32}$, or 1·05 of an inch, with 1¼ cwt. in the middle, and make this the basis of calculation.

Beam supported at both ends:—

	Inches Deflection.	
	Theory.	Actual.
With 1¼ cwt. at quarter distance	0·59	0·60
,, $\frac{3}{4}$ cwt. ,, ,, ...	0·30	0·35
Beam supported and fixed at one end:—		
With $\frac{3}{4}$ cwt. at D	1·05	1·80
,, ,, F	0·14	1·08
,, ,, E	0·13	0·63
,, ,, G	0·02	0·25

The excess of deflection, as observed, being 0·75 at D, 0·64 at F, 0·50 at E, and 0·23 at G. These excesses, being approximately as the distances from the support, suggest the idea of the support, or fixing down, having yielded or started, in some small degree,—a thing not likely to occur were experiments made, as I suggest, with both ends loaded, and the support in the middle.

If the observed depressions, at G, E, F, and D, were genuine *deflections*, I trust your practical readers will bear with me when I submit that they would be as the cubes of distances of weight from support, or as the numbers 64, 27, 8, 1. That such is far from the case will appear on comparing the following figures:—

Observed.....	1·80	1·08	0·63	0·25
If as cubes of distances, would be.....	1·80	0·76	0·22	0·03

CHARLES E. CONDER.

THE VOLUNTARY ARCHITECTURAL EXAMINATIONS.

SIR,—I cannot help asking why it is that, with such a large demand for the "Regulations and Forms of Application" for the above examinations, there should be such a scarcity of candidates.

Is it that the ordeal is too severe? I think not. I have carefully looked over every paper of questions issued by the examiners, and have not succeeded in finding a single approach to undue "stiffness," and I know from personal inquiry among the candidates that they are generally satisfied with them. What, then, is the reason? Two causes suggest themselves. Either the young architects of our day are consciously unable to win the honour, or the honour is not sufficiently worth the struggle. That the first is the true interpretation I cannot admit. I believe the cause is to be found in the fact, that the honour, when won, has no name, and therefore little commercial value. Young aspirants for distinction—no matter how much they may desire it for its own sake—would seek it much more ardently if it conferred a status, or had a name.

It may be objected that the Institute has no power to give diplomas. Granted: but the members can elect Fellows and Associates, and why not also give the "passed candidates" a status at the Institute? Let them be called Licentiates, or anything else, provided the name expresses the honour, and is easily understood. I urge this on the consideration of "whom it may concern."

AN INTENDING CANDIDATE.

STAINED GLASS.

Sheffield Parish Church.—A stained glass window has been placed in this church to the memory of a late townsman, Mr. W. Smith. It consists of three transom lights and tracery, and is of the Perpendicular period. The glass is designed, drawn, and coloured in accordance with the stonework. The leading idea is the Victory of Our Lord over Death and the Grave, illustrated in the upper part principally by His Resurrection; in the centre light and in the two side lights, by miracles of Our Lord, namely, in the dexter, the Raising of the Widow's Son of Nain; and in the sinister, the Raising of Lazarus. Below the transom in the centre light is the Archangel St. Michael overcoming the Dragon, as a type of Our Lord's victory over sin and hell. In the dexter light is the subject of Jonah and the Whale,—a type of the Resurrection; and in the sinister, the Redemption of Isaac. In the tracery are angels, with scrolls, bearing texts. The work has been carried out by Messrs. Hardman & Co., of London and Birmingham.

Glasson Church (near Lancaster).—A painted window has been erected in this church by Mrs. Starkie to the memory of her husband, the late Mr. Nicholas le Gendre Starkie, of Huntroyd, Lancashire. It is an Early English triplet, having in the centre light the Crucifixion, inclosed, and surmounted by a wrought canopy. At the base is inscribed the text, "I am the resurrection," &c. Above and below are emblems of the Trinity, &c. The side lights are in grisaille, with panels in the centre, on which are inscribed suitable texts. Above and below each panel is placed an emblem of one of the Evangelists. Each light is inclosed within a border, in keeping with the character of the window. The artists were Messrs. R. B. Edmundson & Son, of Manchester.

St. Thomas's, Oxford.—A good memorial window has just been completed by Mr. O'Connor, of London, and is about to be placed in St. Thomas's Church, Oxford. The figures represent three eminent divines of the Early Church, namely, St. Ambrose, St. Chrysostom, and Pope Gregory the Great. The colour of parts is excellent.

COMPENSATION CASES.

Barclay v. *The Metropolitan District Railways.*—This was a compensation case referred out of the Court of the High Bailiff of Westminster in consequence of an insufficient attendance of jurymen. Mr. Hornblower was the arbitrator selected, and he has just published his award. The property consists of a double house, Nos. 19 and 20, Shaftesbury-terrace, let on lease for twenty-one years to Messrs. Shanks, coach-makers, at 200*l.* a year, seventeen years and a half of this term being now unexpired. The lease under which it is held has fifty-eight years to run at 12*l.* The principal dispute was as to the annual value in reversion, the claimants' witnesses, Messrs. E. Roberts, Driver, and Chadwick, placing it at 400*l.*, and Messrs. Horsey and Trollope at 500*l.* The company's witnesses, Messrs. Ryde, Clifton, and Gouldsmid, at 280*l.*, and Mr. Anwyn at 270*l.* The results were, for the claimant, Mr. Roberts, 4,865*l.*; Mr. Driver, 4,558*l.*; Mr. Chadwick, 4,725*l.*; Mr. Horsey, 5,123*l.*; Mr. Trollope, 5,123*l.*; and for the company, Mr. Ryde, 3,875*l.*; Mr. Clifton, 3,836*l.*; Mr. Gouldsmid, 3,836*l.*; Mr. Anwyn, 3,751*l.* The award is for 4,602*l.* We understand that the offer was 3,700*l.*, subsequently increased to 3,800*l.*

City of London Brewery Company (Limited) v. *The Corporation of the City of London.*—This was a claim for compensation (at Lord Mayor's Court, before Mr. Forsyth, Q.C., and a special jury) in respect of the "Crown and Horse-shoe" Tavern, situate at the corner of Bartlett's-buildings, Holborn, required for the Holborn Valley Improvement. It appeared in the course of the inquiry that the house had not been doing a very large trade lately, but it was the opinion of the manager of the Company that with care and an expenditure of 1,500*l.* the house might be made a very valuable one. Mr. Orgill, valuer, said he knew the "Crown and Horse-shoe," and he could improve it for 1,500*l.* so that the trade should increase to a most profitable extent. There was a lease of 60 years to run from May, 1858. The value of the property as it stood was 5,250*l.*, assuming that the trade could be brought up to 300*l.* per month. Looking at the property in its present position, the compensation ought to be 4,125*l.* A thoroughfare trade was better than a local trade. Mr. Hawkins urged for the Corporation that the full value of the house was only 1,000*l.*, although, taking the figures of the plaintiffs they could only be brought up to 1,200*l.* His Lordship having summed up, the jury, after retiring, awarded the claimants 1,200*l.* as compensation.

CASES UNDER THE METROPOLITAN BUILDING ACT.

PROJECTION OF SHOP-FRONTS.

MR. WARNE was summoned to Marlborough-street by Mr. Hakewill, district surveyor of St. George's, for making a shop-front so as to project more than 10 in. from the external wall, contrary to the 26th section of the Metropolitan Building Act.

After the case had been fully discussed on both sides,—

Mr. Tyrwhitt (magistrate) said,—This is a summons under the Metropolitan Building Act, 18 & 19 Vic. c. 122, sec. 26, for making certain portions of a shop-front, No. 3, Bruton-street, to project more than 10 in. from the external wall, contrary to the above enactment. It appears to me, on viewing the premises and considering the various enactments, that the above section 26 applies to projections over public ways in streets, and not, as in this case, to projections not extending beyond private property. Clause 5 of section 26 seems to show that under clause 2 of the same section a shop-front may extend 10 in. into a street beyond the general line of fronts there. Now, if "fronts," as used in that part of the section mean "shop" fronts, I find that this is not a projection beyond the "general line" of the shop-fronts there; and if that word "fronts" means "fronts," not shop-fronts, the projection is not beyond the general line of the other fronts in Bruton-street, which I apprehend to be not the external walls of the houses (those terms not being used), but the fronts of the private property fronting those

ouses; that is, the edge of those areas abutting on the reet. I dismiss this summons on the above ground; nt I am also inclined to think that under clause 5 of ection 26 the 10 in. of projection allowed to shop-fronts n streets 30 ft. wide are not to be measured from ne external wall of the houses, those words not being und in that part of the clause; but with regard to the neral line, either of the shop-fronts in the streets or ne other fronts of the private property there—for in- ance, the areas. The projection in question, if illegal, all, appears to me to fall within the Local Manage- ent Act of the same date with the Act here proceeded , or Michael Angelo Taylor's Act.

The worthy magistrate, unless wrongly re- orted, has got into sad confusion, and has xpressed opinions on which we should not dvise builders to rely. His decision in the resent case may be right (having looked at the ont, we are disposed to think it is); but the easons he gives to justify it unquestionably are rong.

THE NOTTINGHAM SUBWAYS AND AMENITIES OF JOURNALISM.

WE were under the impression that the eriodical press of England was universally con- ucted at this time in, at any rate, a courteous nd gentlemanly manner. We were mistaken; nd we must take the liberty of giving the proof f our error. It occurs with reference to the scussion that followed the reading of a paper n the Gas Supply of Paris at the Society of rts, an official report of which we printed.* ommenting on that discussion *The Journal of as Lighting* writes as follows:—

"Mr. Godwin, of the *Builder*, opened an attack on the gas mpanies, as being adverse to improvement, and he told romantic story about a proprietor of gas shares holding a istol to his head and threatening to blow out his brains for ving initiated a cheap-gas movement. He then pro- unced his *dictum*, in opposition to the opinion of the most minent engineers in France and England, that it is idle ssay that the escape of gas in subways cannot be guarded ainst. Unfortunately for his argument he adduced the se of Nottingham, in which town he said the laying of s-pipes in a subway had been carried out without mmage, and he asserted that the plan was a perfectly acticable one, and that it would be a disgrace to the gas mpanies if they persisted in opposing its adoption. Mr. awksley and Mr. Gore completely demolished the *con- ded ignorance* of such assertions by stating the results their experience. Mr. Hawksley having been the gineer of the Nottingham Gas-Works, was able to ose the fallacy of any reliance on the experiment of bway in that town. He stated that it was a 'pitiful nnel' only 200 yards long," "that the gas-pipe was only , in diameter," and so on.

Our readers who have seen the communication m Mr. Tarbotton, the Nottingham Corporation rveyor, endorsing Mr. Godwin's statements, ow that Mr. Hawksley's assertions were alto- ther erroneous; and will, we have no doubt, link with us that if the writer of the above ecimen of "pilite letters" do not now offer a link and full apology he will show as little gard for honesty as he has already done for ppriety.

CHURCH-BUILDING NEWS.

Thruxton.—The parish church here has been opened after being restored. The porch (an retending piece of seventeenth-century work), ich had all but tumbled down, has been irely restored. The font has been removed m beneath the tower to nearer the entrance ur, raised on a base of red sandstone, and fitted h a spiral cover of parquetry work, which is sed by means of a cord and weight. The er is octagonal in shape, having gablets on h side, pierced alternately with quatrefoils l trefoils. In removing the plaster from the ls the jambs and arch of the west window e found entire, but there was no tracery or llions. The window has now been recessed, wing both the jambs and the arch. In the storation of the tower, the chief object was the oduction of sufficient light, the ground floor ition being used as a vestry, and this has been mplished by means of a glass floor, one are of which runs on rollers, in order to init of a person ascending to the belfry. The r is laid on oak beams of ornamental charac-

The nave has been re-seated with open oak tches, and the old square pulpit replaced by a one, octagonal in shape, with the panels k and traced, and an ornamentation in ball- er pattern running along the cornice. A ne base supports the woodwork. The chancel been fitted with stalls of oak, with carved ge, and the old altar, the top of which was one slab, has been superseded by a new one of oak. There is a reredos of stone of reddish tinge, with encaustic tiles, and a simple Maltese cross of green marble inserted in a moulded panel in the centre. In the east window the stained glass bequeathed by Mrs. Wetherell (formerly Miss Clive), in memory of her husband, the archdeacon, has been inserted: it is a three-light window, in the Perpendicular style, the subject of the centre light being Our Saviour as the Good Shepherd, the sinister light displaying the disciples listening to his words, "Feed my lambs," and the dexter light showing a group of sheep. The floor of the church has been laid throughout with encaustic tiles of different patterns from the manufactory of Lugwardine. The jambs of the west side of the chancel arch, which were squared to about 3 ft. from the ground, in order to form a base for the old rood-loft, have been preserved by the architect, whose object it has been to conserve the original features of the building. The total cost of the restoration will amount to about 400*l*. Mr. E. Biggleston, of Hereford, was the builder. The architect employed was Mr. Chick. Several relics were found in the course of the necessary excavations for carrying out the work of restoration, and when the present rector came to the parish eight years ago he found numerous fragments of stained glass about the church. Among them was a fourteenth-century figure of Our Lord upon the Cross: this is being restored by Messrs. Hardman, of Birmingham, with a view of being placed in the two-light window on the south side of the chancel.

Bradford-on-Avon. — The parish church of Bradford-on-Avon, which has recently undergone rebuilding and restoration, has been re-opened. The work of restoration was commenced some two years ago, but unforeseen difficulties arose and hindered its progress. The total cost of the work is between 4,000*l*. and 5,000*l*., and the contractors were Messrs. Gane & Son, of Trowbridge, assisted by Mr. J. Berry, of Trowbridge, who did the plumbing; Messrs. J. & W. Taylor, of Trowbridge, who did the masonry; Messrs. Mercer & May, of Bath, the roof on south nave; Mr. Jones, of Turley, who restored the north aisle; Mr. Brown, of Bradford, the gas fittings; Messrs. Lyndsey & Charles Long, other portions. The south wall has been rebuilt, the gallery removed, the pillars rebuilt, and the Kingston aisle restored. Modern pews now take the place of the old-fashioned high pews, and the floor is laid with encaustic tiles.

Islington.—The new church of St. Barnabas, which has lately been erected in Harvest-road, Upper Holloway, has been consecrated by the Bishop of London. The church has been erected at a cost of 7,000*l*.

Gloucester.—Mr. J. C. Dent, of Sudeley Castle, has presented to the cathedral a lectern, at a cost of 250*l*.

Horsmonden.—The re-seating and otherwise restoring the parish church has been resolved upon as a memorial of the late Rev. Sir W. M. S. Marriott, bart., rector of the parish. Subscriptions to the amount of 360*l*. have been at once collected.

Miscellanea.

MARYLEBONE SURVEYORSHIP. — Mr. T. G. Browning, late assistant-surveyor, has been elected chief surveyor, by a majority of 16, in room of Mr. Robert Scace (resigned).

CARLISLE.—The vacant office of surveyor to the corporation has been filled by the appointment of Mr. Edward Morley, an assistant in the office of Mr. Brierley, civil engineer, Blackburn. The salary is 300*l*. per annum.

UTILIZATION OF SUPERHEATED STEAM. — The tremendous effects of a small quantity of water turned suddenly into superheated steam have long ago been remarked upon. It was not, however, until recently that an attempt was made to utilize this extraordinary power. Mr. E. Danford, of Illinois, United States, has, it is said, succeeded in making a powerful machine, of which this is the motive power. The principle may be illustrated by recalling the circumstance of a foundry roof having been blown away some years ago in the north of England, in consequence of a hollow ball of metal, into which a small quantity of water had made its way, having been thrown into a furnace. Mr. Danford suspends his ball, which he calls a steam generator, in a furnace, and procures the steam to work his engine by intermittent jets of water into the interior of the ball.

ABATTOIRS FOR LIVERPOOL.—The corporation have resolved to erect large abattoirs in the outskirts, and then to suppress all slaughter-houses in the town itself.

THE TESTIMONIAL TO COLONEL M'MURDO.—Out of the fund which has been subscribed by the Volunteers for the purpose of re-building Rose Bank, the residence of the gallant officer, 1,850*l*. have been paid to the builders.

CO-OPERATION. — The Joint-stock Coal Company (Limited), after declaring a dividend of 10 per cent. on the capital, have paid an additional bonus of 4 per cent. of the total profits to the consuming shareholders, which is equal to a return of 2s. 6d. per ton upon the price paid for their coal.

CAMBRIDGE HOUSE, PICCADILLY. — According to the *Owl*, the amount of the purchase-money to be paid for Gloucester House, which is to be pulled down in the course of the Park-lane improvements, is 60,000*l*. Of this, 20,000*l*. are to be paid to the Duke of Cambridge for the unexpired lease of fourteen years, and 40,000*l*. to the trustees of the will of the late Sir Richard Sutton for the freehold.

SELINUNT.—The excavations in Selinunt, the ancient Phœnician Solunt, near Palermo, have been recommenced under the direction of Signor Cavallari, the archæologist. Three ancient streets, among them probably the principal street of the ancient town, have been laid open. A number of glass vessels from these, partly ornamented and inscribed with Greek legends, have been placed in the Museum of Palermo.

THE T. P. COOKE PRIZE PLAY.—Twenty-four plays were sent in under the terms of the competition proposed by the will of the late Mr. T. P. Cooke; and from these, we hear with great pleasure, the committee have selected a drama by Mr. Angiolo Sious, entitled "True to the Core." Mr. Sious is well known as the author of "The Templar," and several other plays of high class. His abilities and worth are the most highly estimated by those who know him best. The premium is 100 guineas; but we take for granted the author will have other advantages should the piece, when acted, prove a success.

VALUE OF LAND AT BRADFORD. — Recently another public sale of building ground, the surplus (after widening by the corporation) of one part of Well-street, in that town, took place at Bradford. There was a large attendance. The first plot consisted of 264 square yards; the second of 199 square yards; and the third of 222 square yards. There is a victualling licence attached to the first plot. 17*l*. per yard was the highest sum offered, and the plot was withdrawn at 20*l*. per yard. The second plot was withdrawn at 13*l*. per yard. The third plot, situated between the first and second plots, and having frontage to two streets, was sold for 17*l*. 11*s*. per yard, to Messrs. J. Sharp & Son, of Bingley.

A ROLLER FOR MORTAR.—A correspondent, "R. T.," draws attention to some composition rollers by Messrs. Harrild. He says,—"I believe a more economic and speedy mode of laying mortar on bricks might be adopted by the aid of these composition rollers, which will pick up any quantity of mortar, cement, &c., distributed evenly on a board or slab, and deposit the mortar on the bricks. They would equalize the layer, prevent waste, facilitate the work, splashing and smudging face-work would be avoided, and probably pointing may become unnecessary. The roller might also be used to expedite certain descriptions of plastering work, painting, or tarring, for it will pick up a small quantity, and deposit the same quite as easy as a thick coating."

TIMBER IN JAPAN. — The island of Yesso is thickly covered with immense forests, containing numerous kinds of wood admirably adapted for building purposes. Oak and ash come from the interior of this island; Shendai and Nambu supply us abundantly with pine. A small export trade has been carried on in this article by one of the foreign British merchants at this port, who has also erected a steam saw-mill. As yet, little business has been transacted with the Japanese, but there can exist no doubt that these endeavours will be ultimately crowned with a brilliant success, and that the Japanese will speedily appreciate the immense superiority of machinery over manual labour. The machinery in the mill consists of one frame saw, two circular saws, and one treenail machine. The engines are 15-horse power (nominal), and the amount of work done per day is 6,000 lumber ft.

* See p. 114, *ante*.

THE CONSTITUTION OF THE METROPOLITAN BOARD OF WORKS.—In the Commons, Mr. B. Cochrane has given notice that on an early day he will move for the appointment of a select committee to inquire into the constitution of the Metropolitan Board of Works, the office of Public Works, and the office of Woods and Forests.

"THE BROWN BOOK."—In our notice of "The Brown Book for 1866," we took occasion to suggest that the addresses of the respective theatres should be appended to the descriptions of them given in "The Brown Book." On looking further into its pages, however, we find that although this is not done in the more prominent account of the theatres, there is a separate list of theatres, music-halls, &c., in which not only the addresses, but the prices and the times of opening are all concisely inserted. Giving information of the same thing in two forms and places of one book, however, should be avoided.

FALL OF RISE CARR IRONWORKS, DARLINGTON. The workmen, to the number of about 170, employed at the Rise Carr Ironworks (fortunately for their lives, as it now appears), turned out lately on strike, on account of the masters, Messrs. Fry, Janson, & Co., refusing to advance the rate of remuneration for working an inferior kind of material. Last week the wind was very high, and the immense building, after rocking for a moment or two, actually fell into ruin, leaving the tall chimney standing. A labourer was killed on the spot, and other six were all severely injured. It will be some months before another structure can be erected.

A NEW GREEK ISLAND.—In the Bay of Thêra (Santorin) an island has of late been rising from the sea, steadily and slowly,—not by the up-cast of volcanic matter, accumulating heap upon heap, but apparently from volcanic accumulations below, pushing upwards the matter already forming the surface. The material consists of a rusty black metallic lava, very heavy, and resembling half-smelted scoria which has boiled from a furnace. In five days the island attained a height of from 130 ft. to 150 ft., with a length of upwards of 350 ft. and a breadth of 100 ft. Other islands in the same bay have so arisen in past times, and the bay itself is the concave circuit of a broken volcanic cone.

THE LATE DR. PETRIE AND HIS FAMILY.—It is to be hoped that Government will continue the pension of 200*l.* a year, which Dr. Petrie had, to his four daughters. Dr. Petrie well merited this small pension for his public services, and he spared no cost within his means in adding largely to the Museum of Celtic Antiquities, which in his youth he had commenced to form, and which is now of national importance to Ireland, and ought to be secured to the Royal Irish Academy and the country, and not dispersed, as so many collections of Irish antiquities have been, from want of liberality on the part of the Government. The president of the Royal Irish Academy lately delivered a just and graceful eulogy on Dr. Petrie.

THE HOLME RESERVOIRS.—The reservoirs in the neighbourhood of Holmfirth do not appear to be in a very satisfactory state at present. The Bilberry reservoir, which caused such a loss by bursting in 1852, has again shown symptoms of weakness in the embankment; so much so that it was found necessary, on Sunday last, to draw off the water to the level of 33 ft., in order to prevent an accident. The embankment was found to have been partly washed away by the side of the waste-pit, about 40 ft. from the bottom. The reservoir at Holm-Styes is also considered by the inhabitants of the district to be weaker than it ought to be, and some apprehensions have been felt about its safety, which have caused it to be closely examined.

FALL OF ANOTHER RAILWAY VIADUCT NEAR HUDDERSFIELD.—Part of the Whitaker Mill viaduct, on the branch line from Huddersfield to Kirkburton, has given way, and stopped up the canal. It was of brick, and composed of seven arches, each 64 ft. span and 21 ft. 4 in. rise, with piers 8 ft. 6 in. thick, and on a curve with a radius of 22 chains. The centres were removed from the two first arches about two months ago, and afterwards a slight subsidence was noticed in the second arch; but it was not considered dangerous. The frost following the wet weather has had the effect of breaking it down, bringing with it the first arch. The *débris* filled up the canal. The rebuilding of the arches will take some months.

LONDON ASSOCIATION OF FOREMEN ENGINEERS. The thirteenth anniversary dinner of this association has taken place at the Freemasons' Tavern. Mr. J. M. Ravenhill, C.E., presided. The company numbered about 250 gentlemen. From a report which was read by the Secretary (Mr. D. Walker), it appeared that the various departments of the association had continued to progress during the past year. Mr. J. Newton, president of the association, in the course of some remarks, dwelt particularly on the fact that this association had nothing whatever to do with trade disputes; that its great objects were to create and foster a good feeling among employers and employed; to make the employed more intelligent and better workers; and to provide against the consequences of sickness and death.

TENDERS

For new premises in the Waterloo-road, for Mr. W. G. Trewby. Mr. T. Danby, architect:—

	General Items.	Add for Plate Glass.	Add for Patent Shutters.	Deduct for old Materials.
	£	£	£	£
Coleman	3,275	190	300	50
Hart	3,740	210	290	40
Conder	3,694	182	210	48
Colls & Son	3,649	175	200	50
Foster	3,013	163	170	32

For new buildings for the Hornsey Gas Company. Mr. Jabez Church, architect. Quantities by Messrs. Lander & Bedells:—

Mansfield	£3,556	0	0
Piper & Wheeler	3,552	0	0
Hill & Keddell	3,300	0	0
Colls & Son	3,260	0	0
Dabbs	3,190	0	0
Plowman	2,988	0	0

For new Church, Kilburn:—

Patman	£9,193	0	0
Anson	8,930	0	0
Piper	8,800	0	0
Mansfield	8,800	0	0
Dove	8,560	0	0
Patrick	8,530	0	0
Myers & Sons	8,154	0	0

For additions and alterations to warehouse at Shoreditch, for Messrs. Bailey. Mr. J. W. Reed, architect:—

Carter & Son	£770	0	0
Lamble	689	0	0
Hoar	686	0	0
Denner	570	0	0

For addition to house at Cold Ash, near Newberry, for the Rev. W. M. Pickthall. Mr. W. Harvey, architect.—Lamble (accepted) 750 0 0

For new front, re-seating, &c., Northgate-street Chapel, Bury St. Edmund's. Messrs. Bacon & Bell, architects:—Rednall (accepted) £450 0 0

For new Hotel, Harwich. Mr. Horace Darken, architect:—

Dobson	£1,001	10	0
Lee & Baker	958	5	0
Butcher	862	0	0
Everitt	859	10	0
Newton	857	0	0
Wilding	794	0	0

For a residence, West Bergholt. Mr. Horace Darken, architect:—

Holland	£950	0	0
Shepherd & Son	920	0	0
Dobson	898	0	0
Eade	890	0	0
Lee & Baker	872	0	0
Everitt	849	15	0

For new warehouse, Lant-street, Borough, for Mr. Thomas Peel. Mr. Joseph S. Moye, architect:—

Simpson	£3,589	0	0
Newman & Mann	3,395	0	0
Stoner	3,340	0	0
Rider & Son	3,270	0	0
Bland	3,202	0	0
Perry & Co.	3,090	0	0
Coleman	3,079	0	0
Henshaw	3,037	0	0
Walton	2,994	0	0

For new shop-front and fittings at 157, Brompton-road, for Messrs. Hopgood & Jacobs. Mr. Joseph S. Moye, architect:—

Sapwell	£320	0	0
Simpson	280	0	0
Parkinson	265	10	0

For villa residence, Barnet. Mr. Joseph S. Moye, architect:—Walton (accepted) £714 0 0

Accepted for new warehouse in Laura-street, Bishop Wearmouth for Mr. A. Swaine. Mr. J. Tillman, architect. Quantities supplied:—

Mason's, Bricklayer's, and Slater's Work.
W. & R. Alhson £551 10 0

Joiner's and Carpenter's Work.
Tulip £259 0 0

Ironfounder's, Plumber's, and Gasfitter's Work.
Tomkinson £120 0 0

Painter's and Glazier's Work.
Barnblett £17 0 0

For alterations at Nos. 61, 62, 63, and 64, Houndsditch, for Messrs. Farquharson & Co. Mr. G. Sparks, architect:—

Henshaw	£605	0	0
Sparks	604	0	0
King & Sons	595	0	0
Heeps (accepted)	585	0	0

For dwelling-house, Upton-lane, Stratford, E., for Mr. Hampton. Mr. J. M. Smith, architect. Quantities supplied by Messrs. Curtis & Son:—

Garrud	£1,045	0	0
Curtis	1,015	0	0
Harris	987	0	0
Dyer	970	0	0
Rivett (accepted)	943	0	0

For new villa, Finchley-road, Child's-hill. Messrs. Mayhew & Calder, architects:—

	Carcass of Villa.			Stable complete.		
Chinnock	£855	0	0	£265	0	0
Hyde	840	0	0	260	0	0
Mann	787	0	0	273	0	0
Curtis (accepted)	720	0	0	264	0	0

For alterations and additions to a warehouse, Castle-street, City. Mr. Herbert Ford, architect:—Palmer & Son (accepted) £350 0 0

For part of the decorations to the Elms, Erith, Kent. Mr. Herbert Ford, architect:—Horner (accepted) £78 0 0

For alterations and additions to the Queen's Arms, Caledonian-road, for Mr. Prout. Mr. T. Brookes, architect:—

Cowland	£590	0	0
Perry	549	0	0
Batchelder	543	0	0
Gillett & Wisbey	530	0	0

For alterations to the Duke of York, Upper Rathbone-place, for Mr. W. Owston. Mr. T. Brookes, architect:—

Gillett & Wisbey	£385	0	0
Lawrence & Bangh	369	0	0
Tracey	332	0	0
Walker	285	0	0

For alterations to the Duke of York, Clerkenwell, for Mr. Thos. Cruso. Mr. T. Brookes, architect:—

		Allowed for Old Materials.		
Keene	£298	0	0	
Worme	270	0	0	
Martin	273	15	0	£10 0 0
Gillett & Wisbey	275	0	0	15 0 0

For new gas-works at Folkestone. Mr. J. G. Barlow, engineer. Quantities by Messrs. Pain & Clark:—

Contract No. 1.
Matthews (accepted) £6,474 0 0

Contract No. 2.
Cockey & Son (accepted) £6,284 0 0

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We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the writer, not necessarily for publication.

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The Builder.

VOL. XXIV.—No. 1205.

Gossip again.—The Royal Medal: the Great Competitions: Paris Exhibition.

THE chance of a fight on Monday night, such is the natural pugnacity of the architectural mind, produced a large gathering at the House in Conduit-street. Mr. Beresford Hope was in the chair, and he was supported by Mr. Tite, Professor Donaldson, Professor Kerr, Professor Lewis, Ex-professor Smirke, Mr. C. C. Nelson, Mr. Ashpitel, Mr. G. Alexander, Mr. Ashton, Mr. Henry Baker, Mr. James Bell, Mr. Boulnois, Mr. Burnell, Mr. T. Bury, Mr. J. J. Cole, Mr. Henry Currey, Mr. Edmeston, Mr. B. Ferrey, Mr. Charles Fowler, Mr. Garling, Mr. Sidney Godwin, Mr. Hansard, Mr. Hayward, Mr. Owen Jones, Mr. Kendall, Mr. E. B. Lamb, Mr. Fred. Marrable, Mr. C. Mayhew, Mr. Mocatta, Mr. Nash, Mr. Papworth, Mr. Pennethorne, Mr. Penrose, Mr. E. C. Robins, Mr. Seddon, Mr. Roger Smith, Mr. Edis, Mr. James Thomson, Mr. George Vulliamy, Mr. W. White, Mr. Woodthorpe, Mr. Brandon, Mr. K. Penson, Mr. Pearson, Mr. R. R. Rowe, Mr. I'Anson, Mr. Allom, Mr. C. J. Richardson, Mr. Tarring, Mr. Hardwick, Mr. Gibson, Mr. Slater, Mr. Horace Jones, Mr. E. Christian, Mr. Hakewill, Mr. T. H. Wyatt, Mr. Jas. Fergusson, and many others, who would equally be mentioned if we had retained their names. No fight, however, took place. Mr. Butterfield, rightly desiring that there should be no dissension, had requested that his name should be withdrawn, and the Council having withdrawn it, Mr. M. D. Wyatt was recommended to her Majesty, *nem. con.*, for the Royal Medal. Her Majesty is not a stranger to the accomplishments of the proposed recipient, and is not likely to refuse compliance: long may he live to wear it, and to communicate, as now, the knowledge he has gathered with toil and travel. The gentleman who was first named for the honour is thought to work mainly for himself; is never heard of as reading papers, labouring on voluntary committees, or aiding in any way the general movement forwards. The public do not forget these differences when claims, which otherwise might perhaps be equal, are being weighed. The necessity for consideration as to the appropriation of the medal in future years, urged by us last week, was evidently felt by many who were present, and various suggestions in that direction were made. A strong feeling was expressed that men who, although not architects, had by their researches, writings, or experiments, advanced the study of architecture,—such men, for example, as Mr. Layard and Mr. Fairbairn,—might wisely be selected for the distinction. The incoming Council will, doubtless, bear these points in mind.

The Institute medal and 5 guineas, offered for the best illustrations of an ancient building, were awarded to Mr. C. Henman, jun., and a medal under the same heading was given to Mr. A. Baker. Mr. H. Renault Mangin's design for a residence (cleverly drawn, but altogether inappropriate) received the late Sir Fras. Scott's prize (10 guineas); Mr. E. W. A. Atkins being commended; and the Students' prize was awarded to Mr. J. S. Nightingale. The Soane medallion (with 50*l.*) was not awarded, the designs sent in not being deemed of sufficient merit. The subject was an opera-house. The offered medals, and money offered for essays on given subjects, had elicited no response; nor was there any competent candidate for Mr. Tite's accumulated prize (30*l.*) waiting for a design in the Italian style for a public building adapted to modern wants. The amount this year will be 40*l.*, and should surely induce a few good efforts. The subjects for next year's prizes were considered, but the meeting was a little too excited and fidgety to give quiet attention to details.

In the course of the evening allusion was made by the members of Parliament present to the two pending Government competitions, and a strong opinion was expressed to the effect that successful competitors in previous Government competitions had not received justice by being omitted. On this, Friday, evening the subject will be brought forward in the House of Commons, when the President and Mr. Tite will doubtless give their aid in the right direction. It is understood that the terms offered to the half-dozen architects selected to compete for the Law Courts, the contemplated expenditure being three-fourths of a million, were four per cent. to the selected candidate, and 800*l.* to each of the others: the reduced commission, however, is objected to. Mr. Hardwick has already withdrawn, and another of the six will also do so, we believe, in a few days. In the National Gallery case the commission is to be the established five per cent.; 250*l.*, if we are rightly informed, being paid to each of the competitors. Mr. Pennethorne will not submit designs. He has been consulted on the matter so often, has made so many plans and suggestions, that even if invited he would decline, feeling himself to be in a superior position to that of the other architects, and that it would be unfair for him to compete.

The committee appointed in the interests of English architecture to co-operate with the Commissioners for the Paris Universal Exhibition is getting to work. It represents various cognate bodies: here is a list of the members of it:—

The President of the Institute; Mr. W. Tite, M.P., past president; Mr. T. L. Donaldson, past president; the three vice-presidents; all the members of council; the two hon. secretaries. The following members of the Institute:—Messrs. C. Barry, W. Burges, E. Christian, F. P. Cockerell, B. Ferry, G. Godwin, O. Hansard, P. C. Hardwick, O. Jones, J. W. Papworth, J. Pennethorne, F. C. Penrose, G. G. Scott, R.A., W. Slater, S. Smirke, R.A., J. B. Waring, and T. H. Wyatt. Messrs. J. Edmeston, fellow, and J. Fergusson, fellow, for the Architectural Exhibition. Messrs. J. Clarke, fellow, and T. Gambier Parry, hon. member, for the Architectural Museum. Messrs. R. W. Edis, associate, and T. R. Smith, fellow, for the Architectural Association. The Rev. W. Scott, and the Rev. B. Webb, for the Ecclesiological Society. Messrs. Burnell and C. F. Hayward act as the hon. secretaries. A meeting is to be held this Saturday. Architects who desire to be represented at the Exhibition in Paris, should get into communication with the committee at once.

Our readers have heard that the Architectural Museum is to be removed from South Kensington, the desire being to keep the collection together as a whole, and induce study of the specimens. It has been urged that the Institute of Architects should take the charge of it; and some steps towards bringing this about have been taken. The result, however is, as yet, uncertain. The lecture season of the Museum will be preceded by the distribution of prizes to art-workmen by the president, on Wednesday, March 21st. A lecture will be given by Mr. F. S. Powell, M.P., on "Existing Obstacles to the Progress of Gothic Architecture in England;" by Sir Walter James, bart., on "Breadth of Light and Shadow in Architecture;" by the Very Rev. the Dean of Westminster, on the "History of the Chapter-House of Westminster;" by the Rev. E. L. Cutts, M.A., "On Gravestones;" and by Mr. J. H. Parker, F.S.A., "On the Mediæval Houses of the City of Wells." The prize meeting and the lectures will take place in the Theatre of the Geological Museum, Jermyn-street, which has been kindly lent for the purpose by Sir Roderick Murchison, the temporary theatre at South Kensington having been pulled down.

The exterior of the new theatre there is being fast proceeded with, and will constitute an important feature of the general pile. Terra-cotta is being largely employed upon it, especially in the shape of some large ornamented columns, designed, like much of the rest, by Mr. Godfrey Sykes, who did not live long enough to see them all in their places. Mr. Sykes's name is written on the walls of the Sheffield School of Art, where he took all the principal prizes, and then became master. Five or six years ago he left that position to hold one at South Kensington, and he then superintended the decoration of the arcades and conservatory in the Horticultural Gardens. This work gave a considerable impetus to the introduction of terra-cotta. He showed much skill, too, in the painted decorations of the south court of the Kensington Museum. He died at the early age of little more than forty-one, and was buried, on Wednesday last, in the Brompton Cemetery, many who appreciated his talents following his remains to the grave. Decorative designers such as he are so few amongst us, that we can ill spare him.

On the previous Wednesday evening lamentations were expressed at the Society of Arts over the issue of the latest competition there offered to art-workmen. "The time given for the execution of the works," said the report, read by Mr. Foster, "amounted to very nearly twelve months, and the result does not show an adequate response. The question arises, what are the causes which have led to this state of things, and can any steps be taken by which a larger number of competitors can be secured?"

The report showed that in 1863 prizes to the amount of 162*l.* were offered. Seventy works were sent in, and the amount awarded was 109*l.* In 1864, the amount offered for prizes was 623*l.* Ninety-six works were sent in, and the amount awarded was 274*l.*; while in 1865 (the present competition) the amount of prizes offered was 666*l.* Sixty-one works were sent in competition, and the amount awarded was but 174*l.*

Mr. Henry Cole, discussing the report, thought its dolorous tone unnecessary. Art-workmen were not like mulberries, to be produced at will in great numbers. It was not merely by increasing the amount of prizes that a larger number of competitors could be obtained. In the first place they must recollect that the competitors were artisans, who had to produce these works in addition to their daily occupation. Now it was not very amusing, when one had been engaged upon work, however interesting, all day, to take up the same thing again in the evening. He therefore thought, though he thoroughly sympathized with the movement, that it was asking a great deal from a workman to invite him to do work under such circumstances, and if he responded to the invitation, it was a good sign. His own opinion was—and it was strengthened by the decision of the judges—that the quality of the work exhibited on this occasion was much higher than it had ever been before.

A point had been raised, the speaker continued, as to whether the workmen should not be allowed to execute their own designs, and whether that would not increase the number of competitors? His own opinion was that it would not, and also that it would tend to lower the character of the work. He thought the art-workmen and the class of artisans generally were not much trained as artists and designers. It was enough, he thought, to ask art-workmen to study really fine examples and imitate them. We had, in fact, very few designers in this country at best. There were strictly ornamental designers, and he was happy to say these were increasing; but at present, he believed, the designers in the manufacture of pottery who were distinguished in that art were very few; therefore he thought if they asked for designs *plus* the execution, they would rather retrograde than otherwise.

Mr. George Lock, representing art-workmen, followed, and gave at some length suggestions as to the best means of improving, extending, and encouraging the cultivation by art-workmen of the practical skill required in the execution of the more artistic class of work now in demand for the decorative and useful arts; the appointment of a special committee to take evidence and report thereon, as the best means of eliciting the opinions and deliberate judgment of art-workmen and all parties practically engaged in the arts; a return to the original condition of adjudicators being selected in part from the practical workmen in each trade invited to compete; also that each trade be solicited or allowed to contribute to the prize fund; and that whenever any article is specially named for competition, it should always be of such proportions, character, and completeness as will make an ordinary saleable article of the best workmanship; that at all such exhibitions the superior work of deceased men of all ages that can be obtained should be exhibited, the wide and important influence of the Society being used to induce owners to contribute such works and encourage them to offer special prizes for any subject they may select, subject to the approval of the council; that application for exhibition space and accommodation should be made to the authorities of South Kensington, or, in default, some popularly known exhibition-rooms should be obtained; so that workmen, besides having a chance of a prize, might have the more coveted reward of a sale for their work, and of being introduced to the public buyers; further to have the designer's aid enlisted, by offering prizes for the actual working drawings in full detail of any of the objects actually exhibited, or which may have been executed and fixed in places from which they cannot be brought for exhibition, but which may be thus inspected by the judges; and he also urged a still more extensive publicity to the Society's schemes, by seeking the co-operation of all institutions in union, the Workmen's Club Institute, the secretaries of all the working men's exhibitions, metropolitan and provincial, the City trade companies, the chairmen of halls of commerce, the masters of the Government art schools; likewise some of the ordinary trade societies; and by advertising extensively in those newspapers and periodicals that are known to circulate by hundreds of thousands among the entire working population of the country.

Mr. Harry Chester approved of the suggestion of Mr. Lock, that a committee should be appointed to ventilate this subject more fully. He thought one reason why they had not succeeded better was that they did not sufficiently understand the mind of the art-workman, and he did not sufficiently understand the mind of the council. Mr. Peter Graham, Mr. Maudslay, Mr. Redgrave, R.A., Mr. Hawes, and others spoke; and a full discussion of the report has been published, and may be usefully conned by those interested in the matter.*

Speaking of prizes, we have received a request from the Société Impériale des Sciences et des Arts, of Lille, France, that we should make known that the *Prix Wicar* (40*l.*) will be awarded to the most remarkable picture in this year's exhibition there; and that a similar prize, not adjudged last year (40*l.*), is offered for the best studies of three sorts of habitations,—a mansion of the first class, an ordinary residence for a family, and a building to be let in flats or *appartements*. The jury is to include a majority of architects, and the greatest publicity is to be given to the result: there is good sense in both those announcements.*

At Antwerp, an International Archæological Congress is to be held, commencing on the 12th of August next, and lasting for nine days. The list of subjects, architectural and archæological, set down for discussion, is comprehensive, and of the most interesting character. If the foreign guests are treated as well on this occasion in the city of Rubens as they were at the Artistic Congress held there a few years ago, and the congress be as well conducted, the week will be pleasant with them, as well as instructive. Of meetings at home, we have only left ourselves space to say that the congress of the British Archæological Association will be held this year in Hastings, and that as to the congress of the Social Science Association, the leading men of Manchester are bestirring themselves energetically, talk of raising a guarantee fund of 10,000*l.*, and seem determined that it shall be a great success. Mr. Gladstone or Lord Stanley, it is thought, will be president, but that is still unsettled.

* A certain number of copies have been sent to our office by Mr. Lock, with a request that we would assist in the distribution of them by notifying that secretaries of societies, or others interested or willing to co-operate in the scheme of art-workmanship prizes, may have copies by applying there for them. We willingly do so.

THE WANT OF ACCOMMODATION FOR ROYALTY IN ENGLAND.

THE indecorous rush with which those who may be styled, if not the most prominent, at all events the most pushing, of the Commons of England, burst into the presence of the Sovereign on the solemn occasion of the opening of her seventh Parliament, enforces the remark that the architect, however successful in his own province, needs the aid of an officer partaking of the natures of the master of the ceremonies and of the policeman before the noblest productions of his art can be made the worthy scene of great ceremonials. A blow given, or even the drawing of a weapon, within the precincts of a royal palace, was attended, not so very long ago, with condign and summary punishment; but even the designer of the new palace of Westminster did not live long enough to think it necessary to make special architectural provisions for preventing the introduction of Donnybrook fair into the expectant presence of the two first estates of the realm.

But that which, in the palace now ceded to the Legislature, and built at Westminster for the special accommodation of the two Houses of Parliament, must be considered as matter of order and of arrangement alone, becomes yet more conspicuous by its absence when we regard the provision made for the discharge of Royal hospitality. The Sovereign of this country convenes the great historic council of the land in a building worthy of the occasion. Her private residences, built and preserved from private resources, are well suited to the stately simplicity that marks the Victorian era, and the old castle, in which so many English crowned heads have kept their Christmas, is a royal abode of which we need not be quite ashamed. But the Sovereign of this country has no palace in which fitly to receive either the visits of illustrious foreigners, or the duty paid by those of her own subjects who have the privilege of access to the Royal presence. As to the first point there is but little to be said. It is hard to describe a negation, and it is enough to mention the fact of the accommodation of royal visitors at an hotel to show how very far we are behind other countries in the first of the material requisites for the exercise of Royal and of national hospitality.

The second point becomes the more urgent when we anticipate the time when the Queen will again hold levees and drawing-rooms in person. For such a purpose the rooms at St. James's Palace are simply and notoriously unfit. There may be many persons who enjoy the crush of a monster party, and rejoice in the length of time that it may take to ascend a staircase, and the risk run by trains and *coiffures* in the passage of the polite thermopylæ. Such things, if matters of taste, are also, to a great extent, matters of choice. The paying of one's duty to the Sovereign is not, in certain ranks of society, a matter of choice; it is so far a matter of necessity that the position of a young person would be injured by the want of presentation at Court at the proper age. On such an occasion it is often no small trial for the natural guardian of the candidate to run the gauntlet of the ante-room; and, although something, nay, much,—may be done by careful arrangement, the fact of the inadequacy of the accommodation remains patent. It can be called nothing short of a national disgrace.

We are not to be told that questions of economy should interfere to prevent a proper provision being made for the discharge of an important part of the functions of a Court. In all stages of human society, whether we regard that which we are apt to consider as the insane pride of certain ancient imperial customs, or of their recent imitation in the court of the latest king made by the holy Roman emperor; or whether we glance at the khawáh of the half-clothed Arab sultan, or the reception-tree of the unclothed African despot; or whether, regarding the association of mankind from a different point of view, we join a great hand-shaking at the White House,—the reception of subjects by the Sovereign, or of citizens by the chief magistrate, forms an integral and important part of social life; and, in a country where social forms are not of recent growth or of artificial creation, but where they rise, and prevail, and become modified as a part of the national life itself, it is certain that the value of this great requisite of society is pretty generally recognised. And yet it would be easy to point out many a ducal or princely palace better fitted for the reception of the guests of the Sovereign than are the apartments of that old red-brick royal residence which still gives its name to the Court of Great Britain in diplomatic correspondence.

The requirements for royal reception-rooms are not excessive, and if a proper organisation were adopted on the occasion of a levee or a drawing-room, those assemblages might become as attractive as they are now to too many persons the reverse. The simple plan of taking down the name of each arrival in order, of sending the book in which the names are written to a proper officer at the commencement of the reception, of calling out the names in that order, and admitting the owners, some ten or fifteen together, into a small antechamber, from which they should pass, in like rotation, with unruffled plumage, and with breath only quickened by the excitement of the moment, and not by the struggle for a place in the *queue*, into the royal presence; a second small chamber, or corridor, on the opposite side of the throne-room, into which those presented should pass from the royal presence, without having, as at present, to re-cross in front of the throne, or as in the old arrangement of the throne-room, to walk backwards for a considerable distance,—these simple arrangements, which it is only necessary to mention in order to show how much of the present confusion they would avoid, would render one large saloon, such as the ball-room of the Palace of Naples, or as Pittville pump-room at Cheltenham, available for the assembling of a brilliant and well-accommodated court, in which free conversation could take place between both those on their way to, and those on their way from, the royal presence. It is very probable in such a case that the actual courtesy to the Sovereign would gradually become confined to those who were presented for the first time or on some special occasions, and that the fatigue of the Sovereign would thus be materially lessened, while the purposes of attendance at Court would be rather advanced than retarded, the routine of admission and the publication of the names being retained as at present.

For a building that should contain, in addition to retiring-rooms, entrance-hall, and subordinate apartments, a spacious ball or saloon, a small antechamber, a throne-room capable of containing the household, the great officers of state, the ministers, and the diplomatic body; a corridor, or second anteroom, and a room for the special audience of foreign ambassadors; the great question would be one of site. Such a building either might or might not be connected with that which is needed for the proper accommodation of the distinguished foreign guests of the Sovereign of the nation. That no such edifice should exist in England in the present year of grace is a fact at which, were it told us of another country, we should not readily cease to wonder. London is becoming full of palatial residences. The "wagon roof" of one of our latest railway stations not only rivals but altogether eclipses the dome of St. Paul's when looked at from the northern end of London Bridge. The records are housed; the courts of law promise

* We have placed the particulars and conditions at the office in York-street for examination by any who may desire to see them.

to rival the palace of the Legislature; the club-houses out-do the palaces of Genoa or of Florence in all but their antiquity; the assurance companies are striving to rival the clubs; London is everywhere rebuilding, and the wants or the luxuries of every portion of society are claiming a provision of greatly increasing splendour. In the midst of all this, are we to remain contented with St. James's Palace for the levees, and the Blank Hotel for the guests of the nation.

RAILWAY DELAYS, AND THE REMEDY.

As the winds of this unnatural and perilous winter veer from point to point round the compass, those inhabitants of the suburbs who have become dependent on the trains of the different railways that converge on the metropolis become practically aware of the fact, not only by the dense pall which the combination of fog and smoke throws over the country leeward of London, but by the increased irregularity of their arrival at their various points of destination.

The resident at Highgate or Hampstead who leaves his home on a bright morning, and arrives at Westminster, or at the City, exhilarated by a walk in the north wind (a rare phenomenon during the present winter), may wonder at the failure of his friend from Croydon or Sydenham to keep his appointment, and may almost hesitate to give him credit for being an hour and a half on his journey, owing to the fog. Even from London Bridge to Charing-cross we have heard of an hour being occupied in the transit.

The tax that is inflicted on individual time, and the hinderance that is caused to business, by events that are as certain to take place as the wind is sure to blow in certain directions, seems to be regarded in general with that sort of hopeless dismay with which people are wont to contemplate unavoidable evil.

It may, however, be remarked, as a fact hostile to this resigned state of mind, that the one railway which has to contend with permanent fog and darkness presents a striking contrast in its punctuality to the service of the lines that enjoy the light of day, such as it is in our climate at this season. Why should the passenger be mast-headed in his aërial journey from the City to Westminster, while he burrows with exactitude on his mole-like route under the New-road?

The fact is that we are only beginning to recognise the immense change which the railway system is effecting in our social requirements. Under the pressure of augmenting traffic, or under the strong stimulus of rivalry, line is added to line, branch to branch, and terminal stations are becoming objects of architectural magnitude. But a general, combined effort to provide for the decent convenience of the travelling public has yet to be made. Not only when rival and hostile lines meet, as at London Bridge, is the public subjected to an amount of delay and annoyance that to a stranger seems intolerable and incredible; but in cases where companies have fuller command of their own district, the first requisite of well-ordered traffic, absolute punctuality, is often shamefully missed.

If we inquire into the causes of an irregularity that is rather the rule than the exception, we shall find that they may be divided into two classes, namely, those for which the working staff of the railway, or the manager of the traffic, are directly responsible, and those for which they are not. Into the first of these we do not at present enter, as it is obvious that the effort to reform them will be useless so long as those of the latter class are permitted to continue.

Of those unavoidable occurrences of delay which cannot be disregarded without incurring great danger, the chief, if not the only causes may be detected in junctions and crossings, and in points where trains are allowed to move in opposite directions on the same rails, or to pass over the same point in the same direction indeed, but at very different speeds. So long as points like this exist on railways of large traffic, so long will absolute punctuality be impossible, whatever be the exertion of the staff; and it is at points of this nature that the due care of passenger life incumbent on the conductor of a train renders delay by fog certain. One delay, where trains run close together, involves more, and in continued foggy weather the whole traffic of the day is thrown out of order by the unavoidable exercise of the most ordinary prudence.

The recent attempts of the railway companies to provide additional accommodation for their own traffic, or to filch that of their neighbours, have tended to make matters worse rather than better on the score of punctuality. Every new branch involves a new point of junction, or a fresh cause of interference with an old one; and thus the more passengers a line is made ready to carry, the less punctually is it likely to deliver them at their respective destinations.

The matter becomes the more serious when we consider how absolutely the traffic of the country will be conducted by the railways. It is true that the fears entertained on the first introduction of the locomotive that the breed of horses would be lost have proved as futile as have those entertained as to the great danger of travelling at the rate of more than sixteen miles an hour. Far more horses are now engaged as *tenders* to trains than were formerly employed in the through traffic of the country. But the horse will not contend with the locomotive, and when a district is served, well or ill, by a railway, it is on the railway that the inhabitants depend to keep their daily engagements. It is, therefore, of the utmost moment to all persons to whom time is of value, that causes of unavoidable delay and want of punctuality should be removed from those lines of railway on which the daily business life of the metropolis so intimately depends. It is a question of national economy and of public necessity, and as such it must be met by the railway companies at whatever cost.

The means of ensuring absolute punctuality, so far as the removal of certain causes of delay is concerned, need not, however, cost the companies in question anything like the sums that some of them are now asking Parliament to allow them to lavish in fighting their neighbours. Bearing in mind that the motion of a train in a cross or inverse direction, or at an incongruous rate of speed, over a given point on the rails is the main cause of delay, such movement must be avoided, by arrangements, when possible—by additional construction when it is not. The kind of awe with which railways were so long regarded—in consequence, to a great extent, of the manner in which they were kept at a distance from towns on their first construction,—has in a great measure disappeared; and not only do we see trains shot over the chimneys or under the cellars, but running out of window on a balcony, or climbing over a sort of style, as on the way to the Crystal Palace. It is in this way that the question must be met. Passenger traffic must be regarded according to its true requirements. When local and through traffic are so large as to interfere with one another they must be conducted on separate lines of rails; and the lines thus destined to carry on that constant stream of ever-succeeding passengers, who have a right to swift and punctual conveyance, must not be strangled at points of crossing or of junction. They must convey passengers alone, no luggage beyond what the passenger can carry in his hand, being admitted in the express trains; and they must run from terminus to terminus without crossing other lines on the same level. The engineering science that does honour to the day can readily meet the difficulty, when once it has to grapple with it; and that it must be met, and met in some such manner, will yet be amply demonstrated before the close of the present winter.

THE INNS AND TAVERNS OF WINDSOR.

IN a recent paper on Windsor, we briefly alluded to the extraordinary number of public-houses it contains, and the rapid additions that are continually being made to them. Its "facilities for drinking," are certainly among the chief features of the royal burgh; and we think the subject sufficiently interesting, if not important, to return to it for a little. Our main object, however, is to offer some notes on one or two of the Windsor inns in particular, which can lay claim to literary and historical associations of no small interest.

Nowhere else, assuredly in no town of similar extent, will you find such another collection of beer-barrels and pewter pint-pots, as in "proude Windsor." We are not aware that Windsor is less sober than its neighbours, still it must be admitted that upwards of a hundred public-houses, besides three breweries, is a rather large fact for so small a town—military station and all though it be. It would not, perhaps, be just to say that the entire contents of all the vats in Windsor find their way down the throat of Windsor. On the other hand, Windsor does not subsist on beer alone, but imports gin and other alcoholic liquors, in no inconsiderable quantities. Use is everything. Some of our readers can no doubt remember the time when their first glass of Allsopp made their head spin like a top, and when their inauguration pipe induced the feeling that it was "all over with them." But it was not; and they practised and persevered, toiling after tobacco as some men toil after virtue, as Charles Lamb said, until they got used to it. Was not De Quincy in the habit of swallowing as much opium as would have killed a dozen ordinary men? Is there not a saying to the effect, that some men can "put away" enough beer to knock over even a brewer's horse? We repeat, use is everything. If the natives of Windsor consume their beer in rather larger measure than their neighbours, we suppose it is because they are used to it. A relish for stimulants and an abundant capacity to hold them, seem hereditary with the Windsor people. The present generation is descended from a long line of anti-teetotallers. They have always been a jolly community. Shakspeare has left us a picture of the inhabitants in his time. How far Mrs. Ford and Mrs. Page may be taken as representing the disposition of their townswomen generally, we have no means of knowing. Taking into account the prevailing manners of that age, it is probable that those lively ladies were like their neighbours, and that their neighbours were not unlike them. At all events, as regards the male portion of his characters in the "Merry Wives of Windsor," the poet has given us a proof of how admirably he could "catch the manners living as they rise." There is good evidence to show that at any rate the men of Windsor, in the sixteenth and seventeenth centuries, deserved the title of the "Merry Men of Windsor." The supposition is not improbable that Shakspeare actually did at Windsor what Antipholus, in the "Comedy of Errors," proposes to do at Ephesus:—

> "Within this hour it will be dinner-time;
> Till then I'll view the manners of the town,
> Peruse the traders, gaze upon the buildings,
> And then return, and sleep within mine inn."

And that inn may have been the Garter.

About 1550 Windsor contained a thousand inhabitants; and a century later, as we learn from Stoughton's "History of Windsor," no fewer than seventy public-houses existed in the town, besides several from which the magistrates had suspended the licences. "This was a great number," says Stoughton, considering the size of the town, and it shows how much such places of resort must have been patronized. The taste of the inhabitants for public-houses, sack, and beer, no doubt furnishes an explanation of the numerous entries in the town books relating to the repairs of the town-hall windows, the hasps of the market-gate, and other matters, which had suffered damage from violence." Law and order are better respected than they were formerly; but it would be strange if, even in these nineteenth-century days, nobody put in an appearance at the Windsor Police Court, particularly on a Monday morning,—

> "To tell the news
> O' crackit crowns and broken brows"

received on Saturday night. But if the people themselves in bygone times were partial to their tankard of ale, they found worthy (or unworthy) exemplars in the municipal authorities of the burgh, who were equally fond of their cup of sack. With a thoughtful prudence, too, of which the world has had many examples in public bodies since, the Windsor corporation looked to another source than their own pockets for the payment of their scores. May we not parody Madame Roland's celebrated exclamation about liberty, and exclaim, "Oh, Public Service, what excuses for guzzling are framed in thy name!" The writer already quoted gives the following account of social life in Windsor in the seventeenth century:—

> "There are other records connected with Windsor about that time [1659] which exhibit the town under a very different aspect, and which show that, notwithstanding the calamities of the period, the townspeople pursued their usual habits and availed themselves of all opportunities of regaling themselves with the good things of this life; for, ever and anon, as the eye runs down the columns in the old account-books of the Windsor corporation does it light on an item relative to the provision of some hospitable cheer for the corporation worthies in the pursuit of their municipal vocation. Entries for quarts of sack and loaves of sugar are as frequent as were, no doubt, the sips those gentlemen took of the delicious beverage. When any corporation business was done, it seems to have been the invariable custom to crown it with refreshment at the Garter or White Hart, both

which inns are repeatedly mentioned. When Mr. Mayor and several others met about a petition concerning soldiers' pay, they adjourned to the White Hart, and spent 6s. 3d. When Mr. Mayor and some of his company went to Colonel Venn, on his leaving the castle, there was a bill run up for a gallon of wine and four loaves of sugar; and when Mr. Mayor and Sir Richard Braham met, they could not separate without having beer and tobacco. Sometimes a little more substantial fare was provided for these municipal worthies, and 'baking of venison pasties' is charged for in the town account. The inferior entertainments, especially the cup of sack, seem to have been of almost daily occurrence; not a bill could be paid without another being incurred with 'mine host of the Garter' or some other host; and after two or three little bills are mentioned, we find an item like this: 'for drink at these several payments.' Other entertainments of a higher order occasionally occurred, and beef and bacon, and veal and mutton, and pullets, and a hundred other things for the table, are minutely specified and charged for.

As already stated, the number of public-houses in Windsor (including Eton and Clewer) is at present over 100. Of the three breweries, one at least is an extensive concern. In old Windsor there are about eight publics. These various facilities for drinking may be classified as hotels or inns, village taverns, and common beershops. Though not more than a dozen of them can rank as hotels proper, a very large proportion offer accommodation "for man and beast," and there are few which do not announce the possession of "good beds,"—facts which prove that the public-houses of Windsor are not mere taps or bars, and increase the wonder as to how they all thrive as they appear to do. One can distinctly trace an ancient and modern period in the history of the town from its inns and taverns. Where the buildings themselves do not settle the date of their establishment, a number of the old inns having been rebuilt, the signs furnish a near indication of it. The more modern and very recent of them are almost without exception intensely loyal in name. In addition to the King's Arms, we have the Queen's Arms, Queen's Head, George the Fourth, King William IV., Duke of York, Brunswick Arms, the Adelaide, the Clarence, Prince Albert, Prince of Wales, Duke of Cambridge, and the Prince of Prussia. Patriotism has identified itself in a general sort of way with Britannia, the Ship, the Royal Oak, the Red Lion, the Standard, the Crown, the Crown and Cushion, and, of course, the Crown and Anchor. Patriotic feeling has found expression in a more particular manner, in Lord Nelson, Lord Raglan, Omar Pacha, and Sebastopol. The trades and professions have not been forgotten; their especial patronage is solicited for at least eleven taverns,—Jolly Gardeners, Carpenters, Bricklayers, Foresters, and Odd Fellows, are one and all invited to come to certain Arms. A similar invitation is extended to Bachelors, which does not seem inapplicable, the only question being as to the kind of arms waiting open to receive them. Then the Two Brewers (whoever may be meant thereby) may take their ease in the tavern of that name, or, if they prefer it, they may patronise the Three Tuns. On the same principle, we presume coachmen and grooms are supposed to put up at the Horse and Groom, the Nag's Head, the Black Horse, or the Running Horse; farriers, at the Horse and Shoes; millers, at the Jolly Miller; and anglers, at the Anglers' Rest. The last is appropriately situated at the riverside. Adam and Eve, New Inn, the Swan, Black Horse, Three Tuns, and Kings' Arms, appear to be favourite signs with the Windsor folks; for each of these appears on two inns in the place. The Sun, the Star, the Bull, the Turk's Head, the Fox, the Grapes, the Stag and Hounds, the Castle, the Star and Garter, the Union, and the Wolf, are common in hotel nomenclature. They are all to be found here, as are also the Duke's Head, the Merry Wives of Windsor, the Hope Inn, the Five Bells, the Three Elms, the Christopher, the Windsor, the Criterion, the Hand and Glove, the Bexley Arms, the Old Tower, and the Old Times. After this list, which is surely both extensive and varied, it can hardly be said that "places of refreshment" are a public want in Windsor.

The White Hart and the Castle Hotel,* situated in High-street, are now the principal hotels in Windsor. Both are first-class establishments. The present White Hart occupies the exact site on which the old White Hart, so liberally patronised by former mayors and aldermen of Windsor, stood. If not the oldest inn belonging to the town, we suspect it was one of the oldest. In a survey of the burgh of the reign of Edward VI., a house at the corner of Datchet-lane, on the north or river side, is called the Redd Lyon; and another belonging to the Dean and Canons of St. George's Chapel, near the foot of the present Hundred Steps, is described as the Crowne. Other inns of Windsor about this time bore the signs of the George, the Bull, the Swan, the Ram, the Black Eagle, the Cardinal's Hat, the Chequers, the Goat, the White Lion, the White Horse, the Mermaid, the Bell, the Rose, the Cross Keys, and the King Harry. The first five names, as the reader has seen, are still tavern signs in Windsor; all the others are now obsolete. It is said that the sign of the White Hart, which is now adopted in so many towns and cities throughout the country, took its origin from the following incident related by Sir Halliday Wagstaffe, who was keeper of the woods and forests in the reign of Henry VII. It appears that the king, feeling disposed for a day's hunting, repaired to the New Forest for that purpose. A celebrated white hart, which was called Albert, and which was a noble-looking animal, was selected for the day's sport. Albert showed them some fine running, and the chase continued till nearly the close of the day, when at length, being hard pressed by the dogs, he crossed the river near Ringwood, and finally stood at bay in a meadow; his pursuers came up just at the time the dogs were about to make a sacrifice of their victim, when the ladies interceded for the noble animal. Their intercession was listened to, the dogs were called off, and the animal secured. He was taken into Ringwood, and a gold collar was placed round his neck. He was then removed to Windsor, and Halliday Wagstaffe was that day knighted at Ringwood. The house of entertainment at which the king and his courtiers partook of some refreshment had its sign altered to that of the White Hart, and has retained its name to this day.

The famous Garter Inn,—not to be confounded with the existing Star and Garter,—is long since defunct. It stood very near the top of Peascod-street, and only a few doors from the White Hart. Both inns are shown in Norden's map of the town. A door-porch distinguishes the Garter from its neighbour inn. That the Garter in its day was the chief inn of Windsor is evident, since Shakspeare selected to make it the scene of his comedy, and since, as we know from other sources, that its landlord, Richard Gallis, had three times served the office of mayor of Windsor, and was, in 1562, member of Parliament for the burgh. The author of "Windsor in the Olden Time," hints that it is strange to find the landlord of an inn holding high office in connexion with his town; but, as pointed out in the "Annals of Windsor," the landlord of the principal inn is just the person who would be chosen mayor; and in subsequent years, and down to the present day, the landlords for the time being of the White Hart and Castle Hotels are found in the list of mayors of Windsor. The character and position of mine host of *de Jarterre*, as Dr. Caius calls him, accounts for his familiarity with his guests, which, in the opinion of some commentators, was a blunder on Shakspeare's part, they forgetting, moreover, that the term "bully-rook,"—the favourite salutation of the host,—was not an offensive expression in our dramatist's time. We may here remark, by way of parenthesis, that local tradition has placed Ford's house very nearly opposite to the Garter Inn. "Previously to the removal of all the houses on the Castle side of Thames-street, there was a wooden brick house occupied by Mr. Woolridge, the chemist, and that house was assigned as standing on the site of Ford's house."* It has also been supposed that a house at the bottom of the Hundred Steps, destroyed in 1860, was the residence of Mrs. Page. We cannot, we regret, give a list of the many celebrities who must have "put up" at the famous old Garter. We have supposed that Shakspeare himself may have drunk a cup of sack "over a hot venison pasty," in its hospitable parlour. If there was no Sir John Falstaff "sitting at ten pounds a week," getting drunk with "drunken knaves" who picked his pocket after, Sir John Oldcastle, the prototype of the witty fat knight, must have been familiar with the place. However, we know for certain, that among its wayfarers it numbered dear old, quaint, and conceited Samuel Pepys, who with Mrs. P. entertained at dinner there, Dr. Childe, the organist of St. George's Chapel, in 1666. The secretary and Sir John Evelyn, made several visits to Windsor and the Garter was most probably their inn. And the Duke of Wurtemberg, to whom reference is made in Shakspeare's play, got post-horses at the Garter, on the occasion of his "sensational"* visit to the town in 1592. The origin of the Garter, as well as of the Star and Garter, is obvious.

Another noteworthy Windsor inn is the Duke's Head, near the bottom of Peascod-street. This large, quaint-looking building is the reputed house of Villiers, Duke of Buckingham. We can suppose it, therefore, to have been the scene of many a revel. It is recorded of a subsequent Duke of Buckingham, and Charles II., that the merry monarch and his grace were wont to parade the streets of Windsor, disguised in masks, and would enter the houses of the inhabitants, whom they alarmed by all sorts of mad pranks, one can fancy just as certain wild scapegraces now-a-days ring door-bells and wrench door-knockers "for a lark." There must, indeed, have been strange ongoings in that little town at this period, before his Grace of Buckingham could have dared to propose to Charles to get rid of the queen, and before the king would have received the infamous suggestion as he did.†

There was at one time, in Windsor, an inn called the Bear. Of this house, all we know is, that some officers of the Commonwealth army were suspected of having met there, to hatch a plot to kill the king. The Bear was situated "on the bridge foot," but has long been numbered among the things that were.

Several of the older inns of Windsor are far from unpicturesque in appearance. Besides the Duke's Head might be mentioned the Star and Garter, in the same street; the Merry Wives of Windsor, in Spital-road; the Five Bells, in Sheet-street; the Adam and Eve, in Thames-street; and the Three Elms, the Jolly Miller, and the Wolf, at Clewer. Most of these wear many of the architectural features of the old town or village inn, including the sign-post and swinging sign-board. They want little else beyond the ancient red lattice at their doors and windows to carry us back to the past. Still more picturesque, though more modern, is Surley Hall, so often alluded to in connexion with the annual boat procession of the Eton boys. This inn stands on the north bank of the Thames, about a mile above Windsor. The house fronts the river, which, at this point, takes a decided bend, forming a very pretty little bay, whose waters reflect the shadows of the trees upon its bank. It is in this bay (not of Biscay) that, having reached their destination, the Eton boats anchor, while their classic crews adjourn to the hall, and there together sup to the sound of the popping of champagne corks.‡ On the lawn in front of the house is a number of tall trees, round which are placed refreshment tables. Here, too, large numbers of persons hie them to enjoy the evening sunset, while they regale themselves with that ale, for the quantity of which, at least, Windsor is famous. From the extremely poetic character of the landscape at this point, the sunset has often a peculiarly beautiful effect. A scarcely less effective picture is obtained from the opposite side of the ferry. Altogether this neighbourhood is one of the pleasantest spots about Windsor, and artists and lovers of the picturesque on a visit to Windsor should not fail to see Surley Hall.

THE HEREFORD BOROUGH SURVEYORSHIP.—There were only two candidates (and the only wonder is there was even one) for the borough surveyorship of Hereford, caused by the resignation of Mr. Davis. Mr. Robert Wood and Mr. Charles Turner Morris were the candidates. Mr. Morris was duly elected. The salary was fixed at 30*l.* per annum!

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* A few years ago,—it may be still there,—Nell Gwyn's bed, which was removed from her house at Bray, was an object of interest in the Castle Hotel. Nelly's pair of bellows, with gold pipe, may still be seen in the plate-room of Windsor Castle.

* "Annals of Windsor."

* Knight's Introduction to the "Merry Wives of Windsor."

† The anecdote of Tom Killigrew's rebuke to the king is well known. Seeing his majesty so entirely absorbed by his pleasures as utterly to neglect the great and pressing interests of the country, he hit upon the following expedient to admonish him of his extreme negligence. Having equipped himself in a pilgrim's habit, he made his way to the monarch's apartment. The king, surprised at the oddity of his appearance, asked the meaning of it, and whither he was going? "To h—ll," bluntly replied the wag. "Prythee," said the king, "what can your errand be to that place?" "To fetch back Oliver Cromwell," rejoined Killigrew, "that he may take some care of the affairs of England; for his successor takes none at all."

‡ Champagne is understood to be a distinguishing feature of the entertainment.

OZONE IN RELATION TO HEALTH AND DISEASE.

THE word "ozone" simply means "smell," being derived from "ὀξω," to smell; and it is fortunate that this word has no other or mere hypothetical meaning, which might become very inapplicable and absurd when the true nature of ozone is established. The smell is sulphurous, and resembles that excited by electricity, and in thunder-storms. Indeed, ozone itself, whatever it may be, is produced by electricity; and as oxygen evidently has something to do with ozone, it has been suspected that electrified oxygen *is* ozone. By electrified oxygen must be understood oxygen positively electrified: at least the positive electricity has evidently more to do with it than the negative. So long since as November 11, 1854, there will be found in the *Builder* (p. 581), an article titled "Electricity and its alleged Connexion with Disease," in which the idea that ozone was electrified oxygen and bore special relationship to sanitary questions was fully entertained, so that we have long regarded this agent as one of very great importance in sanitary science. At that time, both Schonbein and Liebig appear to have been partly right and partly wrong as to ozone in its relationship to epidemics. Liebig ascribed epidemics to a deficiency of ozone, Schonbein to an excess of it; whereas it now appears that one class of epidemics may more especially be ascribed to a deficiency and another to an excess of ozone. Whatever diseases arise from decomposing organic matter,—fevers, especially,—must be ascribed to a deficiency (local or general) of ozone, which has proved itself to be the grand scavenger of nature. As for virulent and epidemic cholera, it also, we think, must be ascribed to a general deficiency of ozone, perhaps partly direct in its action on the organism itself. This negation of ozone might well itself be called antozone, whether any direct opposite agent to ozone be ever discovered or not. But the great probability is, that as ozone is oxygen positively electrified, so oxygen negatively electrified will be found to be an actively operative agency which must necessarily be called antozone. Some stupid ideas about the alleged "decomposition of oxygen" by antozone lately threw discredit upon the suspected existence of this antozone; but those who have most fully considered the question are quite convinced that antozone exists as well as ozone. Thus Dr. B. W. Richardson, in an admirable article in the *Popular Science Review*, says,—

"I would state that there is a condition of atmospheric oxygen in which that gas exhibits an opposite condition to the ozonised state. Oxygen in this opposite or negative condition is called antozone. There are different methods of producing antozone which I have not space to describe; but I must note that in some experiments on the re-inhalation of air many times over I was able to reduce oxygen to such a negative state that it failed to support life. The act of purifying such oxygen from carbonic acid and other tangible impurities had no effect in rendering it better fitted for the support of healthy life; but ozone at once restored to it active power. In this negative oxygen animals die as if under the influence of a narcotic; in it the destruction of the products of organic decomposition is greatly impeded, and the presence of such products speedily renders it intolerably offensive; dead animal tissue in it rapidly putrifies, and wounds in the bodies of living animals become sanious, dark, and unwholesome."

Antozone is thus an active agency, which may in itself be capable of producing a certain class of epidemical and other diseases; but since ozone exhausts itself in clearing away decomposing organic matter, wherever there are accumulations of such matter, there antozone must be ever apt to take its place; so that even though virulent cholera, which appears in antozonic and not in ozonic states of the atmosphere, be directly produced by the active agency of antozone, it will inevitably be most prevalent where there is most filth to exhaust the little ozone there may be in such states of the atmosphere. Thus the most filthy towns, and localities of towns, are the nests of cholera, just as they are the nests of fever, which arises indirectly from filth, and may also be aggravated by the negative state of the air which the exhaustion of its ozone, in partly decomposing that filth, induces even in ozonic seasons.

But there is a class of diseases which ozone itself appears to produce. Dr. Richardson finds that animals compelled to breathe in highly-ozonised air, immediately "take cold," which may go so far as congestion and inflammation of the lungs, and speedily kill the animals. In all probability, too, such diseases as croup and quinsy, as well as pneumonia and bronchitis, stand to ozone in the relation of effect to cause.

We some years since suggested that causes of colds, such as draughts, were probably electrical, and we are gratified to find that this is Dr. Richardson's opinion. Everything in relation to ozone, therefore, is tending to bring about the adoption of another suggestion of ours, of many years' standing, that such an agency as Armstrong's electric steam boiler might be made useful on a great scale, as in fever districts, by ozonising the air of the localities. As for catarrhs, croup, lung congestion, &c., if ozone produces them, assuredly antozone (or negatively-electrified oxygen?) would remove as well as prevent them, and thus the much-sought but not yet discovered specific and certain "cure for colds" would be realised.

The effect of ozone on blood is very remarkable. Dr. Richardson has observed that—

"The blood is changed in physical quality under ozone. It is not altered materially in colour, but it undergoes rapid coagulation, and its corpuscles run together with unusual force, forming into close masses or groups. I believe, also [he adds], that the fibrine, or plastic matter of the blood, is increased in quantity, either actually or relatively; but on this point I am not as yet positively informed by experimental investigation. It is worthy of remark that these effects of ozone, administered by inhalation, are more readily developed in carnivorous than they are in herbivorous animals. It is much easier, for instance, to bring rats under the influence of ozone than rabbits."

An obvious inference from the latter part of this paragraph is, that those who are liable to suffer dangerously from "colds," should not be very "carnivorous" in their habits.

Blood that had been kept for several years, and stank most offensively, was not only deprived of its offensive odour by ozone, in one of Dr. Richardson's experiments, and "was thus entirely deodorized; but another and most singular phenomenon was observed: the dead blood *coagulated* as the products of decomposition were removed, and this so perfectly, that from the new clot that was formed serum exuded!"

We shall have nearly concluded these somewhat desultory remarks on ozone in relation to health and disease, when we quote a practical sanitary comment at the conclusion of Dr. Richardson's very interesting account of his own experiments:—

"Lastly, we gather from what has gone before a few facts bearing on hygienic measures, general and special. We may learn that as ozone is used up in crowded localities, and as its presence is essential for the removal of the products arising from decomposing organic remains, no mere attention to ventilation, however important that may be, can suffice to make the air efficient for supporting healthy life unless the air be rendered active by the presence of ozone. Hence it is an absurdity of the worst description to build hospitals for the sick in the midst of the crowded localities of the poor, and to ventilate them with air that has swept its way over a sea of ammoniacal compounds derived from the living and the dead. Hence, human dwellings built on the borders of lakes or pools charged with organic *débris*, or built near manure heaps, or over sewers, or on ground saturated with putrefying substances, become necessarily the centres of the fever type of disease; not by necessity, as is vulgarly supposed, because the inhabitants are conscious of "smell," but because the air they breathe is reduced in active power, and poisons are being generated around them to which they are constantly exposed, and before which they fall a ready prey."

As for the dwellings already existing in crowded localities, we must take them where we find them; and Dr. Richardson's remarks cannot be intended to depreciate the importance of ventilation in such localities. If we cannot get thoroughly vital or ozonised air, by removing the filth vomited from human lungs, and from bad drains, into close and crowded apartments, we at least get rid of that filth, which itself destroys even thoroughly ozonised air, much more the weaker *pabulum vitæ* which alone can be naturally obtained by ventilation in the midst of towns, where not only thousands of human lungs but thousands of fires are perpetually using up the vital and invigorating oxygen of the atmosphere, as the filth of towns also does.

One point on which we differ with Dr. Richardson is in relation to his implied recommendation of phosphorus in rooms as an ozonizer. Phosphorus, as Dr. Scoffern has recently pointed out, is a somewhat dangerous agency to use, since its vapours tend to rot the jaw-bones, as is but too well known in phosphorus match manufactories. Moreover, ozone requires regulation, and its excess may be injurious as well as its deficiency. Perhaps, as regards the work which ozone has mainly to do in rooms, to keep the air of them pure, no better or safer agent has yet been discovered than the alkaline permanganates commonly known and recommended by the officers of the Privy Council, and other medical authorities in the cattle plague, as "Condy's fluid." In these permanganates ozone is, as it were, concentrated into a solid or fluid form, the abundant loose oxygen of the compounds having been proved to be in an ozonic state. A very small quantity in aqueous solution sprinkled on a towel, and waved to and fro in a sick room, or distributed by a small syringe, we are told by medical men, will deodorise and purify the air of the room like magic, and without substituting any other odour.

There is one other point in regard to which we cannot see our way consistently to a clear agreement with Dr. Richardson, or with Dr. Moffatt, whom he quotes. If it be probable, as it certainly appears to be, that excess of ozone causes colds, or catarrhs, and the still more serious forms of bronchitis, and congestion of the lungs, surely currents from the pole, rather than from the equator, as now stated, are ozonic. It was once asserted, we remember, that ozone prevailed more in currents from the north than from the south, more by night than by day, and more in winter than in summer (except, probably, in the cooling thunderstorms of summer); and Dr. Richardson, himself, states that heat destroys ozone. Are the modes of testing ozone satisfactory? Does the test clearly distinguish between the *three* probable states of the atmospheric oxygen, the positive, the neutral, and the negative? May not the antozonic state be occasionally confounded with the ozonic, and hence there be some obscurity in the subject as regards antozone; and hence, also, mistakes as to the diseases at one time and another believed to prevail in either state of the atmosphere? The test paper is admittedly not quite reliable. There are various reasons, as we have for many years occasionally noted in the *Builder*, for the belief that the positive electricity is more analogous to cold and the negative to heat in its nature; and there is much in what is known of ozone in perfect accordance with this idea, so far as the positive electricity is concerned. Oxygen in the ozonic state is even said to become decidedly *condensed* as a gas into smaller bulk; and we see from Dr. Richardson's experiments that its operation on the blood is concretive, or coagulative, and that he even believes that it increases the fibrine as well as clots the blood. All this denotes the operation of a concentrative or attractive force, whereby, as he says, the blood "undergoes *rapid coagulation*, and its corpuscles *run together with unusual force*, forming into *close masses or groups*," and increasing its *fibrinous* form. All this is much more akin to the operation of cold—an attractive or concentrative, than of heat—a repulsive or radiative force;* and it is more natural to look to currents from the pole than from the equator,—to winter than to summer,—and to night than to day, for the operation of ozonic influence; and hence the greater liability of the human constitution to "catch colds" by night than by day, by winter than by summer, and by north winds than by south. In short, there is obviously some little inconsistency in the alleged facts regarding ozone as at present entertained; but this is not a question for discussion in the *Builder*.

ITALIAN ARCHITECTURAL AND ENGINEERING JOURNALISM.†

WE are apt to think of Italian scientific and art literature as the poet thought of the south wind,—

"Balmy breeze, I behold not thee,
But, oh! how beautiful thou must be."

For it is difficult to realize that modern Italy is otherwise than the lineal descendant of Classic and Cinque-cento Rome, in the present enjoyment of the harvests of former centuries; and unbidden reflexions of ancient glories appear in all our mind-pictures of Italy. The diligences, the trattorie, the cafés, the piazze, soon awake us to a perception of the difference between the real and ideal. Those see Italy most favourably for the retention of their preconceived ideas who are conducted from basilica to palace, and from one *veduta* to another, without time to scrutinize the crowd of wall-eyed, lame, diseased, and distorted beggars that follow them like shadows. Then the sense of vastness, fitness,

* The concentrative nature of the force of vital oxygen, in its action on the living organism, will be interesting to those who have adopted Mr. J. E. Dove's views as to the concentro-radiative nature of life, which appeared in the *Builder* of 11th July, 1863, and elsewhere in our columns.

† Giornale dell' Ingegnere-Architetto ed Agronomo. Diretto dal Marchese Cav. Raffaele Pareto. Ispettore centrale delle irrigazioni e bonificazioni colla collaborazione dei primarii ingegneri ed architetti Italiani. Milano. 1866. Edit. Proprietario, B. Saldini.

and "sweet accord" generated in the grand buildings is not dissipated in the dirty *strade*, nor the placid feeling of calm necessary to an appreciation of intellectual work utterly disturbed by the noises incident to common life. For, in truth, the aspect of modern Italy is altogether disruptive of the conceptions formed by most people of the prevalence of art-feeling, and of the absolute existence of an art-atmosphere. These are to be found in certain circles and in certain nooks; but eating, drinking, smoking, selling, and buying, enter largely into the composition of every-day life in Italian cities, as elsewhere; and the sun-baked houses, with their barred lower windows and permanent jalousies, remind us of Paris and Madrid, more strongly than they realize our presentiments of Italy. If we would take a discriminating view of Italian scientific and art-literature, we must dismiss from our minds all accessories but absolute facts, and these, like water, have the property of finding their own level all the world over.

For many years a journal of architects and engineers has been published in Milan, of which the most recent numbers are before us. They tend to show that, though Italian architectural and engineering literature has lost its precedence in European estimation, it has not given up the race. Italian *savants* have their congresses, with their discussions and transactions; offer prizes for various kinds of intellectual labour; distribute medals as distinctions; and in various ways endeavour to stimulate the energy of their compatriots. Some of the lines of inquiry indicated by societies as likely to confer benefits upon the country, could scarcely be pursued without leading to valuable information; and then, again, the distribution of knowledge on local subjects by means of their transactions cannot be without fruit. The journal in question approaches rather nearer to the character of the French *Architects' Gazette* than the printed transactions of a society, although it does not aim at furnishing its readers with any large amount of miscellaneous information. It shows us, however, that the different professions of engineering and architecture are considered one in a land where the division of labour has not been elevated into a science. Like the Siamese twins, the architect and engineer are but one being. He is *ingegnere-architetto*. This fact speaks volumes. The *Giornale* shows us, too, intense appreciation of English progress and enterprise. We have descriptions of English works reading like news in their foreign garb. "The gallery, under the city of Scarborough" is hardly recognisable as the tunnel there. Even *Nozioi Commerciali dei Metalli in Inghilterra* appears an inviting subject for leisure reading under this title. But the international admiration is still more apparent in the adoption of English words. Tramways, locomotives, gas, and other modern substantives, are preserved in the many-vowelled Italian context like flies in amber.

The journal is a small quarto, published monthly. It contains about sixty pages of large type, with two illustrations, and no advertisements. The letterpress consists of three or four original articles, a notice or review of an Italian or foreign publication, and some half-dozen pages headed *Varietà*. Taking a single number upon its merits, our verdict would not be so favourable as that we should give upon the worth of the twelve that make up a year's production. Extending our inquiry over the work of a twelvemonth, we find much suggestive matter. There are articles on modes of raising materials, on a new mode of paving, a method of indurating bricks, on the composition of mortar, on temporary bridges, iron bridges, the mechanical engines adopted for the works of the canal of Suez, on a project for forming a canal from the Lake Lugano, the electric light at sea, the possible depression of the Po, the iron industry of Italy, the use of petroleum instead of coal, on the preservation of wood in seawater, and other important subjects; besides notices of technical Italian, French, and Spanish works. On railway matters, we have articles upon the new central station at Milan, on the economical traction of tramways, upon signals, springs, resistance, mountain railways; a project for crossing Catania, and propositions concerning Krupp's steel, and that made by the Bessemer process. Of purely architectural subjects, there were but four published in the whole of last year. There were an article upon the cathedral of Parma, by Federico Odorici; some artistical letters, by the director; researches relating to the cathedral of Florence, by C. Boito; and a notice of a Byzantine church at Faenza. Agriculture is a more favourite subject with the noble director, if the number of articles relating to it is a sign of preference, and if we count such matter as the "Re-acclimatization of the mulberry tree," and methods of fattening beasts, as well as "China grass as a rival to cotton," "The husbandman's reward," &c.

The last number of the volume just completed contains the conclusion of the paper on "The Cathedral of Parma." One of the artistical letters of the director, addressed to the author of it, notes upon the use of the *tavola pretoriana*, by Professor Porre; and an explanation of a plate representing a level, which, with another, giving some sculptural details of the cathedral described, forms the pictorial matter of the month. Then follow a review of a "studio," by Sig. Toy; a paper upon the "Economical Construction of Retaining Walls;" four pages of *Varietà*; and an index.

The number for January treats of the Tower of Chiaravelle, in an article by Sig. Mongeri, with two pale-tinted lithographed illustrations, each 2 ft. long; a letter from Camillo Boito to Cesare Guaste, relating to Florence Cathedral; and an abstract of a report upon furnaces, by Sig. Bremond; a continuation of the review of Sig. Toy's work upon the "Economical Construction of Retaining Walls;" three pages of *Varietà*; some particulars respecting "La Filotecnica;" and a notice of the second *extraordinary reunion* of the Italian Society of Natural Science, which took place at Spezia as long ago as last September. It will be seen, therefore, that our foreign contemporary does not quite keep pace with the times to the extent indispensable to the success of English journalism. English readers would scarcely be interested in the proceedings of a congress four months after date. But the fact, like the union of the professions of engineering and architecture, is highly indicative of the stage at which science, art, and literature now repose in Italy. A national haste to be informed of every discovery, and to inquire into the merits of every new process, is essentially the characteristic of an enterprising, prosperous people, swift to turn everything to advantage. Disregard or indifference concerning such matters is a consequence of a knowledge of inability to make immediate use of them.

When we remember that as much as 300*l.* are said to have been paid for a single advertisement on the cover of a London serial, we cannot refrain from remarking the lost opportunity observable here, or rather the absence of an appreciation of the value of advertising, by Italian craftsmen and merchants. The people most open to a conviction of the profit of advertising in the sunny south are the hotel-keepers, whose evident remuneration on the outlay we might have supposed likely to be conclusively persuasive of the value of the practice as a shortener of the long road to fortune.

Our comments are made wholly in the interest of the journal, and we gladly indicate that science and art are by no means unrepresented in Italy.

THE PROVISION OF WHOLESOME DWELLINGS FOR THE LABOURING CLASSES.

JENNINGS'S BUILDINGS, KENSINGTON.

I WAS much struck with the able leading article in your journal of the 10th ultimo on this important subject, and should be glad to offer a few practical observations upon it.

When the Strand was widened, a large extent of labouring people were evicted from the courts and alleys in the block between that and Chandos-street. When the improvements took place in St. Giles's, another large and poor flock were removed. Again, in Westminster, for the great improvement of Victoria-street, large numbers were turned adrift to make room for a better class of residents. I name these because they come within my own knowledge and experience; but there are doubtless many similar results in other quarters, and it is not surprising when the great increase of population, the increased wealth, and the largely-increased value of land in the metropolis are considered. Where did these poor people contrive to get located? In the suburbs, doubtless, as you suggest, and the suburban parishes have consequently been inflicted with an evil which has become almost too heavy to bear. Poor-rates have largely increased in those parishes, and decreased in a corresponding ratio in the metropolis.

Equalization of poor-rates throughout these now metropolitan parishes seemed a fair and reasonable relief, but it could not be carried, and was strongly opposed by those which had few or no poor to support. This might and would have been a relief to the heavily-taxed parishes, because the richer would have been bound to contribute a quota to the great expense they had themselves created. This, however, is foreign to the present question. We have here, in Kensington, three or more as lively plague-spots as can be found on the surface of the globe. I will name one, because it is perhaps the most extensive; it is called Jenninge's-buildings, and is at the back of the High-street, with an entrance very nearly opposite Kensington Palace Gardens.

The area is little more than an acre, containing 89 tenements of 302 rooms, in which between 890 and 900 men, women, and children are lodged. They are for the most part (indeed I may say all) of the poorest class. It is generally insufficiently lighted and ventilated, with little sanitary accommodation as to breathing space, water, or water-closets; indeed, there are only 41 for the whole population, — many locked and reserved for a few tenants. This I gather from a report made last Midsummer to the vestry by the medical officer and the inspector of nuisances. Much has been since done by some of the thoughtful owners of property there, but very much remains to be done before the place can be pronounced wholesome and in sanitary condition.

Here then is a spot requiring improved dwellings for the poor,—indeed, the poorest class, who cannot afford to occupy one of Mr. Peabody's or Mr. Waterlow's dwellings, and yet are of the same body of humanity as the superior mechanic who can afford to pay for the superior lodging. It is this poor humble labouring class which enters so little into the minds of the great philanthropists of the day. They are habituated to filth and misery, and it is a kind of second nature with them. No doubt, landlords obtain a much larger interest for money sunk in such a property than for any other buildings they could erect; and perhaps they look upon it as merciful to the poor people to allow them to remain.

A few years back an association of some of the most important residents in this parish was formed for improving the dwellings of the poor. It was debated whether it should be a charitable or a mercantile speculation. The latter was adopted as the most prudent course to attract attention, but the main object was charity; and a company was formed, of limited liability, in shares; an office was taken, a secretary obtained, and every reasonable exertion used to induce the townsmen and friends to take shares. It was in vain. The feeling became too general that if the poor were made more comfortable, which it was declared they (the poor) did not desire, more poor would resort to Kensington; so, after a year of ineffectual exertion, the project was abandoned, wound up, and liquidated. The high and influential promoters lost about 7*s.* in the pound of their preliminary deposits, and, it is to be hoped, forgot the failure.

This place still remains a plague-spot, although much better than it was. The Nuisances Removal Act is considered insufficient to cure existing evils, owing to the difficulty, delay, and doubt of obtaining convictions; but the Metropolis Local Management Acts afford ample power to enforce proper closet accommodation, water supply, and sanitary appliances, inside and outside the dwellings, on the parts of owners; and if the owners fail after proper notice, the vestry has the power to do what is needful, and recover the expense from the owner by the rents of the occupier.

If these Acts were put in force, it would teach owners that they cannot receive large rents (in the aggregate it amounts to this) for insignificant and insufficient outlay, and promote a more healthy and wholesome desideratum; indeed, I believe it would be the only way to remove the present existing foul blot on such society, and secure the neighbourhood against the chance of any frightful epidemic or contagion, should it creep into our borders.

KENSINGTONIAN.

HOMŒOPATHIC HOSPITAL.—Messrs. Chance & Mason, of Birmingham, have each subscribed 1,000*l.* for the erection of a new homœopathic hospital.

MUSEUM OF THE BIBLIOTHÈQUE IMPÉRIALE, PARIS.

THE new saloons of medals and antiquities in the Bibliothèque Impériale are opened to the public. The principal one contains the antique library, bronzes, vases, glass, terra-cottas, medals, and cameos. Among the most remarkable specimens are the following:—

A cup in Oriental sardonyx, called the cup of the Ptolemies by some, and the vase of Mithridates by others. This work of art, without rival in the museums of Europe, is a canthars, with handles cut out of a solid block, and ornamented on the sides with Bacchic bas-reliefs. How this precious object came into the possession of the French kings is unknown. Certain it is, however, that it was deposited at Saint Denis, in the ninth century, by a Carlovingian king, and has ever since belonged to the abbey. It is said that the queens of France, on their day of coronation, took the consecrated wine from the cup of the Ptolemies.

The cup of Solomon, a magnificent dish, encircled by a gold rim, in which are inserted eighteen medallions of rock cystal, and coloured transparent glass. In the centre is a medallion, representing a personage clad in Oriental costume, sitting on a throne; this is the Sassanide King Chrosnoës. This object was presented to the Abbey of Saint Denis by Charles the Bold, ten centuries ago.

The cameo of La Sainte Chapelle, called also *Le grand camaïeu*, the largest known, measuring on the face no less than 12 in. in length, by as much in breadth, and containing five layers. It represents the apotheosis of Augustus, and is divided into three compartments. The first contains the elevation of Augustus to the celestial regions; the second, Tiberius seated on a throne, and Drusus pointing with one hand to the triumph of his ancestor; the third, the captives of various nations conquered by Germanicus and Drusus the younger, prostrate at the feet of the family of Tiberius.

Completed under Tiberius, this piece remained in Rome till Constantine removed it to Constantinople with the rest of the royal treasury he had carried off. Louis IX. received the grand cameo from the Emperor Baudoin, along with the reliques of the Imperial Chapel of Byzantium, and it was deposited in the Sainte Chapelle. The pope longing to see it, the relic made another voyage to Rome, under the reign of Philip VI. After it had remained in Rome for some time, Charles V. caused it to be returned to the Sainte Chapelle, where it remained till 1791, when it was placed in the cabinet of antiquities of the Bibliothèque Impériale. But the journeys of the cameo were not destined to end here; it was stolen in 1804 and taken to Holland; but being recognised by the jeweller to whom it was offered for sale, he caused it to be returned to France by the Dutch authorities, along with the thief; and the relic has ever since remained in the museum of the Imperial Library.

The cup of gondole, a grand chalice in sardonyx, with its gold mountings of the Moyen-age, a band containing precious stones, united by cordelets of gold to the foot of the cup.

The patera of Rennes, of solid gold, repoussé work, representing the struggle between Bacchus and Hercules. This piece was discovered, in 1774, by masons, during the demolition of some houses, at a depth of 6 ft. below the surface.

An agate bust of Constantine, the eyes directed upwards, a cross upon the breast, and the right hand holding a crown of thorns. This work formerly surmounted the baton of the chantre of the choir of the Sainte Chapelle, carried by him on great *fête* days.

THE HERCULANEUM DOCK WORKS, LIVERPOOL.

THE Mersey Docks and Harbour Board, feeling the injury which the trade of the port was suffering from the absence of adequate graving-dock accommodation, decided, some few years since, upon the construction of an extensive system of additional graving-docks, upon the land on the margin of the river, at the extreme south end of the town, known as the Herculaneum estate. About three years ago the plans for these works were drawn out by Mr. Lyster, the engineer to the Dock Board, and shortly afterwards their construction was commenced. The works have been prosecuted with unabated activity and vigour, giving employment to several hundreds of artisans and others, and they are now rapidly approaching completion. The water has for some weeks been admitted into them, as well as into the spacious half-tide dock, which has been constructed simultaneously along with them, and through which the graving docks are approached from the river. With the exception of the hydraulic tower and machinery for working the docks, which are now nearly finished, everything is ready for placing these extensive works at the disposal of the ship-building trade, and it is expected that their inauguration will take place in a few weeks.

The docks about to be opened are only a portion of the entire number to be constructed, it being the intention of the Dock Board to make two more graving-docks, uniform with the two already completed, and also to extend the half-tide dock, these last-named docks being to the eastward of the works already executed, and running parallel with them.

The contractor for the excavations at the half-tide dock, as well as the graving-docks, and the other portion of the works, was Mr. Monk, of Seacombe; and the whole of the engineering portion of the works, including the masonry and buildings, together with the arrangements of the quays, and everything else appertaining to the docks, have been executed by the Dock Board themselves, under the immediate superintendence and direction of their engineer, Mr. Lyster. During the progress of the works, an enormous quantity of earthwork has been excavated, amounting to several hundred thousand cubic feet, the largest proportion of which has been conveyed along the dock line of railway to the foreshore of the river at Bootle and Seaforth, where the Dock Board are constructing a river wall preparatory to further dock extension in that locality.

In addition to the completed works, it is the intention of the Board to extend them still further in an easterly direction, to the boundary of Grafton-street, with the view of constructing two more graving-docks, uniform with those about to be opened; and, also, of still further extending the half-tide wet-dock, in the same direction. These works are now actually in progress, some hundreds of workmen being employed in the necessary excavations, which will be a formidable undertaking, in consequence of the great height of the Grafton-street boundary above the dock and quay level. These additional works will take in and absorb Sefton-street. When these additional works are completed, the half-tide dock will be 700 ft. in length by 420 ft. in width, occupying an area of nearly seven acres; whilst the entire space covered by the wet-dock, the graving-docks, and the quay space combined, will amount to 168,000 square yards, or thirty-five acres in extent.

NOVEL HYDRAULIC MACHINE.

THERE was to be seen a short time ago, between the Pont Neuf and the Pont des Arts, a new hydraulic machine, invented by M. Roman, 37, Rue de Lille, Paris, for utilising the force of currents and deriving a motive power therefrom. It consists of a large raft or barge similar in size and shape to the open washhouses on many continental rivers. This is fitted with a series of transverse rollers, on which moves an endless chain passing under the boat, and fitted with a great number of float-boards, 2 mètres asunder. A greater surface is thus brought to play against the current than in an undershot-wheel, which yields, even in the best condition, barely 30 per cent. of the theoretic force of the water. As in all ingenious and useful inventions, the principle on which this machine acts is of extreme simplicity and facility of application. If we suppose a float of an undershot-wheel submitted to the action of a current of water which impels it with a given force; if to this float we add a second parallel to the first, at 2 mètres' distance, behind it, the second float will also be impinged upon by the water. It has been clearly demonstrated by experiment that the effort exerted on the second float is equal to 75 per cent. of that brought to play upon the first. A third float-board will be subject to the same laws as the second, the result being, that a series of parallel floats will obtain from the force of the stream a motive power only limited by the velocity of the water and the constructor's design. Last year, a small trial-machine, six of the boards being constantly immersed, gave by Prony's dynamometer, a useful effect of three, four, or even five times that of an ordinary undershot-wheel.

The present machine has always thirty-four float-boards immersed; and though the velocity of the Seine is only 45 to 48 centimètres (17·72 in. to 18·9 in.) per second, in the trials made in presence of our correspondent, the useful effect has been on an average twelve times greater than that of ordinary wheels. As to the applications of this hydraulic engine they are innumerable. Geared into a series of pumps, either for the supply of towns or for purposes of irrigation, it is capable of becoming a great source of economic power; while the working expenses are reduced to the charge of simple inspection, no manipulation being required.

THE FARNESE CONGIUS: BARROWS.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the meeting on February 28, Mr. Godwin, V.P., in the chair, Mr. Greenshields sent for exhibition some articles brought by him in 1847 from Egypt, and also some from Canada. To four pieces of stone broken from the stair of the vocal Memnon at Thebes, were added two other pieces, formerly belonging to the late Sir Patrick Walker. The stone is of a pinkish tinge, varying much in depth of colour in the pieces produced, and is a sandstone, composed of very pure quartz grains, the texture somewhat coarse, though regular and compact, but with so little cementitious matter present as to interfere but slightly with the transparency of the grains. The object of the exhibition was to inquire as to the possibility of such a material being resonant and capable of producing the sound attributed to it by Pausanias, like the snapping of a harp-string. Strabo, who heard it, says the sound was like that of a moderate blow. A sound of this description would not be marvellous, except for the regularity of its occurrence at sunrise; and for this occurrence no conclusive conjectures have yet been offered.

The Chairman reprehended a practice of procuring relics which had here brought together no less than six fragments to the detriment of this renowned statue.

Mr. John Davidson exhibited a *congius*, believed to be the standard congius (a measure of about three-fourths of a gallon), made by order of the Emperor Vespasian and placed in the Capitol at Rome. He pointed out that the original standard measure was in the Farnese Palace, when, in 1647, Greaves, the professor of astronomy at Oxford, published his work on the Roman foot and denarius. The engraving of it in that book leaves no doubt that this must be, if not the original, a close imitation of it; and it is known that such an imitation was in existence more than 200 years ago. The one now produced was purchased, about the year 1825, in Paris, by the late Mr. John Davidson, the well-known African traveller. He lost his life twenty years ago in an attempt to reach Timbuctoo, and left but little record of the numerous antiquities of which he had acquired possession. His opinion respecting this is unknown; but the value and high importance of a correct knowledge concerning it was unanimously felt. The questions raised were,—If original, when was it transferred from the Farnese at Rome? Where is now the half congius formerly also in Rome? Where is now the imitation made in Germany? Is the bronze metal of the congius produced of the character of Roman bronze? The further consideration of these questions was adjourned to the meeting of the 14th of March, when the congius will be again produced.

An excellent paper by the Rev. W. C. Lukis, M.A., recounted his examination of chambered barrows in Brittany during a recent visit to that province. His inquiries were directed to ascertain what characteristics were apparent as to the chronological order of their construction. He dwelt at the outset on the fact that all cromlechs were chambered barrows, and that their nakedness was due either to the removal of the mound which once buried them, or to their having been from fortuitous circumstances left incomplete. He then showed the original form of the barrow to have been that of a round mound. The mound was often enlarged to receive a second or a third chamber within it: sometimes the augmentations were made without departing from the circular form of the mound; but, in other instances, they gave to it an oval form, but so that the axis of the oval was always east to west. Thus the oval form was a later one than

the round. So, also, with respect to the chambers within the mounds—those constructed with large masses of rock for the covering were found in the original mounds; whilst those with roofs, constructed on a principle approaching that of the arch, were found in the additions to the barrows, and thus indicated a late structure. Mr. Lukis insisted on the identity of the naked cromlech and the buried stone chamber, and pointed to the ideas which had associated the cromlechs with Druidical sacrificial rites as utterly untenable and well-nigh exploded.

METROPOLITAN WORKHOUSE INFIRMARIES.

A PUBLIC meeting, convened by the recently formed Association for the Improvement of the Infirmaries of Workhouses, was held on Saturday last, at Willis's Rooms. The objects of the Association are the reform of the sick departments of the workhouses; the consolidation of the infirmaries of workhouses; bringing about a hospital organisation under a central management, and the support of these infirmaries by a general metropolitan rate. The scheme contemplates the establishment of six hospitals for the metropolis, to hold in each 1,000 persons; that the guardians of each district should nominate two representatives, who would take part in the management of these hospitals; and that there should be a small number of paid inspectors appointed by the Poor-law Board, whose duty it would be to attend the Board meetings and assist in its deliberations.

The meeting was well attended. The Earl of Carnarvon presided, and was supported by the Archbishop of York, the Earl of Ducie, Lord Ebury, Lord Harrowby, Lord Burghley, Lord H. Scott, Earl Grosvenor, Lord Henry Gordon Lennox, and other noblemen; and by various members of Parliament, including Mr. Thomas Hughes, Mr. L. Oliphant, and various others. After a little opposition, but not more than might have been expected, from guardians and other gentlemen in the body of the meeting, who stoutly denied that all the infirmaries of the metropolis were in so bad a condition as the several speakers led people to suppose they were, resolutions were passed declaring that the present management of the sick in the metropolitan workhouse infirmaries is highly unsatisfactory; that the buildings are indequate and unhealthy, the medical attendance is insufficient, the nursing merely nominal, and the general system of administration radically defective; that with a view to the humane and efficient treatment of the sick paupers it is desirable to consolidate the said infirmaries, to support them by a general metropolitan rate, and to place them under uniform management in connexion with the Poor-law Board; that in order to give effect to these resolutions it is necessary that immediate steps should be taken to introduce a fitting measure into the House of Commons, and that a deputation be appointed to wait on the president of the Poor-law Board to ascertain whether he is willing to bring in a Bill for the purpose; and, lastly, that in the event of the president of the Poor-law Board declining to take charge of the question, the committee of this Association be requested to take independent means to bring forward an appropriate measure in Parliament during the present session.

The Chairman, in his address, said,—Probably no worse specimens of medical treatment could be met with than that which was to be witnessed in the infirmaries of metropolitan workhouses. Whatever might be said of the treatment given to the able-bodied and infirm classes, he thought the gross treatment of the sick poor admitted of no controversy or denial. The number of poor receiving relief in the London workhouses had been estimated roughly at between 31,000 and 32,000. Of this number, 6,000 represented persons suffering from acute disease, and amongst them were to be found some of the worst cases which go under the head of chronic disorders, so that the classes to be relieved were really somewhat larger than the words implied. He believed that no words could convey a proper idea of the frightful character of the sufferings to which these 6,000 poor people were being constantly subjected in the workhouse infirmaries of the metropolis.

The Archbishop of York, in moving the first resolution, said, — The commission which had under consideration the wants of the soldier had reported that the proper cubic space for a soldier should not be less than 1,200 ft. He did not know that there was a single workhouse in the metropolis which allowed so much space to its poor inmates. He found that the quantity of space allowed in the St. Martin's-in-the-Fields Workhouse was 428 cubic feet; in Clerkenwell the allowance was 429 ft.; in Greenwich, 450 ft.; and something less everywhere else. He could only suppose that the authorities considered a soldier required more space than a sick pauper. But what struck him as most remarkable of all was that the amount of space allowed to the pauper by the Poor-law Board itself was only 500 ft., whilst, as he had said, it was considered that the soldier required 1,200 ft. He thought this in itself required investigation.

Much praise is due to Mr. Ernest Hart for the organization of the Society.

THE TRADES MOVEMENT.

Woolwich.—A crowded public meeting of the operatives employed in the several branches of the building trade at Woolwich and its locality has been held in that town, to receive a reply from the master builders to a memorial from the men, requesting them to grant a half-day holiday on Saturday, and to adopt resolutions thereon. A reply was received from the committee of master builders declining to accede to the terms of the memorial,—except on condition that the half-holiday was made up by the men working overtime during the week. It was resolved, "That this meeting, considering the continued determination of the employers not to grant the Saturday half-holiday, pledges itself not to accept any terms except those laid down in the memorial;" and "That this meeting is of opinion that the final decision of the workmen should be made known to the masters' committee to-morrow; and that, in the event of the committee adhering to its former determination, the men will forthwith cease working."

Birmingham.—On the 28th of last December, the building trades' workmen gave notice that they required some alterations in the rules. According to the agreement made last year, it was arranged that all such notices should be given before the 31st of December in each year, and that a reply should be given by the 1st of March following. The masters have sent in their reply. Under the provisions of the recent trade rules, they require the matter referred to to be settled by arbitration in the manner provided; and state that they are prepared to take all necessary measures for the proper and public appointment of delegates and arbitrator or chairman, in conjunction with the operative carpenters and joiners of Birmingham.

York.—The operative carpenters and joiners of York and its vicinity have sent in a memorial to their employers for an advance of two shillings per week, and a deduction of time on the Saturday, to commence on and after the 2nd of April next.

Selby.—The journeymen joiners of Selby have given notice of their intention to ask their employers for an advance of wages and a reduction of their hours of labour. The dearness of provisions is the reason alleged for this movement.

Middlesborough.—The joiners at this place have held a meeting, and have unanimously come to a resolution asking the masters to grant them an advance of 2s. per week on their present wages (28s.), and also making the hour of starting on Monday morning seven instead of six, as at present;—notice to expire on the 17th. A resolution in favour of the nine-hours movement was put to the meeting, but was not supported. The bricklayers and labourers also contemplate asking for an advance, and a meeting with this object has been held.——A meeting was to have been held of the iron shipbuilders of Middlesborough and Stockton, now out on strike, but owing to the non-arrival of some of the Middlesborough men, and the setting in of a snow-storm, the meeting did not take place. The non-society men have threatened to return to work at the old rates, on the ground that they are not supported while the society men are.

Hull.—The majority of the engineers of Hull, who have been on strike have resumed their work. At a meeting of the Hull branch of the Amalgamated Society of Engineers, at which delegates from the parent society were present, the men were strongly recommended to accept the terms which had been offered by the largest engineering firm in the town, Messrs. C. & W. Earle, iron shipbuilders, &c. The demand of the men was for an increase of 3s. per week, but Messrs. Earle offered to meet them by giving 2s. This the men refused to accept for upwards of a week, but at their last meeting, after considerable discussion, they resolved to resume work at all the shops in the town at the terms offered by Messrs. Earle.

Jarrow.—A meeting of the men in the engineer department of Messrs. Palmer's works, Jarrow, has been held for the purpose of considering a proposition laid before them by their manager, Mr. F. C. Marshall, which was to the effect that the men should work the same hours as the engineers in Newcastle, viz., 59 hours per week—the Jarrow hours being at present 59¾—and also that the quarter day worked on the Friday night should be abolished. After some discussion, the following resolution was agreed to:—That we pledge ourselves to refrain from enforcing the nine-hours movement until it shall become a general demand throughout the country on condition that the company concede to us the Saturday half-holiday entire;—the pay to take place on the Friday evening, and to allow the seven o'clock mornings in the winter months to remain as at present." It is generally anticipated that the resolution of the meeting will be accepted by the company as a solution of the present difficulty.

Edinburgh.—A large number of masons' labourers of Edinburgh and Leith, to the number of about 350, have struck work for an increase of wages. Their present wages are 16s. per week, and they ask 2s. more.

IN the Brompton County Court, before Sir Eardley Wilmot, judge, a decision has been given which is considered by the workmen of the building trades of great importance.

The plaintiff in this action, John West, was a foreman, or "leading" bricklayer, and the defendants were Messrs. Simms & Martin, master builders, erecting the new church of St. Stephen's, South Kensington.

The nominal claim of the plaintiff was for 1*l.* 5s. 10d., being the amount of four days' wages at 2*l.* per week for time, during which he had been employed, as he alleged, within the terms of his contract, but for which time the defendants contended he had no right to claim, as the weather did not allow of his then working as a bricklayer. Substantially the plaintiff's attorney contended that his client was employed by the week or day; and the defendants asserted that he was not a foreman, but only a "leading" bricklayer, and that he was engaged like ordinary bricklayers by the hour, and could be dismissed at any time on any day upon an hour's notice.

The judge said that the stress of evidence compelled him to hold that the plaintiff was engaged by the hour. Notwithstanding this, however, he could never permit a man to be just set to work and arbitrarily dismissed at any hour during a given day, but he should adjudge that even hourly contracts, when entered upon, must be considered as running during the entire day; and he gave the plaintiff a verdict for all that he could,—namely, 7s. for one day, upon part of which he was actually employed in his ordinary avocation, with the costs of witnesses; or, in other words, all the costs which that sum would carry.

REMARKS ON LOCAL SCHOOLS OF ART.

THE GLASGOW SCHOOL.

AT a supper and presentation, from the students, of a silver kettle and stand to Mr. Charles Heath Wilson, late head master of the Glasgow School of Art, Mr. Wilson took occasion to state that he had been anxious to express his conviction that it was for the true interests of art and design, as applied to manufacture, that the provincial schools should be independent; that no system of central control could be beneficial to art, or could be otherwise than the contrary, and that the action of Government should be limited to the formation of central colleges of art and central museums. To the existence of such museums amongst the French for many years, and to the taste and judgment with which they profit by their contents as examples, continued Mr. Wilson, I attribute their past and present superiority in many works of art-industry

more than to the operation of schools of art: both are necessary, it is true, but such museums exert a wider beneficial influence than schools of art. The beautiful productions of the silversmiths, bronzists, and ebonists of France are easily traceable to certain sources of inspiration in the collections of the Louvre and Hôtel Cluny. I trust that the real value of the South Kensington Museum to manufacturers and designers will be better understood than it now appears to be. Since 1858, the Department at South Kensington has been making a series of experiments—now adopting one system, now another; now teaching "practical art," then abandoning it; now overwhelming the masters with work extraneous to the central schools. The result of these and of other fluctuations, accompanied by diminutions of allowances, and apparently endless changes in schemes of payment, has been very general discontent in the provinces, to which the Department appears to pay little or no attention; consequently complaints are freely made of the great expenditure at South Kensington. It is not within my province or knowledge to pronounce upon the expenditure there. I have said how entirely I sympathise in the formation of the museum, and how useful I consider it likely to become; and I think that no man who reflects upon the subject at all can fail to admit that we must have a first-class school of art somewhere, as an example and guide to others. We might with advantage have more than one—that is, one in London, one in Edinburgh, and one in Dublin. With all its shortcomings, real or alleged, in respect of the provincial schools, however, and its obvious failure in the creation of good schools of ornamental design, in which, in some respects, it is inferior to the much-abused old schools of design, the Department has rendered the country important services; and I would urge in this great manufacturing community that we ought to sympathise in its efforts for the creation even of one great model school. As I have remarked, however, one is not enough—we ought to have three, one in each capital—which, besides the obvious utility, would lead to a more equitable division of the grant. I am convinced that it would have been well for the position of art in this country if our Royal Academies had been associated more directly with the interests and education of all classes,—if our leading artists were known as professors ready and willing to direct the instruction of the people in a knowledge of art. This is not a merely theoretical view of the position of artists. All great artists in France, Italy, and Germany are teachers, as the old masters were, and their influence is felt in every branch of art; many of them also design for decoration, and even manufacture; and so these distinguished men minister to public requirements. There is hardly a trace of this influence of artists amongst us.

RESTORATION OF SALISBURY CATHEDRAL.

THE work of restoration under the superintendence of Mr. G. G. Scott, is progressing. The only portion in the tower yet completed is the system of iron ties in the lantern story. This has been executed by the contractor, Mr. James, to the satisfaction of Mr. Scott and Mr. Sheilds. It has recently been determined to place an additional tie in the upper part of the lantern story, and then proceed with the repair of the stonework in the turrets. The ironwork in the nave is suspended until further instructions are received from Mr. Scott and Mr. Sheilds. The works on the exterior have been in progress during the last two years, and are now nearly completed. The foundations have been strengthened throughout with concrete; the stonework of the basement moulding repaired or renewed; a channel, covered with Portland cement, has been formed round the building; and the whole has been drained. Of the flying buttresses, which were all, without exception, in a dangerous state, some have been entirely rebuilt, and the others have been put into repair. The same may be said of the numerous pinnacles and finials. The parapet copings, the string cornices, and mullions, and the stonework generally round the whole building, have been made good. The shafts, capitals, and bases of the windows have been restored. These were originally of Purbeck marble, and it was determined, by the advice of Mr. Scott, to substitute for it Devonshire marble. Lastly, the lead covering of the roof has been for some time past under repair and renewal. The money received by the Dean and Chapter from the Ecclesiastical Commissioners, amounting to 10,000*l.*, will suffice to meet the expenditure on all the works just enumerated, with the exception of a portion of the marble work. The deficiency under this head, amounting to about 1,600*l.*, has been defrayed out of the subscription fund. The work to be next proceeded with is the restoration of the west front. Mr. Scott proposes to divide it into three vertical sections, the first of which will shortly be commenced. The sum already received from subscriptions and parochial collections is 9,703*l.*; of this there has been voted by the committee, 8,100*l.*, thus leaving a balance of 1,603*l.*

PROPOSED CHURCH ENLARGEMENT AT STOCKWELL.

A GENERAL meeting was racently held at Old Stockwell for the purpose of considering plans for the enlargement and improvement of the church accommodation of the district. The Rev. Joseph Wallis, M.A., incumbent of the district, presided, and in his address showed the necessity for increased accommodation for both poor and rich. It is proposed to meet this pressing want by enlarging the present chapel, and converting it into a church for the district. To carry this out, plans have been prepared by Mr. Coe, who proposes to lengthen the building about 15 ft. at the western end; to build a tower at the south-western angle; to reconstruct the galleries, and re-arrange the sittings in the body. By these means accommodation will be afforded for nearly one thousand persons, about one-third being reserved for the poor. The cost of reconstruction will be about 2,500*l.*, of which sum 800*l.* have been granted by the Committee of the South London Church Extension Fund. A further sum of 459*l.* 7*s.* has been since subscribed, and other contributions have been promised. Resolutions were passed approving of the design, and appointing a committee to take the necessary steps for raising further funds, and generally for carrying the plans into execution. We trust the movement will meet with the success it merits.

ART WORKMEN'S EXHIBITION AT MANCHESTER.

THE art-workmen's exhibition to which we alluded has been opened by Lord Houghton, who spoke at some length on the advantages of such exhibitions, as tending to promote popular taste in art and improving popular manners. The germ of the Exhibition is said to have arisen out of a desire of the Manchester house-decorators, painters, and grainers to display their ability and remove a prejudice in favour of "foreign talent." The contributors are, for the most part, the individual artisans who have executed the work, and their names are attached; but in many instances the article exhibited is sent by a firm of employers, who specify, if possible, the names of the workmen engaged upon it. The plasterers contribute some original designs in their method of ornamenting interiors, and there are also some specimens of gilding and cabinet-work, and original designs for wall-papers. Stone and wood carvers appear in great force. The collection is very creditable.

NEW PALACE YARD.

IN reply to questions asked in the Commons by Mr. Powell, Mr. Lowe, and Mr. Tite, Mr. Cowper said,—London required large open spaces surrounded by handsome buildings, and Palace-yard and one of those spaces for the north side of Bridge-street had been scheduled by the Metropolitan District Railway Company, and would shortly be pulled down. But as that site was in the hands of the Commissioner of Works, he had stipulated that the new buildings to be there erected should harmonise with those on the other side. The proposal now was to put an ornamental railing along the north of Palace-yard. It would be of a transparent character, and would not intercept the view. The lamps at intervals would naturally contribute to the decorations, and niches would be provided in which statues of any statesmen might thereafter be placed. The statue of Sir Robert Peel would be placed near the carriage entrance to Palace-yard. It was proposed to make a porch and arcade at the foot of the clock tower, so as to give more dignity and massiveness to its base. That would answer for an approach to the contemplated subway between the clock tower and the opposite side of Bridge-street, and that street being higher than Palace-yard, the subway would not be required to be below that level. The subway would enable persons to get from that house and Westminster-hall to the Underground Railway station. As to the stone, it would be necessary that the face of the clock tower should be of the same sort as that to which it would have to be united, so as to avoid the appearance of patchwork. Very great care had been taken in selecting the quality of stone which would be necessary. The other portions of the works would be of Portland stone. A series of experiments, of various applications, were being made on the stone used in the Houses of Parliament, opposite to Henry VII.'s Chapel, to prevent its decay, and a report would shortly be made of the result. Mr. Cowper also said he proposed to ask for a vote for the purpose of enabling him to construct an arcade, which would be a covered way from the members' private entrance to the clock tower and the subway.

COMPETITIONS.

Prudhoe Convalescent Home.—The design of Mr. Thomas Oliver, architect, of Newcastle-upon-Tyne, has obtained the first premium for the proposed new Sea-side Hospital intended to be built at Whitley, Northumberland, in memory of the late Duke of Northumberland. There were in all four sets; the other competitors being Messrs. J. Johnstone and A. M. Dunn, of Newcastle; and Mr. F. R. Haswell, of North Shields.

BRISTOL ASSIZE COURTS COMPETITION.

WE hear that only one design was received by the committee for this proposed building, sent in by Messrs. Pope & Bindon, all the other architects of the city and neighbourhood remaining firm to the determination expressed in their memorial lately published in these pages. The result has been that the one design has been returned unopened to its authors; and, we believe, a new competition, founded upon the printed suggestions of the Alliance, will be ere long decided upon. We have reason to know that the council are earnestly anxious to obtain a proposition that would worthily settle the question.

TYNEMOUTH CONGREGATIONAL CHURCH.

THE village of Tynemouth is situated on the southernmost point of the coast of Northumberland. It is a pleasant and interesting watering-place, much frequented by visitors in search of health and recreation from Newcastle-upon-Tyne, and from the counties of Northumberland and Durham. The resident population numbers about 3,000; but, during the summer months, this number is more than doubled, and the Sunday visitors frequently number from 10,000 to 12,000 people.

The only accommodation for religious worship is for about 750 persons. To increase this accommodation, a site has been procured for the purpose of erecting a new Congregational church in the centre of the village. A design for the church has been approved by the committee: on the ground floor it will accommodate 500 persons.

The building, which is illustrated in these pages, will be in the Decorated style. It will be built entirely of stone, and will have a tower and spire about 150 feet high.

The church will be divided into nave, aisle, and transepts; and it will also have a clerestory. The nave will be separated from the aisle by red granite columns, which will also support two clerestory arches.

The building is proposed to be proceeded with this spring, but the contracts have not yet been let. The cost is estimated at about 3,000*l.* Mr. Thomas Oliver, of Newcastle-upon-Tyne, is the architect.



TYNEMOUTH CONGREGATIONAL CHAPEL.

THE CITY MEAT AND POULTRY MARKETS.

IN the latter part of the year 1864, the Corporation of the city of London advertised for designs for new meat and poultry markets, to be erected in Smithfield; and on the 1st of December of that year designs were sent in by several competitors, and were fully reviewed in our pages. Those submitted by Messrs. Knightley & Mew (one of which we have engraved) was selected for the chief premium of 300*l*. There was a condition that the Corporation reserved to itself the right of employing, if they thought fit, their own architect to carry out the work,—a stipulation neither fair nor wise.

The site presented some difficulties, the space beneath being excavated for underground railways, which come in at various angles. Openings were to be arranged in the floors of the markets, to enable the meat, &c., to be lifted from the railways to the markets' floors level: the position of these lift spaces interfered much with the groups of shops. Difficulties also arose in consequence of the wishes of the trade, some desiring long shops, others corner shops; a close market was the wish of many, and an open market the desire of the public. To meet these irreconcileable views, Messrs. Knightley & Mew prepared two designs; one having the shops arranged in groups of four around the outlines of the site, with spaces between, each group thus forming corner shops; and the other having shops arranged in long lines; thus deep shops were obtained.

The site is 625 ft. long by 240 ft. broad, and upon it 200 shops of various sizes were required. Each shop has on the ground-floor a small office, and a staircase leading to an upper office, with lavatory, &c. This upper compartment takes up one-half only of the area, consequently one-half of each shop has a height of 28 ft. The roofs are either flat or simple V roofs; the avenues between the shops have iron roofs covered with slates, glass louvres to the sides, and spring-blinds to run horizontally to keep out the heat.

The outer walls, it was proposed, should be built of Portland stone, the penthouse roofs to be covered with lead and supported on iron brackets, the timbers arranged in deeply moulded panels. Penthouse roofs were suggested in preference to a colonnade, which would obstruct the public way. The large archway shown in the long side of the design, relieved with sculpture, spans the public roadway that crosses the market site. The central tower, in its lower stage, contains a refreshment-room; above, a clock; and again, above that, a bell. The architects guaranteed the carrying out of their design for 100,000*l*.

The Corporation were a long time deciding upon plans, having taken years to determine the question of markets or no markets. The delay has given dissatisfaction; public meetings having been called, and the Secretary of State invoked to take the matter into his own hands.

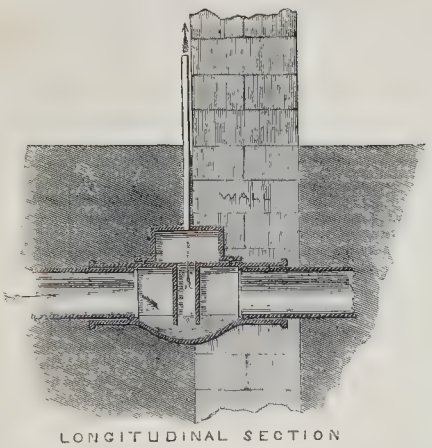
A design by the City architect has been made since the selection of the one we have engraved, and is now before the Common Council.



REWARDED DESIGN FOR THE CITY MEAT AND POULTRY MARKETS, LONDON.—BY MESSRS. KNIGHTLEY & MEW, ARCHITECTS.

THE EFFLUVIUM INTERCEPTOR.

THE diagram cut explains a recently patented trap, manufactured by Messrs. Cottam & Co., of Winsley-street, to prevent the entry of foul air from the drain into the house. The water-joint of the trap in general use is, from a variety of causes, constantly forced by the external foul air, which then enters the house. The cut represents a section of the interceptor trap, with the ordinary inlet and outlet drain-pipes (*a*) attached. It is fixed close to the outer wall of the building. The arrows show the course of the foul air returning from the sewer, and the manner in which it is trapped, and caused to ascend a perpendicular pipe at the side of the house, from which it is to escape at such a distance as to be innocuous. The box on the top of the trap is intended to be filled with charcoal, for disinfecting the escaping gases.



LONGITUDINAL SECTION

THE NEW COURTS OF LAW AND THE NATIONAL GALLERY COMPETITIONS.

IT seems to me so natural that an architect should take interest in these important buildings, that I trust no apology is requisite for the few suggestions and remarks it is my desire to submit on the subject.

The theory of competition being so suggestive of fine sentiment, fine talking, and fine writing, it is not astonishing that it commands the suffrages of a large portion of the public, and that the trustees who are responsible for these great works should have recourse in the present instance to competition.

It is true that the buildings of which we are justly proud are not the offspring of competitive designs, and that the buildings which have resulted from competition are, as a rule, those which meet with much condemnation. Still, I am not so obtuse as to think that in this enlightened age prosaic fact will prevail against fantastic theory. Granting, then, that competition is a necessity of the occasion, there does not appear to me any particular reason, or use, in finding fault with the selection of the competitors. "Kissing goes by favour." No doubt some names are unduly conspicuous by their double presence, others by their absence: but as to these last, it may well be that some of them "have had enough of it;" and as to others, it is well known they entertain a "holy horror" of the proceeding. Looking at the roll of the committee of selection and at the list of the competitors, it would be easy enough to allot to each of the latter their respective godfathers and godmothers. Let us hope they will, one and all, do honour to their sponsors.

Assuming that there are to be two contests, and that all parties implicated desire that the "starters" should have "a fair field and no favour," let us consider how this may be best accomplished. Here is the "correct list" of the running horses.*

For the New Courts of Law:—E. Barry, Hardwick, Scott, Street, Waterhouse, T. H. Wyatt.

For the National Gallery:—Brodrick, Banks & Barry, Pennethorne, Scott, Street, M. D. Wyatt.

A glance at these lists makes it manifest to me that it is not to be merely a struggle of men, but also a struggle of style; and it is this conclusion which, to my mind, makes the contest as proposed necessarily unfair to the disciples of one school or the other.

Supposing the committee of selection to be constituted equally of the advocates of the Mediæval and the Italian styles, it leaves the choice to a "toss up;" but if, as I conceive, there is a clear majority for one style or the other, the competitors representing the minority have not a shadow of a chance. Why not let the style be predetermined whereby the competitors may know the course they have to run over, and the goal they have to win? It may be the committee are indisposed to take the responsibility of dictation as to style; but as they will assuredly give effect to their convictions hereafter, they ought not, in my opinion, to shrink now from the performance of this act of justice towards the competitors. If this course were taken, it is just possible we might have an honest and spirited competition with a satisfactory result: under the present arrangement I look on that as hopeless.

For instance, were it resolved that the New Courts of Law should be built in the Gothic style, and that the additions to the National Gallery should be made in the Classical or Italian style, the competitors might then be respectively assigned according to their public performances or their æsthetic proclivities to the work for which they are the better fitted, and would labour with something like confidence that their design would have a chance of being selected; whereas, if the style is not predetermined, they must be oppressed throughout their labour with the apprehension that they may be going on a "tack" that cannot by possibility take them into the haven of success.

Do me the favour to ventilate in your journal this suggestion, which springs from my sympathy and consideration for the competitors, and my desire to avoid for the practice of competition another miscarriage and scandal.

C. F.

* We have already mentioned how these lists are likely to be modified.—ED.

"HOW SHALL THE BED BE PLACED?"

IN your notice, on the 10th ultimo, of the death at Magdeburg of Dr. Julius Von dem Fischweiler, at the great age of 109, which he ascribed to the fact of constantly sleeping with his head to the north, you therein stated that "it may not be useless to inquire what the observations of others on this point have been."

In a work by Baron von Reichenbach, [the discoverer of the supposed odylic or "od" force, and considered by many to be rather imaginative in his discoveries—ED.] entitled "Researches on Magnetism" (of which there are, I believe, two translations, one by Dr. Gregory and the other by Dr. Ashburner), there are some interesting remarks based upon practical experience as to the position of the bed. He writes:—"If a magnet or a crystal produces so decided an effect on sensitive persons, it is certain that the magnetism of the earth, which gives the needle its direction, cannot be without influence on the animal nerve." Then follows a description of a number of trials made upon different persons, both healthy and diseased, to relate the whole of which would occupy too much of your valuable space; therefore I will merely give his opinion as to the bed, which is,—"That any position except north to south is disagreeable, but that from east to west almost intolerable, at least in our hemisphere. Probably in the southern hemisphere it is otherwise. The cause of this phenomenon can obviously be found only in that great magnet which is formed by the earth with its atmosphere,—*i.e.*, terrestrial magnetism. The terrestrial magnetism exerts on certain persons, both healthy and otherwise, who are sensitive, a peculiar influence powerful enough to disturb their rest; and, in the case of diseased persons, disturbing the circulation, the nervous functions, and the equilibrium of the mental powers."

There is, no doubt "*something* in all this," as is often remarked; and, when we are sufficiently acquainted with the magnetism of the earth, this something which affects our rest and health will be explained. So far as my own observations have gone, I know that my sleep is always more sound and refreshing when my head is placed to the north. There are persons whom I know, the head of whose beds is to the north, and who, in order to wake early, will reverse their usual position in the bed, but without knowing the reason why, beyond "that they could always wake earlier," the rest (sleep) being more broken.

I have related to me that, at a military hospital in Russia, there were some sick patients of highly sensitive natures, and who were rapidly recovering. When necessity compelled them to be removed to another wing of the building they did not get on so well; in fact, prostration seemed to be setting in; and it was found advisable to get them back to their former wards as quickly as possible, where the heads of the beds were to the north.

I have heard of horses going blind through changing their position from north to south to that of west to east.

Certainly longevity can be attained by this means; but it must be combined with healthful living, proper rest, and exercise of both mind and body. The subject is worth the serious attention of the architectural and medical professions.

ARTHUR LOADER.

FOLIATION OF CIRCLES.

IN observing, on p. 152, that I knew of but one Gothic septfoil in England or France, I overlooked the little apertures that form a chief feature in the most beautiful type of spire, that characteristic of the Calvados. They are foil-circles, with one foliation less in each than in that below it, till one is reduced to a trefoil, above which comes usually a smaller trefoil, and then (in the best examples) a simple circle. In the largest spire of the class, St. Peter's, Caen, and possibly in Séez cathedral and some others, the series begins with a septfoil; but these openings were too small, plain, and far from the eye to need very accurate work. That at Winchester is the reverse of all this. There is also a fourteen-foiled panel in the Abbaye aux Hommes (St. Stephen's, Caen) which is engraved in Pugin's Normandy. It is demonstrably impossible that any geometrical operations with circles and straight lines can ever produce a true septisection, which Röber yet supposed he had effected, and it gave Sir W. Hamilton considerable trouble to prove by calculation *on which side* his arc erred, namely by being less than a true seventh, only 0·072, a fourteenth of a second! This process, however, is too complex, and depends on intersections too acute to be of use. Now, the pyramid-builders' triangle of 20, 25, and 32, has the angle between the first and last sides 51° 22′ 30″, only 3′ 12″ less than a seventh of a circle, and affords a very easy practical septisection, which I can show how to make even truer than Röber's, with fewer operations.

E. L. G.

ON THE VENTILATION OF BUILDINGS.

IT is strange that one who lived a century and a half ago should have had more advanced ideas on the subject of economy of fuel and of warmth than most of the educated among us at the present day. I refer to Cardinal Polignac and his improvements in the construction of grates. It is well known that in an ordinary fire-grate more than half the heat passes up the chimney and is wasted, while a large amount of heat at the back and sides of the grate, which might be utilised, is also lost. Now by forming the back and sides

of the grate into an air chamber (of course keeping the smoke separate from it), and by having openings in the front of the stove for the exit of the heated air, it is evident that we thus utilise a large amount of otherwise wasted heat. But this is not all; for if an opening be made through the outer wall, or a flue be in any way formed from the external air to this chamber behind the grate, we then have an influx into the room of *pure warm air* (not *cold*, as in Mr. Dymond's plan), and so great yet imperceptible a change of air is thus continually taking place that the air in the apartment is being constantly renewed, and yet not the slightest draught is experienced from the incoming current, which, from its lightness, rises as it enters, and, gradually cooling and descending, passes away up the smoke flue. Further, if previously there had been violent draughts from doors and windows, now there are none, and the temperature is so even that the thermometers placed near the different walls at the same level will not show a variation of two degrees.

For small rooms with many occupants, and for summer ventilation, it may be well to have an air-flue from the ceiling running up to the roof, along with the smoke-flue, though this is seldom needed. BENJAMIN BOUTHROYD.

DOINGS OF THE ST. GILES'S BOARD OF WORKS.

SIR,—Many of us have reason to complain of inattention in respect of our applications to this Board concerning the projected Mid-London Railway, whereby we have been prevented from opposing.*

Another instance of the high-handedness with which the Board carry out their views is now in course of dispute; it is this:—The Board have ordered a new sewer to be laid down in Lascelles-place, Broad-street, and have given orders that all the drainage of the houses there shall be taken up, and altered from 6-in. to 9-in. pipes, and have actually commenced the alterations in some of the houses, to the great annoyance of the inhabitants, who are poor, but respectable people, and which work causes a great nuisance and unnecessary expense, and makes the houses scarcely habitable while the work is going forward.

This work is quite unnecessary, as the houses were all drained into the sewer, only two years ago, with 6-in. pipes, having a fall of 11 ft., and an ample supply of water for completely flushing pipes of that bore; whereas, if 9-in. pipes are used, no more water can be had to flush them than the 6-in. pipes, thus leaving the 9-in. pipes liable to retain a quantity of soil in them, the force of water not being sufficient to properly cleanse them.

I contend that the Board are exceeding their powers, in ordering the disturbance of the internal drainage where it has been so recently and efficiently carried out, and have recommended a friend of mine, a leaseholder of two houses in the place, to contest the matter with the Board, on the ground of using excessive powers; but, at the same time to consent to form a junction from the areas into the sewer with 9-in. pipes, which is quite in accordance with the Act of Parliament, and from which point I contend that their power only begins, the works of internal drainage having been done so recently, to the entire satisfaction of the officials of the Board of Works. A. M.

PUBLIC WORKS IN THE COTTON DISTRICTS.

A FURTHER report has been made to the Poor-law Board by Mr. Rawlinson on the works undertaken under the Public Works (Manufacturing Districts) Acts, 1863-4.

During the last nine months of 1865, according to this report, the progress of works in course of execution under these Acts has been somewhat retarded, owing to a scarcity of skilled labour, the resumption of work in cotton-mills, and the difficulty of obtaining a sufficient supply of stone, bricks, paving sets, and other materials. In every instance some form of necessary and useful work has been devised by the local authorities, and not by a Government engineer. The result is, general satisfaction.

* The bill has since been thrown out.—Ed.

The amount of money devoted to the purposes of these Acts was 1,500,000*l.* (Act 1863) and 350,000*l.* (Act 1864); total 1,850,000*l.* Upon the expiration of the borrowing powers conferred by these Acts (1st January, 1865), the sum of 1,846,082*l.* had been appropriated by the local authorities in 155 separate loans. Out of this sum of 1,846,082*l.* appropriated, a sum of 1,251,449*l.* had been advanced up to the 30th December last, in 331 instalments, each of which instalments has been authorised by special order. The residue to be advanced, as the works progress, if the whole of the sums are taken up, is 594,633*l.*

Main sewerage and drainage works as at first devised are nearly completed. Up to the date of this report (January 12), 515,833 lineal yards, or 293 miles, have been satisfactorily laid, and are in working order. The local authorities are now engaged completing house-drainage. The total area of paving and other surface works of street and highway improvements completed at the close of the past year measures 1,913,685 superficial yards, or about 395 acres, the total length of these streets and highways being 286,326 lineal yards, or about 162 miles. Of waterworks, several are already completed. Of public parks, that at Oldham, the Alexandra Park, was opened during the past year, and affords much gratification and sanitary benefit to the inhabitants of that borough. The public park at Bolton will probably be opened during the present year. Of the public cemeteries, that at Macclesfield is now ready for consecration, and those in Manchester and in Dukinfield are rapidly progressing towards completion.

The following particulars are taken from a tabular analysis of the expenditure in the more important towns and districts:—

Name of Place.	Materials. £	s.	d.	Labour. £	s.	d.
Ashton-under-Lyne	29,602	2	4	14,904	9	8
Ashton and Stalybridge Waterworks	3,793	1	5	15,237	6	2
Blackburn	46,643	7	8	33,707	4	9
Bolton	22,049	5	2	35,372	15	7
Burnley	11,626	19	5	11,431	17	10
Glossop	3,010	17	1	13,492	18	11
Macclesfield	6,864	8	2	10,276	16	3½
Oldham	26,555	2	11	30,770	15	7
Over Darwen	7,418	10	0	5,390	0	0
Preston	22,140	16	9	18,728	0	2
Stalybridge	4,970	5	7	3,792	18	2
Stockport	13,593	17	3	10,004	15	11
Wigan	18,092	4	4	23,794	4	5
	216,158	18	1	226,884	3	5½

Land, compensation, and incidentals make up the total of 545,304*l.* 12*s.* 9½*d.*

The public works in Lancashire are being gradually and rapidly brought to a close. They have afforded useful work to several thousands of earnest, sober, striving men. Many of these men have learned new occupations, and, whilst doing so, by labouring in the open air have found that they rapidly improved in health and gained bodily strength.

CHURCH BELLS AT PORTSMOUTH.

To set right some mis-statements that have appeared Mr. Walesby writes to us as follows:—The bells in the tower of the church of St. Thomas, Portsmouth, forming a peal of eight, which had long been silent, have at length been re-hung by Messrs. Mears & Stainbank, of Whitechapel, and again given out their peculiar melody. The weight of the tenor is about 22 cwt., and its note is E somewhat flat. The following are the inscriptions on the several bells:—

1. Prosperity to all our benefactors. A.R., 1703.
2. Peace and good neighbourhood. A.R., 1703.
3. God save Queen Anne. A.R., 1703.
4. John Prior, William Snook, Churchwardens, 1737. Joshua Kipling, Fecit.
5. Abraham Rudhall, of Gloucester, cast us, 1703.
6. God save our Queen, Prince, and Fleet. Anno Domini, 1703.
7. Thomas Mears, of London, Fecit, 1794. Wm. Butler and John Parker, Churchwardens.
8. Messieurs James Yeatman, Nicholas Horwood, Churchwardens. W. Bartlett, R. Phelps, Fecit, 1730.

We good people all
To prayers do call;
We honour to king
And brides joy d. bring;
Good tidings we tell
And ring the dead's knell.

With regard to the history of the bells, the subjoined brief particulars, which I have gleaned from various sources, may be somewhat interesting:—According to an "inventory of the church, taken A.D. 1636," there were then "Four bells in the tower," and "One saint's bell on the top of the church." It appears, however, that "in 1702 the old tower was pulled down, and the present one erected." During the same year, "at a vestry of the inhabitants, they came to a resolution of raising a cupola on the tower of the church, which was accordingly done." It is in a later account stated that "over the cupola is a lanthorn with a bell in it, formerly employed to give notice how many ships appeared in the offing, for which purpose a watchman was kept there." I may add that the bell is still retained in the lanthorn, or turret, but it is now only employed in case of fire.

Now, about the year 1702, when the present tower was erected, five ancient bells were presented to the parish by Prince George of Denmark, who, at the request of Sir George Rook, M.P., had them removed from the Roman Pharos, or watch-tower, within the fortifications of Dover Castle. Assuming, then, that the four bells described in the above-mentioned inventory, dated 1636, were still retained, there must have been nine bells belonging to the church in question about the year 1702, besides the fire-bell. And I believe that in 1703, Abraham Rudhall, the famous founder of Gloucester—a predecessor of Messrs. Mears—re-cast those nine bells into *a complete peal of eight*; of which the first, second, third, fifth, and sixth, still hang in the tower; and were *certainly* made by him. The fourth, seventh, and eighth—called the tenor—were, in my opinion, subsequently cracked, and then re-cast by different founders, as indicated by the respective inscriptions.

ARCHITECTS' BENEVOLENT SOCIETY.

THE annual general meeting of this society was held at the House, in Conduit-street, on Wednesday, the 7th instant, Mr. Sydney Smirke, R.A., president, in the chair. In the absence of the Hon. Secretary, Mr. George Mair read the report, which stated that it had been practicable to increase the amount of relief afforded to applicants, and yet to add in some degree to the sum funded. The number of subscribers had increased by twelve, and four had been lost by death. The number of recipient cases during the year had been twelve. The auditors' report showed that the receipts of the year, with the balance from last year, had been 347*l.* 3*s.* 2*d.*, while the balance in hand amounted to 115*l.* 17*s.* 2*d.*

The Chairman moved the adoption of the report, which was seconded by Mr. Mocatta (who urged the claims of the charity), and it was carried. Mr. Godwin, in moving the adoption of the auditor's report, commented on the ridiculous smallness of the year's subscription (169*l.*, donations, 25*l.*), and thought the profession could not believe it was wanted, or they would subscribe properly. Mr. W. Papworth took the same view, and mentioned what had been done by the engineers. Mr. Billings said, he thought the secresy observed was injurious, and that if the members knew how the funds were disposed of, their subscriptions would be larger. Mr. C. Fowler, jun., Mr. Roumieu, and others also spoke; and it was resolved to bring the claims of the society under the notice of the next annual meeting of the Institute of British Architects. Officers were then elected, and various votes of thanks were passed, especially one to the president for his constant and able support.

ISLE OF WIGHT.

E. T. (Ryde) writes to us on the subject of our recent article on Ventnor. We do not see, however, that his remarks much affect anything we said. 1. While our correspondent points out that the Ventnor pier is not, strictly speaking, constructed on piles driven into the beach, but on transverse frames of timber, braced together with iron, he does not deny that the pier is a wreck and a failure, which was our principal point. 2. There is a lighthouse such as we described, on what is popularly known as the Needles' Point. It was built in 1858. See "Adams's Guide to the Isle of Wight," and "Briddon's Hand-book for 1865." 3. Our correspondent evidently does not agree with the opinion we quoted as to the proceedings of the Ryde Pier Company. We quoted what we believe to be a respectable local authority. Our correspondent, however, does not think that

the company's proceedings were enveloped in darkness. It was patent to all, he says, that their energies were cramped, and that they were opposed in every direction by the inhabitants of Ryde, who, we are sorry to learn, "are always opposed to progress of any kind," and who, in this instance, would not see the advantages offered to them until it was too late. It is well known, says "E. T.," that the works stopped only after the company had been ruined by frivolous and costly law-suits. We have now allowed both sides to speak, and we can see no reason, after all, to alter the opinion we formerly expressed, that the Isle of Wight does not seem to have been particularly successful in her public undertakings. The more's the pity.

TAMWORTH BRANCH OF THE NATIONAL PROVINCIAL BANK OF ENGLAND.

THIS building, lately erected from the designs of Mr. John Gibson, architect, was contracted for, in the summer of 1864, by Mr. Charles Clarson, of Tamworth, at an outlay of 4,500*l.*, and erected upon the former site, enlarged, in Market-street, near the statue of Sir Robert Peel. The street elevation is of Hollington stone. The bank fittings and doors are of mahogany. There is a banking-room (41 ft. by 22 ft. 6 in.), a consulting-room, two fire-proof strong-rooms, manager's entrance-hall, dining-room, and offices on the ground-floor; drawing and bed rooms on the one-pair, and attic stories. The bank fittings were contracted for by Messrs. Chamberlain & Co., of Birmingham.

WATERPROOF WALLS.

A CORRESPONDENT from Uckfield, in Sussex, gives the following satisfactory assurance:—In the 8th vol. of the *Builder*, page 478, the same receipt appeared for damp walls as you printed in your last. Permit me to give my experience of its effect. Our "National Schools" here are built entirely of stone; the walls vary in thickness from 12 to 18 in. and are much exposed to the south-west. The rain penetrated the walls and caused trouble and expense, so it was at last determined to try "the *Builder's* receipt," and *ten years ago* a coating was given exactly in accordance with the instructions. I am happy to inform you that ever since the walls have been impervious to wet. No second coating has been required.

CHIMNEY-SWEEPING.

A CORRESPONDENT writes,—On reading the article in last week's *Builder* on the subject of chimney-sweeping, a person suggested that an improvement might be made on the present machinery by adding a *rule-joint*, which would afford the means of the machine following the several twistings of a flue without damaging the brickwork between the flues, as is too often the case at present. In addition to which, if there were small iron wheels about 2½ in. in diameter acting on a swivel, these again would assist the machine and brush. Another suggestion was a gutta percha tube with whalebone or twisted iron rod attached to the brush.

IMPORTANT QUESTION UNDER THE LOCAL MANAGEMENT ACT.

LADY HOLLAND having been summoned under the Metropolitan Management Act for the non-payment of the proportion of estimated amount of costs to be charged to her ladyship by the parish of Kensington for the repair of 220 ft. of a road made only five or six years since, at a cost of above 2,000*l.*; it was contended that it is both unjust and unjust to charge on the tenants sums as high as 31*l.* and 21*l.* on each house fronting these roads, for the repair of roads so well made, and which an amount of from 3*l.* to 4*l.* per house would amply cover. The roads have been used by the general public from the time they were completed in 1860 to the present moment, as direct thoroughfares to the Kensington Railway Station, now become a most important point, yet the parish refuse to take to them and keep them in repair unless about 500*l.* are laid out on one road, and a trifling less amount on the other, when about 250*l.*, it is urged, would put both roads in a good state of repair. It is said that, to obviate these expenses in other cases as far as possible from falling on her tenants, Lady Holland has consented that the roads leading to the railway station shall be stopped, and thus the public residing at Notting Hill, and northwards of it, will be sent a mile round, because the parish authorities refuse to meet the builders in any way in regard to keeping the roads in repair. The case having been decided against Lady Holland, her ladyship has determined to take the case into the Court of Common Pleas, in order that the whole of this important question may be brought under public attention.

COMPENSATION CASES.

AT the Westminster Sessions-house, before the High Bailiff and a jury, a question arose in a case which occupied several hours, as to the compensation to be given in the claim "Berry *v.* The Metropolitan District Railway Company," for some premises in Wilton-road, opposite the Victoria station. Mr. Coleridge, Q.C. (Mr. Holl with him) appeared for the claimant, and Mr. Lloyd for the company. The claimant had obtained patents for kitchen ranges, and gas and warming improvements, and since the Victoria station was erected his business had greatly increased, which he attributed to the advertisement given to his premises by the station. The premises were now required, and he declared that 3,000*l.* would not pay him for his loss, and he would rather give 500*l.* compensation to the railway to let him remain. He had other premises in the Victoria-road, and had been obliged to remove his manufacturing business from Wilton-road to Regent-street, Vauxhall Bridge-road. He employed nearly 100 hands, and his returns were last year about 15,000*l.* He had a number of contracts from parishes and churches in the metropolis. Mr. Coleridge complained of the injury done to Mr. Berry by taking his premises, and claimed a handsome compensation. Mr. Lloyd considered the claim made as most excessive, and put the value of the premises and compensation at about 700*l.* He said he had never seen a compensation case so "cooked" up before. The jury awarded 1,000*l.*

At the same place was tried the case "Coomber *v.* The Metropolitan District Railway." Only three special jurors attended, and the absentees were to be fined 10*l.* each. A tales was prayed and a view demanded. Mr. J. Gray, Q.C., and Mr. Philbrick appeared for the claimant, a coach-maker and wheelwright, No. 1, Wilton-road, opposite the Victoria Station; and Mr. Lloyd represented the company. Witnesses were called on both sides. The claim was about 2,000*l.*, and the valuation by the company was between 500*l.* and 600*l.* The premises were required by the Underground Railway from Victoria Station to the City. The value of property had greatly increased, and to the claimant the situation was most eligible. A lease was granted three years ago at 100*l.* a year, and property had increased 60 per cent, and it was now worth 160*l.* a year. The High Bailiff put the case before the jury, and, on their return into court, they gave 500*l.* for the lease, and 800*l.* compensation—making 1,300*l.*

ECCLESIASTICAL DILAPIDATIONS.

AT a meeting of the clergy of the rural deanery of Doncaster, held on the 27th of February, the following resolutions were adopted in reference to the question of dilapidations upon glebe-houses, &c.:—

"1. That the present system of dilapidations is unsatisfactory in principle, unequal in operation, and detrimental on the whole to the property of the Church.

2. That legislation is required on the subject.

3. That it is desirable that the terms 'dilapidations' and 'fixtures' should be defined by law.

4. That in any readjustment of the system the rule should be established that every valuation of dilapidations should have regard to the length of time which has elapsed since the erection of the glebe-house or other buildings, reasonable allowance being made for wear and tear.

5. That for each several diocess one surveyor should be appointed, and that on the termination of any incumbency within the diocess, that surveyor, and he alone, should be the person employed to value the dilapidations.

6. That it be allowed to any incumbent to call in the diocesan surveyor at any time during his incumbency, and, on the completion of such repairs as may be ordered at that time by the surveyor, to be exempted for five years afterwards from any liability whatever, for himself or his heirs, in reference to dilapidations.

7. That in all cases an appeal be allowed to the Bishop, who shall have authority at his discretion to refer the valuation to another surveyor, whose decision shall be final.

8. That a record of all surveyors' reports upon the state of glebe-houses, &c., should be kept in the diocesan registry.

9. That provision should be made for securing the actual completion of repairs for which money has been received under the head of dilapidations.

10. That the diocesan surveyor be elected by the free votes of all incumbents within the diocess, the votes being given by means of voting papers.

11. That the surveyor be remunerated by a per-centage upon the net annual income of all livings falling vacant within the diocess; this payment to be made once only by each incumbent, on institution or induction, in the same manner as other payments now made on entrance upon a benefice.

12. That every incumbent should be required by law to insure his glebe-house and outbuildings."

THE CITY MEAT MARKET.

SIR,—The choice of an *enclosed* meat-market by the City Corporation appears to me and others going back to past ages instead of following up the present progressive, improved, and liberal times in which we live. Just consider a large market for London with only two entrances, and, worst of all, a dismal dead wall to enclose the market. In these days of improvement in which we live, we naturally look for something ornamental as well as useful. Can anything be done to stop them? On what terms did they have the land for a market? Give a helping voice for an open market, if you can, with thoroughfares through the market for the convenience of the public in that crowded locality, and well lighted at night.

AN OBSERVER.

SANITARY PROCEEDINGS IN MARYLEBONE.

MR. HENRY JOHNS, builder, appeared at the Marylebone Police Court, on the 24th ult., to answer a summons granted against him, as the owner of the premises at No. 3, Carlton-place, Maida-vale, on the complaint of the sanitary inspector for the parish of Paddington, "For insufficient ventilation and foul drainage existing on the said premises, the same being a nuisance injurious to health." Mr. Fuller, of Carlton-chambers, solicitor to the vestry, stated the case, and called Mr. W. H. Sullivan, the sanitary inspector, who, upon being sworn, produced plans of the premises, made by him, and stated amongst other things that in the back room on the ground-floor, in which two adults sleep, there is only a window on hinges, 2 ft. 6 in. by 12 in., to give light and ventilation to it; in the shop, and adjoining this room, there is a water-closet, which is foul, and for which there is no ventilation provided. There is stabling for three horses adjoining, with an untrapped inlet to the drain. The paving is so bad as to retain the droppings where they are deposited, and the only ventilation is through an iron grating, 2 ft. 6 in. by 12 in., and the foul air from the stables passes into the back room through a door communicating with it. On the first-floor the water-closet is in the passage leading to the attic, and when this overflows, the nightsoil passes through into the cupboard below. In the back rooms on the same floor, one of which is over the stables, the only ventilation is through an opening in the back wall 10 in. square, and in the other a small fireplace. There are in all four families occupying the premises, besides the three horses and the horse-keeper in the stables. Two adults and four children occupy one room, the size of which is 12 ft. by 9 ft. by 7 ft. 9 in. high. Dr. J. B. Sanderson, the medical officer of health for the parish, stated, that having heard the evidence of the sanitary inspector, the same was in every respect correct, and that the premises described were a nuisance injurious to health. He pointed out measures to be adopted. The defendant was ordered by Mr. Mansfield to have the same carried out, and the summons was then adjourned for three weeks for that purpose. There were three other summonses against different owners of property in the same place, on whom similar orders were made by the magistrate.

"SHOP-FRONT IN BOND-STREET."

SIR,—I see with amazement in your last impression, that the shop-front in Bond-street, of which you give an engraving, is attributed to me. I hasten to inform you that I have not a particle of claim to the credit of this work, which was, I believe, designed as well as executed by Mr. Drew. I merely acted as surveyor for the freeholder, and am therefore astonished that I should have been named to you as the author of the work. Whenever a work of mine is honoured with a place in your pages, I hope it will be something of more interest to your readers than a shop-front.

FRED. P. COCKERELL.

SEWERAGE, PRIVATE AND PUBLIC.

THE POWERS OF LOCAL BOARDS.

A CASE of importance against the Local Board of Great Crosby has just been decided by Vice-Chancellor James.

The bill in this suit was filed by Nicholas Blundell, and several of the lessees of the Blundellsands estate in the Chancery of the county palatine of Lancaster, against the Local Board of Great Crosby, and prayed an injunction to restrain the defendants from executing certain sewerage works, part of which were main sewers, in the plaintiffs' new roads at Blundellsands, in pursuance of notices given under the 69th section of the Public Health Act, 1848, and to restrain the defendants from compelling the plaintiffs to pay for such sewers when completed.

The plaintiffs contended that the sewers referred to in the section in question were street sewers, as distinguished from main sewers, and that the object of the defendants was to compel the plaintiffs to make the main sewers required for the district at their expense, while by the provisions of the Act such sewers ought to be made by the Board, and paid for out of the general district rates. The defendants contended that the notices were legal, and that under the provisions of the Act they had the power of compelling the plaintiffs to execute the works mentioned in the notices.

The Vice-Chancellor, after hearing the plaintiffs' and defendants' counsel at great length, and without calling for a reply from the plaintiffs, delivered judgment, in which he said:—"I think that the plaintiffs here are really right in the contest, which is whether the local Board were entitled to give those notices under the 69th section. I think the Board were not entitled to give the three first notices, and that appears to me to govern the other three. It would be a very gross and oppressive thing upon the owner of a street that, under colour of calling upon him to provide for the sewerage of that street, the defendants could throw upon the plaintiff the construction of a sewer really intended for the benefit of other persons, and which ought to be made, the same as other sewers, at the expense of the general ratepayers. It appears to me that I must grant an injunction to the plaintiff, but I cannot restrain the defendants from executing the works mentioned. What I shall restrain them from may be put thus. That the Court, being of opinion that the notices of the 16th September, 1865, were not given *bonâ fide* for the purposes of the 69th section of the 'Public Health Act, 1848,' restrains the defendants from acting upon the said notices, and from declaring the expenses of executing the work therein mentioned to be private improvement expenses, or recovering or attempting to recover the same as such. With regard to the costs of the suit, it seems to me that the whole of the evidence on both sides was unnecessary. I shall give the costs of the suit, but no costs of any evidence."

This is a very important decision as respects the powers of local boards under the 69th section of the Public Health Act, 1848. In further explanation of the case, we may state that Mr. Blundell is having a system of sewer-

age, devised by Messrs. Reade & Goodison, civil engineers, of which we gave an account in the *Builder* at the time of the inquiry before Mr. Morgan, the Government inspector, carried out by them in his estate. The Board did not adopt Messrs. Reade & Goodison's plans for the sewerage of the whole district, as recommended by Mr. Morgan; and Major Blundell, conceiving it his interest to have the best system of sewerage (recommended also by several other authorities), is now carrying it out as far as relates to Blundellsands estate, which constitutes nearly half of the district. The principal streets in respect of which notices to sewer were served by the Board, are already efficiently sewered, and the Board wished, seemingly from purely arbitrary authority, to pull up the said sewers and lay down their own, which would only drain a small section of the estate.

COVERED HAY-MARKET AT LIVERPOOL.

THE Liverpool corporation has completed about three-fourths of the covered market for hay and straw, and the remainder will be finished in about three months. The covered plot is of irregular shape, containing about 7,500 square yards, the two sides and the back being walled, and the front being open. The front consists of six hipped gables, supported on five columns, and on the two side-walls. The whole of the internal part of the structure is carried by six central columns, similar to those in front. An area of about 7,500 square yards has in this case only six central points of support, the sides and back being on walls, and the front on five columns. All of the columns are 24 ft. in length, and 24 in. in diameter, the thickness of metal being about 1½ in. Wrought-iron plate-girders, the majority of which are 92 ft. long and 6 ft. deep, form a support for the ends of principals made of timber, and trussed with wrought-iron rods. The roof is covered in with rafters and slating, and light is admitted to the interior by means of skylights of rough plate-glass. In front of the sheds described, is a large paved open space, bounded by walls, lodges, and gates, and the whole forms a spacious and convenient market. We understand that the plans were made by Mr. Rollett, the sub-surveyor for the corporation; that the brickwork, stonework, carpentry, slating, and glazing, have been executed by Mr. Burroughs, the contractor; and that Messrs. P. G. Weber & Co., of Liverpool, have had the contract for the ironwork,—the whole under the superintendence of Mr. James Buchanan, the clerk of the works for the corporation.

CHURCH-BUILDING NEWS.

Newlyn (Penzance).—The *Cornish Telegraph* records the opening of St. Peter's Church, Newlyn. For a period little short of two years this church has been rebuilding; and it is so far completed as to be fit for divine service. The sum necessary for completely finishing the edifice is 2,000*l.*, but to the present time the contractors' work has been done for a little over 1,600*l.* The northern aisle, the steeple, stained-glass windows at the eastern and western ends of the church, as well as several things necessary to be done outwardly, including a lightly-constructed bridge to span the stream in front of the church, and which will be its principal approach, have still to be added. The church is situated just under the beetling elevation of Tolcarne, and sufficiently near to the village of Newlyn to be, not inappropriately, called the Fishermen's Church. It is built of granite in the Gothic style; and the builders are Messrs. Cara & Edwards, of Crowan. The architect was the late Mr. Perrow, of Penzance and London. The edifice is built east and west, with a southern aisle, and a spire, only, as yet, raised 35 ft. of the proposed 70 ft. The nave is 66 ft. long by 21 ft. wide; the chancel, 28 ft. by 16 ft.; the aisle and transept, 68 ft. by 11 ft. On the north of the chancel there is a vestry 10 ft. square; on the left is the belfry. The windows are lancet shaped, and plain for the present, but it is hoped that stained and ornamental glass will soon replace these. The roof is of red deal, stained and varnished; and the ceiling is also stained,—the stainer and varnisher being Mr. Glasson, of Truro.

South Kensington.—On the 28th ult. the inscription stone was laid of the new church of St. Stephen, Gloucester-road, South Kensington, by the Ven. Archdeacon Sinclair, in the presence of a large assembly of clergy and inhabitants of the district. The church is a large one, to seat 1,100, the extreme internal length being 135 ft., and having nave, aisles, and transepts, with lofty tower, which will be on the north-west angle of the site, separate from the church, with cloister communicating. The church is being built from the design of Mr. Joseph Peacock, by Messrs. Simms & Marten, builders. The incumbent, the Rev. J. A. Aston, is now holding service in a temporary church on an adjoining site, until the permanent church be completed.

SCHOOL-BUILDING NEWS.

Oxford.—St. Aldate's new Schools, erected partly on the site of the former dilapidated buildings, have been opened by the Bishop of Oxford. They consist of a boys' and girls' school-room, each 40 ft. by 18 ft.; an infants' school, 21 ft. by 18 ft.; and two class-rooms, 14½ ft. square, together with porches fitted as lavatories. The school-rooms are divided by sliding screens, so as to be thrown into one on any occasion. The edifice is of white brick, faced with Bath stone, the roof being high-pitched and open-timbered. The architect is Mr. J. T. Christopher, a cousin of the rector; and the builder, Mr. Selby, of this city.

Cirencester.—Earl Danby's Schools and Almshouses at Dauntsey have been opened. The schools are situated at about 200 yards from the site of the old school, on the opposite side of the turnpike. The main frontage faces the road. The entire range of building presents a façade of 168 ft., in the centre of which is the master's house, surmounted by a timber bellcot, with spiral roof; and the western or left wing is occupied by the schoolroom, 51 ft. 6 in. wide by 18 ft., arranged to accommodate 66 pupils, and a class-room, 14 ft. by 13 ft. These rooms have a distinctive Early English character, with open framed roofs, and carved braces springing from moulded stone corbels. The right or eastern wing is appropriated to six almshouses, four of which are for single occupants, and the remaining two for aged couples. A paved colonnade or covered-way extends in front of these almshouses, forming at the same time a communication from and a porch to the master's house. The buildings are faced with brick, with free-stone dressings, and ornamental brick chimney-shafts of varied design, and the roofs are covered with Brosely tile, varied in colour and pattern. No paint has been used to any of the internal woodwork, the whole of which is stained and varnished. The architect for the building was Mr. Weaver, of Devizes; and the builder was Mr. Millar, of Christian Malford.

DISSENTING CHURCH-BUILDING NEWS.

Melbourn, Cambridgeshire.—A new Congregational chapel has been opened at Melbourn, Cambridgeshire. The style adopted is modified Byzantine. The central portion of the front façade slightly projects, and contains the principal entrance doorway, above which is a five-light window of Bath stone; and on either side are towers rising to the height of 60 ft., containing stone staircases leading to the galleries. The side walls of the chapel are divided by buttresses, and pierced by recessed two-light windows. Perforated white bricks have been used throughout, with bands, cornices, and arches, of coloured brickwork. The chapel is 68 ft. by 46 ft., with an apse at the south end, containing the vestry, with a gallery over for the organ and choir. There are also galleries on the other three sides of the building. The roof is in one span, and the ceiling segmental in form, rising to the collar of the principals. A handsome circular traceried window of stone is placed in the apse, and filled with stained glass, the pipes of the organ being arranged so as not to obstruct the view of it. The chapel has about 800 sittings, and is heated by means of hot water. The total cost has been 2,300*l.* The architect is Mr. R. H. Moore, of London; and the builder, Mr. L. Gimson, of Royston.

Ashford.—The new Congregational Church has been opened here. It is in the Gothic style. The walls are of Kentish rag, with Bath dressings. The building is 70 ft. by 38 ft. internally, affording accommodation for about 610 persons, while the school-room is 57 ft. by 27 ft., and will accommodate about 300 children. The works have been carried out by Mr. Peters, of Ashford, at an outlay of 2,260*l.*, inclusive of the materials of the old chapel and school. The architect was Mr. W. J. Poulton, of Reading.

Birmingham.—The foundation-stone of a new Wesleyan chapel, about to be erected in Icknield-street West, has been laid. The new edifice is being erected from the design of Mr. J. G. Bland, and will be of Venetian-Gothic style. The building will afford accommodation for 990 persons. The internal dimensions will be 72 ft. by 53 ft., and will comprise nave and aisles, with two side galleries and an end gallery over the entrance-porch. The pulpit will be placed opposite the entrance, and at the back of the pulpit will be a gallery for the organ and choir. Mr. W. Partridge is the contractor.

Books Received.

Sussex Archæological Collections. Published by the Sussex Archæological Society. Vol. xvii. (5th of 2nd Series). P. Bacon, Lewes.

THE Sussex Archæological Society continues to be one of the best and most successful of the working Archæological Associations, as the present volume itself, of about 300 pages, goes to show. Amongst other interesting matter, it contains Notes on Amberley, its castle, church, &c., by the Rev. G. A. Clarkson, M.A., with several illustrations, one a chromolithograph. There is also an account of the curious old door in Warbleton church tower, called Woodman's door, by Major Luard, with an engraving showing both sides of the door, with all the complicated ironwork which has been strangely regarded as fragments of instruments of torture, whereas it is evidently the remains of an elaborate safe lock of old time, showing that there were Chubbs and Bramahs in those days no less than now. The door is supposed to have once belonged to Richard Woodman, who was burnt as a heretic by Bishop Bonner, after having been imprisoned in Warbleton church tower, close to which he lived; but Major Luard thinks it more probable that the door was made for the tower (it may have been by Woodman, who was an ironworker, and employed about 100 men), as a safe place for valuables.

The Year-Book of Facts in Science and Art. By JOHN TIMBS, F.S.A. Lockwood & Co., Stationers' Hall-court. 1866.

THIS may well be regarded now as the standard work of its class: indeed, it is the only one published in this country, so far as we are aware. It is compiled with Mr. Timbs's usual ability; but with some few indications of haste, as where matter essentially the same is inserted in two separate places, *e.g.*, "Oleaginous Mineral," p. 247; "Cannel Coal in New South Wales," p. 238; and "Mineral Vegetation," p. 149; "New Chemical Tree," p. 169. That this last is a *new* chemical tree is a mistake; it is a very old one: and, by the way, was once believed to contain gold, though none was known to exist in the respective ingredients, silicate of potash and sulphate of copper or iron; it was therefore regarded as a way of actually producing gold. Since the experiment is being tried anew, some chemist ought to analyze the resultant "tree." Mr. Timbs's Year-Book is always full of suggestive and interesting matter, and is an excellent *resumé* of the year's progress in the sciences and arts.

Reports on the Parish of St. John, Hampstead.

THE reports of the local surveyor, Mr. John Douglas, and the officer of health, Mr. C. F. J. Lord, have been printed. From the surveyor's report it appears that the West-end drainage contract is now nearly completed. Since the Metropolis Local Management Act came into operation on 1st January, 1856, it appears that 48,045 ft. lineal of brick and pipe sewer have been constructed by the vestry, and 25,746 ft. by owners of building land and builders. The medical officer's report, in directing attention to injurious agencies at work in the parish, alludes to "the crowding of human beings in habitations unfit for civilized people, dangerous at once to bodily health and cleanliness, to moral purity and to mental energy;" and states that "the large influx of mechanics and brickmakers and excavators which the railroad operations have brought into the parish, has not only crowded many of the old houses, but has caused a number of huts to be erected in the fields, very defective in sanitary provision, and rendered, in some cases, pestiferous by crowding." He advises the appointment of a special inspector of nuisances.

Celebrated Naval and Military Trials. By PETER BURKE, Serjeant-at-Law. London: Allen & Co., 13, Waterloo-place, S.W. 1866.

THE author of "Celebrated Trials connected with the Aristocracy," and of "The Romance of the Forum," has here produced another interesting and readable book of his own especial kind. It contains the historical stories of Admiral Benbow and his treacherous captains well told; Captain Kidd the pirate, with the Royal Commission; Admiral Byng's trial; the trial of Lord George Sackville; the Dockyard incendiary, Pack the Painter; Admiral Keppel's trial; the mutiny of the *Bounty*; the Mutiny of the Nore; Governor Wall's trial; Colonel Despard's trial; the court-martial on Vice-Admiral Calder; the trial of General Sir R. Wilson and others for the escape of Lavallette; and stories as to soldiers and civilians in the time of William III.

Jack the Painter, scamp as he was, will interest our professional readers all the more that he was an unworthy member of the building fraternity. He was born in Edinburgh, and his father, David Aitken, was a creditable whitesmith, who foolishly gave his only son "all his own way," thus fostering all sorts of irregularities and wild propensities, which soon begot in him "the most stubborn and obdurate disposition," and he very soon showed the fruits of such training—or want of training rather—by launching out into all sorts of excesses and debauchery, not hesitating to replenish his purse by highway robberies and house-breaking. These amusements soon made the country too hot for him, and he shipped himself for America, cheating the person who trusted him with a passage. He very soon became a malcontent in America at the time of the war, and had to sneak out of that country too, returning to England, where a discussion with some boon companions suggested to him the bright idea of setting fire to the dockyards; and he went to Paris, he says, and laid his scheme before Silas Deane, who approved of it, and supplied him with money. He got access to Portsmouth dockyard, and made several attempts to set fire to it, and also to the town, but failed, and afterwards went to Bristol, in which he also endeavoured to set on fire—both town, and shipping. On his way to Paris to report his various failures to Mr. Deane, he was seized at Andover, after he had committed a burglary at Calne, and was brought to Clerkenwell prison. A trap was afterwards laid for him by the employment of a spy named Baldwin, to whom he confessed his guilt, and on that and other evidence he was hanged, after himself signing a written confession which he had voluntarily made.

The story, like all the others, is excellently well told by Mr. Serjeant Burke, in the volume under notice.

Études des Eaux Naturelles. Par THÉOPHILE JOSSET. Neuilly, près Paris, chez l'Auteur, 4 Avenue de Neuilly, 71.

THE author treats of the physiological action of mineral, thermomineral, marine, river, stream, and lake waters upon man, describing their electro-magnetic action upon living bodies immersed therein. He also carefully indicates the various mineral springs, in or about Paris, which are scarcely known even by name. We can recommend this useful and interesting *brochure* to all who wish to study seriously the physiological properties of mineral waters.

Miscellanea.

"TOWN HALLS, FRANCONIA." — The names under the two views given in our last (p. 155) were accidentally misplaced. The building marked as of "Dettelbach," should be called of "Volkach, and the reverse.

THE ENGLISH COMPANY FOR NAPLES.—The Naples Public Works Company, started in November with a proposed capital of 1,200,000*l.*, to erect a boulevard and other buildings at Naples, have resolved to return the deposits of the subscribers, with 5 per cent. interest.

METROPOLITAN LOCAL GOVERNMENT. — The following members have been nominated to form the Select Committee on Metropolitan Local Government, &c.:—Mr. Ayrton, Mr. Tite, Mr. Bazley, Mr. Locke, Mr. Lawrence, Mr. Baring, Mr. Mill, Mr. Hanbury, Lord J. Manners, Mr. Beecroft, Mr. Turner, Sir W. Gallwey, Sir M. W. Ridley, Mr. Sandford, and Mr. Kekewich.

MANCHESTER ROYAL EXCHANGE.—The bill for empowering the Exchange proprietors to carry out their large scheme has been read a second time in the House of Commons and referred to a committee.

CITY OF LONDON EXHIBITION. — A collection of goods in the Guildhall, mis-called the "London Working Classes Exhibition," has been opened and may now be visited. It is mainly a large bazaar wherein manufacturers and dealers are exhibiting their wares.

THE RAILWAY JUNCTION OF THE PACIFIC WITH THE ATLANTIC.—A traveller may now light his cigar at the galley fire of a steamer at Colon, in the Atlantic Ocean, says an American paper, and throw the ignited fragment of it, after crossing the isthmus by railway, in the bay of Panama, in the Pacific Ocean.

PRESENTATION TO MR. GEORGE ROBERT STEPHENSON.—A silver salver, claret-jug, and goblets, have been subscribed for by all the workmen at the engine manufactories of Mr. Stephenson, and presented to him at Newcastle-upon-Tyne. Mr. Stephenson has intimated his intention of contributing 500*l.* to the sick fund of the men connected with his establishment.

THE PROPOSED STATUE TO LORD PALMERSTON AT SOUTHAMPTON.—We understand that the subscriptions towards a statue to the memory of the late Premier, who was so intimately connected with Southampton, are being sent in very favourably, and the committee announce that they have unanimously decided upon erecting the proposed statue in the park immediately opposite Marland-place, on that portion where the Above Bar fair was formerly held.

ARTIFICIAL ALABASTER. — Magnesia, obtained by calcination from chloride of magnesium, remarks the *Scientific American*, will, when exposed to the action of water for some months, acquire considerable consistency, and become hard enough to cut marble. A lamina of this magnesia of moderate thickness is translucent, like alabaster. With this substance casts may be taken as if with plaster of Paris, only the former sets under water. A mixture of chalk and magnesia in powder, made up into a paste with water, is good for moulding, and will become exceedingly hard under water.

A BUILDER IN DISTRESS.—Mr. George Cleverly, aged 59, who is a candidate for an out-pension from the British Home for Incurables, Clapham Rise, was formerly in business as a builder, and subsequently employed as clerk of the works to many important buildings, under Sir Charles Barry, Mr. Scott, and others. He has now been disqualified from following his occupation for four years, from disease of the heart; and his savings being exhausted, he is appealing to the sympathy of the benevolent to aid him in securing his election. We should be glad to find some of his brother builders assisting him.

SILK IN LYONS.—The town of Lyons consumes annually about 1,000,000 kilogrammes (about 1,000 tons) of silk prepared or spun in different ways. It takes four cocoons to weigh a gramme of silk; the Lyonnese consumption amounts to 4,200,000,000 cocoons; counting the length of a thread of cocoon equal to 500 mètres, the amount annually spun by the Lyonnese industry would make, altogether, a thread of silk 2,100,000,000 kilomètres long, or more than 14 times the distance of the earth from the sun, and 5,494 times that of the moon from us. It would pass round the earth at the equator 52,505 times, and 200,000 times round the circumference of the moon.

A NEW PARK FOR LIVERPOOL.—The Corporation have concluded terms with the Earl of Sefton for the purchase of a large tract of undulating land to the south of the Prince's-park, with the intention of converting it into a park, which shall be, in extent and in appearance, worthy of the town. The purchase-money, it is said, will amount to about 250,000*l.*, being at the rate of 2s. 8d. per yard. This will represent an area of nearly 400 acres. Of this area 175 acres will be devoted to the laying out of villa residences. Two hundred acres will be devoted to the park. In addition to this the Botanical Gardens will be transferred thither, and the gardens at present used will be thrown into the Wavertree-park. There will also be a "Rotten-row." It is to be hoped that some English name will be given to the park, and not the French name of Champs Elysées, as a contemporary already dubs it.

"PHARAOH'S SERPENTS."—Three young workwomen, in good health, entered into the service of a Paris manufacturer, who employed them in filling boxes with those dangerous toys known as Pharaoh's serpents; after continuing their work for some days only they were seized with an alarming illness, and were obliged to be removed to the Lariboisière hospital. Thanks to an energetic treatment their lives, it is true, have been saved, but their health is for ever gone. A more lamentable instance could scarcely be found of the carelessness of the public with regard to poisonous preparations.

BASS'S RECREATION-GROUND, DERBY. — The plans of the proposed improvements in the Holmes, and fencing, have been inspected by Mr. Bass, and approved of. The tenders by Messrs. Roe & Son, for woodwork; Messrs. Swingler, for the ironwork; and Mr. Basford, for painting, have been accepted. The levelling and turfing will be carried out by the Board of Health, but will be paid for by Mr. Bass. This gift to the town will cost him nearly 4,000*l.* It is intended to erect a refreshment-room, a band-stand, and necessary offices, to be paid for by voluntary contributions. Mr. G. Thompson, the borough surveyor, is preparing plans.

THE NEW ATLANTIC CABLE.—About 160 miles of this cable have now been made, and when all the machinery is at work, it is said, the manufacture will proceed at the rate of 100 miles a week. The structure is said to be identical with the last, only the rope will bear a strain of from 15 cwt. to a ton more than that of last year, so that it must be heavier, although there is no dark composition soaked into the Manilla hemp which forms the covering of the outer wires. The outward appearance is far different, being of light colour instead of dark. The *Great Eastern* will endeavour first to lay this new cable, and afterwards to raise the old and complete it also.

OVERHEATING OF CHURCH FLUES. — At St. Peter's Church, Chester, a fire has occurred from this cause, but being taken in time little damage was done. It broke out while the congregation were in church. A piece of coir yarn matting had been set on fire by the overheating of the stove, and it was thrown on the roof by the sexton, who said that he left it there when he thought he had put the fire out. This was not so, for soon after the roof was seen to be on fire; and if timely measures for subduing it had not been made, the result might have been serious, as a strong wind prevailed at the time. The smouldering mat was fanned into a flame, and thus melted the lead.

MOSAIC PAVEMENT, CAERLEON.—At the last meeting of the Archæological Institute, the Marquis Camden in the chair, Mr. O. Morgan, M.P., read a paper on a curious mosaic pavement found at Caerleon, which was of what is called the gridiron pattern. He stated that the neighbourhood of Caerleon abounds in Roman remains of all kinds, and the pavement formed the floor of a small apartment of some Roman building. It was designed in the labyrinth form, and he said he believed it was the first of the kind that had been discovered in Britain. The pavement had been raised with great care, and is now deposited in the museum at Caerleon. The arrangements for the congress to be held in London, in July next, are going on well.

FALL OF BUILDINGS.—At Liverpool the gable wall of a new building in course of erection, for the Liverpool Rubber Company, has fallen down, damaging a portion of the roof, and the stock belonging to preserved meat works adjoining. It is estimated the damage done will be upwards of 2,000*l.* Three men were seriously injured. A strong wind was blowing at the time, and, it is believed, caused the accident.——At Malton one of the large grain warehouses on the banks of the Derwent has been blown into the river. It is supposed that the foundations had been affected by the continued flood in which the river has been for the past three months. The building was four stories high, and has gone from the base completely over. It is estimated that 1,000 quarters of wheat and oats were in the buildings at the time of the accident, the whole of which are either among the ruins or have gone into the river. —— Works for the enlargement of the church of Deventer, Holland, were considerably advanced, when, on removing the centreing of the naves, the whole superstructure fell in, burying several workmen in the ruins.

CARDINAL POLE'S MONUMENT.—The Rev. R. C. Jenkin, of Lyminge, near Hythe, Kent, writes to the *Gentleman's Magazine*, strongly urging the propriety of restoring the tomb of Cardinal Pole, in Canterbury Cathedral, which is in a sadly neglected state.

PROPOSED LOAN EXHIBITION OF ART AND INDUSTRY AT SOUTHAMPTON.—The Hartley committee of the town council propose the erection of a temporary building behind the Hartley Institution lecture-hall, at a cost of 500*l*., for a Loan Exhibition, the proceeds to be devoted to the erection of a permanent building for the local School of Art. A public meeting has been held, and a committee appointed to carry out the scheme.

NEW MASONIC HALL FOR PLYMOUTH.—The Freemasons of Plymouth have been in negotiation for the purchase of Mr. Bishop's picture gallery, at the east end of Union-street, for all the business purposes of a lodge without any material outlay of money. There are also, immediately contiguous to this large hall, rooms that will be available for Masonic purposes; so that, if the building had been erected for the purpose, it would not be more suitable than it is. It is proposed to hold the meetings of several lodges in this hall. The purchase of the above place has been effected by Mr. Watts, of the "Globe."

MASONIC CHAIRS.—At the Blair Lodge, Stretford-road, Hulme, near Manchester, the brethren had the satisfaction of inaugurating a set of emblematical solid oak chairs, of a new design, by one of its members, Br. James Redford, J. D., of the firm of Whyatt & Redford, architects. They are massive in character, and inlaid with ebony; the oak is gilt in some parts, showing the grain of the wood through. Each chair is ornamented with the emblems, working tools, &c., of the respective degrees, and upholstered in blue morocco. The designs were carried out by Mr. John Heathwaite, of Hanover-street, at a cost of 25*l*. per chair.

FROM TASMANIA.—A Wesleyan Church has been built at Westbury, from designs furnished by Messrs. Crouch & Wilson, of Melbourne. It is in the Early English style of the latter part of the thirteenth century, and is built almost entirely of brick, with dressings in pressed cement instead of stone. The internal measurements are 38 ft. by 60 ft. on the floor, and the height to the mid-ceiling 28 ft., the side walls being 15 ft. 6 in. high. The roof is to be framed entirely of Tasmanian blackwood, with columns of same wood. Attention has been paid to the ventilation, and the principal window is to be filled with stained glass.

A STEAM HOIST.—At the Newark Castle Wharf a steam hoist (without any engine), made at the Trent Iron Works, has been successfully tried. A timber frame forming the base of the machine, encloses a large cylinder. On the steam being admitted to it a beam of iron, armed with strong teeth, is forced out, and from this motion is given through a simple arrangement of wheels, which causes the chain barrel to revolve. The direct action of steam is thus brought into use without the intervention of a steam-engine as in ordinary steam cranes. The working is easy, and without noise. This particular machine was designed for raising building materials at some of the large iron furnaces now being constructed in the north of England. A Mr. Nicholson is the inventor.

MEMORIALS.—The subscribers to the proposed memorial of the late Sir Joseph Paxton are about to consider and determine as to the appropriation of the amount received for the memorial.——Mr. Theed has prepared a bust of the Prince Consort, to be presented by her Majesty to the Surrey County Hospital. The bust will be placed in the vestibule, or chief entrance-hall, directly opposite the door. It is of life-size, and of the purest Sicilian marble used for statuary purposes; is 2 ft. 6 in. in height; and is mounted on a coloured marble pedestal, 4 ft. high, which makes the total height 6 ft. 6 in. The original from which the bust is taken is in Windsor Castle. On the pedestal is the following inscription:—"This bust of his Royal Highness Prince Albert was graciously presented to the Surrey County Hospital by her Majesty Queen Victoria, 1866." Mr. Theed has presented to the hospital a tinted plaster cast of his "Good Samaritan." The hospital will shortly be ready to receive patients.

THE NEW ORPHAN HOUSES, BRISTOL.—The ground for the foundations of two more Orphan Houses on Ashley-hill is now being excavated. These two, when completed, will make five houses erected by Mr. Müller since first beginning his undertaking, and will afford accommodation for about 1,000 more children, in addition to those already in the house. The area of land now occupied by these buildings and the surrounding parks is very large.

RESTORATION OF ST. NICHOLAS' STEEPLE, NEWCASTLE-UPON-TYNE.—At an adjourned meeting of the committee for the repair and restoration of St. Nicholas' steeple, held in the upper vestry, the Mayor (Mr. Ald. Dodds) presiding; Mr. Clayton read the report of the town surveyor relative to the condition of the steeple. Mr. Pollard said they ought to have some man of eminence to have charge of the work, such a man as Mr. Gilbert Scott, of London. The Vicar strongly supported this suggestion. Mr. Dickinson moved that it be a recommendation from this committee to the general meeting of subscribers to appoint Mr. Scott. The Vicar seconded the motion. After a remark from Mr. Clayton that they would require something like 3,000*l*. to do all that was requisite, the motion was carried. A great number of influential names were added to the committee, and it was announced that the fund had now reached the sum of 1,369*l*. A general canvass is being made for further subscriptions.

BRIDLINGTON: THE PROPOSED SEA WALL.—A meeting has been held at Bridlington, to take into consideration a petition presented by the local board for the district to Sir George Grey, praying him to extend the borrowing powers of the board. Mr. Arthur Taylor, the inspector appointed in conformity with the prayer of the petition, attended, and, in opening the inquiry, said that the meeting had been called together to inquire into the desirability of borrowing an amount of money, which was to be expended in the erection of a sea-wall, the estimate for which was 36,350*l*. The clerk to the board said Mr. Ashdown, engineer, would state the necessity for the works being down; and unless they were carried out, the quay would suffer very seriously. About 200 ft. of ground had been washed away, and the engineers and others would prove the great necessity of the work. Tenders had been received for the erection of the sea-wall, and Mr. Barry's was accepted for 19,600*l*. conditionally. The cost of the works and superintendence would be 22,350*l*.; property to be purchased, 14,000*l*.; making a total of 36,350*l*. The board proposed raising that sum by a rate which Mr. Gray believed would amount to 3s. 3d. in the Quay, and 1s. 1d. in Bridlington. The question was warmly discussed; and the inspector, at the close of the inquiry, said he thought the board should have taken power for the full amount, 39,000*l*., instead of 35,000*l*.

GAS.—The Folkestoné gas and coke company have declared a dividend at the rate of 10 per cent. per annum for the last half-year. Plans for new works have been prepared and tenders sent in.——The Chester gas company have yielded so far to force by reducing the price of their gas from 4s. 6d. to 4s., but have refused to allow the 5 per cent. discount formerly given. Doubtless, when the Chester gas company reap the benefit to themselves of their forced reduction of price they will be as thankless as others have been to those who have forced them to do what turns out to be for the benefit of the company no less than of the public, as in nine cases out of ten such forced reductions of price have been.——The Cardiff gas light and coke company have declared a dividend at the rate of 10 per cent. per annum for the last half-year on their old shares, and of 8 per cent. on new shares.——In the House of Commons, a motion of Captain Gridley has been agreed to for a return from every gas company established by Act of Parliament in the United Kingdom, stating the several Acts under which established, the rates per 1,000 cubic feet at which such company or corporation had supplied gas in the years 1864 and 1865, and the average price of the coal used by the company in each year for the same period; also stating the amount of fixed [it should have been paid up], capital invested by each gas company, and the rate per cent. of dividend [and including bonuses and "arrears," it should have been] to the shareholders or proprietors on their shares in each year (in continuation of Parliamentary Paper, No. 55, of Session 1865).

TRAMWAYS IN LIVERPOOL.—The health committee have confirmed the recommendation of the Parliamentary Sub-committee to approve of the principle of tramways in Liverpool, on the improved kind of rail lately noticed in the *Builder*, which presents a crescent surface, on which a grooved wheel runs. The company seeking to get the concession of the right of laying the rail have patented the wheel, but they agree that the council shall have complete control of the tramways, as to regulating the traffic, repairing the roads, sewers, &c.; that other persons shall be allowed running powers on payment of a reasonable royalty; and that the company shall be bound to take up the rails at a month's notice from the council, if found to be a failure or an obstructive nuisance.

THE ABUNDANCE OF MAGNESIUM.—It has been estimated, says the American *Gaslight Journal*, that the ocean contains 160,000 cubic miles of magnesium,—a quantity which would cover the entire surface of the globe, both sea and land, to a thickness of more than 8 ft. In obtaining salt from sea-water, the residuum is largely magnesium. It constitutes 13 per cent. of magnesian limestone,—a rock found in all parts of the world in enormous quantities. Three years ago all the chemists who had obtained magnesium at all, had probably not obtained an ounce among them. One year ago its price was 112 guineas per pound. Now, owing to improvements recently introduced, magnesium wire is sold at 3d. per foot. It has been suggested that, when it shall be cheap enough, vessels of war should be built of it; for, whilst but little heavier than heart of oak, it is as strong and tenacious as steel.

TENDERS

For house and shop, for Messrs. Davis & Co., Belvedere, Kent. Messrs. Habershon & Pite, architects:—

Kirk	£1,515 0 0
Cowland	1,420 0 0
Bainbridge, Brothers	1,317 0 0
Richards	1,298 0 0
Ramsey	1,288 0 0
Johnson	1,249 0 0
Thompson	1,238 0 0
Vickery	1,189 0 0
Blofield	1,121 0 0
Gunderell	1,150 0 0
Warren	986 0 0
Tear	965 0 0

For first portion of Buckhurst-hill Congregational Schools. Mr. J. W. Morris, architect:—

Eunor	£1,094 10 0
Rivett	993 0 0
Patrick & Son	974 0 0
Dove, Brothers	965 0 0
Watts	957 0 0
Egan	956 19 0
Kilby	929 0 0
Abraham (accepted)	916 0 0

For alterations and additions to house, No. 30, Bridge-street, Sunderland, for Mr. C. J. Vincent. Mr. J. Tillman, architect:—

Jefferson	£225 0 0
Birbeck & Lewithwaite	215 0 0
Stafford	187 0 0
Stafford & Baker (accepted)	160 0 0

For alterations to No. 8, Upper Wimpole-street, for Mr. E. Bazalgette. Mr. W. A. Baker, architect. Quantities supplied by Messrs. Richardson & Waghorn:—

Smith, Bros.	£1,529 0 0
Clarke & Mannooch	1,485 10 0
Warne & Son (accepted)	1,477 6 0

For villa residence and stables, at Shepherd's-bush, for Mr. W. H. McQueen. Mr. W. A. Baker, architect. Quantities by Messrs. Richardson & Waghorn:—

Oughton (accepted)	£2,241 0 0

For organ factory, in New Inn-yard, Tottenham-court-road, for Mr. J. W. Walker. Mr. W. A. Baker, architect. Quantities by Messrs. Richardson & Waghorn:—

Oughton (accepted)	£2,725 0 0

For works at the Riding-school, Seymour-place, Bryanston-square, for Mr. F. Allen. Messrs. Bird & Walters, architects:—

Brown	£1,695 0 0
Tracey	1,685 0 0
Newman & Mann	1,545 0 0
Kelly	1,538 0 0
Williams (accepted)	1,529 0 0

For alterations to No. 15, Stockbridge-terrace, Pimlico, for Mr. L. Hart:—

Gale	£283 0 0
Wigmore (accepted)	262 10 0

For new roads and fencing, on the Old Park Estate, Clapham, Surrey. Messrs. Wimble & Taylor, surveyors:—

Brewer & Rutter	£2,475 4 0
Easton	1,976 0 0
Mayo & Son	1,920 0 0
Clarke	1,820 0 0
Lawrence	1,778 10 6
Livermore	1,770 0 0
Drummond	1,748 0 0

For ten houses, in Brunswick-square, Camberwell, for the Freehold and General Investment Company. Mr. H. S. Legg, architect. Quantities supplied :—

Eustace	£6,640	0	0!
Webb & Sons	6,340	0	0
Palmer	6,200	0	0
Marsland & Sons	6,100	0	0
Casford & Son	5,950	0	0
Hewett	5,917	0	0
Thomas & Jenkins	5,500	0	0
Cubitt, Bros.	4,750	0	0
Minty & Son	4,340	0	0
Neale	4,330	0	0
Driver	3,450	0	0!

For Congregational chapel, Bromley, Middlesex. Mr. T. W. Morris, architect :—

Piper & Son	£2,627	0	0
Watts	2,580	0	0
Sheffield	2,564	0	0
Kilby	2,548	0	0
Hedges	2,416	0	0
Jeffrey	2,370	0	0
Abrahams (accepted)	2,330	0	0

For new Wesleyan chapel, Rickmansworth, Herts. Mr. Pearson, architect :—

	Deduct Old Materials.		
Colls & Son	£2,443	0	0 ... £160 0 0
Henshaw	2,299	0	0 ... 116 0 0
Cooper	2,200	0	0 ... 155 0 0
Arnold	2,118	0	0 ... 130 0 0
Brown	2,090	0	0 ... 153 0 0
Snowball	2,077	0	0 ... 178 0 0
Waterman, Bros.	1,800	0	0 ... 148 12 7

For Congregational chapel and schools, at Battersea. Mr. Acomb, architect :—

	Chapel.			Schools.		
Higgs	£4,582	0	0 ...	£1,067	0	0
Sharpington & Co.	4,595	0	0 ...	1,015	0	0
King & Sons	4,460	0	0 ...	930	0	0
Piper & Wheeler	4,276	0	0 ...	893	0	0
Dove, Bros.	4,163	0	0 ...	936	0	0
Rider & Son	4,150	0	0 ...	936	0	0
Simms & Marten	4,175	0	0 ...	898	0	0
Lathey, Bros.	3,957	0	0 ...	850	0	0
Stimpson	3,875	0	0 ...	890	0	0
Jackson & Shaw	3,860	0	0 ...	900	0	0

For a warehouse, shed, offices, and stables, side of the Grand Surrey Canal, Old Kent-road. Mr. Henry W. Broadbridge, architect :—

George	£2,685	0	0
Browne & Robinson	2,689	0	0
Turner & Sons	2,687	0	0
Tarrant	2,622	0	0
Macey	2,495	0	0
Lathey, Bros.	2,459	0	0
Henshaw	2,446	0	0
Colls & Son	2,234	0	0

For house, Sunningdale, Berks, for the proprietors of the Sunningdale estate. Mr. Bartlett, architect :—

Browne & Robinson	£3,230	0	0
Brass	3,160	0	0
Ashley & Sons	2,997	0	0
Piper & Wheeler	2,992	0	0
Colls	2,980	0	0
Wood, Brothers	2,980	0	0
Myers & Sons	2,970	0	0
Conder (accepted)	2,837	0	0

For repairing St. John's Church, Bethnal-green. Mr. William Mundy, architect :—

Fowler	£1,646	0	0!
F. & F. J. Wood	1,260	0	0
G. Thorpe	1,232	0	0
Warskitt	1,179	0	0
Allvey	892	0	0
W. J. Thorpe	766	0	0!

For the erection of two semi-detached residences, on Goldington-road, Bedford. Mr. Usher, architect :—

Keys	£3,361	0	0
Hull	2,220	0	0
Lawson	2,203	0	0
Day	2,045	0	0
Winn & Foster	2,037	0	0
Cunvin	1,923	0	0
Joy	1,922	0	0

For the erection of two detached residences, for the Bedford Building Company. Mr. Usher, architect :—

Winn & Foster	£1,620	0	0

For basement of new building, No. 144, Leadenhall-street, for the Estate Company, Limited. Mr. E. A. Gyrrning, architect. Quantities supplied :—

Conder	£2,419	0	0
Ashby & Sons	2,410	0	0
Cubitt & Co.	2,312	0	0
Mansfield & Son	2,218	0	0
Timewell	2,210	0	0
Piper & Wheeler (accepted)	2,210	0	0
T'Anson	2,200	0	0

For works in Essex-road, Enfield. Mr. T. J. Hill, architect :—

Cushing	£703	0	0
Patman, Bros.	678	0	0
Fairhead	668	0	0

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All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

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NOTICE.—In consequence of the increase in the circulation of "THE BUILDER," as well as in the number of the Advertisements, it is found necessary to go to press some hours earlier than heretofore. The insertion of Advertisements in the ensuing Number will therefore not be guaranteed unless they are delivered at the Office before **THREE o'clock** *in the Afternoon of THURSDAY, instead of Five o'clock, as formerly.*

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

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Extensive Sale of Stock at Camden-terrace, Camden Town.—To Timber Merchants, Builders, Carpenters, and Others.

MR. LEREW will SELL by AUCTION, on the PREMISES as above, near the old Eagle Tavern and Railway Station, on MONDAY, MARCH 19 next, at ELEVEN for TWELVE, on account of the number of Lots, a large quantity of PLANKS, deals, and battens, dry cut stuff, flooring, skirting, match and feather-edge boards, mahogany, birch, oak, slating battens, cistern pans, chimney pots, iron pipes, zinc cowls, slates, thirsle et inch pieces, 4 doors and frames, church fittings and useful materials, &c.—Auction Offices, 2 Carlington-street, Hampstead-road.

HIGHFIELD PARK, WINCHMORE-HILL, MIDDLESEX.

MR. A. RICHARDS will SELL by AUCTION, on the PREMISES, on FRIDAY, MARCH 16th, at ONE, about 50 POPLAR TREES, 30 Sycamore, Lime, Plane, and Chestnut ditto; 50 firs, and 400 large poles; 2,000 faggots, 500 bundles of pea-sticks, and 20 stacks of top-wood.—Catalogues obtainable at the Lodge at the Entrance to the Park, and of the Auctioneer, Tottenham.

GROSVENOR-PLACE.—To Dealers in Bricks, Lead, Marble Chimney pieces, Stained Glass and Stable Fittings.

MR. GEO. HAINES will SELL by AUCTION, on the PREMISES, on MONDAY and TUESDAY, MARCH 19th and 20th, at TWELVE precisely, all the very capital BUILDING MATERIALS of two spacious Family Mansions, Nos. 23 and 24, Grosvenor-place; comprising 350,000 prime stock bricks, 20 tons of lead, superior internal fittings of the numerous bed-chambers and reception-rooms, several elegant Italian chimney-pieces of chaste design, large stained glass window of conservatory, stone and iron work, fixtures and the erections of three large stables and coach-houses. May be viewed. Catalogues had of Messrs. HAINES & SON, Auctioneers, Moorgate-street, City; and at the Auctioneer's Offices, No. 2, Lower Belgrave street, S.W.

Timber, near Sheepshead Nelson.—TO BE SOLD by AUCTION, by

COOKE & WARNER, at the BULL'S HEAD HOTEL, Loughborough, on WEDNESDAY, the 21st day of MARCH, 1866, at TWO o'clock, Twenty seven Lots of very large and superior Oak, Ash, and Elm TIMBER TREES, now standing upon lands in the occupation of Messrs. Griffin, Turner, Chester, Peet, and others.—The Duke may be viewed on application to Mr. EDWARD BEER and Mr. JOSEPH BOWLEY, Sheepshead, or to the respective Tenants. Catalogues may be had at the Bull's Head, Loughborough; of Mr. EDWARD BEER, Sheepshead; of the Auctioneers; or at the Office of Messrs. T. & R. D. MILES, Surveyors, Leicester. Dinner on the table at One o'clock. Credit on approved security.

CITY OF LONDON.—Highly important and valuable Freehold Property, occupying an area of about 7,4 superficial feet, and offering a first-class site for the erection of superior warehouses, or for a profitable and extensive building scheme.

MESSRS. NORTON, TRIST, & CO. have received instructions to offer for SALE, at the LONDON TAVERN, on FRIDAY, MARCH 16th, at ONE o'clock precisely (unless previously disposed of by private contract), a very valuable and highly important FREEHOLD PROPERTY, situate Nos. 7 and 8, Well court, Queen-street, and No. 44, Bow-lane, Cheapside, in the very heart of the City of London, and (in a few yards) in the new grand street now in the course of formation from the Mansion-house to Blackfriars, and near the new station of the South Eastern Railway in Cannon-street; comprising a range of warehouses of five floors, including basement (with cart and wagon approach in Well-court, shed and loading platform), a spacious warehouse of two floors, including capital basements paved with stone, and 8 feet to 9 feet in height, with stout girders resting on iron columns built sufficiently high to carry any superstructure, so that a great expense would be saved in any future building operation; also three excellent dwelling-houses, partly arranged as offices and warerooms. This exceedingly valuable property extends in depth about 100 feet from Well-court to Bow-lane, to which it has a frontage of about 20 feet. It occupies altogether an area of 7,0 superficial feet, and possesses capabilities for a profitable building scheme rarely to be met with in such an important locality. Possession of the whole will be given on completion of the purchase. May be viewed as a private visit by leave of Messrs. WILDE, REES, HUMPHRY, and WILDE, College-hill; at the London Tavern; and of Messrs. NORTON, TRIST, and CO. 69, Old Broad-street, Royal Exchange.

NOTTING HILL. No. 3, The Mall.—The Stock of a Wheelwright and Smith; Chestnut Mare, and Horse; useful Wagonette, Spring Van and Cart, Cab, Cart, and Van Bodies, and Miscellaneous Stock.

MR. SWAIN has received instructions from the owner, who has disposed of his business, to SELL by AUCTION, on the PREMISES, as above, on THURSDAY, the 15th of MARCH, 1866, at ONE o'clock, the above STOCK and large Quantity of Wheels, Springs, Axletrees, 2 pairs of Black-smith's Bellows, Anvils, Benches, Tools, and a number of articles in detail to the above trade. May be viewed the day prior and morning of Sale.—Catalogues had on the Premises, and of the Auctioneer the Lodge, Notting-hill, W.

UPPER TOOTING ROAD, opposite Nightingale's Livery Stables, seven minutes from Balham Station.—To Builders, Grocers, and Others.

GEORGE TODD will SELL by AUCTION, on the PREMISES as above, on TUESDAY, MARCH 20th, at TWELVE for ONE precisely, the PLANT and GENERAL STOCK of a Builder, relinquishing business: comprising a 509-brick cart, a joiner's ditto, and a night ditto, with soil pan; a one-horse stone truck, several others, and hand ditto; a summer-house, grinding-stones, carpenters' benches, blocks, rails, trestles, long and short ladders, platforms' ditto and steps, 2 sets of ropes, pulley and sheaves, wheeling-planks, York, Portland, and Robin Hood stone; head and foot tombstones, white and black slabs of marble chimney-pieces, slates, and lumber; drain lead pipes and patentees traps and pans; chimney pots, 14 sets of every description, pipes and bends, and pumps; iron hoop bond, columns, a large cistern, locks, bolts, screws, nails, general ironmongery, and the usual effects.—May be viewed on morning of Monday preceding sale, and catalogues had on the Premises, at the Wheatsheaf, Upper Tooting; and of GEORGE TODD, 8, Pancras lane, Bucklersbury, E.C.

Almost without reserve.—Small Plot of Freehold Building Land, situate in St. John's Church-road, Upper Homerton Road, Hackney.

MESSRS. DOWSETT & CHATTELL are instructed to SELL the above by AUCTION, at the GUILDHALL COFFEE HOUSE, Gresham-street, London, on FRIDAY, MARCH 16, at ONE o'clock precisely.—Particulars may be obtained of Messrs. MATTHEWS & GREETHAM, Fishmongers, Lincoln's-inn-fields; at the Guildhall Coffee-House; and of the Auctioneers, 29a, Lincoln's-inn-fields.

Portable Steam Engines and Thrashing Machines.—To Machinists, Contractors, and Others.—Chelmsford, Essex.

MR. A. DARBY has received instructions from the proprietors (who are relinquishing the occupancy of their premises and letting to engine letting) to SELL by AUCTION, in a field adjoining the Railway Embankment, near the Iron and Brass Foundry, New-street, Chelmsford (where there will be room reserved for convenience of Sale), on FRIDAY, MARCH 23rd, 1866, at TWELVE for ONE o'clock precisely, TEN PORTABLE STEAM ENGINES and SIX THRASHING MACHINES, by Clayton & Shuttleworth, and other eminent makers, from 4 to 8-horse power; a combined Mill and Chaff cutter, Dressing Machines, Drilling Packs and Cloths. The Auctioneer begs to announce that the whole of the Machinery is in good working order, and can be seen two days prior to the Sale. The Engines will have steam up during the thrashing of Sale and every facility offered for trying them, never before. Catalogues may be obtained seven days prior to Sale, at the Four Swans Hotel, 83, Bishopsgate-street Within, E.C.; of Messrs. EDDINGTON, Engineers, Chelmsford; and of the Auctioneer, Chelmsford, Essex.

City Freeholds, near to Bishopsgate Without.

MESSRS. HUMPHREYS & SON will SELL by AUCTION, on MONDAY, 19th MARCH, at TWELVE for ONE precisely, at GARRAWAYS, by order of the Executors of S. Valentine, esq., in Two Lots, valuable FREEHOLD ESTATES, containing an area of about 4,200 feet superficial, and comprising three dwelling-houses and shops, a warehouse with residence an factory and large yard, No. 3, Soule's row, and Nos. 17, 18, and 19, Widegate-street, Bishopsgate-street Without, partly let on lease and partly available for immediate occupation. May be viewed by leave of the tenants.—Particulars, with plans, to be obtained of Messrs. E. J. SYDNEY & SON, Solicitors, No. 46, Finsbury Circus, E.C.; and of the Auctioneers, 61, Leadenhall-street, E.C.

CITY.—TO PUBLIC COMPANIES, large MERCANTILE ESTABLISHMENTS, BANKERS, and OTHERS.—Important PREMISES, having a frontage of 110 feet, held of the Corporation of the City of London for a term of 80 years, at a ground rent.

MESSRS. ELLIS & SON are directed to SELL by AUCTION, at GARRAWAYS, on MONDAY, MARCH 26, at TWELVE (unless an acceptable offer be previously made by private contract) the noble RANGE of BUILDINGS, situate in Bunhill-row, Penchurch-street, opposite Mark-lane, in the immediate vicinity of the colonial markets and the Corn Exchange. They present a commanding elevation of elegant design in the Italian style of architecture, having a richly decorated Portland stone front, with a pediment and two side entrances. They have been recently erected by Messrs. Lucas Brothers, the eminent builders, are finished in them at superior and costly manner, and adapted to all the requirements of business. They consist of a spacious vaulted cellarage and first floor, second and third floors over, and at the staircase to the top, arched vaults in the basement suitable for a wine merchant having a bonded trade. They are so arranged as to be adapted for one establishment, or they may be let in portions, rendering them suitable therefore for occupation or as a safe and first-class investment, offices of such a character being eagerly sought for in this locality. Immediate possession of the whole may be had. The premises may be viewed by orders only, to be had of Messrs. ELLIS & SON, Surveyors, of whom particulars may be had of Mr. E. ELLIS, Architect, 9, Fenchurch-street; of Messrs. H. & F. CHESTER, Solicitors, 38, Newington-butts; at Garraway's; and of Messrs. ELLIS & SON, Auctioneers and Estate Agents, 45, Penchurch-street.

Valuable Oak Timber for Sale

C. P. HARDY has been instructed to SELL by AUCTION, some day in the ensuing month, of which due notice will be given, about 10,000 FEET of Prime OAK TIMBER, now growing in the Woods and Park of Rose Castle. The whole is of remarkably fine growth, the greater portion of very large dimensions, and adapted for shipbuilding, plank, board, and other purposes. Further particulars will be stated in future advertisements. Catalogues will be prepared, and further particulars may be known on application to Messrs. RAWLENCE & SQUAREY, Estate Agents, 23, Great George street, Westminster, and at Salesbury; or the Auctioneer, Mr. SMART, of Rose Castle, will show the Timber to any parties wishing to examine it before the Catalogues are issued.

24, Lowther-street, Carlisle, February 22nd, 1866.

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6, Park-street, Bristol, 3rd March, 1866.

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Clerk to the Union Assessment Committee.
Bishop's Castle, March 2nd, 1866.

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The Builder.

VOL. XXIV.—No. 1206.

Social Progress.

AN unusual amount of the time of the House of Commons has already been devoted to questions affecting the habitations of different classes of the community. Mr. T. Hughes has brought forward proposed additions to standing orders with the intent of compelling railway companies to provide new dwellings for such of the labouring population as they unhoused by the demolition necessary to provide access to the heart of the metropolis. The honourable member appeared to think it sufficient endorsement of his plan, that it had the approval of such of the authorities of the principal railways as he had consulted. A very cursory glance, however, at the reports of railway half-yearly and special meetings will show that the disposition on the part of directors to increase the capital account of their various constituencies by investments which, however good in themselves, and likely to promote traffic, are not the objects for which the money of the shareholders was subscribed, is rather the rule than the exception, and that the principal staple of the speeches that emanate from the shareholders themselves, as distinguished from the directors, consists of efforts to close or to limit the capital account. While admitting the hardship that occasionally arises, and evincing a desire to study the convenience of the working bees, that is increasingly manifest in politicians of every colour, the House came to the almost unanimous conclusion that the measure proposed by the honourable member for Lambeth was neither just nor practicable.

That the difficulty complained of by Mr. Hughes exists no one denies. In all public improvements some individuals or some classes must be sufferers. A city cannot undergo the process that is now taking place in so many of the great centres of population in England, France, and Italy, without inconvenience to the occupiers of those smaller houses that are pulled down to make room for larger dwellings. But not only has no case been made out for legislative action in a direction contrary to the general principles that regulate supply and demand, but the conversion of a railway company into a building society, or into the projectors and owners of a great stack of lodging-houses, does not seem to be a step so fully in the interest of the labouring tenants as the honourable member would imply.

Later in the same sitting the House returned to the consideration of the subject of healthy dwelling-places on Sir Robert Peel's motion for enforcing the consumption of smoke. Members appeared to hear with surprise that the consumption of smoke is a measure not only of cleanliness and of health, but of economy; that by the use of Jukes's apparatus the object was easily attained; that 20 per cent. and upwards of all the coal used in our manufactories is wasted in the obnoxious form of smoke; that the existing laws only require to be applied, and not to be amended; and finally, that that admitted nuisance, the common informer, was the best practical remedy for the greater nuisance of the smoky furnace. Leicester, we are told by Sir Morton Peto, while surrounded by manufactories, is subject to a sort of Maine Law of its own adoption against smoke, and flowers are to be found blooming in the very heart of the town.

It was hardly sufficiently pointed out that, after all, smoke is free from being the most prejudicial of the gaseous products of combustion; and that it is in the open-fire system, so universal in our dwelling-houses, that the greatest amount of unprofitable burning of our most valuable mineral, our measured store of which is now disappearing at the rate of a hundred millions of tons per annum, and the greatest consequent pollution of the atmosphere, take place.

Closely allied to the question of providing abodes for the labouring classes, and of making city life more healthy and more tolerable for all those to whom it is necessary, must be ranked the encouraging facts called to light by the returns brought forward by Government in connexion with (it cannot be said as the foundation of) their Reform Bill. It has been left to the present century to learn the value of the accurate collection of facts. From large and truthful premises, whatever be the object with which they may be collected, inductions may often be drawn that are not the less valuable because they are unexpected. Thus, from these returns, ordered and made, we may say, with an exclusively political, if not party, object, emerges the great and encouraging fact of the steady improvement of the material welfare of the population. While Whig and Tory, or the men of those unnamed political shades that have succeeded to our traditional Government by party, are disputing as to the limit of the franchise, the franchise has been steadily lowering itself, or, rather, the labouring and trading classes, by the steady pursuit of industry, and by the exercise of those Saxon virtues that have been defined as the fear of the constable, have been steadily raising themselves so as to pass the boundary set in the first Reform Bill as that of the right to vote. Revolution is a word that is usually read by the lurid light of the burning of the Bastile; but it must not be forgotten that revolution is a word of extensive meaning. It expresses changes as gradual and as necessary as are those of the planets in their orbits; or it expresses sudden, violent, and frantic change. A steady determination to resist the first kind of revolution has been found, for the last 2,000 years, to be the surest means of producing the second. The greater the facility with which the varying and constantly increasing requirements of social life are met, the greater the aptitude with which the instincts of mankind are involved to adapt daily habit to changing phases of knowledge and of thought, the greater is the stability of the State. It is thus in acknowledging and endeavouring to understand the slow and placid march of that great English revolution in the midst of which our lot is cast, that we shall find the best assurance that its purposes shall neither be blindly checked nor blindly hurried on. In the opinion of many, perhaps in the just and enlightened opinion of those best competent to judge, it may be that the present phase of society, and those future phases towards which English social life is visibly tending, are not those best suited for the development either of the highest faculties of the few, or of the greatest welfare of the many. But be that as it may, no man of intelligence can expect to reverse the march of human thought. The whole of our recent legislation, so far as that legislation has any *ensemble*, or is other than fragmentary, points in one direction. The welfare, the opinion, the power of the many are set forth by every political orator as the great objects to be studied. Certainly the greatest happiness of the greatest number of human beings is a noble object of pursuit, whether the means by which it is attempted to be secured are well or ill judged. It must therefore be cause of gratulation to every well-informed and well-meaning man, when he finds such improvements taking place in the condition of those classes that form the broad basis of the pyramid of English society as are safe because they are spontaneous; changes that bring permanent good, because they emanate not from patching the law, but from the order, industry, and intelligence of the community; changes that do not resemble the rebuilding of an old house, but the fresh and vigorous growth of an ancient and stately tree.

From the day that the elastic power of the vapour of water was first successfully employed as a motive, and more especially as a locomotive power, it became clear to those who sought to trace the influence of this new aid to labour on the future history of man, that the relations of the race to their terrestrial abode would be strikingly modified. Human life, in fact, was extended, as much as human power was increased, by the command given over the means of transport. Not only were mechanical problems, before insoluble, such as the erection of our great viaducts, rendered possible by the invention of Watt, but distance itself was annihilated by a series of mechanical improvements that place Bombay as near to London now as Edinburgh was in the reign of Edward I.

The steps by which this great change in man's physical position on earth takes place could not be foretold with as much distinctness as could be claimed for the prediction that mighty change was imminent. The good heart and fine instinct of Robert Stephenson pointed to one of them when he said he hoped to see the time when *no poor man could afford to walk* to his daily task. The great engineer, like so many others of his contemporaries, himself laboured too hard in the service of his fellows to live to see his hope fulfilled. But questions like those debated on Friday night in the House of Commons point to the good time fore-shadowed by Stephenson. They point to a period in our social history, we hope not far distant, when no poor man shall afford to live in squalor and in pollution; when a nation that can palace its legislators in such edifices as that reared by Barry at Westminster, shall no longer hide and destroy its workers in rookeries and in fever beds; when it shall be understood that a human being of twenty-five or thirty years of age is a valuable and costly product, and that it concerns those who wish well to the state to watch that this valuable product be not rashly lost to the community by the neglect of causes over which the community can watch; when the labourer shall be well housed, well clothed, well fed, well carried to and from his scene of daily toil; and that with the more certitude and the more success when, by a wise and large development of principles already in practical and local operation, the labouring Englishman shall bring his shrewd sense, his indomitable industry, and his means of acquiring the best scientific guidance to bear on the practical solution of the great question, how best to house, feed, clothe, and convey *himself*.

THE MARKET-CROSSES OF SCOTLAND.

IT is now five or six years since a proposal was made, and seriously entertained, to restore the ancient market-cross of Edinburgh. The suggestion came, we believe, from Mr. William Chambers, the recently-elected Lord Provost of the Scottish capital, and a few other gentlemen who acted with him in the matter. Mr. Chambers, as our readers are aware, has worthily inaugurated his provostship by a plan for the sanitary improvement of the most wretched and ill-conditioned streets and closes in the Old Town of Edinburgh; and those who know what

the long closes in the historical High-street of Auld Reekie are like, will readily acknowledge the desirability of, not to say the urgent necessity for, Provost Chambers's scheme. A zealous social reformer, Mr. Chambers is likewise an ardent antiquary, with a particular admiration of old market-crosses, and no good opinion of those stupid Scotch bailies and town-councillors who have in so many instances ruthlessly demolished them. He has more than once advocated the sacredness of these interesting memorials of bygone days; and it is well known that the restoration of the cross of Edinburgh has long been a strong wish with him. We shall have occasion, in the course of our remarks, to say a word on the market-cross of Mr. Chambers's native town of Peebles, and his restoration of that interesting object. There is little doubt we owe it to the fact that Mr. Chambers has been elected chief magistrate of Edinburgh that a beginning has at length been made to restore its ancient cross. As was announced in the *Builder* of the 24th of February,—"The work of restoring the old city cross, in the space within the railing on the north side of St. Giles's Cathedral, is now in progress." The fact seems to offer a fitting opportunity to say something about this cross, as well as about some other Scottish crosses whose history and fate are not devoid of interest.

In Scotland, as in England, nearly every town in the olden time had its market-cross; the cross always occupied the centre or leading thoroughfare of the town, and was imposing as an architectural structure, in proportion to the taste, size, and importance of the place. Crosses, it is almost needless to say, partake of many different forms, and are set apart to mark a variety of objects. Mr. Fosbrooke enumerates no fewer than ten different kinds of crosses, viz.:—1. Preaching; 2. Market; 3. Weeping; 4. Street; 5. Memorial; 6. Landmark; 7. Sepulchral; 8. Highway; 9. Entrance to churches; 10. Attestation of peace. Confining ourselves to market crosses, we find that in Scotland these are at least of two designs; first, there is the cross consisting of a stone shaft springing from a circular or octagonal flight of steps, as in the case of the cross at Melrose; and, secondly, there is the cross formed of an octagonal or hexagonal building, 10 ft. or 12 ft. high, and less or more ornamented, having a platform roof, from which springs a shaft, the platform being reached by an inside stair. The cross at Aberdeen is a beautiful example of this style, which is generally believed to have been the style of all earlier crosses in places of any importance. Such was the form of the old Edinburgh Cross. There have been two market-crosses in Edinburgh. Of the older cross, unfortunately no description has been handed down to us; but that it was an elegant and imposing erection in the old Scottish style of architecture there is every reason to believe. It stood in the centre of the High-street, and was taken down in 1617, to give greater effect to the royal procession of James VI., on his first visit to Scotland after his accession to the English crown. The king had been absent from his Scottish subjects for fourteen years, and they had begun to fear that he was never coming back; their delight, therefore, at his Majesty's return knew no bounds. The magistrates, in particular, were overflowing with loyalty, and the better to kick up their heels for joy, they were indiscreet enough to order the removal of the cross, which, as they thought, stood in the way. What a host of historical associations cling round this ancient relic—of what memorable events it was the scene! It was for ages the place where all royal proclamations were made, the rendezvous of traders and commercial men, the rallying point of popular assemblies, the focus of civic merry-makings, and the principal place for executions. Before the art of printing was known, says the historian, the Edinburgh cross was in existence, and Acts of Parliament were here read out to the people. It was at this cross, in 1437, that the assassins of the amiable and accomplished James I. were executed. There John Knox was burnt in effigy, on the occasion of his hasty flight to the Continent in 1556. Five years later, when Mary Queen of Scots arrived from France, we are told that "the stone spouts of the cross ran with wine." It was here, too, in 1573, that Sir William Kirkaldy, the famous laird of Grange, and one of the best and most accomplished cavaliers of his time, was executed. His brother was executed along with him. At this cross Earl Bothwell, the unscrupulous husband of the unfortunate Mary Stuart, was proclaimed a traitor in 1593. At this cross, moreover, a singularly interesting ceremony took place in 1600. When the news of the failure of the Gowrie conspiracy reached Edinburgh, the cross was hung with tapestry, the whole city, headed by the magistrates and judges went and met the king on the sands of Leith, and from thence he rode in triumph, amid an immense concourse of all classes of his subjects to the cross: there Mr. Patrick Galloway "made ane sermon upon the 124th Psalm; he declared the haill circumstance of the treason proposed by the Earl of Gowrie and his brother, whilk the king testified by his own mouth, sitting on the cross all the time of the sermon." This sermon, says Tytler, still remains an extraordinary specimen of the pulpit eloquence of the times.

Immediately after the demolition of this venerable memorial in 1617, the foundation of a new cross was laid a few yards southwards of the former site. It would seem that the shaft or pillar of the old cross was preserved, and, placed on a new octagon building, formed the new one. The structure is believed to have been an inferior piece of architecture to the original cross. It is thus described by Hugo Arnot in his "History of Edinburgh:"—

"The Cross of Edinburgh was an ancient structure of mixed architecture, partly Grecian, partly Gothic. The building was an octagon, of 16 ft. diameter, and about 15 ft. high, besides the pillar in the centre. At each angle there was an Ionic pillar, from the top of which a species of Gothic bastion projected; and between the columns there were modern arches. Upon the top of the arch fronting the Netherbow, the town's arms were cut in the shape of a medallion, in rude workmanship. Over the other arches, heads, also cut in the shape of a medallion, were placed. These appeared to have been of much older workmanship than the town's arms, or any other part of the cross. The heads were in alto-relievo, of good engraving; but the Gothic barbarity of the figures themselves bore the appearance of the Lower Empire. One of the heads was armed with a casque; another with a wreath, resembling a turban; a third had the hair turned upwards from the roots towards the occiput, whence the ends of the hair stood out like points. This figure had over its left shoulder a twisted staff, probably intended for a sceptre. The fourth was the head of a woman, with some folds of linen carelessly wrapped round it. The entry to this building was by a door fronting the Netherbow, which gave access to a stair in the inside leading to a platform on the top of the building. From the platform rose a column, consisting of one stone, upwards of 20 ft. high, and of 18 in. diameter, spangled with thistles, and adorned with a Corinthian capital, upon the top of which was a unicorn."

The cross was duly inaugurated. Says an old historian, "The magistrates danced about the cross, with sound of trumpets and other instruments, throwed glasses of wine from the cross upon the people, and ended with the king's health." For nearly a century and a half this structure, like its predecessor, was identified with many stirring events. The great Montrose, "The Napoleon of Scotland," was hanged and quartered here, May 20, 1650. At the restoration of monarchy, in 1660, the spouts of the cross, according to the old usage, ran with wine. In 1661, the Marquis of Argyll was beheaded by the *maiden* here; and his son, the Earl of Argyll, met with the same fate in 1685. But we need not add to the list. In the year 1756, a taste for fine art evidently not being included among the corporate gifts of the Edinburgh magistrates, the cross was ordered to be removed on the plea that it was an encumbrance to the street. The work of destruction was accordingly carried into effect, and a radiated pavement is all that marks the spot where the famous fabric stood. The reader will remember the passage in "Marmion" in which Sir Walter Scott so bitterly laments the fate of Dun-Edin's Cross:—

> "Dun-Edin's Cross, a pillar'd stone,
> Rose on a turret octagon;
> But now is razed that monument,
> Whence royal edict rang,
> And voice of Scotland's law was sent
> In glorious trumpet clang.
> Oh! be his tomb as lead to lead
> Upon its dull destroyer's head!—
> A minstrel's malison is said."

Happily the blunder committed by the barbaric civic dignitaries of the eighteenth century is being repaired, as far as it is possible to repair it, by their more enlightened successors of 1866; and there will be somewhat less cause at least to regret the loss of Edina's Cross a short time hence than there has been. On the removal of the cross, as we learn from Chambers's "Gazetteer," the four sculptured stones described by Arnot were secured by an eccentric gentleman, Mr. Walter Ross, a writer to the Signet, and built into a kind of tower which he erected near his house at Stockbridge, of stones procured from various old buildings, and which was long known by the name of Ross's Folly. On the destruction of this tower about forty years ago, these stones came into the possession of Sir Walter Scott, and are now, or were some time ago, preserved at Abbotsford. The shaft, which unfortunately was broken in the act of being taken down, was transferred to Drum, the seat of Mr. Innes, of Stow, about four miles south of Edinburgh. Arnot would seem to have been somewhat in error in his description of the cross. Mr. Cousin, the city architect of Edinburgh, some time ago examined the column at Drum, and in his report he said:—

"The shaft, 13 ft. 11 in. high, exclusive of the capital, is in five separate pieces, held together by iron clasps sunk into the face of the stone, and octagonal in form, 17½ inches in diameter, quite plain throughout its entire length, though described by Arnot as 'spangled with thistles.' It is surmounted by a Gothic capital of the Perpendicular period (not 'Corinthian,' as stated by Arnot), having the usual neck moulding—bell and abacus—the latter surmounted by the embattled cope. The capital is a good deal weather-worn and decayed, the embattled cope being much so, and portions of the foliage on two faces of the octagon have been defaced by causes obviously other than the ordinary effects of time and weather. The carvings of the capital consist, on the lower portion, of dragons, eight in number, surmounting the neck of the bell, their heads and tails intertwining where they meet; the upper portion consists of foliage projecting rather freely beyond the contour of the bell, characteristic, but not in a high style of art, nor in good taste."

Mr. Cousin assigns the date of the work to the latter end of the fourteenth, or beginning of the fifteenth century, remarking, that it is unquestionably of a greatly earlier period than the main body of the building, which, as we have shown, dates from the early part of the seventeenth century. In an address issued by Mr. William Chambers in 1861, on the subject of the restoration of the Edinburgh Cross, he stated that this shaft had been generously gifted to the town in aid of the object in view, and we understand that it is intended to incorporate this fragment in the new erection. Speaking on behalf of himself and his coadjutors, Mr. Chambers said, "In the restoration, we should abide by the outline and dimensions of the cross removed in 1756; for, as far as these leading features are concerned, there could be no improvement. Our object, in fact, is to restore the old cross in form and character, as nearly as that can be done; and only adopt a purer and more elegant style of art in the lower part of the structure. In this, however, as well as regards heraldic devices, every possible care will be taken in adopting plans, and deciding on details. As is well known, the cross removed in 1756, was an octagon of about 16 ft. across, which we expect will be our measurement, and afford platform accommodation to from thirty to forty persons." The estimated cost of restoration is about 1,200*l.*, and the greater part, if not the whole sum has been subscribed. When completed, the new cross will be alike an object of historical interest, an appropriate symbol of municipal dignity, and a pleasing addition to the architectural features of "mine own romantic town." Let the restored cross be inaugurated with all the ceremony and *éclat* befitting so important an object; and may it be long before any unhallowed hands dare to disturb it!

It may be mentioned, that besides *the* Cross of Edinburgh, there was at one time a cross in the Canongate, opposite to St. John-street, called St. John's Cross; another in front of the Canongate Church; and a third, called the Girth Cross, from its being the boundary of the sanctuary for prisoners at Holyrood. It would be interesting to know what became of these several memorials.

We come to the Cross of Aberdeen, of which all Aberdonians are so proud. And not without reason, for their cross is at this moment by far the finest thing of the kind in Scotland. A writer in the "Encyclopædia Britannica," speaks of it as "a singularly beautiful erection." The author of the "Book of Bon Accord," says, "Though the structure cannot be compared with some of the magnificent market-crosses of England, it certainly surpasses every building of the same description in Scotland;" and Chambers remarks, that it "cannot be too highly admired, whether as an architectural object or an antiquarian wonder." It is true that one historian of the granite city gives it as his opinion that "this erection is neither useful nor ornamental." But this worthy has been called "the leaden-headed Walter Thom," and he is plainly out of court in matters of taste. Not ornamental! As

well might it be said that there is no colour in the rainbow, or no form in the Venus di Medicis. The Aberdeen Cross has the additional merit of being the work of native talent. It was designed and executed by Mr. John Montgomery, of Old Rayne, in 1686, at a cost of 100*l.* sterling. The structure is of sandstone, of mixed architecture, and hexagonal in form. It is considerably larger than the Edinburgh Cross, already described, being 21 ft. in diameter, and 18 ft. in height. At each angle of the hexagon is an Ionic column, with arches between, surmounted by a rich frieze architrave and cornice, and by a parapet or balustrade divided into twelve panels or compartments. The centre panel looking eastwards contains the armorial bearings of the burgh, namely, *gules*, three towers triple-towered, with a double tressure, flowered and counter-flowered, *argent*. The supporters are two leopards, and the motto is "Bon Accord." Towards the south, in succession, are quarter-length effigies in stone of James I., II., III., IV., and V.; the north side being decorated with portraits of Mary, James VI., Charles I. and II., and James VII.—in whose reign the building was completed. These figures are cut in high relief, and each panel is framed by an oval-shaped wreath. Projecting from the angles of the frieze are heads of bears and dogs, which serve to carry off the rain from the roof. The pillar which springs from the centre of the hexagon is a graceful column of one stone, about 13 ft. high, wreathed with thistles, and crowned by a Corinthian capital, on which is placed a unicorn of white marble, bearing on its breast a shield charged with the Lion of Scotland. The balustrade encloses a platform whence proclamations were wont to be made. Originally, the cross stood in front of the Tolbooth, and at the east end of an elevated pavement called "the Plainstanes," now removed. Formerly, too, the interior of the building was divided into four chambers which were occupied as hucksters' shops. But "the walls having fallen into decay, in 1821 orders were given for their repair, but they were found to be so ruinous that it was deemed necessary to take them down. This was effected without hurt to any part, except the large pillar, which, in spite of every precaution, was unfortunately broken. In the column which supported the roof, there was found a circular tank of hewn stone, with a feeding and discharging pipe of lead, which had been constructed, probably, for those great occasions when the throats of the bears and dogs were made to vomit wine for the gratification of the populace. The effigies and other ornaments having been carefully cleaned, the edifice was rebuilt; the fractured column was replaced in its position, and secured by an iron bolt, so that the injury which it received is scarcely visible." Subsequently to 1821, the cross served as the post-office—the Aberdonians were not then receiving 50,000 letters weekly. However, on its removal to its present and more convenient site in 1842, the arches were left open as they now appear. But there was an earlier cross in the "brave burgh" than this one. As in the case of the first Edinburgh Cross, however, very little is known concerning it. It was taken down in 1685, the year anterior to the erection of the existing structure, but the date of its foundation cannot be ascertained. It is said to have supported a platform, and we further learn from William Orem, Town Clerk of Aberdeen, who published an account of the burgh in 1728, that "there was engraven and cut out of stone at the top of this cross, on the south and north sides thereof, the picture of the blessed Virgin Mary, which was defaced at the Reformation; and below were the armorial coats of arms of the Kings of Scotland (they were effaced during the usurpation of Cromwell, but restored at the re-establishment of the monarchy). The crucifix on said cross was cut down in the time of the last troubles, anno 1640." At this period the town was held by the Covenanters, and it was not to be expected that they would tolerate so hateful a symbol as a crucifix. Although not possessing the same interest, historically, as the Cross of Edinburgh, the Aberdeen Cross is associated with many noteworthy events. It was long the appointed place for the punishment of evil doers, and certainly the Aberdeen magistrates cannot be accused of sparing the rod. The severity with which crimes were punished in the fifteenth, sixteenth, and seventeenth centuries in this country, seems monstrous and incredible to us living in the nineteenth century. From among the numerous entries in the council records of Aberdeen we select the following:—In 1588, two persons, convicted of adultery, were sentenced to be bound and exposed at the cross for the space of three hours; thereafter to be instantly "burnt with ane het iron on the cheikis," and to be banished for ever from the burgh. A female, guilty of the same crime in 1640, was ordained to be scourged at the cross, to be drawn in a cart through the streets, bearing a paper crown on her head, the bellman going before, and proclaiming her banishment from the city. On gala days and public festive occasions, very different scenes took place at the cross. The building was then hung with tapestry and banners, wine flowed abundantly from the mouths of the dogs and bears, the glasses in which the sovereign's health had been pledged were shivered, sweetmeats were cast among the populace, and the city resounded with the clang of trumpets and the discharge of fire-arms. Such was the nature of the rejoicings when Margaret, queen of James IV., visited the city in 1511; at the Restoration of Charles II., and on many other occasions. From this cross, in 1644, during the fierce wars of the Covenant, the Marquis of Argyll proclaimed a reward of 20,000*l.* to the person who should bring him the body of the great Montrose dead or alive. Montrose, it has been seen, was executed at the Edinburgh Cross six years, and his mortal enemy, Argyll, seventeen years afterwards. The author of the "Book of Bon Accord," quoting apother town clerk of Aberdeen—the quaint gossip Spalding, from whom the well-known Spalding Club takes its name—narrates a strange affair that took place at the cross, in the year 1640, the town being then in possession of the Covenanters. A quarrel having occurred among some gentlemen who were escorting the Earl Marischal, governor of the city, towards Dunottar, the young laird of Tolquhoun was wounded in the head by George Lesly. His lordship instantly disarmed the culprit, and on the next day sent him in irons to Aberdeen, commanding the Provost to strike off his right hand for his breach of military discipline. The chief magistrate seems to have declined the execution of this order, and the Marischal proceeded to enforce it on his own authority. A small scaffold was erected at the cross, the axe and block were made ready, and a fire was kindled to heat the instrument for searing the severed stump. Lesly was then conducted from the Tolbooth, and descending the stair, amidst the lamentations of the crowd, laid his arm upon the block. The executioner prepared to give the stroke, when the Master of Forbes stepped forward, and taking Lesly by the hand, freely pardoned him, to the great joy of the people. The earl, adds Spalding, "did this for satisfying of young Tolquhoun; he had never mind to take the gentleman's hand, who was his own tenant, but only made a show, whereof, doubtless, the gentleman had certainly known, otherwise he would not have gone without more trouble." In more recent times (1763), a tragic event occurred at the present cross. At a convivial meeting in the New Inn—the hostel where Dr. Johnson put up, and which occupied the site of the present North of Scotland Bank, in Castle-street—two Aberdeenshire lairds, Leith, of Leithhall, and Abernethy, of Mayen, having quarrelled, retired to the cross to settle the dispute after the approved fashion of the time, by duel. The result was that Leith was shot dead, and his opponent, who was slightly wounded, fled to the Continent. On this cross have been proclaimed William and Mary, Anne, the four Georges, William IV., and Queen Victoria. The Chevalier St. George had the honour of being *twice* proclaimed under the title of James VIII., in 1715, and here also his unfortunate son, Prince Charles Stuart, was hailed king in 1745. The Jacobite cause found many of its warmest supporters, and ablest champions, among the canny Aberdonians; and "Bonny Prince Charlie," and Flora Macdonald, will long remain household words in the north of Scotland.

The market-cross of the fair city of Perth must have been a structure of considerable architectural pretensions. Alas! that we should have to speak of it in the past; but so it is. The Perth magistrates, gifted with no more taste than the generality of Scottish municipal corporations of a former generation, came to regard their cross as a sort of nuisance, and it was carted away as so much rubbish. The site of the cross was in the middle of the High-street, between the Kirkgate and the Skinnergate. The date of its erection has not been preserved; but, in the Session Records for 1578, there is the following reference to the cross:—"The Assembly requests the bailies to clear the cross, that the door may open and steik; and that they get a lock and key to the door; and, likewise, the Master of the Hospital to buy three locks for the three irons (jugs) where delinquents do penance at the cross." In 1652 it was demolished, and its material applied to the erection of a citadel by Cromwell, who, having turned cathedrals into stables was not likely to show more mercy to market-crosses, if his end could be served by their destruction. In 1668, after the Restoration, the town council contracted with Mr. Mylne, of Balforgie, "the King's Master Mason," to rebuild the cross, "and to make it as elegant as any in Scotland, for 200*l.*" They also wrote to the Lord Lyon for a licence to Charles Wilson to gild it with the royal arms and those of the town. In the following year the building was finished. It is described as being 12 ft. high, with a flight of steps within leading to a spacious terrace above. On the 29th of May, 1669, being the anniversary of the Restoration, the treasurer was appointed to cover the "terrass" of the cross with a carpet, and to prepare glasses and two gallons (Scots) of French wine, to be run out of the mouths of the lions, bears, and griffins, and other heads with which the cross was ornamented. The cross remained unmolested until 1765. In that year, however, the "worthy bailies" took it into their tasteless heads that the sacred relic was an obstruction to the street, and they condemned it accordingly. Its sad fate is soon told. Shortly afterwards the cross was put up at public auction, and knocked down (literally) for 5*l.* to a mason, who was the highest bidder! He immediately took down the cross and carried off the stones. Who was this purchaser,—and are the stones past recovery? The question, we think, is not an irrelevant one, now that there are indications of a movement in Scotland, as well as in England, for the restoration of market and memorial crosses. More hereafter.

RESPONSIBILITY *versus* EFFICIENCY.

WANTED, A MARKET FOR INDIA.

AN invitation which has recently appeared in our advertising columns, calling on architects to send in competitive designs for a market to be erected at Bombay, asks for more grave and serious consideration than so simple an announcement would at first appear to be calculated to call forth.

We are not about to re-open the vexed question of the propriety of a response to such invitations on the part of architects. The members of that profession possess more than ordinary consultative facilities, and, if they come to the conclusion that competitive production of designs entails a heavy tax on those who are the least able to bear it, and that character is sacrificed to chance, they have the means of common action on the subject. If, on the other hand, there be those who feel that a road, however precarious and expensive, may thus be opened to unfriended talent, we would be far from wishing to stand in the way of even the merest chance of success for the youthful practitioner. Again, we are not about to enforce any unasked advice on those who may consider it prudent to trust to chance rather than to established reputation, and to follow a course as to the erection of their dwellings that they would never dream of with reference to the conduct of a law-suit, or the removal of a malady. So long as architects, and those who employ them, are content to stand on a footing known in no other profession, it is not for us to interfere between them, even if our private opinion should be adverse.

But the case to which we have alluded involves a particular question. In our national character we claim a prescriptive privilege to blunder to a certain extent. We have, if we do not deceive ourselves in our glances at our neighbours, got on pretty well notwithstanding; but it can hardly be denied that we not unfrequently show ourselves to be true descendants of a race that were ruled by Ethelred the Unready. It may be that a certain amount of embarrassment, or even a certain quantity of drubbing, is necessary to heat the English genius to that temperature at which it works with the greatest facility, and that when some of our neighbours are beaten we are but beginning our work. Which of our great public enterprises has not passed through its phase of difficulty, if not of disaster?

But while we are pretty well accustomed to

this kind of thing at home, and finally triumph over, if not through, our earlier blunders, the case is widely different when the scene of our tentative practice is laid at thousands of miles' distance, in the colonies or in India. In the face of a population of other blood and other manners than our own, of people who believe in success, and over whom our hold is rather a moral than a physical one, we cannot afford to blunder. The steady and uninterrupted conduct of Indian or colonial enterprise is necessary to keep up a prestige that has been but too rudely shaken in opposite portions of her Majesty's dominions; and however great our wealth, and undaunted our pluck, it is more on our prestige than on either of the before-named qualities that a foreign empire over a sixth of the human race must mainly depend.

Now, in calling for a competition for public works, to be executed under the peculiar and exceptional conditions that attend the climate and the population of Bombay, from professional men, in no way specially qualified by their local knowledge to meet the difficulties of the case, either injustice is done to the competitors, or the seeds of ill success are carefully sown. Those architects who, in obedience to the invitation in question, have written for particulars, have received a paper of instructions admirably drawn up so as to supplement local knowledge, but of course insufficient to replace it, and a plan which, from the misplacement of the north point, would involve every one who goes to work upon it in utter waste of time; while the ratio between the sum estimated for the work and the area to be covered is altogether inadequate to our European experience, to say nothing of the greatly-increased cost of such buildings in India.

Now those of us who have any experience of the two very distinct sources of difficulty that attend the construction of iron building in India, that is to say the due provision for the exigencies of a climate so unlike our own, and the fact that the operations have to be completed at the distance of a four months' voyage from the spot where they are commenced and to a great extent carried out, will agree, that it is only by adopting one of two methods that any rational expectation of success can be entertained. Either the work must be placed in the hands of a responsible contractor, of Indian experience, who will become materially responsible for its completion within the time and on the terms agreed on, or professional responsibility of an unusual kind must be incurred in order to avoid those causes of certain delay that will arise from the countless details of a work paid for and shipped in England, but for the erection of which the shippers are not themselves liable. It is hard enough for those who are preparing for their own work, and who have every inducement to care for those preparatory details on which, at the last moment, so much depends, to avoid errors and omissions in the sending from the manufactory of ironwork intended for erection in this country. Put the moment of detection of error off for four months, and how vastly is the immunity for a slight carelessness increased; how much more likely is its occurrence, and what are the results? One lost or mis-directed package, containing, it may be, a large number of small castings for one peculiar and often-repeated portion of the building, might prevent the roofing in, or the completion of a gable, till the setting in of the monsoon; that is to say, until the occurrence of weather that would be pretty sure to make a clean sweep of a large unfinished building.

Personal responsibility, therefore, whether materially, on the part of the contractor, or professionally, on the part of the engineer who has the iron-work shipped in this country in a state fit for instant and perfect service in India, supposing the further responsibility of the erection to be taken by the engineer on the spot, is absolutely necessary to prevent disastrous failure in the attempt to erect large iron buildings in that country. And it is hardly necessary to add that such responsibility is not likely to be forthcoming in reply to an advertisement for competitive designs.

That public officers should have adopted this course is not surprising. It may have been prompted in a great measure by the desire of the officers in question to keep their hands perfectly clear of any suspicion of a job, of favour, or of partiality, and, above all things, to avoid responsibility. The nervous morbid dread of responsibility that characterises our civil as well as our military services, has attained such intensity as to be really a national misfortune. How much of the earlier mishaps in the Crimea may be traced to this source? Nor have recent and well-known events tended to diminish the evil. Rather, it is to be feared, will they increase it ten-fold.

An Englishman in trouble abroad may often be heard to wish that he were, for the moment at least, a Frenchman or an American. In that case, the vivid national feeling of the diplomatic or consular agent to whom he applies for support is at once enlisted in his favour. While the English official, who may be, and often is, personally, the kindest and ablest of men, fit to deal with the case, and really desirous of doing so, is so hampered by fear of official responsibility that time goes by until wrong becomes irremediable. The Frenchman or the American, conscious that even an excess of duty in defence of the National Flag and of those who take shelter under it will meet with full sympathy at home, attacks the difficulty with promptitude, and usually with success.

It is not that in all cases we would hold up the prompt and self-reliant action of other national representatives for the exact imitation of our own. Extremes are to be avoided, but the extreme which leads a brave and able man to become a cypher in nine out of ten of the cases to which he is appointed to attend, from dread of responsibility, is one which is very fatal at all events to private interests, and has done, and is daily doing, very much to diminish the due influence of Great Britain abroad.

The extent to which brave and able men may be cowed by this fear of responsibility will hardly be credited by those who are not familiar with the circumstances under which the mischievous influence has full play. An instance may be cited that can never be forgotten by those who happened to witness its occurrence. Nearly twenty years ago, a serious and fatal accident occurred on a newly opened line of railway. A girder bridge, of what was then considered wide span, broke down with a passenger train, and precipitated the carriages into the river across which it was intended to carry them. An inquest was held near the spot, and the chief interest of the inquiry centred in the evidence of the eminent engineer of the line, and of the Government inspector, who had recently reported that it was fit for traffic. The engineer, though pallid, and evidently suffering great anxiety, was fully equal to the situation. The legal adviser of the company, instead of taking up the unassailable position that science had effected all that her experience allowed, and that a wider and, in this instance, an unhappy experience showed that the rules hitherto followed by the ablest men of the profession required revision when applied to cases of exceptional magnitude, took the course of attempting to show that the accident ought not to have occurred. In fact, the case which he made out, as he was afterwards told, needed only one additional witness to make it triumph, namely, the witness who should have proved that the bridge did *not* break. Still, under examination and cross-examination, and placed in a position so far from being his own choice, the civil engineer held his own. But the case was very different with regard to the military official of the Government. Personally this officer was brave to absolute fearlessness. It was told of him that on one occasion he was wounded by a bayonet, while engaged in marking out a trench, and that he turned and killed his assailant with the spade which he had in his hand. On another occasion, while in a diving-bell with an engineer officer, the tackle got out of order, the signals became useless, and the water rose, slowly and steadily to the knees, to the waist, to the breast, when the bell was happily raised without this officer having betrayed, by look, by tone, or by suspension of conversation, the least symptom that anything unusual was taking place. And yet this brave man, under dread of answering the question of how he came to consider a bridge to be safe that so soon broke down, trembled like a school-girl, and could hardly articulate his carefully conned speech to the coroner. So true is it that the due acceptance of responsibility requires a rare and peculiar description of courage.

It is courage of this kind that is needed for the fit discharge of the duties of those to whom is intrusted the conduct of important and novel works in our colonial possessions. It is not by the opening the door to every caller, and by reliance on the chapter of accidents, provided only that the onus of choice is shifted from their shoulders, that such duty can be performed. A degree of sound practical sense, and of the application to public life of the principles that regulate private action, is more necessary than the morbid thinness of skin that will sacrifice the service rather than run the risk of being called on for an explanation. For a difficult and important piece of business of his own, any man in his senses selects the person that, in his own experience, or as far as his information goes, he believes to be the most reliable of whom he can avail himself. To him, after due consultation and with proper caution, he will commit the task. Thus treated and encouraged, the skill and enterprise known to exist amongst us will succeed as surely in Calcutta or in Bombay as in Hyde Park or in Sydenham. But let Indian officers attempt to deal with such matters as if they were as simple as the erection of a third-class railway station in the heart of an iron district, and delay, expense, and misfortune will be the inevitable results.

BUILDINGS IN THE CITY OF REIMS.

THE city of Reims may be compared with London in the fortune that has assigned to it a cathedral, unrivalled like St. Paul's for grandeur of exterior architecture, and an Abbey church, St. Remi, that, like Westminster Abbey, is in some most important respects unrivalled for the proportions of its interior. That supreme effect both of interior and of exterior should be united in the same great building is a coincidence the world has yet to wait for. Even as regards the Greek buildings—the Parthenon, for instance,—we are still at a loss, and likely to be, to conjecture how the architect vindicated in the design of the interior the nobleness of style that we can still in the midst of ruin appreciate without. The architects of old, who so readily admitted that the human body was the archetype of all perfect architecture, would, no doubt, have allowed in virtue of the necessary analogy,—that the perfection of interior and exterior are perfectly compatible,—that the best excellence of one in no way necessitates the sacrifice of the other; nay, that he could not be a really accomplished architect who should fail to harmonize the two; just as the Platonic Socrates laid it down as an axiom, to be approved in the case of Shakspeare ages afterwards, that to be a perfect comic poet implied of necessity the capacity of tragic inspiration also.

At Reims, however, the divorce of the two systems is accidental; and there is this curious parallelism of the two instances, that the lauded sections of the architecture of both cathedral and church, are secondary to the foundation, and superinduced upon older work.

St. Remi is a round-arched church, which, by modified details and new vaulting, has been turned into an interior of general Pointed character; and of the nobleness ascribed. The Cathedral of Notre Dame, of Reims, in its main extent, is a homogeneous structure, that belongs, both in time and style, to the noble group of Amiens, Paris, and Beauvais, but with most approximation to the cathedral of Paris. The much-renowned portail and the general decorative features of the façade, to say nothing of the flanks, are of later date,—are applied, wondrously articulated, no doubt, but still applied and put on, as much as the porch at Peterborough is set upon a Norman nave and aisles behind it.

As regards the interior of Reims, then, I confess that it did not greatly interest or move me, though commending itself more to the sensibilities than the interior of Châlons. It is an enormous work, carried out with the uniformity that indicates its rapid and unintermitted advance in course of building.

The mighty piers of the nave are of the type of a central Corinthoid cylinder, with four smaller axials attached, and with about three-quarters of their circumference disengaged. These smaller ones are all of the same size, and not so large that the blank surface of central pier has not good predominance. It is not at Reims that Gothic can be called the architecture of small stones. In these piers the horizontal joints pass quite round, and no vertical are visible at all. These may be, no doubt, and probably are, hidden in the re-entering angles; but even so, the height of many of the courses is voucher for a very large stone indeed. Both material and workmanship are excellent.

The grouped capitals have a common polygonal abacus and a common astragal; but the smaller have a distinct necking, which empha-

sizes their limited independence. The successive capitals east and west are usually varied in detail and character, while the opposite capitals, north and south, have very marked agreement always, and sometimes are exactly alike.

The piers of the choir are simple cylinders or Corinthoids, with a small shaft attached to the front only. Piers exactly like those of the nave are continued as aisle columns round the apse, and are attached to the wall at the division of the chapels,—the result being a lack of features of intermediate gradation to assist the sense of scale. The mouldings of the bases and plinths are drawn with a boldness that harmonizes well with their magnitude.

We may spare to describe in detail the columnar and vaulting system of the aisles; but be the note recorded here that applies to many other of the French cathedrals, that there is a want of consistency, as well as harmony, in the combination of much more elaborate and numerous shafts and archivolts in the aisle than appear in the more important nave. This difficulty was admirably countervailed in the completed Gothic by the grouped cluster of nave face-shafts.

Again, it seems to reverse the due sequence of subordination, that not only the direct aisle arches, but the nave arches also, should be stilted to bring them up to a height determined by the unstilted but still pointed diagonal ribs of the aisles.

A vaulting shaft above the abacus answers to the shaft engaged in front of the pier; and two smaller shafts, one on either side of it, rise likewise from bases that rest on the general abacus; and all have a common capital at the spring of arch, where they send off the direct and diagonal ribs of quadripartite vaulting. Still two other shafts, exterior to these, run up beside and beyond them, to carry mouldings for the nooks formed by wall of clerestory and the side of the groin.

The transept piers, which are larger, have intermediate shafts attached, that rise up clear from base to spring of arch,—a wonderful advance upon the clumsily-contrived and piled-up mouldings of the transept piers of Notre Dame at Paris, but still no more than had been done in English Round-arch architecture, and an arrangement that still hesitated to assert itself in the nave-piers.

The robustness of the nave piers is quite as much out of keeping with the lightness of the clerestory windows and lofty proportions of the nave section as with the aisle enrichments; and their broad plain surfaces are so predominant as to convey an effect of tameness and barenness out of harmony with the elaborate ornament of painted windows and variegated tapestry, but consenting, unfortunately, with a general lack of variety and play.

The nave is lofty absolutely and proportionately, namely, about three times its breadth, which is 38 ft. Amiens, which has the same breadth, is some 12 ft. higher. There was no need for further exaggeration. Even at Reims the sense of narrowness is most painful. The nave walls seem closing in upon one, and bring back to mind the narrowest passage of the cleft rock of the Via Mala. This ambition for loftiness defeats its own ends conspicuously in a nave designed to acquire glory from painted glass in the clerestories, which can only be seen from below, miserably if not unintelligibly foreshortened. The triforium at Reims was not accessible at our visit; but at Amiens the opportunity was given for observing from the gallery the vastly improved effect of the architecture from a level nearer to the vault. Had this gallery really been designed for a place of dignified occupation during the sacred ceremonies, much of the incongruity would vanish; but here, as elsewhere so often, the triforium elevation to the nave, however elaborately enriched, does but screen a run for rats,—either a mere narrow gallery of passage, or a loft never intended to be made into an apartment. Even at Westminster, where the external windows indicate some reference to occupation, the interior shows too clearly that no care or thought was taken for finished elegance or even convenience.

The great glory, then, of this cathedral is the exterior,—the west front, especially; though the other sides have their special and peculiar merits, and support the general effect of dignified proportion. It is time that careful note were taken of all original indications of the stages by which this effect was reached, for the problem will become more difficult daily. What we saw of the progress of restorations did not encourage faith, either in conscientiousness or taste, and obliterations of masonic evidence take place too easily. Perforated parapets are superseding solid at the eastern end; a bold line of turrets is being introduced, for which no precedent is apparent; and fresh-caught spread-eagles from military ensigns of Rome are mounting to the place of pride of the Gallic fowl, of which, however, they seem likely enough to emulate the crow.

On careful examination we may still,—we may at present, trace the joinings of the original and the superadded work all round. The cathedral has received an entirely new,—that is, secondary face,—according to a design of which the towers, so far as they are completed, form a part, while the side aspects have been brought into harmony by the addition of characteristic pinnacles, statues, and parapet, as well as by the refacing of the transept porches.

The flank view, after all that has been done, is in one respect not happy; the projecting buttresses and their pinnacles jostle the short transept very undesirably, and hide a full half of its only window.

The plain and original buttresses of the sides have a cornice ranging with the top of the aisle windows, which is returned and runs round the building. Above this the buttress is continued; first by a tall base or pedestal, shafted at angles, and with a shafted pointed arch in relief on the sides; this supports a niche, formed by a back of solid buttress carried up behind and in front by two free Corinthiesque shafts at the angles, with pointed trefoil arch in front, and others at the sides, where they are met by angle-shafts against the buttress-back. The square top of this niche is canopied by an octagonal pinnacle and four small pinnacles, apparently triangular on plan, and occupying the vacant angles.

In the old work the three divisions of niche, pinnacle, and basis seem to have been equal; in the new, the architect availed himself of the new-found principle of giving one division a proportionate preponderance, applied at Paris and Sens as distinctly as at Winchester, and gave increased height to the niche.

The vaulted recess of each niche houses a statue,—on the south side of which a winged angel stands on a pedestal with shafted angles, of such height as to spare the sculptor a painful elongation of the figure.

We see on the south side that the open niche was a development of the earlier member in which the plain buttress runs up a second stage, with round arches in place of pointed trefoils.

Round the exterior of the apse and the south transept the buttresses have drips of bold projection, with foliage, well relieved, running round the upper angles of two stages above the slope sheds, and both continued upon the body of the building; the lower one forming the cornice of the wall above the aisle windows, and the upper one a stringcourse under those of the clerestory.

In the altered buttress of the south side of the nave, the artist has subordinated the lower cornice on the buttress by leaving the drip moulding, but dressing off the deep course of foliage below without remorse, to the level face of the wall. There is the greatest advantage in this. The pair of strong and equal horizontal lines so near each other cut out a flat horizontal form that contested in importance with the not unlike though vertical form of the buttress. By reducing the lower cornice, the independence of this division was subverted, and the predominance of verticality in the leading lines of the buttress was secured at once.

This change is traceable clear round to the front of the building, where the new work of the façade supervenes with other and far more important modifications.

The composition of the front may be divided into the stages or stories of the porches and the rose window below, and the range of niches with kings and the pair of towers above.

Norman, Lombard, Rhenish churches had already adopted and elaborated recessed porches and rose windows. Here they are translated into the new fashion, and receive the last and the highest enrichments. The architect is no longer satisfied with the depth of porch to be commanded by taking advantage of the thickness of the tower-wall, as in Norman; or even of the additional depth given by the ordinary projecting buttress; but he advances the portico in front of the building,—as did, indeed, the Lombard builders, but here with closer and more organic connexion.

The union is most excellently managed. The applied porch is so set on that the eye is satisfied with the relation of the façade above and the flat wall face visible within the portals. With the resolute design to effect a noble concavity, the architect has still observed such a temperance of projection that the buttresses of the front that mark the angles of the towers blend into a common mass with the advanced supports of the vaulted entrance.

The receding arcuation has scarcely the charm of Troyes; but the gradation of proportion between the central and side porches, and between the span of the latter and the solid breadth of the buttresses adjoining, is very good indeed.

We shall only do ourselves and architecture harm, however, if we shirk recognizing the fact that the stiff large statues against the jambs, however good in intention, are in themselves, and as they exist, either offensive or ludicrous. Here and there, there is a natural expression or a happy turn of drapery that a man of genius might transmute into beauty; but as they stand they can only be taken, if we are to accept them at all, as types or symbols of good things that ought to be, but for the present are not.

Again, the Gothic architect never stumbled more seriously than in essays to join on an upper to a lower design with satisfactory coherency; and the ordination of the jambs and canopies of these porches conspicuously illustrate the failure. Is it to consider too curiously to note these lapses? We leave it to those who have less respectful appreciation for Gothic architecture, to appeal to indulgence for shortcomings that it might and must, if its dignity is to be preserved, admit and grapple with.

The alternated shrined and foliated arcuations of the recesses descending on the jambs have there the junction covered by a row of shrine-heads, which return in full proportions round the front of the central jambs, but fall back into relief on the front and outer sides of the external buttresses.

This stringcourse-like series, in itself very elegant, has great value in uniting the arches at their spring. But mark the ensuing misfit. Below this shed stand the rows of large figures which it is impossible to dissociate from a reference to the sheltering canopies and the rows of larger and smaller shafts answering thereto. But two canopies fall irregularly to a single figure, which is, consequently, thrown forward, instead of being fitted with a recess. At the turn of the diagonal jamb to the straight of the front buttress there is a new difficulty. On the broader sides there is too much room for one statue and not enough for two, and the occupant stands comfortless in a miserable blank; in the other cases there is not room for even one; so a still more distressing blank is left; while in front of the buttresses room is obtained for three, but only by close crowding in a fashion most uncomfortable.

To proceed with our indictment while courage is at full tension; architects never paid more dearly for a bad system than the Goths for the extravagant height they gave to their roof shields and roof ridges. In the management of the roof generally they were false to their own great principle, which was,—not what we have listened to too long and too indulgently, to ornament construction; but to emphasize function by ornament expressive of a construction appropriate to function. The slope of the roof expresses the function of throwing off the discharge of storms; but the parapet at its foot contradicts the expression as distinctly as the function, by appearing planned to confine the storm waters or the sliding snow just where they will be most harmful. Another all-important function of securing the bond of external supporting wall and the load of the roof, is to all appearance not merely ill-discharged, but neglected entirely.

Again, the mighty roof which asserts itself so imposingly above the proper structure must be occupied to some extent by the vault of the church or contain a distinct apartment, or be a timber-crowded darkling loft. In some of our English cathedrals an upper window at the end simulates a true apartment, which may be consistent or convenient, but has no ostensible purpose or appropriate dignity. We may more tenderly favour an attempt to hide the error by a single large window that covers all without, yet does not betray the artifice within. But even so, the escape from a suggestion of an exaggerated garret barely lighted from one end, and with sides at uncongenial slope for erect walking man, is only exchanged for the exhibition of inconsistency between the abundant provision for admitting light at the sides into

the lower portion of the implied apartment, and the utter disregard of the obligation at the upper part, where is its most appropriate entrance.

If the tall roof be all roof, it is clumsy; if it contain an apartment, it is but a dark, and worse, an undignified one; and if it be occupied in fair proportion by the nave vault, the occupation is unexpressed without, and allegiance to the light of day is repudiated where it is most incumbent.

These incongruities infest the practice but are by no means inherent in the principle of Gothic architecture. Quite otherwise, indeed, as no doubt will be shown one day, when independent genius arises to deal fully with its hitherto only half evolved resources.

The mischief tells very detrimentally on the treatment of western fronts, where this dead block has to be confessed, or palliated or concealed. We have now to deal with the embarrassments of the last way of evasion. At Paris we see the offensive triangle peering through the lines of the arcade between the towers, which seems fain to hide it, if not designed to do so, but fails either way. Amiens, also, is in as evil case. At Reims, the designer of the front elects to screen the roof as far as he can, and admit only what he must; and to what does not the dilemma reduce him in derogation of his noble conception?

Above the rose window and its including arch he continues from tower to tower, on either side, a masking wall with a gallery of shallow niches in which a series of crowned kings are housed, most of them having to stand flat enough. Still a little central gable has to be added before the peering roof-point. The grand mischief, however, lies herein, that the wall of kings, being imperforate, gives heaviness to the centre of the top of the composition, where heaviness is out of place, and running on to join the stories of the towers vitiates the freedom of base required to give full effect to their height, outline, and the transitional movement to the completing spire above. This is the same mischief and misery that afflict the design of Strasburg, and would be much more pronounced here were the spires, of which we just see the commencing slant, completed.

Still the architect has nobly fought his difficulty, and his design might be completed without fear. Even as it stands, no other Gothic western front can compare with it in the dignity of balanced repose and vivacity, for an instant. The quadrate subdivisions of the earlier design, of which we may recover the impression from Notre Dame, at Paris, are most skilfully broken up into details of which the loftiness ever exceeds the breadth, and ever the more as the elevation rises.

The common elements of the design, which are in loose disorderly arrangement at Amiens, are here condensed and massed, and simplified; and we have only to turn to the western towers in progress at Cologne to appreciate the value of that balance of sobriety and fancy, of allegiance to principles along with indulgence of invention, that justify preference for the vigorous grace that results from co-operation of two consenting centuries at Reims.

The niches with statues and pinnacled, that decorate the flank buttresses, are continued at the same level on the four western and side angular buttresses of the towers, with the happiest effect.

The statues serve to connect the sculptural series of the apostles and saints in the porches with the galleried kings above; and the pinnacled niches which, as we have seen, are developments of the earlier design, introduce the new and ampler and full development in the towers above. The towers, like the niches, were to be crowned by a pinnacle spire, now probably perforated, on an octagon base, and again, four smaller pinnacles would cover four sides,—smaller sides, of the octagon; but instead of rising on the angles of a square cut off by an interior octagon, and above a single shaft at the angle, they surmount a hexagon which covers one side of the octagonal belfry of the tower, the proper base of the spire, and forms a grand niche with four free shafts and five foliated openings. But space warns to conclude, and with one more note we make an end.

The nave vault has been painted blue with stars, and is ineffective, the clerestory windows and western rose full of painted glass, giving colours that reduce all others associated with surfaces of inferior texture, to inevitable commonness.

AN INQUIRY AS TO THE BEST PLAN FOR THE NATURAL HISTORY MUSEUM, SOUTH KENSINGTON.

DISCUSSION of this subject is not undesirable, opinion being still unsettled amongst those interested. The following paper goes, it will be seen, to support the late Captain Fowke's plan, published, together with his own views on the subject, in our volume for 1864 (xxii.), pp. 393, 394, 395. In the same volume, pp. 473, 474, 475, is given the plan to which the second premium was awarded (founded on the "model" plan submitted to the competitors), together with the author's own statement of *his* views. In a previous part of the same volume (p. 289, p. 305, &c.), both designs and the principles involved are fully reviewed. Our own inclination to parallel galleries placed transversely to a longitudinal hall or corridor, with spaces between for light and air, is of an earlier date than that of the "model" plan.

The plan of a building to hold a national collection of objects like stuffed animals and geological specimens is one that taxes the ingenuity of the architect in providing for its economical and administrative arrangements in no small degree. The articles to be exhibited are of all sizes, of every variety of form, and of the greatest divergence of character; they must be arranged so as to be equally available to the cursory view of the many, passing through the rooms quickly and in great numbers, and to the close examination of the few scientific. The greatest possible amount of direct daylight is indispensable to fulfil the legitimate object of having such a collection; and yet any glare or dazzling reflection which would interfere with the clear display of the peculiarities of the articles, is particularly to be avoided.

Considering the large number of museums existing in Europe, it would be supposed that the best proportion and arrangement of building for the purpose was fixed with tolerable precision; it is evident, however, from what has transpired concerning the competitive designs for this particular building that such is not the case, and that, on the contrary, although probably no person would dispute the general principles above stated, there is a marked divergence of opinion as to the best mode of carrying them into practice. It seems, therefore, desirable to investigate the subject more particularly, and to ascertain, if possible, how far these differences may be due to specialities of subject, or to peculiar local conditions of climate or building, or to the influence of habit; and the time is particularly opportune for such discussion, as the building under consideration will probably be the largest museum of its kind in the world, and one which will no doubt form a model for others for the same purposes in this and other countries.

The classes of objects which are intended to be included in this building, and which may properly be assembled in one general group in any similar building or institution, are the following:—1. Zoology; 2. Geology; 3. Mineralogy. The two following may be considered as belonging to the great group of what are sometimes called the natural sciences; and though not forming part of the scheme under discussion, would no doubt be included in many projects for such institutions, namely;—4. Chemistry; 5. Botany.

In providing space for a national collection of articles connected with these classes, it is most necessary to keep distinctly in view the two chief and different purposes for which such collections are made; that is to say,—1. The benefit of the general public; 2. The education of students of the different classes. The inspection of such collections is to some extent an education of the people at large, but only of a general and indirect character, requiring the exhibition merely of special articles of new or peculiar interest, arranged with regard very much to effective general view and facility of passage. For this purpose, only, large and lofty halls with a good general light are most convenient; and there is no advantage, nay, even possibly, a disadvantage, in assembling a vast number of objects together in such rooms, whose variety and multitude fatigue the eye and overburden the mind of the ordinary spectator. It is probable that a judicious selection of articles well grouped would do more to educate the uninitiated many, than what appears to them to be the endless succession of closely-filled cases in the present rooms of the British Museum. For the student, however, this arrangement would be quite ineffective: both the casual scientific visitor who spends a few days in the rooms, and the regular student who goes through a course of systematic study, require narrow galleries with close clear light pouring on the cases, in which they can follow out their researches with order and quiet; and, in addition, if these institutions are to be made thoroughly effective as educational establishments, class-rooms, private study rooms, laboratories, and workshops would be required.

The whole of the objects included under the above-mentioned classes may be divided into three heads, for purposes of exhibition:—1. Wall or vertical cases; 2. Table or horizontal cases; 3. Large general cases. The first would take in the great bulk of the zoological collection, and part of the geological and botanical collections; the second would take in the bulk of the geological and mineralogical and chemical collections; the third would be for large and special objects and groups. It might be a question in an entirely new institution how far the tables might be dispensed with, and a modification of vertical cases substituted for them, similar to some used at South Kensington Museum, and which might be placed in the centre of the room, under a vertical light, and so to very much dispense with both the present style of wall-case and table-case. But for the building under discussion this question is to a great extent decided beforehand, by the fact of the existence in the British Museum of a large number of cases expressly and elaborately made for the exhibition of the articles in that building, and which it would be unwise and extravagant to discard altogether. These consist for the most part of wall or vertical cases, the average dimensions of which may be taken to be 10 ft. high and 2 ft. 4 in. deep, and of indefinite length; and table or horizontal cases of an average length of 7 ft. 8 in., and width of 4½ ft. In these two classes of cases the bulk of the collections would be deposited. The exceptional cases for special objects and groups are of very various forms and sizes: probably one of the largest required, excluding such objects as whales and paleontals, which would not be in glass cases, would be that for the group of gorillas, about 8 ft. square and 10 ft. high. Above that area the specimens would not be well seen.

The great bulk of the collections in point of numbers being in these two kinds of cases for the students, and not for the general public, the most effective and economical arrangement of them would be in long, narrow galleries parallel to each other, and connected by a common corridor at one end. These galleries should be wide enough only to afford space for a row of vertical cases against each wall, and one row of horizontal cases in the middle, with two broad passages for visitors. For the purpose of systematic examination any addition to the width beyond this is injurious: it amounts simply to placing two or more such galleries together without the advantage of the order and quiet of the one alone. Those who frequented any of the great international exhibitions will fully appreciate this maxim; who recollect, after being tossed in the cross open sea of some vast English class, from stall to stall, each the counterpart of the last, with an aimless and bewildered course, what a relief it was to glide into the sheltered and calm haven of some little foreign court, in which the compactness of the area, and the systematic arrangement of the things, gave more instruction and pleasure in a few minutes than a long, laborious traverse through the other. A width of from 20 ft. to 25 ft. is all that is necessary for this: the former width hardly allows sufficient space for passages. The central passages in the British Museum galleries are about 8 ft. wide; the side passages, about 4½ ft. A width of 5 ft. is not sufficient to enable a spectator to examine with ease the upper part of a case 10 ft. high; and it is not convenient to stand in the passage on the opposite side for the purpose. On the other hand, the smaller width allows of an addition of one such gallery for about every 250 ft. of general frontage, as compared with the 25 ft. The efficiency of narrow galleries will occur to every one who has visited such institutions. It is only necessary to mention the small picture galleries in the International Exhibition of 1862, and the Museum of Curiosities at Dresden, and especially the smaller galleries in the British Museum, which are between 20 ft. and 25 ft., as compared with those of 40 ft. in

width. Of these we shall have to speak again in considering the necessity of reducing the width in rooms lighted from the sides only.

The next point is the necessity of building in two stories. This is not so much a question of efficiency as of economy. All persons would, no doubt, prefer a roof-light for such purposes, or, at least, a combination of roof and side light; but that would involve the occupation of a larger area than is generally available for these objects in great cities, and, in the particular building we are considering, the limited area necessitates the employment of two stories to obtain the floor-space required. There is, also, a certain convenience in being able to separate some branches of the establishment more completely from others, by having two stories.

But this renders it still more necessary to keep down the widths of the rooms. Those who, on an ordinary winter's day, have happened to visit in succession such rooms as the small exhibition picture gallery and the King's library in the British Museum, will be able to judge of the extensive loss of light, in a room about 45 ft. wide and 25 ft. high, lighted from the upper half of the side walls, with window-space equal to about one-third of the wall-space, as compared with the same proportion of roof-light in a small gallery. It is not only the difference between roof-light and side-light: in the former, it is the height of the room only which diminishes the quantity of light; in the latter case, an increase to the width of the room diminishes the effect of the light, and increases the space in shadow; and it is the extent of shadow-space that chiefly reduces the effective light in a room.

This is still more apparent in considering the whole question of lighting such galleries. The light, whether roof or side light, should be so arranged that it shall not be directly in the face of the spectator, nor be reflected directly to his eyes from the glass of the cases. In roof-light the latter consideration necessitates loftier rooms than is otherwise desirable, in order that the reflection from the least inclined ray of light shall fall below the spectator's eye, when standing in the most convenient spot for seeing. In side-lighted rooms, the spectator has always one window directly in his face, and unless the windows are very high, the effect of the direct light dazzles his eyes and throws the cases under or between the windows into the shade; and the room must be very narrow and high to prevent the reflected light from the cases meeting the eye of the spectator wherever he may be standing. Thus, in both roof-lighted and side-lighted rooms, an increase of height diminishes the effective lighting of the room in one respect: the broad galleries in the British Museum have a greater proportion of roof-light than the narrow galleries, but owing partly to their greater height the lighting of them is not so effective. But again, in side-lighted rooms, an increase in width requires an increase in height to provide an equal amount of light, and also an increase in the interval apart of the rows of buildings, in order that the same amount of direct light may fall on the cases. The minimum limit for this latter interval is determined by drawing a line from the top of a wall-case through the upper edge of the opposite window, and which should clear the roof of the next row of galleries. And as the purposes of exhibition require a height of not more than 15 ft., it follows that, for economy of expense and administration, that arrangement of rooms will be the best which for lighting purposes requires the least height above 15 ft.

Recapitulating now these several data for determining the best normal plan of museum, it appears that for all the requirements of such an institution, administration and construction, for convenience of arranging and exhibiting specimens, for economy of construction, and for effective lighting, the bulk of the collection should be in rows of galleries about 20 ft. wide, in two stories, the height of each of which shall be as little above 15 ft. as the exigencies of lighting will permit; and placed at such intervals as will, in the ground floor, allow a direct ray of skylight to fall on the top of a vertical case through the opposite window.

We have still to provide for the large and special articles selected for the brief gratification of the general public, and which, as before stated, would be most advantageously placed in large lofty halls. The most obvious mode of combining such rooms with the narrow galleries desirable for the majority of the articles, would be to do that at once, and as part of the design, which would inevitably be done at some future time, when the accumulation of articles pressed on space; namely, to roof over the spaces between the galleries with glass. And here, the arguments of Captain Fowke himself may be quoted in support of doing this on principle which might at first appear to be only an expedient.

He says that the result of his experience (which had been considerable) in dealing with a large area for exhibition purposes, is to cover the whole of it; and among other arguments in support of this idea, he adduces the two following weighty ones;—1st, that the temperature can be kept more regular and more under control; 2nd, that the narrow galleries can be placed further apart, and so an increase of light without loss of space is gained. And, as in the plan issued by the trustees of the British Museum to guide the competing architects the whole area is covered, the authority of their experience on that point appears to be in favour of Captain Fowke's principle.

The normal idea we have now arrived at analytically for rooms for the collections of a Natural History Museum, is almost exactly that proposed by Captain Fowke, in his prize design. He had given him for the whole establishment a rectangular space, measuring roughly, 1,200 ft. by 700 ft.; for the collection now existing in the British Museum, and for future extension of the same he provides a line of buildings extending the whole length of the site, and consisting of rows of galleries at right angles to the general line of building, about 20 ft. wide and 160 ft. long, and two stories high, divided by spaces 40 ft. wide, which spaces are roofed partially with glass, and necessarily of the height of both stories.

This great block of building is divided in its centre by a lecture theatre, and is connected by corridors extending along each end of the rooms for the whole length of the block: the corridor on one side is intended for the public, and is 40 ft. wide; that on the other side is a narrower one, and is intended for communication with the offices and other more private rooms of the establishment, which are ranged all along that side of the block. Such are the main features of the design as far as relates to the special objects of a Natural History Museum. The other parts of the whole design extending towards the main front of the building, the centre block, with its circular hall, covered by the admirable dome, and the flanking blocks, though all forming architecturally parts of the whole design, are accessories for collateral purposes to the more immediate objects of the building, and it is with these last that we are at present concerned, and which afford so good a study.

Captain Fowke, however, has by a bold arrangement, characteristic of his practical genius, improved greatly on the normal idea above projected. He has taken away the walls of the lower stories of the narrow galleries, replacing them with columns, and placed a partition-wall down the centre of each lower gallery, thus dividing it into two galleries, about 10 ft. wide each, and placed back to back, and open to the great halls between the galleries. The vertical cases are placed against this partition-wall, and consequently, following the same train of argument we have before adopted, each case will receive double the amount of direct light it did before; and he has also utilized the exterior wall of the upper stories of the galleries, by carrying along them what he calls a "bracketed gallery," that is, a narrow gallery (it is about 6 ft. wide), supported on cantilevers or brackets, which affords wall space for a row of vertical cases along each wall.

The first point on which such a plan should be examined is the space afforded. Each ground-floor room of the main block gives a floor-space altogether of 63 ft. by 160 ft., and there are fourteen of these in the main block, which, with the upper stories of the galleries, and including the large corridors, but not including the "bracketed galleries," gives a floor-space altogether of upwards of 200,000 square feet. This is independent of the central and flanking blocks. The plan issued by the trustees of the Museum as a guide to competitors showed, it is understood, that less than 150,000 square feet was all that was thought necessary to be provided, both for the present wants of the institution and for its future extension.

If, for instance, it was thought desirable to adhere to the arrangement of preserving uncovered spaces between the galleries, then to provide the same or nearly the same amount of floor space, the galleries would have to be made 40 ft. wide, and separated only from 25 ft. to 30 ft. apart. But this would be a repetition of the present British Museum, without the advantage of the open space round it. Besides the disadvantages as regards convenience and light in the upper floors, the lower story would require to be upwards of 30 ft. high to obtain any direct skylight on the vertical cases, and the spectator in so broad a room would have the light of one window always in his face, and the light (such as it would be) from the other reflected back from the glass of the cases; and, on an ordinary winter's day, the cases below the window in which the sun was shining would be in deep shadow.

There is no worse position for such cases than to be immediately under a window through which a fair amount of light is shining; but the proximity of the galleries to each other would cut off most of the light from the lower stories during a great part of the day. These spaces would be dark, narrow, ill-ventilated courts; and, in fact, the building might as well be placed among the narrowest streets of the City, instead of on the open site designed for it. If any one who wishes to see the effect of the proximity of a lofty building for destroying light, will go on some afternoon to that part of the King's Library opposite the great dome of the reading-room, he will soon be convinced that such a room is most unfitted for the exhibition of specimens. We should rather profit by the experience gained from such a building than reproduce the features proved to be defective.

An objection might be raised that the "bracketed galleries" are too narrow for the purposes of scientific study of the things in them; and perhaps an additional 2 ft. to the breadth would be desirable for convenience of passage. The proper limit to their breadth is, of course, that the most projecting part shall not extend beyond a line drawn from the top of the case on the ground-floor below through the outer edge of the opening between the columns in front of those lower cases. But it must be explained that the architect did not intend any of these narrow galleries to be the places for detailed examination of individual specimens. For such purposes he provides small study-rooms on the other side of the small corridor at the inner end of the galleries; and even in their present form they utilise wall space otherwise totally lost, and in a manner similar to that which in the Museum of the College of Surgeons has been found satisfactory.

The narrow aisles on the ground-floor under the upper galleries might be considered as a departure from the principle of small quiet rooms, with wall-cases on each side; for they are virtually part of the great halls below, and yet not so well lighted as the body of those halls. But the cases in these narrow aisles really receive more light than if they were standing against the side walls of ground-floor rooms of 20 ft. wide, lighted only from the sides; for it is the same thing as placing the cases back to back in the centre of the room, and taking away the side walls altogether, which gives them both more light, and more advantageously applied; for, the spectator standing inside the row of columns, and looking at the wall-cases, has no window directly in his face, and (from the height of the aisle compared with its width) he will have no reflected light from the glass; and owing to the extent of the opening from floor to ceiling so close in front of the cases, they will be better lighted, notwithstanding the columns, than if in side-lighted rooms.

Indeed, the height of the rooms in both stories is excessive, considering that it tends to reduce the amount of effective light; it is only allowable on the consideration that the heights are determined by the rule before mentioned, namely, that the least inclined ray of clear sky-light shall be reflected from the cases *below* the eye of the spectator standing in the best position for viewing the case.

In conclusion, it must be again pointed out that the examination of this design has been made on that true analytical system which should be the rule of all such criticisms,—namely, to ascertain in the first instance the elements of the wants to be provided for; and, by reasoning on the best method of meeting each in succession, to build up step by step an imaginary normal fabric, fulfilling the general requirements with the least loss of individual advantages, and then compare the design under our hands with it part by part.

T. B. C.

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PARIS EXHIBITION OF 1867.

THE immense works in course of execution on the grounds of Trocadero, opposite the Champ de Mars, seem to astonish every one by the rapidity with which they proceed. 5,000 or 6,000 men are employed, and eight or ten kilomètres of lines of railway are laid, in various directions, on which locomotives and wagons circulate continually. The quantity of earthwork necessary to be removed was estimated, at the outset, to be no less than 600,000 cubic mètres. Within a very short period the abrupt steeps of Trocadero will give place to an esplanade, slightly inclined, larger than the Place de la Concorde, being 500 mètres long by 250 mètres wide. The gradient is 1 in 16·7 as far as the Pont d'Jena, where it will meet the level of the Avenue du Roi de Rome. M. Alphand, engineer-in-chief, and M. Darcel, engineer of plantations, have so arranged operations that the 600,000 cubic mètres of excavation from the heights of Trocadero will serve for the embankment of the Exhibition railway, and the filling required close by. This railway is to join in with the Circular Railway at the Point du Jour, and to follow the left bank of the Seine, so as to convey passengers from any of the railways to the Exhibition. The contractors, MM. Charles Bergier and De la Montagne, have experienced considerable difficulty in the establishment of a temporary railway, in a confined space, without encountering confusion or accident, and they have been obliged to put in a great number of sidings. However, at present, the several trains of wagons, hauled by four locomotives, transport altogether from 16,000 to 18,000 cubic mètres of material as far as the Point du Jour. The earthworks of the line are to be completed by the 1st of June; a night service, illuminated by the electric light, has been experimented upon, and the result is so satisfactory that it will be put in operation in a few days' time.

At the Champ de Mars the works are progressing most actively, the earthworks executed up to the present time amounting to 160,000 cubic mètres. The space of ground between the Circular Avenue and the exterior wall of the Exhibition building is being brought into its permanent state. On the 5th inst., the cube of the masonry, both the rubble and the concrete, amounted to 26,100 cubic mètres, and there is every reason to believe that the foundations will be all completed before the end of the month. The arches of the lower portion of the structure are being laid, and those of the great ventilating conduit are now 210 mètres in length; the transversal vaults (3 mètres span) are completed for a length of about 100 mètres. Among the other works, there are 530 piers raised; 3,000 mètres of aqueduct and 200 mètres of collecting sewer constructed. In the various manufacturing establishments which are to supply various articles of construction for the building, a great activity reigns. Several have anticipated the periods of delivery of the pieces, and thousands of cast and wrought iron are ready to be put in place. It is calculated that the raising of the pieces of metal will be in full activity about the middle of next month.

The Park.—Among the establishments which French exhibitors intend to place in the park of the Universal Exhibition of 1867 around the Palace, are works for the treatment of silver-lead ore, and testing of lead; preparation of zinc ore, with a novel apparatus for the condensation of the metallic vapours; drawing of iron and lead pipes; manufacture of white metal (white zinc); foundries for bronzes and ornamental castings; forge for scrap-iron; manufacture of tin by a new process; glass-works, with the furnaces, exhibiting the cutting of crystal and pebbles for spectacles; cutlery works; beating out of copper, aluminium, and platinum; model (wash-house) bleaching ground; farms appertaining to the various agricultural districts of France, with stables and apparatus shown in action; examples of Imperial farms, with picked animals—plans and statistics relative to the results obtained; complete photographic studio, exhibiting to the public the various operations of the laboratory; monumental campanile, with clock, bells, and chimes; models of various kinds of buildings in wood, stone, brick, pottery, artificial marble, concrete, metals, &c.; examples of houses, showing the improvements introduced in France, with a view to health and comfort in cheap dwellings; kiosks, and chalets, fountains, vases, railings, fences, arbours of trellis-work, iron seats, rustic bridges, &c., for the decoration of gardens; hothouses, containing the finest specimens of flowers and fruit: a lighthouse, 66 mètres high, and other lighthouses of different heights, will every night throw their light upon the park and the banks of the Seine. Further, the park will contain an international theatre, where will be pieces in the various dramatic styles of all countries; an international concert-hall, in which the musicians of the different nations will perform; an international club-room, which will serve as a place of meeting for the exhibitors; and on the ground floor will be various shops, &c., in which visitors arriving by the railway will find accommodation for dressing and washing.

THE NATIONAL GALLERY, THE PROPOSED LAW COURTS, AND THE NATURAL HISTORY MUSEUM.

IN the House of Commons, on Monday last, Mr. Bentinck asked the First Commissioner of Works what course her Majesty's Government intended to pursue with reference to the new building for the National Gallery; whether a competition of architects had been invited, and who had been selected to compete; whether any definite period had been fixed for the exhibition of the competing designs, and who was to make the final award; whether any of the architects designated to compete for the new Courts of Justice had declined the proposed competition; by whom the instructions, in the form of a blue book, furnished to the competing architects, had been prepared; and what date had been fixed for sending in the plans.

Mr. Cowper said, that (as we informed our readers last week) two of the architects invited to send in designs for the new Courts of Justice had declined to do so, namely, Mr. T. H. Wyatt and Mr. Hardwick, and two others had the invitation still under consideration. The specifications, which contained elaborate details, had been prepared by the architectural clerk of the Courts of Justice Commission. The time fixed for sending in the designs was the end of October. With regard to the National Gallery, it was intended to receive designs from a limited number of architects suggesting the best way in which the ground in the rear of the National Gallery might be disposed of, and also a plan showing how, if it were determined to demolish altogether the building in Trafalgar-square, another building might be erected more convenient for the purposes of a National Gallery, and more ornamental. There was no intention to abandon the designs of the late Captain Fowke for the new buildings at Kensington. Mr. Waterhouse had been engaged to act in Captain Fowke's behalf, and to superintend the erection of the building. With regard to the Law Courts, plenty of time would be given for consideration before any step was taken by the Government.

In respect of the Natural History Museum, we cannot think the step that has been taken one calculated to increase the confidence of architects who enter into competition at the call of Government; the architects whose designs were pronounced the next in merit to those of Captain Fowke are put aside, and a gentleman who, we believe, was not even a competitor, is appointed over their heads.

To fill the vacancies in the list of architects invited to send designs for the Law Courts, Mr. Thomas Deane and Mr. Raphael Brandon have been named. The question of style may thus be considered as settled. The terms now proposed are a payment of 800*l.* to each competitor except the successful one. The latter is to act as architect and be paid 5 *per cent.*, provided that for three years after his engagement commences he shall undertake no *new* professional work requiring personal superintendence, without consent of the Treasury. We may repeat what we have said above, as it has been generally misstated, that the instructions have been prepared by the architectural clerk of the Courts of Justice Commission (Mr. William Burnet), and not by the Board of Works.

A POISONOUS ROBE.—The German papers state that Professor Maschka, of Prague, received a few days ago a green robe which had been worn at one of the last balls at the Court of Vienna, and the chemical analysis which he made, along with Dr. Lerch, showed that two ounces of arsenic were present in that piece of stuff, the length of which was 28 mètres (31½ yards).

EXHIBITION OF THE ROYAL SCOTTISH ACADEMY.

THE exhibitions of the Royal Scottish Academy present a marked contrast to those of the Royal Academy, insomuch that, whereas in the latter the great majority of the works exhibited consist of historical and figure subjects, in the former landscapes and portraits predominate. This arises from no want of talent in the higher walks of art in the Scottish artists, but is attributable to the greater encouragement given to the production of such in the metropolis, which year after year attracts those who have attained an eminent position in the more limited arena to that where greater encouragement and larger remuneration reward their labours. Last year we had occasion to speak in high terms of the productions of Messrs. Douglas and Graham, and since then they have bidden farewell to Scotland, with the intention of joining the numerous band of their brethren who have preceded them.

The present exhibition contains no work of surpassing excellence, a respectable mediocrity prevailing, yet there are a few pictures of great merit. Several of the principal pictures in the rooms were exhibited in the Royal Academy last year. Amongst others, Mr. Drummond's "Graham of Claverhouse and Duke of Gordon," Mr. Nichol's "Irish Deputation," Mr. Gourlay Steell's large cattle-piece, Mr. Noel Paton's "Fact and Fancy," &c.; so that it is unnecessary for us again to refer to them.

Mr. Harvey, the president, exhibits a large landscape, in which branch of the art he is, in our opinion, more successful than in his figure subjects. No. 424, "A Drove Road," leading through a hilly country, is rendered with great breadth and simplicity; it is full of air, and quiet in colour; it seems, however, to lack some strong point of colour in the foreground, which would give value to the somewhat monotonous tone which pervades the whole scene. (419) "The Lesson," by Mr. Hugh Cameron," is a cottage interior, with a mother teaching her child. There is a feeling of calmness and propriety about this unpretending little picture that places it in a higher position than the mass of more pretentious works in the galleries. There is no straining after effect,—every detail is perfectly natural, and the colour is pure and silvery. The same qualities appear in "Threading the Needle" (468).

(524) "Christmas Day at Antwerp during the Spanish Occupation," Baron Henri Leys. This (not unknown in London, if we remember rightly) is the most remarkable picture in the exhibition. It conveys the impression to the beholder that it was painted at the period of the incident depicted, so intimately has the artist identified himself with his subject. The foreground is occupied by a street along which the inhabitants are promenading, some of the most beautiful damsels of the city being escorted by Spanish cavaliers, with whose flattering attentions they seem much pleased; an aged couple are tottering along, and the old lady is warning one of the belles of the danger she runs; while a young artisan, with his wife on his arm, is hurrying, and with clenched fist, seems to be calling down imprecations upon the conquerors and their doings. In the middle distance are a party skating on the frozen surface of a canal, and the distance is filled up by quaint spires and gables. The colour is subdued, but rich and harmonious, the drawing is firm, and the delineation of character subtle.

The works of Mr. Mactaggart, this year, are less ambitious, but more successful than those he exhibited last year. No. 318, "The Pleasures of Hope," takes its title from the figure of a fisher-boy who, with a toy-ship in hand, is gazing wistfully at a noble craft appearing on the horizon; another little fellow at his side is launching his little boat upon a pool of water left by the receding tide, while a terrier dog barks furiously at the floating object. The children are genuine seasiders, not the dressed-up figures of the studio; and the tone of colour is suggestive of the coolness of the sea breezes and the action of the figures easy and natural. Mr. Mactaggart has three other pictures of groups of children, in the delineation of whose innocent sports he is quite at home. Mr. Sam Bough is never so felicitous as when in the midst of shipping. In his "Tower of London" (405) the greater part of the picture is taken up with the river and the various craft crowding its docks and traversing its waters. The swing of the troubled water and the effect of the mid-day sun looming through the smoke of the city remind

us of the works of Turner. Mr. McWhirter's "Daybreak" (660) is simple in detail and construction, and is poetically conceived. The scene represented is a lonely churchyard by the sea-side strewn with dilapidated tombstones, in the midst of which rises a runic cross, standing boldly against the pale grey light of early dawn which is stealing over the ocean. The canvass, however, is too large for the subject. (712) "Palm Forest, Evening," is less striking, but equally good. Mr. Halswell's pictures are not so crude in colour as formerly, though still rather too strongly pronounced. He lingers at the sea coast delineating the manners and customs of "Fisher Folk" (799), the action of some of whom is rather theatrical; much better is "Sunny Hours" (365), two lovers on the sands basking in the bright sunlight. The sea, in its wildest moods, is seldom well painted; the artist often strives to produce by elaboration what can only be done at the inspiration of the moment; a few happy touches will effect more than weary hours of labour. (354) "What care these Rovers for the Name of King," by Mr. W. F. Vallance, is an example of the spirited mode of treatment; the wild dash of the billows and the trickling of the spray down the rugged rocks are rendered with much force and effect.

Mr. Horatio McCulloch is still in the Trossachs. "Loch Katrine" (453) is, as usual, good in general effect, bad in detail. We prefer his water-colour sketches, Nos. 3 to 8, to his larger works. "Teviot Side" (264), by Mr. Arthur Perigal, is by far the best picture we have seen this artist produce: it has little of that hard panorama style of treatment which characterized his former works, and which is still discernible in No. 553, "Ben Sleoch, Kinloch-Ewe, Rossshire."

It is always pleasing to notice the advent of young and promising talent. Mr. J. O. Stewart has left the province of architecture for that of painting, and from what we have seen of his efforts in the former direction, he seems more likely to establish a position in the latter. (782) "Whitaker criticising the List of Guests to the Restoration Feast," is an ambitious work, well conceived, good in drawing, and rich in colour. A greater depth of shadow would have enhanced the general effect. Mr. Stewart's knowledge of architectural detail will be useful to him. The bay-window and panelling on the walls are excellent.

As an example of brilliant effective colour, there is nothing in the rooms that surpasses the study of "Age" (440), by Mr. G. P. Chalmers. It is time that he were done painting studies, and applying the gifts which he undoubtedly possesses to the production of something more worthy of criticism. No. 756, "A Slave claiming his Freedom on English Ground," by Mr. James Gordon, is worthy of a place in Exeter Hall. An American vessel has touched at an English port, and Quashie has escaped on to the quay; the skipper chases him, whip in hand, and a bishop, who happens opportunely to be present, gives expression to his indignation, while two stalwart British seamen interpose their protection to the fugitive. We were not aware that niggers were exposed to the rigour of our climate in a state of semi-nudity, but here we see an example of the little consideration evinced by the owners for the health of their "chattels." We have a little more to say.

THE CAPITAL OF AUSTRALIA IN 1916.

AT the last meeting of the Liverpool Architectural Society, Mr. Huggins continued the "Letters from the New Capital of Australia, by Scamozzi Smith, architect; written to his friend in London during the summer and autumn of 1916," which had formed the paper of the evening at the last meeting of the society.* The three first letters gave an account of the styles of architecture prevailing in the new city. The architects had not invented a new style, but had adopted and made their own the styles which they had found ready to their hands, and were rearing to perfection for their various uses three several styles, viz., the Italian, a Romanesque, and a Gothic. These, though clearly definable, were yet so broad that they touched each other, and made perfect harmony amongst the different buildings and parts of the city. Each style had imbibed so much of the others, and all were so assimilated to the place, that they appeared but as one comprehensive and varied style, embracing so many subordinate manners of design. Ecclesiastical edifices were always Gothic or Romanesque; civil, municipal, and commercial buildings were Classical or Italian. But all the three styles were so rationally treated, so influenced by local considerations of material, scenery, and climate, that no antagonism anywhere existed; all was harmony. And such was the multitude and variety of true and genuine works, that often, through entire streets and districts of the city, an uninterrupted current of rich and bright thoughts and glowing fancies regaled the wayfarer, who could not but feel that a spirit of beauty hovered around these delightful scenes, and glided along those enchanting avenues with healing on its wings. The writer especially eulogised the great churches, the creations of the Romanesque style, which confirmed his own lofty impression of the Norman, Rhenish, and Lombard styles of architecture. The windows were not the small, timid apertures of the ancient examples of the style, but noble, fully-developed features, with bold shafts to the reveals, and filled in with tracery and stained glass. They had no spires, which their author considered as belonging to the Pointed Gothic only. In the letter next following, several buildings are visited and described, and conversation with native architects detailed. A letter is devoted to an account of the style and character of the country mansions of Australia, which, whether intended or not, seemed to have quite caught the spirit of the ancient Elizabethan style of England. After this comes a reference to railway stations, which are described as being not at all remarkable for architectural beauty. They were all without the walls, for no railway was allowed to enter this or any other city of the empire—all terminated at the outside, and neither disfigured the place above-ground nor ate into its bowels below. There were six stations on the circumference of Shaksperia, from which ran roads in different directions to the most distant parts of the empire, and formed the chief lines of a very simple system, arranged to embrace the cities and principal towns only. No short cross-lines, merely for communication with villages or insignificant towns, were allowed to be formed. Considering the transportation of persons from place to place as of at least equal importance with the conveyance of their letters, Government had taken all railways under its management, and a member of it, who was a distinguished engineer, was the Minister of Railways, and responsible for their orderly and safe working. The result of all this was, that accidents were as rare here as they were frequent in England. After a description of the Royal Palace, an account is given of the Royal Society of Artists, which was in three sections, viz., the pictorial, the sculptural, and the architectural, which were always represented in company,—that is, there was never an architectural society separate and distinct from the society of painters and sculptors. The architectural, and indeed all the sections, held their meetings fortnightly; but every three months there was a meeting of the entire society. All metropolitan architects were connected with this chartered society, and all provincial societies acknowledged its authority, which was chiefly exercised in arranging and settling the general course of style, in seeing that there was not diversity of manner in buildings of the same purpose for one description of use, and in the same kind or character of locality. Connected with this society was a training college for architects, and a gallery containing plans and views of all the great and distinguished buildings in the world, besides models of a great number. The state of criticism is given in Australia. Soon as a public building was fairly finished, the architectural journals set to work to criticise it, which they did very freely, for it was considered that no man was more amenable to the bar of criticism than the architect. But it was done dispassionately. If anything like personal feeling betrayed itself—if the object of the writer was evidently not to weigh the artistic merits of the work he professed to review, but to wound the feelings of its author, it would degrade the character of both journal and journalist in the eyes of the public, who went upon the principle that truth and candour are the brightest gems of criticism. Generally speaking, a pretty uniform opinion was expressed, and this was the case also with the literary journals; for there was little of the disgraceful discordance of opinion on literature which so much degraded criticism amongst us. The writer had been much pleased with the tone of criticism generally in Australia, which had cheered him with the hope that detraction is not destined everywhere and for ever to pour the "waters of bitterness" upon the artist or author who dares to consult his genius and his conscience alone, or an unacknowledged or obscure merit. A letter was selected from among many on the subject of house-planning in Australia, which attributes the immense variety observable in plans of gentlemen's houses, to the truthful adaptation of each to the peculiar character and habits of its occupants. On extended observation the writer found that what he had advanced relative to the moral and intellectual condition of this people was borne out by the plans of their houses, in which the higher departments, answering to the intellectual and moral part of man, received a greater recognition, and the lower ones, corresponding to his physical, less than he had ever before seen in any buildings of the same class. Everywhere had kitchen, pantry, butler's pantry, wine-cellar, &c., greatly dwindled in size and importance; and nowhere was the kitchen the complex laboratory that it was in England. The house of a philosopher is described, in which, while picture and sculpture gallery, library, museum, &c., were of the amplest and finest description, the kitchen department was as small and simple as Pythagoras himself could have wished it. This house contained also an oratory or chapel, which was an apartment commonly met with in Australian houses, in reference to which the author is pleased with the idea of devoting some spot, however small, in a house, to Him who gave the whole.

* See p. 149, *ante*.

MANSION, LEIGH PARK, NEAR PORTSMOUTH.

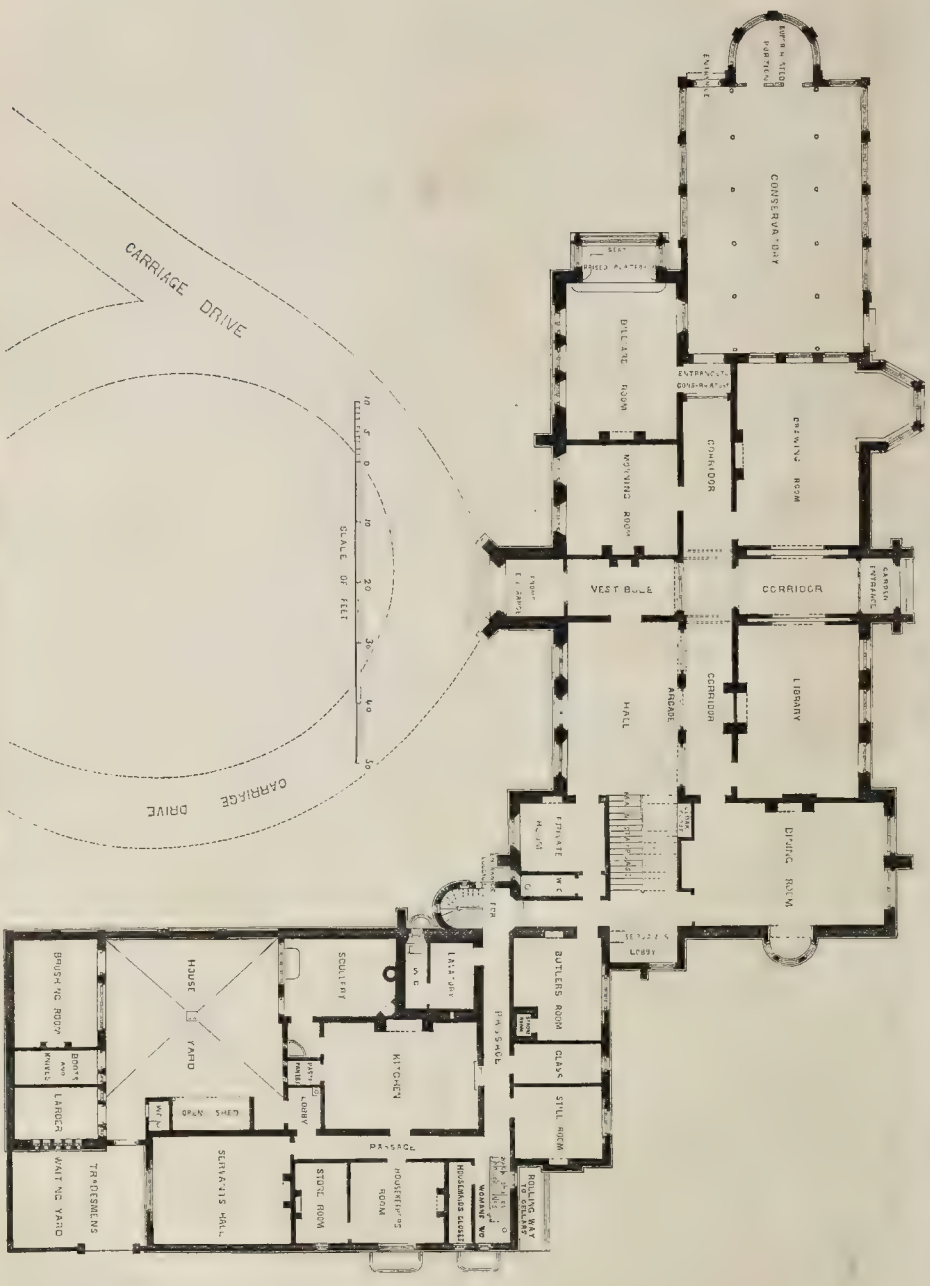
THE inhabitants of Portsmouth and its neighbourhood have long been familiar with the beautiful grounds and conservatories of Leigh Park, through the kind liberality of Mr. W. H. Stone, their representative in Parliament. The ungraceful stuccoed building erected on one of the least attractive sites in the Park, which until lately served for the residence, will be remembered.

About three years since the proprietor decided to abandon the old house and build a new residence on a site overlooking the lake and commanding views over the Isle of Wight and some of the most beautiful scenery of the south coast; and in the spring of 1863 the new mansion was commenced. We give a view of the eastern front, showing the principal entrance and the hall, which is carried up the full height of the building. The general arrangement of the principal rooms and the offices will be seen on reference to the ground plan; above it are two floors of bedrooms, to which access is given by corridors similar to that on the ground plan. The nurseries are placed over the offices, with which they have a communication independent of the principal and back staircases. The centre portion of the tower is filled with cisterns for the supply of hot and cold water, which are carried to all parts of the building.

The materials used for the walls are red bricks, and Farleigh Down stone for the dressings. The roof is covered with plain tiles; both bricks and tiles being made on the estate. The arcades and the ashlar work in the hall are of chalk from Portsdown Hill, with shafts of Bevonshire marble. As much as possible throughout the building native materials have been used, the chimney-pieces being of serpentine, alabaster, or Devonshire marble. At present the house is approached from the old entrances on the Portsmouth-road; but it is intended to form a new one near to Rowland's Castle. The house is warmed throughout on the hot-water system by Messrs. Weeks.

The works have been carried out by Messrs. Rogers & Booth, contractors, of Gosport, from the designs of Mr. R. W. Drew, of Storey's Gate, Westminster.

ROMAN CATHOLIC CATHEDRAL IN PEKIN.—In May last the corner stone of a new Roman Catholic Cathedral was laid in Pekin. It is to be of magnificent dimensions—300 ft. long, and 150 ft. in breadth, to the extremes of the transept. Its spire will overtop the loftiest of the palaces of the imperial city.



MANSION, LEIGH PARK.—*Plan of Ground Floor.*



MANSION, LEIGH PARK, NEAR PORTSMOUTH.—Mr. R. W. Drew, Architect.

PARIS.

DURING the year 1866 in Paris seven inaugurations of public buildings are to take place:—1st, the Church of la Trinité; 2nd, that of Saint Augustin; 3rd, that of Saint-Pierre, at Montrouge; 4th, the *mairie* of the third arrondissement, at the east of the Square of the Temple; 5th, the *mairie* of the fourth arrondissement, Rue de Rivoli, at the east of the Caserne Napoleon; 6th, the great annexe for the offices of the Minister for Commerce, Agriculture, and Public Works, Rue Saint-Dominique Saint-Germain; 7th, the opening of the Chemin de Fer de Ceinture, on the south or left side of the Seine.

The new street, the Rue Gay-Lussac, in prolongation of the Rue de Medicis, between the Boulevard Saint Michel and the Rue d'Ulm, was opened on Saturday last for public circulation. Thus access is given, by a wide and handsome thoroughfare, to one of the slopes of the mountain of Sainte-Geneviève.

Public and gratuitous courses are opened at the Hôtel de Ville, by permission of the Prefect of the Seine, for the instruction of all those who wish to prepare themselves for the municipal examinations.

The American system of self-recording telegraph apparatus, invented by Hughes, has now given a new impulse to telegraphic communication. Our readers are perhaps aware that the French Government purchased, in 1861, the right of using it; and the result has been that of its being in full work in all the principal offices in France. Its productive power or rapidity of communication is, in fact, triple that of the best machines which have preceded it; the latter only giving fifteen to twenty despatches per hour, whereas that of Hughes attains the number of fifty telegrams per hour. The apparatus has also this advantage over that of Morse, viz., that of giving the despatches in the proper characters, and it is the printed band that is handed to the person to whom the message is forwarded. This system has now, after a lapse of some time, been adopted in Russia and Italy; also it is used by some companies in England.

Abattoirs have been constructed at Vincennes under the superintendence of M. Blondel, architect. The principal entrance opens on the Rue de Laguy, and has for a gateway the grande grille of the ancient abattoirs du Roule. There is a front court and two lateral ones, a large central court, and two back ones. In the first lateral courts are two symmetrical pavilions, one for the administration and the other for the concierge. On the right is a tank, formed of agglomerated concrete, always full of water, for the cattle to drink after their journey. The great central court is 492 ft. by 246 ft. wide. The hydraulic service is carried on by steam power, which pumps water from a well 660 ft. deep into a reservoir containing 22,000 gallons. From this tank are laid pipes all over the building for cleansing purposes, or for the extinction of fire. The system of drainage as far as the building is concerned is perfect; but, as the neighbourhood contains no sewerage, the drainage matter has to be received in a cesspool, from which it is removed in the usual manner adopted in Paris.

DESTRUCTION, OVERCROWDING, AND REPLACEMENT OF DWELLINGS.

THIS difficult subject has at last got fairly into Parliament, as we have said in another article; and it is to be hoped that the united wisdom of the Legislature may be able to solve the problem. Three proposals connected with it have been under consideration. Government support the measure introduced by Mr. Childers, which merely proposes that the powers already possessed by local authorities, but scarcely if at all acted on, of borrowing money from the State at 4 per cent. interest, for the purpose of erecting dwellings for the poor, should be extended to parishes, public companies, and even private persons. These parties, however, can only acquire ground on which to build such houses by ordinary course of bargain with the owners.

Mr. Thomas Hughes proposed unwisely that railway companies should be obliged to replace such dwellings as they may destroy. Mr. M'Cullagh Torrens proposes to confer power on the Home Secretary to cause insanitary dwellings or districts to be demolished on representation by local bodies, verified by inspection, that the mortality in such districts has for three preceding years been 3 per cent. per annum; and to empower corporations to buy ground and build houses thereon for those who are in extreme want of house accommodation.

In moving the second reading of his Bill, Mr. Childers said that so far as regarded the demolition of inadequate buildings, Government would accept the principle of Mr. Torrens's Bill, but would decline to ask compulsory powers, preferring to resort to a judicial instrumentality to compel such buildings either to be put in proper order or else to be pulled down. This the Government proposed as a substitution for Mr. Torrens's Bill. The Chancellor of the Exchequer supported the Bill, and Mr. Torrens assented to a suggestion of the Government that after being rebuilt the houses should be disposed of in the market, as being a great improvement on his own measure.

Mr. Hughes, in moving new standing orders in reference to his proposal, which related to the metropolis and other large cities, stated that half a dozen of the great railway companies of the metropolis had assented to the principle embodied in his resolutions, and were ready to take the burden upon their shoulders; but he did not name the companies, who may be among those whose works are already done, and who are not likely to find their assent a very onerous one under the circumstances. Mr. Gibson said it seemed to him that they might proceed in this direction till they made improvement almost impossible, and the execution of valuable works so difficult that they could not be undertaken. No class in this country had been so benefited by the great works executed of late years as had the labouring classes. He believed their wages had been raised, and abundant employment found for them by those works. If it could be shown that injury was done to a certain class by any particular works, he should say compensate them; let no man suffer injury in order that certain works might be executed. But if railway companies were to have fastened on them the obligation of being builders of model lodging-houses, he had great doubts whether that enactment would be for the benefit of the working classes. If these were to be erected in the town, the result would be to create a greater evil than was sought to be removed.

Mr. Hughes, in reply to objections taken by Lord Stanley, observed that all he contended for was that, when corporations came to that House and asked to be enabled to do that which a landlord could do without coming to anybody, it was the bounden duty of the House to see that the public interests were attended to. He was prepared to accept the suggestion that the subject should be referred to a committee to be inquired into. His motion therefore was withdrawn.

A petition to Parliament has been prepared at Liverpool, the prayer of which sets forth, "That your petitioners, impressed with the urgent necessity which exists for the removal of the moral and physical evils consequent on the overcrowding of the labouring classes in towns, and convinced that this object can be promoted by legislative means, assisting and compelling the erection of proper buildings as dwellings, humbly pray that some measure enforcing the principles contained in Mr. Childers's and in Mr. Torrens's Bills be allowed to pass."

FROM MELBOURNE, AUSTRALIA.

THE foundation-stone, or, more strictly speaking, one of the corner-stones (for the building had been previously commenced), of a church for the members of the Church of England, at Malvern, has been laid by Sir W. F. Stawell, Chief Justice. The site of the church is at Malvern-hill, adjoining the school-room. The material will be bluestone, with freestone dressings, and the edifice will accommodate 180 persons. Mr. S. H. Merret is the architect, and the architecture adopted is the Early English. The contractors are Messrs. Jones & Morgan. The church is to be called St. George's. The estimated cost is 1,800*l.*, towards which about 600*l.* have been obtained.

The commissioners appointed to manage the Intercolonial Exhibition to be held at Melbourne in 1866, have issued a circular inviting the co-operation of colonists, so as to make the exhibition a successful exposition of the arts and industries of the Australian provinces. This exhibition, it is expected, will far excel its predecessor of 1861.

The Registrar-General's report on the vital statistics of Melbourne and suburbs for the month of October has been published in the local *Gazette*. The number of deaths was 257, which was greater than that in the same month of any year since 1860: the mean for the period was 242. It was also in excess of the mortality in September, but not so great as that in either August or July. Of the deaths, 145, or 56 per cent., were of males, and 112, or 44 per cent., females. The persons who died under five years of age, were 135, or 52 per cent.; those over five, 122, or 48 per cent. In October, 1864, 41 per cent. of the deaths were of children under five, 37 per cent. in October, 1863; 40 per cent. in October, 1862; 51 per cent. in October, 1861; and 62 per cent. in October, 1860. The chief causes of death were—local diseases, 33·85 per cent., and zymotic, 29·96 per cent.

THE TRADES MOVEMENT.

The Strike at Woolwich.—A crowded public meeting has been held of operatives belonging to the various branches of the building trade at Woolwich, Charlton, and Plumstead, who have left work in consequence of the refusal of the masters to yield to the request for a half-holiday on Saturdays. It was stated that the large majority of the masters were still determined not to accede to the terms of the memorial forwarded by the workmen to cease work after one o'clock on Saturday, although in some cases the masters had yielded the point. Mr. Davies (secretary of the council of London painters) and others addressed the meeting, and resolutions were adopted pledging the workmen present to adhere to the terms of the memorial, and to continue the strike until these were granted by the master builders' committee. The number of men who have left their employment is upwards of 600, and several important works are in consequence suspended.

Lord St. Leonards' Bill.—An adjourned meeting of trade delegates has been held at the Bell, Old Bailey, London. Mr. Robert Danter, president of the Trades Council, and chairman of the Amalgamated Society of Engineers, &c., presided. The delegates appointed to represent the different trades at this and previous meetings for the consideration of Lord St. Leonards' bill were accredited by a number of working men, said to amount in the aggregate to nearly 100,000. After some discussion the following resolution was carried:—

"That this delegate meeting of the London trades having discussed the principles and objects of the Bill brought forward in the House of Peers (1305) by Lord St. Leonards, entitled 'Conciliation of Equitable Councils Bill,' composed of masters and operatives for the settlement of disputes and differences as set forth in the Act 5 Geo. IV., cap. 96, and for extending to the said councils by the mutual consent of both parties (to the dispute) any other matter relating to the peace and welfare of masters and operatives, notwithstanding the dispute may have reference to further contracts or bargains respecting wages, hours of labour, or other questions which may from time to time arise, reserve to ourselves to suggest such alterations in the details as may seem necessary. Further, that the delegate meeting recommend that all disputes and contracts to serve be submitted to the said councils for adjudication and settlement, and that the power given to enforce awards, as set forth in the said Bill, be extended to all disputes arising out of contracts to serve (except contracts relating to servants in husbandry)."

Arbitration at Wolverhampton. — Employers and employed in the building trade are setting a good example here and elsewhere in the Midland district in the settlement of trade disputes. In May last the rules for arbitration between the house carpenters and their men were agreed to for twelve months. It was then arranged that notice of any intended alteration after that date should be given at the beginning of the year. In accordance with this rule the men recently gave notice of alterations involving the increase of wages from 5½d. to 6d. per hour; that wages should be paid at one o'clock on Saturdays, so that those who chose to enjoy a half-holiday on that day should be at liberty to do so; and that men working more than two miles beyond Wolverhampton should be allowed to walk home the extra distance in the master's time on the Saturday. The masters, on their part, gave notice to rescind a rule giving an extra half-penny per hour to men employed on unprotected buildings during the winter months. These matters were referred to arbitration, and Mr. R. Kettle was again selected to act as arbitrator.

He has decided mainly in favour of the men's requirements.

General Builders' Association, Manchester.—The annual meeting of this association has been held. Mr. Henry Lovatt, of Wolverhampton, president of the association, took the chair, and about 200 delegates from branch associations in most parts of England and Scotland attended. Mr. Alderman Neill was appointed president for the ensuing year; and Messrs. Lovatt, of Wolverhampton, Briggs, of Birmingham, Baker, of Bristol, Stones, of Blackburn, Dempster, of Liverpool, Shennan (Lord Dean of Guild), Edinburgh, Edwards, of Manchester, Marsden, of Bolton, and Longson, of Stockport, were appointed vice-presidents. An influential committee was also chosen. A large sum of money was subscribed in the room towards a fund for extending the association. Resolutions were passed pledging the association to place the system of contracts connected with the building trades on a more satisfactory basis (to which we shall return); and in reference to the labour question, to adopt arbitration for the settlement of all trade disputes; to discountenance all trade restrictions connected with societies, piecework, ready-worked material, apprentices, &c.; and to adopt the system of payment by the hour. The meeting was very unanimous on all points.

Liverpool.—The Liverpool labourers in the building trades have demanded an advance of wages at the rate of 2s. per week from March to November, and 1s. per week from November to March. A few of the employers agreed to the demand, but upwards of a dozen firms refused to accede to it, and locked out the labourers.

Stockton-on-Tees.—The strike in the shipbuilding yards at Stockton-on-Tees for a reduction of the hours of labour has come to a somewhat abrupt termination. Several of the men were summoned by their employers for breach of contract in leaving work without notice; and in the first case heard the magistrates convicted the defendant, and sentenced him to a month's imprisonment. Thereupon, the other men summoned consulted with their advocate, and in the end decided, rather than run the risk of being sent to prison, to return to work.

Whitby.— The whole of the joiners and painters engaged at Whitby have struck for an increase of wages. The sum demanded is a rise from 24s. to 28s. a week.

Edinburgh.—The dispute between the master builders of Edinburgh and Leith and their labourers still continues, though one or two masters have conceded the demand made, which is that 18s. should be paid as the weekly wage of the labourers, instead of 16s. as formerly. On Monday last week, fifty of the masons' labourers left Edinburgh for Stockton-on-Tees, where they were offered employment at 24s. a week. Afterwards about fifty more men left the town for employment in other places—thirty-five having gone to Glasgow and neighbourhood, at wages of 19s. 3d., and upwards of twenty to Leeds and Sunderland, at 1*l.* 4s. It is said to be the intention of the society to send another 100 men to England. The men who are at present employed have agreed to give a day's wages weekly for the support of their comrades, besides their usual weekly contribution to the funds of the society.

Ayr.—The operative masons of Ayr have turned out on strike. They demand an advance of ½d. per hour, or 2s. 6d. per week. With the exception of the County Lunatic Asylum very little building is at present going on in the neighbourhood.

Maidstone.—There has been a crowded meeting of agricultural labourers here, who have resolved to endeavour to obtain a rise of 6d. a day in their wages, and leave to quit work on Saturdays, at 4 p.m.; overtime throughout the week to be paid for at the rate of 4d. an hour.

PATENT COWHOUSES.

PROFESSOR GAMGEE has patented an arrangement of cow-houses. This invention consists in the construction of cow-houses, wherein the cows are housed in large buildings or lots separated from each other, each house or lot being again separated into rows or compartments capable of accommodating a small number,—say about twenty animals,—and each of such compartments having a distinct entrance, the walls, also, of each being of solid work, so that in case of disease in any one of such compartments there is no risk whatever of its spreading, by contagion, to the animals in any of the others. According to the patentee, each of these houses possesses efficient means of ventilation, consisting of air-passages through or between the spaces of the roof, whereby there is a perfect diffusion of atmospheric air, whilst draughts and strong currents are avoided. An arrangement is also supplied in each compartment for its efficient drainage and cleansing quite separate and apart from the rest. Water is also so supplied that each compartment can be at any time separately flooded throughout its entire length, or, if desired, part of it. The arrangement above described also admits of a more economical and convenient preparation and distribution of the food. It is also proposed to construct the interior walls of these houses throughout with vitrified bricks, the glaze on the surface of which will prevent the walls absorbing injurious gases or fluid.

COMPENSATIONS.

Harlowe and Wife, occupiers for life, v. *St. John's-wood Railway Company.*—This case was tried in the Sheriff's Court, before Mr. Under-Sheriff Burchell. As well as the following, it arises out of the same property, No. 2, North Bank, which is leasehold, for forty-six years and a half unexpired, at 25*l.* per annum ground-rent. Mr. Hawkins, Q.C., and Mr. Cole, appeared for the claimants, and Mr. Lloyd, with Mr. Horace Lloyd and Mr. Gadsden, for the company.

It appeared that Mr. and Mrs. Harlowe are entitled to the profits of the house, or to residence, so long as they or the survivor choose to occupy; and the claim of 3,800*l.* was made on the assumption that the trustees, in whom the leasehold interest is vested, could not and would not re-invest the produce in property of a similar description. Mr. Harlowe's local interests induced him, on receiving the notice to treat, to purchase the lease of the adjoining property, on his own account, for 3,500*l.*; and the claim was for loss by increased rent, and for making the house equal in capacity to the old one. The facts having been proved by Mr. Harlowe, the following evidence was given for the claimant:—

Mr. E. Roberts.—Cost of new house, 3,500*l.* at 6 per cent., equals per annum	£225
Ground rent	21
	£246
Deduct interest on Consols, to be purchased by sale of old house, assumed at 4,000*l.*	138
Annual loss	£108
For the lives, at 5 per cent., worth eleven and a quarter years' purchase	£1,215
Money to be immediately expended in making the new house equal to the old	1,500
Loss of interest during works	200
Removal	550
Re-arrangement of cabinets of geological specimens, and library and fittings	350
	£3,815
Mr. Chinnock considered that the cost of new house and additions should be taken as sunk for the whole term, which, at 6 per cent., would give a rental, *with ground rent*	342
Deduct interest from Consols	137
Annual loss	£205
At eleven years' purchase	£2,255
Loss of rent during works (half year)	123
Removal	500
	£2,878
To which should be added fixtures, about 100*l.*	
Mr. Dent valued the old house at 260*l.* a year.	
Mr. Edwin Fox valued it at	£275
Deduct ground rent £25	
And interest to be received 138	163
Annual loss	£112
At eleven years' purchase	£1,092
Ten per cent.	109
Proportion of expenditure	1,290
Double rent during works	200
Removal	500
	£3,101
Adding fixtures, worth about	190
	£3,291

The company did not call any witnesses, but Mr. Lloyd relied on the failure of the evidence to show any such loss as had been suggested, and if any loss of annual value were to be sustained, it would be limited to 60*l.*, which for the lives would be 660*l.*, added to a sum of 200*l.* at most for removal.

The summing up of the Under-Sheriff was repeatedly interrupted by counsel, with the view of clearly laying it down that the claimants could not sell any part of the term, but would be merely entitled to a sum for damage, by being obliged to remove from one house to another. The Under-Sheriff stated that he should not withdraw any of the evidence from the jury, as it was for them to judge of the amount of injury to be sustained. The jury retired for upwards of an hour, and returned a verdict of 3,000*l.*

Jolliffe and Another v. *The Same.*—Mr. Serjeant Parry and Mr. Henry James, for the claimants; and Mr. Lloyd and Mr. Horace Lloyd, for the company.

This claim was for the lease of the same premises as in the preceding case. The term is for forty-six years and a half, at a ground-rent of 25*l.* Mr. E. Roberts, Mr. Rushworth, Mr. Chinnock, Mr. Dent, and Mr. Fox, valued it at from 260*l.* to 275*l.* per annum, which at 6 per cent. gave value, with 10 per cent. added, from 4,006*l.* to 4,191*l.*

For the company Mr. F. J. Clarke valued it at 175*l.* which gave a total of 2,658*l.*; Mr. Marrable, 160*l.*, but since hearing the evidence, he had increased it to 175*l.* Verdict, 2,800*l.*

The two cases occupied the whole day from half-past ten till six o'clock.

The New Law Courts.—A case was tried on Monday, to decide on the compensation for two houses, in Crown-court, near Temple-bar, the freehold of Mr. Emanuel Moss, who claimed nearly 2,000*l.* for them. There had been no offer but the nominal one of 5*s.* by the commissioners. Mr. Hawkins, Q.C. (with whom was Mr. Garth), appeared for the claimant; Mr. Joseph Brown, Q.C., and Mr. M'Mahon appeared for the commissioners. The property in question was let out to weekly tenants, by a person named Palmer, who rented the same of Mr. Moss, at 40*l.* a year, but which, on account of the great increase in the value of property in the metropolis, was now worth between 70*l.* and 80*l.* a year. The neighbourhood was a low one, and the houses, with a number of others, were about to be swept away by the erection of the new law courts. Several witnesses were called on the part of the claimant. It was estimated that 108*l.* could be made out of the property by weekly tenants, and the net sum would be above 80*l.* It was worth, being freehold, twenty-two years' purchase. The value was 1,750*l.*, and, with 10 per cent. for compulsory sale, would make the compensation about 1,950*l.* It was proved that there was a great demand all over the metropolis for houses for working men, in consequence of the number of houses pulled down for railways. Property worth 30*l.* a few years ago was now worth 100*l.* a year, such had been the great increase in the value of property in the metropolis. On the part of the commissioners the claim was excessive in regard to such a low neighbourhood, the removal of which for the new law courts would be a benefit to the metropolis. It transpired that the tenant Palmer made 200*l.* a year out the two houses rented at 40*l.* Mr. Brown called four surveyors, and their estimate was under 800*l.* Mr. Hawkins complained that no offer had been made, and that the extra costs, beyond the sum allowed on taxation, would be 100*l.*, and that was another reason for a liberal compensation. The jury retired for a short time. The verdict was for 980*l.*

Pimlico.—The case "Dunsby *v.* The Metropolitan District Railway," was heard before Mr. Scott Turner, the high bailiff of Westminster, and a special jury, at the Sessions House, Broad Sanctuary. Mr. Bovill, Q.C., and Mr. Barnard were counsel for the claimant, a hairdresser, &c., at Shaftesbury-terrace, Pimlico, whose premises are required by the Underground Railway. Mr. Lloyd represented the company. The claim, as originally made, exceeded 7,000*l.*, and was strongly contested. Mr. Dunsby, who had recently taken premises in the Strand, was examined as to the various items of his claim for trade compensation. On cross-examination he stated his profits on hair-fluid and the sums he realized from hair-dye. Two valuers were examined as to the rental of the premises. The lease had been granted at 100*l.*, and property had so greatly increased in value in the metropolis in the last few years, that it was now worth, in the opinion of one of the surveyors, 200*l.*, and in the view of another, 220*l.* a-year. After the case had occupied some time, Mr. Bovill said his learned friend Mr. Lloyd had shown him his calculation, and they had agreed to a verdict for 1,975*l.* A verdict was accordingly entered for that amount.

COMPETITIONS.

New Dock Offices, Hull.—Twenty-seven sets of plans were submitted in this competition. The secretary, in a circular to the competitors, states "that the first premium of 100*l.* has been awarded to Mr. C. G. Wray, and the second premium of 50*l.* to Mr. Cuthbert Brodrick. Three other plans, by Messrs. William Botterill, C. O. Ellison, and Giles & Smith, were very much commended."

The Warehousemen and Clerks' Schools for the Manchester District.—The designs have been on view at the office of the secretary, in Manchester. Objections to the decision have of course reached us. One correspondent says, "The committee who decided the matter is composed of persons all of whom are in the Manchester trade."

Perth.—General Railway Station Hotel.—The joint committee of the General Station at Perth have, with the assistance of Mr. Beattie, archi-

tect, come to the decision that the designs which appear to them to be the most suitable for an hotel at Perth station would involve a greater outlay than 15,000*l.*; and accordingly the committee have instructed Mr. Heiton, Perth; Mr. Smart, Perth; and Messrs. Matthews & Laurie, Aberdeen and Inverness, to prepare reduced plans for the proposed hotel: the same to be lodged by the 2nd of April.

Waverley Station, Edinburgh.—The town council have accepted the offer made by the railway company of a site adjacent to the east end of Princes-street, in lieu of the site in the basin of the valley between the old and new towns, and the company lately offered premiums for the best places for a new station to occupy the whole ground. The choice of the directors has just been made, and the first premium of 350*l.* has been awarded to Mr. Charles Jopp, C.E., Edinburgh, one of the engineers of the company, and the second 150*l.* to Messrs. Bryce & M'Master, London. These plans have been selected from about thirty competitive designs, of greater or less merit. The difficulties in dealing with the site are unusual, a descent of about 50 ft. or 60 ft. having to be made from Princes-street to the level of the rails. Both the plans approved proposed to lower the booking-office to the platform level, instead of retaining it at Waverley bridge, a height of 30 ft. above the rails. Both also propose to remove the present Waverley bridge, and to replace it by an iron bridge. The directors do not bind themselves to adopt either of the prize plans, but secure by the premiums the property in both, so that the suggestions of the one are available for the improvement of the other. Wise directors!

Shrewsbury General Market.—The town council, without professional advice, have awarded the first premium to the design sent by Mr. Griffith, and the second to that of Mr. Peck. Fourteen sets of drawings were submitted.

Bristol Assize Courts.—The town council, on the 12th inst., resolved unanimously,—"That the new assize courts be built in connexion with the present guildhall, and, if possible, without interference with Colston's house; and that the finance committee be directed to offer suitable premiums for plans for the building." Mr. R. P. King said it was the intention of the finance committee to offer 100 guineas for the best design, and 50 guineas for the second best.

COLLISIONS IN THE STREETS.

ACCIDENTS in the streets, through collisions of carriages and the overrunning of pedestrians, have become so numerous that some stringent regulations of traffic should be made forthwith. Deaths from these causes have amounted to 230 the last year; having been on a progressive scale of increase fairly proportionate with that of the civic commerce and population. If the accidents which result fatally are so numerous, the injuries and mutilations are double that number.

The greatest danger lies not in the direct line of traffic, but arises from the rapid and reckless pace at which vehicles are driven from streets that right angles into the great leading thoroughfares: the torrent of Park-lane pouring into Piccadilly, and of Grosvenor-place, from the same line, are the scenes of constant mishaps; and other much-frequented traverse lines from the Strand and Holborn are nearly equally fatal to pedestrians.

The footways of these great arterial thoroughfares are at all times thronged with busy wayfarers, who, regarding only the pressure of carriages along the line, frequently cross the traverse street on their line of pavement without observing a carriage driven at the rate of six or eight miles an hour, which, without relaxation of speed, merges into the great current of the leading causeway at right angles: thus the old, infirm, or children, are often run over.

Surely there ought to be a regulation enforced that no vehicle should cross a public footway, from any street into another at right angles with it, at a rapid rate of driving, *nor at any other than a walking pace.* It is so difficult to estimate the speed of a trot, that no limit could be fixed in any other way; nor could security be given to *piétons* by any other regulation.

The writer, by using a little caution and impatience, has never met any serious accident; still he has had various collisions, and some narrow escapes. Lately, in Piccadilly, on a wet day, with umbrella up, when crossing Half Moon-street, a cab was driven at high speed against him; the shaft pierced his umbrella and pressed his shoulder. The driver would scarcely allow the torn silk and disjointed frame to be extricated; in fact, he seemed quite amused. His number was noted, but the issue of a summons was doubtful, the trouble certain, and now, as the only record, "*Stat nominis* umbrella!"

On another occasion, walking last year with another sexagenarian in Holborn, a barouche and pair, going in the same direction, dashed by, just crossing Southampton-street, and doubled round so close as to press the horse's shoulder against both; and it was only by pushing against the flank of the near horse, and thus suddenly recoiling, that they avoided being run over and mutilated; the escape was, in fact, miraculous.

The police may, and do, keep the steady line of traffic tolerably safe, but they cannot prevent accidents at the turnings from thronged streets, through the reckless pace of drivers on entering upon or leaving the main line. It is thus that most of the serious mishaps occur, and the only way of stopping them is by inflicting a penalty for crossing the footway at any but a walking pace.

EMBLETON CHURCH, NORTHUMBERLAND.

WHEN Walter de Merton founded Merton College, Oxford, some six hundred years ago, it was endowed with possessions which included lands in North and South Northumberland. It would appear from architectural evidence that he built chancels to the churches of the two parishes in this county in which these lands were situated. That at Ponteland has been preserved, and, the ravages of time having been recently made good, presents a similarity in its treatment to that bestowed upon the College Chapel by the illustrious founder. The chancel at Embleton was taken down within the remembrance of a few aged persons, and replaced by a flimsy, tasteless piece of construction that is already showing danger-signals. Some dozen years ago the parish (including among the landowners Sir George Grey, Earl Tankerville, and Mr. Craster, of Craster, whose predecessors were the owners of the Turris de Craster in the thirteenth century and since); and the authorities of Merton College have now placed the chancel in the hands of their architect, Mr. F. R. Wilson, Alnwick.

On Thursday, the 8th inst., a parish meeting was called by the Rev. George Rooke, M.A., vicar of Embleton, when the design for the proposed new chancel-arch was submitted for the inspection of the parishioners. The architect has revived the original style of the fabric, that of the purest Geometric period, as being most in accordance with a due regard for the memory of its founder.

INDUSTRIAL EXHIBITIONS.

Liverpool.—The Workmen's Industrial and Fine Art Exhibition, which has been open in Old Post-office-place since the 23rd of January, was to be finally closed on Tuesday last with a concert. The exhibition has, on the whole, been a success, and the committee will be able, not only to pay their expenses, but to add a substantial sum to the Northern and Southern Hospitals, and give valuable prizes to the chief exhibitors of paintings, machinery, models of ships, &c.

Bristol.—The finance committee have held their final meeting, at which it was stated that there was a disposable balance of 580*l.* 15s. 7d. It was recommended that the balance should be devoted to various charitable purposes.

JASPER.

THE *Cosmos* gives the following information respecting the jasper which M. Garnier, the architect of the new Opera House at Paris, has selected for that edifice. Jasper is a variety of quartz which possesses the peculiarity of being completely opaque, even when cut into the thinest laminæ possible. It is either red, brown, or green. Jewellers now only use green jasper with red spots, but the other kinds of jasper are much sought after for ornamental purposes, especially in sumptuous monuments. Its chief quality, in fact, consists in resisting the effects of time,—or, in other words, the atmosphere,—which marble and other hard stones are unfortunately subject to. Jasper for edifices was usually imported from Russia and Siberia; but now valuable quarries of this stone have been discovered in one of the departments recently annexed to France, viz. Upper Savoy. The working of these quarries has just been commenced near Saint Gervais by a company. Among the specimens mentioned by the *Cosmos* there is one of a pure red without veins, which strongly resembles the stone known under the name of *rosso antico*. The working of the jasper quarries of Saint Gervais, which may lead to the discovery of richer veins still, will be most profitable, the quarry having a surface of about 20,000 square mètres, with a depth of at least 20 mètres. M. Garnier, the architect above alluded to, has ordered twelve columns and forty medallions of this jasper to be employed in the *foyer* of the Opera.

DWELLINGS FOR THE WORKING CLASSES, IRELAND.

A MEETING has been held here (in Dublin) to consider the question of improving the condition of the dwellings of the working classes. The report read referred to some eligible buildings for the purpose in question, particularly a large block situated in Meath-street and South Earl-street; and stated that Mr. Geoghegan, C.E., had gone into a calculation with a view to ascertain the probable outlay necessary to reconstruct them. The report having pointed out the financial results which attended the labours of dwelling companies in London, proceeded to show the great necessity that there was for an improved condition in the dwellings of the working classes in Dublin, and that if a company were started for this purpose, while the operations would confer inestimable benefits upon such of the working classes as would be enabled to avail themselves of its limits, in a commercial point of view it would be a decided financial success. The report, after some deliberation, was adopted, and a resolution was passed that a joint-stock company should be formed for the purpose of improving the condition of the dwellings of the working classes.

INTERNATIONAL HORTICULTURAL EXHIBITION.

WE have already informed our readers as to the Grand International Horticultural Exhibition and Botanical Congress, which are to take place in London in May next, under the patronage of the Queen and the Prince of Wales, and would again ask their co-operation.

The movement is being carried out by the aid of subscriptions, giving certain privileges. Some notion of the amount required to be raised may be formed from the fact that the tent and its arrangements will cost nearly 3,000*l.*, while 2,500*l.* are offered as prizes, and the foreign visitors have to be entertained. Hence it has been found necessary also to open a guarantee fund, in order to provide against such a casualty as the diminution of receipts at the doors by the occurrence of bad weather during the time the show is open. The office of the Exhibition is at No. 1, William-street, Lowndes-square, London.

WATERWORKS AND RESERVOIRS.

The Doe Park and Grimwith Reservoirs.—The leak at Doe Park Reservoir, of which so much has been said within the last month or two, has been discovered, and the defect is being remedied. The east end of the embankment, as originally constructed, was comparatively shallow, and the water ran under it through the rocky measures at its base. To amend this, some distance within the puddle wall, which runs along the middle of the embankment, a second puddle wall—a flanking wall—was formed, which went to a much greater depth, and quite below the strata through which the water had made its way. The Borough Surveyor supposed that the recent leak had been caused by the settling down of the flanking wall, and the consequent drawing away of the new wall from the old one, just at their junction; and so it has proved. The fault was found 22 ft. from the top of the embankment, two feet deeper

than Mr. Gott had anticipated. With the stopping of this leak it is said the embankment will be quite sound. The Grimwith Reservoir is completed, with the exception of a little "trimming" work, which will be done as soon as the weather is favourable. It is being filled with water.

Bridlington.—Last May a number of gentlemen formed themselves into a joint-stock company, for supplying the town and district of Bridlington and the Quay with water, and the work is now done. We understand that the company have reached a stratum containing an unlimited volume of water, and that their pumping machine is equal to supply the town if it should double its size. The supply has been reached by sinking a deep shaft through the clay into the chalk, and the flow into this shaft is so copious that no depression can be effected upon its level with the powerful machinery in use. The company's engineer is Mr. Josiah Forster Fairbank, C.E., of Westminster. The works have been completed under the estimate.

Cardiff.—The Lisvane Reservoir has been opened. In 1862 possession of land in the parishes of Lisvane and Llanishen was obtained, and a contract entered into for the completion of the new works, designed by the company's engineer, Mr. James Simpson, C.E. The reservoir and works have been carried out under the contract of Messrs. J. Aird & Son, of Lambeth. These additions, which comprise a reservoir of a capacity of 100,000,000 gallons of water, and also filtering-beds for the same, have all been completed and officially opened.

Waterworks in Parliament.—Mr. M. Gibson has obtained leave to bring in a bill to make better provision for the security of reservoirs, and otherwise to amend the law relating to waterworks.

SANITARY MATTERS.

Sunderland.—The Sanitary Committee of the Corporation, dissatisfied with the report of the guardians' medical deputation, as to the prevalence of fever in the parish, have themselves appointed another deputation of medical men, as well as a committee, to examine fully, and report upon the causes.

Gateshead.—Typhus still lingers in Gateshead, not merely confining itself to the houses of the poorer classes, but sometimes making its appearance in the houses of the more wealthy of the population. A correspondent of the *Gateshead Observer* states that he hears numerous complaints against the corporation for not emptying ashpits and middens when requested.

Manchester.—Fever is on the increase here, the weekly number of new cases having risen from 122 to 135, of which 15 terminated fatally.

PROVINCIAL NEWS.

Scarborough.—The new Borough Gaol has been completed, so far as the exterior is concerned, and the event has been celebrated by the contractors and their workmen, numbering upwards of 200, by a dinner at the Prince of Wales Hotel. It was provided by the contractors, aided by Mr. Alderman Haigh, during whose mayoralty the building was commenced. The new gaol is designed to accommodate thirty-six male prisoners, twelve female prisoners, and four debtors. Mr. W. B. Stewart, of Scarborough, is the architect; and the contractors are all tradesmen belonging to the town.

Margate.—At a recent meeting of the council of the Alexandra Memorial Home charity, the report of Mr. Moffatt, the consulting architect on the almshouses proposed to be built by Mr. Hayward, was read; and the council considered a proposition from Mr. Hayward to make the alterations suggested by the architect for an extra sum of 50*l.*, which was afterwards raised to 65*l.*, and this proposition was adopted. Mr. W. Sear was invited to act as surveyor to the Board. A proposal to invite the Prince of Wales to Margate in the spring, for the purpose of laying the foundation-stone of the building, was referred to a sub-committee.

Halifax.—The foundations are being laid of a new model lodging-house, in Smith-street. The erection will be at the expense of Mr. John Crossley. The old model lodging-house at Mulcture Hall is about to be pulled down, and the site occupied for other purposes.

Jarrow.—This flourishing little town will soon have a new market. Mr. T. Holmes, builder, has for some months been engaged in erecting a large block of buildings, situated in what will hereafter be called Market-square, and it is in the heart of the town. The buildings comprise not only a market-but shops, a spirit-bar, a large music-hall, arcade, refreshment-rooms, and offices as well.

HEREFORD CATHEDRAL BELLS.

WITH reference to an article in the *Builder* of the 24th ultimo, concerning the bells of Hereford Cathedral, Mr. Thomas Walesby writes,—

"I am glad to find that the Cathedral at Hereford now possesses a peal of ten bells, in good condition. According to an estimate made some years since, the weight of the tenor appears to be about 44 cwt., emitting the note C. It is stated in the communication which appeared in the *Builder* of February 24, that the fifth bell was recast by Messrs. Mears & Stainbank, of London, in 1865, and that the other bells were recast since the Reformation, with the exception of the ninth and the tenor. Will you allow me to add that the first, second, third, fourth, seventh, and eighth of the peal were evidently cast by the most eminent founder of his day,—Abraham Rudhall, of Gloucester; for the fourth, seventh and eight bells have his initials, and are dated 1697; while the inscription on the first or treble bell, "We were made Ten in the year 1697," and the date 1698, &c., on the second and third bells, show that they all came from the same noted foundry. But, as the inscription on the treble reads, "We were made Ten in the year 1697," the question may be asked, How is it that the second and third bells are dated 1698? My answer is, The second and third of the peal of 1697 were doubtless broken by some means or other, and then recast in 1698.

In conclusion, I would remark that the second, fourth, and seventh of the present peal respectively bear one of Abraham Rudhall's characteristic epigraphs, that on the second bell being "God prosper this church and all the members."

BRIGHTON.

THE local works committee's proceedings contain a long correspondence between the town-clerk and Mr. J. J. Bennett, whose tender for the erection of the proposed concrete groyne was accepted seven or eight months since. From these published letters it appears that the contract and bond were never executed, the contractor requiring that some more secure place should be furnished than that now used for storing the blocks when made, his yard on the beach having been twice washed away. The council approved a resolution of the committee to the effect that, unless Mr. Bennett executed the contract, and unless his sureties executed their bond, on or before the 15th instant, the contract should be cancelled.

The surveyor has appointed Mr. William Burns, of Birkenhead, as clerk of the works to superintend the erection of the Fish Market groyne. Mr. Burns will also superintend the erection of the drainage works now in progress.

There is a talk of converting the dome of the Pavilion into a corn exchange.

The new picture galleries at the Pavilion in connexion with the Museum having been completed, the council have resolved that the pictures in the Pavilion belonging to the corporation be removed to and hung in the new galleries.

TELEGRAPHY.

M. LISSAJOUS suggests a method of suppressing the shrill and continuous sounds emitted by telegraph-wires under the action of the wind. The plan that he experimented upon with the late M. Froment, some time ago, consists in pressing the wire strongly between two tassels of wood 40 to 50 centimètres long, drawn together by means of screws. This sort of muffler, applied at a certain distance from the point where the wires are fastened, is sufficient to extinguish any vibrations caused by the wind, which acts on the wires as it does on the strings of an Æolian harp.

M. Charles Tellier, inventor of the ammonia refrigerator and motive-power engine, has proposed a new system of submerging telegraphic cables at great depths, so as to prevent any understrain or jerks. This he would accomplish by means of parachutes attached to the cable at distances which would be best ascertained by experience. If a parachute will prevent, owing to the resistance opposed by the air, a heavy body from falling rapidly, it will surely be more effective in a medium 900 times the density. The advantages of parachutes to a cable are, that it would be able to descend more gradually than its own weight uncontrolled would permit, and thus relieve the breaks of that strain which is one of the most difficult portions of the operation of laying a cable. When upright, or nearly so, the parachute would be open, but on nearing the bottom it would gradually collapse as it becomes more horizontal, and at length would lie with the cable at the bottom.

THE SUBWAYS IN NOTTINGHAM.

As a resident in Nottingham, I venture to claim a little space in the columns of the *Builder*, for the insertion of a few lines upon "Subways."

We here attach but little importance to what has been hitherto said against them, for we fail to discover one good argument that has been advanced in opposition. All that has been said hostilely may be summed up in the word "explosion." That such an event as an explosion *might* take place I am scarcely in a position positively to deny; but I imagine the contingency to be a very remote one, rather calculated to remind one of the anecdote of the Yankee, who asked the gentleman "whether his name might be Smith." "It might," he replied; "but it arn't, by long chalks!" I fancy, Mr. Editor, that this hidden danger is about on a par with that risk you and I run any night, when we retire to rest with the gas "left on." A chandelier might drop, or a bracket fall of; yet we do not banish the gas from our dining-rooms or kitchens. It is easy to raise objections where interest makes "the wish father to the thought."

It appears to me, that one of three evils might be adduced as likely to bring about the leakage necessary to produce an explosion, viz., "defective joints," "vibration," and "excessive expansion and contraction." I have yet to learn that our engineering skill cannot overcome the first in *any situation*. With regard to the second, he would be a bold man indeed that would assert that vibration could not be so well grappled with in a subway as when pipes are laid (as they generally are with us) merely below the surface of the ground. "Fact," I think, disposes of the third objection; for pipes have been, and continually are, placed where they are subjected to every variation of temperature.

In the exercise of my profession, during the last twelve years, I have fixed many thousand feet of gas, water, and steam piping, in our factories and other buildings, and I seldom have a complaint of leaky joints—rarely so in the steam-piping, although these have to withstand all temperatures; for in many of our factories steam is turned off on the Saturday afternoon, and not got up again until the Monday morning.

Our able surveyor has provided us with two subways, and is about to provide us with another. I believe I am not saying too much when I affirm that the intelligent portion of our community are well satisfied with Mr. Tarbotton's arrangements, and are quite willing to pay the extra cost incurred.

A NOTTINGHAM ARCHITECT.

THE EGYPTIAN PYRAMIDS.

A LITTLE common sense on a subject on which there has been so much nonsense broached is a pleasant thing, and therefore I saw with much satisfaction the letter of Mr. Garbett in your last number, on the Pyramids of Egypt.

I have been for many years a curious reader of the various theories that have been put forward, and which has ended in my being a total disbeliever in any one of them, although I have waded through nearly all, from Greaves's "Pyramidographia" down to the northern astronomer's last lucubration.

Now, what are the actual facts on which are based all these theories. The ancient Egyptians are *said* to have been great astronomers, and also *said* to have been geometricians, this being

necessary to measure their lands, annually overflowed by the Nile; but what evidence have we that they had any knowledge of the shape of the earth, or that their observations of the heavens was other than that of practical observers of the changes of the seasons?

In the matter of simple measurements, they, like all ancient and Eastern nations, do not seem to have attached much importance to lineal accuracy; their measures, of which some score or so are to be seen in various collections, differ in the length of the cubit fully half an inch (say one-fortieth). It is true these are in nearly every case only rough workmen's measures; but then, they differ much more than our workmen's 2-ft. rules, though we all know these are not to be depended on.

Again, I have never found any two columns in an Egyptian temple of the same precise diameter; and even the so-called "King's Chamber," in the Great Pyramid of Ghizah, is not perfectly rectangular: the opposite sides, and the ends, too, are of unequal lengths; and yet, on the dimensions of this chamber it has been attempted to settle the precise length of their cubit to the thousandth part of an inch.

The Egyptians were splendid workmen, and that they did not build even a pyramid at random (like a pre-historic cairn), I will readily concede; and I recollect well going over the pyramids, many years ago, with Mr. Perring, who, from habit and from having carefully investigated them, was capable of forming an opinion, and he convinced me that there was throughout a certain intention—a design, so to speak, on which each was built, the angles being determined in the 2 to 1, or 3 to 1, or some other direct arithmetical proportion of base to height, such as Mr. Garbett suggests.

Before me lies the second volume of Bunsen's "Egypt's Place in History," the appendix of which by Mr. Perring contains the full particulars of the corrected dimensions of all the pyramids of Egypt, and some remarks; and to that and a letter from the same gentleman, in the *Athenæum*, of March 9th, 1844, I would direct the attention of Mr. Garbett, as also being in the same category of common sense as his own letter.

A. X.

DAMP WALLS.

"The late rains have penetrated the walls of hundreds of houses, and we have received more than our usual number of letters asking for a preventive."—Extract from *Builder*, March 3.

Sir,—Any one reading the foregoing will readily believe that the walls of many of the houses referred to have been so completely saturated as to be unfit for habitation; and in such houses the paper-hangings, books, and furniture (selected with much care), have been more or less injured; and as these walls conduct frost with the same facility as moisture, bed and other rooms (without fires) during the past season have been little better than refrigerators.

This being a fact, the intelligence of the age, and the advances made in practical science, lead us to inquire if houses of every class, as at present built (and in which females and children spend so large a portion of their time), are constructed upon proper principles. The interior of a house should never be influenced by atmospheric changes: it should be cool in summer, warm in winter, and dry at all times. These advantages will never be secured so long as houses are built with solid walls, "every course well flushed in."

The protecting influence of an air space is something wonderful: ice and furnace doors are both preserved by it, as are fruit and other trees by "double glazing" (from frost) in orchid houses; and the temperature within a house reconstructed with hollow walls would, at all seasons, be quite independent of external influences.

Acts of Parliament have been passed to prevent over-crowding and to render house drainage compulsory, yet no principle is *satisfactorily* determined in relation to the construction of buildings. The Building Act expressly stating that all walls shall be "solid," no provision is made for the supply of that great necessity of life—air—at a proper temperature, or in such a way as to avoid draught, or for its extraction after use. The perfection of our houses and public buildings depends at this time entirely on the sanitary knowledge of the architect who may be employed to design them, and who, intent on the beauty of his otherwise well-planned structure, overlooks the requirements of health; and, as a consequence, rich as well as poor, by respiring continually the same air within the rooms they inhabit, convert it into a poisonous gas most injurious to health, and rise from their beds unrefreshed and unfitted for the duties of the day.

Half the complaints that afflict humanity proceed from the total disregard or ignorance of the laws of health. Man was not thrown upon the earth by the hand of chance to vegetate like the rest of the animal creation, and then to die, leaving the world no better than if he had never lived. Man's health and comfort will ever be proportioned to his knowledge of the science of life, and if this formed part of the education of all classes, the result would be increased comfort and physical improvement.

George Jennings.

EFFLUVIUM INTERCEPTOR.

Sir,—The introduction of the Effluvium Intercepter in a line of house drain (as sketched in the *Builder* of the 10th inst.) would cut off the sewer air, and prevent it passing up the drain; but it would also cause confined air within the drain, between the trap and the drain-inlets: the remedy would thus be worse than the disease. It is almost certain that the sewer air would never acquire sufficient pressure to force its way through the water below the syphon dip. Neither is it at all desirable, if it could thus be done, as it would convert each house-drain into a sewer ventilator. Again, the confined air on the house side of the trap may, and doubtless would, acquire considerable pressure power; but that pressure would act first on the weakest inlet-trap, probably the kitchen sink, through which the confined air would escape until an equilibrium is obtained between the external and internal air. My mode of trapping and ventilating drains forms the subject of a notice in the *Builder* of January 22nd, 1859, p. 97, and the several appliances can be seen at Mr. George Jennings's depôt, Stangate.

James Lovegrove.

DEFLEXION OF TIMBER BEAMS.

Until the end of last week I was unable to take up the *Builder*, which must be my apology for not writing earlier to thank Messrs. Tarn and Conder for their very interesting and considerate explanations and criticisms of the *theoretical* deflexion of timber beams as advocated of late years.

In concluding this correspondence, I would beg to ask the attention of those who may have given the subject their consideration, to the fact deduced from my practical experiments and from the theoretical investigations, that, as it is next to impossible so to fix the ends of a beam for a safe calculation to be made for such a case, it would appear equally next to impossible in practice, so to fix the ends of an arm as to prevent its deflexion being *double* that allowed by theory. Thus Barlow's deduction may be taken as the safer guide, as I observed in my previous communication, although it may not be truly correct.

I acknowledge that the necessity for using the low number of the modulus in the formula for the piece of memel, tended to show that it was probably a weak specimen (another reason for taking *double* and not *equal* deflexion); otherwise I consider that the two experiments were carefully performed, and the arm better secured than perhaps would ever be the case in practice. I trust I may see in your pages, trials made by others, and possibly performed on a larger scale.

Wyatt Papworth.

DEODORISING BY EARTH.

Sir,—I should feel obliged if any of your readers will inform me of any town or village deodorising the sewage by using earth in connexion with the privies. Any information to that effect will greatly oblige. Sano.

PATENTS CONNECTED WITH BUILDING.

Stoves or Fire-places, Ash-pans, and Fenders.—*C. J. Morgan.* Dated 23rd March, 1865.—The improvement consists in making a door at the back of the grate of such construction that it falls back from its closing point, which is an angle of twenty-five to thirty-five degrees on one side of the perpendicular to about the same angle on the other side of the perpendicular, to allow a good outlet for the smoke, and by having the door concaved it hides the back part of the flue when the valve is open, and makes a good conductor for the smoke, and allows the folding-doors or valve to open without obstruction to make the aperture almost as large as the interior of the grate. The novel valve or folding-doors are so hung that, with a sliding hinge or grooved joint, they, by their own weight, or impingement, can be opened or closed, and remain stationary at any point. The guard attached to the grate can be drawn out to any angle on the same principle, as more particularly described in the fender part of this fire-set. The next improvement is in the hearth, consisting of an arrangement of circular or straight iron, steel, or other metal plate or plates placed on the hearth to work like a Venetian blind, either by springs, centres, impingement, their own weight, or otherwise. A further improvement on the hearth consists in constructing a guard to the hearth (or grate as before referred to) having a rod or rods connected with telescopic or other standards capable of being raised, and thus produce a dress protector.

Apparatus for Cutting Scrolls, Frets, and Filagree Work.—*J. Kennan.* Dated 1st April, 1865.—This invention relates to a peculiar combination of machinery or apparatus for cutting scrolls, frets, or filagree work in wood, metal, or other materials capable of being so cut; and consists, essentially, in the employment for that purpose of a vibrating or oscillating frame, in which a fret straw is strained, such frame deriving its motion direct from a cam having two or more inclines or actuating surfaces on the fast-motion shaft, which may be worked by a foot-lever or otherwise.

Indicators and Fastenings for Water-closets, &c.—*H. K. Taylor.* Dated 20th April, 1865.—This invention consists in mounting a sliding-door, shutter, or screen in a suitable frame to close an aperture or window formed in the door, wall, or other part of a closet or other private room or place to which this invention is applied. When the closet or room is unoccupied, the sliding-door, screen, or shutter is kept back by an india-rubber spring, or by other means, so as to uncover the aperture or window through which the interior can be seen. To the sliding-door or shutter, a catch, latch, bolt, or other fastening is applied, which is the means employed for fastening the door of the room or closet when occupied, the act of fastening the closet-door being also the means of closing the aperture or window by closing or drawing the door, screen, or shutter over it, the word "engaged," or other suitable device, placed on the exterior thereof, indicating to those outside that the place is occupied.

HOARDINGS.

At Westminster police court, Messrs. Trollope, builders, were recently summoned by Mr. John Dixon, ironmonger, Lower Eaton-street, Pimlico, to show cause why they did not erect certain platforms and hand-rails for the convenience of the public in Lower Eaton-street and Ranelagh-street; also why penalties should not be inflicted for not removing certain hoardings in front of their buildings. Mr. Dixon complained that the defendants had allowed the road to remain in an unfinished state for a considerable period, and that they might have taken down the hoarding or thrown it back as much as five months ago. His business had been seriously damaged by their conduct.

Messrs. Trollope's defence was that the parish surveyor, Mr. Richmond, had given them licence to occupy all the ground they had.

Mr. Arnold said it was the duty of the surveyor to see that the public rights were not encroached upon, and that hand-rails and platforms were erected for their convenience. When the vaults were finished Messrs. Trollope ought at once to have taken the hoarding back. The surveyor had no power to give a licence which in substance was illegal. Messrs. Trollope had no power to encroach upon the public footpaths and roads as they pleased, for by doing so they had greatly injured Mr. Dixon's business. The defendants must pay two guineas costs, and come up for judgment when called upon.

CHURCH-BUILDING NEWS.

Llanbedrog. The parish church here has been re-opened for divine service. This church, in its former state, was a humble, plain, low building, with ceiled roof, decayed windows, and unsightly pews. Now the edifice has an open roof, mullioned and traceried windows, in the style of the latter part of the second period of Gothic architecture,—uniform, open seats, calculated to accommodate nearly 200 persons, new pulpit and reading-desk, and a designed portal. The chancel is separated from the nave by an old oak screen, which, as well as an old stone font, has been restored; this, and every other part of the contract work, having been executed by Messrs. W. Humphreys & J. Jones, of Pwllheli, builders. To complete the whole, three painted memorial windows, by Messrs. Forrest, Liverpool, have been put up by Lady Jones Parry,—the east window in three lights (the principal subjects of which are the infant Saviour, with Mary and Joseph, and the Wise Men at Bethlehem, the Crucifixion, and the Resurrection), is to the memory of her husband, the late Sir Love Parry Jones Parry; the other two chancel windows

being—the one, to the memory of her mother; and the other, to the memory of her brother.

Manchester.—St. John's Church, Stand-lane, has been consecrated. The site, which is on a high plot of land near the Stand-lane toll-bar, together with a donation, was given by the Earl of Derby. The church has been erected mainly through the instrumentality of Mr. Statter, of Stand-hill. The chief approaches are on the south, and on this side the churchyard wall is stepped down, to follow the slope of the road. There are two gateways in this wall, at the eastern and western ends, from which footways lead up to the level terrace upon which the church stands. Entering—as most persons will do—at the west end, we pass through a narthecal porch, 40 ft. by 8 ft., in the east wall of which are three doors communicating directly and severally with the centre passage of the nave, and with those of the north and south aisles. Looking eastward there is seen through the usual broad arch a spacious chancel, 39 ft. by 18 ft. The three apse windows are filled with Scriptural subjects, in stained glass, by Messrs. Heaton, Butler, & Bayne; and another window, by the same artists, not so costly, occupies the centre of the east wall of the south transept. Most of the other windows have a coloured border, worked in a pattern. The whole of the apse walls are polychromed by Mr. R. Park, of Preston, and there are other mural decorations and legends about the church, which are, for the most part, the handiwork of the incumbent. The chancel and sanctuary are laid with Minton's encaustic tiles, and the porches and passages elsewhere with red and black Broseley tiles, in patterns. All the benches are low and open, and will seat about 850 people. The contract was taken by Mr. Robinson, at 3,787. The altar-cloth, as well as the other fittings and furniture, were designed by the architect, Mr. J. Medland Taylor, of Manchester. The general plan is cruciform, with central steeple; but the steeple is over the western part of the chancel. Externally, the tower, rising over the chancel, is bevelled off into an octagonal belfry stage, from which springs a spire nearly 160 ft. in height. To the east of the tower is the hipped roof of the octagonal apse, and to the south the transept, whose gable is pierced with a rose window. In the angle stands the staircase turret leading to the ringing-loft and belfry. A large traceried window occupies the west wall of the nave, its sill being just above the west porch. The clerestory wall of the nave is pierced with eight cinque-foiled windows; and the aisles are lighted by eight pairs of single lights, with trefoiled heads. There are no chandeliers or pendants for the gas, but, at Mr. Statter's suggestion, a gas-pipe, with many jets, has been placed on the sill of each clerestory window. There are brackets in the aisles, porches, and elsewhere. The number of free sittings is about 450.

Thetford.—Some renovations are said to be in contemplation at St. Mary's Church. It is proposed to remove the gallery, and throw open all the south aisle, and place stained glass in the large window now lighting the belfry; the organ to be brought down to the ground-floor. The old-fashioned pews in the chancel end are also to be removed, and replaced by others resembling those in the aisle.

DISSENTING CHURCH-BUILDING NEWS.

Altrincham.—It has been determined to erect an Independent chapel and schools at Altrincham. The schools are to be completed first, and used by the congregation during the progress of the chapel. The group will be in the Italian style, of red brick and stone, with a moderate use of white stocks, and will be carried out for about 2,500*l.* The architects are Messrs. G. S. & R. W. Aitken, of Eccles, near Manchester.

Darlington (Durham).—The committee of the United Methodist Free Church are about to erect, from the designs of Mr. Hoskins, architect, a new district church and schools, at Nestfield, to meet the wants of the rapidly-increasing population, owing to the extension of the iron-works in this neighbourhood.

Huntingdon.—The proposed new Congregational church for this town, on the site of the late Dolphin inn and adjoining premises, will, it is expected, soon be commenced, or, at least, the pulling down of the old buildings. The site, when cleared, will make a considerable gap in the High-street and adjoining buildings. The building will be a Gothic structure, with a spire, the summit of which will be about 165 ft. from the pavement. The cost of the edifice will be about 9,000*l.*; of this sum 1,000*l.* more require to be raised by the town, and 1,000*l.* from friends beyond.

Manchester.—The foundation-stone of a new chapel and schools about to be erected on the Ashton New-road, for the Methodist New Connexion, has been laid. The chapel is calculated to accommodate upwards of 350 people. The architects are Messrs. Shaw & Webster, of Manchester, and the contract for the whole of the works complete (except heating) has been undertaken by Messrs. Ellis & Hinchcliffe, of Manchester, at a cost of 1,504*l.*

STAINED GLASS.

Keighley Church.—A stained-glass window has been erected in the north side of this church, to the memory of the late Mr. J. G. Sugden, of Eastwood House. The work was done by Messrs. Ward & Co., of London, and placed in the window by Mr. James Harrison, glazier, Keighley. The subjects are illustrated in three compartments, viz.:—1st. The Shepherds, &c., paying Adoration to the Child Jesus; 2nd. The Ascension of Christ, as seen by the Apostles; 3rd. The Body of Christ sought at the Sepulchre by Mary Magdalen, Mary the Mother of James, and others.

St. Peter's, Newcastle.—A stained-glass window has been erected in the south aisle of this church, in memory of the late Mr. Stephen Reed, coroner for Northumberland. The window is of the floriated period, and contains three compartments. The design is the parable of the Good Samaritan. In the first opening is shown the Samaritan pouring oil into the wounds of the man who had fallen among thieves,—in the distance the priest and the Levite pass by; in the second opening the Samaritan is depicted taking the wounded man to the inn; and in the third, the Samaritan paying the host. Each portion of the subject is surmounted by a canopy of foliage, on red and blue grounds alternating. Under the picture are angels with scrolls. The tracery is filled with ornament, on which is a bust of Our Lord. The window is from the establishment of Mr. Wailes.

Cragford Church.—A stained glass window has been erected in this church, to the memory of the late Mr. Charles Swaisland, by his nieces. The subject is the Crucifixion, and the work has been executed by Mr. O'Connor.

SCHOOL-BUILDING NEWS.

Manchester.—The new building for the Wesleyan Schools at Higher Broughton stands on a plot of ground immediately behind the Wesleyan Chapel in Great Cheetham-street, and consists of a mixed school-room, 48 ft. by 30 ft.; infants' school-room, 36 ft. by 18 ft.; and three class-rooms, 18 ft. by 11 ft. 6 in. each. In the basement underneath these class-rooms, are store-rooms, heating-chamber, and boiler-room. The conveniences are placed at the back, apart from the main building. There are two entrance porches at the front, and two others communicating with the back yards. The principal rooms are 15 ft. 6 in. high to the wall-plate, and 19 ft. 9 in. to the ceiling. The principals are wrought, stained and varnished, and rest on shaped stone corbels. The two school-rooms are connected by a large archway, with doors, and can therefore be opened into one large room when necessary. The walls are built of seconds bricks, and plastered on the inside: they are 16 in. thick, formed with a 2-in. cavity, and strengthened with buttresses opposite each principal. The style is Early English, very plain and inexpensive. Owing to the unevenness of the ground, and the loose sandy nature of the soil, the foundations at one end have had to be carried down to a considerable depth. The rooms are warmed by hot-water pipes, and are well ventilated. The cost of the building is about 1,300*l.* The designs were prepared by Messrs. Hayley & Son (now Hayley & Dawes), of Manchester. The contractor was Mr. Tickell, Strangeways.——The new Wesleyan Day and Sunday Schools, Cheetham-hill, have been opened. The schools, including the chapel and schools in Rooden-lane, which are in connexion with the same body, will cost about 3,100*l.* The new buildings measure 72 ft. by 34 ft. They are also furnished with a library, and have three separate entrances. The architects were Messrs. Clegg & Knowles, and the builder Mr. M. Foggett, of Manchester.

Shields.—The foundation-stone of a British School at Crook, for Dissenters, has been laid. The school-house will have a main front of 92 ft., and a north-eastern front of 103 ft. There will be a boys' school and class-rooms, and a girls' school and class-rooms; and it is in contemplation to have an infant school attached. A house will be provided for the master, and around the structure, which will be in the mixed Gothic and Elizabethan style, there will be a large play-ground for the children. The school, which is expected to be opened in September, will hold 400 children. It will be built by Messrs. Walton & Hare, builders, Crook, and the estimated cost is about 2,000*l.*

Maidstone.—New schools for All Saints' and St. Philip's, Maidstone, are to be erected. The buildings, it is said, are to be all completed and occupied by the end of the year. The architect for the schools for All Saints' parish, to be built on the new road leading to Tovil, is Mr. E. W. Stephens, and the contractors are Messrs. Clements & Wallis. The amount of the contract is 2,445*l.* The designs for St. Philip's are not completed. The total expenditure (both schools), has been set down at 4,870*l.*, of which 4,390*l.* have been subscribed, leaving about 500*l.* yet to be made up.

Sandgate.—The new schools erected on the site presented by the Earl of Radnor, at the sole expense of Mr. James Morris, of Encomb, Sandgate, approach completion. The buildings are of Kentish rag, with Bath stone dressings; and comprise boys', girls', and infants' schools, also master's and mistress's residences. The whole of the roofs are of Memel timber, stained and varnished, and covered with red and black Staffordshire tiles, the architecture being a transition from the Norman to the Early English period. The structure was designed by Mr. Hardwick. The contractor is Mr. Matthews, of Dover.

Books Received.

VARIORUM.

"IMPROVEMENTS in Apparatus employed in the Manufacture of Gas." By George Anderson, Gas Engineer, London. Although the chief object of this pamphlet is doubtless to obtain business, it contains a good deal of matter which must be useful "to the directors, secretaries, and engineers of gas companies," to whom it is addressed; with an occasional "wrinkle" to the public as gas consumers, showing how it is sometimes that they are made to pay high prices for wasteful production of gas without profit even to the gas shareholders. In one case, Mr. Anderson tells us, he found ten furnaces in use manufacturing gas which had yielded no dividend for ten years: after remodelling the works, two furnaces were found sufficient, and coke which had gone up the chimney was sold to the public. Next year the works yielded a dividend of 6 per cent. No doubt the ten years' argument for keeping up the price was, that there was no dividend. In another case, where retorts were remodelled, 10 cwt. of coke per ton of coal were realized instead of 7 cwt. The result was, that within two years, in addition to the usual dividend, back dividends or arrears were paid for years on which there had been no profits. The author of the pamphlet, notwithstanding he is speaking of his own exploits, appears to be a man of invention and ready resources in his business as a gas engineer, and ought to be of some use to the public as well as to the gas companies.——"Occasional Papers of the Working Men's Club and Institute Union." Office, 150, Strand. These are monthly penny tractates on subjects of interest or benefit to working men. One is titled, "Working Men's Clubs promote Domestic Comfort." This they do, as the Bishop of London pointed out, from their having not only redeemed drunkards and tipplers to sobriety, but formed a sort of stepping-stone from the infernal gin shop to the comfortable home, *for which even the clubs are at length neglected.*——"British Rainfall, 1865. On the Distribution of Rainfall over the British Isles during the year 1865. Compiled by G. J. Symons." London: Stanford, Charing-cross. Also Symons's "Monthly Meteorological Magazine: February." Stanford. These are useful

periodicals to all interested in meteorology. The rainfall as observed at above 1,000 stations in Great Britain and Ireland is here recorded, with remarks on various experiments and illustrations. —— "The Model Ready Reckoner. London: Warne & Co. 1866." This small volume contains many tables, showing the value of any number of articles, from one-sixteenth of a penny to twenty shillings; including interest, commission exchange, banking, population, &c.; besides a variety of useful matter at the end, such as commercial forms, abbreviations, weights and measures, &c.—— "Fire considered as the Seaman's Scourge. By Captain Alfred Matthews, R.N. London: Longmans & Co." A glance is here given at the causes of a few of our most serious losses from fires at sea, beginning with the *Boyne*, 1795, and ending with the *Bombay*, 1864. There is nothing for it, he thinks, but multiplied precaution, — a well-digested system of police, steadily adhered to, backed by an intelligent able-bodied staff. The narratives given are interesting. We attach more importance than the writer does to certain provisions that might be made.

Miscellanea.

PROPOSED NEW EXCHANGE FOR SHREWSBURY. — The money for a new Exchange for Shrewsbury has been subscribed, and the subject is before the town-council for consideration of the terms on which the new edifice may eventually become the property of the town.

CHURCH EXTENSION IN THE EAST.—A Smyrna correspondent says:—"Our little English church at Boujah is nearly finished, but want of funds delays its completion. At Bournabat we have a little gem of a church, built at the sole expense of our *doyen*, Mr. Whittal. The Roman Catholic cathedral is advancing rapidly towards completion. Its shell walls are already high up, and there are, it is said, ample funds collected."

ST. JAMES'S TOWER, TAUNTON. — In consequence of public opinion being much against the destruction of this building, no further steps, since the signing of the contract for the rebuilding, have been taken; but, as a fresh crack in one of the buttresses has appeared, a vestry meeting was called to take the matter into consideration. It was decided that the buttress should be supported for the present; and the meeting was adjourned, with the understanding that the churchwardens should frame the notice so as to enable the vestry to rescind, if they saw fit, the resolution determining to pull down and rebuild the tower.

THE READING DRAINAGE QUESTION.—Mr. W. Carter, Surveyor to the local Board of Health, has just published, in the form of a pamphlet, a report on the recent drainage and sewage works of Carlisle, Worksop, Croydon, Worthing, and other places, of which Mr. Rawlinson, C.B., frequently spoke during the sittings of the Rivers Commission in this town. Mr. Carter instituted inquiries at these boroughs, in consequence of a resolution of the Board, and the facts connected with the works which have been carried out are summed up by the Surveyor, who states in his pamphlet that the united evidence given in the reports for the various cities and towns "proves that, although they have reaped the great advantage of a higher sanitary condition, the great difficulty still remains in not knowing what to do with the sewage after its collection."

PUBLIC BUILDINGS IN SCOTLAND.—The following sums are allotted in the Civil Service Estimates to public buildings in Scotland:—Sum that will be required for the maintenance and repair of royal, public, ecclesiastical, and collegiate buildings, and charges attendant thereon, 9,770*l.* Courts of Law, Edinburgh—for renewing the great south-east window of Parliament Hall, total estimate 2,000*l.*; amount already voted, 1,500*l.*; amount required for 1866-7, 500*l.*; ditto, for extending the accommodation of the Crown Agent's Chambers, 700*l.* General Assembly Hall—for providing additional accommodation, 1,500*l.*; Industrial Museum, Edinburgh—for altering the roof, paving, and for other works, and for painting and decorating the building, 2,925*l.*; ditto—for glass cases for exhibiting specimens, 2,000*l.*; Royal Botanic Gardens—for repairs and painting of the palm-house, conservatories, &c., 842*l.* The total for Scotland is 18,795*l.*

IMPROVEMENTS IN RAILWAY TRAVELLING.—A Liverpool contemporary is informed that the London and North-Western Railway Company purposes making great alterations in the passenger traffic between London and Liverpool. They are now building sets of saloon-carriages, in which all the required and desirable comforts will be provided. There will be smoking-rooms, coffee-rooms, &c. The express trains will not stop at any intermediate station, as water will be taken up at Rugby while the train is in motion. The journey will be performed in four hours.

WORKS AT IPSWICH.—A company is in course of formation for the purchase of Mr. Read's shipbuilding yard at Ipswich, and the construction of a new dry dock on a portion of it. It appears remarkable that so thriving a port as Ipswich should be without any accommodation for the repair of vessels, and that vessels trading to the town should be compelled to go to Yarmouth or Lowestoft for any necessary repairs. This manifest inconvenience and loss to the town is proposed to be remedied by the above company. Plans, with a report and estimate, have been submitted by Messrs. Bacon & Bell, of London, and there seems a probability of a speedy commencement of the undertaking.

A FIELD CLUB FOR NORTH LONDON. — Some thirty or forty gentlemen, resident in the north of London, and interested in the studies of zoology, botany, &c., have formed themselves into a club (near Canonbury), for the purpose of advancing these studies by mutual co-operation. Frequent excursions will be made by the members of the club, on Saturday afternoons, all through the summer, to the woods, meadows, river-sides, &c. (principally near town), in the furtherance of this object. Any of our readers really interested in the animal and vegetable kingdoms, and desirous of knowing something more of the natural forms, varieties, habits, and colours of plants, birds, insects, &c., than can be picked up in Covent Garden market, or the rabbit-fanciers' shops in Seven-dials and elsewhere, and who may be disposed to pay an annual subscription of 5*s.* for that purpose, are advised to communicate with the Secretary, 103, St. John's-street-road, N.

THE BRIDGE BETWEEN NEWCASTLE AND GATESHEAD.—Preparatory to the re-erection of this old bridge, a temporary one is being erected a little to the west of it. The temporary bridge will have the same number of arches in the river, corresponding with the arches of the present bridge. The width of the roadway will be 22½ ft., and the footpaths 6 ft. 3 in. each. The piers will consist of a double row of piles of six each, with cutwaters. The erection was commenced in September last, and will be completed next month. The plans, which have been sanctioned by the Board of Trade, were prepared by Mr. Ure, under whose personal superintendence the work of constructing the new bridge is being carried out. On the site of the present bridge the new one will be constructed, which it is expected will take about three years to complete. It will be made with an opening, and a clear thoroughfare for masted ships, and will also admit of the commissioners' dredging-machines and other plant to pass to the upper river for its improvement.

SUBMARINE CABLE CONSTRUCTION. — It has been suggested by Mr. T. Fenwick of Stockton-upon-Tees, that a buoyant cable might be thus formed:—"I would have an ordinary conductor, insulated with Macintosh's composition, and over this a coating of gutta-percha, applied in the ordinary manner. This being done, I would place, at certain distances apart, 'round pieces of cork,' having a hole in the centre of each, through which I purpose to run the cable. I would then further encase and protect the conductor, by having a gutta-percha or india-rubber tube, well lined and strengthened by strong canvas (similar to hose-pipes) which would prevent elongation, &c., and in which tube I would place the cable. The cable, therefore, being buoyant, but not sufficient to float, there could not be any danger of its being either strained or otherwise injured in laying. . . . . This, then, I consider is a perfect cable, and one that will cost much less than either that of 1865 or the one which is now being proceeded with." Floats of different kinds have been before suggested, and we fear not much dependence could be placed in the tube as a promoter of buoyancy. The cable, too, must be a very light and fragile one if cork could keep it buoyant.

GAS WORKS.—The tenders for the erection of the Folkestone gas-works have been given in, and the lowest, that of Mr. Matthews, of Dover, of 6,474*l.* for the brickwork, &c., has been accepted.

THE NOTTINGHAM BARRACKS.—In reply to Sir R. Clifton, in the Commons, the Marquis of Hartington stated that the land for these barracks was purchased in 1860, and extended over 21 acres, the cost having been 5,200*l.*

RECREATION GROUND FOR HALIFAX.—The Hon. Mr. Savill has relinquished his manorial rights on the unenclosed portion of Skircoat Moor to the corporation of Halifax for a recreation ground, on payment of the sum of 100*l.*; the council to exercise their powers to abate the smoke nuisance, which is constantly increasing.

PROPOSED PUBLIC HALL IN CARLISLE. — The object of the promoters of this project is to secure for Carlisle a large hall capable of containing from 1,500 to 2,000 people, and suitable for public meetings, musical, dramatic, equestrian, or other entertainments. A committee has been appointed to make inquiries as to what sites are available for the purpose. The capital of the company is to be 5,000*l.*, in shares of 5*l.* each.

THE CHAPTER-HOUSE, ST. PAUL'S.—A correspondent writes,—The next time your inspector of annoyances passes through the City, I trust he will call and jog the memory of the dean and chapter of St. Paul's Cathedral, and beg their attention to the very unsightly and discreditable state of the circular stone pediments to the frontispieces of the two entrance doorways of their chapter-house, as seen on passing through St. Paul's Church-yard, which seem to nod to each other with melancholy feelings of shame at the neglect under which they are suffering, and have now so long suffered. They were patched up some years since within my own recollection, but in so trumpery a way that the walls fell down, and carried some adjoining parts down with them in their fall. The very able architect of the cathedral would, of course, wish to put new pediments in stone, copies of what these were when sound.

BERKHAMPSTEAD COMMON.—Earl Brownlow, a few weeks ago, enclosed the greater part of Berkhampstead Common, in Hertfordshire, to the great annoyance of the commoners and his neighbours in general; more particularly, however, of Mr. Augustus Smith, of the Scilly Islands, who owns an estate in the neighbourhood, and who undertook to be the champion of the common cause. In fulfilment of his determination, Mr. Smith chartered a special train on the London and North Western Railway, which left Euston at half-past one in the morning, conveying upwards of a hundred workmen, most of whom were in ignorance of their destination, having promised simply to obey orders, but who were directed to bring each man his crowbar or other weapon of destruction. A march of three miles from Tring station brought the invaders to the scene of action; and before six o'clock the whole of the strong iron railing which had been erected by the noble earl was levelled to the ground. The cost of the three miles of iron railing removed is said to have been more than 1,000*l.*, and that of its removal must have been considerable.

ROMAN REMAINS IN FRANCE. At Avignon, says a foreign journal, in the line of the new Rue Buonaparte, on excavating the foundations of the Maison Dupoux, a Roman wall was discovered at 3 mètres below the surface. This wall traverses the Rue Argentière, and is prolonged, for an unknown length, towards the Rue Bancasse, where, a few years ago, in excavating the ice-pit of the Café Henri IV., mosaics were found. Near this ancient construction, composed of cement mingled with granitic concrete, were found fragments of amphoræ, funereal urns, lacrymatories, bricks, and rams' horns in earthenware. Undermining with difficulty a portion of the wall which had, perhaps, served for the basis of a triumphal arch or a temple of Jupiter, the spade turned up a fine medal, in pure gold, about the size of a 20-franc piece, but much thicker, bearing this inscription, "Nero Cæsar Augustus." The reverse represents a goddess seated on a curule chair, bare-headed, holding the orb of the world in the right hand extended, and in the left a cornucopia, with the inscription "Concordia Augusta." This medal was as perfect and brilliant as a coin just issued from the mint, although it dates from the year 54 of the Christian era.

CENTRAL HALL OF ARTS, KENSINGTON GORE.—Boxes and stalls have now been bought to the amount of 69,300*l.*

A DRINKING FOUNTAIN FOR DUDLEY.—At a recent meeting of the town council, the clerk said the mayor had received from Earl Dudley a sketch of a drinking-fountain which his lordship proposed to erect in the market-place. The design, his lordship stated, would be submitted to the council. The fountain would be 22 ft. by 24 ft. The erection will cost about 2,000*l.*, and the supply of water about 60*l.* or 70*l.* a year. The communication was referred to a committee.

FIRES IN THE METROPOLIS.—Mr. H. Browne points to the fact that fires can best be dealt with at outbreak, and urges that a large placard, printed in bold type, containing hints and suggestions, under the following, or similar heads, would save an immense amount of property:—

"Residents in all Premises necessary.—Careful Supervision of the same when Retiring to Rest.—Use of a Safety Lamp, examining Gas, Fires, &c.—Stowage and Inspection of Combustible Articles.—Use of Paper and Matches in Lighting Fires, Gas, &c.—Dangers in Public-houses, Tobacco-shops, and Public Places of Resort.—Employers to Caution all in their Service.—Aged, Insane, and Intemperate Persons.—Dresses, Crinolines, Fireguards, and Children.—How to act in Case of Fire, and Presence of Mind enforced."

BATHS AND WASHHOUSES IN ST. PANCRAS.—The Baths and Washhouses Commissioners have reported that they have, after great exertion, in the course of which the Duke of Bedford and Lord Southampton had thrown every obstacle in their way, obtained a site on which to build baths and washhouses. The site was in King-street, Camden Town. They had come to an arrangement to pay 1,600*l.* for the leasehold of sixteen years, and then 1,260*l.* for the freehold, making a total of 2,860*l.* The site for which this was to be paid was 180 ft. long by 60 ft. wide. It is proposed to have three baths and washhouses in the parish.

THE WORCESTER "ARBORETUM" QUESTION.—Worcester appears to be strangely at variance with its town council on this subject. The council recently decided in favour of the purchase by twenty-seven votes against eleven; but on the same day a large number of the ratepayers in public meeting unmistakably demonstrated their disapproval of the scheme, although the Earl of Dudley has liberally offered to give 5,000*l.* towards the sum required, and it is proposed to raise 3,000*l.* from the county; so that the city has only to concur in the resolution of the council to memorialise the Lords of the Treasury for permission to invest in the purchase 5,000*l.* of the money received from the enfranchisement of the corporation property.

MARKET HARBOROUGH.—At Ilson-on-the-Hill, a new "Grange" has been built by Captain Baillie; and another mansion, in the same parish, is likely to follow. Captain Baillie's mansion is about half a mile from the village, and is near to the Old Gartree-road. The Grange is built on a slight eminence, and commands a view of the vale beneath. The building is in the Elizabethan style of architecture, and is of brick with stone dressings. The entrance-hall door is of panelled oak. The vestibule floor is of Minton tiles. The hall, which is large, is panelled throughout, and is to be varnished. The staircase is of oak. The dining-room, which is 30 ft. long by 21 ft. wide, and 15 ft. high, is also panelled throughout, and stained. This room is quite finished, as is also the drawing-room, which has three bay windows, and is panelled to about 4 feet high with linen fold panelling. The billiard-room is spacious, and in keeping with the other parts of the building. There is a large number of rooms. Gas is to be manufactured on the premises, and will be introduced into every part of the house. The stables are divided into two parts, with a corridor 115 ft. long. On one side are the stables, with washing-box, cleaning-room, harness-room, &c.; and on the other are loose boxes, and a coach-house at the end. Over the loose boxes are rooms for the servants, and over the other side lofts for hay, straw, &c. In each stable-door a pane of glass is inserted, so that the horses can be seen without opening the door to disturb them. These buildings are surmounted by a turret and clock. Mr. W. Millican is the architect; and the contractors are—for brickwork, Mr. Hutchinson; for stonework, Messrs. Osborne, Brothers, Leicester; and for woodwork, Mr. J. Loveday, Kibworth. Mr. Meridith was clerk of the works.

SUBURBAN VILLAGE COMPANY.—Sir Morton Peto, M.P., has become the president of the Suburban Village and General Dwellings Company; and Messrs. John Everitt, Edward Vigers, Carrington Jones, and E. Moore, have joined the board of directors.

METROPOLITAN ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.—At the next meeting of the Association, to be held on (this) Saturday evening, the discussion adjourned from the last meeting, on Mr. Begg's paper on "The Dwellings for the People in the Metropolis," will be resumed.

COST OF THE THAMES EMBANKMENTS.—It appears from an official paper that the payments made by the Metropolitan Board of Works to March, 1865, amounted to 334,991*l.* for the northern embankment, 130,000*l.* for the new Mansion-House-street, and 8,000*l.* for the southern embankment. The sums named do not, of course, indicate the total estimated costs of the works. Apart from claims for houses, lands, leases, &c., we notice that the contracts for the North Embankment are;—No. 1, Mr. George Furness, 520,000*l.*; No. 2, Messrs. Ritson & Co., 229,000*l.* For the South Embankment, commencing opposite the Houses of Parliament, the contract has been let to Mr. W. Webster for 309,000*l.* This amount will include the construction of the embankment, and numerous improved approaches to it. Claims for properties required for the new street from Blackfriars Bridge to the Mansion House, amounting in the aggregate to 327,590*l.*, have been settled, according to the report of the Metropolitan Board of Works, for 288,991*l.*

THE OLD COLLEGE OF PHYSICIANS, WARWICK LANE.—Our advertisement columns show that the old College of Physicians, erected from the designs of Wren, is to be sold. It is of this building Garth sings after his fashion;—he says,—near the Old Bailey,—

> "There stands a dome majestic to the sight,
> And sumptuous arches bear its oval height;
> A golden globe, placed high with artful skill,
> Seems to the distant sight,—a gilded pill."

It is much to be desired that it be bought as a whole and re-used, rather than be sold piecemeal and distributed.

THE PRINCE OF WALES'S DESSERT SERVICE. The dessert service which has been made by Mr. Alderman Copeland by order of H.R.H. the Prince of Wales exhibits a large amount of art, and very good art too. Thus the great centre piece of the set includes reduced models by Mr. Joseph Durham of his four fine figures representing the quarters of the globe, which form part of the memorial of the 1851 Exhibition set up in the Horticultural Gardens: the figures that carry the fruit-dishes were modelled by Mr. F. Miller; and Mr. G. Halse contributed symbols of the elements. The painted decorations, mostly floral, are mainly the work of M. Hürten: the ice-pails are particularly satisfactory. Both the lines and colours of the cups and saucers must also be praised; in fact, the whole may be regarded as a very successful work.

ENCROACHMENTS OF THE SEA AT DOVER.—Our readers will remember that we called attention to the damage done at Dover from the inroads of the sea the other week. We are glad to notice that the matter has been brought before Parliament. On Friday last, Major Dickson asked the Secretary of State for War whether there was any objection to lay before the House a copy of the official correspondence that has taken place with reference to the encroachments of the sea near the Guildford Battery at Dover; and if there was any objection to state what steps the Government had taken or propose to take in relation thereto. The Marquis of Hartington said there was no objection to give the official correspondence on the subject, but he could not say what steps the Government proposed to take until after further communications on the subject with the corporation of Dover.

TENDERS

For the erection of temporary abattoirs for the Corporation of Norwich. Mr. J. S. Benest, architect. Quantities supplied:—

Bishop	£256 0 0
Hall	248 15 0
Wright	248 0 0
Foyson	245 0 0
Balls	237 10 0
Browne & Bailey	233 0 0
Lacey	220 0 0
Gilbert	187 0 0
Downing	154 7 0

For temporary dead meat market for the Corporation of Norwich. Mr. J. S. Benest, architect. Quantities supplied:—

Browne & Bailey	£734 15 0
Foyson	716 0 0
Bishop	702. 0 0
Lacey	675 0 0
Wright	648 0 0
Hall	647 0 0
Downing	630 0 0
Balls	578 0 0
Gilbert	568 0 0

For a market-house, town-hall, and public rooms, &c., at Camborne, Cornwall, exclusive of granite dressings, paving, and fittings, for butchers' market and town-hall. Mr. W. Bond, jun., architect:—

Williams & Mills	£4,102 2 8
Olver and Sons	3,705 0 0
Vivian & Bennett (accepted)	3,550 0 0

For two villas at Maidenhead, for Mr. W. Nicholson. Mr. Chas. Cooper, architect:—

Vickery	£2,130 0 0
Lamb	2,788 0 0
Silver & Son	1,796 0 0
Woodbridge	1,657 12 0

For a new warehouse, Gun-street, Spitalfields. Mr. Robert P. Notley, architect:—

Colls & Son	£1,642 0 0
Dearly	1,630 0 0
Hart	1,451 0 0
Browne & Robinson	1,443 0 0
Jennings	1,438 10 0
Wills (accepted)	1,423 0 0

For twelve cottages at Basted, in the parish of Wrotham, Kent. Messrs. Morphew & Alldridge, architects:—

Fitness	£2,700 0 0
Stevens	1,950 0 0
Hoadley	1,949 0 0
Yates	1,900 0 0

For villa residence, Sevenoaks New Park, for Dr. Lovegrove. Messrs. Morphew & Alldridge, architects:—

Grover	£2,639 0 0
Yates	2,508 0 0
Hoadley	2,490 0 0
Stevens	2,250 0 0

For alterations and additions to the Woodlands, Southwood-lane, Muswell-hill, for Mr. Lehmann. Mr. F. G. Widdows, architect:—

Ennor	£3,727 0 0
Piper & Wheeler	3,700 0 0
Axford & Whillier	3,683 0 0
Colls & Son (accepted)	3,442 0 0

For Christ Church, Gipsy-hill, Norwood. Mr. J. Giles, architect. Quantities supplied by Mr. D. Young:—

McLachland	£9,425 0 0
Carter & Son	9,015 0 0
Marsland	8,150 0 0
Sawyer	7,703 0 0
Sims & Marten	7,418 0 0
Aviss & Son	7,313 0 0
Jones	7,070 0 0
Dover	6,397 0 0
Bysh	6,290 0 0

For the erection of new wing to St. Mary's Hospital Paddington. Mr. W. Wigginton, architect:—

Ager	£6,020 0 0
Abrahams	6,009 0 0
Axford & Whillier	5,965 0 0
Ennor	5,914 0 0
Killby	5,890 0 0
Nutt & Co. (accepted)	5,886 0 0

For temporary church, Sunbury. Mr. W. Wigginton, architect:—

Axford & Whillier	£960 0 0
Wheatley	623 0 0
Hearle	595 0 0

For basement, 144, Leadenhall-street. The tenders in last number should have ended thus:—

I'Anson	£2,200 0 0
Piper	2,163 0 0

TO CORRESPONDENTS.

W. C.—W. B.—F. L. S.—W. S.—F. G. W.—I. & C. P.A.—C. W.—A. G.—Le G.—T. M.—A. M.—E. A. G.—A. M. & A.—R. P. N. J. F.—F. L.—W. W.—A. H.—F. W.—E. W. T.—F. F. R.—Mr. S.—W. F. B.—B. & S.—T. W.—K.—Hereford.—P. P.—J. N.—A. H.—A Parish Priest. C.G.W.—Subscriber.—Co Subscriber.—W.—Capt.T.—A. M.—G. M.—A Builder. Enquiro (should apply to glass-works to be safe).—E. W. (sent to the inquirer).—J. M. (ditto).—C. I. (ditto).—J. P. (shall appear).—C. T. (ditto).—Smoke Nuisance (half-a-dozen correspondents wish us to inquire for the best smoke consuming stove. Manufacturers must take their own means of making known the merits of their respective inventions).—Construction of Dry Walls (several letters on this subject may receive attention together hereafter).—H. (very slightly).—A. & Co. (yes).—W. L. & Sons (next week).—A Builder (we should not expect the wash to be very effectual if applied only on the inner surface of the walls).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, Lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles and papers read at public meetings rests, of course, with the authors.

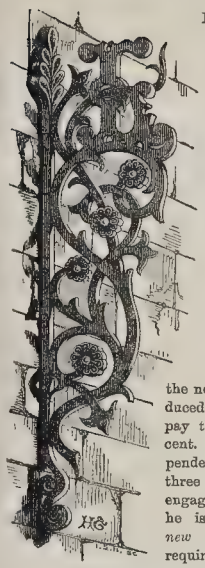
GOOD FRIDAY.—NOTICE.—"*THE BUILDER,*" *for the week ending MARCH 31st, will be published at TWO p.m., on THURSDAY, 29th inst. Advertisements for insertion in that number must therefore reach the Office* before THREE p.m., *on WEDNESDAY, 28th.*

The Publisher cannot be responsible for ORIGINAL TESTIMONIALS *left at the Office in reply to Advertisements, and strongly recommends that* COPIES ONLY *should be sent.*

The Builder.

VOL. XXIV.—No. 1207.

Of Several Things.



ET us move slowly that we may get along quickly, is not a bad maxim, — within limits. The Courts of Justice Commissioners have found more difficulty, even before starting, than they, probably, expected. Our readers are aware of the retirement of some of the architects invited to be competitors, and that others were called upon to fill their places. They know, too, of the new provision introduced on consenting to pay the architect 5 per cent. on the amount expended—namely, that for three years after his engagement commences he is to undertake no *new* professional work requiring his personal superintendence, without the [consent of the Treasury. The immediate result of this was the resignation of Mr. Scott, as a matter of course, and of Mr. E. M. Barry. Mr. Garling and Mr. Somers Clarke were then invited to become competitors; the first accepted the invitation, the latter declined, and Mr. John Gibson was then written to, and accepted the nomination. The architects are, therefore, at work. According to the priority of nomination the list now stands thus: G. E. Street, A. Waterhouse, R. Brandon, J. N. Deane, H. B. Garling, J. Gibson. We have reason to believe that the Treasury are disposed to give up their stipulation as to taking no new work for three years; but as they have accepted the resignation of the architects who object to it, nothing would be gained.

The judges of designs are the Right Hon. W. Cowper, first commissioner of works, chairman; the Right Hon. W. E. Gladstone, chancellor of the exchequer; the Right Hon. Sir Alexander J. E. Cockburn, lord chief justice of England; Sir Roundell Palmer, M.P., attorney-general; and Mr. William Stirling, M.P. Better to determine the accuracy of the estimated cost, each competitor is requested to give,—1. The exact cubical contents of his building, measured from the bottom of the footings upwards; 2. The estimated cost per cubic foot; 3. The grounds on which that cost is based. Of course, the judges will obtain architectural advice.

All retaining walls, external bridges, and approaches are to be separately estimated. The cost of clearing and levelling the site need not be included. The number of departments to be accommodated, and consequently the extent of accommodation required, have been increased since the estimate of 750,000*l.* was made; but it is hoped by the Commissioners that the additions will not much increase the amount.

The Instructions for the competing architects refer the competitors to numerous reports and blue-books, and contain many useful suggestions. Very wisely, however, the architect's own judgment is chiefly appealed to. As to the level at which the Courts are to be placed, and which will of course affect the arrangement, the only instructions the Commissioners are able to give interest the public, and we may as well repeat them:—

A new bridge is to be provided on the site of the existing Temple Bar arch, and another from Lincoln's-inn, over Carey-street. The precise height of these new bridges is left to the architect; but, probably, the new Temple Bar bridge will be loftier than the existing arch at Temple Bar, in order that the traffic of the Strand through the arch may be facilitated, and that the arch over Carey-street should be quite as low as the existing Temple Bar arch, for precisely the opposite reason, viz., to prevent loaded van and other such through traffic from passing along that side of the building. The level of these bridges is not to be higher than the level of the Courts, and this determination will govern to a certain extent the level to be assigned to the Courts. It is desired that these bridges should be covered. It is left to the architect to point out what he considers the best position for the Carey-street bridge, and to state what additional purchases will be necessary for these bridges and for the tunnels hereafter mentioned. In addition to these bridges, it is proposed that a tunnel or subway should be constructed under the Strand, between the Temple and the new Courts, on the site of Temple Bar; and another, large enough for foot passengers and trucks, under Chancery-lane into the Rolls estate.

The chief points to be kept constantly in view, and to be treated as superseding so far as they may conflict, all considerations of architectural effect, are the accommodation to be provided and the arrangements to be adopted so as in the greatest degree to facilitate the despatch and the accurate transaction of the law business of the country; and in carrying out this design, the first object should be to provide ample, uninterrupted communication and accommodation for those who have legitimate business in the new building. The question of ventilation is left to the architect, who will consider whether experience justifies the belief that any system applied to the new building as a whole would prove satisfactory, and whether it might not be better to let the building be ventilated in separate sections; but the architect may propose the adoption of any general system, if he consider it advisable. In any case it must be possible to open the windows or ceiling-lights of the courts and offices when desired. The acoustic qualities of all apartments in the building in which arguments are to go on, particularly the Courts, are of the utmost importance. This subject is left to the architect, who is requested to state in writing in what way he has dealt with it. Open fire-places must be provided in all the offices, and, as far as may be, in the witness and waiting and other such rooms. If a general system of heating is to be adopted, that by hot water is recommended. It is desired that the new building shall be fireproof; and Captain Shaw's remarks on this subject seem, the Commissioners think, to deserve the highest consideration. The question of water supply in case of fire should be carefully considered and provided for in the design. As a protection against the spread of fire, should such occur, and also as a security against robbery, means should be provided for shutting off the several portions of the building as they become vacated, in the evening or at other times, from those where business may be conducted at later hours or during vacations.

As concerns the scheme for obtaining designs for the National Gallery, Mr. Beresford Hope on the 16th inst., presented a petition to the House of Commons from the Institute of Architects, showing,—

"That your petitioners have understood that it is in contemplation to rebuild the National Gallery, and that it is the intention of the Government to select the architect out of a very limited list of competitors.

That your petitioners earnestly press upon your Honourable House the desirability of the competition being enlarged, and that a greater number of architects be invited to compete, both in order to secure the best design by the wider opportunity thus afforded to able men to submit their respective ideas, and to afford to the architectural world the opportunity of that honourable distinction and generous rivalry which a sufficient competition can alone afford."

Whether the mode of obtaining designs for public works in India, adopted by the Government, might not be improved, and what that Government is doing for the advancement there of art generally, are questions of great importance demanding discussion. The *Bombay Builder* contains a lithograph of the design for the new Secretariat, Bombay, which is so badly executed that one is tempted to ask if this production really represent faithfully the condition of illustrative art in that enormous and important empire. If it do so, surely it is time the Indian Government bestirred itself vigorously to obtain an improvement. If it do not, it then becomes a question between the publication and its subscribers which concerns us less. Judging from similar works in other Indian publications, however, we are disposed to believe the first hypothesis is the correct one, in which case the *Bombay Builder* will probably assist us in arriving at the facts. The building itself, in a so-called "Gothic style adapted to the tropical climate of India," wants roof, and an improved sky-line. The structure has a frontage of 476 ft., and is 85 ft. deep in the centre, excluding the carriage porch, while a wing at each end extends back 145 ft. There are four stories in all, the height from the floor level to the tie-beams being 65 ft. It was designed by Capt. H. C. Wilkins, and is estimated to cost no less than 1,263,633 rupees.

The committee originated by the Institute of Architects, with the view of obtaining a proper representation of English architecture and cognate art-works in the approaching Paris Exhibition, are now getting to work. In the first instance her Majesty's Commissioners seemed disposed to view them only as an Association of Exhibitors wishing to exhibit together. This, however, would, of course, have led to nothing. To enable the committee to be of real service, both to English architecture and to the Exhibition, they must have control over the works submitted by all the English candidates for exhibition, as the similar committee appointed for the Exhibition of 1862 had. There is every reason to believe this control will be given them by the Commissioners, and that they will be enabled to act efficiently in promoting the satisfactory representation of "British Architecture and the Arts cognate thereto," in the coming international gathering.

The Society of Arts are about to issue fresh offers of prizes to art-workmen in numerous branches of industrial art. With the view of so framing the offers and arranging the conditions as to induce the greatest and most satisfactory response obtainable, the council appointed a committee to consider the subject, and the result, probably, will be clauses in the programme that will enable employers to exhibit complete works with the name of each workman engaged in the several departments of art involved; and will allow art-workmen to exhibit other designs carried out by them than those named in the programme. Beyond the exhibition of them in the Society's rooms, the rewarded works will probably be sent at Christmas to the South Kensington Museum for public view, whence they may possibly go to the Paris Exhibition. The probability of this wide publicity, in addition to the very handsome money prizes that will be offered, and the sale that will in many cases follow, ought surely to lead art-workmen who have anything in them to come

forward worthily. It is nonsense to talk now of ability being kept down. In these times, plenty of opportunity is afforded to men with skill who will exert themselves. Excellence, however, is seldom given but as the reward of labour. It is of no use merely wishing to excel, merely sighing for skill; work must be done continuously and with a will: but that being done, the earnest labourer may feel pretty sure of profitable recognition. We have elsewhere mentioned the distribution of the prizes given to art-workmen by the council of the Architectural Museum. The response in that case to the prizes offered was less than might have been expected.

CONSOLATIONS OF ART-WORK.

AFTER every thing has been said and sung, there still remains the significant fact that the authorised efforts to encourage art-work as a leisure pursuit among artisans do not yield a wholly satisfactory harvest. But it must be remembered that transplantation involves a season of depression. The commonest shrub droops when placed in a new soil and new climate, and the tree of art-knowledge has not been planted so long in our midst but that its languid condition may be traced to natural causes, and not to sterility of soil, humidity of temperature, or to a worm at the root of it. The tree will yet thrive, and a crowd will contend for its blossoms.

One of the most restless longings to which the human mind is subject is a desire for fame; and one of the surest means of obtaining it is the production of art-work of a high order. Let artisans think of the real raptures of antiquaries when, six hundred years after date, they ascertained a few more particulars of the head and hands that conceived and executed Queen Eleanor's tomb in Westminster Abbey, and they will realise this. The king, who paid for the monument, the good queen who was laid below it, are not more distinct personages to posterity than the art-workman who made it. He, doubtless, knew weariness, and may have taken discouragement often by the hand; but, by continuance in well-doing, the lapse of six hundred years has increased rather than diminished the number of his admirers. Surely art-work has its consolations. The hold, too, that producers of art-work have upon the heart of the universe must be worth its price. It leads us to assign to certain favourites in the past centuries of art every good piece of workmanship that the distribution of hidden or buried stores brings to light in our own time. If we find a specimen of unusually excellent carving in some unexpected place, unidentified with its history, how certain we are that it must be the work of one of our art-heroes. Our admiration ascribes to their industry as many results as devotion gives fragments of the real cross. A newly-found crucifix, or statue, or painting, if it possess any value of workmanship, is assuredly assigned to Benvenuto Cellini, Michelangelo, Fra Angelico, or their compeers.

No monarch, no martyr of past times, enjoys greater popular favour than the old masters in art. Their bones may repose in sarcophagi, made of more costly material, but they do not possess one whit more interest than those of artists, nor so much. There would be much more ethnological interest and intensity of scientific curiosity attending the inspection of a skull of one of these great ones than an examination of those of the three kings of Cologne. Of all the buildings in the world none has a greater reputation than the Pantheon. And what is it the traveller first seeks to see when he finds himself beneath its majestic dome? The tomb of Raffaelle. It should be consolation to the art world to picture the group of archæologists, artists, and ecclesiastical dignitaries, reverently gathered there one September morning in 1833. No scepticism being so strong in Rome as that relating to sites, Vasari's word of the burial of Raffaelle behind the altar of the third chapel in the Pantheon came to be questioned. The Academy of St. Luke claimed to be the owner of the skull of the great painter, and phrenologists examined with awe and rapture the relic exhibited as his. In 1833, doubt having ripened into a desire to ascertain the truth, an earnest group gathered round the spot indicated by Vasari whilst it was ceremoniously opened; whilst the tomb and its contents were sketched by Camuccini; whilst the metal rings and points that fastened the shroud were unloosened; whilst the skeleton was measured; whilst the skull and once cunning right hand were removed for the sculptor Fabris to take casts of them. No more rapt or reverent crowd could have gazed at the remains of Charlemagne. Surely there is a majesty in art beyond the pomp of princes, great leaders of men though they may be.

As the art-workman is guiding his tool so that it may bring loveliness out of the block, or beat beauty into the shapeless lump, or give a colour-life to dull form, he might ask himself what would wealth be without art? Take away all the sculpture, paintings, carvings, and metal-work in the world, and what would be the principal difference between the possessions of a rich and those of a poor man? Nuggets, flocks, and herds. It is art that rears palaces,—it is art that dignifies wealth: in a word, it is art that makes the chief distinction between savage life and civilisation. Supposing weariness should stand before him, and discouragement take a seat beside him, they will both vanish at such thoughts as these. Great results are made up of many strokes; and every art-workman helps the progress of civilisation. Just so far as his work excels that of his fellows has he carried forward the standard of excellence. Just so far as he has outstripped the efforts of his predecessors has he shortened the path to perfection.

The art-work of leisure hours has this advantage: the artisan can gratify his own taste or predilections in the choice of a subject. In the hours set apart for the weekly labour that falls to the lot of the largest portion of humanity, necessity sometimes compels the production of work foreign to the sympathies of its producer. In his leisure time he can apply the manual skill acquired in the prosecution of such work to tasks upon which he can lavish his best feeling. Discarding necessity as a master, he may take fancy as a mistress. Setting aside the question whether an artisan can yet be expected to make his own design, there still remains a broad kingdom of choice as to subject and style. Granted that he concedes the art of designing to those specially educated and qualified in the great academy of Nature to be designers, his choice cannot be said to be in the least restricted by the concession. On the contrary, it is materially, almost boundlessly, enlarged. Electing to be his own designer, he limits his subject to his own powers. Deciding to employ a skilled artist, the community of designers is accessible to him; he may make a selection from the most transcendental of their efforts.

But it is by no means necessary that a workman should confine himself in his leisure hours to the particular branch of art in the prosecution of which he earns his daily bread. There is, doubtless, some sense in the saying that a jack-of-all-trades is master of none; but it is nonsense to think that a man cannot be master of two, or that he will not be better master of one if he know something of several. No one will assert that Michelangelo was not as gifted in painting as he was in sculpture; and every medical man will agree that recreation is one of the necessities of the human brain. Recreation may be obtained more surely by the production of fresh work in which we may take a legitimate and lasting pride and pleasure, than in absolutely doing nothing. The vexatious, unsatisfactory, self-accusing feeling induced by idleness, or by the frittering away of time in inadequate pursuits, cannot be called recreation. A change of employment or duality of work would be, perhaps, the best definition of the term. We have seen very creditable carving in stone, wrought as leisure occupation by wood-carvers, very graceful illuminations by a house decorator, as well as some clever photographs by a countess, and some artificial flies, for salmon fishing, *created*, so to speak, by a duchess. Indeed, it would be difficult to name any employment or condition that is irreconcileable with any other. We have also seen,—we may record it as a warning,—the leisure evenings of a twelvemonth wasted by a joiner in the most clever inlaying of choice woods in an odious meaningless design, made by himself; and an equally skilful mosaic of choice marbles, in as worthless a design, by a mason; both, in point of execution, beyond the merit of similar amateur work shown at industrial exhibitions, and, indeed, equal to any work of the same class, except as to design. Now, if these two men had availed themselves of the talent of a third, their inlaying might have been of exceeding worth. Before leaving the question of the value of a different pursuit for leisure to that followed in legitimate working hours, we must not gloss over the disadvantage attending it. All his training and learning may be of no avail to him in a separate branch, and he may waste much valuable time in prentice efforts. Circumstances, however, alter cases so much, that it is impossible to indicate a life-line of work that will apply to every one. First-class artistic labour is, in most instances, independent of aid. It is another of the consolations of art-work that it improves both those who produce it and those who look upon it. It elevates the former into teachers and the latter into judges.

THE DISASTER OF THE "NORTHUMBERLAND."

AN accident occurred on Saturday last, which, although not attended with any injury to life or limb, is yet of most serious character, not only from the magnitude of the operation of which the failure is recorded, but from the inability evinced on the part of those who had charge of the launch of the *Northumberland* to profit by the lessons written in our annals.

Not to speak of other instances, we wish to recall the case of a noble wooden vessel built some fifteen years ago at Pembroke Dockyard, and known at successive periods of its dockyard growth as the *Windsor Castle* and as the *Duke of Wellington*. A large party was assembled to witness the launch, and the vessel, after gliding majestically from the slip, stopped in her course before leaving the ways, just as did the *Northumberland* on Saturday. The time and the cost that were involved before this ship, slightly deformed by her long hanging between wind and water, floated on the still surface of Milford Haven, can no doubt be ascertained by those who have access to the accounts of Pembroke Dockyard. It does not seem that the account was ever made out as a distinct item of the Navy Estimates for the information of Parliament.

A more recent, and more memorable case of failure was the attempted launch of the *Great Eastern*. In that case, indeed, the whole structure of the vessel was so novel, and the mode by which it was proposed to slip the huge massive ways into the water were so perfectly original, that the expectation of success, mathematically speaking, was low. But it must be remembered that the great engineer to whom, more than to any individual, we owe our present rate of speed in transit, both by land and by sea, was greatly fettered by the difficulty of finding room for the cradle of his last and largest child, and by his fear lest the boats, which he had no power to keep at a distance, should be swamped.

It was proposed to Mr. Brunel by an engineer who at that time was carrying on large works in Pembrokeshire, to build the *Great Eastern* at Milford Haven, taking advantage of a creek of still water, perfectly land-locked, and capable of forming, with slight protection, a secure natural dock. Workshops and dwellings for the work-people were to be erected on the spot; but the chief feature of the proposal was the avoidance of the risk and expense of an unprecedented launch. It was proposed to lay the bottom plates of the vessel on the shore, and, as soon as a platform had been constructed of sufficient size to sustain itself by flotation, to launch this, the keel of the ship, and then to build the sides of the vessel while actually on the water. Mr. Brunel gave to the project the same careful and patient attention that he was wont to bestow on every detail of this his favourite subject, and at last expressed his regret at having to decide against the proposal, on the ground that the great distance of Milford Haven from London would prevent him from giving that constant personal inspection to the work which he should be able to exercise if the vessel were built in the Thames. The reason was, no doubt, one of the greatest weight; but it must have been matter of subsequent regret that the opportunity of avoiding such great pecuniary disaster was not taken. The power of resistance of the human brain has its limits,—limits which some physiologists hold to be yearly growing narrower in our artificial state of society. No man, even if endowed with the iron constitution and happy temperament of the engineer of the *Great Western* and of the *Great Eastern*, can with impunity turn night into day, and map out his hours with a fair distribution to all claims except those of sleep, or, at all events, of sleep in bed. But how far the premature close of that

valuable life was hastened by the anxiety and annoyance caused by the failure in the launch of the *Leviathan* steamer it is hard to say.

With examples, then, in our dockyard annals of which we have cited only the one that was most vividly recalled by the event of last Saturday, of hitches in launching first-rate ships, and with the ever-memorable lesson taught by the *Great Eastern* written large on the very ribs of the *Northumberland*, it is matter of great regret that the risk should have been run. Much may, no doubt, be said as to the advantage of completing a vessel in the yard, the difficulty of plating her afloat, the want of due river room for the purpose, and very likely much more. But the fact remains that those who, in face of experience, have erred in this instance have done so by expecting from wood and iron resistance beyond their structural strength. A mass of eight thousand tons, sliding with increasing velocity, is likely to develop an amount of friction and of heat that will fuse iron and destroy, during the process of the launch, the ways relied on for the purpose. And if, as is said to have been the case both with the *Great Eastern* and the *Northumberland*, the officer in command becomes alarmed for the fate of those who press too close at the critical moment, and check, however gentle, is thrown on the great mass when actually under way, the result may be predicted with certainty.

We shall look with great attention and interest to the steps taken with the object of conveying this great engine of national defence to her appropriate element. We look with more hope to the high tides which are likely to follow the next—the equinoctial—full moon than to the time being used in adequate aid of Admiralty lighters. Notwithstanding the rich harvest that Death has gathered from among the assistants and the pupils of Brunel, there may be one or more in the profession of civil engineers who are familiar with the details of the *Great Eastern* launch, and their advice ought in the first instance to be weighed by the Government. Every day's delay will make the *Northumberland* more immovable. Piling and framing, to day solid, will give way under the long-continued strain, for resisting which they were not originally designed. The vessel herself, when thrown from her present bearings, will be likely to show an irresistible tendency to warp and to twist. If she be not afloat by the high tides that may be expected by about the 2nd of April, she cannot derive aid to any extraordinary extent from that source before September. To leave her for six months in her present condition would be equivalent to taking her to pieces; and it is matter of very urgent consideration whether every available hand should not be immediately set on, and kept at work day and night, to remove every plate of armour and every ton of superfluous weight that can be lightened from the hull before the high tides of the equinox. If they fail, and leave the *Northumberland* aground, the problem of her launch will acquire a new aspect, and will probably only be solved by her more or less partial demolition.

THE MEDIÆVAL MUSEUM AT FLORENCE.

The last Grand Duke of Tuscany conferred signal benefit on the monumental honours of his capital by ordering, in 1858, the restoration, conformably with the original architectonic type, of that grand old palace known successively as that of the Commune of the Podesta, and of the Bargello, built, according to Vasari, shortly after the year 1222, but, according to Villani, and other now admitted authorities, in 1250; about a century later, in parts renovated, and crowned with lofty battlements by Agnolo Gaddi, the original structure being ascribed to that Lapo, or Jacopo, supposed the *maestro* in art of Arnolfo di Cambio, architect of the Duomo. This palace was first destined as a residence of the "Captain of the People," a military magistrate, elected at first annually, afterwards for six months, whose office was kept up till 1502; but this functionary being, after a time, lodged elsewhere, his former quarters became the residence of the more powerful Podestá, a magistracy created about the year 1180, also elective from year to year, always conferred upon a stranger born at least fifty miles distant from Florence, and invested with many formidable privileges, but also surrounded by a network of restrictions most jealously devised. After the good old times of the republic had passed away (though that government still nominally existed), and after the headship of the state had been given to a Gonfaloniere appointed for life (1502), the office of Podestá *de facto* ceased, though the title survived for some years, now held by the president of a tribunal, the "Ruota," or "Council of Justice." And not long afterwards, under Medici rule, the ancient palace became the seat of another functionary, here surrounded by his hated myrmidons, the Bargello, chief of the *birri* (or *sbirri*), armed police, political spies, a body employed in every service most exposed to popular odium,—the etymology of this officer's name being found in the barbaric Mediæval Latin, *Barigildus*,—*i.e.*, "princeps apparitorum," or chief of bailiffs. Under this new appropriation the descorated palace was, in great part, converted to the purposes of a common gaol; on the ground-floor was a torture-room; and in one chamber a special tribunal for cases of witchcraft; but under the reign of the enlightened Peter Leopold, the instruments of torture, together with the gallows in the same deposit, were burnt in the *cortile*, gladdening those gloomy old walls with a light in every sense novel to such an interior. In that year of Italian agitations and hopes, 1847, a popular onset was made against the *birri* in this Gothic stronghold; their offices were sacked; the objects thence carried away thrown into the flames on a piazza near; and, in the sequel, they were forced to quit, never more to return within those walls; the palace being thenceforth guarded by civic militia and regular troops till the November of 1860, when, at the same time with the final eradication of the whole *birri* tribe, the Bargello prisons were suppressed, and the guard dismissed; the yet unaccomplished project of the future government being adopted by that which had succeeded under happier auspices; and the restoration of this Mediæval building, in thirteenth-century style, at last undertaken in good earnest. In the same year appeared a decree of the constitutional Government, ordering that the palace, henceforth known as the "Pretorio," should be appropriated as a museum of Mediæval and Etruscan antiquities; and about the same time a committee formed itself with the object of carrying out the project (not approved) to erect a colossal statue of Dante in the great hall on the first floor, the vastest and noblest apartment of this building, so shamefully degraded under Medician government as to be cut up into no fewer than thirty-two prison-cells on four different stories! *

The Mediæval Museum was opened on occasion of the Dante centenary festival, with appropriate intent of thus contributing to the honours of the "altissimo poeta" (as he is styled on his monument at S. Croce) within the very walls whence issued, during his life-time, the edict for his exile, the confiscation of his property, and his death at the stake in case of his contumacious return within the Republic's territories. Though now abundantly stocked, the collection here is but in an incipient stage. Numerous objects, and those amongst the most valuable, have been lent, but for limited periods as we must infer, by noble families. No catalogue is yet supplied, —a *desideratum* much felt amidst the varieties of *virtu*, artistic, industrial, sacred, and military; and though daily, at convenient hours, open to the public, this museum is not, like others in Florence, to be seen gratuitously. In every room we find custodes, who volunteer, without fee, information that may not be infallible, but is at all events promptly given. Such an institution as this was indeed much wanted for the honour of Florence, and the interests of Mediæval art; for though no such deadly onset against the Middle Ages has ever taken place here as elsewhere in Italy, much artistic wealth of those periods has, from time to time, been scattered, or even destroyed, in the blindness of the pseudo-Renaissance school; the most notorious instance of which was the *repeated* demolition of the cathedral façade,—first, that in its inchoate state, as left by Arnolfo; next (1588), that complete in about one-third the elevation, by Giotto, in the demolishing of which were swept (though fortunately to be preserved in different localities) a multitude of statues and reliefs, some by Andrea Pisano, among the sculptures in the round being the portrait-statues of Boniface VIII., Farinata degli Uberti, Poggio, and other Tuscan celebrities. Another great dispersal, no doubt attended with deplorable losses, was on occasion of the precautionary demolition of suburban churches and monasteries, some of the thirteenth, others of the fifteenth century, all within a certain radius of distance from the walls, when Florence was preparing, in 1529, to sustain her gallant struggle for freedom against the invading armies of Charles V. and Clement VII.

After passing through a gloomy vaulted hall of romantic aspect, we enter the porticoed cortile—one of the finest specimens of the Italian Mediæval style in civic architecture; and here find dispersed over the quadrangular portico a collection of sculptures, most belonging to the fourteenth and fifteenth centuries, a single statue (Eve penitent), and a few other details of the sixteenth century; a life-like but very unpleasing bust of Lorenzo de' Medici; and a magnificent richly-tinted Della Robbia, the Nativity, with an encircling relief-group of angels, bearing the inscription, "Andrea della Robbia, 1521." Two small and very quaint reliefs have the date 1177 on their surfaces; their subjects, Christ with the Apostles in a bark, and a group that seems to be Nathan reproving David; the stunted forms and defective design appearing confirmatory of that claim to an origin so ancient. The fourteenth-century sculptures are life-size statues, in dark grey stone, of the Virgin and Child, SS. Peter and Paul, with their symbolic keys and sword; also twelve statuettes of apostles, each holding a book or scroll,—works originally placed in different churches of the Florentine environs; none distinguished by the highest characteristics of the school or period, though the smaller are indeed superior to the larger figures. And a similar impression we received from the Mediæval sculptures of this museum in general. Few possess qualities of intrinsic beauty or grandeur; some are grotesque; though all are of interest as illustrating the vicissitudes art has passed through. Descending, however, so late as the fifteenth century, we find a wealth of produce entitled to much higher rank, of many long-lost or forgotten sketches by artists of the first order in that period, as the terra-cotta models of two warrior saints, for the silver shrine of John the Baptist (that splendid "dossale" exposed in the baptistery on his festival), by Pollainolo; the first sketch, in the same material, of the colossal *Apennino*, by Gian Bologna (not a little different from the huge built-up statue in the Pratolino villa); a terra-cotta relief of the Deposition, by Verrocchio, with striking and varied expression of sorrow in the several figures around the dead Saviour. The fate of this small but beautiful work, is singular, as it was found, not long ago, in the demolishing of an old house, where it had lain hidden and forgotten. A set of life-size heads in relief, by Mino da Fiesole and Donatello, — some evidently portraits, others ideal,—Roman emperors and classic heroes, presents interesting examples of their artists' manner, though not among the masterpieces of either. Far more striking and more numerous than the marbles, are the bronzes, mostly representing the genius of the fifteenth and sixteenth centuries, and in their principal centre here, occupying a spacious hall, where we recognise many old favourites once at the Uffizi, the ethereal Mercury of Gian Bologna, that seems exulting to soar from the ground he scarcely touches, being well displayed in the midst; and other well-known statues, reliefs, models by Donatello, Ghiberti, Verrocchio, Cellini, &c., ranged in seemly order around, better seen here than in their former location. Here, too, is the recumbent monumental figure of the jurisconsult Socino, of Siena, by Vecchietta, so characteristic, though hard in treatment, as justly described by Mr. Perkins in "Tuscan Sculptors;" but in other rooms we find numerous bronzes of sacred subjects, among which the Crucifixes by Gian Bologna struck us as the happiest examples of his power in rendering all the pathos of that solemn theme. The profusion of art-objects for sacred use in this museum, from the chapels of the Palazzo Vecchio and Pitti, and in the most costly material, is so immense, and entitled to such regard by intrinsic value from the art point of view, that we cannot bring any fuller report thereof within our present limits.

We may note that thorough-going alterations have been finally ordered for the Hall of the Cinquecento, in the Palazzo Vecchio; and, the architect, Signor Falcini, is charged to prepare a new project, to consider the

* On the demolishing of partition walls and other superadded structures in this interior, with view to restoring the original plan, the quantity of mortar swept away was estimated at 5,000 cubic *braccia*.

advisability of turning the hemicycle of seats for the deputies, so as to make it correspond to the longitudinal axis; or else of giving up this historic hall at once, and substituting for the same purposes the large modern convent of the Oratorians, San Firenze. Certain Government offices, located at first on the ground-floor, are also to be transferred to the first story, and *vice versâ*, in the same "Signoria" palace.

THE DESIGN OF A COUNTRY HOUSE.

AT the usual meeting of the Architectural Association, held at the House, in Conduit-street, on Friday, the 16th inst., Mr. Edis, the President, in the chair, Professor Kerr delivered a lecture on this subject to a numerous assembly.

The Chairman read a letter from the hon. secretary of the Bristol Architectural and Archæological Society, asking the Association to join them in memorializing the Bristol Town Council against the demolition of Colston's old house, proposed to be removed in order to make room for a new Guildhall in that city. He moved that the Secretary be authorised to draw up a suitable memorial.

The motion was agreed to.

A letter was read from the Secretary to the Chancellor of the Exchequer, stating that in the opinion of the Board of Inland Revenue heraldic decorations on buildings were not liable to the tax levied upon armorial bearings.

The Secretary announced a donation of five guineas from one of the moderators (whose name he was not at liberty to give) towards the fund for the purchase of books in connexion with the voluntary examinations.

Mr. Tarver spoke of the figure-drawing class, and called attention to the fact that the number of members was not so large as it had been, in consequence of which it would probably be necessary to raise the subscriptions.

The Chairman suggested that the class should reduce its number of meetings from three to two each week.

On the motion of Mr. Ridett, a sub-committee was appointed to assist the librarians in selecting the new books that were to be added to the library.

Professor Kerr then proceeded with his lecture. He said his subject would be the design of an ordinary country-house. He would endeavour first to show experimentally the way in which he was accustomed to design the plan of a country-house, in a variety of ways; after which he would make remarks upon various miscellaneous questions of importance. The rooms he would take for his experiments were these: dining-room, 24 ft. by 18 ft.; drawing-room, library and billiard-room of the same size (this correspondence of dimensions being for the sake of convenience); gentleman's room, 18 ft. by 18 ft.; morning room, 18 ft. by 18 ft.; entrance-hall, principal staircase, and cloak-room of such dimensions as might offer; kitchen, 20 ft. by 16 ft.; scullery, 16 ft. by 16 ft.; three small larders; servants' hall, 20 ft. by 16 ft.; butler's pantry, 16 ft. by 12 ft.; housekeeper's room, 16 ft. by 16 ft.; with back-stair, servants' entrance, storerooms, &c. These materials he would set up before the meeting in eight different forms of characteristic arrangement. He would divide his plans into three types: first, the regular type; second, the irregular type; and, third, the quadrangular type; and he would illustrate these different types by three examples of the first, three of the second, and two of the third. Professor Kerr then proceeded to design the plans in question, pointing out in detail the numerous questions of contrivance involved. The convenience with which the apartments agreed upon were capable of being disposed in the several modes in succession was dwelt upon, together with the special or accidental merits or demerits of each design, the chief points touched upon being such as the aspect of the various rooms, the relation of the dining-room to the offices, the position of the gentleman's room, the terrace walk, the relations of the various entrances to rooms and offices, the disposition of the drawing-room, the billiard-room, &c., &c.; and especially the relation of doors, fireplaces, and windows in the rooms individually. The characteristic advantages of regular plan were pointed out; but the freedom of dealing with the irregular system was forcibly shown by comparison, and the most irregular example of all was pronounced to be the most convenient, being in imitation of the manner of Mr. Burn, to whose long-tried skill in domestic plan the lecturer paid sincere homage. Having thus completed his series of experiments, Professor Kerr went on to deal with his proposed questions of general application to the subject of domestic architecture. The first was the matter of convenience. It was a self-evident proposition that internal convenience should be the fundamental consideration in a country-house; but when he said that this was undeniable, he was not stating a mere truism that might pass in at one ear and out at the other, but a proposition which was practically denied on every hand; and he wished to impress it most strongly on the student, that whatever reverence he might have for art, whatever desire he might have to shine as an artist, whatever powers he might possess for making his work ultimately charming in its artistic effect, all would be in vain unless he founded his work on a perfectly convenient organization of plan within. In the works of nature this rule was found to be universally dominant. In animal life, in vegetable life, and in all other works of nature, where was there an attempt to produce a showy outside at the expense of the organization within? The interior was designed with reference to itself alone; and the exterior was designed with reference to the interior. Therefore he said that whatever was the work of architecture, whether in a gentleman's house or in a church, or in anything else, let the design be in accordance with perfect convenience within, and let the outside be a supplementary consideration. He always said, in practice, when appealed to on the question of exterior, "Let that take care of itself; we will deal with that presently; let us get the inside right first." He could find 500 gentlemen not far off, any one of whom could design the outside, but he should not like to say how many of that number could design the inside of a thorough country-house. He would next speak of the question of aspect, which was a practical question of the utmost importance. The sun was in the west at six in the evening, in the south at twelve at noon, in the east at six in the morning, and in the north at midnight. The winds from the north-west and south-west were boisterous, the south-east winds were mild, and the north-east winds were keen. These were the data of aspect. The south-east, therefore, was the quarter in which it was desirable to put the chief rooms. A room facing due east had the sun shining full on the windows at six o'clock in the morning; the sun was a little off by breakfast-time, and the room was, consequently, very pleasant for a breakfast-room. But the sun was quite off later in the day and the room was not so pleasant for other purposes. A room which faced due south had the sun shining full upon it at twelve o'clock at noon all the year round, which was objectionable, inasmuch as too much sun was a fault; but in the case of a room with its windows to the south-east, the sun was off the windows towards the afternoon, and it was in the afternoon that people became fastidious with regard to aspect. If the windows of a room looked to the south-west the room was exposed to the full glare of the sun at three o'clock in the afternoon, which was mid-day with the upper classes, and such an aspect was, consequently, considered very objectionable; and besides this, the winds from the south-west were boisterous. If a room had its windows looking due west, it would never do for a dining-room, because people would be sitting down to dinner when the sun was shining full upon them, and that would be most uncomfortable. Therefore a dining-room should always look north, notwithstanding the fact that the atmospheric influences in that quarter were what we might term inhospitable. The drawing-room must always be as nearly as possible facing south-east, because in that position it had the early morning sun upon it, and was thus warmed and made pleasant for occupation later in the day; the glare was off the windows betimes, and as the winds from the south-east were mild and genial, that was the aspect generally chosen for a drawing-room. This aspect was also the best for any other sitting-rooms; and when a dining-room was a sitting-room, it was the best for that also. The next point to which he would refer was that of architectural effect. He was now speaking in the presence of their president, who was noted as a draughtsman for bold and excellent architectural effects; and he was also speaking in the presence of many young men who aspired to be, in course of time, distinguished in respect of this particular matter; (and he hoped they did all aspire after such distinguishment, for in that case they would be sure to get at least some way towards it); and, speaking to such an audience, he would most unhesitatingly state that English gentlemen did not favour much architectural effect. If there was one thing that an English gentleman disliked more than another, it was the possession of what would make him obtrusive and conspicuous amongst his fellows, or provoke remark or criticism. He liked common sense in everything; and whatever he had must in the first place be common,—not common in the sense of paltry and mean, but ordinary and usual—and, in the second place, sensible. He did not want his house to be sentimental in any shape or form. Therefore it should be understood that he would require that common sense should be the guide with his architect; that ordinary, well-tried, simple, and unassuming effects should be all that would be attempted; and that nothing should be done to provoke criticism, either good or bad; because criticism was always criticism,—and however favourable it might be on the surface, it was sure to be unfavourable, sooner or later, underneath,—such was the jealousy of human nature, that if a man had anything conspicuous, even talent or knowledge, it would be turned to his disadvantage behind his back. He had often used the term elegance to signify that particular kind of architectural effect which English gentlemen admired, and he saw no reason to change the term. He would not occupy time in defining the term, but he would ask the audience to attach to it its usual vernacular signification, as something unassuming and subdued,—something that need not be fastidious or fanciful, however refined. This was the sort of grace that the better classes in this country preferred; they were educated in such a manner, indirectly, perhaps, more than directly, as to produce this peculiar refinement of mind, and they desired their houses, and everything about them, to accord with this. Their refinement was not necessarily delicate or effeminate; but neither was it pretentious, nor with anything of the muscular Christianity school about it. With regard to ornament, very little need be attempted. Of course, the kind of ornament as regarded cost depended very much on a man's means; but it should be understood that quality was to be regarded rather than quantity. Ornament was, of course, indispensable, but it should not be obtrusive, simply always of the best and quietest description. As regarded the archaicism which had so much prevailed for many years amongst architects, he might remark that too many of them seemed to design their buildings for the purpose of making them—he would not use the term ugly, but the audience knew very well what he meant. Gentlemen did not like this style, with its poverty and intentional crudeness, and rudeness, and roughness. In the next place, with respect to style, people were very much discomposed now-a-days by contests between Gothic and Classic. He was not about to enter upon controversial points; but he would say that he considered these controversies to be only a healthful stimulant to the profession. The difference between the two systems historically lay here. The classicism of the present day might be defined to be that re-organisation of intellect which took place in the sixteenth century, and belonged, and must of necessity continue to belong, to the whole of Europe. They called it Italian in architecture, and so they did in other matters; but it should be remembered, that when they spoke of Italian design in architecture, they were not speaking of anything that belonged to Italy, and to no other country, but something belonging to Italy because Italy was the cradle of modern re-organisation, and the term Italian in the sense of architectural design ought to be translated "modern European." Italy merely held the principle in trust for the whole of Europe. In domestic design it was of necessity the case that our leanings must be towards Italian details primarily, because the Italian style was the primary style of the present period. But at the same time, speaking of domestic architecture, we possessed in this country the Elizabethan style, which did no violence to modern European ideas, and yet exhibited a certain identity with our own habits, and associations which rendered it especially applicable to this country. Therefore he considered there was a very pleasant rivalry between the Italian and the Elizabethan schools of domestic design. Neither style tended to overthrow the other, but each tended to help the other, and between the two we had a pleasant

alternative to offer to the taste of any person who might be disposed to make the choice. We often found men with a peculiar structure of mind which led them to prefer what was refined and delicate, and we called it a classical turn of mind. (He was not confining the term "classical" to architectural design, but would take it as extending over the whole realm of literature and art.) But there were others who preferred something more picturesque, more piquant, more stimulating to the fancy in a certain sense, and this accorded more with the principles of Mediæval design. According to the turn of a man's mind so would be his preference for one style or the other; and if a gentleman preferred one style to the other, he considered that an architect should have no hesitation in offering him his choice between the two, each of them having numerous modifications of detail; for he thought there was no surrender of the artist when the architect said, "You may have either the Elizabethan style or the Italian, for an English house, and I will do my best for you in either." He did not know that he should extend the principle so far in another direction; but, as regarded his present purpose, he must lay down this proposition as one that was incontrovertible. He would now say a word or two with regard to some of the rooms of the house. The service-room was essential to a gentleman's residence. It was a small chamber connecting the offices with the dining-room, and from it the dinner was served through a private access. Sometimes that private access was a hatch in the wall, like the old buttery hatch of Mediæval times; more usually it was a door; but, at all events, the object of a serving-room, or servery, was that the dinner should not be carried through the house. When a gentleman of the present day had a very good house, the probability was that he gave very good dinners, but if the dinner had to pass through the house the odours penetrated through the building and rendered it a mere cookery. The shortness of the dinner route was a second point that must always be considered in reference to the position of the kitchen in its relation to the dining-room. He would next direct attention to the cloak-room. This was an important matter. Strangers often lost their way in a large house, but gentlemen could always find their way to the entrance-door, and they found it a great convenience if they were relieved from all anxieties as to hand-washing, &c., by knowing that there was a cloak-room, lavatory, and so on near the entrance-door. The cloak-room ought to be outside the house, that is, in connexion with the porch or the hall, and as near as possible to the door. The gentleman's room was also a matter worthy of notice. It was the private room of the master of the house. No one else was allowed there, except those who had business with the master of the house. This room should be so placed as to be easily accessible to friends from the front of the house and to the servants and others from the other direction; and it ought, also, to be out of the way of the general traffic of the house, so that people should not be constantly popping in to disturb the occupier. He wished next to say a few words with respect to suites of rooms, and he would first speak of bedroom suites. In ordinary houses, the bedrooms appeared to be pitchforked together, so that the bed had to be put anywhere, and a corner had to be found for the washstand, and so on. This was not the way to design bedrooms. Every bedroom ought to be designed so as to accommodate the furniture it had to hold in the most convenient manner, and a good arrangement when it could be obtained was to give to a married pair a suite of their own, including a dressing-room, sometimes a bath-room, and a private lobby and closet, so that when the outside door was shut the suite was wholly private. This was a very agreeable refinement, and he did not know that it was practised in any other country than our own. It was a favourite method in the plans of Mr. Burn, and gave great satisfaction. An improvement on this principle was that of the family suite, which was also adopted by Mr. Burn, and was productive of great comfort. In a very large house, when the master and mistress were alone, there being no guests, and the children being at school, it was very uncomfortable to inhabit a great empty place; and even when the house was full, it was often the case that they desired to get away from the bustle and crowd. The family suite was therefore a great convenience, and it could be formed of a bed-room, a dressing-room, bath-room, the gentleman's room at the end next the house, and the lady's boudoir, the latter not being a fanciful apartment, but as much the business-room of the mistress as the gentman's room was of the master of the house. The boudoir must be put in such a position as to be convenient for access, while at the same time it was not necessary that every one should be able too readily to find the way there. The whole should be shut in by a private corridor. Another very useful suite was the nursery suite. As children often gave a good deal of trouble and annoyance, it was customary to provide special accommodation for them. They must have, in a good house, their day-nursery and their night-nursery, with a bath-room and a scullery; and there ought to be also a private lobby, so that the nurse, in shutting the door, could not only shut the outer world out, but, what was still more important, shut the inner world in. With respect next to the hall, he had in some of his drawings introduced the hall in its most classical form—the cortile. This was a great central apartment, of a stately character, and almost necessarily of a classical design. The Mediæval hall was, however, equally charming, while essentially distinct from the other in character. The Mediæval hall was a direct descendant from the old hall of the Saxons, in which everybody lived and slept, and cooked, and ate; and this, in its adaptation to modern houses, as an entrance-hall, was very much like what he had drawn in another of the plans he had just exhibited. It was a large chamber, not necessarily two stories high, but having a most pleasing effect if an open screen were put across it, with a porch at the outside, the inner space of the hall being left for the congregation of people round the fire. The gallery or principal corridor should open out of the hall. This, to his mind, had more domesticity about it than the more noble and refined classical hall. (For although he was not a Mediævalist, his leanings went strongly towards the Elizabethan.) It was important that he should complete the list of rooms by touching upon the kitchen group, which consisted in its simple form of kitchen, cellar, and larders. These ought always to be grouped together, and should be placed as far as was convenient from the main house, so that the smell of the cooking could not get about. The kitchen group was solely under the dominion of the cook, and the rooms composing it ought to be convenient amongst themselves, and should have a ready access from the outside. There need be no immediate connexion with any other part of the offices, neither the butler nor housekeeper having anything to do with the kitchen directly. He was next about to give a bit of special advice to young architects. In planning a house, let them always plot the furniture on the plan. They should not mind the trouble of doing this, because they would thus save much more trouble in the end. Nothing was more disappointing to an architect than to hear his client say, after his house was finished, "Where, in the name of wonder, did you intend my bed to stand?" "How did you come to make my room so that I cannot set my desk in it?" Let them take the case of the study, which was one of the most peculiar in its requirements. The architect should plot the writing-table upon it; and the writing-table should have a left light. The occupant's chair should also be sufficiently near the fire; the door must be at his right hand, or in front; and the book-cases must be conveniently placed. And so it was in degree with every other room. The architect should be always particular as to where the doors and windows should be placed, and where the side-board, and the grand piano, for instance, were to stand. He had only one further remark to make, in conclusion. He wished to impress on the younger members of the profession the necessity of considering the functions of an architect in a practical light. Of course, great allowances were to be made for the ardour of youth; and the more enthusiastic the discussions on art, the more charming they were to the mind of youth. But he thought, at the present day, he might safely advise a little more attention to practical matters. He remembered, that when he was young, such advice was given to himself, to which he paid no attention; but his turn had now come to give advice to others. They heard a great deal about art in the present age,—more than they ought to hear; for a great deal was said that tended to distract the minds of young men, and to produce that result which was so often complained of, namely, that out of so many young men as are annually turned out of London offices, so few were ever heard of again. The reason of this was, that there was too much aspiration after vague and visionary artistic excellence, and too little plain, straightforward study of that utilitarianism which must, after all, be the foundation of all true excellence in any profession.

In the course of the usual discussion that followed, Mr. Redgrave said he thought it would have been more desirable if Professor Kerr had told the meeting which of the experimental plans he preferred. He objected also to the manner in which the Professor had divided the styles of modern architecture, nor did he think the Elizabethan was a style that could be encouraged. Mr. Redgrave freely criticised other portions of the lecture, especially objecting to a collection of rooms into suites, which he said was only conformable to a Diogenes sort of existence. Other speakers followed in support of the lecturer's views, and a vote of thanks was passed by acclamation.

In putting the vote, the Chairman remarked that Professor Kerr had said he was not a lover of the Mediæval style, but he (the Chairman) could not see why he went so decidedly against Mediævalism, taken simply as twelfth, thirteenth, and fourteenth century work. He thought the Professor must admit that the junction of the two styles, Italian and Mediæval, which had formed the bastard Elizabethan, was not the best style that an architect of the present day could copy. With regard to the picturesque buildings in Scotland, they were all very well among the lakes and mountains; but an English house placed in an English landscape, among English fields and trees, should not be like the château of France or Scotland; and he saw no reason why an English architect should run into obsolete Roman, bastard Elizabethan, or unmeaning Renaissance.

THE MORTALITY IN LONDON AND LIVERPOOL.

THE waste of life and energy consequent upon the high rates of mortality prevailing in many of the large towns of the United Kingdom, is only now beginning to attract that public attention which its importance should command. Treated only as a sanitary question, it would have been very long ere the interest of the nation at large could have been awakened to its importance; but the evident inability of sanitary science, as at present supported by legislation, to cope with the subject, takes it out of these narrow limits, and it becomes one of the most important social problems of the day. That the aggregations of human beings constituting our towns, might not, under more favourable circumstances, enjoy death-rates much more nearly approximating those of the healthy districts of England, few who have thought upon the matter seriously will now venture to deny; but merely comparing towns with towns a contrast will appear sufficiently striking, to point to the imperative necessity of immediate and energetic measures being taken to stem this increasing torrent of life wasted by the excessive mortality in our large towns. No one believes that sanitary measures have yet effected all, or nearly all, that may be done in the way of better drainage, more efficient removal of nuisances, and a more abundant and a purer supply of water, to lessen the death-rates of some of our large towns; but so long as large proportions of their inhabitants are herded together in buildings really unfit for human habitation, and without regard to health or decency, sanitary reformers will be unable to do more than slightly to lessen the fearful loss of life that is going on around us. The trustees of Mr. Peabody's munificent bequest to the city of London, have set the example which, if followed up in an earnest manner, will prove the only effectual lever to raise the standard of health in our large towns. The time has gone by when model lodging-houses might be built, but the poor could not be persuaded to live in them; either education is beginning to teach the working classes to appreciate their value sufficiently to counterbalance the objections in their eyes to any supervision; or such institutions are really better managed than they used to be: certain it is that all the stacks of buildings that have recently been raised in London, either by the trustees of Mr. Peabody's fund, or through the exertions of Alderman Waterlow,

fill as fast as they can be finished, which, in spite of a few complaints of management, is the best proof that they meet the requirements of the working classes. They have not yet been tenanted sufficiently long to afford the means of proving a decreased fatality from zymotic diseases among their inhabitants; but that such will be the case, especially among the children, there is scarcely any doubt.

While this movement on a considerable scale for the better housing of the poor of London is going on, and is likely to increase as wealthy people find that they can lend their money for so good a purpose on good security, and get their five per cent. interest, what a field there is for such operations in our provincial towns! Few of them will bear favourable comparison with London as regards their rates of mortality; and, in most of them, the dwellings of the working classes are even worse, sanitarily speaking, than in the metropolis. How much might be effected by the formation of companies in these towns, for the erection of suitable dwellings for the poor! It has been proved that a modest five per cent. could be secured to the subscribers, and yet effect an immense boon to the poor. To mill-owners, and large employers of labour, the importance of maintaining their workmen in health cannot be over-estimated; and, as cases of sickness bear a constant proportion of about five to one death, a high rate of mortality must always be accompanied by a great loss of energy by ill-health.

Liverpool is the most striking example of our large towns in which sanitary measures seem entirely baffled by a dense population, a large proportion of which exists, for it cannot be said to live, under conditions entirely opposed to all considerations of health. In spite of all efforts on the part of the health officer and his assistant inspectors, the rate of mortality in Liverpool increases, and very rapidly too. In the ten years 1851-60 the average annual rate of mortality in the borough was 30 per 1,000. During the year 1865 it had risen to 36·4, or 12 per 1,000 higher than the rate during the year in London. In the ten past weeks of the present year it has been at the annual rate of 43·5 per 1,000. In the week ending Saturday (10th instant) the 515 deaths registered exceed the corrected weekly average by 234, and the births recorded in the same period by 99. The average weekly excess of births over deaths in the ten years 1851-60, corrected for increase of population to the middle of this year, in Liverpool is 47; thus the excess of births over deaths in the past ten weeks should have been 470, whereas in fact the deaths exceeded the births by 142. It is to be hoped that the present rate of mortality in the metropolis may still be considerably reduced, but a comparison between the returns of London and Liverpool for the week alluded to will sufficiently point out the terrible loss of life that is going on from week to week, comparatively unheeded, in the borough of Liverpool. Had the same rate of mortality prevailed in the metropolis last week as ruled in Liverpool, the deaths returned would have been 3,262 instead of 1,829, the actual number. Naturally at this time of the year, diseases of the respiratory organs and phthisis form the heaviest class; in London a fortnight since the number of deaths referred to this head were 663, but had the deaths from these diseases been at the same rate as in Liverpool, they would have numbered 1,070. In Liverpool, 56 deaths resulted from typhus during last week, only three less than those in London from the same cause, with more than six times the population; the deaths from typhus in London would have been 355 last week had they occurred in the same proportion as in Liverpool. So with whooping-cough and scarlatina, instead of 66 and 54 deaths, they would have amounted respectively to 241 and 95 from these diseases. It is not easy to imagine the excitement that would be caused by the publication, in any work, of a weekly bill for London, with a total of 3,262 deaths, and including 663 from typhus, 241 from whooping-cough, &c.;—and yet because this rate of mortality is occurring not in the metropolis but in Liverpool, it is allowed to pass almost unnoticed. Liverpool, on account of the density of its population, and the large colony of the lower class of Irish who abide there, appears to be considered as privileged to this mortality. But will it be allowed to go on? We know before hand where nearly all these cases of typhus and whooping-cough would be found to have occurred; not in the best quarters of the town, but in cellar kitchens, and the dwellings in which the lower classes of labourers exist. Here is a field for the philanthropic energy of the wealthy of Liverpool: let it be taken in hand at once; let whole districts of the town be rebuilt if necessary, until all the inhabitants are housed in dwellings fit for human beings. Surely the capital would not be wanting to effect such a purpose, for the continuation of such a terrible waste of life in the second town of the United Kingdom should be looked upon as a national disgrace. We have taken Liverpool as an example, but Manchester and Leeds follow far too closely on that town, in the high rates of mortality which there prevail.

ARCHITECTURE IN THE EXHIBITION OF THE ROYAL SCOTTISH ACADEMY.

ARCHITECTURE is pretty well represented in the Exhibition so far as the number of drawings is concerned, but none of the works delineated are of great importance: this arises, doubtless, from the fact of none such being in progress. Ecclesiastical architecture in the north is undergoing a gradual improvement. Batty-Langley Gothic is now only perpetrated in remote districts. Thirteenth-century work, with more or less of a foreign element, now holds sway. (48) "South-west View of the Chalmers Memorial Church, now in course of erection at the Grange, Edinburgh," by Patrick Wilson, consists of a nave and transepts, with a spire at the south-east angle, in Decorated English style; it appears correct enough in detail, but has nothing original or peculiar about it. Messrs. Douglas & Stevenson have two designs (79), "Competition Design for the new Church, Dumfries," is somewhat German in character. Picturesqueness seems to have been aimed at, but the result is hardly satisfactory; rather spiky pinnacles are placed in pairs between each bay, which does not produce a happy effect. (62), "Garngad Hill Church," is decidedly French in style, and rather heavy in general effect. Mr. Frederick Pilkington's "Memorial Church" (165), is one of those productions which look pretty enough on paper, but in execution would appear absurd; it bristles with exaggerated canopies, supported on slender shafts, the stability of which it would be rather difficult to secure. (91) "All Saints Episcopal Church, Broughton-street, Edinburgh," by Mr. R. Anderson, is an exceedingly heavy, not to say rude, looking edifice. In his drawing the architect has placed his building in a lonely spot at the foot of a hill, and certainly it would appear to greater advantage in such a situation than in juxtaposition to a line of modern four-storied houses. Mr. Anderson should face the difficulty (if such there be), and consider the surroundings of the future edifice. We may admire such heavy and massive works when we consider that they were the production of a rude age, but their reproduction in modern times is not desirable. (199) "Christ Church, Falkirk," by the same architect, exhibits the same faults, although in a lesser degree: the intention is good, but the result far from being satisfactory. Messrs. Macgregor & Miller's "Proposed Free Church" (185) is a neat little edifice, with an apse, transepts, and tower—not at all like a Free Church, and not likely to be adopted by that body, who have a strong predilection for galleries, so as to make the most of the space at command. (111) "St. John's Episcopal Church, Perth," has a very ugly brooch spire, arising from the too abrupt junction of the parts. (151) "St. Peter's Episcopal Church, Musselburgh (Paterson & Shiells), is small, but elegantly proportioned, consisting of a nave and apse, with brooch spire at north-west angle.

The Scoto-French style of the seventeenth century seems now to be considered the thing for a country mansion north of the Tweed: all the mansions of which designs are exhibited are, with one exception, in this style, and we deside-rate in one and all of them the want of an infusion of new detail. Picturesque as the style is, its details become monotonous by frequent repetition, and an infusion of fresh detail, which it easily admits of, would give variety and lightness to its somewhat hard character. (12) "Newtonaird House, Dumfriesshire" (Peddie & Kinnear, architects), is a fine mansion, picturesque in arrangement. (10) "Mansion-house at St. Andrew's for R. Ewing Curwen, esq.," by John Milne, is crowded and confused. (39) "Ballikinrain House, Stirlingshire," by Mr. David Bryce, is similar to many of the noble mansions erected by that gentleman. Mr. John Lessels has been successful in transforming the "Mansion House of Salisbury Green" (33) from an ugly square block to a picturesque turreted residence. Mr. Frederick Pilkington repudiates the Scottish style, and seeks for something lighter and more cheerful; he seems now to have settled upon the round arch as the most suitable for his purpose; he gives no rest to the eye, and scatters his detail with lavish profusion. (38) "Mansion erecting near Port Glasgow, for Thomas Blackwood, esq.," is a further development of the Mansion at Grange, of which a design was exhibited last year. Mr. J. Dick Peddie makes (11) "A Suggestion for the Improvement of Edinburgh." He proposes to widen the terrace of the West Prince's-street Gardens to the same extent as that of the East Gardens, and to adorn it with a line of statues and monuments. The idea is one that might suggest itself to any one giving the matter due consideration, and it would certainly be a grand affair if the wherewithal to carry it out were forthcoming.

Some sermons are made up of quotations, and the "Sermon in Stones," by Messrs. Peddie & Kinnear, (18) "The University Club, Prince's-street," is made up of quotations from the Greek authors without reference to the text. The building is in course of erection, and may meet with further consideration when completed.

(81) "Spier's College, to be erected at Marchland, Beath; French Middle-pointed;" by Mr. J. T. Ronghead, exhibits strongly the worst features of the style; it is very liney, and painfully perpendicular in effect. The composition is equally balanced, and lacks a centre to give it dignity. One of the most interesting designs exhibited is (150) "New Buildings, Castle-terrace," by Mr. James Gowans. He has striven to give that variety to the different blocks of building which we so much desiderate in the street architecture of the New Town of Edinburgh, combined with an effective sky-line. We earnestly hope that more of the west-end proprietors of building-ground may be affected by the same spirit. (110) "View of the Branch of the National Bank at Girvan," and (112) "View of the Branch of the National Bank of Scotland at Montrose," by Mr. David Macgibbon, have not the appearance of banks, but look more like specimens of domestic architecture in the picturesque gabled style; looked at in this light they are effective so far, especially that at Montrose. (13) "Royal Memorial Arch at Fettercairn," by Mr. John Milne, is a structure such as we should hardly have expected to have been erected in this our day; it has all the appearance of the *chef-d'œuvre* of a village carpenter, or one of those productions covered with shells which adorn the sideboards in remote seabathing quarters.

PRIZES TO ART WORKMEN. THE ARCHITECTURAL MUSEUM.

THE series of meetings and lectures in connexion with the Session of 1866 of the Architectural Museum was inaugurated last evening by Mr. Beresford Hope, M.P., the president, who distributed the prizes to the Art-workmen. The ceremony took place in the theatre of the Geological Museum, Jermyn-street, St. James's, and there was a large attendance.

Mr. Beresford Hope, in opening the proceedings, said they met that night in a new home, and for the very simple reason that the tabernacle—he supposed he must call it—in which they used to meet, at South Kensington, had been pulled down to give way to a permanent South Kensington Museum. Whether they should meet again at South Kensington permanently or not was a matter in regard to which he wished to make a short explanation. The meeting was very well aware that for many years past South Kensington had been their home. He had talked of the tabernacle in the wilderness. Some people said that when they went down to South Kensington they went to Egypt. But he must say that having gone down to Brompton, they were most hospitably entertained there. With the authorities there they sometimes had had a few friendly "tiffs;" but altogether they worked very well together, and owed a deep debt of gratitude for the kindness that had at all times been shown by the authorities at South Kensington. But as time went on, and as the distinguishing features of the South Kensington Museum shaped themselves more and more clearly, the more it became apparent that there was a divergence of inten-

tion between them and that body. He would tell the meeting what that divergence was. All of them who had considered the museum question must be aware that there were two kinds of museums. One was what was called a technical or study museum, which contained things that were rather dry and uninteresting to the general visitor. There was no popular museum in anatomy, nor ought there to be, inasmuch as it would consist of a number of specimens in bottles. A technical museum in chemistry also consisted of a lot of specimens in bottles; and so in their line of science, a technical museum in architecture consisted of a number of mouldings, carvings, and details, many of them rough and mutilated plaster-casts, and, therefore, very uninteresting and ugly to the general public; but of inestimable value to the man who had to manufacture works of art, in which light and shade produced by mouldings, and the art-beauty produced by foliage, were his requisites. Such was their idea of the collection that was essential for the study of architectural art. The other sort of museum which he did not deny was equally valuable and necessary, was what was called the Exhibition Museum, but it did not go into the detail necessary to enable the art-student to work out either originals or models of monuments, like the tomb of Archbishop Grey, at York, or the Pisa pulpit, which raised its head so proudly at South Kensington. He thought their Government,—he did not mean the authorities at Kensington, who were not to blame,—but the Government, were to blame for not having realised the great importance of a study collection; and, when they had the unique opportunity of plenty of acres at Kensington, they were to blame for not giving to England what, he believed, no other Government had given to any other country in the world, a Study Museum of Architectural Art. There was plenty of room at Kensington for carrying out such a project, and it was a sort of museum which it would not be very expensive to create. The authorities, however, thought otherwise; and it was impressed upon those connected with the Architectural Museum that they were to clear out a very large amount of their collection, and leave only so much behind as would form part of an exhibition collection, and not part of a study collection. Now, they had been looking forward, as he had stated, to a great national study collection for the benefit of the art-workmen of England. They did not pretend to say that, with their limited means, their collection could be either a very large one or a very perfect one; but they did say that it was the first thing of the sort that had ever been started. It was a matter of honourable ambition with them; and they thought that it might have been taken up by the Government as the foundation of a more important collection of the same kind. That matter was now past and gone. The study collection was no longer to be an element of the South Kensington Museum. It was only to be an exhibition collection. It would, no doubt, be an interesting, a beautiful, and an important one, but it would not be that special kind of technical collection which was required. Accordingly they felt there was nothing to do but to give an amicable notice to quit. That notice was taken amicably, and he was able to say that they were leaving on the best and most affectionate of terms with the authorities at Kensington, who had not withdrawn from them the privilege of using their collections. Now, at this time of final divorce, nothing could be more friendly than the terms upon which they stood towards each other. Speaking ministerially, the question as to where they should go was under consideration. Talking confidentially, they had very little idea where they would go. But they were working hard for a place, and he might say, without breaking confidence, that their condition was under mature consideration by a very important body of a cognate character to their own, though somewhat older, and more dignified—he meant the Royal Institute of British Architects. He now passed to the special work which they had to perform that evening, namely, the distribution of prizes. The meeting were aware that last year was a year of disappointment. They offered valuable prizes, but it was not considered that the competitors came up to the mark, and they went down to South Kensington with rueful faces and blank cheques. This year they adopted the course, not of sulking or despairing, but of revising their list of prize objects, and offering prizes even more valuable in a monetary view. He was glad to say that the exhibition of one class of works of art had met with signal success. They had had an unusually good tender of objects, and they felt that they might conscientiously award the large prizes which they offered to the competitors. He was exceedingly glad to have to say that the art-workmen of the country had awoke to the movement of the times—he did not allude to the Reform movement. He was glad to say that they felt in all things the growth of education and of refinement—that growth of refinement which had substituted the present cheap press for the scurrilous press of forty or fifty years ago—a cheap press which had placed the study of literature and the discussion of political questions, whether they agreed with the conclusions that were come to or not, on the high level which they now occupied. He was glad to see the realization of the growth of education and the improvement that had taken place in those means of locomotion which made the word "provincial" almost a word belonging to the dead languages. The growth of science had extended itself to the wants of private life, and people felt that the furniture they lived amongst, the carpets they trod upon, the arm-chairs they slept in, the plates from which they ate their mutton, and the basins from which they washed their faces, might be, need be, should be, and could be, specimens of art, without being too expensive to those persons who might become their purchasers. He was glad our workmen realized that fact; and this brought him to another point. The other day a capitalist, who was a producer of art-workmanship, had asked him whether he (Mr. Beresford Hope) knew what he was about; whether he knew the necessity of capital to produce these large works, and was he not putting the art-workman out of his place? He (Mr. Hope) said distinctly he was not putting the art-workman out of his place; and he would tell them why. Everybody's duty was to be moving on. It was like the theory of the astronomer, that the sun and all the fixed stars were in reality revolving round some very distant central sun. He did not put the art-workman out of his place, because the capitalist who employed that workman, and the purchaser who went to the capitalist, had themselves marched on, and he only asked that the art-workman should march on by their side. Of course, there were many branches of art-workmanship that required capital to put them in the market, and he should be a very bad friend to the art-workman if he were to come forward to bring down that necessary law of political economy which made the capitalist necessary to put his work in the market,—ay, and necessary to give him the materials with which he could work. All he maintained was, that the development of art-education on all sides did not destroy the relations between the employer and the workman. It only placed them in a more satisfactory position towards each other. It showed the workman that artistic work was wanted from him, and it told the employer that it was right and generous that, with his name the name of the man who produced the work should also be connected. Of course, many art-workmen would only be art-workmen all their lives. It was an honourable thing to be an art-workman all one's life if one stamped his name on the work. But it was possible that, like Chantrey, a man from being an art-workman might become a great master and teacher of art, and he was for throwing open the door to such a man that he might come forward and prove himself a Chantrey. He would give an illustration in point. It might be thought a trivial consideration, but it would show his meaning. For many years past it had been the habit in this country to hold flower-shows, at which they saw that Mr. Smith, gardener to Lord Brown, took prizes. Lord Brown was the capitalist, but Mr. Smith's knowledge of botany produced the grapes, the melons, or the roses which won the prizes. Now, he wanted the art-capitalist to be the squire, and the art-workman the gardener. He would now pass to the special prizes for the present year. He was going to speak plainly. In former years they had had many pleasures and many disappointments. He dared to say that in the allotment of the prizes it might have been supposed by some that they did not take sufficient account of the small number of hours, comparatively speaking, that might have been at the competitor's own disposal; that they did not take sufficient account of the wear and tear of mind which must have taken place in the pursuit of their calling, before they could apply that wear and tear for their own advantage. They felt, for the present, at least, that they were asking for two things that it was hardly right to ask for; at the same time, one was a pure and absolutely original composition; the other, that knowledge of manipulation or practice in art-handling which made the good rendering of the composition manifest its superiority to the bad rendering of the same. Accordingly, except in one case in which they included composition, they had determined this year to absolve their competitors from much of the original composition, and only looked to them to give them the best rendering of an idea for which the Institution was responsible, and they were justified in that determination by the results. He asked pardon from those of whom in former years, in their over-enthusiasm, they might have exacted too much.

Mr. Hope then proceeded to distribute the various prizes to the successful competitors, as thus:—

Stone Carving.—Prize 1, 20*l.*—Arthur N. Harris, Ryde, Isle of Wight; prize 2, 5*l.*—John Seymour, Tower-lane, Taunton; prize 3, 2*l.*—Henry Harrison, 62, Upper Ebury-street, London; extra prize, 1*l.* 1*s.*—T. Sharp, 50, Connaught-terrace, Edgeware-road.

Wood Carving.—Supplementary prize, 10*l.*—W. Wormleighton, at Mr. Roddis's, 19, St. James's-street, Birmingham.

Silver Work.—Prize 1, 15*l.*—W. Holliday, 14, Nailour-street, Islington; prize 2, 5*l.*—A. G. Frantzen, 20, King-square, Clerkenwell.

Transparent Enamels.—Prize 1, 10*l.*—Frederick Lowe, 13, Wilderness-row, London; extra prize, 1*l.* 1*s.*—H. De Koningh, 69, Dean-street, Soho.

Opaque Enamels. — Prize, 10*l.* — Frederick Lowe, 13, Wilderness-row, London.

Marble Mosaic.—Prize, 10*l.*—George Rooke, 27, Bywater-street, King's-road, Chelsea.

Modelling in Clay (Architectural Union Company).—Prize 1, 5*l.*—R. W. Martin, 5, John's-terrace, Olney-street, Walworth-road. — Prize 2, 2*l.*: J. W. Gould, 33, Bayham-place, Camden Town.

On the invitation of the chairman, Mr. Akroyd, M.P., Canon Rock, Mr. Godwin, Mr. Seddon, and other gentlemen, addressed the meeting; and Mr. Holland (wood-carver), Mr. Ash (metal-worker), and Mr. Pearce (metal-worker), spoke from the body of the theatre.

TOWN HALL AND CORN EXCHANGE, FARNHAM, SURREY.

The new buildings, which have been in course of erection during the last twelvemonth, and are now completed, were opened on the 15th inst., with a public banquet, at which nearly 300 persons were entertained, in the new market-hall. The weekly markets have hitherto been held in the open air, with no more shelter to the merchants and farmers than was afforded by the area covered, but not enclosed, by the old Market-house, recently pulled down. The new edifice, which includes a market hall or corn exchange, offices, shops, and assembly-rooms, has been built on the site lately occupied by the Goat's Head Inn, at the junction of Castle-street with the Borough. At the corner of the building is a clock-tower, 88 ft. high, in the top story of which is a four-dial clock, by Frodsham, presented to the town by Mr. S. Nicholson, of Waverley Abbey. This tower is surmounted by a belfry, having a slated spire, terminated by a weather-cock, and containing three bells, for the quarters and hour. On the side next the Borough are shops, with cellars below, and two stories of rooms above. The ground-floor on the side next Castle-street is occupied by offices, with an entrance-hall, 32 ft. by 10 ft., in the centre, paved with black and red tiles, for access to the market-hall, which is built behind the shops, and is lighted from the roof and one end. This hall is 70 ft. by 36 ft., and 30 ft. high; it is faced inside with white Huntingdon bricks, slightly relieved with red and black bricks, and is covered by a polygonal ceiling, resting on circular arches, formed of three thicknesses of 3-in. planks, bolted together on the Delorme principle, which spring from stone corbels on projecting piers. One compartment of the ceiling on each side of the centre one is filled with rough plate-glass the whole length of the hall, and there is a large three-light window at one end of the room. The rest of the ceiling is boarded, the whole of the woodwork being stained and varnished. On one side of the hall, and entered from it, are offices for the use of merchants attending the markets; there is also a side entrance to the room from the Borough.

The assembly-room is placed on the upper floor, and in the portion of the building fronting Castle-street. This is reached by three separate stone staircases, the chief of which is 7 ft. wide,

and leads from the entrance-hall in Castle-street. The room is 48 ft. by 32 ft., and 30 ft. high, with retiring-room and cloak-room adjoining. Its roof and ceiling are constructed on the same principle as that of the market-hall, the ribs springing from carved stone capitals, supported on red shafts of terra-cotta. Both this room and the market-hall are lighted by sun-burners of Messrs. Strode's manufacture, and are warmed by Haden's hot-air apparatus.

The outside of the building, and also the staircase and entrance-hall, are faced with white Huntingdon bricks. All round the roof of the assembly-room is an arcaded parapet, surmounting a moulded cornice, all of terra-cotta; and the arches to the two chief entrances are of the same material.

The mullions of the windows are of Bath stone, with carved caps and red terra-cotta pillar-shafts. The entrance doorway in Castle-street has recessed jambs, with carved caps and red terra-cotta shafts. Carved stone caps and red shafts are also used at the outer angles of the lowest stage of the tower, and also to the arched openings at the base of the tower. The windows have gauged semicircular and segmental arches of moulded red bricks, with stone keys and skew backs. All quoins, window and door jambs, arches of tower, and panels for clock-faces, are of Bath stone.

The terra-cotta was supplied by Mr. Blashfield, of Stamford. Mr. F. Birch, of Farnham, was contractor for the general building; and Mr. R. Mulley acted as clerk of works. The architect employed was Mr. E. Wyndham Tarn, of London. The total cost has been about 3,500*l*. The style of the building is an adaptation of that prevalent in Italy during the eleventh and twelfth centuries.

IMPROVEMENTS FOR EDINBURGH.

LORD PROVOST CHAMBERS has called together the heads of the various public bodies in the city, and other influential citizens, as, in old times, "the neighbours" were consulted in the Scottish royal burghs on momentous occasions, his lordship's purpose being, that the members of his committee should lay before the meeting his plans for opening up the closes in the Old Town, and obtain their opinion thereon. The meeting appeared to be very favourably inclined towards the project, but the question of new dwellings for the many poor persons to be dispossessed was brought prominently forward by Dr. Begg and others. The Lord Provost said that building societies were ready to commence operations as soon as spaces were cleared for them; and that many workmen's dwellings were to be erected in the neighbourhood of Leith-walk. The Builders' Association have inspected the plans, and favourable opinions have been expressed by various members. A report is to be made to the Lord Provost on the views of the Association.

PARIS UNIVERSAL EXHIBITION, 1867.

THE authorities at South Kensington have issued, as a circular, a translated "Extract from an Explanatory Supplement to the General Regulations prepared by the Imperial Commission respecting the Exhibition of the Products of Agriculture and Industry connected with Groups 8 and 9, Live Products and Examples of Agricultural and Horticultural Establishments;" in which the Commission remark that the organization of collective agricultural and horticultural displays is a most important undertaking, hitherto imperfectly carried out in previous Exhibitions, and now entrusted to the patriotism of the Departmental Committees. Inquiry has been made of special contractors who supply on hire the necessary structures for the divisional displays, and it has been found that the hire of cattle-sheds will not exceed 80 francs per head; of stables, 100 francs per horse; and 130 francs per box for brood mares; 75 francs per pen of sheep; 60 francs per sty of pigs; 30 francs per coop of fowls; but that concerted action would reduce this cost. Contractors, on certain conditions, will supply forage and other necessary objects at a price lower than, or, at the most, equal to, the official current price of the day; but the exhibitors will be at liberty to employ any contractors they may think fit. It is estimated that at Paris, from the 1st April to 1st November, the average cost per day of the food for a bull or a cow may be from 2 fr. to 2 fr. 50 cent.; of a horse, from 3 fr. to 3 fr. 50 cent.; of a sheep, from 40 cent. to 50 cent. The period during which live animals or perishable objects can remain in the Exhibition is limited by their very nature, but each of them when removed must be immediately replaced by another product to be provided for this purpose by the person who directs the operations of each district. The Commission will allow them to be sold day by day, and delivered to the purchaser as soon as other products have been supplied in their place. This will be rather a difficult subject to deal with, but the Commission seem to be preparing to meet it.

ROME.

AT Rome, the Via Appia has been anew excavated at a spot known by the name of Santa Maria Nuova, at the expense of Count Tyszkiewicz; the researches have led to the discovery of a draped statue of considerable merit. In laying bare a tomb, remarkable for its peculiar interior disposal, the explorers found a mosaic pavement representing a rather uncommon subject, viz. a skeleton reposing on a couch, with the inscription in Greek letters which Socrates had observed on the Temple of Apollo, at Delphi, "Know thyself." Near the spot were also found colossal fragments of architectural ornaments, supposed to have formed part of a splendid tomb of the Antonine period.

On the 22nd ultimo the Roman Pontifical Academy of Archæology met, under the presidency of Professor Salvatore Betti. Commander Visconti, perpetual secretary, furnished details of the excavations now carried on at the Palatine, at the expense of the Pope and Commander Constantini Baldini, minister of commerce and public works. Already saloons of considerable dimensions have been brought to light, adorned with paintings, stucco-work, and marble. He also described the investigations now continuing in the neighbourhood of Ostia. The Rev. Felice Profils, rector of the Pontifical Seminary and secretary of the Commission of Sacred Archæology, also gave an interesting account of the excavations which have taken place in the Catacombs of Rome, from November, 1860, to May, 1865.

SCHOOL-BUILDING NEWS.

Battle, Sussex.—The foundation stone for a new grammar school, at Battle, was laid on Tuesday last, by Miss Lamborn, of Battle. The new building is intended to take the place of the old grammar school, which of late years has been found totally inadequate to the requirements of the establishment. It will accommodate about 100 boys, mostly residential, and contain lofty dormitories, dining-hall, bath-rooms, lavatories, detached school and class rooms, and fitted with the most modern improvements. It possesses extensive recreation grounds, and the building has been designed with the view of further extension. The works are being carried out by a local builder, under the superintendence of Mr. Alfred Cross, of Hastings, architect.

THE FARNESE CONGIUS.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

ON Wednesday, March 14th, Mr. Thomas Wright, M.A., in the chair, the supposed Congius of Vespasian, brought from Paris in 1825, was again exhibited by Mr. John Davidson. Mr. Edward Levien, M.A., F.S.A., read a paper on the subject. He showed that in their investigations on the Roman weights and measures, Pætus, Peireske, Villalpandus, and Greaves, in the sixteenth and seventeenth centuries, had before proved there was more than one congius similarly inscribed to the present, but in one example, at least, there was an additional engraved ornament. That the present one is not that seen by Greaves at the Farnese Palace is clear, from the absence of two engraved oval lines which appear on Greaves's drawing; and, moreover, he traced the Farnese congius to the Royal Museum at Dresden, where it arrived at the beginning of the eighteenth century, and still remains. The original standard congius of Vespasian is not known to be in existence. One was found at Todi which was considered likely to be the original only because the inscription upon it was filled in with silver, but this one has long been lost again. Mr. Gordon M. Hills had measured the contents of the specimen before them and found it to contain 7 lb. 4½ oz. of water, measuring 6 pints *minus* 6·622 cubic inches. He pointed out the peculiar fitness of the form of the congius for the purposes of a standard, but showed that the inside of this one was too roughly finished to make it probable that it could have been used or made for a standard, but only as an imitation of it. This idea had already been suggested by Mr. Syer Cuming, on the ground that the metal was not Roman bronze, but a mixture commonly made in the fifteenth century, to which period he would assign the congius before them.

The chairman then read a paper on the "Progress of the Science of Archæology."

IMPROVED MANUFACTURE OF BRICKS.

AT a recent meeting of the Chemico-Agricultural Society of Ulster, Professor J. Thomson read a paper on "Recent Improvements in the Manufacture of Brick." After giving explanations of the chemical composition and other characteristics of different kinds of clay, and the changes which they undergo in being burnt or raised to an incandescent heat, Professor Thomson explained the chief methods in use for working the clay and forming it into bricks ready for the kiln. He then turned attention to the great loss of heat which occurs in the ordinary modes of burning bricks in common kilns. This great loss, he pointed out, arises in a twofold way. First, during the burning of the bricks, the air which has passed through the fuel, or among the heated bricks, and the smoke including gaseous products generally, passes away from the kiln to waste at a very high temperature, even at a red heat, during a considerable part of the process. Secondly, when the bricks are raised to the high temperature required to burn them, and render them permanently hard, the great store of heat which they contain is entirely thrown to waste while they are left to cool. He stated that he had noticed with much interest the very admirable principles of a new kind of kiln with perpetually revolving fire, which, invented and patented by F. Hoffmann, of Berlin, and A. Licht, of Danzig, is being introduced into Ireland by Mr. Moore, of Belfast, both for brick-burning and lime-burning. In this new kiln a remarkable economy of fuel is effected in a twofold way,—in fact, by saving the twofold loss of heat already mentioned; for, first, it saves the heat of the gaseous products of combustion and unconsumed air passing through and away from the burning bricks, by applying this heat effectively in drying the new fresh bricks about to be burnt, and raising them up to an incandescent temperature, so that only a very slight addition of heat directly from ignited fuel is required to complete their burning; and, secondly, it saves the heat of the cooling bricks, after their having been sufficiently fired, by applying it all in warming the air which goes forward to supply the fires: so that the fuel is burnt with air already at an incandescent temperature, instead of requiring, as usual, to heat the air for its own combustion. Professor Thomson, with the aid of drawings, went on to explain the manner in which these principles are practically carried into effect, taking as an example the large kiln which Mr. Moore is constructing at his brick-works at Hayfield, in the neighbourhood of Belfast. The kiln is built in the form of a large arched passage, like a railway tunnel, bending round in going forward on the ground till it closes with itself to form a great circular ring-chamber, within which the burning of the bricks is carried on. This ring-chamber may be of any convenient dimensions, 160 ft. diameter being a suitable size. Round its circumference there are twenty-four entrance door-ways, admitting of being closed with temporarily-built bricks and clay, so as to retain the heat and exclude all entrance of air by the door-ways so built up. The great ring-chamber may now be conceived as consisting of twenty-four compartments or spaces, with one of these door-ways to each. In the centre of the ring a high chimney is erected, and from each of the twenty-four compartments of the annular chamber an underground flue leads into the chimney. There are, then, twenty-four of these flues converging towards the centre like the spokes of a wheel, and each flue has a valve, by

which its communication with the chimney can be cut off. Arrangements are made by which a partition like a damper or portcullis can be let down at pleasure, so as to cut off all communication between any of the twenty-four compartments of the ring-kiln and the next one. Let us now suppose the working of the kiln to have been already fairly established, for, after being once kindled the fire is never extinguished, but the burning of new bricks and the removal of the finished produce are carried on by a continuous and regular process from day to day. Two adjacent compartments have this day their entrance-doors open, all the rest being perfectly closed. By the arrangement of the valves in the flues, and the large damper or portcullis, the air which gets admittance alone by the two open doors has to go round the whole circuit of the ring-kiln in order to be drawn into the chimney. From one of the two open compartments men are taking out the finished and cooled bricks, and in the other one they are building up newly-formed unburnt bricks which are not yet quite dry. The air entering by these two compartments passes first among bricks almost cold, and takes up their heat, and then goes forward to warmer bricks, and then to hotter and hotter, always carrying the heat of the cooling bricks forward with it till it reaches the part of the ring diametrically opposite to the two open and cold compartments. At this place it gets a final accession of heat from the burning of a very small quantity of coal-dust, which is dropped in among the bricks from time to time by numerous small openings furnished with air-tight moveable lids. Thus, at this part of the kiln there is generated the full intensity of heat which is required for the burning of the bricks. The hot air, including the products of combustion, which, for brevity, we may call the smoke, though it is really perfectly gaseous and free from sooty particles, then passes forward to the bricks, which, by its continuous current, are being heated; and it passes on among them from hot bricks to those which are less and less hot, heating them as it goes, and then passes on to those which are still damp, drying them as it goes; and then it passes to the chimney, in a state almost cold, and saturated with the moisture, in the form of steam or vapour, which it has taken from the damp bricks. On the following day to that on which the operations just described have been going on, the portcullis is shifted forwards by the space of one compartment, and a corresponding change is made as to the flue which is to communicate with the chimney, and as to the pair of compartments open for the admission of air and for the removal of finished cold bricks, and the building in of fresh damp bricks; and the air, including products of combustion, at the end of its circuit in the annular chamber, just before passing off to the chimney, now passes among the fresh bricks which were described as built in on the yesterday of this new day. The place where the coal-dust for fuel is thrown in is also advanced round the circle by the stage of one compartment; and so now the whole process goes on just as it did yesterday. The fire thus makes a complete circuit of the annular chamber in twenty-four working days, the whole process being left dormant on Sundays, merely by the closing of all apertures for the admission of the current of air. The same kind of kiln, with the same process of working, is applicable in the burning of lime; and, both for the brick-burning and the lime-burning, the saving of fuel, relatively to what is consumed by the ordinary methods, is such as to appear at first sight almost incredible.

STOVES AND VENTILATION.

The presence of a certain quantity of water in air heated by stoves, in apartments, is indispensable to render the air respirable. To its absence is due the smart sensation of cold experienced when passing from a chamber heated by a stove into the free air. M. Anez, architect, has made an apparatus which produces, along with the required temperature, the quantity of vapour necessary for the saturation of the air, according to the degree of heat. He states that the mildness of the climate of Cannes, Nice, Hyères, &c., is due to the influence of the Sirocco, that parched current of air from the African desert, which becomes saturated with moisture in its passage over the Mediterranean, and bears health and freshness to the lungs of the inhabitants of the coast.

M. Anez, in his apparatus, imitates the natural phenomenon by obliging the hot air, produced by the stove or hypocaust, to pass over the surface of a certain quantity of water placed in an adjoining receptacle; the air becomes saturated with the aqueous elements it had lost (½lb. of water, for every 2lb. of coal consumed, being evaporated), and which it would have taken from the lungs of those who breathed it. A camelia placed at a distance of 1 ft. 8 in. from an orifice through which the heated air entered a room, at a temperature of from 89° to 103°, flourished magnificently, and preserved its flowers for five weeks. Several architects have given this invention a favourable reception. On the Continent it is usual, where it can be conveniently done, to place a bowl of water on the stove, but this is impossible in *salons*. The arrangement is not unknown in England.

For some years past, attention has been directed to a new species of epidemic in Savoy, produced by the use of cast-iron stoves, and in September last Dr. Carret sent a *mémoire* to the Academy of Sciences, stating that a great number of these winter maladies, known commonly by the names of cerebro-spinal meningites, cerebral typhus, intermittent fevers, &c., were nothing but intoxications produced by the carbonic oxide gas disengaged by cast-iron stoves. This opinion met with some opposition; so, in August last, M. Jules Carret, nephew of the above doctor, and laboratory pupil of M. Fremy, was requested by his uncle to make the necessary experiments for ascertaining the presence of carbonic oxide gas in the air of a chamber heated by a cast-iron stove. Accordingly, one of the halls of the College of Chambéry, cubing 9,324 ft., was strongly heated for about fifteen hours, and it was proved that the poisonous gas did really exist, as was shown by its action on chloride of gold, causing the formation, in each of the bulbs of Liebig's apparatus, of a grey precipitate and a multitude of shining gold-coloured scales. The Abbé Alph. Chardon, early last month, contested the fact that the deleterious gas was produced by the decarburation of the cast-iron of the stove; for, he says, if that were the case the cast-iron would pass, through loss of its constitutional carbon, into the state of steel, and thence into pure iron, whereas nothing of the kind had ever been observed. He attributes the presence of the carbonic oxide gas to the combustion of the graphite or blacklead with which the stoves are blackened, and which is nearly pure carbon, with a feeble trace of iron.

M. Chevreul has also demonstrated that a cast-iron stove, even after protracted service, lost nothing of its weight nor of its proportion of carbon in the iron.

M. Jules Carret, in reply, stated, a few days ago, that he agrees with the abbé, and that there are other assisting causes, such as fragments of wood, charcoal, or coal left in the pan of the stove; also the organic dust of the air, which, by the carbon it contains, gives off carbonic acid gas, the cast-iron retaining one equivalent of oxygen and leaving the carbonic oxide free. They are unanimous in condemning blacklead, and in recommending stoves in dwellings to be kept clean and free from dust.

M. Ad. Perrot has constructed a furnace-stove of small dimensions, but of an astonishing heating power. He unites several Bunsen's burners, of common gas mixed with atmospheric air, so as to form with their flames a single jet. With one of these apparatus, burning 70 cubic ft. of gas per hour, under a pressure of from 2 in. to 2·4 in. of water, and with only the draught furnished by a sheet-iron chimney 6 ft. 6 in. high, he was able, in 15 minutes, to melt 31½ troy ounces of silver at the standard of 0·680 (pure silver being 1·000). It took at most 30 minutes, when the operation went well, to melt and cast 2½ lb. of copper in bars. Lastly, he was enabled to melt several specimens of grey and white iron; 1 1/10 lb. of a sort of cast-iron, which was considered very hard to melt, was made liquid and was cast in 30 minutes. Another specimen, of 1¾ lb. was melted in an hour at most. The form of the furnace is cylindrical, and it only measures 31 in. high by 10 in. in diameter.

M. Felix Achard has invented a system of ventilation, which he calls "reversed," for hospitals and assembly-rooms. He says that in hospitals, in particular, and all saloons which are heated from below, either by means of heated air being admitted, or by stoves, &c., the heated air, lighter than that pre-existing, rises in isolated columns without mingling with the cold air, and, arriving at the ceiling, spreads itself out in a regular stratum, ready to make its way out when the top ventilators are opened. Thus the colder air remains at bottom, saturated with the fetid emanations from the patients, and the required renewal of the air is only carried on in an incomplete irregular manner, never being integral. The plan is, therefore, to direct towards the upper portion of the apartment, or hospital-ward, a continuous current of fresh air many degrees warmer than that which existed before; this air, being lighter than the rest, will extend itself in a layer at the top, as regularly as oil on the surface of a glass of water. If now the air be drawn off from the bottom by a stove in which it may be consumed, it is evident that the warm air at the top will gradually descend in a body until it arrives at the bottom and is drawn off into the stove which creates the draught. Thus there is a continuous current of warm air entering by a pipe (heated by the stove which removes the lower air) at the top and going out at bottom. There should be, in order to carry out this principle:—1. An opening, for the admission of external air, into a room or receptacle in which are stoves or other means of heating, whose chimneys are inclined away from the direction of the entering air; 2. A heating flue, opening at pleasure, at top or bottom; 3. A draught-furnace, formed by a number of stoves, under which there is an open grate, on which it may be easy to burn green wood continuously or now and then, in order to destroy infection by naked flame; 4. In front of the draught-chimney, a flue or pipe having the same height as the apartment, able to be opened or closed either at top or bottom. The ventilation may be either with heated or with cold air. 1st. For warm-air ventilation: the cold air enters by the opening above mentioned, is warmed upon the heating stoves, mounts by the flue, and spreads itself out at the top of the apartment. On the other hand, the draught-flue draws off the colder air from below, and creates a vacuum, which is filled, first, by the lower layer, then the intermediate strata, and lastly the upper portion, which has descended to the bottom; and so a regular current is established from top to bottom. 2. In cold-air ventilation, the draught-chimney at bottom is closed, and free air allowed to enter. The draught is then taken from the upper portion and directed to the stoves, thus creating an upper vacuum, which the cold air below rushes in to replace; thus giving a continuous current from the bottom of the apartment upwards.

SANTA MARIA DEL FIORE, FLORENCE.

PROPOSED COMPLETION.

In presenting to our readers a view of the premiated design for the western façade of the Duomo, it may not be out of place to point to the chief dates in its past history. The first stone of the cathedral, which was designed by Arnolpho di Cambio, was laid in 1296. In 1332 Giotto became the architect, or "capomaestro;" in 1436 the edifice was sufficiently advanced to admit of consecration, but the works were continued until 1474, when they ceased, possibly for want of funds, more probably owing to the disturbed state of Italy at that time. In 1514 Sansovino constructed a front in *wood*; but this was removed in 1586, leaving a bare flat wall. Thus it remained until the occasion of the marriage of one of the Grand Dukes of Tuscany, at the commencement of the last century, when, in honour of the event, which was celebrated in the cathedral, the front was plastered and ornamented, or, rather, disfigured still more with *painted* pilasters, florid scroll-work, &c., by some Bolognese artists, whose names, happily for them, have not come down to us. Our small engraving indicates these paintings. Ever since Giotto's times Italian architects have busied themselves with attempting to remove this eyesore, and designs are still preserved, by Buontalenti, Dosio, Giovanni de' Medici, Passignano, Baccio del Bianco, and Silvani. Preference was given at the time to the design of Silvani, but still nothing was done. Then in 1842 the Chevalier Matas submitted a plan for mending this state of things, and met with so much approval that no less than eighty influential persons promised handsome contributions if the design should be carried out. We believe this was really on the point of being the case in 1847, when the revolutionary movements of that and the following years prevented the commencement of the works.



SANTA MARIA DEL FIORE, FLORENCE.

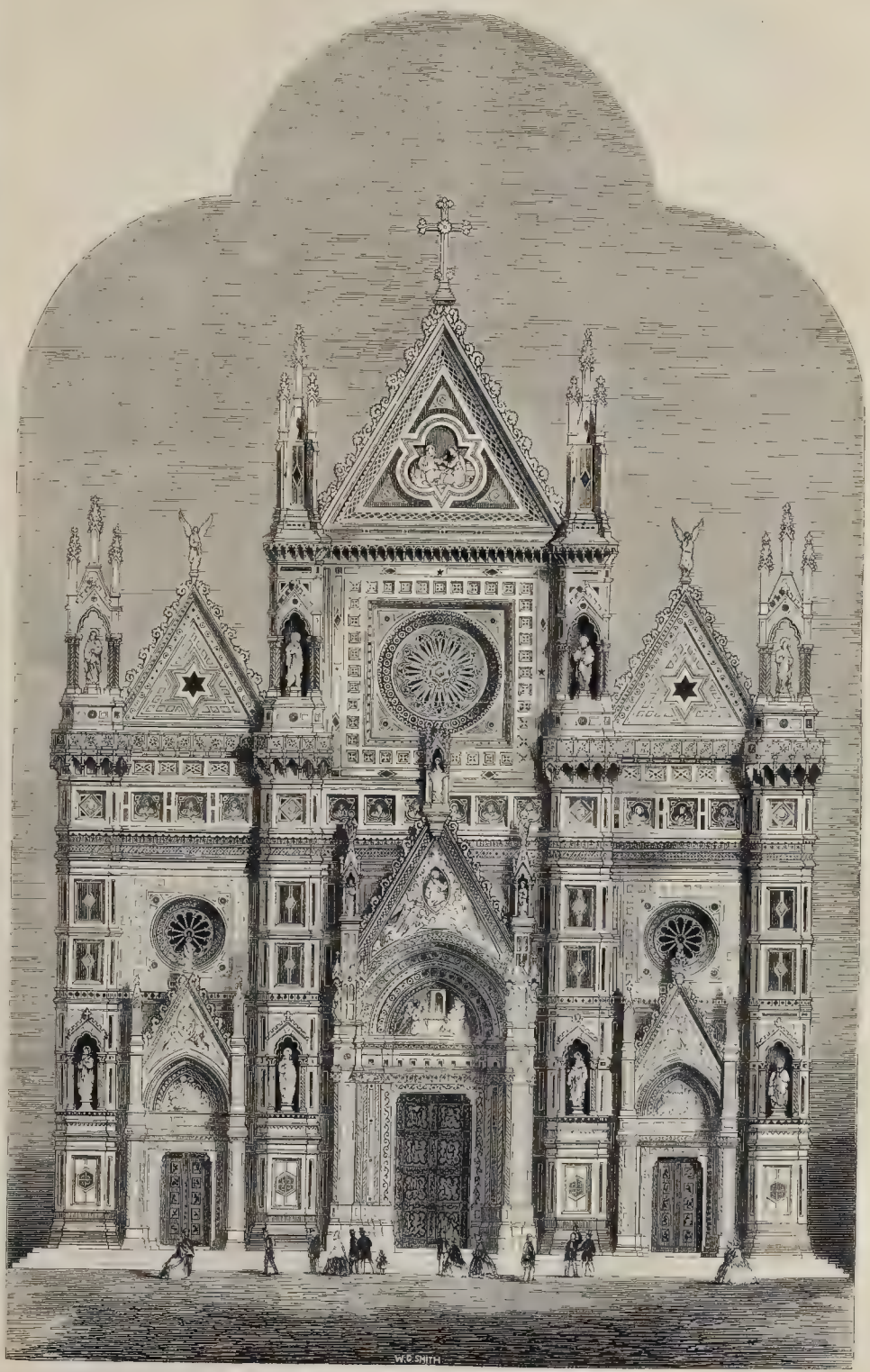
In April, 1861, the present King of Italy laid the first stone of some alterations in the cathedral. It was then resolved to finish the whole building, including, of course, the execution of the west front; and a very large subscription from the king and others was spoken of, but what came of this we are not aware. A public competition for designs for the west front was advertised, and responded to by forty architects, only two of whom were of countries beyond the Alps. The drawings, some of which were very elaborately finished in water-colours, were exhibited in September, 1864, and were divided into three classes,—those whose summits sloped in accordance with the roofs of the church; secondly, those with one gable for nave and horizontal finishing for the transepts; and, thirdly, those with three gables. The result, however, does not appear to have been satisfactory to the committee; for they declined to award the three premiums of 10,000 fr., 8,400 fr., and 6,700 fr.; and, whilst recommending that 1,680 fr. should be paid to three competitors, and 1,120 fr. to six more, they advised a second competition, limited to ten architects. Chevalier Matas kept aloof, as if content with the success he had previously obtained. The second competition took place last autumn, and the results were divided into classes, a fourth (that of horizontal sky-line) being added to the former three.

The committee began by voting the best in each class, the result being as follows:—1st. *Roof lines*, W. Petersen, of Copenhagen (all votes except one for Alvino); 2nd. *One gable*, Majorfi (all votes except two for Falcini); 3rd. *Horizontal skyline*, Falcini (unanimous); 4th. *Three gables*, De Fabris (unanimous, except the vote of Signor Monti, who was for Alvino, Boito, Falcini, and Cipolla, for the four classes respectively). The committee then proceeded to vote as to which of the "four best" was to be premiated; and of these four (Petersen, Majorfi, Falcini, and De Fabris) the last-named gentleman had all votes but one, which was for Petersen. Before making their decision known, the committee adjourned their meeting, in order to give the president, the Marquis d'Azeglio, an opportunity of being present at the final sitting; but the result was the same, M. Dupré still voting for Petersen, who received the second premium. In Petersen's design the original lines of the roofs were kept with good effect.

Having arrived at their conclusion, the committee transmitted photographs of the four best designs to M. Viollet-le-Duc, in Paris; the Marchese Selvatico, in Padua; and Professor Bertini, in Milan. The first of these gentlemen, who were all members of the committee, but were unable to attend, expressed himself decidedly in favour of the premiated design; the Marquis remained neutral; but the Professor was loud in protesting against M. de Fabris's plan, and called for another competition.

We publish an illustration of M. De Fabris's design in our present number. In order to give a better proportion to the lateral divisions, the architect has not adhered strictly to the respective widths of aisles and nave, but has placed the middle pilasters nearer the centre, not so much however as to render the deception evident except on plan. The niches, string-courses, cornices, and panellings, are copied from the best parts of the body of the cathedral and from Giotto's campanile adjoining; in fact, the various horizontal lines now in existence are carried through the new façade. By reference to the small engraving, it will be seen that the original openings of doors and circular windows are retained, probably to avoid any disturbance of the interior of the cathedral—this point was, indeed, observed by the other competitors. The west front, as it stands now, presents a very wretched appearance, totally unworthy of the noble pile beyond; and we shall rejoice to hear of a proper determination, though when this will be arrived at seems doubtful, the committee having invited another competition, to open in the ensuing summer, we believe in June; and another exhibition of all designs presented, which may be expected about a year later. We understand they have now about 300,000 fr. on hand, the present amount of contributions towards the long-vainly-desired object.

The repairs of the details on the outside of the Duomo are almost continually going on, and are well executed. The estimated costs of the façade, we may add, are 1,200,000 fr., not including the sculptures; and the old usage prevails of exacting a certain per-centage on bequests, drawn up by notaries in Florence, towards the expenses of this church.



SANTA MARIA DEL FIORE, FLORENCE.—*Rewarded Design for Western Façade: by* M. DE FABRIS, *Architect.*

THE TRADES MOVEMENT.

Woolwich.—Another crowded public meeting of the operatives employed in the several branches of the building trade at Woolwich, Charlton, and Plumstead, who have been on strike for a half-holiday on Saturdays, has been held, to receive a report from a deputation to the masters' committee. The deputation had consented to yield the point of receiving wages for sixty hours and working but fifty-six hours, and had proposed that the men cease working after one o'clock on Saturdays, and to be paid by the hour. This proposal was received with favour by the masters, and was now, after some discussion, sanctioned by the meeting. The strike may therefore be considered at an end.

Folkestone.—The carpenters and joiners who have struck from the employ of Mr. Jabez Hills still refuse to work unless they have 5s. 6d. per day, but he has already procured other men who are ready to accept 5s. The men employed by other builders in the town have pledged themselves to support those on strike. The masters, on the other hand, have determined upon withstanding the demands of their *employés*, and pledged themselves not to employ any of those men who had left Mr. Hills. The number of men employed by those present at the meeting exceeded ninety joiners and carpenters.

Dewsbury.—In the month of August last, the carpenters and joiners of Dewsbury and of the heavy woollen district, agreed to ask their employers to adopt the nine hours movement throughout the trade. Up to the present time the masters have declined to accede to the demands of the men. In the event of their refusing to do so, the men have resolved to strike on Easter Monday. At the present time the operative carpenters are working fifty-seven hours per week, and they desire to have them reduced to fifty-two hours.

York.—In connexion with the nine hours movement, a meeting has been held in York of the workmen employed at the York plant of the North-Eastern Railway Company. A memorial was adopted for presentation to the directors, asking for a reduction of the hours of labour to fifty-four per week. The reply was, that "the board of directors saw no reason for acceding to the workmen's request." The memorial had been signed by 908 workmen. It was resolved unanimously that, on and after the 2nd of April next, they would not work more than nine hours per day, or fifty-four hours per week, instead of 58½ hours as at present, to cease work at 5·15 p.m. each day, excepting Saturdays, when they would cease at twelve o'clock at noon. One of the body of permanent-way men who are now out on strike, announced that it was their determination not to go in till their demands had been acceded to, and the meeting pledged itself to support the permanent-way men to the best of their ability. Unless the railway directors grant the workmen's request, it is anticipated that a strike will take place on all parts of the line.

West Hartlepool.—Upwards of 2,000 men and boys in the employment of the firm of Messrs. Pile, Spence, & Co. (Limited), West Hartlepool, are now out on strike. The shopkeepers of the town have closed their books to the men. The cause of the strike is a determination not to work longer than nine hours per day, in conjunction with their brethren on the Tees and at Hartlepool.

North Newcastle.—The ship-carpenters at Wallsend have determined to stand out until the nine hours a day be conceded to them. It appears that about 300 men have turned out upon the movement.

Carlisle.—In the beginning of the present year the master builders of Carlisle formed themselves into an Association, called "The Carlisle Builders' Association," for the purpose of considering any subject which might arise in the trade, and taking action thereupon. Disputes are now pending between the masters and both masons and bricklayers. In January, the labourers sent a notice to the masters, asking that between the 1st of March and the 11th of November in each year, their wages should be 2s. 2d. per day for the first five working days in the week, and 2s. 2d. on Saturdays; and that from the 11th of November to the 1st of March their wages should be 3s. per day for the first five days in the week and 2s. on Saturdays. They also demanded "that at all jobs where they go above two stories, they should only carry ten bricks;" and made other stipulations as to overtime and walking time. These propositions were taken into consideration in the middle of February by the Builders' Association, who resolved that the wages of the labourers should not be more than 17s. per week from the 1st of March. At the end of February, the Masters' Association, in their turn, sent notice to the men that they wished to alter the first and last rules adopted in April, 1865. The effect of the alteration they proposed would be, that between the 2nd day of February and the 1st of March, instead of working from 7 a.m. to 5 p.m., the men should work "from daylight till dark within 6 a.m. and 6 p.m." during the first five working days of the week, and from daylight on Saturdays till 12 at noon, instead of from 7 a.m., during that month. This proposition is under the consideration of the men. At the end of February the masons sent in to the masters a series of propositions. In these they proposed to reduce the hours of labour by two hours and a half a week, and asked for an increase of wages to the extent of 2s. a week. From 1st March to 11th November, they demanded that their wages should be 5s. a day for the first five working days in the week instead of 4s. 8d.; and 3s. on Saturday, instead of 2s. 8d.; and that in the other part of the year their wages should be 4s. 8d. a day, instead of 4s. 4d., for the first five working days in the week, and 2s. 8d. on Saturdays instead of 2s. 4d. There were also stipulations as to overtime, and that the masons' society should have a voice in the erection of sheds. These proposals the Masters' Association have declined to entertain.

Edinburgh.—The labourers' strike still continues. At a meeting of them, Edward Nollan, a labourer, in a long address, urged the propriety of accepting payment by the hour, as the masters had offered; but counselled the men not to take less than 4½d. an hour. A deputation from the Plasterers' Association addressed the meeting on the propriety of the labourers giving in to the masters as to the payment by the hour, and counselling them to ask for 4½d. an hour, which would yield 46*l.* a year—a wage that was in advance of what they at present received. After a long discussion, it was resolved that a deputation of the labourers should wait on the master builders, with a view to some arrangement being come to. The labourers persist in refusing the offer by the builders of 4d. per hour, and the builders have resolved on continued resistance to their demands, and are receiving the co-operation and assistance of the other employers in the building trades. The Association of Employers have sent agents to distant parts of the country to engage labourers to supply the places of the labourers who have struck work, and of those who are stated to have left Edinburgh.

Ayr.—The operative masons have resumed work, the masters having acceded to their demand. They have now 27s. 6d. per week.

A NEW STREET NORTH TO SOUTH.

A CORRESPONDENT writes,—It appears that the vast increase in the business of the Post-office requires much more space than is now at its command, and that the authorities are about to purchase ground in St. Martin's-le-Grand, opposite the present Post-office, for an additional building, which I am very glad to learn; but, in the execution of this work, I beg, through the medium of your journal, to call to the notice of the authorities the fine opportunity it affords for embellishment and convenience which, if now lost sight of (as it unfortunately was when the present Post-office was erected, — when the public feeling and public taste were not so alive to those things as happily they now are)—I say if now lost sight of, may never again occur. I allude to the formation of a street directly north—*true north*—from the centre of the dome and centre of the north porch of St. Paul's as far as the junction of Old-street with Goswell-street, opposite the Charter-house grounds, say some 60 ft. or 80 ft. wide. Think what a splendid entrance this would be to the metropolis from the north. Our three finest institutions, the Charter-house, Bartholomew's Hospital, and Christ's Hospital (the Blue-coat School) on one side; the Post-office, and, perhaps, another public building on the other side, and St. Paul's at the end. "What would M. Haussmann (of Paris) give to be here!" as Collingwood, who led the van at Trafalgar, said of Nelson.

Now do let us for once ignore Yorick's caustic but just remark, "They order this matter better in France."

I do not ask that this street be made now, or all at once, but simply that whatever new buildings are erected, or new openings made, may be so done as to form portions of this desirable arrangement; and then, even though it be as long in hand as the union of the Louvre and the Tuileries, yet, if it be eventually done as well, it will be worth making; and, as I do not despair of its being accomplished, I should regret the occurrence of any impediment.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

WE are requested to inform many inquirers that the provisional committee are untiring in their efforts to arrange the preliminaries necessary before bringing their appeal to the notice of the trade and the public. Its object is to assist temporarily, as well as permanently, necessitous and decayed clerks and their widows; and, on a certain sum being subscribed to the asylum fund, measures will be adopted to maintain and educate the orphan children. A provisional committee of eighteen persons, hon. solicitor, and hon. secretary, have been appointed, together with bankers (The London and County Bank), and our advertisement columns will show where the rules may be obtained. The promoters hope soon to be able to announce a general meeting, at which some influential employer will take the chair. They trust their fellow clerks will unhesitatingly come forward and place this, their own institution, in a position worthy of the representatives of the building firms of England.

IRISH NEWS.

A FEW months since the town commissioners of Kingstown advertised for designs for a new town-hall, court-house, and assembly-rooms, to cost 6,000*l.*, offering a prize of 20*l.* In answer, they have received about twelve sets, some of which are of considerable merit. There is in this competition every prospect of fair play, for we are told it is the intention of the commissioners to obtain independent professional advice in the selection of the designs.

The contemplated Bill for the construction of an embankment and esplanade in Kingstown has, for the present, been abandoned. This is greatly to be regretted by all who desire the improvement of this pleasant watering-place. With it, Kingstown might well be called the Irish Brighton; without it, there is presented to the spectators arriving in the numerous steamboats that now trade with the port, a stretch of a half-mile of as unsightly a shore as can well be conceived. A graving dock has been suggested for the same place.

The directors of the Winter Garden and Exhibition Palace Company have arranged to increase their capital from 50,000*l.* to 80,000*l.*, in order to fully complete their building and grounds. It is expected that the palace will return a large annual revenue. Areas have been already marked out for shops, &c., within the building, which will insure the company a rental of over 5,000*l.*

A new Masonic hall is about to be erected in Carrickfergus. The Marquis of Downshire has, with his accustomed liberality, on the application of a deputation from two lodges, granted the choice of three sites for the building.

The result of the recent competition for the new Masonic hall in Dublin, is, that Mr. E. Holmes, of Birmingham, has been rewarded with the construction of the building from amended plans; Mr. Thomas Deane has second premium, and Mr. Duncan Ferguson third premium.

The new Presbyterian church, Waterside, Londonderry, which was competed for about two years since, was formally opened on the 5th inst., by the Rev. Dr. Wilson, moderator of the General Assembly for Ireland. The foundation-stone was laid on the 12th of August, 1864, by Mr. Charles Reed, F.S.A., of London, deputy-governor of the Irish Society. The building reflects credit on the architect, Mr. W. Hague, jun., of Dublin, and the contractor, Mr. Elwee. The style is Early English. The material employed in the erection is the blue rubble of the neighbourhood, with dressings of stone from Glasgow. The principal elevation has a well-proportioned tower and spire, rising to a height of 120 ft., at one side of the large gable of the church, and has a minor gable at the other side.

The dimensions of the building within the walls are 81 ft. long, by 38 ft. wide; from off this space a portion is taken, to form a porch, under a gallery, at what we shall call the west end, leaving 64 ft. available for the congregation, which it is expected will number about 850 persons. The cost of the building has been about 3,500*l.*

The foundation-stone has been laid of a very neat little church, for the Wesleyan congregation of Wicklow and its neighbourhood. The substitution of decent chapels for the barn-like edifices which formerly were thought sufficiently good for divine worship is a matter for congratulation, and this is one of a number of cases which prove that extravagance in cost is not a necessary attendant on taste. The cost will be about 700*l.* for completion. The dimensions of this church are 51 ft. by 22 ft. in the clear.

Owing to the want of suitable weather-proof materials in the locality, all the materials will have to be brought from a distance. The ordinary walling will be of co. Dublin stock bricks, with jambs, arches, and bands at intervals, of Belfast or Enniscorthy red brick, and dressings of Dalkey granite sparingly used. A pierced tracery window, of rose form, about 8 ft. diameter, will be of Bath stone; the timber, pine throughout, varnished. The ceiling will be wagon-headed, with half the timber wrought and exposed. The accommodation is for 150, for the present. Mr. William Fogerty, of Dublin, is the architect.

The Royal Institute of the Architects of Ireland is now in a pretty flourishing condition, having obtained "a local habitation," as well as a "name." The former is at 212, Great Brunswick-street, Dublin; the latter is now pretty well known. The meetings of the Institute proper are monthly; those of the students' class, with which is incorporated the Association for Architectural Study, are held weekly, when papers are read and subjects sketched. During at least half an hour papers and sketches are subsequently discussed and criticised. The president, Mr. Charles Lanyon, has offered a prize of 10*l.* to be open to competition by students of the Institute, or members of the Association for Architectural Study;—the subject, "A Villa," to cost between 1,800*l.* and 2,000*l.*;—the designs to be computed at 6d. per cube foot.

A number of interesting papers have been read at the meetings, including some on matters of architectural history, some on Gothic mouldings, geology, dry closets, &c., ranging in manner and purpose from grave to gay; and it is to be regretted that the audience has generally been but small.

DAMP WALLS, AND HOW TO CURE THEM.

MESSRS. W. B. WILKINSON & Co., of Newcastle-on-Tyne, write,—Remove the whole of the damp plaster down to the surface of brick or stone walls, rake out the joints, clean and well wet the surface; lay on a coat of good Portland cement, mixed with one-sixth sand; be careful to cover every part of the brick or stone, broom or otherwise roughen the surface of the cement while soft; let this stand a few days, to get a hard skin on it, then replaster in the usual way. It will not do well to finish the inside surface with Portland cement, as condensation will take place on the surface in damp weather. If speed in execution be desired, the surface may be finished with plaster of Paris, Keene's, Parian, or Martin's cement, with the usual proportion of sand.

AN ART REFORM BILL.

THE very sweeping and, for the time, comprehensive political Reform Bill now proposed and offered for the consideration and, it is to be hoped, adoption by the *people* of this great country, would seem to have as its basis and beginning the letting in, in such a degree as to be felt, of the *labour* element. The very highest kind of labour possible is, as I take it, *art* labour; so that you, sir, and architects, and those "accessorial" to architects are doubtless not a little interested in it. Mr. Gladstone has hit architecture a tremendous blow, perhaps to himself unconsciously. Will you allow me to add one or two clauses suggestively?

First, what is a working man—a labourer? I have never seen this question fairly and fully answered. Let us ascend to the top of the art ladder. Is a great painter a working man? Most assuredly he is, and must be; for hitherto there has not been discovered a way by which *pictures* can be manufactured, or, in other words, painted by deputy. The Mulreadys, Landseers, Millaises, are compelled by the very necessities of things to paint their own pictures with their own hands: assistance in it would seem to be an impossibility. The hand-writing in oil colour would seem to be so far genuine and true, and thus expressive of the individuality and powers of the painter and art-labourer. I do not wish to speak disrespectfully of our painters in oil, but they are, I am afraid, not above the class of the mass of the unenfranchised; they are *labourers—working men.* "With my own right hand," says the painter, "I have written and signed this." The successful and the failing, great and small, the Royal Academician and the humblest student, are in this wonderful corner of creation on a level; they are of the labour class, just about to wake up into life.

Can this be said of any other kind of fine-art labour, of architecture, or of any art connected with it? I say, No, it cannot. No man in any one of them needs to sink into this pit of manual labour; none of them need say "I am a working man." I *employ* working men, but I am not yet degraded to that myself in my own proper person. The eye of the master is always worth, in a politico-economical view, both his hands!

But the question here comes in, how far is the painter *below* the architect consequent on his being thus compelled to work with his own hands, and from the fact of his not being able to find a substitute to do his work for him? Or, again, is the painter indeed and after all *above* the architect, consequent on this necessity? Surely he is, and here it is that Mr. Gladstone has done the world no small service, by bringing the labourer and working man into the light of day, and by saying what he has said so well about him. He has, though probably without thinking of it, complimented and raised the painters; the bulk of the Royal Academy is lifted up by it. But Mr. Gladstone at the same time has lowered our modern architecture to the lowest, and struck it a very heavy blow. Rights, sense, justice, truth, logic, even eye-sight, are all heavily involved in this sweeping panegyric on the rights and *duties* of the labouring classes of society, both in "rooms" and cellars.

My object here is to *oppose* by adding to this Reform Bill. Were I, sir, in opposition, I would in one hour destroy this Bill, by moving additional clauses to it. The *painters* are to be enfranchised and admitted to rights under the class of labourers or working men. Who can estimate the gain to society and fine art by the admission of the *sculptors* to this new honour and privilege! The *eye* of the great sculptor now-a-days ranges through the whole world of imagination, improving and idealising humanity and animals alike, detecting failures and pointing out defects, and gathering into a focus the wonders of the antique for the mere profit of assistant labourers; but who has ever seen the bit of vulgar marble material touched by the master sculptor himself with his own hands? No man—not even Mr. Gladstone, on his way to the Greek marbles, and even when in very front of the building which contains them. Clause the first, then, additional, would be the enfranchisement of the real and *bonâ fide* sculptors, that low and, up to this Bill, unknown class of labourers. What state they are in intellectually it would show; what stage they are in towards an advanced scholarship; and what they would do if left to themselves, or, in other words, if the public were to find it all out, and to insist upon having genuine hand-writing on marble and stone. I would, sir, venture to call this the "Conservative-communist" clause of the Bill; for it would not only bring in and up the labouring sculptor as he is, but it would also bring down the politico-economical eye-inspired man who directs him, and make *him*, the master, a labourer! No revolutionist or Conservative has ever yet, even in France, gone this length. The Bill must fall before it; but *sculpture* would begin to live again,—it would be born again with a new career before it. We should have, not art *manufacture*, but art *sculpture*.

Again, another additional clause would bring in that so noble race of labourers the glass-painters, not less in real powers than the already-admitted Academician painters. To paint a figure on a sheet of glass is quite as great a feat of art as to paint it on canvas,—perhaps more so. It is the work of a *labourer*,—a *working man*. The intellectual eye, without the hand, is here entirely vain and useless. But has any architect ever yet seen a painting on the *glass* by the hand of the very self-same man whose name, may be, figures in the lower corner, close by the bottom of a painted window? Surely not: the painters, *i.e.*, labourers, are to a man of the unenfranchised class, and are never seen. This clause would have the effect of lifting them up into notoriety, as of the class of labourers, whether householders or lodgers; but at the same time,—and here is its upsetting tendency,—it would *bring down* the masters of these men to a dead level with the labouring classes. *It would make glass-painters of them.* We should see their art-signatures on glass; the most astonishing sight a modern church-going man ever in his life will or can see. This is sheer red republicanism, which has always been at the same time destructive and progressive; for would not this clause *destroy* our present church windows, and those who did them, and then put in new ones on the new labour plan of art action? At the same time, sir, you must allow that this is pure conservatism. Let any one try and conceive the astonishment of a modern painted, or rather stained, glass manufacturer, on being told that he must condescend to become a painter, and to sink to the level of a common labourer, and Royal Academician Associate!

I could go on, sir, adding clause after clause to this Bill, but I must forbear. Conservatism and the broadest republicanism are the watch-words to destroy and to build up, to do away with and to preserve: so I will venture on but one more, for must we not be already trembling at the dread prospect of the opening out of this reform idea, and to what it must lead? My next clause, then, will even add another word to our dictionaries in addition to its other damaging merits; for what are we to call those who now fill our competition gatherings, and architectural exhibitions, and Royal academy show with portraitures of buildings and designs? Are they draughtsmen of folds in sheets or figures? No. "I know of no one," says a modern authority, "who can so much as draw a pony's nose, much less the entire animal." Animal draughtsmen they are not. Advanced scholars, without which nothing is possible in art? No. Architects? It is fervently to be hoped not, for if they are, what are they who now superintend them, and overlook and gently guide them through the meshes of designing. What, then, are they? Accessorials! This clause in the Bill, then, might be called descriptively the "accessorial" clause of the Art Reform Bill; it would conservatively and destructively bring into recognition and confer a vote on all those who actually and really in these latter days work out our architecture in every and all sorts of styles. It would raise them into the dignified status of *labouring* architects, and the drawings we always see by them would be *theirs!* A fact, truly, of astounding, we had almost said of diabolical ingenuity. It would too, without a question, add to the class of enfranchised labourers the whole body, with perhaps one or two exceptions, of practising architects and amateur architects, by rendering it in the future absolutely impossible to sign a drawing or a building not your own.

My object in this is to preserve to the very last glorious Old England, as she now is, to oppose all change, and to keep up our fine old institutions to the very end. The present system of art action through subordinates, the Royal Academy as it has been, and our art societies as they are, can only be preserved by the destruction of this Labour Reform Bill. This is to be accomplished only, not by taking away clauses, as our good opposition will try to do, but by *adding* clause after clause, by presenting the labourer, especially the art-labourer, to society and the country, and thus *raising* him, and, at the same time, bringing *down* those politico-economically inspired few or many who now simply employ the labourer to the art-labour level. Art-labourers,—labouring architects, labouring sculptors, labouring painters on glass,—all, in short of the labour class, will and must become realities, and thus, sir, add so enormously to the labour-class constituencies as to swamp the country interest. There can be no sort of doubt of all this. I most humbly submit the idea to the consideration of the great leader of the Opposition as a new political moving idea, and as thoroughly conservative, preservative, and old, and as certain of success in destroying Mr. Gladstone's labour-raising cure of modern ills. But still it must be allowed that, to build up anew, you must destroy the old; and that, if Mr. Gladstone should succeed

raising the common labourer to his rights, he ill also bring down the architect, sculptor, and lass-painter to the level of common labourers; hese two elements, then, for the first time in odernism, meeting to clash, and compete, and agree, and to work side by side, and to really egin what everybody is now so earnestly asking nd "groaning" for, *real and true art action*. ut still, again, would it not utterly destroy our rchitectural exhibition of this coming season? Vould it not confer the Institute medal in the ature on an architect *labourer!*

C. BRUCE ALLEN.

MILLS, TEWKESBURY.

MESSRS. SAMUEL HEALING & SON'S Borough lour Mills are now completed and in operation. he mill building is 80 ft. by 40 ft., and contains floors all of good height. The north end projects into the River Severn, whilst the south is ounded by Quay-street, and encloses a private ranch of the Midland Railway. The river Avon uns parallel with the east-most side, about 12 ft. way. The octagonal chimney stalk is 120 ft. igh above the ground, and has a clear diameter f 5 ft. throughout its length. The excavations ere carried down to the marl bed, which is bout 20 ft. below the summer level of the evern, whilst the ground-floor of the mill is ept 14 ft. higher, so as to be above the high oods to which this river is subject.

Compensation for this extraordinary depth and ost of sub-structure is obtained by the facility f rail and water communication. The smutting achine is fixed in an iron building projecting ver the boilers, which communicates with the ill by fire-proof doors.

The whole of the works have been executed y Mr. W. H. James, of Tewkesbury, who rnished the designs, and has had the sole harge and superintendence throughout. The ill contains 12 pairs of stones, and the most pproved description of machinery for elevating nd cleansing the wheat and dressing the flour. he whole is driven by a MacNaught engine of 0 nominal horse-power, supplied from two 30-ft. ouble tubed boilers 7 ft. in diameter. These, as ell as the engine and machinery, were supplied y Messrs. John Wood & Co., of Sowerby-bridge, orkshire.

REPORT ON SANITARY CONDITION OF WHITECHAPEL.

THE report of the medical officer of health for he district of Whitechapel, for the year ending 0th December, 1865, has been printed under he authority of the District Board of Works. In his report Mr. Liddle says:—"Fever has been pidemic since 1862, in which year the number f deaths from it was 250; in 1863 the number as 158, and in 1864 it was 170. This melanholy fact clearly indicates that our sanitary rrangements are very imperfect, and that much reater exertion must be made, and further cientific inquiries must be instituted, if this lague is to be checked. It is true that great mprovements in drainage have taken place in his district since the passing of the Metropolis anagement Act. Between 3,000 and 4,000 esspools have been abolished, and about 10,000*l.* ave been expended in the formation of new ewers; and at the present time, with few exeptions, all the houses in that district communicate by drains with the main sewers. But hen all this is done, I am afraid that fever ill still continue to prevail among us, unless all hose sewers, in which large deposits are conanually taking place, are reconstructed. We ave, it is true, removed the filth from esspools, which formerly festered in close roximity to our houses, to the public sewers; ut if these are little, if any, better than cesspools, not much has been gained by transferring he filth from the rear of our houses to the front f them; for the public sewers, for the most art, pass along the centres of our streets. Out om the ventilating openings of some of these ewers the most abominable emanations are iven forth, whereby disease and death are pread through many families living in their icinity. The smell is at times so bad that the habitants complain of it; and they have ecourse to the covering of them with pieces of atting, to prevent the nuisance from making r way into their houses. Such is the faulty nstruction of some of the sewers that they cannot be cleansed by flushing them; and it is dangerous, owing to the large quantity of decomposing animal matter lodged in them, for any one to enter them. The only way that the offensive deposit can be got rid of is to open the sewer from the road, remove the filth to the surface, and then cart it away through the crowded streets of London, thereby occasioning an additional nuisance to the inhabitants."

In regard to density of population, which has quite as much to do with fever as bad sewerage, we may remark that the Registrar General, in his weekly returns, informs us that in the metropolis there are 39·3 persons to an acre, in Edinburgh 39·6, in Birmingham 42·9, in Manchester 80·0, in Glasgow 85·4, and in Liverpool 94·8. In the Whitechapel District there are 194·5 persons to an acre.

Mr. Liddle urges that many back-to-back houses and other unventilateable fever nests ought to be purchased by local boards and pulled down, the ground being thrown open to the public, thus benefiting London generally by extinguishing sources of fever which do not restrict themselves to the spot where they are generated, but spread throughout the better class of dwellings, and lower the public health everywhere. The Metropolitan Board of Works, he considers, ought to contribute to the expense; and local Boards, he observes, can purchase by compulsory powers, such pestilential places under the provisions of the 14th & 15th Vict., c. 34.

LIGHT AND AIR CASE.

LYON *v.* DILLIMORE.

THE plaintiff in this case, tried in Vice-Chancellor's Court, is, and has been for the last seven years and three-quarters, the lessee of a house and workshop in the rear, being No. 616, Mile-end-road. At the rear of the house is a yard, 23 ft. long and 16 ft. wide, on the south of which was a wall. The plaintiff carried on business as a fancy stationer and repairer of watches. There were several windows in the back premises by which they were lighted. There was also a workshop covered by a penthouse, used by the plaintiff in his business as a ship modeller. There was also a room used by the plaintiff as a shop for repairing watches and jewelry, the only light to both of which was derived from windows looking due south. The bill alleged that these rooms were particularly useful to the plaintiff in his business. The defendant is a riding-master, and, having recently become possessed of the premises adjoining the plaintiff's, had commenced the construction of a riding-school. A negotiation took place, but ultimately the plaintiff filed this bill.

Mr. Malins and Mr. Surrage, for the plaintiff, now contended that the damage was clear, and the plaintiff was entitled to a mandatory injunction, but did not desire to press harshly on the defendant, and was content to take reasonable damages.

Mr. Green and Mr. Colt, for the defendant, contended that the damage was very small and the proper remedy, therefore, was at law. In a case of "Clarke *v.* Clark," the old rule of law was modified by the Lord Chancellor as to towns, where his lordship held that the strict rule could not be observed.

The Vice-Chancellor said he thought the plaintiff was justified in filing this bill, and, therefore, the defendant must pay the costs of the suit. As to the damages, he would not entertain the question in chambers without the parties had consented to be bound by the decision. He thought 100*l.* damages would be not unreasonable, but he had doubts between that sum and 150*l.* He thought the plaintiff's demand, 200*l.*, was too much.

Mr. Maline, for the plaintiff, consented to take 100*l.* and the costs.

The Vice-Chancellor said he would not decide the matter at present, but he would consider the question before he decided.

The surveyors engaged on behalf of the plaintiff were—Mr. White, Mr. Charles Legg, and Mr. Dobson. On behalf of the defendant they were—Mr. Hudson, Mr. Harry Oliver, Mr. Cates, and Mr. Fricker.

RAILWAY COMPENSATION CASES.

DEARSLY *v.* THE GREAT EASTERN RAILWAY COMPANY.

IN this case, heard before Mr. Secondary Potter and a special jury, at Guildhall, the claimant, Mr. James Herbert Dearsly, carries on the business of a builder and decorator, at Nos. 49 and 50, Liverpool-street, and he claimed compensation in respect of his occupation of these two houses, and for injury to his trade consequent on the destruction of the premises by the company.

After the jury had viewed the property, the claimant's case was opened by Mr. Hawkins, and from his statement, and the witnesses called in support, it appeared that No. 49, Liverpool-street was held for twenty-one years, from Lady-day, 1859, at a rental of 37*l.* 17*s.* 9*d.*, and No. 50 is held under a lease which expires next Lady-day, at a rental of 36*l.* 10*s.* The claimant also holds, as yearly tenant, a yard, with shed, &c., at No. 8, Liverpool-buildings, at 15*l.* per annum.

Mr. Dearsly was examined by Mr. Barnard, and proved the above particulars, and the failure he had met with in endeavouring to procure other suitable premises in the City, and the enormous rents which were asked of him. His was a City connexion, and his removal would prove disastrous to his trade.

Mr. Farmer, of the firm of Debenham, Tewson, & Farmer, was then called, and said property in the neighbourhood had increased in value enormously of late. He considered each house as worth 150*l.* a year: floor by floor they could be let at 250*l.* He thought the loss to complainant's business should be valued at two years' net profits.

Mr. Edwin Fox (Fox & Bousfield), Mr. F. J. Clark, and Mr. Horsey, were the other surveyors called, and gave similar evidence; and Mr. Harding, accountant, proved the amount of the net annual profits derived from the business.

Mr. Hawkins summed up for the claimant, and in doing so complained to the jury that the company should have compelled Mr. Dearsly to go to a jury, without offering anything whatever, with a view to a settlement, and without producing then any evidence at all to contradict the case he had made. He asked fair and liberal compensation at their hands, and trusted they would agree that two years' net profits of the business was a fair sum to be allowed claimant for the great injury which would be done to it upon a forced removal. They had the evidence of Mr. Farmer, which was supported by three other eminent surveyors, that the premises were worth 1,112*l.*, and after adding the value of the fixtures, the value of the chance of a renewed lease of No. 50, and the depreciation consequent on the forced sale of the stock, would show that a sum amounting to a little over 2,000*l.* would be a fair sum to award to the claimant.

Mr. Bovill, for the company, insisted that the premises had been greatly overrated; they were not suitable as offices, and the surveyors' valuation had therefore been made upon a false basis. He would say that 305*l.* was a liberal sum to award claimant for his interest in the premises, and allowing 15*l.* for the value of the yearly tenancy, 100*l.* for the loss on the stock, 80*l.* for the fixtures, and 500*l.* for the injury to the business, this would give a total sum of 1,000*l.* as the full amount of the compensation which he thought the claimant was entitled to.

The jury, after a short retirement, returned into Court, with a verdict of 1,800*l.*

UNDERGROUND DWELLINGS, ISLINGTON.

AT Clerkenwell Police Court Edward King, and the other owners of property in Grosvenor-street, Essex-road, Islington, were summoned by Mr. William Mayes, sanitary inspector, for knowingly suffering to be occupied a front room on the basement floor, contrary to the provisions of the Act for the better local management of the metropolis (the 18th and 19th of Victoria, cap. 120), there not being an area 3 ft. wide in every part, from 6 in. below the floor of the room to the surface of the ground adjoining. There were other summonses against the defendants under the Nuisances Removal Act for England, 1855, for allowing the houses, the inhabitants whereof consist of more than one family, to be so overcrowded as to be dangerous to the health of the inhabitants. Mr. William Mayes said, he is sanitary inspector to the vestry of Islington. On the 22nd ult. he inspected the houses in Grosvenor-street, and found at No. 2a that the kitchen was used as a separate dwelling by a man, his wife, and two children. A death from fever had taken place in this house about six weeks since, and there was now one person in the house under medical treatment. The house is filthy. The house No. 8 was overcrowded, seven persons sleeping in a room, which only gave 123 cubic feet of air to each person. The house No. 11 was occupied by thirty-two persons, viz., six men, eight women, and eighteen children, seven sleeping in the front and five in the back kitchen. At No. 14a, the house was occupied by thirty-six persons, viz., eight men, eight women, and twenty children, the front kitchen being occupied as a separate dwelling by one man, one woman, and four children. No. 16a was occupied by thirty-nine persons. The whole of these houses contain eight rooms each, the largest of which is 12 ft. by 14 ft. by 9 ft.; the annual value of each is 30*l.*, but, as they are at present let, they are producing 65*l.* each per annum. The thirty-two houses in this street contain 528 men, women, and children. Dr. Edward Ballard, medical officer of health for the vestry of Islington, gave evidence generally confirmatory of the previous witness as to the kitchen occupation and overcrowding. The overcrowding is dangerous to health. During 1865 there was a very high death-rate on all houses in that street. Mr. Godwin, the district surveyor, gave evidence that these underground dwellings were contrary to the

provisions of the Act 18 & 19 Victoria, cap. 120. The defendants all said that they would remedy the evils complained of as soon as possible. The magistrate made orders for the abatement of the nuisances, and fined the defendants in sums varying from 10s. to 2s. 6d., besides ordering the defendants to pay the costs. Mr. Layton applied for fourteen other summonses of a similar description, which were at once granted.

METROPOLITAN SANITARY ASSOCIATION.

A DEPUTATION from the Metropolitan Sanitary Association waited on Earl Granville, at the Privy Council Office, Whitehall, on Friday, the 16th inst., to lay before his lordship a series of resolutions of the council of the Association on the amendment of the Metropolis Local Management Act.

Lord Granville said, in reply, that some of the amendments would be introduced into the measure about to be laid before Parliament by the Government, and that the others should receive due attention.

On the 15th inst., a conference of the Association was held at 1, Adam-street, Adelphi, when a paper "On Fever in London," was read by Mr. William Rendle. Mr. Martin Ware took the chair. The paper referred to the increasing prevalence of the disease, and the fact that it always referred to sanitary defects, remediable with a little trouble, typhus being no more nor less than a consequence of foul air, chiefly from overcrowding. The wretched state of most of the dwellings of the poor was a source of much contagion, and the high rent paid for them, being far above their real value, deterred persons from erecting new and wholesome buildings, which probably would not fetch more rent. The meeting was addressed by Mr. Bosanquet, Mr. Dresser Rogers, Mr. Lord, Mr. Beggs, Mr. Webber, Mr. B. Shaw, Mr. M'Cullagh Torrens, M.P., Mr. H. W. Rumsey, Dr. Hardwicke, Dr. Sanderson, Dr. Acland, F.R.S., and the Chairman.

THE SO-CALLED POLIGNAC STOVE.

A CORRESPONDENT of the *Builder*, writing lately on the subject of ventilation, referred to the Polignac stove and its sensible arrangements. It is astonishing how much vitality there is in error. The Cardinal Polignac has no claim to the invention of this fireplace. The association of his name with it is not older than the year 1845, when a fiction was contrived for the purpose, by a writer on warming and ventilation. I fell into the error myself in the first edition of my "Rudimentary Treatises," published in Weale's series in 1850 (which you honoured with a favourable notice), but in the second edition, published in 1858, and in the third edition, published in 1864, I exposed the error, and traced it to its source. By the evidence, I think it is proved that M. Gauger, and not the Cardinal Polignac, is the inventor of the stove in question. This stove has served as the type of so many modern inventions, that it is only an act of justice to assign it to its rightful owner.

I was led to this inquiry while preparing an article on warming and ventilation for the *Quarterly Review*, being curious to know under what circumstances so great a man as the Cardinal Polignac made this useful invention. Mr. Bernan, in his "History of Warming and Ventilating Rooms, &c." states that the cardinal wrote the description of his fireplace under the assumed name of "Gauger;" and in my "Rudimentary Treatise," I copied the figures and description from Gauger's work.

"Could we suppose that Mr. Bernan's statements were made in ignorance, or that they had arisen from some unaccountable blunder, or from a too credulous following of previous writers, we might be disposed to pardon, while we must continue to deplore, an error which has led others astray. But when we observe that he has consulted all the authorities where the truth stands plainly revealed, that he has consulted Desaguliers's translation of Gauger's work, that he quotes from the 'Experimental Philosophy' of Desaguliers, and even from the very same postscript in which the Doctor says: 'In the year 1715 I translated from the French a book called "La Mécanique du Feu," which I knew to be written by Monsieur Gauger, a very ingenious gentleman of Paris, though he concealed his name;' when we find that Mr. Bernan is aware of the engravings of Gauger's fireplace in the Memoirs of the French Academy of Sciences for 1720, where the invention is fully described and imputed to its rightful author, and where the question of the printed treatise is not left doubtful, but is thus noticed:—'M. Gauger a fait un Traité sur cette matière, intitulé "La Mécanique du Feu," ou il s'étend beaucoup sur cette sorte de cheminées, &c.,'* when we find, moreover, that Mr. Bernan has consulted Dr. Franklin's writings, where, in a list of fireplaces, mention is twice made of those of Gauger, and reference made to M. Gauger's tract, entitled 'La Méchanique du Feu;'†—when all these things are considered, with a knowledge of the fact that both Gauger's Life in the 'Biographie Universelle,' and 'Polignac's Memoirs,' by Faucher, were as open to Mr. Bernan as they are to us; and that while in the latter there is not a syllable of any such invention being attributed or attributable to the Cardinal, in the former there is a distinct mention of Gauger's inventions, with the full title of the book which describes them ('Méchanique du Feu,' &c.), a notice of the parts into which the work was divided, its success and translation into other languages, &c.;—considering this, we must say that Mr. Bernan has committed one of the most unaccountable blunders which has come under our notice for many a day."

Such is part of the evidence given in the last two editions of my "Rudimentary Treatise;" and I crave for it a still wider circulation in the pages of the *Builder*.

C. TOMLINSON.

King's College, London.

* Desaguliers's "Experimental Philosophy," vol. ii., p. 567. London, 1763.

* "Machines et Inventions approuvées par l'Académie Royale des Sciences. Tome quatrième. Depuis 1720 jusqu'à 1726." Published at Paris, 1735.

† "The Works of Benjamin Franklin." By Jared Sparks. Boston, 1842. Vol. vi., pp. 38 and 41.

GAS.

THE vestry of Islington has appointed a special committee to co-operate with the special committee of the Corporation of London in support of the inquiry into the operation of the Metropolitan Gas Act, 1860, which is about to be made before a select committee of the House of Commons.——The Ashford Gas and Coke Company (Limited) have received the following tenders for the completion of the remaining portion of the builder's work:—W. I. Adcock, Dover; 3,382*l.*; Alfred Vidler, Hastings, 3,298*l.* 5*s.*; Charles Wraight, Ashford, 3,049*l.*; and Steddy, Joy, & Steddy, Ashford, 3,000*l.* Messrs. Steddy & Co.'s tender was accepted, and they will at once proceed with the work.——The Leighton Buzzard Gas and Coke Company have declared a dividend of 8 per cent. per annum for the past year.——At the Aylesbury assizes, a rather curious case has been tried. Mr. G. W. Harley, a builder, of Slough, was indicted for stealing gas from the Slough Gas and Coke Company. It had been observed all last year that Mr. Harley's meter registered very much less gas as having been consumed than in the corresponding quarter of the previous year; but on its being examined at Christmas, it appeared that no gas had been burnt since Michaelmas, though it was notorious to everybody in the neighbourhood that Mr. Harley had been consuming it as usual. It was then found that a bit of solder had been dexterously inserted in the meter, so as to prevent the registration. Mr. Harley did not deny that the meter had been tampered with, but said simply that he knew nothing about it, and the judge observed that there was nothing whatever to show that he did, except the fact that he was the only person who could have benefited by the fraud. His lordship, therefore, withdrew the case from the jury. There have been serious disputes for some time past between the Slough Gas Company and some of their customers; and it was asserted by counsel for the defence, that if the case had gone on it would have been proved that several other meters had been tampered with in the same way.

ACCIDENTS BY FIRE.

THE interesting remnant of Mediæval times, Watton Abbey, near Driffield, has had a narrow escape of being reduced to ashes. The fire appeared to have originated in the drawing-room, by some of thetimber having become ignited near the fireplace, and on examination it was found that underneath the hearth-stone was a joist of wood running under the fireplace and into the landing, and that the hearth-flag had also been packed with old boards. Fire having reached these, they had been smouldering ever since the previous evening, and when air was admitted into the room they burst out into flames. Considerable damage was done to the room and its furniture, but the fire was happily got under.——Sandgate Church was originally heated by hot air, but now by a hot-water apparatus, and the original flue in the east wall is used. There are bond timbers in this wall, and it seems that fire was on a recent occasion communicated from the flue by one of these bonds to the joists and floor of the north gallery. The fire was lighted to warm the church; smoke was thereafter seen issuing from under the slates of the roof, and it was soon found that the north-east corner of the interior was in flames. The communication was soon stopped, and the fire confined pretty much to that part of the church. The monument erected to the memory of the Rev. John Brownlow, the late incumbent, was totally destroyed. The roof is very much charred.——The burning of the Brest Theatre, the other day, occurred in the daytime, and just after the rehearsal of the "Postillon de Longjumeau." The theatre was totally destroyed. It was built in 1780, and was insured in two offices to the amount of 180,000 fr.; but the damage done amounts to at least 500,000 fr. —— A fire has occurred at an architect's office in Blackburn. Before it could be put out the two front rooms of the premises had been very seriously injured. In both rooms were deposited a large number of plans, the great mass of which was entirely destroyed. The tithe plans for several townships in the Burnley Union, for which the architect, Mr. Bertwistle, is the valuer, and which had been borrowed by him for reference, being among those destroyed. We are informed that 1,000*l.* will not cover the loss thus inflicted. The fire is supposed to have arisen from the ignition of a joist in the upper floor from the over-heating of the fire-grate. It is supposed the damage will reach near 2,000*l.* Mr. Bertwistle was, unfortunately, not insured. —— The works of Messrs. James Wilson & Son, joiners and builders, White Abbey, Bradford, have been burnt down, and great damage done.

INTERNATIONAL SCALE FOR DRAWINGS.

IF plans and drawings published in this country and abroad could be drawn to a scale that would be universally useful, it would be of immense advantage. For this purpose it is only necessary that they be drawn to a scale capable of expression equally well both in parts of feet and inches, and decimally; now *full size*, $\frac{1}{2}$ *full size*, $\frac{1}{4}$ *full size*, $\frac{1}{8}$ *full size*, and $\frac{1}{10}$ of each of these respectively are such scales, of which the most useful are perhaps the $\frac{1}{10}$ (and $\frac{1}{100}$) full size, expressed in English, as $\frac{3}{10}$ (or $\frac{3}{100}$) of an inch = 1 ft. in foreign decimal scales, as ·025 and ·0125 respectively. EDWIN LAWRENCE.

Westbourne-terrace.

DESIGNS FOR SUNDERLAND.

THE civic Solons, in the Sunderland town council, have hit upon a novel plan for obtaining designs and estimates for the new town-hall. What think you? They are to communicate with the different corporate authorities in the kingdom for the purpose of being supplied with copies of their plans, and the cost of erection, and then to select from amongst them the most answerable. The architectural profession may well tremble at such an innovation. *Sans* Sunderland,—*sans* everything.

We think they might also ask at the same time for the cost which those different corporations have been put to for the removal of their town nuisances, for at present they seem very chary in touching the precious deposits of the back streets and alleys which so much enhance the chronic sweetness of their town. Perhaps her new representative who has just been returned for his "advanced opinions," will move a step in this direction, if only for the sake of those corporate officials who, during the canvass, neglected the dirt to do "their duty."

Q.

CHURCH-BUILDING NEWS.

Shoreham.—The committee for the restoration of New Shoreham Church have received estimates, working drawings, &c., from their architects, Messrs. Slater & Carpenter, of London, who put the total cost at something under 10,000*l.* Including 400*l.* given by Mary Magdalen College, Oxford, the restoration fund already

amounts to nearly 2,000*l.*, chiefly subscribed in Shoreham itself.

Stockport.—A new brass lectern has been set up in the parish church of St. Mary. It is in the form of an eagle, the outspread wings forming the book-rest. The eagle stands upon a globe, around which is inscribed the text—"Thy Word, O Lord, endureth for ever," in Roman capitals, the initials coloured red. The pedestal is relieved with a moulding. The lectern rests upon three carved lions, gilt. The cost, nearly 80*l.*, has been defrayed by voluntary contributions.

Bower Chalke.—The rebuilding of the chancel of the church by the provost and fellows of King's College, as rectors, is now completed, and Lady Herbert has caused a painted window to be erected by Messrs. Lavers & Barraud, in memory of her late husband. The restoration of the entire church fabric, and the erection of an additional aisle, at the joint expense of the Earl of Pembroke and the parishioners, are far advanced.

Ilford.—The church here, which has lately been enlarged, has been reopened by the Bishop of London. The eastern end has been extended 13 ft., thus giving an addition of 175 extra sittings. There is a large stained-glass centre window over the communion, illustrative of sacred history, with the figures of Moses, Joshua, Isaiah, and David in one division; in the middle division are the four Evangelists, Saints Matthew, Mark, Luke, and John; and in the other division are St. Peter, St. Paul, St. Andrew, and St. Bartholomew. This window, which is presented by the magistrates, is a memorial of the late Mr. J. Davis. There is also a side memorial window, stained, placed to the memory of the late Mr. and Mrs. Thompson, and another to their son and daughter. There is also a new stone font, presented by Lady Emily Bathurst, sister to the vicar; and a stone pulpit, value 60*l.*, presented by Mr. E. Griffin. The enlargement, together with the erection of a spire, has been done under the direction of Mr. A. Ashpitel, architect, at a cost of 1,300*l.*

Oxford.—The interior of All Saints' Church has undergone a transformation. The roof or ceiling has been restored, the accumulations of dirt and age being removed. From the dingy and timeworn walls the disfigurements have also been taken way. The arrangement of the old pews is retained, the improvements being that they are reduced in height to the extent of 1½ ft. The gas fixtures are of a light description. There are two new chancel windows, bearing Scriptural representations. Amongst the minor details it may be stated, that the statue of William Levins (five times mayor of Oxford) has been restored. The cost of restoration has been 1500*l.*, of which 1,000*l.* have been subscribed.

Rock (*North Northumberland*).—The ancient Norman church at Rock has been placed in the hands of Mr. F. R. Wilson for enlargement; in which process a rigorous conservation of every ancient stone is to be carried out. To afford the much-needed extra accommodation the Rev. W. J. Cooley has decided upon the addition of a north aisle, subject to this condition. The stones placed by the old Norman builders will be carefully taken down by their Victorian successors and numbered ready for using in the same order in the wall of the proposed aisle. Their present site will be occupied by the necessary arches. The west and east ends will have Norman fenestration; and in the north wall will be re-placed the curiously small openings made by the original builders of the very interesting fabric. The principal landowner in this parish, the Rev. C. W. Bosanquet, who takes great pride in the edifice, and has already expended considerable sums upon it, will be at part of the cost of the present improvement.

Books Received.

Monograms, Ancient and Modern: their History and Art-Treatment. By John Eliot Hodgkin, F.S.A. London, Longmans, & Co. 1866.

In a little shield-shaped book, with green and gold outside, piquant and gay, Mr. Hodgkin gives a dissertation on monograms, some ancient examples, and a number of combinations of mediæval letters by himself, which if they are not much more legible than others elicited by the present demand, are, at any rate, more symmetrical than many. The author adds one date of Masons' Marks, but these cannot be viewed as the special monograms of individuals; abbreviations of a name: they were conventional signs used over a large part of the world by many persons during many centuries. In one respect they are more literally monograms than what are so called now-a-days, because, with very few exceptions, each is *one writing*, one character, not two or three forms put one over another. Mr. Hodgkin has produced a pretty book, which will doubtless find many purchasers.

VARIORUM.

"Gleanings and Remarks on the Gas Question. By G. Glenny. Hammersmith: Thompson, Printer, Broadway." Mr. Glenny, the well-known horticultural and general gardening authority, is recreating his mind at present, seemingly, by opposing the endeavours which the Imperial Gas Company have been making, both in the past Parliament and in the present, to obtain increased powers whereby they intend greatly to extend their works, already regarded as a nuisance, at Fulham, to the destruction, of course, of its floral beauty, as well as of its rural healthfulness. Mr. Glenny, therefore, gives "timely warning that, if the Imperial Gas Company can get their new Bill passed in its present shape, they will be enabled to ruin Fulham and severely injure Chelsea, although Fulham and Chelsea may not be mentioned therein."——"The Engineers', Architects', and Contractors' Pocket-Book for the Year 1866. London: Lockwood & Co." There is a large mass of useful tabular and other matter in this pocket-book, as usual. It is now published by Messrs. Lockwood & Co., by assignment from Weale, of Holborn.——In connexion with it we may here notice the "Metrical Earthwork Tables," published by Messrs. Vacher & Sons, of Westminster. These tables are pasted on cloth, and are for finding the contents of earthworks, &c., when the mètre is the unit of measure employed. They have been arranged according to the form of Bidder's Tables, and have been prepared by H. Greenbank and T. F. Pigot.

Miscellanea.

The Antwerp Archæological Congress.—The honorary secretary of the Antwerp Archæological Academy has sent us for distribution a certain number of the programmes of the Archæological Congress intended to be held in that city. Any person interested in the matter may obtain a copy by personal application at our office.

Curious Accident.—At St. Omer, lately, a slater, at work on the roof of a house, with his feet against a ladder, remained immovable in that position the whole night, having, it is said, been struck with apoplexy. When assistance reached the unfortunate man his limbs were found to be quite rigid, but he was still alive. He expired, however, some hours after.

Public Improvements in Liverpool.—The town council have agreed to apply for powers to widen and extend ten streets in the borough, at an estimated cost for the whole of the improvements of 56,387*l.*; and also to purchase from the Earl of Sefton about 375 acres of land at the south end of the town, beyond Prince's Park, for a public park, and sites for botanic garden, arboretum, cricketing-ground, lakes, shrubberies, lawns, walks, rides and drives, allowing 160 acres to be devoted to building purposes. The estimated cost of purchase and formation, after deducting resales of building land, is 230,500*l.*

The late Mr. Newman, Architectural Draughtsman. — We hear with regret of the death of Mr. Alfred Newman, who was one of the best draughtsmen we know of in his department of art. He was a pupil of the late Mr. George Hawkins, and profited well by that gentleman's instructions. Among the works lithographed by him may be mentioned Johnson's "Relics of Ancient English Architecture;" a work on Beverley Minster; Wicks's "Towers and Spires;" and W. E. Nesfield's "Mediæval Architecture." He was equally at home in drawing on the wood, and executed several good illustrations which have appeared in the pages of this journal. Mr. Newman died at Hackney on Tuesday, March 13th, after only a fortnight's illness, with rheumatic fever, at the early age of 39.

Pontblyddyn.—A want that has long been felt at this place, which is near to Mold, is now about to be supplied. A company has been formed on the limited liability principle for the purpose of erecting a hotel and shop combined. The company have also in view the erection of cottages for the labourers and miners of the district. The plans, specifications, and tender of Mr. Millington, builder, Hawarden, have been accepted for the erection of the hotel and shops. The work will be commenced forthwith.

Vote of Thanks to the late City Surveyor of Carlisle.—On his departure for Frankfort-on-the-Maine, Mr. Gordon has received a vote of thanks from the city council of Carlisle, for the zeal, assiduity, and ability with which he has discharged the duties of surveyor for the six years during which he has held the office; with expressions of regret at losing his valuable services, and wishes of success in his new sphere of duties. The resolution was moved and seconded by two gentlemen, both of whom had voted for other candidates, but who now expressed their cordial approbation of the choice of the majority; and a copy of the resolution on parchment, was ordered to be made out and presented to Mr. Gordon.

Visible Speech.—At the Society of Arts, on the 14th of March, a paper was read by Mr. Alexander Melville Bell, on his new system of visible speech,—the spelling of spelling, as it has been called,—comprising a series of thirty letters or symbols, whereby every sound in every language can be so accurately indicated that a person who never heard a word of the language uttered can pronounce even the most difficult words of it strictly like a native, on merely reading from Mr. Bell's new letters or symbols, which appear to bear the same sort of relationship to the positions of the mouth and tongue in the respective elementary sounds, which the picture of a laughing face may be supposed to do to the spoken word "laughter." Mr. Bell's sons gave clear proofs of the practicability of their father's invention, by pronouncing words, set down by him in their absence, from the utterance of old Indian residents, Scotsmen, and others present; but the conclusion of the whole exposition was marred by the refusal of Mr. Bell to exhibit the symbols on the black board. He wishes the council to appoint a committee to consider the subject, with the view of inducing the Government to take upon itself the practical realization of his system, which he is willing to give up freely for national or universal utility, should they agree to adopt it. Professor De Morgan, Sir D. Brewster, and Mr. A. J. Ellis, the chairman on the occasion, have been initiated into the whole mystery, and are said to approve of the system.

The Imperial Land Company of Marseilles. — A limited company has been for nearly twelve months in course of formation for the purchase and resale of land in Marseilles, where great extensions and improvements are going on in consequence of the increasing commerce and population of the port. So far as we can see, the company do not intend, and do not require, to deal with property already covered with houses requiring to be changed, although many such houses have already been demolished, so increasing the necessity for new buildings. Professor Donaldson was requested to visit Marseilles, and report to the company on the state of matters there, especially with reference to lands to be ceded to the company. This he has done in a quietly worded and therefore the more impressive report, in course of which he says,—

"From information I gathered on the spot, as to the value of the land, I learnt that prices of lots sold on the line of the Rue Impériale, varied in some cases from 100 to 200 or 300 per cent. profit on the average price proposed for your whole area. These were exceptionable and choice lots, yet they sufficiently prove that if an advance of only 30 per cent. were assumed, which is a most reasonable calculation, a net profit of upwards of 500,000*l.* would be realised. I imagine that the value of land will increase very considerably in two or three years beyond the present calculation, from offers already made; and although of course the accruing interest of the money will commence forthwith, I have no doubt that the value of the land will advance in much greater proportion."

The capital of the company will be 1,600,000*l.*, in 80,000 shares of 20*l.* each; deposit, 1*l.*; on allotment, 4*l.*; interest for first two years, 10 per cent., and profit shares thereafter. The engineer-in-chief is M. Paul Borde, of Marseilles (member of the Conseil-Général). The temporary offices are at 17 and 18, Cornhill. The list of directors contains some influential names, both English and French.

GLASS PLOUGH BOARDS.—Some enterprising American inventors are making mould boards for ploughs of glass. It is stated that they have been tested on the prairies with practical success. We have glass mangles in England.

WORKING MEN'S DINING-HALL IN NOTTINGHAM.—An unsightly and offensive block of old buildings in Byard-lane has been removed, and on the site they occupied has been erected a commodious dining-hall, 87 ft. long, 45 ft. wide, and 30 ft. high, fitted up with convenient tables and seats, capable of accommodating at dinner 350 persons, who will be supplied with a good substantial dinner at 4½d. each.

OPENING OF A NEW DOCK AT BIRKENHEAD.—The new intermediate dock at Birkenhead has been formally inspected by the Mersey Dock Board, and opened for commercial purposes. Its area embraces seven acres and a half, and it has three entrances from the river. The work has been completed by Mr. Lyster, the present dock engineer, from the designs of Mr. John Hartley, late engineer to the board.

ECCLESIASTICAL WOOD CARVING. — In the Church of St. Mary, at Clipsham, Rutland, is a new reredos of five compartments, exhibiting subjects illustrating some of the principal events in the life and death of Jesus Christ. The subjects (commencing on the dexter side) are the "Nativity," the "Transfiguration," the "Last Supper," the "Ascension," and the "Flight into Egypt;" the figures being in high relief. The work has been produced by Messrs. Richardson, of Stamford, the sculptor being Mr. Allen Rippin, who had specimens of carving in the International Exhibition of 1862. The "Last Supper," under the central canopy, is after Leonardo da Vinci.

THE HUGHES TYPE PRINTING TELEGRAPH.—In stating last week that the Hughes type-printing instrument is employed throughout France with great results as regards speed and accuracy, and that it has been adopted by Russia and Italy, we incidentally observed that "some companies are using it in England." The United Kingdom Telegraph Company inform us that they possess the exclusive right of the instrument in the United Kingdom, and are the only company working it here. We understand that Professor Hughes, the inventor, is now in negotiation with the Prussian and Austrian Governments, so that the instrument bids fair to be adopted throughout Europe.

ROYAL ITALIAN OPERA. — The notion of a "limited" company having been given up (happily, we are disposed to think), Mr. Fred. Gye prepares to open the campaign with his accustomed vigour, on Tuesday, April 3rd. In his new programme he refers justly with some pride to the history of his theatre and management. Mdlle. A. Patti, Artôt, Lucca, C. Patti, and six *débutantes*; Mario, Faure, Naudin, Graziani, Ronconi, Attri, Schmid, and two new men, are in his list, besides several fresh dancers. In addition to the general *Répertoire*, which includes "L'Africaine," given only four times last season, "Le Nozze de Figaro," "Crispino e la Comare," and Donizetti's "Don Sebastiano," are promised. There is every reason to anticipate a brilliant season at Covent-garden.

A CAVERNED STREET IN THE WEST-END.—On Wednesday in last week, as a Hansom cab was turning the corner of Conduit-street, near the Great Western Railway, at Paddington, the centre of the road suddenly gave way and sank close to the wheels, leaving a cavity of about 6 ft. in depth and 14 ft. in diameter. On close inspection it was found that the ground for several yards round was also undermined, and that a hollow chamber ran down the centre of the road to a considerable distance, in which lay, or rather hung suspended, two large iron pipes, one of which was completely severed, as if cut through. The cavern does not appear to be of a recent formation, and the crown of its arch in some places is not more than 6 in. in thickness, over which heavy traffic and hundreds of vehicles have been passing in unconscious peril daily and continually. Speedy information was given to the local authorities, and by their directions all the approaches were stopped, while the rest of the doubtful and hollow ground was sounded and thrown down. No satisfactory explanation is given as to the cause, and no sewer or tunnel, it is said, is known to run under this part of the road which could account for it in any way. Not long before it gave way, a wagon, loaded with some heavy iron girders, passed over the spot.

CENTRAL HALL OF ARTS. — The purchase of boxes and sittings goes steadily on. The amount so subscribed up to the 21st of March is 78,100*l*. The fulfilment of the scheme may now, we believe, be considered as assured.

BRIGHTON.—The proposed conversion of the Pavilion dome into an assembly-room has been resolved upon by the vestry as well as the council. The hall will accommodate 3,000 persons, seated, at an estimated cost of 3,500*l*.

A SHOE-SEWING MACHINE. — George W. Day, of Chelsea, Massachusetts, the inventor of a machine for making shoes, which drives the shoe thread like pegs, producing a good imitation of pegged work, is said to have sold his interest for 266,000 dols., besides receiving a per-centage on every pair of boots made by the process.

A TELEGRAPH LINE SIX THOUSAND MILES LONG.—The telegraph has lately been extended far up Fraser River *en route* for Russia, according to the *Panama Star*, and is now in working order from New York *vid* San Francisco to a point 400 miles above New Westminster on Fraser River, making in round numbers about 6,000 miles.

WRITING MATERIALS WHOLESALE.—A spring of natural ink,—a mineral fluid very much resembling crude petroleum, but without any smell, and possessing all the qualities of the finest writing ink,—has been discovered in Les Angles, in the vicinity of Buena Vista Lake, California. As it is a good sheep country, there will, of course, be no lack of pens or parchment.

THE TIMBER DUTIES.—Mr. Gladstone, in reply to an inquiry, says:—"It is the intention of her Majesty's Government to apply to Parliament, after the financial statement, for permission to remit the duty on wood from the 1st of April; and they will give directions that goods be admitted duty free from that date, the importers undertaking to pay the duty if Parliament shall subsequently require it. The measurement will continue as at present, until Parliament shall have decided on the subject."

THE GENTLEWOMAN'S ARTISTIC EMPLOYMENT INSTITUTE.—A meeting was lately held at the Royal Benevolent Society's Rooms, Duke-street, St. James's,—the Marquis Townsend in the chair,—to establish this institution, which is intended to enable ladies in reduced circumstances to be taught the art of colouring photographs as a means of livelihood. A council was formed, with power to add to their number. The Marquis Townsend agreed to be the treasurer; and the Marchioness Townsend, Mrs. Lusk, and other ladies, were liberal donors.

ALLEGED ALARMING CONDITION OF LONDON DUST-YARDS.—By the terms of an Order in Council the prohibition to remove manure from the metropolis is believed to apply to all street sweepings, because they comprise an admixture of horse-dung; and the yards and wharfs of the contractors are heaped up with many thousand cart-loads of these sweepings and of the vegetable refuse from the houses in the metropolis. It is estimated that 5,000 loads of this kind of refuse are collected every day (except Sundays) by the London scavengers. Hitherto they have been accustomed to export it by means of barges on canals or on the river into adjacent counties, where it is prized as excellent manure. Long before the expiration of the supposed prohibition (April 15th) it would be impossible to deposit more of the refuse in the lay-stalls, and it must be left to fester and rot in our streets and houses unless some appropriate depôt within the metropolitan area be provided for it; or unless it be a mistake that the Order in Council applies to it. This has been alleged in Parliament. The medical officers of health of the metropolis agree in stating that unless a remedy be quickly devised, we shall be subject to the ravages of malignant fevers.

TENDERS

For fitting up offices in Finsbury-place, Moorgate-street, for the London and Australian Agency Company, Limited. Mr. W. Williams, architect:—

Rowley (accepted)	£300 0 0

For the erection of stables, for the Park-lane Stables Company. Mr. J. Garling, architect. Quantities supplied by Mr. Thomas Hill:—

King & Sons	£3,830 0 0
Piper & Wheeler	3,700 0 0
Nixon	3,697 0 0
Jackson	3,680 0 0
M'Lachlan	3,185 0 0

For Patent Concrete Stone Company (Limited). First portion of works for their new factory, East Greenwich. Architect, Mr. Thomas Piper:—

	Cottage.	Fences.
Hedges	£4,858	£265
Myers	4,163	312
Piper & Wheeler	4,025	289
Hill and Keddell	3,996	290
Brown & Robinson	3,890	257
Higgs (accepted)	3,850	252

For alterations and additions to St. John's Schools, Buckhurst Hill, Essex. Mr. Joseph Tanner, architect:—

Hack & Son	£610 0 0
Hunt	525 0 0
Egan (accepted)	370 0 0

For the erection of a shop and premises at Hackney. Mr. T. K. Green, architect:—

	The Building.	Plate Glass.
Hill & Son	£3,885	£339
Scrivener & White	3,522	165
Henshaw	3,339	215
Salmon	3,300	
Fox (accepted)	3,063	277

For erecting villa at Clapton, for Mr. J. J. Dymond. Mr. Joseph Tanner, architect:—

Chapman & Eaton (accepted)	£850 0 0

For alteration and additions to Manor House, Erith. Mr. Hubert Ford, architect:—

Vickery (accepted)	£260 0 0

For repairs and rebuilding sea-walls, re-construction of outfall sewer, and embankments, at Awre, Gloucestershire. Mr. E. J. Reynolds, architect:—

Griffiths	£580 0 0
Marfet	527 0 0
Rumboll (accepted)	511 10 0

For laying out roads and drains at Roehampton and Putney, for the Conservative Land Society:—

Pizzy	£525 0 0
Porter	520 0 0
Parker	500 5 0
Kelly	495 0 0
Coker	493 12 6
Simpson & Gregory	469 5 0
Gooch	449 0 0

For the erection of a warehouse in Little Britain, for Mr. T. R. Debenham. Messrs. Wimble & Taylor, architects:—

Hack & Son	£4,556 0 0
Colls & Son	4,443 0 0
Conder	4,096 0 0
Newman & Mann	4,026 0 0
Adamson & Son	3,997 0 0
Killby	3,857 0 0
Morter	3,763 0 0
Hill & Sons	3,755 0 0
Sandon & Co.	3,693 0 0

The tender of W. Aviss & Son has been accepted for the erection of Christ Church, Gipsy Hill, Norwood.

TO CORRESPONDENTS.

G. G.—M. M.—T. C. N.—C. A. L.—A. C.—Mr. G.—D. K.—J. T.—J. P.—B. B.—T. C. N.—D. L.—Dr. H. L.—R. R.—W. S.—B.—Dr. L.—C. A.—E. R.—J. T.—Mr. H.—J. D.—E. J. R.—Honourable J. P. (in type).—Post-office (ditto).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings rests, of course, with the authors.

GOOD FRIDAY.—NOTICE.—"THE BUILDER," for the week ending MARCH 31st, will be published at TWO p.m., on THURSDAY, 29th inst. Advertisements for insertion in that number must therefore reach the Office **before THREE p.m.,** *on WEDNESDAY, 28th.*

The Publisher cannot be responsible for ORIGINAL TESTIMONIALS *left at the Office in reply to Advertisements, and strongly recommends that* COPIES ONLY *should be sent.*

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

NEWSPAPERS and MAGAZINES. — Messrs. COX & WYMAN, Printers of "THE BUILDER," and other First-class Publications, beg to call the attention of Proprietors of Newspapers and Periodicals to the unusual facilities their Establishment presents for the production of the above class of Work, with regularity and in the best style.—Lincoln's Inn Steam Printing Works, 74-75, Great Queen-street, W.C.

TO ARCHITECTS, CIVIL ENGINEERS, BUILDERS, &c. LAMP POSTS, DWARF GAS PILLARS, LAMP BRACKETS, and LAMPS. The NEWEST DESIGNS for these will, upon receipt of particulars, be forwarded free, on application to IRONFOUNDER, 3, Hollywood-grove, West Brompton.

WOOD-GREEN.—Twenty Plots of Building Land, between Lordship-lane and Wood-green-common.

MESSRS. DEBENHAM, TEWSON, & FARMER will SELL, at the LONDON TAVERN, on THURSDAY, APRIL 19th, at ONE, Twenty Plots of FREEHOLD BUILDING LAND, having frontages of about 16 feet each to White Hart-lane and Winkfield-road, pleasantly situate near the Jolly Butchers, Wood-green-common, within ten minutes' walk of the Wood green Railway Station and the Alexandra-park.—Particulars of W. HARBER, Esq. Solicitor, William-street, Woolwich; of Messrs. W. E. and F. OLIVER, Solicitors, 16, New Bridge-street, Blackfriars; and of the Auctioneers, 80, Cheapside.

HEREFORD.—Very valuable Freehold Building Estate, in the most beautiful and healthy suburb of the city, overlooking the Wye and the fine expanse of woodland and mountain scenery for which the district is so celebrated, offering an admirable opportunity for a large capitalist or land and building society, for profitable speculation.

MESSRS. DEBENHAM, TEWSON, & FARMER will SELL, at the LONDON TAVERN, on TUESDAY, APRIL 17, at ONE, in Two Lots, the valuable FREEHOLD ESTATE, known as Hampton Park, situated on Eignhill, on the borders of the city of Hereford, a mile from the railway-station. It comprises about 23 acres, occupying a fine elevated position, abutting on the turnpike road leading from Hereford to Newent and Gloucester, and offers most inviting sites for residences of a superior class. The land slopes chiefly to the south and south west, and overlooks the valley of the Wye and the city of Hereford and its beautiful cathedral embosomed in an amphitheatre of hills, the mountains of Wales, Gloucestershire, and Shropshire, as well as the Malvern range, forming features in the panorama. The subsoil is chiefly a dry sandstone; but there is building-stone, as well as gravel and brick-earth, on the estate, and an abundant supply of fine spring water. Gas is laid on, and a picturesque carriage drive has just been completed immediately adjacent. Eight detached residences, let at rentals of from 60l to 80l. each, have already been built, and will form a separate lot. Also a valuable brick-yard at the further extremity of the Estate (with the requisite kilns, buildings, and machinery), which is now in most profitable work. If not all sold, the estate will be divided into Twenty-one Lots, and sold at the Green Dragon, Hereford, on TUESDAY, MAY 1, at THREE o'clock.—Particulars of Messrs. JAY & NUNN, Solicitors, Hereford, and 10, Bedford-row, London; and of the Auctioneers, 80, Cheapside.

Valuable Freehold Building Estate, known as the Old Park, Clapham-common.—Sale of the First Portion of this richly-timbered Park, comprising the extensive frontages to Nightingale-lane, and being adapted and intended for houses of a good class, which are in great demand in the neighbourhood.

MESSRS. DEBENHAM, TEWSON, and FARMER are instructed to SELL, at the LONDON TAVERN, on TUESDAY, APRIL 17, at ONE, in convenient lots, suitable for the erection of first-class detached or semi detached residences, the greater portion of the frontage to Nightingale-lane of the valuable FREEHOLD ESTATE known as Old Park, most pleasantly situated on the south side of Clapham-common, in a locality which, in point of public esteem, stands second to none within a like distance of the City or West end. The high character of the surrounding properties, and the fact that the whole of this land is very richly timbered, render it peculiarly eligible for building purposes.—Particulars and plans are in course of preparation, and will shortly be issued; in the mean time any information may be had of T. G. BULLEN, Esq. Solicitor, 7 and 8, Barge-yard-chambers, Bucklersbury; of Messrs. TRIMBLE & TAYLOR, Architects, No. 2, Walbrook; and of the Auctioneers, 80, Cheapside.

BEXLEY-ROAD, Kent.—To Builders, Brickmakers, and Building Societies.—About 7a. acres of valuable Freehold Building Land, well adapted for small houses and cottages, being in a suitable neighbourhood, within sight of Belhurst Station, the North Kent Railway, a good road, in which are sewers and gas mains; a sewer also runs through the property, and there is a constant supply of water.

MESSRS. DEBENHAM, TEWSON, & FARMER will SELL, at the LONDON TAVERN, on TUESDAY, APRIL 17, at ONE, in one lot, about 7a. acres of valuable FREEHOLD BUILDING LAND, near Belhurst Station, having frontages both to White Horse-road (the principal road from Norwood to Croydon) and Tamworth-road, with great capabilities for the erection of moderate-sized houses and cottages, which can be readily let and sold at remunerative prices. The land contains fine brick-earth and gravel; malms and stock bricks of superior quality are to some time been made there, and the necessary plant is upon the property; so that builders may make their own bricks during the progress of building operations, and as there is a constant demand in the neighbourhood for bricks and gravel, a considerable additional income may be realized from these sources. Particulars of R. S. GERGSON, Esq. Solicitor, No. 8, Angel-court, Throgmorton-street; and of the Auctioneers, No. 80, Cheapside.

BROMLEY, KENT.—Charming Building Sites for gentleman's Residences, immediately adjoining the shortlands Station, between Bickenham and Bromley, in the midst of one of the most popular, picturesque, and healthy districts near the Metropolis, for Sale, in lots, with a fully registered, indefeasible title.

MESSRS. DEBENHAM, TEWSON, & FARMER are instructed by the Executors under the will of the late W. A. Wilkinson, Esq. to SELL by AUCTION, at the NEW AUCTION MART, Tokenhouse yard, Bank, on TUESDAY, MAY 8, at ONE o'clock, in lots of from half an acre to two acres each, the remaining portion of the SHORTLANDS ESTATE, land tax redeemed and tithe-free, possessing the most pleasurable hills, and affording in all eligible sites for the erection of first class houses and moderate-sized villas, the demand for which in the neighbourhood is great and constantly increasing that extensive building operations judiciously carried out upon this property must become permanently remunerative.—Further particulars will duly appear, and may in the meantime be obtained of Messrs. BURCHELL, Solicitors, 5, Broad Sanctuary, Westminster; of Mr. JNO. WHICHCORD, Architect, 16, Walbrook; and of the Auctioneers, 80, Cheapside.

Building Materials of Four Houses in Well-street, Cripplegate.

MR. JAMES ROBINS will SELL by AUCTION, on the PREMISES, as above, on THURSDAY next, MARCH 29, at TWELVE, the BUILDING MATERIALS, FIXTURES, and FITTINGS of Nos. 7, 8, 9, and 10, Well-street, Cripplegate.—Catalogues of G. GRAYSON, Esq. Architect, 29, John-street, Bedford-row; and of Mr. JAMES ROBINS, Auctioneer, 20 Chancery-lane.

Two Million of capital Bricks, Clayton's Two-process Brickmaking Machine, Brickmaking and Contractor's Plant, Building Materials, and Effects.

MR. GAIRDNER is instructed to SELL by AUCTION, on the Premises, near Silvertown Station, on the North Woolwich Railway, on MONDAY, APRIL 2nd, at TWELVE o'clock, NAVVY and CROWDING BARROWS, waggon planks, cart and timber carriage, and tip wagons, several hundred railway sleepers, contractors' rails, furnace bars and frames, chains and metal, an American brickmaking machine, the materials of several cottages (with slated roofs), and engine shed, about two million of capital machine and hand-made bricks, and numerous effects. There is a sewer jetty and a railway siding on the premises, affording every facility for land and water carriage.—On view three days prior. Catalogues forwarded on application at Mr. GAIRDNER'S Office, 42, University-street, Tottenham-court-road, W.C.

PRELIMINARY ADVERTISEMENT.—KENT.—Highly valuable Freehold Building Land, close to the Railway-station at Tonbridge.

MESSRS. CHARLTON & SKINNER are instructed to OFFER for SALE by AUCTION, in the month of MAY, all that valuable FREEHOLD MEADOW, so commodiously situated, directly opposite the Railway-station at Tonbridge, on the north or down side of the line, which will be divided into building lots, suitable for the erection of private houses and business premises. Detailed particulars will be given in future advertisements. Further information may be had at the Office of Mr. STENNING, Solicitor; or of Messrs. CHARLTON & SKINNER, Architects and Surveyors, Tonbridge, where a plan of the property may be seen.

STRAND.—MATERIALS of THREE HOUSES and SHOPS, Nos. 49, 41, 47, Strand.

MR. JAMES R. BONNY (Kennedy & Bonny) is instructed to SELL the above, on the PREMISES, on WEDNESDAY next, MARCH 28th, 1866, at TWELVE for ONE o'clock, in lots.—May be viewed, and catalogues had of JOHN BARNETT, Esq. Architect, 3, Verulam-buildings; and at Auctioneer's offices, 49, Camden-road.

EAST LONDON RAILWAY.—FIRST CLEARANCE SALE.—To Builders, Contractors, and Others.—Building Materials.

MESSRS. WILLIS & HARROW are favoured with instructions from the Contractors to SELL by AUCTION, the Premises of FREEHOLD, MARCH 29th, 1866, at ONE o'clock punctually, the valuable and useful MATERIALS of FORTY HOUSES, situated in Westfield-terrace, Cross-street, Brunswick-terrace, Dean's-buildings, Portland-place, Albion-street, Yardley-terrace, Wellington-st. Adam-street, and Elizabeth-place, Rotherhithe: comprising capital stock brickwork, sound timber in floors and roofs, good flooring-boards, excellent panties and slating, panelled and other doors, sashes and frames, lead in pipes and gutters, and a mass of useful fixtures and fittings-up.—May be viewed the day previous to the Sale; and catalogues obtained on the Premises; and at the Auctioneer's Offices, 20, Great George-street, Westminster, and West Molesey, Kingston, Surrey.

Valuable Oak Timber for Sale

C. P. HARDY has been instructed to SELL by AUCTION, at the WHITE HART HOTEL, Carlisle, on THURSDAY, the 29th MARCH inst. 431 OAK and 32 ASH TREES, now growing in the Woods and Park of Rose Castle. Almost the whole of the oak trees are of large dimensions, and adapted, from their peculiar growth and character, for almost every description of work. They will be shown to intending purchasers on application to Mr. SMART, of Rose Castle; and catalogues will be ready, indicating the number and locality of the trees, on and after MONDAY, the 19th instant. The farthest off trees are within four miles of the Dalston Station, on the Maryport and Carlisle Railway, whence communication may be had with any part of the United Kingdom. The woods are remarkably easy of access, and the roads in close proximity to the trees are good. Dinner tickets (to be required to be purchasers) will be on the table at One o'clock, and conditions will be stated and the sale commenced punctually at TWO o'clock. Further particulars may be known and catalogues had on application to Messrs. RAWLENCE & SQUAREY, Estate Agents, 23, Great George-street, Westminster, and at Salisbury; or of the Auctioneer.

24, Lowther-street, Carlisle, March 14, 1866.

WEYMOUTH.—To Timber-merchants, Contractors, Builders, and Others.—Capital Sale of Timber, Deals, Battens, prepared Floorboards, Slates, Bricks, Laths, Poles, a large Lighter, Eight Anchors, Chains, Three Sails, Blocks, and other effects.

MR. MILLEDGE will SELL by AUCTION, by order of the executors of the late G. C. Welsford, esq. deceased, on the PREMISES, Commercial-road, on TUESDAY, APRIL 3rd, 1866, and following days, the following stock of WOOD GOODS, SLATES, and BRICKS, which includes a cargo arrived very recently ex "Oshawa Steam," viz.:—

30 Loads of Swedish and Quebec Timber.
200 Red and White Deals.
2,700 Battens.
300 Dry and well-seasoned ditto.
200 Squares seasoned prepared Floor Boards, Fir Poles, of various lengths and dimensions. Quantity of single Laths.
56,000 Slates, various sizes.
45,000 Broadmayne Bricks.

Catalogues will be ready for delivery one week before the Sale, and may be had of the Auctioneer, No. 74, St. Thomas-street, Weymouth. Approved bills will be taken from purchasers of the cargo of 10l. and upwards.—Sale to commence at TWO o'clock prompt each day.

LEYTON, ESSEX.

MR. JOHN M. DEAN will SELL by AUCTION, at GARRAWAY'S, on THURSDAY, MARCH 29th, in Two or more Lots, about 2a Acres of most eligible FREEHOLD BUILDING GROUND, pleasantly situated in Capworth-street, Leyton, opposite the new church, and having capital frontages on Capworth street and Beaumont-road. The land is situate within a few minutes' distance of the Leyton and Lea Bridge Railway-stations, is admirably adapted for the erection of superior residences, and offers a capital opportunity to land and building societies or others for the safe and profitable investment of capital. Note.—The whole will be first submitted in two lots, and if not then sold will be submitted in thirty-six lots.—Particulars and conditions of sale, with plans, may be had at Garraway's; of Messrs. STEVENS & BEAUMONT, Solicitors, 6, Old Jewry, E.C.; and of Mr. JOHN M. DEAN, Auctioneer and Surveyor, The Grove, Stratford, E.

On WEDNESDAY NEXT, at the LONDON TAVERN—CROWN-HILL, LOWER NORWOOD.—Freehold Building Land.

GEO. TODD will SELL by AUCTION, at the LONDON TAVERN, Bishopsgate-street, on WEDNESDAY next, MARCH 28th, at TWELVE, for ONE precisely, about EIGHTY PLOTS of FREEHOLD BUILDING LAND, situate in the most favourite part of Lower Norwood, and commanding a good frontage to Crown-hill, suitable for building six, eight, and ten roomed houses, and having a very eligible plot for a tavern.—Particulars of GEORGE BADHAM, Solicitor, 40, Queen-street, Cheapside; at the London Tavern; and of GEO. TODD, 8, Pancras-lane, Bucklersbury, E.C.

IN BANKRUPTCY.—Metropolitan Main Drainage Works, Battersea.—To Sewer-Contractors, Builders, and Others.

GEO. TODD will SELL by AUCTION, on the PREMISES, Meyrick-road, Battersea, close to Clapham Junction Railway-station, on MONDAY, the 16th of APRIL, 1866, and Two following days, at TWELVE for ONE o'clock precisely, by order of the Assignees of the late Mr. Moxon, Contractor, without reserve, the whole of the PLANT and STOCK, including a 20 horse power portable steam-engine; an 8-horse power ditto, by Ruston & Proctor; surplus fly-wheels; chain-pumps, by Murray & Fowler; centrifugal ditto, by Gwynne; and horizontal ditto, all complete, large cylinder boilers, and tubular ditto; timber-carriages, sets of thill and chain harness, portable bellows and forges, iron tanks, benches, smiths' tools, vices, anvils, drills, files, hand-saws, pickaxes, sewer-boots, chains, blocks, falls, rigging, movable flaps, bar, rod, and scrap iron, shafting, navvy-barrows, screens, sieves, grindstones, chaff-cutters, bean-crushers, iron hoop bands, Portland cement, bricks, timber of various scantlings, die-square planks, deals, &c., bricks, pipes, bends, junctions, metal flaps, ironmongery, and numerous other effects; also the erections of 16-stall stable, workshops, smithy, and sheds.—May be viewed the Friday and Saturday preceding the sale, and catal gues obtained upon the Premises; of Messrs. ASHURST, MORRIS, & CO. Solicitors, 6, Old Jewry, E.C.; of GEO. TODD, Auctioneer, 8, Pancras-lane, Bucklersbury, E.C. or at his Surrey Branch Office, Prince of Wales-road, Battersea-park.

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The Builder.

VOL. XXIV.—No. 1208.



The Aberdeen Granite Works.

BERDEEN has long been celebrated for the production of granite. What coals are at Newcastle,—what copper is at Swansea, or Portland stone in the Isle of Wight,—so is granite in the city and seaport of Aberdeen. It is, in fact, a staple commodity. Not only is Aberdeen built of granite,—as we recently had occasion to describe,—but the produce of its quarries forms a valuable article of local exportation. Other towns which are situated on the great central chain of the granite mountains of the British Islands may compete with Aberdeen in the production of granite cubes and foundation blocks, but we doubt if they equal it in artistic work.

During a recent visit to the granite city, we had the opportunity of inspecting two or three of the largest granite works, and, in particular, we devoted considerable attention to the manufactory of Messrs. Macdonald & Field, who, we believe, are entitled to be regarded as the earliest as well as the largest producers in this remarkable branch of trade; and of these works we now propose to give some account. We shall preface our description with a few notes on the history of granite in its relations to art.

The first idea of employing the refractory but enduring material of granite in sculpture and architecture is due, so far as we know, to the ancient Egyptians. In this art, as in everything else to which they applied their genius, they attained a high degree of excellence. Those who have examined their colossal buildings, and the equally colossal effigies of their gods, must admit the precision with which their figures and ornaments are cut, and the delicacy of detail in the designs with which their architecture is enriched. The hieroglyphics on their obelisks and other granite monuments are sculptured with a minuteness and finish which cannot fail to surprise the beholder, even supposing they had used steel as highly tempered as our own. But it is believed that their tools were composed of bronze. Specimens of their sculpture in granite, which have for 3,000 years resisted the action of the elements and the far more destructive influences of barbarous invaders, still astonish us by the high polish of their surfaces, and the delicate finish of their details. Even a visit to the Egyptian Saloon of the British Museum will at once prove that there are great accuracy of muscular delineation, and great skill exhibited in the communication of what we may describe as fleshiness to the lips and features of some of the figures there preserved. The Egyptians, in short, evinced a high degree of skill in the art of sculpture in a material of the most imperishable kind,—and one, we must add, on which few succeeding artists have ventured to employ the chisel.

In modern times the fabrication of slabs, pedestals, and vases, in hard porphyries and in granites, has been carried to great perfection in Sweden. The quarries of Blyberg, at Elfdalen, for many years have furnished materials for the exhibition of this Swedish ingenuity and artistic skill. The elegant forms and high finish of their works in those refractory materials have contributed greatly to the splendour of the Swedish capital, and are known and admired over Europe. Some of the principal buildings of St. Petersburg are also of granite. Nevertheless, though our own mountains yield no less beautiful and durable materials, it is surprising how long we remained without any attempt to apply them to the purposes of ornamental art. It is true that, among the granite buildings of Aberdeen, symptoms might be observed of the artistic capacity of the material. Waterloo Bridge had furnished a good specimen of construction, and now and then blocks of Cornish granite had begun to appear in the pedestals of a few statues in some of our principal towns. But the idea of giving a polish equal to that of Egyptian syenite or Carrara marble to our native granite,—of applying the principles of formative art in works of considerable size,—of introducing this splendid material as a decorative feature in our halls and saloons,—and, finally, of employing it as lasting memorials of departed genius and worth in our cemeteries,—seems due to a citizen of Aberdeen, the late Mr. Alexander Macdonald, who contrived to solve the difficult problems about the year 1822.

The fabrication of granite into works of decorative construction has, in consequence, been a distinct business for upwards of forty years in Aberdeen; and, from a small beginning, has become one of the most important branches of industry in the north of Scotland. It now employs probably 2,000 persons in the production of material, and in its manufacture; and, as the trade is further developed, it will doubtless employ as many more.*

The first thing that strikes the visitor is the enormous masses of raw material; that is to say, of huge blocks of different kinds of granite which lie scattered about. These have been reft from their native beds, and brought round from Peterhead by coasting-vessels, or from the other inland quarries by railway, a branch line from which passes into the yard. Here we may observe and contrast the well-known greyish white granite of Rubislaw with the rich red hues of the Peterhead quarries. There are delicate pink shades from Stirling Hill; a slate-coloured variety from Pitsligo; together with the full, delicious blues from Cairngall and Sclathie. Of course, these diversified hues and delicate tints do not show well in the blocks; nor, indeed, until after the final process of polishing can we fully understand the beauty which is hid in those masses of rugged rock.

The granite-yard has a remarkably clean and orderly appearance. The machinery, including the steam-engine, is very complete, and some of it, as we shall see, very curious. A travelling crane of great power is a conspicuous object in the sky-line; and here and there we may see sundry lorries and four-wheeled carriages mounted on miniature railways, for transporting blocks through the works during the various operations to which they are subjected.

The first operation we shall describe is the sawing process. Granite is cut into thin slabs, by means of saws set in iron framework. But this is a tedious and expensive operation, very different from going through a block of marble. In the sawing-room several blocks were then under the machines, which are worked, of course, by a steam-engine. We observed one block, 10 ft. long, being cut into six or eight slabs. The saws are, as usual in such works, of soft iron plates, secured in a frame, and operate on the stone by means of quartz sand and water, applied as in slicing marble. No emery is requisite in these operations, the particles of silicious sand being sufficient to cut the quartz, which is pure silica, and the hardest mineral in the granite. Frequently fourteen saws are used in a single frame; and occasionally they have had as many as eighteen employed at once on a single block. The progress of the work, of course, is slow; indeed, it requires a whole day to cut a groove two-thirds of an inch in depth in the granite. Owing to the expense of this sawing process, granite slabs have not, as in the case of chimney-pieces, for example, been able to compete with or to supersede the slabs which are cut from softer materials.

We now come to the process of rough-hewing and shaping the blocks to the prescribed model; that is, of cubical prismatic or cylindrical and other curved forms. This is technically termed "first dressing," and is performed by hand-picks with short handles, and heads about four pounds in weight, which the workmen from long habit wield with surprising dexterity. The surfaces are then reduced to a regular form by means of steel punches and chisels struck by iron mallets. The chisels require a particular temper, which must be neither very hard nor very soft, else they would either lose their edge by chipping or fail to cut the stone. We observed that they frequently require sharpening in the more delicate kinds of work. The chisel is held by the workman at a much less oblique angle to the surface of the block than it is when working freestone, and he separates only small particles at a time.

Indeed, the whole process of the fabrication of granite consists in punching the obdurate blocks with thick heavy conical punches and wedge-like chisels (not such chisels as are used on freestone, and certainly not such as are used for limestones) either struck by heavy iron hammers or used in the form of a pick. This process, we must say, is most laborious, and very different indeed from the easy operations one may see going on in the yard of a London mason. Attempts to apply machinery to the dressing of granite have been often made; but, as we might expect, without success; for it requires a distinct and heavy blow to separate the particles of stone in beginning to work it. It is also impossible to work granite on a turning-lathe; but all circular forms are wrought as true by the hand as they could be on the lathe. The truth is, we suspect, that the process of hewing granite, like that of baking bread, is a radical process—incapable of improvement; and is much the same in the present day as it was in the days of the Pharaohs.

The next operation is termed "Fine-axing or dressing." This was formerly effected by means of picks, or iron hammers, pointed at each end. But these instruments are now replaced by solid shear or cast steel, tempered to the proper degree, the manipulations of which leave the surface out of "thraw" (twist), but still comparatively rough. The finer surfaces are made by means of the single and double axe; and for joints and mouldings, steel chisels and punches of various sizes are used. The "double axe" is a framework of iron, containing at each end about half a dozen steel blades, forming in combination a dressing-surface of about 3 in. by 1 in. It leaves the stone in the finest state of dressing possible, presenting the appearance of chased metal work. In fact, this fine-axing is neither more nor less than a sort of granite chasing. Very pleasing effects can be made in this way by the contrast of the polished and axed surfaces, as the rich natural colour of the granite only comes out in polishing, while the dressing always displays a good background. Many architectural features can be rendered in a telling manner by this arrangement,—such as scrolls,

* The present Mr. Macdonald is a son of the projector; and his partner, Mr. Field, is a junior branch, or rather offshoot, of the well-known engineering firm of Maudslay & Field.

coats of arms, panels, and many other forms in ornamental and decorative art.

The next process is by far the most important of the series,—that is, the process of polishing. Here the most curious part of the machinery comes into play; and it is easy to detect, even on a superficial survey of the immense polishing sheds, that there are different sorts of machines in use for all the different forms of granite. The *rationale* of the process is, however, essentially the same. Indeed, granite is polished on precisely the same principles as slate, glass, or precious stones,—that is to say, by the use of ingredients of different and progressive value in mineralogical hardness. In polishing plane surfaces, concentric grinders of iron are used in various machines, applied to the surface of the stone, first with sand and water, next with emery; and then for the iron grinders are substituted certain discs covered with leather, or a substance termed "lapp," freely supplied with the oxide of tin, which is the polishing ingredient better known to our readers, perhaps, as putty powder. All circular forms, such as *stelæ*, the frustra of columns, pedestals for busts, vases, and the like, are fixed in well-contrived lathes, whirled round by the machinery; while the sand and emery are applied to their surfaces by means of fine thick plates or bars of iron, of a corresponding outline, termed polishers, which the surface of the granite must constantly traverse. We saw a large Etruscan vase, about 3 ft. in diameter, just prepared for the process of polishing, its graceful curves accurately cut by the chisel, and the iron bars, 1 in. or 1½ in. in thickness, neatly forged to its various curves, lying beside it, ready to be applied when it was fixed to the lathe. In this way columns 30 ft. in length and vases 15 ft. in diameter are polished on precisely the same principle as small pillars. Mouldings, after being properly set in plaster of Paris, are polished by means of cast-iron planes, fitted to their curves. These are applied by the lateral motion of a series of the most odd-looking machines we ever saw, which are, naturally enough perhaps, called "rubbers," but which would be more appropriately described as pokers! Certain concave and convex surfaces have to be polished by hand, such as the groundwork of ornament and any minute sunk work or entaglios. In all these cases, however, the polishing materials are the same;—first, silicious sand is interposed, then emery of various degrees of fineness, and finally the "lapp," or fibrous polisher, with the putty powder, is used until the requisite lustre is obtained. The granite has now assumed that beautiful glass-like surface which we know it will retain long after the finest polished marble has become dim, or (if exposed to the atmosphere) has already begun to decay. We break off for the present.

BERLIN IN THE NINETEENTH CENTURY.

IN an architectural point of view the capital of Prussia has always been a long way behind other European cities of much less importance, size, and population. For centuries the residence of the Hohenzollern dynasty, as Electors of Brandenburg, was surrounded by the unpretending dwellings of impoverished citizens, working artisans, and half-peasants, who congregated together from the surrounding flat and open country for the sake of shelter, and the security afforded by the walls of Berlin against the lawlessness and rapine of the feudal chiefs and their retainers in those troublesome times when might took the place of right. Even under Frederick the Great no impetus was given to embellishing the capital; for, though that monarch occasionally resided in his palace there, he spent the greater part of his reign at his favourite residence of Sanssouci, at Potsdam, where he also died. In fact, where Nature has done so little, there was no inducement for Art to stretch out her hand, and it was but an unthankful effort to embellish a city with handsome and expensive buildings where the inhabitants were content to dwell in cheap and ugly houses, as their forefathers had done before them.

It was only since the peace of 1815 that the spirit of improvement first became visible at Berlin, and even then only with the aristocracy, who saw the necessity of providing themselves with suitable palaces in the capital of the greatly enlarged but not yet consolidated monarchy, and this gave rise to the erection of many extensive and convenient mansions, though confined to a very small locality, as the Wilhelmstrasse, the Belle-Alliance-Platz, and Unter-den-Linden.

The credit of becoming the regenerator of Berlin is fairly due to the late King Frederick William IV., who, whatever history may say to his disparagement as a weak-minded statesman and inconsistent politician, was certainly a man of good taste, and fond of aiding genius in painting, sculpture, architecture, and manufactures. During his reign the Bourgeoisie, which had till then been considered as a distinct and inferior class, began to make money and feel that they collectively formed an important element in the state; they therefore began to spread themselves out and build dwellings affording greater convenience and more space, air, and light than they had till then enjoyed.

But it was the Revolution of 1848 that gave the greatest impetus to this spirit of development and progress. With the knowledge and belief that all Prussians are equal in the eye of the law, the lower classes evinced a most wonderful sagacity in appreciating the advantages of education and the value of skilled labour, which was further enhanced and confirmed by the blessings of free-trade, then just dawning on their hitherto benighted senses. Building thus became a trade, and such a lucrative one that new quarters were laid out in the suburbs outside the gates of the city and immediately covered with rows and streets of handsome new houses, and studded with detached villas standing in their own grounds. To the north and west of the city was an extensive district of waste land, in former times a dense forest, and still called the Thiergarten, or Deer Park. This was eminently adapted for suburban or half-country villas, and has been used for that purpose accordingly, the gardens extending back to the banks of the Spree, which bounds it on the north. But not only was this rage for building confined to the suburbs, it penetrated to the very heart of Berlin. The noble avenue called "Unter den Linden," extending from the Brandenburg Gate at the west to the Royal Palace, saw its old shabby houses disappear one by one, to be replaced by noble mansions, till they have now become a street of palaces, interspersed with a dozen of the principal hotels for the accommodation of the travelling public. In this part of the town,—called the Friedrichstadt, in honour of the royal dynasty,—many new streets were laid out and soon built on, among which is the Friedrichstrasse, running north and south in a straight line for more than a mile and a half, and crossing the Leipzigerstrasse and Unter den Linden at right angles.

In the meantime the public buildings were by no means neglected. It was during this period that the genius of the late architect Schinkel began to shine conspicuously, who erected some of the most beautiful objects that now adorn Berlin, and have tended to confer on the Prussian metropolis the proud name of "Spree-Athen," or Athens on the Spree. Amongst these efforts of Schinkel's genius are the new Museum, the beautiful head-guardhouse in a very pure Doric style of architecture, and the Palace of the Prince (now King) of Prussia. Of the more modern public buildings, the Rathshaus, or Guildhall, is of more colossal proportion than remarkable for the good taste of its architecture, but gives proof of the importance of the municipality of the capital. The new synagogue is a monument of the emancipation of the Jews, and a striking manifestation of the great wealth they have achieved, and the independent position obtained by them under the present liberal system, inaugurated during the nineteenth century. The handsome appearance of the new Berlin Exchange must be familiar to most of our readers, from the beautifully-executed model which formed such a striking feature of the great nave in the International Exhibition of 1862. It is now completed, and may be considered as a significant proof of the flourishing state of the home trade and foreign commerce of Berlin, as the building is erected entirely by voluntary contributions from the mercantile and manufacturing classes.

Among the most recent erections may be mentioned the Wallner Theatre. Its architect, Herr Titz, is not considered a great genius by the rest of the fraternity; but it cannot be denied that he has evinced considerable talent for the composition of designs for buildings on a large scale, and more especially for theatres, in which branch of architecture he has had much experience and a decided success. The Wallner Theatre in architectural design is a work of good taste, and presents an elegant and pleasing appearance viewed from the outside, or with reference to the interior arrangements and general fitting up of the ornamental parts; but complaints are general of its suffering from two imperfections, viz., that it admits everywhere cold draughts of air, and that sufficient attention has not been paid to the principles of acoustics; for, in some parts of the house, the spectators are unable to hear what is going on on the stage.

A striking object in the new quarter called the Köpnicker-Feld, is the new Turn-halle, or hall for gymnastics, erected by the municipality at a cost of 120,000 dollars (about 17,000*l.*), from the designs of Herr Gerstenberg, the city architect. It presents an imposing frontage of 270 ft. in the Prinzenstrasse, by a depth of 70 ft., and is probably the largest hall of the kind in existence, having sufficient accommodation for 600 "turners" to go through their gymnastic evolutions at the same time. 15 ft. from the ground galleries, open to the public, run round the interior of the hall, access to which is obtained by staircases on each side of the entrance porch in the centre of the building. Two side wings are added, the ends of which protruding beyond the line of the principal façade, give the building, with the central porch, somewhat the character of the Elizabethan period. In the same quarter is the club-house of the Association of Handworkers or Artisans, built by Messrs. Kolscher and Lauenburg, and much admired on account of the good taste displayed in its ornaments. Near this is situated the Wilhelm's gymnasium, a high-school endowed by his present Majesty, and built by the King's Court Councillor for Architecture (Hofbaurath) Lohse. It is a building of imposing appearance, with a frontage of 204 ft. and a depth of 77½ ft. The height of the whole, including a handsome stone balustrade that surrounds the flat roof, is 73 ft. In the centre of the principal front (in the Victoria Strasse) is a risalite ornamented with Corinthian columns. The building contains two stories, with ground-floor and basement. The class-rooms are 29 ft. long, 20 ft. broad, and 14 ft. high, and are mostly on the ground-floor. The saloon for the drawing class is on the first-floor, with a north aspect, and its dimensions are 74 ft. length, 18 ft. breadth, and 16 ft. height. On the opposite side is the library, with the same proportions. The great aula, or hall for lectures, is on the same floor; it is 75 ft. in length, 41 ft. in width, and 30 ft. in height.

With regard to the private mansions that have sprung into existence within the last few years, their name is legion, and having all more or less claim to architectural beauty, it would be an endless task to particularise them; but without wishing to make any invidious distinctions, we may be permitted to mention a few of those of the most striking character and appearance. These are the mansion of the banker, Herr Krause, in the diplomatic part of the Wilhelmstrasse, crowned by a beautiful roof in the Renaissance style; the corner house of the Bellevue-strasse, No. 10, belonging to Herr Gerson, executed in the ornamental villa style, though the ground-floor is occupied by spacious and airy shops (Mr. Gerson's establishment being the Swan & Edgar of Berlin, and the crowded resort of the *beau monde* of the Prussian capital); and finally, the residence and studio of the sculpter, Herr Sussmann-Hellborn, in the Hohenzollernstrasse, built from his own designs—the architectural ornamentation being executed in sandstone, from the drawings of Herr von der Hude, in a style closely approaching the Renaissance.

SIENA.

IT is painful for any true lover of art to see how little is known of one of Italy's most artistic towns—Siena; and, indeed, a bad and dirty hotel goes far to make a most interesting place disagreeable. Situated on the brow of a hill, Siena affords such lovely Italian views as Turner must have often gazed upon, sighing that even his immortal pencil could but feebly render the glorious tints which the setting sun throws on the distant mountains, tinging them with that dusty, rosy, violet hue so sympathetic to the eye. Birthplace it is, too, of Razzi, an artist who often rivals, if he does not surpass, Raffaelle in his beauteous contours, and the heads of whose figures show much of the strength of his master, Leonardo da Vinci; yet of him,

as of his native town, little is known, for two reasons,—1. That, having painted principally in fresco, his works are stationary; 2. That Vasari, in whose wake most other writers on the same subject have followed, not being able to separate the immoral man from the noble artist, has not acknowledged his merit. No one, however, who looks at a work of his attentively, can fail to perceive that the labour of a mighty intellect is before him. Take, for example, a fresco of his, which, sawn from the wall of the church of San Francesco, now hangs in the Sienese Gallery of the Belle Arti,—the life-size, half-length figure of Christ bound to the column. Through the centre of the picture rises a veined marble column; and with His back to this, but slightly on the right of it, our Saviour stands bound; while behind the pillar, and a little above His head, an arch, supported by two pilasters, enchapels the figure, and by its sweeping curve sets off the lesser ones of the head and its surrounding glory. The head is inclined towards the left, as also the look, which is slightly downward. A profusion of dark chesnut-coloured hair falls in long disordered ringlets on the shoulders, enshrining a face where majesty and meekness, pity for those who are giving him pain, Godlike beauty, and human fatigue are all mingled; while the eyes,—eyes such as Razzi only could depict,—seem gazing forward with sorrow on future sins, which their present tears are expiating. Drops of blood, too, are on that noble brow flowing from beneath a crown of thorns, which makes the kingly head it lacerates even more majestic. The parted lips show that grief and pain have done their part, but the clustering moustache and beard that there is human strength to support the divine spirit until its enemies have done their worst. The torso is worthy of the head, and the whole rich with the lovely colours to which Siena gives the name. From the clouds in the blue sky in the background there break forth rays of light—the light of promise. How much better would it be if such subjects were treated only by such men as Razzi. In the Uffizi gallery at Florence is a Saint Sebastian by him, one of the very few pictures that treat the subject of his martyrdom at all worthily. At Pisa, in the cathedral, is the Sacrifice of Isaac by him; but it is impossible to judge of his wondrous talent without going to Siena and seeing the frescoes of the Painting of St. Catherine in San Domenico, where the saint patroness of the town (whom the inhabitants hold in even greater veneration than the Virgin Mary) has fainted, and is supported by two other nuns. The descent of Christ into Limbo contains a figure of Eve of surpassing beauty; and in the chapel of S. Bernardino there are several splendid frescoes, as also in the Palazzo della Communità. And when Razzi was, for his bad behaviour, exiled from Siena, the monks of a convent called Monte Oliveto, about five miles off, gave him refuge, and in return he painted their cloisters; and the monks are still, with reason, proud of so splendid an acknowledgment of their order's charity in former days. R. W. SPRANGER.

DURHAM.

IF a bitterly cold day, with alternating sleet and sunshine, could enhance the pleasure of a day in Durham, I have enjoyed it. Despite, however, of occasional overshadowing, and the accompaniment of a most unmusical cutting northern wind, the sky was clear and blue, and the weather bracing withal. Descending the hill from the railway station, and passing down the Castle Chare, the nearest and narrowest inlet to the town from this side, Framwellgate is entered, and presently the old bridge of that name, originally built by Bishop Flambard, in the eleventh century, is reached. Looking up from this spot two objects stand out prominently before you, the grey and grim old castle, and the greater and more grand cathedral, similarly situated on a rocky altitude, its walls and western towers overhanging the river.

The neighbourhood of Framwellgate is rather the lowest and least respectable quarter of the town, as is evidenced by its appearance. Proceeding up Silver-street, the market-place is neared, forming an irregular quadrangle, and which may be considered the radiating point or centre of the town, from which the principal thoroughfares diverge. Within and around this memorial eyelet of "the ancient city of Durham," there are some objects that invite notice.

The equestrian statue of the Marquis of Londonderry, the work of Signor Monti, erected in 1861, is bold in design and successful in execution. The metal depositing process, or electrotyping, was the method employed in this instance. The statue, though an ornament to the town, still from its position, owing in some measure to the contracted area, and incline of the market-place, is not seen with effect.

Equally noticeable is the handsome public fountain close by, replacing the ancient one called the "Pant." In design and execution it is superior to most of those I have met with in the north, and is admirably adapted to subserve the purposes for which it was constructed. Its ornamentation agreeably harmonises, and even the gilt effigy of Neptune, with his trident, which belonged to its predecessor, though somewhat *outré*, is, perhaps, not altogether out of place, on the score of antiquity and association.

The Town-hall and corporate buildings on the west side of the Market-place present some features, internally, of an ornamental character, which possess a local interest;—wainscoted walls and panelling, on which are blazoned the arms of county families, and stained glass windows, with designed representation of the bishop of the diocese. One of the central lights displays King Edward III., with his barons, thanking the citizens for their loyalty. Suspended coats of arms, and portraits judiciously hung, are made to produce an effect. The old Town-hall, which is reached from the former, is transformed into a police-court, with a police station beneath.

The streets which severally lead from the Market-place, are Claypath, and its continuation Gilesgate on the east; next, Fleshergate and Elvet Bridge, leading to Old Elvet and New Elvet, and Silver-street, through which we entered the Market-place. Gilesgate is a long, irregular thoroughfare, consisting mostly of an assemblage of low-built houses, not very uniform in design, though somewhat kindred in social aspect and stability. It is mostly represented by the shopping interest. There is nothing particularly deserving of notice in this long and straggling thoroughfare, save the old parish church of St. Giles: at the head of the street a very ancient but rather rude specimen of architecture. The square tower is a prominent object, and has undergone additions and emendations at different periods.

The streets bearing the name of Old Elvet and New Elvet contain nothing in any way conspicuous. The former is a respectable quarter, but very lifeless and dull, and the latter is a winding and irregular incline not counterbalanced in the least by its street architecture or general appearance. It branches at its head into two high roads.

At the top of Old Elvet, in an open space on the right, are the County Courts and Gaol,—a low flat building with centre and wings; Tuscan pilasters support the pediment, but on the whole it is a blank, featureless, and forbidding-looking pile, undeserving a note.

I know of no town from its size so well supplied with churches as Durham. There is a perfect glut of them. There are seven parish churches, three Roman Catholic ones, and four belonging to other denominations. Most of these have nothing in particular calling for special remark.

But of churches, all else here of the architect's brain and the craftsman's skill sinks into insignificance before the overwhelming proportions and rude grandeur of Durham Cathedral.

Inside more than outside, as one strays along, bewildered at first sight, through nave, and aisle, and transept, and choir, you feel an oppression of weight upon you; and you must walk, and walk, and gaze, and carefully scan, before you can form an opinion even to satisfy yourself of the stupendous building that encloses you. Above, below, and around, wherever you look, each part is herculanean in conception and construction. Hands have taken from it and hands have added to it, but it is still here; mighty as a whole, gigantic in progressive design and execution.

Look at these massive columnar piers that support the nave on each side: do they not appear more proportionally massive than they need be? Ay, and they alternate in design and ornament as they do also in range; and yet they are made to harmonise, and they do. Furrows cut their shafts, from base to capital, into zig-zag, spiral, and network channelling, and they stand still out in as bold relief, mimicking time as of erst.

But I need not venture into details. In the Lady Chapel Choir, and that portion called "The Nine Altars," the work of later times, yet hardly greater men, much may be seen. The construction of the great central tower has some remarkable peculiarities: the additions of different periods may be plainly traced; and in "The Nine Altars" great irregularities, but with much manifest beauty, are apparent.

The vicissitudes to which Durham was subject during many reigns destroyed much of her monumental as well as her purely architectural splendour. Bishop Hatfield built his own magnificent tomb in the fourteenth century: its canopy since his time has served as a throne for his successors in the cathedral; and it was during his time that the cathedral obtained the beautiful Neville screen, whose delicate fairy-work forms such a conspicuous background to the high altar.

A memorial tablet beside the door of the lady-chapel tells of Sir George Wheeler, the traveller and antiquary of the seventeenth century, and there is a monumental slab, of Robert Neville, in the south aisle: he was once bishop here, in the fifteenth century. Farther east is an altar-tomb of Ralph Lord Neville, said to be the first layman who found repose here. Another altar-tomb of the Nevilles, that of John Lord Neville and his wife, is here, but much defaced, as are others erected in the same times. A modern altar-tomb commemorates Dr. Britton, erected by his pupils: the drapery is well rendered; the pedestal wants fulness.

In the middle transept a marble tablet against the wall commemorates all of the 68th (Durham) Light Infantry who lost their lives during the Russian war. Close by is a very fine statue of Bishop Barrington, in a kneeling posture, by Chantrey. About here are other minor monuments of local interest.

In "The Nine Altars," stands the colossal figure of Bishop Van Mildert, in white marble, executed by our late great sculptor, Gibson. This bishop was the last who wielded the great powers of Prince Palatine. Since his death the great prerogatives of this see have been vested in the crown.

One would linger longer within, communing with the past, where the bones of St. Cuthbert and "the Venerable Bede" repose; but our hurried look must end. The castle is soon reached: the present structure is scarcely older than the eleventh century, but the additions and alterations it has undergone, under the sway of different bishops, has changed its original features. Its position was a well-selected one, with a view to defence; and it may be said that the history of the castle is in part the history of the cathedral and its bishops, for they have for centuries occupied it, altered it, and ruled in it. There is much that will provoke as well as satisfy antiquarian curiosity within its walls, but a description is not my province just now.

Norman architecture is conspicuous all through it. The numerous apartments within the castle are mostly occupied now in connexion with the University. Her Majesty's judges have state apartments here allotted to them.

The University of Durham, the creation of late years, is still an unsuccessful experiment. Many reasons might be adduced as the cause; want of good management for some years, might explain it in part, and the facilities now available, in reaching the old-established universities of the county, and the prizes and the honours connected therewith, may be another reason why the Durham foundation has not thrived. Durham has besides for educational purposes a grammar school, a blue-coat school, a diocesan training college, a training college for young females, and a ragged school.

Durham is also provided with a county hospital and a penitentiary. The hospital appears to have no officially appointed chaplain, but a clergyman connected with the University attends. Why not officially appointed clergymen?

The public wants of the town are catered for in a literary way by an Athenæum and Mechanics' Institute, and reading-rooms. The Institute appears not to be a very thriving concern. To the library of Bishop Cosin, on the Green, admittance is gained by the public under conditions. The Dean and Chapter library, and the Queen-street subscription library, are also available in a manner to the public. These, with a School of Art, which I have not seen, and some parochial schools and reading-room, speak pretty well for an inland town like Durham.

The sanitary condition of Durham, though not irreproachable in some spots, bears favourable comparison with other places north. It has

few of those barbarous lanes that disfigure, and which are a disgrace to, such towns as Newcastle and Sunderland. Although the streets are narrow they are kept pretty clean, and the baths and wash-houses in the town are ancillary in their way.

Durham never was fitted by position or shape to be a great emporium of trade, and the railways which of late years opened up other towns and cities and gave them a great manufacturing stimulus, but little disturbed the slow progressive trade of this ancient city. Law, physic, and education, are represented well, as is religion; all in a purely commercial way is small. Though coal-mines are plentiful in and around the county, their existence adds little impetus to those branches of trade that they ought to create and develop.

Some small foundries of iron and brass exist, some flour-mills, a carpet manufactory, and a little is done in the hat, rope, tanned hides, and mustard manufacture. The making and consumption of beer seem to be the best trade,—nearly a hundred public and beer houses attest the fact. Drunkenness is pretty rife in the town, and the magistrates are kept busy betimes in dealing with cases attributable to drink alone.

There is another very tasteful drinking-fountain on the North-road, near the railway viaduct, and convenient to a very steep hill laid out by the kindness of a resident gentleman for public recreation, and called after him Wharton Park. An obelisk erected by the same gentleman is not far off, and, together with an observatory in connexion with the university, adds to the attractiveness of the old city.

Of new building operations or improvements at present Durham exhibits no sign, nor does the city show on its face, as far as I could see, any appearance of extension; nor is it likely, judging by past progress, or present capacity. Notwithstanding her possession of those institutions which have been enumerated, the limit as a town is strangely small and contracted for a place with such a history. In situation Durham has beauty and picturesqueness to a degree even now discernible through the herald shades of spring, that summer will develop; but her fame must live, as it has lived, in the history of her cathedral.

Cities, as well as individuals, possess a commendable pride betimes; may ancient Durham still retain it, and may it lead her to increased activity and prosperity. C. C. H.

THRUST OF GOTHIC ARCHES.

THE theory of the arch has generally been presented in so complicated a form, and in connexion with such intricate formulæ, that practical men have paid very little heed to the investigations of mathematical writers, and have preferred relying on their own experience and sagacity. In a recently published treatise on the arch, by Captain Woodbury, of the United States Engineers, formulæ have been obtained, by which a person having a moderate algebraical knowledge, may calculate the thrust of arches, semicircular, segmental, or elliptical; and may also find the requisite thickness of pier for any given span of arch. A full account of this method, and the mode of applying the formulæ, is given in Fenwick's "Mechanics of Construction." As, however, these books are written more especially for the benefit of engineers, the thrust of Gothic arches is altogether omitted; although any one who thoroughly understands the principles on which the formulæ are deduced for the semicircular arch, will have no difficulty in applying them to the pointed arch, the general method being the same, but requiring modification to meet the peculiarities of the case.

Before proceeding to the case of the pointed arch, I will just refer to the method of investiga-

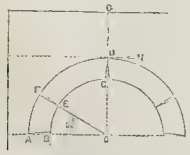


FIG. 1

tion adopted for the semicircle. Fig. 1 represents a semicircular arch of thickness CD, with surcharge DG. Then if ABCD is one-half of arch, the thrust of the other half may be represented by the horizontal force N, acting at D. The tendency of the arch is to break up by the sinking of the crown, and the spreading of the haunches, producing an opening of the joints CD, FE, and AB. Let FE be any joint in the haunch of the arch; then, if Px is the moment of the weight of the portion FECD, and its surcharge, taken with respect to E, and y is the vertical distance of the line ND from E, the equation for equilibrium with respect to the joint FE, is $Ny = Px$. Now, the thrust on the different joints will increase as we pass from CD towards AB, until it reaches its maximum, say at FE, when it diminishes from FE to AB.

The above equation having been developed in terms of the angle which the joint FE makes with the horizontal, N can be calculated for different values of that angle until the greatest value of N is found. In the case of the semicircular arch, N is found to be greatest when FE makes an angle of 30° with AO.

I now proceed to deduce formulæ for the thrust of the Gothic arch. Figs. 2, 3, 4, represent the three types of the Gothic arch, and the method of finding the value of Px is as follows:—

Multiply the area of the rectangle HM by the horizontal distance of its centre of gravity from E; add to this the area of CT multiplied by the horizontal distance of its centre of gravity from E; add again the area of the triangle FTO multiplied by the horizontal distance of its centre of gravity from E; then deduct from the sum of these the area of triangle CVO multiplied by the horizontal distance of its centre of gravity from E; and also deduct the area of the sector EOC multiplied by the horizontal distance of its centre of gravity from E. The remainder multiplied by the weight of a cubic foot of masonry gives the value of Px, which divided by YE or y gives the value of N.

The following is the algebraical expression for Px and y as found in the foregoing manner:—

$$\begin{aligned}
Px = {} & \delta \left\{ \left(k + h \cdot \sec.\, \alpha + r \cdot \cos.\, \alpha - (r+h) \cdot \cos.\, (\alpha+\theta)\right)\right. \\
& \times \left((r+h)\ \sin.\ (\alpha+\theta) - \tfrac{1}{2} r\right) \\
& \times \left(\tfrac{1}{2}(r-h)\ \sin.(\alpha+\theta) - \tfrac{1}{4} r\right) \\
& + \tfrac{1}{2} r^2 \left(r \cdot \cos.\, \alpha - (r+h)\ \cos.\ (\alpha+\theta)\right) \\
& \times \left(\sin.\ (\alpha+\theta) - \tfrac{1}{3}\right) \\
& + \tfrac{1}{2}\ (r+h)^2 \left(\tfrac{2}{3} r - \tfrac{1}{2} h\right)\ \sin.^2 (\alpha+\theta) \cos.\ (\alpha+\theta) \\
& + \tfrac{2}{3} r^3 \sin.\ \tfrac{1}{2}\theta \cdot \sin.\ (\alpha + \tfrac{1}{2}\theta) \\
& + \tfrac{1}{12} r^3 \sin.\ \alpha \cdot \cos.\ \alpha \\
& \left. - \tfrac{1}{2} r^3 \cdot \sin.\ (\alpha+\theta)\ (\theta + \sin.\ \alpha \cdot \cos.\ \alpha) \right\}
\end{aligned}$$

$$y = h \sec.\, \alpha + r\left(\cos.\, \alpha - \cos.\, (\alpha+\theta)\right). \quad N = \frac{Px}{y}$$

In these equations k = GD, the height of the surcharge; h = FE, the thickness of the arch; r = OE, the radius; δ = weight of 1 cubic foot of masonry of the arch and its surcharge; α = angle COV, θ = angle EOC.

We thus get N the thrust on the joint FE, as soon as we know the value of α and θ. The value of α is given with the particular arch; in fig. 2 it is 15°; in fig. 3, 30°; in fig. 4, 45°. And θ is that value of the angle EOC which gives the greatest value to N, as calculated from the foregoing formulæ; so that, in order to find θ we must give it various values in the foregoing equations, until we find a value which makes N a maximum. This is a very laborious proceeding; and in order to assist the application of the

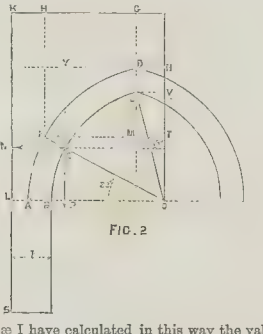


FIG. 2

formulæ I have calculated in this way the value of θ or EOC in the three cases which are most generally useful.

In fig. 2, the angle EOC = 47°, or the angle EOB = 28°, which is only 2° lower than in the semicircle, which might be expected from the form of the arch. In fig. 3, I find the angle EOC = 44°, and therefore EOB = 16°; and in fig. 4, I find EOC = 35°, and therefore EOB = 10°.

The next thing is to calculate the thickness of the pier or abutment BS necessary to balance the thrust N. To do this, we may suppose, by the laws of mechanics, that the forces N and P act at E, and then proceed to equate their moments taken about the outer edge S of the pier. Then if Q = weight of pier BS, and t its thickness; R = weight of KHFEBL, and c the horizontal distance of its centre of gravity from S; P = the weight of HGCEF, and a the horizontal distance of its centre of gravity from S; N the maximum thrust as calculated previously, b = the vertical distance of the direction EN from S, σ the co-efficient of stability; we have to determine t from the equation,—

$$Nb\sigma = Pa + \tfrac{1}{2} Qt + Rc.$$

If we call H the height LS of the pier, then $b = H + r \cdot \cos.\, (\alpha+\theta)$.

$$\begin{aligned}
P = {} & \delta \left\{ \left((r+h)\ \sin.\ (\alpha+\theta) - \tfrac{1}{2} r\right)\right. \\
& \times \left(k + h \sec.\, \alpha + r \cdot \cos.\, \alpha - (r+h) \cdot \cos.\, (\alpha+\theta)\right) \\
& + \tfrac{1}{2} r \left(r \cdot \cos.\, \alpha - (r+h) \cdot \cos.\, (\alpha+\theta)\right) \\
& + \tfrac{1}{3} (r+h)^2 \sin.\, (\alpha+\theta) \cdot \cos.\, (\alpha+\theta) \\
& \left. - \tfrac{1}{4} r^2 (2\theta + \cos.\, \alpha) \right\}
\end{aligned}$$

$$a = r\left(1 - \sin.\, (\alpha+\theta)\right) + t$$

$$\tfrac{1}{2} Qt = \tfrac{1}{2} \delta \cdot H \cdot t^2$$

$$\begin{aligned}
Rc = {} & \delta \left\{ \tfrac{1}{2} \left(r + t - (r+h)\ \sin.\ (\alpha+\theta)\right)^2\right. \\
& \times \left(r \cdot \cos.\, \alpha + h \cdot \sec.\, \alpha + k\right) \\
& + \tfrac{1}{2} (r+h)^2 \left(r + t - \tfrac{8}{9} (r+h) \cdot \sin.\, (\alpha+\theta)\right) \\
& \times \sin.\, (\alpha+\theta)\ \cos.\, (\alpha+\theta) \\
& \left. - \tfrac{1}{2} r^2 \cdot \beta\, (r+t) + \tfrac{1}{3} r^3 \cdot \cos.\, (\alpha+\theta) \right\}
\end{aligned}$$

β being the *circular* measure of the angle EOB.

We can now (having calculated these quantities for any particular case), by forming the equation,—

$$Nb\sigma = Pa + \tfrac{1}{2} Qt + Rc,$$

obtain a quadratic equation in which t is the only unknown quantity, and which can be solved in the usual manner.

As the above formulæ are rather complicated, and require a knowledge of trigonometry, as well as algebra, for their application, I now pro-

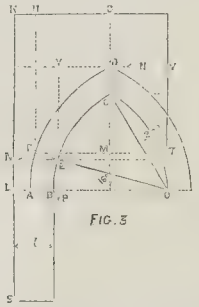


FIG. 3

ceed to simplify matters by reducing them all for the equilateral arch (fig. 3).

In this case, $\alpha = 30°$, $\theta = 44°$, $\beta = 16°$.

$$\begin{aligned}
Px = {} & \delta \left\{ k\ (\cdot 10637\ r^2 - \cdot 462\ h^2) + \cdot 01338\ r^3\right. \\
& \left. + \cdot 12285\ r^2 h - \cdot 27274\ rh^2 - \cdot 4487\ h^3 \right\}
\end{aligned}$$

$$y = \cdot 59036\ r + 1\cdot 155\ h, \quad N = \frac{Px}{y}$$

From these we obtain N in lbs., when δ is given in lbs.

Now to find the equation for t.

$$Nb\sigma = 2\ N\ (H + \cdot 27564\ r) = Pa + \tfrac{1}{2} Qt + Rc$$

The *co-efficient of stability* σ, being generally taken as = 2.

$$\begin{aligned}
P = {} & \delta \left\{ k\ (\cdot 46126\ r + \cdot 96126\ h) + \cdot 0995\ r^2 + 1\cdot 1\ rh\right. \\
& \left. + \cdot 9775\ h^2 \right\}
\end{aligned}$$

$$a = \cdot 03874\ r + t \qquad \tfrac{1}{2} Qt = \tfrac{1}{2} \delta \cdot H \cdot t^2$$

$$\begin{aligned}
Rc = {} & \delta \left\{ t^2\ (\cdot 5k + \cdot 433\ r + \cdot 577\ h)\right. \\
& + t\ (\cdot 02639 r^2 + \cdot 03874\ rk - \cdot 52275\ rh \\
& - \cdot 9778\ h^2 - \cdot 96126\ hk) \\
& + k\ (\cdot 0075\ r^2 - \cdot 03724\ rh + \cdot 462\ h^2) \\
& + \cdot 00633\ r^3 - \cdot 01332\ r^2 h + \cdot 23487\ rh^2 \\
& \left. + \cdot 4487\ h^3 \right\}
\end{aligned}$$

The merest tyro in algebra could calculate these formulæ.

As an example, I will take the equilateral arch when $r = 10$ ft., $h = 2$ ft., $k = 5$ ft., $H = 10$ ft., $\delta = 150$ lbs. Then $P\varpi = 10109{\cdot}4$, $y = 8{\cdot}2136$, $\therefore N = \frac{P\varpi}{y} = 1{,}231$ lb.; $P\alpha = 3993 + 10280t$, $\frac{1}{2} Qt = 750t^2$; $Rc = 1198t^2 - 2985t + 3888$, $N\iota\sigma = 31393$.

Equating, we have to find t from $1948\ t^2 + 7295t - 23512 = 0$; whence $t = 2{\cdot}1$ ft.

If $H = 20$ ft., the equation for t becomes $2698t^2 + 7295t - 48132 = 0$; whence $t = 3$ ft.

The following table gives the value of t calculated from the above formulæ for various values of r, h, k, and H, δ being in all cases taken as 150 lb.:—

Table of minimum Thickness of Pier to balance the Thrust of an equilateral Arch.

No.	r	h	k	H	t
1	10 ft.	2 ft.	5 ft.	10 ft.	2·1 ft.
2	...	...	...	20 ,,	3·0 ,,
3	20 ,,	3 ,,	10 ,,	20 ,,	5·1 ,,
4	...	...	...	30 ,,	6·3 ,,
5	30 ,,	4 ,,	20 ,,	30 ,,	8·6 ,,
6	...	...	...	40 ,,	9·95 ,,
7	40 ,,	5 ,,	20 ,,	40 ,,	11·03 ,,
8	...	...	...	50 ,,	12·3 ,,

In the arch, fig. 2, the thrust is very much greater for a given *radius*, and the thickness of pier must be proportionally increased.

Calculating the general formulæ with $\alpha = 15°$ and $\beta = 28°$, Nos. 1 and 2 of the table give $t = 3{\cdot}32$ and $t = 5{\cdot}44$; but the *span* in this case is much greater than the *radius*, and when

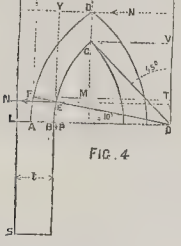


FIG. 4

$r = 10$ ft. the *span* is 14·8 ft. In the arch, fig. 4, the thrust is much less for a given *radius*, and the *span* in this case is less than the *radius*. The results, however, given by the above formulæ, which I have reduced for the equilateral arch, will be found sufficiently near for either of the three cases, provided the *radius* r is always taken as equal to the *span* of the arch for which the calculation has to be made. The same *general* formulæ can be applied to the semi-circular arch by making $\alpha = o$, $\theta = 60°$.

I have not taken into account the adhesion of the mortar at the joint FE, for as Captain Woodbury remarks, "in arches of large span, the effect of mortar becomes insensible; and in arches of small span, this effect may reduce the thrust to nothing."

The thrust of the ribs of Gothic vaulting requires to be treated quite distinctly, as they have no surcharge, being loaded only at the haunches. I must reserve the consideration of these for another paper.

E. WYNDHAM TARN, M.A.

MODERN ITALIAN ART.

THE Society for the Encouragement of Fine Art, in Florence, has for some time kept an exhibition open in that city, with a new arrangement, professedly admitting those only who take shares, but *de facto* enforcing nothing else than the simple payment of one franc for entrance, or as many more francs as one may choose to take of these shares so cheaply rated. It is not to be denied that, generally speaking, modern art-exhibitions, as well as modern opera music, in Italy, prove most disappointing, and quite below the high standards created for herself by this classic land. We are accustomed to think of the Italy of the day as in a phase decidedly progressive; but is this verified in her artistic as in other walks of activity? Less so, we believe; and yet we should answer that question in modified affirmative, having received the impression that the impulse and feeling now manifest in this country's art, taking it at its best, are indeed fraught with promise; and that, especially in landscape, enthusiasm and love for nature are now operating, and will create a school far superior to any of the past. We have, indeed, some displays at Rome and Naples that would scarcely pass muster in any provincial town of Great Britain; where pedantic conventionality, exaggeration, and falsity have been the prominent characteristics of both landscape and figure painting; where scenes from nature in no way reminded of nature, and historic groups only suggested the idea of the hired model or *tableau* on the stage. In the now open rooms of the Tuscan *Società Promotrice*, we observe the same tendencies, in part now, or at least newly prominent, the prevalence of which in Italian art of recent years we have formerly had occasion to report on, and which are, on the whole, encouraging, laudable, though they have not yet brought forth the higher results to be hoped for. We perceive the increasingly earnest study of wild nature, both in her lovelier and sterner aspects; the judicious preference for subjects from that most fertile field, Italy's own Mediæval history, or from the pages of native poets, to the setting aside of those worn-out themes from Greek and Roman antiquity; marked predilection also for scenes become historic on the page of this country's recent annals, as the battles of the campaign in '59; also a taste for the pleasant familiarities of humble every-day life in the cottage, or among the labourers in the field, by the canal, or in the workshop; and withal a noticeable neglect for the old favourites of the devotional school; scarcely a Madonna to be seen, and an absolute deficit of scenes from legends of saints, the few sacred subjects that are attempted being usually among the least meritorious and feeblest in treatment.

On the ground-floor of the same establishment another modern collection is now to be seen, consisting of pictures formerly in a grand-ducal palace, and afterwards in the upper rooms of the Dogana, where we found them about two years ago; most conspicuous among which are the "Entrance of Charles VIII. into Florence," by Bezzvoli, and the "Abdication of the Duke of Athens," by Ussi, a picture that made a sensation sufficing at once to bestow fame on its artist. The very effective (if not natural) grouping in that composition has lately been produced with all possible skill and success as a *tableau vivant* in ballet-spectacle at the Pugliano Theatre in Florence. Two pictures by Mussini, director of the Academy at Siena, were lately exhibited at the Florentine Accademia, in a room destined for this separate display; a full-length (cabinet size) of the king holding the sword, as just presented to him (in 1860), of Castruccio Castracani; and the "Beata Bonizella," a saint of the fourteenth century, unknown, we believe, out of Tuscany, as to whom legends tell us of a waxen chalice found in her dead hands when her tomb was opened, there preternaturally wrought by the marvellous labour of bees!—the royal portrait more remarkable for the able working-up of accessories in a palace-interior than for any other qualities; the figure of the saint in rich costume on a golden ground, exemplifying a pre-Raffaellite minuteness of elaborate finish, and a high-wrought expression in the extatic countenance that suggested the artist's familiarity with Beato Angelico; as to colouring, both pictures, indeed, sufficiently distinguished to vindicate a high place for Mussini.

The Florentine Philo-dramatic Society promises a series of performances, in the object of defraying costs for a monument to Goldoni, with a statue in marble from the plaster, by Cambi, which was exposed to temporary publicity on one of the bridges during the Dante Festival there last spring; and we are glad to learn that the same society also promises its exertions towards accomplishing a long-intended monument of Niccolini, for erection in S. Croce.

THE SOCIETY OF BRITISH ARTISTS.

THE exhibition in Suffolk-street for the current year consists of 761 paintings in oil, 326 water-colour pictures, and 10 pieces of sculpture, in all 1,097 works. The water-colour room makes an excellent show, superior to its usual aspect, and serves as a fresh indication of the spread of the practice of water-colour in art in England. Perhaps, too, outsiders feel they have a better chance here than in the inner rooms, where the members of the Society, all painters in oil, of course have paramount claims for space. The staple of the Exhibition is very much what it has been for several years past. There is little of great power, but many agreeable pictures. 18, "An Old Normandy Fishing Town," J. J. Wilson, is the best picture the artist has exhibited for some time. The water good, as usual, and the landscape better. 42, "The Windmill. Evening," G. Cole, is a rich effect of sun-set:—

> "Hung o'er a cloud above the steep that rears
> Its edge all flame, the broad'ning sun appears."

54, "The Ship-boy's Letter," T. Roberts; 105, "Life in Death," P. Levin; and 112, "Is it a Purse or a Coffin?" Frank Holl, jun., are all successful to the extent aimed at. In the last a poor famished child has found her way to the fireplace of a well-furnished room, and is pondering the question that gives title to the picture. How she got there is not clear, unless we are to suppose it, from some canvasses indicated, the studio of the painter. 205, "Resting at the Plough, on the Downs near Beachy Head," is a very good specimen of Tennant's art: he exhibits, of course, many others. 213, "Passion and Principle," E. C. Barnes, has a story, and tells it not ill. 235, "Straw Rope-making in the Highlands," Mrs. Margaret Robbinson, shows force and power that excuse some minor shortcomings. 221, "Neapolitan Peasants," J. Noble, 285, "The Shy Lover's Prompter," H. B. Roberts, and Lidderdale's "Spanish Lady" 352, have all marks against them in our catalogue. Messrs. Cobbett, Fyne, Woolmer, Clint, and Baxter do exactly what our readers know they can do; and J. J. Hill gives in 83, though not a "Gleaner," an elegantly-painted head.

RAILWAYS AND THEIR MAKERS.

THE position and practices of some of the railway contractors, in relation with their "directors," are beginning to force themselves on public attention, and not before this was necessary. The actual state of things has long been well known to those in any degree behind the scenes, although not dreamt of by the general public. What a history it would make if the whole story could be brought to light. Would all the engineers come out of the inquiry scathless? Perhaps not. The system has now been brought to such perfection, that the contractor is "master of the situation;" and even in cases where some of the directors fancy, good easy men, that they are controlling and making bargains and so forth, the contractors are having it all their own way by the voices of their nominees on the board. "Nominees on the board!" says Rusticus; "why, what do you mean?" Exactly what we say, good innocent. There are several very clever men who sit as directors, simply and entirely as representatives, under the rose, of certain great contractors; have received their "qualification" from them, and act only in their interest. Oh! it is a wonderful system, and a wonderful story. Railways, on the whole, do not pay so *very* well as investments; but individuals have made nice large fortunes out of them.

NEAPOLITAN STEPS IN SCIENTIFIC MATTERS.

THE annual address delivered at Naples to the members of the Royal Institute for the Encouragement of Natural, Economical, and Technical Science, by the perpetual secretary, Comm. Francesco del Giudice, gives a retrospect of last year's endeavours to utilize the revelations of science and to obtain further secrets and wealth from the storehouses of nature. At the head of the year's progress he places the successful efforts of Sig. Gennaro Mascolo to manufacture refined steel at his works in Naples. Deeming steel one of the powers of nations, the Institute conferred a silver medal upon Sig. Mascolo as a token of appreciation of his patriotic experiments. An improved compass, by Prof. Leopoldo di Majo, made by the distinguished mechanician Saverio Gargiulo, is next mentioned with commendation as being especially qualified to note magnetical deviations on board iron-clad ships. Considerable importance is attached to the Professor's improvement. An apparatus,

by Sig. Luigi Caccese, consisting of a stove able to maintain an equable heat, superior to that of the ambient atmosphere and less than 100°, was submitted to the Institute. A siver medal was assigned to Sig. Giovanni Mollica for progress in ceramic art; and to Sig. Luigi Fosca, for movables made of the calcareous bitumen of Ragusi; and Sig. Basilio Scariano, for a new instrument for the more exact cutting of clothes, medals in bronze were decreed. The Institute accorded praise to the musical instruments of Cav. Antonio Fummo, and more especially to his *pianomelodico*. In minor matters, a proposition to measure the heights of buildings from a determined station-point, by Sig. Rossi; a machine for raising water, by Sig. Giuseppe Liguori; and an economical furnace, by Sig. Salvatore de Luca, are mentioned as worthy of recognition.

In the course of the year the director of the Botanical Gardens, Professor Gasparrini, has made, at the instance of the Institute, experiments and observations upon the cultivation of cotton, in furtherance of a view entertained in Italy of the possible aggrandisement of the country by this introduction. Some seeds of the Minister of Agriculture and Commerce have been sown successfully; and some additional information on the subject has been given by Comm. de Vincenzi, the director of the Industrial Museum at Turin.

A proposal was taken into consideration by the Institute as to the expediency of planting trees in appropriate sites in Naples, and particularly as to the alleged injury to the eyes from the down of plane trees. Three associates reported that the supposed danger did not exist; whereupon the planting of the city with planes was recommended, for the sake of the beauty of their appearance, their shadow, their rapid increase, hardihood, and adaptability to any soil, as well as for the worth of their wood.

In reply to a communication from the Minister of Agriculture and Commerce, a committee was appointed to inquire into the nature and cause of a disease of the grape, and forward him specimens of it; and a memoir by an associate, Sig. Gasparrini, and specimens gathered by Associate Semola, were forthwith transmitted to him. The same minister having informed the Institute that a disease among cereals existed in some parts of Italy, which was showing itself most markedly in wheat, an inquiry was made, which ended in the conclusion that it was not of sufficient importance to merit his solicitude, nor that of the Institute.

A third communication from the same minister invited the Institute to compose certain forms of instruction for the guidance of Signori Cav. De Filippi, Senatore del Regno, and Prof. Giglioli, in a visit they are about to make to Japan and China, previous to the drawing up of treaties of commerce with those distant nations; and Associates Costa, president, Gussone, Gasparrini, Scacchi, Del Giudice, Costa Achille, and Novi, were appointed to determine which of the products or industries of those countries could be advantageously introduced into Italy.

In speaking of the services of the president in the fosterage of science and industry, the secretary remarked that this year he had presented to the Institute some specimens of calcareous bitumen, for the purpose of enabling its members to consider the possibility of manufacturing that substance into various articles of ornament or luxury. He also presented specimens of the wood of Tuga, famed for its fine polish, with a view of showing the desirability of its culture; besides some specimens of minerals from Monte Cairo.

The vice-president had obtained a new salt in the course of the year, besides having made various experiments with the oil from the seeds of cotton.

The Institute, having observed in the Industrial Exhibitions of London and Paris that the porcelain ware, imitating Parian marble, is one of the most important ceramic productions, rivalling those of Sèvres and Dresden; and that the names of Kühn, Copeland, Battan, Minton, and the workshops of Creil, Bordeaux, Serraguemines, and Choisy le Roi are held in deserved esteem, has endeavoured to ascertain whether it is not possible to establish this manufacture in Italy, especially as the traces of iron contained in the local *caolini* are likely to yield the particular tint which characterises Parian ware. An inquiry into the industries of Europe, with a view of turning to account the natural resources of Italy by the introduction of any that promise to use them, or in any other way to turn them to the advantage of the country, has occupied, and still occupies, the attention of the Institute; and the compilation of a theoretical and practical manual on social economy, to serve as a guide to the technical societies of the country, is likewise still under consideration.

To complete his rapid review of the proceedings of the year, the secretary then gave a list of all the memoirs laid before the Institute, with a running commentary upon their contents. It will be seen that the bounteousness of the soil and climate is much relied upon as a means of adding to the national wealth. Sig. Giuseppe Frojo furnished information concerning the filbert-tree (*Corylus Avellana*), showing its large consumption and export, and recommending its extended cultivation as a further source of profit. Four associates, Del Giudice, Giordano, Scacchi, and Novi, wrote upon the ceramic art of the Neapolitan territory, showing the cause of its decadence, the means of reviving it, giving the seats of its former manufacture, divining the materials which yielded the superb colours of ancient ware, and expressing hope that the clay of the potter should again make Italy a giant in the eyes of nations. Sig. G. Gasparrini sent notices of an Australian myrtle, the wood of which is of value, and capable of resisting the vicissitudes of the climate. The president contributed geological and paleontological notes upon Terminio, which will form part of a geological *carta* of the Neapolitan province. Signor Giuseppe Costa gave an account of an insect which damaged the cotton product, with suggestions to destroy it. The associates Giordano, Minichini, and Presutti made a communication respecting the mineral waters of the province, the temperature of which varies from 15° centigradi to that little short of boiling heat. Associates Presutti and Briganti ransacked the history of man from his savage state, to give a succinct account of the various modes of dressing skins. Asphalte and the purposes to which it can be applied furnished the subject of another communication. The grape disease and the cotton malady were also treated at length. Signor Leopoldi di Maio gave a written account of the compass, for which he obtained a prize; and, in December, the last contribution but one of the session was made by Signor Achille Costa, upon the silkworm of the oak of Giappone. The last communication related to the steam stove, with electro-magnetic regulator, of Sig. Caccese, before mentioned.

Science suffered two severe losses in Naples last year, in the deaths of the associates Giovanni Semmola and Francesco Briganti. The former was the author of thirty-nine works, chiefly bearing upon medicine and chemistry: of the latter, who was scarcely less industrious, the secretary remarks, towards the conclusion of a lengthy panegyric, that between the spectacle of war, epidemics, and social catastrophes, it was refreshing to perceive a man of science so devoted to the benefaction of humanity.

THE FIRST STONE BUILDING IN MADAGASCAR.

MEMORIAL CHURCH, AMBATONAKANGA ANTANANARIVO.

THIS church, in progress under the superintendence of Mr. James Sibree, jun., architect, is constructed of local stone, a kind of granite, a great part being quarried on the spot. The style adopted is an adaptation of Norman, simply treated so as to suit the rough character of the material, and the inexperience of the native workmen. The building consists of a nave and aisles, divided by massive circular stone columns and arches. The northern end is terminated by an apse, beyond which are ministers' vestry and class-rooms. The south, or chief end, facing the city, has a tower and spire at the east angle, rising to between 80 ft. and 90 ft. in height. A clock and bell, the gift of two English ladies, will be placed in the upper stage of the tower. Two large and deeply-recessed circular arched doorways give access to the interior. Over the centre doorway is a triplet of circular-headed windows, which will be filled with stained glass made by Messrs. Heaton, Butler, & Bayne, who also supply coloured glass for the circular apsidal lights. The side windows are to be filled in with tinted rolled glass in leaded quarries, and with louvring, in order to provide thorough ventilation in the hot season. The roof, which is hammer-beam in construction, will have the timbers partly exposed and boarded beneath the collar-beam. A platform will be formed in the apse, with communion enclosure in front. The church will be partly seated with open benches, and the rest of the space left free to suit the native custom of sitting on mats laid on the floor, which is preferred by the mass of the people to a raised seat. The internal dimensions, exclusive of vestibule and apse, are 74 ft. long by 46 ft.;—external dimensions, including vestries and tower, 106 ft. by 54 ft.;—height of side walls, 17 ft. 6 in.; to ridge, 43 ft. A gallery will be formed over the vestibule and the bay of the nave. The building is expected to accommodate with comfort 1,000 to 1,200 people. The church is to be roofed with tiles, made under the direction of Mr. James Cameron, who has also superintended the carpenters' and joiners' work. From the commencement great and unusual difficulties have been encountered in the undertaking. It is the first stone building of the kind yet erected in the Island of Madagascar; the workmen have, therefore, had to be taught the most simple matters of detail. But the greatest hinderance has arisen from the peculiar state of society existing in Madagascar, by which all skilled labour is liable to be taken for indefinite periods, not only by the sovereign, but by the higher officers of state. The church is built under the auspices of the directors of the London Missionary Society. This is the first of four intended to be erected in the capital.

ST. JAMES'S EPISCOPAL CHURCH, LEITH.

SOME three or four years ago the enthusiastic Gothicists in this neighbourhood were in a flutter of delight at the idea of Mr. Gilbert Scott having been employed as architect for St. James's Episcopal Church. "Now," said they, "you'll see what a really good Gothic church is." The church is completed, and the bright anticipations have resulted in disappointment. It cannot be expected that Mr. Scott can bestow equal attention upon each and all of the numerous works to which his name is attached; and a small church in the north, where funds were not superabundant, was not likely to meet with special consideration.

The church consists of nave, transepts, and apsidal chancel, with a spire at the south-east angle of the transept. The west end is an echo of that of Dunblane Cathedral, and this beautiful specimen of Early Gothic was imposed upon the architect as the model upon which the new church was to be designed. The reproduction is far from being successful, having neither the richness of detail nor gracefulness of proportion of the original; the buttresses, in particular, are clumsy, and more heavy than the necessities of the case call for. The spire is the most graceful feature of the composition, but appears to be defective in construction, as wide cracks are observable in the transept gable, against which it abuts. In the interior the proportions are good, but the detail is very unequal, the mouldings in some parts being very strongly pronounced, and in the chancel the carving is so minute as to be invisible at a short distance. The open timber roof is the worst feature of the design, being more like the work of an engineer than that of an architect, the heavy diagonally-braced principals having much the look of iron girders painted in imitation of wood. How far the architect is liable for all this we are not aware; but the church is unlike any other of his works that we have seen. The greatest artists may fail sometimes, and we must set down this as one of Mr. Scott's failures.

PNEUMATO-ELECTRIC ORGAN.

AT Salon, a charming little town in Provence, there exists a pneumato-electric organ, which leaves nothing to be desired either for power, delicacy of touch, or efficacy of mechanism. It must be remarked that the electric fluid, in its employment here, has no influence either on the intensity, note, or pitch of the sound of the instrument. It only replaces a system of complicated levers by one of insulated wires instantaneous in their action. The current proceeding from the electric battery is conducted by metallic wires under the keys, by the action of which it is placed in communication with the valves of the organ. Thus there are two distinct parts in the circulation of the current: the first is be-

tween the pile and the underside of the key-board; the second leads thence to the valves.

The pile consists of a number of glass recipients, containing protosulphate of mercury dissolved in water. In each of these is a piece of zinc between two mineral carbon plates. This battery, of economic construction, will last for five or six months without a fresh supply of mercury being added. The sulphuric acid attacks the zinc, while the mercury is deposited at the bottom of the vessels, and is thus preserved. It can be readily dissolved in sulphuric acid again, so that the only outlay in the working of this pile is a little sulphuric acid once every five or six months, and a piece of zinc at the same time. The deflection of the needle caused by this current is from 40 to 50 degrees.

An electro-magnet is connected with the wind-valves by means of a small lever connected with the bellows, or vessel of compressed air. On the keys being pressed down, the communication is established between the pile and the soft iron magnet, which, becoming electrified, attracts the lever and opens the valve admitting air to the pipes.

INSTITUTION OF CIVIL ENGINEERS.

ON March 20th, the paper read was "On the Maintenance and Renewal of Permanent Way," by Mr. R. Price Williams. The author thought it must be confessed that the condition of the permanent way, so far as regarded its durability, had in no way kept pace with the demands upon it, and that in this respect it compared unfavourably with other branches of railway engineering. Thus, for instance, whilst the weight and power of locomotive engines had been more than quadrupled in thirty years, the increased efficiency resulting from more perfect workmanship and a better description of material was such, that, on the Great Northern Railway, the per-centage on the gross traffic receipts for locomotive expenses had even slightly decreased during the last fourteen years; whereas, on the other hand, that of maintenance of way had increased more than 200 per cent. in a similar period.

On the London and North-Western Railway the cost of maintenance of way had reached 270*l.* per mile per annum; that of staff and other charges had been regular and uniform throughout down to the present time; the item works of line showed considerable variation, due probably to the heavy expenditure at times in replacing timber viaducts and repairing slips; and stations and station works also exhibited the same variable character. It was, however, in the last item, renewals of way, that the principal disturbance of outline was noticeable. This was alluded to in periods in the paper, and the gross result arrived at was, that in the nineteen years 1,906,858*l.* had been expended on renewals of way alone, representing something like 1,362 miles of single line, or almost one-half of the whole mileage maintained in the year 1865. This gave an annual average, since 1847, of 103,000*l.*, which was equivalent to nearly 73 miles of single way of the main line broken up and entirely replaced annually during the period referred to; chiefly in situations where the traffic was heaviest, and where consequently, owing to the short intervals between the trains, the facilities for doing the work were the least, and the danger of accident the greatest.

The average cost of renewals per mile per annum during a period of years, on the nine railways to which the statistics related, was shown in the following table:—

No.	Name of Railway.	Average of Years.	Cost per Mile per Annum.
1	London and North-Western	18½	£115
2	North-Eastern	14	83
3	Midland	17½	84
4	London and South-Western	11	72
5	Great Northern	9½	110
6	Lancashire and Yorkshire	16¼	156
7	South-Eastern	15¾	102
8	London, Brighton, and South Coast	12½	94
9	Manchester, Sheffield, and Lincolnshire	9	49

The introduction of steel rails, manufactured chiefly by what was known as the Bessemer process, and the satisfactory nature of the results obtained, encouraged the belief that in this material had at length been obtained, what was alone wanting to give something like real permanency to that which in name alone had hitherto deserved the title of permanent way. Two steel rails laid in May, 1862, at the Chalk Farm Bridge, on the London and North-Western Railway, side by side with two ordinary iron rails, after outlasting sixteen faces of the iron rails, were taken up in August last, and the one face only which had been exposed, during more than three years, to the traffic of 9,550,000 engines, trucks, &c., and 95,577,240 tons, although evenly worn to the extent of a little more than a ¼ of an inch, still appeared to be capable of enduring much more work.

The general adoption of steel rails on main lines, where the traffic was of the heavy description referred to, would, in the opinion of the author, not only prove cheaper in the end, but, what was of infinitely greater importance, would, through the less frequent breaking up of the road, materially add to the safety of the travelling public. A tabular statement, which had been prepared by Mr. R. Johnson, of the cost of using guaranteed iron rails at 7*l.* 18*s.* per ton, and estimated to last three years, and of steel rails at 15*l.* per ton, supposed to last twenty years, showed a balance of 50 per cent. in favour of steel rails.

THE OPERATIVES' HOUSE BUILDING COMPANY (LIMITED).

THIS company has been incorporated under the Companies Act, 1862; capital 100,000*l.* in 10,000 shares of 10*l.* each. The trustees are the Marquis Townshend, and Messrs. Thomas Hughes, M.P., William J. Maxwell, Arthur Otway, M.P., and Thomas Twining, V.P.S.A. The architect is Mr. Samuel Sharp, of Nottinghill, and the secretary Mr. W. H. Robinson. Offices: 10, John-street, Adelphi. This company, says the prospectus, is formed to meet the urgent need for additional dwellings, of an improved character, for the working classes of London. For the present its operations will be chiefly carried out in the more densely populated districts, where the need for improvement is most pressing, but subsequently they may be extended to the suburbs. It will be conducted upon commercial principles. It is estimated that the plans prepared by the architect to the Operatives' House Building Company will, through their greater simplicity in arrangement and design, prove much more economical in cost of building than any of the structures above referred to, and justify the anticipation of a much greater per-centage of profit. [It is to be hoped the greatest attention will be given to the problem how to obtain in such dwellings thorough ventilation without draughts.] Previous to the formation of the company, several large public meetings were held, at one of which a committee of working men was appointed, who discussed the details of the plan, and it received their cordial approval. Their opinions are embodied in their report, which is published at the office of the *Social Science Review*, and may be had at the office of the company, and at the Economic Museum of Mr. Thomas Twining, Twickenham, to whose valuable advice and interest in the undertaking the company is greatly indebted.

ACCIDENTS.

ONE man has been killed and two dangerously injured at the stone-works in the occupation of Mr. William Freeman, stone-merchant, of the City-road Basin. The men were working a crane on a tramway lifting stone from a barge, and whilst so engaged one of the beams broke, and the crane and the men were precipitated on to the stones in the barge beneath.——A dreadful accident occurred at Preston recently. The cotton-mill belonging to Mr. Henry Seed, in Ribbleton-lane, is divided into two portions, and one of these was used for scutching purposes and for the preparation of cotton, and the boilers for the whole of the establishment were upon the ground-floor. A large cistern, measuring about 12 yards in length, 6 yards in breadth, and 2 yards in depth, was upon the top of the roof, and it was full of water. It has been computed that there were several hundred tons weight of water in this cistern, and about an hour before closing time this cistern gave way, and dragged with it the whole of the four stories of that portion of the mill, burying two men, named Hoole and Leyland, in the *débris*. Fortunately Leyland was near the door at the time of the accident, and as a kind of arch was formed over him by broken beams, he was to some extent protected. Hoole was killed. The loss to the mill-owners will be several thousands of pounds.——The railway-station at Kirriemuir, in Scotland, has been destroyed by fire. It was of wood. A large quantity of goods was destroyed. The damage in all will be some 3,000*l.* The cause of the fire is unknown.——During a thunderstorm which a few days since burst over Varerines-sur-Morge, Puy-de-Dome, France, the lightning fell on a cottage, which caught fire, and the flames spread with such rapidity that more than twenty other buildings were destroyed. The loss falls altogether on the poorer classes.——A portion of the great bur-wall by which part of the street was supported, has fallen in Corporation-street, Halifax. The street was formed a few years ago, partly at the expense of the corporation, and partly at that of the owners of the property in the neighbourhood, to provide a better communication with the centre and the north parts of the town. In forming the road a deep ravine had to be crossed, and this was accomplished by erecting a heavy stone wall on one side, about 50 ft. high, and making it level by shooting earth behind. Latterly, Messrs. Crossley & Company, Limited, have been preparing the foundations for a large warehouse near the wall, the base of which, it is believed, was thereby weakened. From the appearance of the wall, the *Leeds Mercury* says, it seems to have been very imperfectly built.

NEW WATER METER.

MESSRS. ROBERTON-BRISSON & COIGNARD have invented a new meter for measuring supplies of water in such a manner that the smallest quantities, as well as the full supplies, are accurately registered, whatever be the velocity or pressure of the quantity delivered; it measures the quantity without causing any sensible intermission in the current or diminishing the pressure in an appreciable degree beyond what may be the result of the friction of the parts of the apparatus. The meter consists of a pair of coupled cylinders, in which pistons move giving motion to two slide-valves, which open and shut alternately the entrance and exit of the water. The two cylinders are of cast-iron, as are the rest of the pieces except the slide-valves and the rods, which are of copper and brass. The water enters into the valve-box, passes into one of the cylinders, and acts on the piston. When this has arrived near the end of its stroke, the ports are partly open so as to admit water to the second piston, so that it may commence its course when the first has finished its course; consequently, there is no interruption in the flow, nor any intermittence in the registering of the quantity passing through the meter. The reciprocating motion of the slide-valves, which are fixed immediately upon the end of the piston-rod, sets in motion a small lever in connexion with the register and dial-plates which are similar to those in use for gas-meters. Constructed in the workshops of Coignard & Cie., this new machine has received practical sanction on a large scale. The towns of Nantes and Angers, the Imperial school of arts and manufactures, the administration of the Versailles Water-works, those of Marly and St. Cloud, and the water service of the Imperial Palace of Meudon, have employed it to their satisfaction.

THE TRADES MOVEMENT.

London.—A delegate meeting of the joiners of the metropolis has been held to consider the propriety of enforcing the memorial for an advance of another halfpenny per hour on the present rate of wages, making the payment for skilled workmen 8d. per hour. About 200 delegates were present, representing the workmen of nearly every large firm in the building trade, and every large job now going on in the metropolis, comprising both society and non-society men: altogether about 5,000 men are said to have been represented. The delegate from Jackson & Shaw's firm was called to the chair. The chairman said every delegate present was aware that last year they had asked for an advance of ½d. per hour on their then rate of wages, 7d. per hour, and that the employers, after a strike had taken place at Messrs. Cubitt's, had offered an advance of ½d. per hour, which was



TOWN HALL, OCHSENFURTH, FRANCONIA.——*Fifteenth Century.*

accepted by the men, with the understanding that as the ¾d. were refused, a memorial should be sent in to the employers giving six months' notice for another advance of a ½d. per hour on the first Saturday in May next. These memorials were accordingly sent in, and the present meeting had been called to ascertain the opinion of the trade whether the prayer of that memorial should be enforced or not in May next. From the reports of the delegates it appeared that at least nine-tenths of the men were for the ½d. advance in May, while of the others nearly all were willing to abide by the decision of the meeting.

Aberdeen.—In August last the operative house carpenters and joiners of Aberdeen asked from their employers a rise of 2s. a week on the average wages, to commence on the 1st of March. The masters declined, but offered 1s. This was refused by a number of men, and accordingly some 200 of their number have struck work. It was then found that the masters had agreed among themselves not to employ any man who had left his former employer on account of this dispute about wages; and this being considered an approximation to the "ticket of leave" system, it has been keenly resented, and a considerable number who had not struck have also given up work till the obnoxious agreement shall be withdrawn. The ship joiners have had their demand conceded to them. The average wage in Aberdeen is about 20s. a week.

Birmingham.—On the question of arbitration pending between the master builders and their operatives, the masters' committee have had a meeting, with delegates of the workmen, at which the latter expressed a desire that the arbitrators should be appointed at private meetings. To this the committee demurred, and it was agreed to do so at a public meeting. The mayor has granted the use of the town-hall for the purpose. A separate deputation from the masons was told by the committee that their demands would only be granted or otherwise in arbitration.

Hereford.—The masons, carpenters, and bricklayers have memorialized the master builders for a rise of 6d. per day, and to cease work at four p.m. on Saturdays. The high rate of living and rents in Hereford are stated as reasons for the application.

The London Billiard-table Makers.—A committee of the workmen of Messrs. Burroughes & Watts, of Soho-square, having applied for an increase of wages, have had their request at once granted.

TOWN HALLS, FRANCONIA.

OCHSENFURTH.

WE add to the illustrations already given, a view of the Town Hall at Ochsenfurth, according to promise.* It stands on the east side of the market-place, and bears on various parts of the front these dates,—

1494 . 1498 . 1499

The clock-turret and staircase are interesting specimens of the period. As we have already mentioned with reference to this building, the apartment on the left-hand side of the principal entrance, known as the Council Chamber, is a fine old room, lighted by six large square-headed windows, elaborately moulded. The ceiling is flat, and supported upon carved oak beams and stone corbels. This room, like others in the building, contains the whole of its ancient furniture: the tables are very good in design. In one room is a stove of glazed green tiles, coeval with the building. The staircase is of oak, and several of the upper chambers are panelled with the same material. At one angle of the building is a statue of the Madonna, with the original lamp and bracket.

* See pp. 155, 157, *ante*.

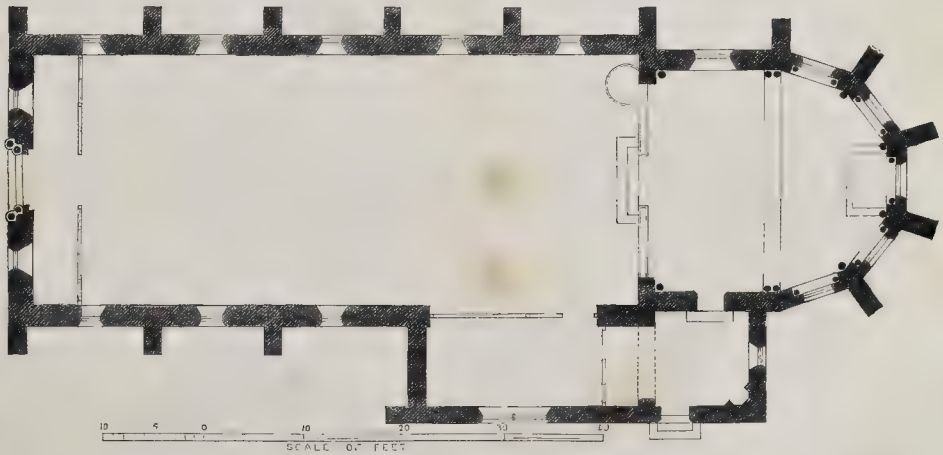
NEW ENGLISH PROTESTANT CHURCH, STUTTGART, WURTEMBERG.

TAKING some little credit to ourselves for the impetus that has been given to the desire to provide fitting places of worship for English Protestant residents in foreign parts, we record always with pleasure fresh movements towards that end. Until within a few years past our co-religionists and countrymen abroad had been content in many instances to meet in places neither fitting nor decent. The error of this course seems now more generally recognised, and endeavours are rightly being made to remedy it. Some time ago we spoke of the erection of an English church in Stuttgart,—St. Catherine's. In our present issue we give a view and plan of it. The foundation-stone was laid early in the year 1864, and the church was opened for divine service on Advent Sunday, 1865. It is proposed to consecrate the building immediately.

The materials used in the construction are lime and sand stone, from the neighbourhood of Stuttgart; the dressings, both inside and out, are of a soft and rich yellow colour. The roof of



NEW ENGLISH PROTESTANT CHURCH, ST. CATHERINE'S, STUTTGART.—Messrs. Thos. Smith & Son, Architects.



ENGLISH PROTESTANT CHURCH, STUTTGART.—*Plan.*

e nave is open-timbered, stained and varnished, ie chancel roof being groined. The windows re filled with elaborate stained glass, from erlin, which, although well executed, is wanting the spirit and force which characterise the orks executed by English artists. The reredos id pulpit are of stone, with incised ornamenta- on. The screen which divides the church from ie lady-chapel is of wrought iron. The various orks have been executed from the designs of lessrs. Thomas Smith & Son, architects, London, t a cost of about 3,000*l.*

PARLIAMENTARY DEBATE ON COMPETITIONS.

THE PROPOSED LAW COURTS.

ON Thursday evening in last week Mr. Bentinck moved—"That, in the opinion of this House, it is not expedient that the competition for the building of the new Courts of Justice should be limited to six architects only." In doing so, he said, for the last few years at least, whatever great works were executed in England or the Continent, the competitions for them were of an unlimited character. The competition for the Houses of Parliament was unlimited, so was the competition for the cartoons, for the Foreign-office, and for the Wellington monument. No man could say, however people might disagree with him as to the style of these buildings, that Sir C. Barry was not a man of great genius. The unlimited competition for the cartoons had brought out the latent talent of Mr. Herbert, Mr. Watts, and others; while in the case of the Foreign-office the result had been equally satisfactory. He would not quarrel with limited competition if the three following conditions were attached to it:—First, that the number of architects competing should be sufficient to afford to the tribunal which was to decide on their merits a full latitude of choice; secondly, that that tribunal should be thoroughly protected from any charge of favouritism; and, thirdly, that it should have such a knowledge of the subject it had to deal with that its decision should command the respect of the artistic world in general. The arrangement with regard to the proposed competition failed in every one of those particulars. First of all, there were to be only six competing architects. In the days of Sir Christopher Wren, or of the architects of the sixteenth century, it would have been possible to make a choice out of four or five architects; but in the present time, he must say, without wishing to detract from the merits of existing architects, there was no such towering genius as existed in days past; and, therefore, it was necessary to invite a large number of architects to compete. Among the names of the six first appointed he failed to observe the names of some architects who obtained prizes in a previous competition. If any hon. gentleman went to the City and walked down Lombard-street, Cornhill, and Broad-street, he would see buildings designed by architects worthy of following Sir C. Wren; and the public had a right to demand that those gentlemen should be included in the list of competitors. The condition that the tribunal deciding on the merits of the competing architects should be protected from the charge of favouritism, was essential; and he might mention that he had heard a report, which, however, he did not believe, that it was the intention of the commission to select Mr. Waterhouse, the architect of the Assize Courts in Manchester. As to the tribunal which was to judge of the merits of the competitors, it was important that it should be a competent one. The commission was to consist of five persons only, and he trusted that the Government would think twice before submitting this important question to the decision of a body so constituted. What he wished to urge was that the competition ought to be unlimited, or limited to so many as would afford a fair chance of a satisfactory selection, and that there should be constituted a tribunal in which the public could have confidence.

Mr. Beresford Hope, in the name of the architects who did him the honour to appoint him the president of their Institute, thanked the hon. member for bringing forward the motion, which was one rightly made by a member who was independent in the sense of having no connexion with architecture, and which, therefore, neither he nor the hon. member for Bath (Mr. Tite) could have made. When the competition for the Law Courts was first announced, it created an intense interest among the architectural profession. They were to form a magnificent building, which would be a glory to the architect and to the metropolis if he succeeded, or a misfortune and disgrace if he failed. When the list of architects first appeared, it included six eminent names. A feeling prevailed that the list ought to have been larger; but still no question was raised, and it seemed as if the number was a foregone conclusion. But then name after name dropped off, and other names were added, until only two of the first six names remained on the list. It was clear that a screw was loose somewhere; and where that screw was it was the object of the present motion to discover. Report said that certain conditions of competition were imposed after the architects had been invited to join in the competition. Now, whether these conditions where right or wrong, or whether it was wise or unwise to limit artistic freewill, at any rate it was not right to induce men to suppose that they were entering into competition on the usual terms, and when they had, as it were, committed themselves, to call upon them to sign unusual agreements, introduced for the first time into similar competitions, and of which they had received no previous intimation. It was no answer to say that an architect ought not to engage in more work than he could honestly exercise his intellect upon. That was very true in itself, but the Government ought to have let it be known early enough that it intended to alter the terms of competition, so that architects might not have been placed in a false position by declining so honourable an engagement in reality on account of things which did not concern the artistic side of the matter. The imposition of conditions would almost necessitate unlimited competition, which would allow of more stringency in the terms imposed upon the competition than limited competition. A limited one assumed the honour, ability, and industry of those selected, on account of their being known to possess such qualities; while unlimited competition might admit impractical scene-painters and dreamers, and the first prize might fall to a clever scamp, or an artist totally innocent of finance. While in his opinion unlimited competition would be theoretically the best, he was bound to add that in the present condition of art-politics it was impossible, and it was not asked for. The petition of the Institute of Architects which he presented, though applying technically to the competition for the National Gallery, was in spirit meant to cover this case; and as a rumour said it had been effectual in the manner of the National Gallery, he hoped it would be the same in this. The motion of his hon. friend afforded an opportunity for saving repentance on the Treasury bench, and he only hoped there would be no faltering between two opinions. He did not believe that those on the Treasury bench were altogether guilty. There was a grander and more august commission behind them, a commission whose behests they were, perhaps, only serving. He had approached a very dignified and influential quarter in the name of the Institute of Architects, and the reply was that six architects were too many. He trusted that the First Commissioner of Works thought differently, and would extricate his friends from their dilemma. The reason why unlimited competitions were not asked for was that they had been made ridiculous, and almost dragged through the dirt by the absurd mismanagement of the Foreign-office competition nine years ago. The story was an old one, but it was worth recalling. The Government wished to build two public departments, a Foreign-office and a War-office, which might and ought to have been two wings of the same structure, and ought to have been jointly competed for with designs including both. Instead of one there were three graduated schedules of prizes. One was for a block scheme for laying out the whole space at Westminster about the public offices, which, by the consent of every one, turned out a perfect failure. The first prize in that was won by a speculative Frenchman, who came full of a scheme for improving the smoky capital of perfidious Albion off the face of the earth. He need say no more of that branch of the matter. With respect to the other two schedules, it was forgotten to be settled whether competitors were to take prizes in one only or in both. Some went in for a War-office only, others for a Foreign-office, and some for a compound building, lodging both offices under the same roof, while others stuck two distinct houses side by side. But when the judges came to consider, they were in the same difficulty as the public to understand the meaning of the terms of competition, although men of avowed accomplishments. Amongst them was that accomplished gentleman the hon. member for Perthshire, who, he was happy to say, was also in the present list of judges. Lord Eversley and the Duke of Buccleuch, though named, were prevented from taking part in the practical work; but the rest who acted were, Mr. Brunel, to represent the engineers; Mr. Roberts, the great pictorial dreamer of architecture; Mr. Burn, the able and common-sense architect; and the Earl of Stanhope, the representative of high literary refinement. Mr. Burn thought that the same man might get the prize for both designs, but the majority said otherwise, and the result was a compromise schedule of prizes, which meant nothing, and such confusion and complication that no one knew what was to be done. Mr. Coe got the first prize for a Foreign-office, which could not grow into a War-office; and Mr. Garling for a War-office, which could not grow into a Foreign-office.* This was in 1857, and the matter, as it were, lay on the floor of the House. Nobody would touch it there. Nobody knew what was to be done. At last, in 1858, he (Mr. Beresford Hope) took it up, and obtained a select committee. In looking into the matter, that committee found it could make nothing of the formal award of the judges, and it fell back upon Mr. Burn's individual list, based as that was upon the non-exclusive principle. By that list it turned out that Mr. Scott, though first for neither office, was first in the general sum total of merit, being placed second for both buildings, and so he got the commission for a Gothic design. But how Mr. Scott, who thus got a prize for a Gothic building, was now engaged with Mr. Digby Wyatt in erecting an Italian design, it was not necessary to state. He had gone through this narrative to show why unlimited competition now stinks in the nostrils of the House. He was sorry it should be so. It was against the spirit of the age,—it was against the idea of free trade in art; but so it was. It would simply be a waste of time to move that there should be unlimited competition. What they demanded was, larger competition, and a little more variety in the composition of the judges. He did not wish to strike out the name of one legal or financial member of that body. They were all very useful elements, but he did plead for a larger infusion of the artistic element in the shape of architects, as well as for the educated amateur element; because, after all, the painter and the engineer were amateurs, as much as the well-educated country gentleman might be, and ought to be represented on the list of judges. Above all, he asked that the competition should really be competition—not to

* Messrs. Banks & Barry write as to this:—"In his speech, Mr. Beresford Hope alluded to the 'absurd mismanagement' of the late competition for the new Foreign-office, and proceeded to give a narrative of the proceedings, which (we are sure unintentionally), by omitting all mention of our names, has added to the very great professional hardship which we have suffered in this matter. The facts were really these:—We took the second premium for the Foreign-office for an Italian design. Mr. Scott took the third premium for the Foreign-office for a Gothic design.

As no style was laid down in the terms of the competition the abstract merits of the planning and designs of course governed the award of the judges.

One of these judges was an architect distinguished during a very long and busy professional life for producing plans of such eminently convenient arrangement that they have become notorious, and was therefore well qualified for his post, and his colleagues were equally distinguished for other special knowledge—practical, artistical, and the like.

The first premium for the Foreign-office was given to Messrs. Coe & Holland, who were not, however, thought capable of carrying out the work; and then, by all logical reasoning, we considered at the time, and still consider, the work should have been placed in our hands, as taking the next place, and before Mr. Scott. Before the actual appointment of the architect, however, a change of Government took place, and for a short time Lord John Manners was the First Commissioner of Works, whose strong predilection for Gothic architecture is well known. Under his auspices the first three designs for the Foreign-office were referred to a Parliamentary Committee, who decided that Messrs. Coe & Holland should not be employed, but that the merits of our Italian design and Mr. Scott's Gothic design were so nearly balanced that they left it in the hands of the Government; and, a few days before Lord John Manners quitted office, Mr. Scott was appointed architect for the works of the Foreign-office.

The hardship of our position is increased by the fact that although Mr. Scott was selected on the ground that his design was the first one premiated in the Gothic style, he is now engaged in carrying out an Italian design, while we took a higher position than he did in the award of the judges for an Italian design.

Without wishing to detract from any merits in the design now in course of execution, or from Mr. Scott's distinguished talent as a Gothic architect, we think it only due to ourselves to recall the above facts to public knowledge, and assert for ourselves the honour of the position we lawfully gained, but which has hitherto produced us no results whatever."

lead afterwards to a pretty show, or exhibition in Westminster Hall, but to have just so many designs and no more, and just so roughly done as would enable competent judges to decide who was the best man; for the competition was not meant to enable them to decide on the building in all its details, but to discover the man best competent to create the final structure. It was absurd to ask for finished drawings of every particular, such as the head of Edward I. peeping round the corners, or cornucopias standing out, or hall-door chairs in the style of the fourteenth century or the Augustan era. What was wanted was the master-mind to design the general idea, and the details might be worked out year by year, in concert between employer and architect. The abominable thing was the grand exhibition up to which everybody worked, with the art critics of the press and of the House, and the fine ladies and the fine ladies' daughters, and the constituents from the country, who came up to town ravening, like monsters of the deep, for something to see, whom hon. members took by the hand and led to Westminster Hall. He would let them into a secret of the trade. There was an exhibition of designs; at length one was pitched upon; it seemed uncommonly fine. It was a magnificent building. There was a beautiful sky-line, plenty of trees, and an officer of the Horse Guards was prancing by—everything, in short, that made it very effective to the innocent mind of an uneducated amateur judge. Who produced it? The talented architect to whom they meant to give the prize? No; but some member of a very respectable but hybrid profession—an architect's artist; in fact, a water-colour painter, who has acquired just such an amount of architectural proficiency as may enable him to take the drawing of the architect, and out of that to concoct the pretty seductive pictures they saw at exhibitions, and to which the prizes were awarded by judges who very likely had no idea whether it indicated an elevation of 200 ft. or 500 ft. in length. This is what made these competitions distasteful; it showed also the incompetency of the judges, and could only lead to work which was untrue and meretricious. To prove that this was not his opinion only, he would read extracts from two letters he had received from eminent architects:—

"As regards the necessary drawings for a competition, it is certainly a great drawback to all architects who compete that they should be compelled to send in so many drawings, which really are unnecessary for the purpose of selecting the architect. The great point, of course, is for him to give the general scheme and style of his design. This can be very effectually done by sending the principal plans and elevations, and one main section with perspective views. These would be quite sufficient to form a correct estimate of capability of the architect to carry out the design well without putting him to the trouble and expense of needless sections and constructional detail. We know, from architects' experience, that in nine cases out of ten the latter are never even glanced at. You would be doing architects great service if you could prevail upon those who have to draw up particulars to practically consider this important question."

The second communication was from a gentleman whom he had asked whether he would compete:—

"I may say that I should certainly have accepted but for two reasons,—first, the shortness of time. There will be, I understand, from sixty to seventy drawings required. These sixty or seventy drawings will have to be got up within some eight months from the present time—*i.e.*, an average of about four days to each drawing. In addition, the whole subject has to be got up, which always takes more time than the mere drawing. I therefore think that the time is far too short, and near a year, at least, should have been allowed to the other competitors. The second objection is the absence from among the judges of professional men."

Rumour, with its many tongues, has given as a reason for the limited competition that the lawyers were afraid lest their courts should be beset with architects studying the judicial procedure. But surely architects had some idea of business, and had some *à priori* ideas to work upon, and knew what a bar meant,—and that a room constructed to suit a Tower Hamlets' vestry would not be unfitted for even the High Court of Chancery. He hoped that so groundless a panic would not palpitate under the horsehair of their wigs. Here, then, was a grievance. It was a grievance to the judges as well as to the architects. Even if they looked conscientiously at the sixty or seventy designs they would not derive much benefit from them, but rather confuse their own judgment. If the number of drawings asked for from each candidate were reduced, it would be as easy for the judges to look at those of twenty, as the half-dozen more ponderous sets they now required. What they wanted was, not the tricked-out, burnished pictures of architects' artists, but clever pen-and-ink sketches, the virgin ideas of the architects themselves, the work of their own hands. The honour and credit of the country demanded that the artistic, as well as every other element should be kept up at its due level in the body politic. There was a point of honour, a high and ennobling ambition, with architects as with all other professions, and this it was right and needful that those in authority should respect and encourage. No such means for encouraging it existed as liberal competitions. The architectural character of London should be a glory, and not a disgrace, to the age; and it was stingy and selfish to grudge a little trouble to help that by opening public competition somewhat more. All had an interest in this question, in order that our metropolis, with its wealth and pomp, bustle and business, should not fall behind the petty capitals of foreign despots. Under all the circumstances he hoped that success would follow the motion of his hon. friend, and that the right hon. gentleman (Mr. Cowper) or the Attorney-General would gracefully yield a bloodless victory, and in that assure the House that the matter would be considered, and justice done in this case, and that their moderate and respectful petition would meet with that favourable reception to which it was entitled.

Mr. Cowper said that the object of the commission was to secure the means of getting the best Palace of Justice they could. The House had authorised the expenditure of a million and a half of money for the concentration in close contiguity of all the courts of law and equity, of the Probate and Divorce Courts, and of all the offices, because it believed that such an arrangement would be attended with most material and beneficial results on the administration of the law. Indeed, it was generally allowed that the dispersion and distribution of the courts and offices were the means of impeding very many of those reforms which would tend to promote the fusion of law and equity, which some very learned gentlemen advocated and desired. But, whatever might be the benefits that would result, it was quite clear that the actual construction of this building was a very important affair, and it was one to which the Courts of Justice Commission had specially directed their attention. They had to find a man of the greatest eminence in his profession, and who had also minutely and carefully studied the whole subject, which was one that did not come under the ordinary cognisance of an architect. Now, if there were any architect of sufficient eminence to make it certain that he would adequately and satisfactorily discharge the duty of erecting such a Palace of Justice as was required, it was, in his opinion, better to select an architect than to invite competition. The most eminent architects, however, were not men who had paid special attention to this subject; and, therefore, it was not possible to make a satisfactory selection. Under the circumstances, it was considered the wisest course to select a small number of men who might safely be intrusted with the building, and invite them to compete with one another. But then it was necessary that these architects should study for at least seven months the minute details of the required building. Arrangements had accordingly been made that the selected architects should have access to the courts and offices at particular times, in order that they might be enabled to see how the business was transacted, and thus by their own eyes and their own judgment ascertain what kind of building would be best adapted for the business carried on. The Courts of Justice Commission had prepared a very elaborate schedule, showing in great detail all that the committees appointed by the Commission thought necessary to be provided. The hon. member who last spoke had given the House a long string of obvious reasons why a limited competition succeeded in ordinary cases, but it was clear that it would have been the worst method that could have been adopted in this case, for such a careful study of the subject was required during the busiest time of the year that scarcely any of the most eminent men would have taken their chance in an unlimited competition. The Commission had, therefore, decided that not more than six architects should be invited to compete, and those architects were to be properly remunerated for all the labour and expense incurred by them in getting up the drawings and studying the question. Now, it was quite true, as his hon. and learned friend had said, that out of the six architects originally appointed four had retired. He thought, however, that the very fact of their retirement justified the view he had taken of the great difficulty of getting eminent architects to give their attention to a question of this sort. One of those who had retired stated that he had enough business on hand, and that, consequently, he could not undertake so laborious a task. Another had stated that, if more time had been allowed, he might have been enabled to compete, but in this busy time of the year he was already fully occupied, and could not undertake to give the time and attention necessary for the study of the subject. The other architects had objected to one of the clauses in the agreement proposed by the Treasury, to the effect that the architect finally selected should not be allowed to undertake any new work except with the consent of the Treasury. Of course, the Treasury would not have pressed that in any undue way; but the clause was intended to secure that an actual and personal superintendence should be given to the building by the architect employed. The vacancies which had occurred had been filled up, the resolution of the Commission being that six architects should be asked to compete. He was not one of those who spoke so strongly against unlimited competition as the hon. member who had just sat down. It was true that, in the present state of public opinion, unlimited competition was not acceptable; but in his opinion it ought to be acceptable. His opinion was, that if a building were required which the education and ordinary practice of an architect would enable him to design, it was advantageous to have the competition open to all the world. That was the plan adopted last year, when a new building was wanted at Kensington Gore. The result was, that an admirable design by Captain Fowke was selected,—a design which probably would not have been attained if the competition had been limited. The present case, however, differed entirely from that. The object was to get the very best Palace of Justice in the world. There must be arrangements under which witnesses might be separated from the public and the legal profession, while the public might have the opportunity of hearing, and yet not be able to attract the attention of the judge, the jury, and the witnesses. Altogether he believed that the method of competition which had been recommended was the one most calculated to attain the desired object. He could not admit that, because a man gained a prize nine years ago in a particular competition, he therefore had a right to have a share in the present competition. What was desirable in such a competition was not merely to get men who had succeeded in making a pretty drawing or sketch, and obtaining a prize from judges who might or might not have been competent to award it; but men who had achieved celebrity by actual work, and could show their talent in stone, brick, or mortar. The hon. member for Norfolk had spoken of a rumour that there was a desire to show special favour to Mr. Waterhouse; but no such feeling had ever existed in his own mind, nor, he believed in those of his colleagues. In fact, they abandoned the idea of appointing him architectural clerk, lest any suspicion of favouritism should arise, and the schedule of dimensions would be as open to the other competitors as to that gentleman. As to the selection of the judges, they represented the different classes interested in the building, two of them being eminent members of the legal profession, two being members of the Government, and the fifth being the hon. member for Perthshire, who represented the general public. This was analogous to the ordinary practice, that those who were proprietors should determine the kind of building they wanted; and it was quite open to the judges to call in professional assistance in examining the drawings, as was done in the case of the Foreign-office and the War-office.

Mr. Tite said he had been appealed to once or twice in the course of the debate, and more out of the House than in it, in consequence, he supposed, of having once occupied some position in

he profession, and of having filled the office of resident of the Institute of British Architects, n which his hon. friend, the member for Stoke-pon-Trent, had followed him. He supposed he was the only man in that House who had gone hrough a public competition of a somewhat similar character to that which they were now discussing, and he felt bound to say that much f his success in life was due to the fact of having been brought forward as a young man by public competition. In the very House in which hey were assembled, though he quarrelled with s style and much of its decoration, they had n its wonderful arrangement and in the fact hat so little alteration had since been necessary, nother signal instance of the good results of public competition in the person of Sir C. Barry. was not through the desire of that eminent rtist that the building was covered with sprawl-g dragons and unknown monsters. The style as dictated to him, and, *doctus utriusque ingui*, he soon showed himself as accomplished this style of architecture as in Italian, of hich he was so great a master. The merits of y design consisted, not in a mere decorative rawing, but in the arrangement of plans, rooms, nd courts, and he could conceive nothing more fficult than the details which had to be car-ied out in the distribution of both Houses, the ommittee-rooms, and all that belonged to them, reserving at the same time the important fea-res of Westminster Hall, St. Stephen's Hall, nd approaches, all of which had been so happily anaged. As regarded the present competition, o did not at all wonder that suspicion had been roused by the small number of competitors. Of ourse, with the six gentlemen who had been elected all idea of jobbery was out of the ques-on; but the number of six was so extremely imited that it certainly created in the minds of he architectural profession an impression that, n a great extent, a foregone conclusion had een arrived at. There was obviously no diffi-ulty in increasing the number, for four of those ho were originally named having withdrawn, ar others were nominated in their places. Had n or twelve gentlemen of the highest eminence en nominated in the first instance, he ventured think that the time of the House would never ave been troubled with this discussion at all. e same observations might apply to another mpetition now under consideration, that relating the National Gallery, and the observation of o or three practical rules would tend very uch to set such questions at rest. In compe-itions wisely conducted there should be no rnamental drawings, or, at most, but one con-isting of a single colour, Indian ink, or sepia, r something of that kind, so as to prevent the rnamentation and frippery and misleading rails so often brought forward to influence e decision of the judges. As to what had en said with regard to expense, he did not ink it worth talking about. 800*l.*, he under-ood, were to be paid to each of the six gentle-en; and, if that number were increased to ten, ere would be a trifling increase of expendi-re; but was that amount to be thought of en they were going to spend upon courts of w, a work of the greatest possible importance, um exceeding 800,000*l.*? It was, of course, question for his hon. friend, Mr. Bentinck, ether he would divide or not, but he ventured sk him to leave the matter in the hands of Government; if, however, the matter were ssed to a division, he must affirm the principle t the number of competitors ought to be atter than that which had been selected. He shed the Government, rather than adopt a nerable competition of six, had had courage icient to choose one man, and place the mat-in his hands at once. At St. Thomas's spital they had avoided all difficulty by ing this course; across the water they were fectly satisfied with their architect, and rything connected with the building would done, and done, he believed, ably and well. evidence of the existence of rising talent, would mention one fact. One gentleman had tten to him, saying,—"Ought not I to have ance?" He would not mention the name hat gentleman, but the list of his attainments very striking. He obtained three silver dals of the Royal Academy in 1850, the gold dal and life studentship of the Royal Academy 1851, he was elected an Associate of the itute in 1852, obtained the medal of merit a humble prize that he himself gave the e year, passed the first examination in the year, and obtained the Travelling Fellow-of the Royal Academy, and also the Soane medallion of the Royal Institute of British Architects, in the same year; had since travelled, and was one of the best draughtsmen of the day; and yet, owing to the naturally humble position of that gentleman, unless he distinguished himself through some such opening as the present competition, he was likely to end his days as a mere surveyor or builder of ordinary dwellings. He felt bound by a sense of duty to the profession to which he once belonged to offer these remarks, and he hoped that the Government would not refuse to increase the number of architects who were to compete.

The Attorney General explained the position of the Commissioners, and spoke against unlimited competition in such a case. As to the judges, he said, of course they would have the advantage of due architectural assistance should they require it, and he thought that confidence might be placed in their desire to secure the most beautiful building consistent with utility.

After other speakers had addressed the House, Mr. Bentinck's motion was carried by 101 to 70.

RAIN-WATER PIPES TO VENTILATE DRAINS.

As I find in a report of the engineer of the Metropolitan Board of Works that the rain-water pipes can only be used "when there is no fear of the gases descending again into the chimneys and windows," and as such descent must often take place and be dangerous to the health and even life of many persons, I trust you will permit me to send you the enclosed plans for its prevention. I have succeeded in freeing my own house *practically* and completely from these effluvia from the drains, which descended through a skylight in the roof. My invention is a simple and inexpensive one, and I am anxious for its publication, as it may be the means of saving many a family from fevers, cholera, and other diseases, which are so much fostered and aggravated, if not created, by the foul gases from drains, of which all rain-water pipes are more or less the ventilators.

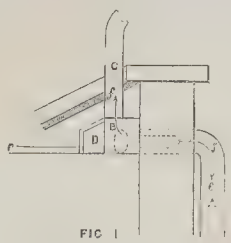


FIG 1

A. Rain-water pipe.
B. Three sides of a box applied to the opening of the rain-water pipe on to the gutter.
C. A zinc tube, of about 3 in. diameter, carried a few feet above chimneys or skylights; 2 or 3 ft., I believe, quite sufficient.
D. A piece of cloth, or other material, suspended under the top of the box, acting as a valve.

The foul gas rising takes the course of the arrow off the valve D, preventing its passage to the gutter.

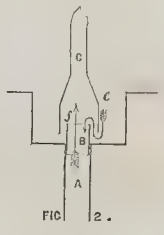


FIG 2.

I suggest this plan to apply to another water-pipe:—

A. Rain-water pipe.
B. A short piece of pipe fitting tightly into pipe A.
C. A zinc pipe fixed as most convenient, leaving a space equal to the area of mouth of pipe B round pipe B.

Here the arrow, *f*, shows the course of the gases; *e* that of the rain-water. The only objection to these plans is that the gas-trap in fig. 2 may be choked with leaves, &c.; to which I can only reply, that it is far better to have an obstruction at the top than the bottom of the rain-water pipe, as at the top it is much more easily removed. I am sure that you will accept any effort for the public good. J. Percy.

WOLVERHAMPTON TOWN HALL COMPETITION.

Our readers are aware that some months ago the special committee charged with the duty of obtaining plans for a new town-hall and other public buildings for Wolverhampton, selected two designs from a number of competing designs for the first and second premiums of 100*l.* and 50*l.* respectively, but the condition upon which the committee undertook to recommend the town council to award the premiums to the authors was that they could each be carried out for 15,000*l.*, the amount stipulated in the specification. It is no secret that the design selected for the higher premium was sent in by Mr. Bidlake, of this town; and that that of Mr. Bates, of Manchester, was the work placed second in order of merit. Both designs, with a copy of the instructions issued to the architects, &c., were forwarded to Mr. Waterhouse, architect, for his opinion as to whether they could be carried out for the amount specified. We learn that his report has been received, and is to the effect that the probable cost of carrying out Mr. Bidlake's design, minus the tower, would be about 25,400*l.*, and that the tower would involve an additional expenditure of between 500*l.* and 600*l.* He thinks the execution of Mr. Bates's design would probably cost about 25,000*l.* The committee have in consequence rejected both designs, and resolved to send two others, which stood next on the list in their estimation, to Mr. Waterhouse. One, bearing the motto of "Salve," is by Mr. Christopher Wray, of London; and the other, distinguished by the motto "Perceverando Virices," was sent in by Mr. Lloyd, of Bristol. The first premium will be awarded to Mr. Wray, should it be found by the report of Mr. Waterhouse that it can be carried out for 15,000*l.*

THE LAW COURTS COMPETITION.

We have elsewhere reported at some length the recent debate in the House of Commons on this subject, and the decision there come to. The resolution of the House has been forwarded to the Commission; but, as the Commissioners are mostly out of town, it has not yet been brought under their consideration. They will doubtless now recommend to the Treasury an extended list of competitors.

LABOURING CLASSES' DWELLINGS BILL.

The Commons have passed this Bill through a committee of the whole House.

On the clause referring to the loan of money by the Government for the building of these dwellings,

Mr. Ayrton disapproved of the proposal that public money should be advanced to builders at 4*l.* per cent. for the building of dwellings for the labouring classes. If a builder went to the open market for money he would have to pay 6*l.* per cent., and a rival builder might take another plot of ground near that on which houses were being built out of money lent at 6*l.* per cent., and get a loan at 4*l.* per cent. Was it right that the public money should be made subservient to the purposes of that rival builder? He thought the Government ought to strike out of the bill the provisions which enabled them to lend public money for private speculation. The bill should be limited to public bodies called upon to make public expenditure for a public object.

Mr. Childers said that as a matter of abstract political economy his hon. friend was correct, and on the mere dry ground of political economy the Government would not be justified in advancing any money at all for any objects except those which were strictly of a public character; but they had to deal with this fact, that unless Government rendered some assistance in this direction there was a great unwillingness on the

part of persons to enter into sufficiently large building operations for houses for the working classes, and there had arisen in consequence a scandal to this country, which was particularly apparent in the metropolis and other large towns.

Mr. Hughes said that the building societies dealt with a class of houses distinct from that dealt with in this Bill. At present the poorer classes were frightfully overcrowded, and this bill would meet a considerable want.

Mr. Ayrton again suggested that that portion of the bill under which money could be advanced at 4*l.* per cent. to manufacturers "to speculate" in building cottages should be omitted; and moved an amendment to that effect.

Mr. Akroyd suggested that the rate of interest should be reduced from 4 per cent. to 3½ per cent.

Mr. Childers explained that the Treasury would make regulations with regard to the class of buildings for which loans would be made. If building societies could give proper security they would get loans under the Act.

The amendment was negatived.

Mr. Childers stated that a similar Bill would be introduced for Ireland.

The clauses having been agreed to, and a new clause added providing that the rules and regulations made by the Commissioners of the Treasury should be laid before Parliament, the preamble was agreed to, and the chairman was ordered to report the Bill.

BRISTOL STREET IMPROVEMENTS.

A GOVERNMENT inquiry has been held at the offices of the Local Board of Health before Mr. Arnold Taylor, into the several schemes for street improvement decided on by the Local Improvement Committee (who are the Local Board of Health) of the Town Council. The Home Secretary has sent down the commissioner in consequence of a petition having been presented to him by the Board praying that they may be allowed to put in force, with reference to certain lands and buildings within their district, the powers of "The Lands Clauses Consolidation Act, 1845," with respect to the purchase and taking of lands otherwise than by agreement. The commissioner said the present proceedings were merely preliminary. His object was only to obtain evidence to guide the Home Secretary in coming to a decision on the merits of the schemes. Mr. R. P. King, as chairman of the committee appointed by the Town Council, made a few remarks on some of the schemes, and pointed out the necessity there existed for the improvement of the bottom of Park-street; the making of the new road to the Terminus from Bristol Bridge; the importance of the access to Clifton *vid* Park-row and Maudlin-street, and the importance in St. Jude's. The following schemes were then considered, except the last, the property for it having been purchased:—

1. The making of a new street from the junction of Thomas-street and Bath-street to the terminus of the Great Western Railway, and the connecting Avon-street with the proposed new street.
2. The widening, altering the gradients of, and otherwise improving Cow-street and Park-street, and also Frogmore-street and Frog-lane, at their junction with the said two last-mentioned streets, and the raising the level of Hanmer's-buildings.
3. The making a new street from the south-west corner of College-green to St. George's-road, at a point between Brandon-street and Partition-street, and the widening and improving the north side of St. George's-road, between York-place and Waterloo-court.
4. The widening and improving of Bond-street.
5. The making a new street from the east end of Park-row to the west end of Maudlin-street.
6. The making a new street from Wilder-street at the point opposite York-street to a street called Backfields, and widening that part of the street called Backfields, which runs towards Stoke's-croft.
7. The widening and improving Lodge-court, Newstreet, Poyntzpool, and Butcher's-row.
8. The widening and improving the north side of Nicholas-street.

During the inquiry the several surveyors described the plans, and stated the features of the proposed improvements. The gross estimated cost of the whole (except the last) is 158,294*l.*; but this is exclusive of large returns which are expected to accrue from the improvements, considerably reducing the cost to the city,—in one instance, it is anticipated, covering the whole of the cost of the improvement. Schemes 1 and 2 were opposed by several persons, but supported by a larger number: the others were not opposed at all. The commissioner spoke decidedly in favour of Temple-street and Park-street improvements. In reply to a remark made by Mr. W. Herepath, Mr. King said they would not require more than 12,000*l.* at any one time, and this would be repaid by a fivepenny rate for the first year, gradually reduced at the end of thirty years to about a twopenny rate.

COMPENSATION.

DR. J. H. ROBERTS *v.* THE ST. JOHN'S WOOD RAILWAY COMPANY.

THIS inquiry was held on the third instant, before Mr. Pownall, the sole arbitrator. Mr. Hawkins, Q.C., and Mr. Cole appeared for the claimant; and Mr. Lloyd for the Company. Mr. Hawkins, in stating the case, said that the claimant held No. 10, Finchley-road, for an unexpired term of 24 years, at 100*l.* a year, where he carried on the profession of a surgeon. On receiving notice to treat he applied to the Company for some other house; but failing to obtain another from the Company, he purchased the long lease of the only house to be had in the main road at the corner of Adelaide-road, nearly half a mile nearer the Swiss Cottage. The price for the 74 years' lease, at a ground rent of 35*l.*, was 2,150*l.* And, though the house and grounds were more valuable than his old house, Dr. Roberts had to lay out 1,500*l.* in making additional rooms to equal the number of those in No. 10. The question was as to how these sums should be dealt with, and how should Dr. Roberts be compensated for his forced removal. Had he not taken this house his practice would have been destroyed, and his claim for compensation would have amounted to 6,000*l.*; he was, therefore, justified in taking the new premises, thereby reducing his demand for compensation to scarcely more than half that sum, by saving his practice and thus benefiting the Company. Dr. Roberts having proved the facts, and given an account of his practice, the following valuations were given on the two sides.

For the claimant:—

Mr. E. Roberts.—Cost of new premises and ground-rent, equal to per annum		£166
Two-thirds of alterations ditto		61
Extra rates and taxes		30
		£257
Deduct present rent	£100	
Ditto stables	15	
		115
Extra outlay per annum for 24 years		£142
This at 6 per cent. table		£1,782
Unproductive outlay		500
Household removal		320
Loss by double rents, and personal trouble and loss of time		250
		£2,850
Depreciation of practice, say		1,000
		£3,852

Mr. Orridge and Mr. Lara, medical agents, proved that on the removal of a practitioner one-third of the practice was considered lost, and would be valued at three years' purchase.

Mr. Shaw valued the old house at		£160
Deduct reserved rent		100
Profit rent		£60
For 24 years, worth		£750
Ten per cent.		75
Consequential damage: consisting of a loss of 1 per cent. in table on the outlay of 3,650*l.* in new house		639
Loss of rent		80
		£1,544

To which should be added a sum for removal, fixtures, and personal trouble, and for interference with the practice.

Mr. Dent.—Profit rent of old house £55 for 24 years, and 10 per cent. added	£766
Removal	200
Twenty-five per cent. of outlay on new house	912
Loss of rent, besides loss of practice and personal trouble	105
	£1,983

For the Company:—

Mr. Lomax considered the old house fully rented, and that the fixtures were worth 291*l.* 11s., including some iron buildings not taken at rental value.

Mr. Topliss valued the profit rent at 15*l.*		£179 0
Ten per cent.		18 0
Fixtures and iron buildings		245 8
		£442 8

Mr. Lloyd argued that though the "reinstatement" view of compensation was sometimes proper, there never was a case in which it would be more improper to apply it than to this. The removal from a small and unimportant to a large and imposing house was a benefit and advantage to Dr. Roberts, and his outlay was a judicious and beneficial expenditure. His witnesses nearly agreed with Mr. Shaw as to the annual value, after allowing for iron buildings, 30*l.* a year. He summed up his view of the figures as follows:—

Mr. Topliss's valuation, with 10 per cent.	£197
Fixtures and iron buildings	292
Removal	200
Loss of rent	100
	£789

Mr. Pownall's award, just published, is 1,955*l.*, thus appearing to adopt the "reinstatement" view.

PRIZES FOR ART-WORKMANSHIP.

THE Society of Arts, as we said would be the case, have added the following valuable clauses to their programme of prizes, enlarging the basis on which artisans may compete for prizes for art-workmanship:—

"Any producer will be at liberty to exhibit, either in his own name or through his workmen, any work or works as specimens of good workmanship in the classes given below, provided that the work or works be accompanied with a statement of the name or names of the artisans who have executed their respective portions; and, if the work or works be sufficiently meritorious to deserve them, extra prizes will be given to the artisans who have executed them.

Artisans may, if they think fit, exhibit works executed by them after other designs than those mentioned, in any of the above-mentioned classes. Such works may or may not contain the whole or portions of the prescribed designs, but must be of a similar style and character. Competitors must specify the class in which they exhibit. Extra prizes will be awarded."

The works submitted will be exhibited at the Society's house, and afterwards at the South Kensington Museum. The best of them will then be sent to the Paris Exhibition of 1867.

BANKRUPT'S MATERIALS.

Re W. Flint.—An application was made in the Court of Bankruptcy, for an order to sell some property which was in the order and disposition of Mr. Heam. It appeared from the statements on both sides that the bankrupt was a builder, and employed by Mr. Heam to build him three houses on his own freehold at Wood-green. Just before the houses were completed one fell down, and the parish officers had requested the others to be removed, as dangerous to the public. On the premises were some materials and other articles, which the assignee now claimed on the part of the estate, as being in the order and disposal of Mr. Heam. Mr. Commissioner Winslow said the application could not be entertained in the manner proposed. The section only applied to property in the order and disposal of a bankrupt. He would, however, hear the case, if both parties would submit to the jurisdiction of the Court. The solicitors for Mr. Heam and for the assignee willingly offered to abide by the decision of the Commissioner, to save ruinous litigation. There were three actions—one by the architect, one by Mr. Heam against the architect, and another action had been commenced. The assignee could bring an action against Mr. Heam to recover the materials now on the houses, which, it was feared, would have to be pulled down, and others built in their stead. Already Mr. Heam was about 1,000*l.* out of pocket. The contract for the houses amounted to upwards of 2,000*l.* The builder alleged that it was not his fault, and the architect protested that it was not his fault. The property in the premises Mr. Heam claimed, and submitted that he had a claim on the bankrupt for 1,000*l.*, and was clearly entitled to hold what little property was on the premises. The assignee insisted that it vested in the creditors, and he might bring an action unless the litigation could be prevented. The Commissioner expressed his readiness to decide the case if it would prevent further litigation. The parties could agree to a special case, and if they submitted to the jurisdiction of the Court he would go into it, and his decision, except an appeal to the Lord Chancellor, would be final. Both gentlemen embraced the offer, and the matter stands over.

DO WHITE BRICKS SWELL?

SIR,—I shall be obliged to any of your correspondents who will kindly inform me what is the best thing to do under the following circumstances. About two or three years ago I built a house, using the best perforated white bricks for the front, and the ordinary solid hand-made ones for the back and sides. The house is in a very exposed situation, and the front being about south-west is exposed to all the storms that come from that quarter. I was astonished soon after it was built to observe numerous cracks in one of the front rooms, which have gradually become larger. I at first thought there might be something the matter with the foundations, but the position of the cracks seemed to preclude that idea. They run entirely across the *piers*, some of them nearly *horizontal*, and the brickwork outside seems much disturbed also, not in any particular crack (except at the end, where the front at the top of the building has parted, with a diagonal crack, from the end of the house, which I attribute to the rising of the front), but the whole of the joints are disturbed. From these circumstances I have come to the conclusion that the mischief is to be attributed to the swelling or heaving of the white bricks. I am the more readily led to think so from having to take down part of one low boundary-wall and rebuild it, the end of it having pushed an oak post very much out of the upright. A dung-pit, built also with white bricks, is tumbling down apparently from the same cause, the corner being pushed quite out of its place. But the difficulty is, what to do with the house. I thought of stuccoing it, thinking if the bricks were protected from the wet there would be nothing farther the matter; but, leaving the expense on

e question, I do not like stuccoing where it can be ded. Is there any preparation that the bricks could be ed with that would not alter their appearance, and yet ld prove effectual and lasting in excluding wet? This me in mind of another circumstance, which seems oint to the heaving of the bricks as the cause of the ks, viz., that only lately the wet has blown through front wall, and made the plaster quite damp. I ld feel much obliged for any suggestion, and beg to ogize for trespassing so much on your space.

A Builder.

S.—I believe it is a known fact that the white bricks ome localities swell or heave in the walls after ding.

THE PORTSMOUTH BELLS.

s,—A paragraph copied from the *Builder* has been g the round of the newspapers, giving a description e peal of bells in the parish church at Portsmouth. eals of the bells having "long been silent,"—until, ed, they were recently rehung by Messrs. Mears & ibank. The bells have at no time (at least, within ast eight years, during which I have been acquainted them) been disused. On the contrary, they have regularly rung on both every ordinary and extraor- y occasion on which their services have been re- ed.

gularly three times every Sunday have they been during all that time, and if you had heard them on Prince of Wales's wedding-day, and on the recent of the French fleet, you would have been satisfied they were accustomed to make themselves heard.

e fact is, that from many years' use, the clappers gradually wearing away one side of the bells, t was necessary (in order to prevent the latter ng too thin in that particular part, and thus crack- to rehang the bells, turning them round so that the er should now strike on a sound part of the bell. has been just done, and if the bells have been for any silent, it was during the few weeks when this altera- was being effected.

enture to make this correction in justice to our town. ould have been greatly to the discredit of the people ortsmouth had they allowed their fine old bells to in, even for a week, silent for want of the necessary rs. I am sure this would never have been the case.

N. Howard McGachen, Curate of Portsmouth.

EARTH AND SEWAGE.

s,—Your correspondent, "Sanc," asks where the m of deodorizing sewage by using earth in connexion privies has been employed, and desires to have any rmation bearing on the subject.

ould refer him to some very interesting and instruc- xperiments made at the large jail of Alipore, near utta, by Dr. James Fawcus, of the Bengal medical ce, and published in the last number of the *Indian ls of Medical Science*. They are the best and most usive of any that I have met with, and (in all hot tries, especially) ought to lead to great practical ts.

at earth containing *much* organic matter should orize fæces more rapidly than earth containing little nic matter (as Dr. Fawcus's experiments seem to), will be a *new* and practically very valuable fact anitary reformers.

David Liebch.

GLASS IN CHURCHES.

s,—I should be glad, through your columns, to ask pinions of architects, and others interested in church tecture, on the following point:—

we are now using, generally, sheet-glass in large with such great benefit in *lowe architecture*, is there eason why the same kind of glass should not be used *rch architecture?*

e new system of sheet glazing is much warmer, and ds better light than the old small square and diamond . The use of *small* panes was, I imagine, universal arch architecture because *large* panes were not to be they had, I suppose, no communication formerly with rchitectural designs of the churches. May we not, utilize the present system of glazing for church tecture as well as for houses?

A Parish Priest.

CHURCH-BUILDING NEWS.

icester.—The north and south chapels of Iartin's Church have recently been restored, reopened. The north chapel has been rebuilt e Perpendicular style on the old foundation, ot a buttress which was removed to improve rrangement of the windows. In taking up ld chapel, many fragments of stained glass found, which showed that one of the win- had formerly been of stained glass. The and east walls were lined with the monu- s of the Herrick family, which have all taken down, and refixed in their former ions. The south chapel, which was origi- in the Geometrical style, has, in order to it harmonise with the chancel, been ly pulled down and rebuilt in the Perpen- ar style. The dressings and wallings of chapels are built of Matlock Moor (Derby-) stone; the mullions and tracery of Corsham ; and the inner jambs and arches of Attle- gh stone. The roof-panellings are of wains- ak, and the beams of Memel timber. The carved work is decorated in gold and other colours. The beams of the roof are supported by some carved angels by Mr. Gaghan, who has executed the stone carving throughout. The decorations of the roofs have been done by Mr. F. Winks, of this town, and the plumbing work and glazing have been done by Mr. Widdowson. The contract for building has been carried out by Messrs. Neale & Sons. The architectural details and the superintendence of the work devolved upon Mr. W. Lindley, who carried out the plans of Messrs. Braddon & Freshwater, the architects. The south chapel has been entirely restored by Miss Nedham, and the north chapel has, we understand, been restored partly at the expense of the Herrick, Macaulay, and Palmer families, and partly out of the restoration fund.

Geldeston.—The church here having become dilapidated from time and neglect, was closed for restoration at Easter, 1864. The interior has been re-seated with open benches of stained deal, and repaved with encaustic tiles, by Messrs. Maw & Sons, of London. A new pulpit and reading-desk of stained deal have been provided; the roof has been repaired and slated, and a new transept erected on the north side of the church, with a north window of four lights, in the Perpendicular style. The transept opens into the church by two pointed arches, supported by a pillar of polished granite, with a capital of carved foliage. The principals of the roof are supported on corbels of carved heads. The porch has also been restored. Mr. J. Clemence, of Lowestoft, was the architect. The cost of these restorations will be about 630*l.* The chancel has been rebuilt and enlarged by the rector. It is built of flint and Bath stone, in the Decorated style of the fourteenth century. The east window is of three lights, with geometrical tracery and pillars, with carved capitals supporting the arch within and without. The two south windows, and another on the north, are each of them in two divisions, the arches supported on pillars with capitals of carved foliage. The finials of the arches, the bases of the capped buttresses, and all the external carved pieces, are copied from specimens of the foliage of the plants and trees of the neighbourhood. The ten principals of the roof are supported on corbels carved. The carving was done by Mr. Philip, sculptor, of London, the encaustic and enamelled pavement by Messrs. Minton & Co. The communion-table and chancel-seats are not yet finished, but they will be of carved oak, of the style and character of the rest of the chancel. Part of the north side of the chancel is not yet completed, as room is left for a vestry, or for the completion of this side by another window and a new priest's doorway. Mr. Thomas Penrice, of London, is the architect of the chancel. In digging the new foundation of the chancel, a large portion of a cinerary urn was found 4 ft. beneath the surface, which the authorities of the British Museum have pronounced to be Anglo-Roman.

Books Received.

Happy Homes for Working Men; and How to Get Them. By James Begg, D.D. London: Cassell, Petter, & Galpin. Edinburgh: James Nichol.

The Rev. Dr. Begg's views have been for some time before the public; and the press generally, the *Builder* inclusive, has already brought them under notice. This volume, besides a general view of the question, including, especially, a history of the Edinburgh Co-operative Building Company, and a statement of what is still necessary, contains a reprint of a lecture by Dr. Begg, delivered at Edinburgh in 1851; a prize essay, by Mr. John Symington, a compositor; and other relative matter. The well-written essay referred to is titled, "How every Man may become his own Landlord;" and the whole volume is full of useful and suggestive matter in relation to the important subject of which it treats. Illustrations are given of the (externally not very attractive) homes already provided and in course of formation at Edinburgh.

Miscellanea.

Ipswich and Ships.—"An Ipswich man" is not contented to have it said that Ipswich affords little accommodation for the repair of vessels. Other inhabitants of the town, however, think differently, and are anxious to improve it.

Rhyl New Pier.—There is now every reason to believe that the long-talked-of pier is to be built. Iron work to the weight of 600 tons has arrived at the station, and the greater part was removed to the beach on Wednesday last under very unfavourable circumstances, the weather being wet. The first pile was driven in.

Vitreous Bricks.—Sir: Could not bricks be vitrified by inserting in the centre of each (while being moulded) *pulverized glass* mixed with saltpetre, nitre, soda, salt, alum, potassa, ammonia, litharge, or any compound that would cause the crystal to ferment through the porous mass, but not to exude, while under the process of burning?—R. T.

What is an Acre?—30¼ square yards make one square pole, 40 poles one rood, and 4 roods one acre English; thus, $5\frac{1}{2} \times 5\frac{1}{2} = 30\frac{1}{4} \times 40 \times 4 = 160$ poles, or 4,840 square yards. 36 square yards make one pole, 40 poles one rood, 4 roods one acre Scottish; thus $6 \times 6 = 36 \times 40 \times 4 = 5{,}760$ square yards. 49 square yards make one pole, 40 poles one rood, four roods one acre Irish; thus, $7 \times 7 = 49 \times 40 \times 4 = 7{,}840$ square yards.

Proposed Memorial to the Dean of Durham. A short time ago the Dean of Durham presented 2,000*l.* (in stock) to the Durham County Hospital. To commemorate the dean's liberal gift, it was proposed to erect a stone gateway to the institution; but it has since been suggested that a convalescent ward should be established in connexion with the hospital. This latter proposal has been well received, and already about 1,500*l.* have been promised.

The Imperial Gas Company.—A pamphlet titled "Facts on the Injurious Effects of the pending Bill of the Imperial Gaslight and Coke Company upon the Inhabitants of Fulham and Chelsea," by H. P. Ree, L.R.C., Phys., &c., printed for private circulation, gives, fresh evidence of the ferment which the attempt of the Imperial Gas Company to enlarge their premises in Fulham is exciting in that rural neighbourhood. It is certainly hard that gasworks which do not even light the district should be allowed to destroy the salubrity of its atmosphere.

The Margate Alexandra Philanthropic Home.—Sir: In your number for March 17th, I see an item under the head of Provincial News, relating to the Margate Alexandra Philanthropic Home, in which Mr. Moffat is stated to be the consulting architect. I beg to say that he handed the matter over to me for a consideration. I made all the drawings, and suggested the alterations; it was my report which accompanied the plans; and I got up the perspective view, notwithstanding that my name has been cut from it, and those of Messrs. Hayward & Reeve, the "builders," added to it.—David Oldfield.

Improved Houses for Working Men in Leeds.—The Leeds society for the erection of dwellings for working men who wish to be their own landlords held a public meeting on Monday evening, in Zion School, New Wortley. Ald. Carter was in the chair, and he, as well as Mr. J. Kitson, jun., Councillors Gaunt and Craven, and Messrs. Jas. Hole, J. Mayhall, and J. Bell, explained satisfactorily to the meeting how a frugal and industrious working man can get a comfortable house by very easy means, through a building society. The society have erected forty-two comfortable houses on their estate in Wortley, which are offered for sale, some at 225*l.* each, some at 195*l.*, and some at 160*l.*, exclusive of law charges. We understand that the society have now built ninety-two good houses in various parts of the town.

The Northern Entrances, Birkenhead Docks.—The works consist of three entrances from the river. The first, or north one of these, is 100 ft. wide, enough to admit the largest vessel afloat. The depth also is very considerable, being at high tide fully 30 ft., so that it will more than admit the largest vessels trading to the port. The second entrance is only 30 ft. wide, and is intended for the passage of flats and other small craft. To have to open the ponderous gates of the 100-ft. passage for small vessels would be a most undesirable labour. The third passage is 50 ft. wide, and is intended for the use of medium-sized vessels. The whole of these passages are furnished with massive gates, worked by hydraulic power. They debouch into a large intermediate dock of 7½ acres, which has been excavated to a depth of 17 ft. below the old dock sill, and from this dock corresponding passages have been opened into the Great Float.

BOROUGH ENGINEER OF PRESTON.—Mr. Newton, the borough engineer of Preston, has sent in his resignation to the corporation. We understand that he is going to Manchester, where he will enter into private practice as a civil engineer with Mr. Cawley, C.E.

A NEW ROAD SCRAPER.—A patent has been obtained by Mr. W. Smith, of Barnard Castle, for a newly-invented road-scraper. It is drawn by one horse, and is so constructed that it may be drawn along the road, delivering the mud on one side as it passes, and is calculated, if driven at the rate of three miles an hour, to clear upwards of 10,000 square yards of surface.

CRYSTAL PALACE.—For (this) Good Friday, the Sacred Concert provided for the afternoon's enjoyment includes *artistes* of high order;—Mr. Sims Reeves, Mr. Santley, Madame Rudersdorff, and Mr. Weiss, with Mr. Harper as trumpet solo, the full Band of the Crystal Palace Company, the Band of the Coldstream Guards, and a chorus. The great Show of Spring Flowers by Messrs. Cutbush, on a stage 300 feet long, all adds to the attractiveness of the Palace. For Easter great preparations are making.

ENFRANCHISEMENT OF COPYHOLDS.—The Copyhold Commission state in their report for 1865 that, in that year they completed 88 enfranchisements in clerical manors, 48 in collegiate manors, and 903 in lay manors. Since 1841 the Commission have completed 6,610 enfranchisements and commutations, the consideration consisting of 972,368*l.* for payments in full, rent charges amounting to 8,158*l.*, and 1,388 acres of land. Operations continue under the Universities and Colleges Estates Acts of 1858 and 1860, and the Commission have authorized in all 254 sales, 97 purchases, 38 enfranchisements, 18 exchanges, 29 applications for raising money, and 2 transfers of trust.

THE METROPOLITAN COBDEN MEMORIAL.—The site at the entrance of Camden-town, granted by the vestry, has been staked out for the Cobden Memorial, now rapidly progressing at the *atelier* of Messrs. Wills, sculptors, of the Euston-road. Messrs. Sewell & Sons, the contractors for paving from Highgate to Tottenham-court-road, have offered not only to fill in the site with concrete, but also to provide the granite base for the pedestal, which is 8 ft. square, free of cost, which liberal offer has been accepted. The model for the statue has been seen and approved of by Mrs. Cobden and her daughters, and the work is rapidly progressing, it is to be hoped, satisfactorily.

THE NEWSPAPER PRESS FUND DINNER.—We are glad to learn that this excellent institution now comprises about 220 members, including editors, managers, sub-editors, and Parliamentary, law, and general reporters, in London and various parts of the country; and that the number is rapidly augmenting. The accumulated fund now amounts to about 2,500*l.* It is earnestly hoped that, by means of donations connected with the annual dinner in May next, under the presidency of Earl Granville, K.G., this fund will be increased to at least 5,000*l.* The co-operation of the public generally is now solicited. The office is at 24, Cecil-street, Strand, and the secretary attends on Monday, Wednesday, and Friday, from three till five o'clock, to afford information and receive donations.

PUBLIC HALL FOR ST. LEONARD'S, SHOREDITCH.—The chief stone has been laid of a hall for municipal and other purposes in Shoreditch. The design has been prepared by Mr. Cæsar A. Long, and the execution has been entrusted to Mr. J. Perry, the cost being 20,290*l.* It has a frontage of 85 ft. facing Old-street-road, and a depth of 141 ft. The architecture is a combination of Corinthian and Doric architecture. On the basement are placed some of the necessary parochial offices, and the strong-room for the preservation of the parochial documents; on the ground-floor there are offices for the use of the vestry clerk and of the parochial surveyor, together with a sessions-room for the use of the district magistrates; and a council chamber, 59 ft. long, 30 ft. wide, and 29 ft. high, which will be the assembly-room of the select vestry. On the first floor is the great hall, capable of holding 1,800 persons. This will be the place of gathering for the mass meetings of the parishioners on all important matters of public discussion, the concert-room, the ball-room, the lecture-room of the locality. It is to be 96 ft. long, 79 ft. wide, and 39 ft. high. Sir John Thwaites laid the stone.

THE ART-UNION OF LONDON.—The Right Hon. Lord Houghton, D.C.L., has been appointed president of this association in place of the Right Hon. Lord Monteagle, deceased.

RIFLE PRACTICE.—Woods & Cocksedge, of Stowmarket, have just completed a set of their hematite iron targets, to be set up in the palace grounds at Osborne.

FINE ARTS, BERLIN.—An International Exhibition of Works of Fine Art will take place in Berlin, from the 2nd of September next to the 4th of November. It will include the works of painters, sculptors, architects, engravers, and lithographers.

LECTURE ON ARCHITECTURE, CHESTER.—Recently, Mr. Davidson delivered a very interesting lecture on the "History of Architecture," at the Chester Archæological Society, Alderman Meadows Frost presiding. A cordial vote of thanks was awarded to the lecturer.

GUN COTTON FOR BLASTING.—The extended use of this material has enabled the manufacturers to issue a new list, showing a large reduction in price; and they call attention in our advertising columns to the saving in time and cost effected by gun-cotton in blasting operations.

PAPER PIPES.—A few years ago I laid down a few lengths to convey water, relying upon the statements put forth. In my case (stiff clay), they have been an entire failure, having collapsed and become as soft as pap. Have any of your correspondents had experience of it in light soils?—J. J. MECHI.

THE SCIENTIFIC AND ART SOCIETIES OF GLASGOW.—At a recent meeting of the Institution of Engineers in Scotland a committee was appointed to co-operate with the committees from other societies in framing a scheme for the association of the scientific and art societies in Glasgow in one building.

THAMES SUBWAY.—A crowded public meeting has been held at the Literary Institution, Deptford, to take measures for promoting the formation of a subway for foot-passengers and vehicles under the Thames from Deptford-green to the Isle of Dogs. Sir Charles Bright, M.P. for Greenwich, occupied the chair; and it was stated that the plan was to have two iron tubes, 17 ft. in diameter, each tube to have a roadway for vehicles of 14 ft., and two pathways of 3 ft. 6 in. on either side of the roadway. Resolutions were adopted in accordance with the objects of the meeting, and a local committee was appointed to promote the carrying out of the project, the bill for which has been making progress in Parliament.

SELF-ACTING CLOCKS.—An application of electro-magnetism, as a motive power for clock-work, has just been made by Mr. Bright, of Leamington. The pendulum, the bob or ball of which consists of an electro-magnetic coil, is made to oscillate by means of a feeble current of electricity, thus beating true seconds, with a train of wheels only. One of the advantages of the system is said to be, that a number of clocks, in different parts, or even in different houses, can be connected together by a single wire, and the whole number will indicate the same time to a second. The clocks are of the simplest construction, and never need winding up. No acid battery is used. Mr. Bright has patented the plan; but the simultaneous movement of clocks by electrical means is not new.

THE WORKING MEN'S MEMORIAL OF THE LATE SIR ROBERT PEEL.—After the late Sir Robert Peel had carried the abolition of the corn-laws, as prime minister, in 1846, a fund was raised, by the penny subscriptions of 400,000 working men of Great Britain, to found a working men's memorial of gratitude to him. The fund so raised was invested, the University College of London being trustee, in order that the proceeds might be every year devoted to the purchase of books, maps, and other aids to knowledge, to be presented as gifts to any public library, mechanics' institution, reading-room, or literary and scientific institution in the United Kingdom, maintained by working men, or to which working men or youths have access gratis, or at a small charge. Such gifts have been made to forty-one institutions, in England, Wales, and Scotland. The trustee announces that for the present year four gifts, each in value 15*l.*, will be made. Applications should be sent in to the secretary of the college on or before the 10th of next month.

TENDERS

For the construction of the second section of the ma
drsinage works, for the borough of Portsmouth. M
Lewis Angell, engineer:—

Nowell & Doowra	£31,524	0	9
Backhurst	31,000	0	0
Light	30,650	0	0
Thirst	29,542	0	0
Furniss (accepted)*	28,565	0	0
Lawrence	27,300	0	0

* Mr. Furniss is also constructing the first section
the main sewers, the two contracts amounting togeth
to 75,356*l.*

For the erection of a public-house, at the corner
Maiden-road and Grafton-terrace, Kentish Town, for M
J. Clarke. Mr. F. Fred. Holsworth, architect. Qua
tities supplied by Messrs. Richardson & Waghorn:—

Larter	£2,954	0	0
Tracey & Son	2,938	0	0
Eaton & Chapman	2,556	0	0
Manley & Rogers (accepted)	2,517	0	0

For residence, at Leighton Buzzard, Beds. Mr. Fred
rick Gotto, architect:—

Groom & Gibbons	£735	0	0
Hobson & Taylor	697	0	0
Garside	676	10	0
Miles	669	0	0
Nash & Adams (accepted)	602	5	0

For Farm-house, at Horton, Bucks. Mr. Frederic
Gotto, architect:—

Chappell	£1,059	10	0
Miles	995	0	0
Hobson & Taylor	984	0	0
Honour	947	0	0
Garside (accepted)	904	10	0

For the erection of national schools, at Bromham
Wilts. Mr. Weaver, architect:—

Coakham	£1,009	0	0
Pickard	899	19	2
Downing & Son	779	0	0
Wall & Hook	700	0	0
Mullings (accepted)	690	0	0

For erecting Baptist chapel, Buckhurst Hill. Mr
Joseph Tanner, architect:—

Egan	£1,250	0	0
Kirkby	1,065	0	0
Barker (accepted)	880	0	0

For house and offices, at Grigg's Hill, Ditton, Surrey
for Mr. R. Taylor. Mr. J. J. Collings, architect:—

Callingham	£839	0	0
Welling	615	0	0
Bent	598	10	0
Alderton & Son (accepted)	561	5	11

For villa residence, at Maidenhead, for Mr. J. B. Burke
C.E. Mr. Robt. A. Potts, architect:—

Snowball	£819	0	0
Newell	445	0	0
Mickley (accepted)	382	0	0

For the erection of bacon-curing works, offices, and
other buildings, at Cirencester, for Messrs. Cole & Lewis
Mr. William Clissold, architect:—

Wall & Hook	£5,687	0	0
Jones & Sons	5,360	0	0
Newcombe	4,200	0	0
Barrett	4,150	10	0
King & Godwin	3,675	0	0
Freeman	2,850	12	0
Bridges (accepted)	2,641	0	0

For the erection of dwelling-house and trade premises,
at Lansdown, Stroud, for Mr. J. F. Bird. Mr. William
Clissold, architect:—

Hawkins, Hunt, & Dudbridge	£613	0	0
Wall & Hook	580	0	0
Freeman	518	13	8
Fenner	484	0	0

For new granaries, for Mr. John Donney, jun., Wands
worth:—

Thornton	£2,755	0	0
Lathy, Brothers	2,605	0	0
Atkinson	2,522	0	0
Brighton	2,515	0	0
Parsons	2,494	10	0
Adamson & Sons	2,297	0	0
Easton, Brothers	1,885	0	0

For alterations and additions to premises, No. 4, Alder
manbury Postern. Mr. T. J. Hill, architect:—

Colls & Sons	£928	0	0
Axford & Whillier	905	0	0
Henshaw	788	0	0
Sabey	770	0	0
Turner & Sons	699	0	0

For the erection of a warehouse, in Camden Town, for
Messrs. Muggridge & Alph. Mr. A. E. King, architect:—

Dove, Brothers	£6,255	0	0
Maney	5,729	0	0
King & Sons	5,249	0	0
Lawrence & Baugh	4,980	0	0
Carter	4,770	0	0
Scrivener & White	4,535	0	0

TO CORRESPONDENTS.

E. A. P.—T. F.—D.—H. C. W.—F. R. C.—T. J. H.—J. W. M'G.—
J. J. C.—W. C.—A. M.—G. W.—F. G.—R. A.—F.—L. A.—W. S.—
J. W. H.—W. S.—J. F. M.—I. R.—J. H. (we cannot interfere as
parte).—M. D. (ditto)—C F. (ditto. Apply to an architect) Elden-
bridge (the difference of practice in respect of *scaffolding* in England
and America has already been commented on in our pages).—A. & Co
(received).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE—The responsibility of signed articles, and papers read at public meetings rests, of course, with the authors.

The Builder.

VOL. XXIV.—No. 1209.

Combinations.

COMBINATION is a powerful thing, and has done good service; nevertheless, we look with something like trepidation at present doings in that direction. Architects have combined to protect themselves against committees; workmen have combined against their employers, and more than once against architects; while the builders have combined against their men, and are now combining against architects and against their employers. When the public take it into their heads to believe that all these separate combinations are simply combinations against them, results disastrous to all will follow. We are disposed to paraphrase a weighty sentence, and say, "When every class's end is its own end, then all classes will come to a bad end." Do workmen believe that the number of hours they will labour, and the price they will receive for it, depend simply upon their will and their power, by combination, to enforce that will?—or do builders suppose that if, by combination, they become able to dictate just what conditions please them to their employers, building would go on just as briskly as before, and that the result would be all gain to them? No. Both classes are too sensible to arrive at such a belief if they should trouble themselves with the inquiry. At present, however, we fear they are not troubling themselves with it.

Our pages show, week after week, the disturbed condition of the trades, and it is pointed out as well by organs of public opinion as by the reports of the societies, that the advantages sought for by the men have been obtained in the majority of cases. For every sound and legitimate improvement in the condition of working men we sincerely rejoice: to aid in obtaining such improvements we have worked and will willingly work again. Our fear is, lest in their struggles for their own supposed advantage they may be killing the goose that lays the golden eggs. Dublin can tell a story of trade departed. The iron-workers and mechanical engineers of England are beginning to find that their power to compete with foreigners is much less than it was. Be wise, therefore, in time. Look on both sides of the question. Recollect that the welfare of others is necessary for the welfare of yourselves. The glass-cutters' strike at Stourbridge has already wasted about 7,000*l.*, and disarranged trade there for eight months. The cause of it, if we remember rightly, was a question concerning the number of apprentices employed by a person connected with the trade. The strike of masons at the Cefn Viaduct, only just now ended, was caused by the employment of five men who were not members of the masons' union. Surely some mode less costly and damaging than a strike should have been adopted to settle such questions if permitted to arise.

A feeling of power to enforce produces a disinclination to submit to arbitration. A public meeting, convened by the secretary of the Amalgamated Association of Carpenters and Joiners, was held in Torquay last week, for the purpose of laying before the public the nature of the dispute between them and their masters, and to secure public sympathy on their behalf in the impending strike or lock-out. The room was crammed to excess by working men, the public being represented by about twenty persons unconnected with the building trades. After long discussion, Mr. Appleton, architect, with the view of smoothing difficulties, moved as an amendment of a motion pledging the meeting to support the men until the masters acceded to their terms,—

"That this meeting expresses the opinion that the adoption of arbitration in trade disputes is a desirable method of settling disputes, and urges the consideration of the subject, both upon masters and men."

And this was carried. The master-builders, when it was communicated to them, held a meeting, and agreed to leave the settlement of the dispute to arbitration, as proposed. At the beginning of this week, however, a deputation of the carpenters met the masters, and stated as their opinion that the public meeting which had been held did not express the opinion of the majority of the carpenters, and that they could not settle the question by arbitration, but would give the masters one more week to consider the subject; and there the matter now rests.

One of the speakers at the public meeting said justly that, if the question were regarded in the light of political economy, it would be found that both parties were almost powerless under great laws which regulated social as well as physical nature. Supply and demand alone ruled prices, and the employers or operatives of Torquay might as well endeavour to control the tides, or to decree that it should be always high water at the pier, as to attempt to fix the rate of wages. The real competition which regulated prices was not that between master and man, or even between any particular trade and the public, but between capitalists and capitalists, workman and workman. When capital was abundant, the operatives could name their own terms; and when labour was in excess the capitalists could do the same. Under Free Trade, competition was not confined to this country, but extended over both continents. If an attempt were made here to raise wages above their level, capital would make unto itself wings, and seek investment in better quarters. Emigration afforded the same resource to labour, and capital would inevitably flow into any trade in which the profits were excessive, and thus spontaneously raise the rate of wages. The best test as to the fair division of the joint profits of capital and labour in any trade, was afforded by co-operative societies, to which, on many grounds, he heartily wished success. It would be thus seen whether the employers' share was excessive by the high rate of dividend. He feared that such would not be found to prevail in Torquay; and, as far as he was acquainted with the financial condition of the building trade, he believed that, although those who had a great command of capital and credit were doing well, the little builders were rather getting under water, and could not afford any considerable advance in wages without seriously injuring the interests of the trade.

The mover of the amendment that was carried, speaking with reference to local arbitration, quoted extracts from the *Builder*, showing that at Manchester, Birmingham, and Wolverhampton, it had operated most satisfactorily. On which Mr. Alger said he had seen those reports and they were true; he added, that he mentioned this "because some of the men might have a prejudice against the *Builder* as the organ of the masters." We are much obliged to Mr. Alger for telling the meeting that we are not liars in the interest of the employers, but we cannot suppose that it was necessary. We will not believe that any but fools or rogues say that the *Builder* is the organ of the masters as opposed to the workmen. What care we for the employers? Just as much as we care for the employed, and no more. But we care greatly for both. We are influenced solely by considerations of right and wrong, of wisdom and folly: and we should have ill expressed, during a quarter of a century, the feelings that honestly guide us, and the wishes we warmly entertain, if such a misconception prevailed.

We commenced these observations with a view to the statement recently published by the Birmingham Branch of the General Builders' Association, in opposition to the "conditions" under which contractors have at present to undertake the performance of works, but we were led off in another direction. To return to that statement for an instant,—the Branch say that these conditions are at present very unsatisfactory, "principally because they are one-sided, and lack that mutuality which ought to be the foundation of all contracts; and, secondarily, because they contain stipulations unnecessarily interfering with the builder's independence. This one-sidedness and non-mutuality are apparent in the ordinary forms of conditions of contract, both in reference to the builder's intercourse with the architect and with the proprietor." In reference to the former, they object, for example, to the clause,—"Should any dispute arise as to the extent and meaning of any part or parts of the said plans or specifications, or any other matter or thing relative thereto, the same shall be referred to the architect, whose decision shall be final." They object, and with more justice, that the contractor is frequently made responsible for the omissions that occur in the plans and specifications by such a clause as this:—

"The drawings and specification shall be taken together to explain each other according to their true intent and meaning, and should anything have been omitted, either in the specification or drawings, which shall be necessary for the proper completion of any part or parts of the several works, the contractor shall provide materials and labour for the same at his own expense and cost, just as if they had been more particularly described or shown, and shall supply whatever may be required to complete the whole in a workmanlike manner."

Another class of clauses in many specifications, they urge, gives the architect an authority totally incompatible with that of the builder, and with the responsibilty thrown upon him by other clauses. For instance,—"The architect's decision as to the manner, order, and mode of the execution of the works, and the number of men to be employed, is to be implicitly observed and obeyed." Again, in cases where the contractor is bound, under a penalty, to complete the work within a certain time, the architect reserves power "to employ such other person or persons as he may think fit." It is objected that the contractor should be called on to find sureties; that the proportion of payments is frequently at too low a rate: and, moreover, depend entirely on the architect and his client. Further, that written orders in the matter of extra works or alterations should not be required. In the proposition with which the Branch conclude, they urge that the quantities of all works shall be taken out by two surveyors, one to be appointed by the proprietor or his architect, and the other by the builders about to tender for the works; and that the whole of the drawings, specification, bills of quantities, and tender, shall form part of the contract. And that in the event of any error appearing to either of the parties to exist in the said bills of quantities, the architect shall by measurement ascertain the correctness or incorrectness of the bills of quantities, and if any error exist, he shall compute the value of the work to be added or omitted in rectifying such error, and alter the amount of the contract accordingly.

We will not now discuss the propriety or otherwise of these several requirements; we would simply raise an inquiring voice against the too hasty use of any supposed power given by combination to enforce class wants and views. A country in which all classes were combined one against another would not long be foremost in the world.

GLASTONBURY ABBEY.

IT cannot be too much to say that Glastonbury Abbey is more than ever a shrine of surpassing interest; for has not the laureate told hundreds of thousands of readers, as the Welsh bard told Henry II., when he was waiting to embark his army at Milford Haven, for the conquest of Ireland, that King Arthur was buried in Avalonia,—the ancient name of Glastonbury? Will not the shade of Guinevere flit about the ruins with Pepper-and-Dircks-like reality for evermore? We scarcely need the confirmation of the fourteenth century MS., so carefully preserved at Lincoln, nor that of Wendover and Matthew Paris. But still it is interesting to read how Henry pressed his nephew, the abbot, to look for the remains in the spot indicated by the Welsh bard; and how, in the reign of Richard I., an excavation was made, and, 16 ft. from the surface, an enormous sarcophagus, hollowed out of the trunk of an oak-tree, actually found there. When opened, there lay, in separate cavities, the bones of two human beings; the first, those of an unusually tall man; the second, those of a flaxen-haired female, of ordinary stature. Can we not see in the surrounding group of eager gazers a hasty inquisitive monk bend forward to snatch the last remaining tress, and watch its faltering fall to the ground in a little cloud of golden dust? There does not seem to be so much confirmation of the other legend, with which Glastonbury is entwined as with a sacred ivy. It was not until the fourteenth century that it began to be asserted with confidence that Joseph of Arimathea died and was buried at Glastonbury. William of Malmesbury, in his Chronicle, merely says,—"St. Philip sent twelve disciples, over whom, *as it is reported*, his dearest friend, Joseph of Arimathea, the same who buried our Lord, presided." But in the fourteenth century the fact was not questioned; and by the fifteenth century John of Glaston was able to cite an ancient British author who named the exact spot of burial. Amongst the disciples of St. Philip who came to Avalonia, and were ultimately buried in the cemetery, says this early author, "Joseph of Marmore, named of Arimathea, receives perpetual sleep. And he lies *in linea bifurcata*, near the south corner of the oratory, which is built of hurdles." Later writers place implicit confidence in the truth of this statement, and repeat it without caution of William of Malmesbury. William of Worcester, in 1478, describing the fabric of the church, says,—"And opposite the second window on the south, there are in the cemetery two stone crosses, hollowed, where the bones of King Arthur were buried, and where, *in linea bifurcata*, lies Joseph of Arimathea."

The most recent writer on Glastonbury and its protensions is Professor Willis, who, from materials gathered for the purpose of a paper which he read to the Archæological Institute last autumn, has just issued a practical and useful history of the Abbey Church.* He not only questions the probability of Joseph's burial in a linen garment there, but shows that the chapel which for centuries has been popularly known as that of Joseph was nothing more than a lady-chapel, placed, like that at Durham, at the west end, an opinion which Mr. Parker had previously, though less confidently, entertained. In his evidences the Professor adduces the positions of twenty-four of the principal English lady-chapels with regard to their relative churches, to show that there was no especial obligation as to site. Out of sixteen at the east end, eleven are separate chapels (Gloucester, Exeter, Chichester, Hereford, Winchester, Sherborne, Chester, Wells, Norwich, Salisbury, Lichfield), and five are in continuation of the choirs (Lincoln, Old St. Paul's, Worcester, Lichfield, York). Five are at the side of the north transept (Ely, Peterborough, Bristol, St. Frideswide's at Oxford, Canterbury); one at the south side of the nave (Rochester); and two at the west end of the nave, as mentioned (Glastonbury, Durham). He reminds us, too, that the Saxon cathedral at Canterbury had the lady-chapel at the west end. Apart, however, from the question as to the dedication of the portion of the building in question, the architectural history of Glastonbury, extending as it does from A.D. 63 to the Reformation, is impressively instructive. The ruins are as so much evidence of the artistic powers, industry, and enthusiasm of the past left on the threshold of the present as an incentive. They seem to say to us from Saxon times as King Alfred says to us out of his regal scholarship, rarely audible from its distant transmission, "True nobility is in the mind, not in the flesh. I wished to live honourably whilst I lived, and, after my life, to leave to the men who were after me my memory in good works."

Although there are no actual Saxon stones standing among the ruins, the history of the edifice would be incomprehensible without starting from Saxon times; because, as our author asserts, it was the site of the Saxon Church that determined the unusual position of the lady-chapel, or what has been generally called St. Joseph's. The first edifice on the site, according to a legend, was that built by the twelve disciples of St. Philip on their rejection by the king and his barbarian people, and retirement to the island of Yniswitrin, as Glastonbury, then a wilderness of trees and brambles, was called. The archangel Gabriel, having admonished the refugees to construct a church in honour of the Virgin Mary (?), they built a chapel of twisted or wattled rods; but when they were all dead, the edifice lay concealed for many years, till the solitude was again penetrated by Christian missionaries, who were more successful than their predecessors. These preachers, who were named Phaganus and Deruvianus, were miraculously informed of the dedication to the Virgin, and consequently took up their abode there, electing from among their converts twelve persons to occupy the anchoritical dwellings of the first twelve. Professor Willis tells this story merely as amongst what may be termed the "Pretensions" of Malmesbury; but he might have pointed out more distinctly that there is no ground whatever for the assertion of this early dedication to the Virgin. The legend was invented hundreds of years after the asserted arrival of St. Philip.

Continuing the legend, the disciples of Phagans met daily for the celebration of worship in the chapel thus found; and as they died their number was replenished from the mass of converts. Among the visitors to this settlement was St. Patrick, who, finding their successors living in twelve separate dwellings, taught them the regular cœnobial life, and remained with them as their abbot till his death in 472. Gildas, the historian, was another celebrated person who is distinguishable among the many learned and devout persons associated with this site. He was buried before the altar in the *Vetusta Ecclesia*, by which name the first chapel was called, to distinguish it from another built in honour of Christ and the apostles Peter and Paul, by converts. We soon hear of a third church, for St. David, the Archbishop of Menevia, who contemplated a solemn dedication of the first one, being warned in a dream that it had been dedicated to the Virgin at the beginning by the Lord himself, resolved to build a new one, which he did, near the first. He carried out his original intention of a grand ceremonial by dedicating this, likewise, to the Virgin. When facts and fancy are so freely intermixed, it is, of course, difficult to be sure that we are on the right track in tracing history hidden under such a high cairn of years; but, it appears pretty clear, that these various edifices were always distinguishable from one another, for St. Paulinus, the chronicler informs us, clothed the old church with boards, and covered it with lead in such a manner, that it lost none of its sanctity, and yet was much embellished. King Ina built a fourth church, which was larger than either of the rest. All of them were placed to the east of the first one, which, it will be remembered, retained its traditional sanctity long after the other three had been replaced by the superb structure whose remains are now seen.

A great fire in 1184 (erroneously quoted as 1183, p. 9) destroyed the complete Norman monastery which at that date had supplanted the Saxon one. A chamber, with a chapel built by the last abbot, and a campanarium, built by Bishop Henry, are the only objects mentioned as spared. The abbey was at the time in the hands of the king, who, perhaps seeing some special destiny in the matter, resolved to rebuild it magnificently. He appointed his camerarius, Radulphus, the son of King Stephen, to direct the works. They were carried on for five years, when Henry died, and funds were no longer forthcoming. At this time all the offices of the monastery were repaired, and the church of St. Mary, which covered the site of the *vetusta ecclesia*, the edifice built by the first twelve colonists, was completed; but the foundations only of the *ecclesia major* were made. The dimensions of these are given as 400 ft. by 80 ft., and corroborated by the width and breadth of the nave as may be now traced. It is disconcerting and jarring to remember that it was at this sudden stoppage of the works, when some strong attraction to the spot was urgently needed, that the abbot disinterred the golden-haired Guinevere and her most noble spouse in the long primitive canoe-like oak sarcophagus. Let us hope it was only a curious coincidence that such a very popular find should have been made at such a moment; for we should be sorry to give up this little romance of history, albeit there is something troublous about the extraordinary size of Arthur's bones, it being expressly recorded that his leg-bone, or tibia, set upright upon the ground, reached to the middle of the thigh of a tall living man. We would give up St. Dunstan to Canterbury more willingly. For, about the same time, with a prodigality of fortune that looked like recklessness on the part of the blind goddess, the monks found the bones of St. Dunstan in their possession, to the great scandal of Canterbury, also in reputed ownership of those miracle-working relics. Notwithstanding these two additions to the attractions of the site, and the usual expedient of sending preachers through the provinces with relics and pontifical indulgences as incitements to almsgiving, it was many years, as its transitional style testifies, before the abbey church was finished. It was not dedicated for more than a hundred years after it was commenced. After this ceremonial, various alterations and improvements were made to it, which Leland particularizes.

The new edifice was cruciform and square ended, having ten severies in the nave and four in the eastern arm of the cross, which were increased, afterwards, to six. The transepts had eastern aisles, and consisted of three severies each, one opening into the aisle of the choir, and two having chapels projecting eastwards. There was a tower at the point of intersection, but whether there were western towers does not appear either in the documentary or architectural evidence brought forward by our author. The fragments of the south side-aisle wall of the choir contain in its length two respond piers in a similar position to those at Sherborne, indicating the position of the first termination of the choir. The two severies that now elongate the building beyond this point are formed with thinner walls, although the windows of them are exactly the same as those of the original dimensions. It is rarely we meet with such a concession to uniformity of appearance among Mediæval builders. The pillars, plinths, capitals, however, differ in their details, and the bench-table upon which the bases of the responds stand is cut off at this point. These facts lead the Professor to the conclusion that this is the particular elongation of the choir ascribed by ancient writers to Abbot Monington. As the original side aisle wall contains two severies beyond the point thus determined as the original size of the choir, it is allowed that the aisles must have extended so as to form a procession path behind the eastern gable, and that there were chapels projecting eastwards out of this path. When Abbot Monington took this space into his choir, he erected a new procession path, with chapels projecting from it, like those he caused to be taken down beyond it. The transept severy has a triforium and clerestory, the latter having large single lights, with the usual triple arcade and the usual gallery passage between them. From a terrace slope at the point of junction between the nave and the transepts, it is inferred that the pavement of the latter was on a higher level than that of the former. It is certain that the pavement of the side aisle of the choir is 3 ft. 7 in. above that of the nave, while that of the galilee is 6 ft. below it. As in so many other instances, the windows of the south aisle of the nave opened above the cloister roof, the sills being heightened for the purpose. The window heads are pointed on the outside and rounded on the inside.

There were now two edifices completed,—first, the Norman Chapel of St. Mary, and, 50 ft. to the east of it, the transitional cruciform church, the leading features of which we have just mentioned. To these, in the Early English period, was added a galilee, which connected them into one continuous structure, 535 ft. long. The large closed porches we call galilees were usual

* "The Architectural History of Glastonbury Abbey," by the Rev. R. Willis, M.A., F.R.S., &c., Jacksonian Professor of the University of Cambridge. Read at the annual meeting of the Archæological Institute of Great Britain and Ireland, at Dorchester, August 4, 1865. Cambridge: Deighton, Bell, & Co. London: Bell & Daldy. 1866.

features in the principal French Abbey churches some time before this, and were, indeed, considered indispensable for the reception of pilgrims, penitents, and catechumens. Like this, they were placed at the west end, and not unfrequently possessed altars at the east end, between the two doors into the nave. They also occasionally had triforiums, the eastern unglazed window openings of which looked down into the nave, as well as into the porch. The Glastonbury galilee differs from all in the peculiarity of doing double duty, affording ceremonial access to two churches. Its dimensions were necessarily bounded by the distance between the two, and its height limited by that of the small Norman church, which it would otherwise have overpowered. Hence there was no triforium. Professor Willis gives the Durham *porche fermé*, or galilee, as the single English example of a similar building. They are common features in French abbey churches, where they are sometimes called *ant-églises*.

Below the Norman lady-chapel and Early English galilee extends a crypt, which, contrary to previous writers, our author pronounces to be an afterthought, or an arrangement made at a later period than the building of either edifice. On the revival of the tradition of the burial of Joseph of Arimathea, Glaston relates, kings, queens, bishops, nobles esteemed themselves blessed if they could secure burial near the holy spot which contained his remains, and as this crypt was found full of lead coffins, many of which, says Stukeley, uncompromisingly were melted down for cisterns, it certainly does appear probable that it was formed for the express purpose of providing an extraordinarily select place of interment. Peculiar facilities were presented for its formation by the fact that the thick foundation-walls of the Norman chapel sank upwards of 12 ft. into the ground. All that was necessary was to dig out the earth between them and to throw a vault from one to the other. One of the vaults still standing shows that the inner face of the walls was lined with rubble, to form a resting-place for the vaulting. Transverse diagonal vault-ribs spring in a group from low pilasters or responds, the crown of the crypt being on a level with the surface outside. The pavement, which consisted of coarse tiles, as may be seen beneath the only severy still *in situ*, is 11 ft. below that of the galilee. Our author points out that old Norman materials were evidently used in part of its construction, although the mode in which they are put together shows the late period at which the task was taken in hand. Proceeding to details, he says, "The two eastern severies are exactly alike; their vault is ribbed in a peculiar form, shown in the plan, with diagonal ribs that meet before they arrive at the centre of the vault, and unite in a horizontal transverse ridge rib, which forms a cross with the longitudinal ridge rib. The ribs are composed of old Norman voussoirs, but are set in the form of the four-centred arch which belongs to the Perpendicular period. The shafts of their responds are built of the same voussoirs." He deems it likely that the Norman refectory and dormitory, rebuilt in the fourteenth and fifteenth centuries by Abbots Monington and Chinok, supplied the stones in question. The shaft of the responds is made to branch upwards, into three separate ribs, out of a rude block capital and abacus. The springing-block is shaped so as to receive the lower voussoirs of the three ribs on its upper surface, while its base dies into the upright prism. Analysing this, the Professor concludes the base, capital, springing-block, and keystones to be of Perpendicular workmanship, arranged with the especial view of using up the Norman voussoirs which happened to be available. Another new fact pointed out is, that the crypt was made in two portions; that under the galilee probably proving insufficient for the great demand for space, it was extended beneath the Norman chapel at a subsequent period. The Norman voussoirs of the western elongation are of a different section to those just mentioned: the diagonal ribs are of Perpendicular character, with plain chamfered edges, dying upon springing blocks, shaped and interposed between the vertical shaft and the arch, so as to receive them; and the vaults are so constructed that the pavement of the Norman chapel above was obliged to be heightened to the stone bench which surrounds the wall, which also involved the raising of the thresholds of the doorways. If this extension had been contemplated from the first, it is most likely that this necessity would have been obviated. The height of the first portion constructed involved no such sacrifice upon the galilee.

Those who may consult the Professor's volume for information as to what amount of these three buildings is standing, or how much of the monastery buildings is still to be seen, will be sorely puzzled, and much regret the absence of a view in any form. He gives a plan of the churches, one of the Norman turrets, the crypt, and the Durham galilee; an elevation of the south-east side-aisle wall of the transitional church, an outline of an elevation, and another of a longitudinal section, of the north side of the galilee and Norman lady-chapel (with all the architectural details left out), to show the positions of the doors and windows of the crypt, and two transverse sections of the latter, but nothing that gives a reader who is not familiar with the spot any idea of the extent or appearance of the present remains. This will be found the more tantalising because of the curiosity awakened by the ample and sufficing manner in which the subject has been otherwise treated. For views we are referred to the old stores and to photography.

THE GRANITE WORKS OF ABERDEEN.*

We need not describe in detail the method of "fitting up" or building together the various pieces which constitute a column or a monument. The hardness of Aberdeen granite enables joints to be so closely made that they are scarcely perceptible, even to an experienced eye. When made in pieces, the frustra can be so well put together that the *entasis* appears perfectly true, without a wrinkle or irregularity, even when examined by reflected light. In short, if the granites are selected carefully as to shade, the joints can hardly be traced. We shall also pass by a number of minor operations, such as the manufacture of curling stones and similar things. There is only one other department in the works in which we may linger for a moment, and that is where the art (for it is entitled to the name) of lettering is carried on. We were rather surprised, we confess, at the neatness of the lettering on all the monuments upon which we saw the men at work. The monument is first finished in other respects; the letters are carefully traced on the surface with a dark or light crayon, according to the colour of the stone. The workman then cuts the outline of the letter on the stone by light strokes of a fine-edged chisel, held almost vertically; these lines are deepened by a succession of similar blows, while the chisel is held very obliquely—the *débris* being removed in the state of powder, so as to avoid chipping. Roman capitals are thus easily formed; but old English or German letters, with a superabundance of curved lines, we observed, were carved on the granite with equal taste and precision.

We may state here that the number of men engaged in direct production in the works we have just been describing amount altogether to 500. Of these 250 are engaged in the quarries and otherwise, and 250 in the granite works; their wages range from 25s. to 30s. per week. Upon inquiring about the influence of the trade on the health of the granite masons, we were informed, much to our surprise, that they are very healthy and live to a long age. It is probable, however, that this statement should be taken *cum grano salis*; for the muscular labour is certainly severe and constant, and the granite dust cannot be absolutely innocuous. Indeed, of all the artisans who are entitled to bear the name of *mason*, we suspect the lot of the Aberdeen granite worker is about the hardest. Those who are acquainted with the quick and musical ring of the mason's chisel in a building shed in Edinburgh or Glasgow, will be struck with surprise on listening to the dull, slow, heavy, and portentous *clure* of the Aberdeen granite hewer. We know of nothing at all approaching to it, unless it may be the chipping of cast iron; and, in fact, there is a singular analogy between this process and the punching of granite blocks. The granite masons have a friendly society, which is well supported; and here we may just point out, with regard to the commodity in its finished state, that it owes its value, as our readers will perceive, chiefly to the elements of human labour and ingenuity with which it has become associated.

To speak of the innumerable purposes to which this polished granite is now applied, would soon lead us to construct a catalogue or trade list. In the premises we observed many finished articles of great beauty, such as pedestals for busts or vases of red, grey, and blue granite; chimney-pieces of the same material; numerous slabs, tables, and seats for halls; a great variety of elegant vases, in different designs (chiefly of classical Italian); mural tablets for monuments; some altar-pieces and panels; together with tombstones of magnificent size and proportions.

At the time of our visit, we also saw in preparation all the decorative pillars for the Imperial Opera House in Paris, and sixty pillars for two new banks in Old Broad-street, in London. A sarcophagus for the late Lord Lyndhurst, and an obelisk for the late Captain Speke, Lord Eglinton's monument at Ayr, and Thackeray's memorial for Bethnal-green Cemetery, were just on the eve of being despatched. We saw the pedestal of Sir John Franklin's monument for Carlton-House-terrace, and that of Sir James Macgregor for Chelsea Hospital; besides those of Brunel, Stephenson, Richard Greene, and others. Some elegant drinking-fountains were in preparation for Bombay; and polished pilasters for the Brisbane town-hall, in Australia. There was a mortuary monument of pure Egyptian type for Colonel Colt (of revolver celebrity), about to be despatched to Hartford, in Connecticut; and, lastly, there was a plain cross, 30 ft. high, destined to commemorate the mournful fate of Brabazon and Boulby, at Shanghai.

The material of granite, though very well known, will doubtless get to be more generally understood and appreciated; and other uses will probably be suggested. As it is, manufacturers of enamel, dentists, &c., use it extensively for crushing and grinding very hard materials; and for masticating gutta percha. It is also used in paint-mills for artists' colours, by such manufacturers as Winsor & Newton; as grinding-stones in the Government powder-mills; and as mortars for chemists and druggists, as a cheap substitute for agate. Granite, we need scarcely add, has now become a favourite element in what is termed Scotch jewellery; and bracelets and brooches of silver-mounted granite constitute an attractive feature in the shop-windows of the Aberdeen jewellers.

We shall now proceed to make a few critical observations on polished granite, in its modern relations to sculpture and architecture, premising that the subject is deserving of more consideration than we can at present afford to give. And first, with regard to the highest form of sculpture, we shall take a glance at what has been done in the production of statues. Several successful specimens of portrait sculpture have been executed in granite at the Aberdeen works. Among others, the colossal statue of the Duke of Gordon, which adorns the public market-place; another, the figure of a priest in full canonicals, in front of the Roman Catholic Schools,—both in Aberdeen; the statue of Sir Charles Napier, the hero of Scinde, at Portsmouth; and some others. Much more, we were told, could be done in this way with effect, care being taken that the artist, in modelling the figure, should remember the hardness of the material, and treat the details accordingly. On this question, however, considerable latitude must be allowed for diversity of taste. The late Dr. Traill, the editor of the "Encyclopædia Britannica," who visited the works some years ago, saw the first of these statues in progress, and thus describes it:—

"The most remarkable work seen in this establishment was the neatly finished statue of the Duke of Gordon, intended to be erected in one of the streets of Aberdeen. It is 11 ft. high, of a single block of granite. This statue was modelled by Mr. Thomas Campbell, the sculptor, and has been transferred from the model to the granite by Messrs. Macdonald & Leslie. Two men were at work on the drapery at the period of our visit. They worked with fine chisels, urged on by iron mallets of two or three pounds in weight. The attitude of this statue is simple, and the features are said to be very like the original. This, which may be considered as the first specimen of a British statue cut from a single block of granite in emulation of the durable monuments of ancient Egypt, is a memorial by the county to the late noble and gallant officer, and, when erected, will be a distinguished ornament to Aberdeen."*

We are afraid that we cannot bring ourselves to share in this opinion. Having carefully examined this statue *in situ* (which appears

* See p. 225, *ante*.

* Edinburgh New Phil. Journal, 1843.

from the similarity of the materials, to be carved from one block, pedestal and all), we must say that we think it anything but an ornament to Aberdeen; and, indeed, it is worse, in our opinion than the Cornish granite statue of William IV., which adorns King William-street, in the City! Besides, a colossal statue of grey granite on a pedestal of the same material, in the centre of a square of grey granite buildings, is, in our judgment, a rather monotonous affair. But the fact is, we do not think that granite is a proper material for sculpture. It was all very well for the Egyptian gods—

"OSIRIS, ORUS, APIS, ISIS,"—

concerning whom Horace Smith once made some inquiry of Belzoni's mummy. But it will not do for the present stage of civilization. In the first place, it is a fundamental law of sculpture, as the ancient Greeks well knew, that a statue should be cut from a block of homogeneous rock like the marble of Pentilicus, and not from a heterogeneous rock like the granite of Aberdeen. In the second place, the colour of a statue should be of one uniform and unchanging tone. We cannot risk the possibility of turning out a crystal of quartz protruding in the one eyeball, and a particle of mica glistening in the other—with the aggravation, perhaps, of a circular spot of red felspar glaring on the tip of the nose! But such a statue undoubtedly lies hidden in a block of granite. In the third place, if we must tell the melancholy truth, we ought not to construct our statues in these days of such imperishable materials. Alas! it will never do to send down to remote posterity our frock-coats, our fashionable pants and boots, our stove-pipe hats and stiff stocks, our umbrellas and walking-sticks carved in granite! With regard to bronze, the case is somewhat different. There is always the salutary risk, in the course of ages, that a bronze statue may be converted into cannon, or, more probably, into coinage. But granite is, unfortunately, as inconvertible as it is indestructible. We are therefore of opinion that in the art of sculpture granite ought never to be used, at all events, for the statues; and that it ought to be confined to the subordinate purposes of obelisks and pedestals. The shaft of the Duke of York's column, Waterloo-place, the pedestals furnished for the antiquities in the Egyptian galleries of the British Museum, and many public and private memorial obelisks in all parts of the country will testify to the appropriate character and fitness of the material for such objects as these. But a granite statue is a very different affair.

We come now to speak of the relations of granite to architecture. The extraordinary demand which has sprung up of late years for granite work, in the shape of exterior columns and pilasters, as well as in all sorts of interior decoration, seems to lead to the conclusion that the material has supplied a want of some sort. For one thing, it probably fulfils the requisites of what Mr. Ruskin would call "the lamp of beauty," and, at the same time, the more indispensable conditions of the "lamp of truth." The shaft of a Doric column in polished granite, is the very antithesis of a Corinthian shaft in imitation marble compo. And it is infinitely stronger than any other material, if we except the metals. Like jewelry in dress, and gilding in decoration, it is also somewhat expensive; and therefore has a value in the eyes of all those who are fond of such costly and luxurious features in their buildings and in their dress. Whether this quality have any relation to the "lamp of sacrifice," we will not presume to determine. But at all events, there can be no mistake about the growing demand for granite as a feature of architectural decoration. In the present transition state of our ecclesiastical architecture, it is much used as panels for wall decoration as well as pulpit and altar tablets. Plain shafts, about 4 in. in diameter, for Gothic windows, are much in vogue; and there are various sorts of subordinate enrichments, such as string-courses, trusses, and balustrades, gradually getting introduced, which we need not specify in detail. For exterior embellishments of a rich and imposing character, we need only refer to the polished granite columns of the Carlton Club, in Pall-mall; the pillars at Fishmongers' Hall; those in the Museum of Practical Geology, in Jermyn-street; and those (in our opinion the finest) in St. George's Hall, Liverpool. As to the æsthetic value of granite decoration, it would require a separate essay to do the subject justice. Of course, the material possesses inherent qualities, which show it to be well suited for domestic ornament, as well as ornaments for the palatial residences of rank and opulence. The rich warm tint of the Peterhead granite in particular, or the lovely blues of Cairngall, will often harmonise better with the gilded ornaments and gorgeous hangings of a modern gallery or superb saloon, either as tables or as pedestals for works of art, than furniture made of the most costly woods. Some people prefer it to the green malachites of Siberia, and to some tastes it is even superior to the cream-coloured and variegated slabs of Sienna, or the snowy marbles of Carrara. With regard to the artistic treatment of granite, the first thing to bear in mind is the character of the material; that its beauty is shown best in mass and simplicity, its warm colour and etching finish being its chief recommendations. Bold ornaments have always a good effect. But much is often thrown away in details which are more suitable for softer materials, and accordingly the appearance is not adequate to the expense. Elaborate ornaments are very expensive, and are generally unsuitable to the material. Taking a Doric column, for example, the shaft, including fillet and astragal, would cost say 40*l*. The base and capital together, though not containing one-fifth of the cubic measurement, would cost quite as much as the shaft. This is given as a comparison between plain and ornamental work. As to the principles of construction involved by the introduction of granite, we have no space to deal with them at present. We may point out, however, a fact, which is of some importance, that the labour in quarrying and working granite is much more tedious than those unaccustomed to the material are apt to imagine. The manufacturers are sometimes unable to finish the work in the short time that many professional men allow for it; and hence great disappointment and inconvenience arise, and not unfrequently danger to the building.*

One of the most popular uses to which polished granite has recently been applied is that of ornamental fountains. The fountain movement, indeed, gave a prodigious impetus to the demand. London, need we say, is liberally adorned with such works of art, representing the *utile* and the *dulce* in nearly equal proportions; and not unfrequently also the name and designation of the liberal lady or the allwise alderman who has paid the cost of erection. Architects have expended their genius on the designs; engineers have racked their brains to regulate the stream; even poets have composed elegant distiches for the adornment of granite fountains. Who has not heard of Lord Dalhousie's celebrated memorial on the mountains of Forfarshire, erected in honour of her Majesty who visited the scene about a year ago? The highly poetical legend of that solitary fountain, if we recollect properly, runs something like this,—

"Drink, weary stranger, drink; and pray
For Scotland's Queen, Victoria." (!)

Perhaps the most important specimen of a granite fountain we can mention is still that which adorns the Market-place in Aberdeen. The material consists of highly-polished Peterhead granite. The design is an octagonal basin, constructed of polished blocks, standing about one-third the length of the hall from the southern extremity. From the centre of this basin rises a shaft, 10 ft. high, supporting two cups on shallow vases, one placed over the other. The lowermost is formed out of a single block, 7 ft. 3 in. in diameter, and the upper has about half that width. A constant jet of water rises from the centre of the upper cup, flows over its edges into the lower vase, which also overflows in a thin sheet of limpid water into the basin below, whence the water is drawn for all the purposes of the market.

But of all the purposes to which ornamental granite has hitherto been applied, there is none to which it seems more especially adapted than cemetery monuments, both from the beauty of the highly polished material and its imperishable nature under all the vicissitudes of the weather. In our climate the effects of rain, sudden frosts, succeeding thaws, and, in general, the whole circle of atmospherical influences, are soon perceptible on marble and all the softer limestones when exposed freely to the action of the weather. Carrara marble, in particular, soon loses its glossy surface; it contracts greenish stains from the vegetation of minute *lyssi*; then it slowly disintegrates; and hence inscriptions, in a few years, from these causes become illegible. The polished granite of Aberdeenshire, on the other hand, retains its texture most perfectly under all atmospheric changes; it does not contract any stain from vegetation; and unless wantonly mutilated, will transmit the inscriptions engraven upon it to distant ages. The sharpness of the Egyptian heiroglyphics, carved in a similar rock 3,000 years ago, at this day proves the durability of granite carving. The modern applications are too recent to supply us with data which may be called unchallengeable; nevertheless, we may state, as one among numerous examples, that a beautiful cenotaph of red granite, from the Aberdeen Works, has been exposed to all the vicissitudes of our changeable climate for twenty-six or twenty-seven years, in the churchyard of Falkirk, and still appears in the full lustre of its original polish as if it were erected yesterday. Fine specimens of granite pyramids by the same artists, may be seen in the noble cemetery at Glasgow, the Dean Cemetery at Edinburgh, and at the romantic churchyard of Stirling; and, if we may judge from appearances, they will soon be as plentiful in Brompton and Bethnal Green. All these memorials are good in design, and more or less beautiful in execution, and seem calculated to bid defiance to every destroying influence except wilful injury, or those rare catastrophes which, in legal phraseology, we are accustomed to ascribe to civil commotions or "the hand of God."

For such public and cemetery memorials granite is used in an infinite variety of forms—from the slender column to the massive obelisk,—from the Runic cross to the Egyptian pyramid. These monuments vary in cost from 5*l*. to many thousands,—if we include the different orders of Mausolea which are gradually spreading over the country. Such structures we need not stay to describe. They must be well known to our readers during the past five years,—particularly in connexion with the Royal family. From the quarry of Cairngall, in Aberdeenshire, the sarcophagus for H.R.H. the Duchess of Kent was furnished; and her Majesty has likewise commissioned one for the Royal Frogmore Mausoleum to be made from this same material out of one of the largest blocks ever dug from the quarry. It would be an interesting though mournful task to recall some of the sad events which these granite blocks commemorate; but that is ground upon which we must not linger.

Such, then, is a brief and imperfect account of the artistic relations of Aberdeen granite. The perfection to which its designs have been carried, and the precision with which the refractory but beautiful rock is worked to the designs, have undoubtedly contributed to form a new era of British art; and another school for British industry. It should seem, too, that as long as the primitive rocks endure, and the supply is certain, the demand will still increase. For Aberdeen granite now finds its way into all parts of the civilized world,—to the backwoods of America, and the wilds of Australia,—to the cities of China, and the cemeteries of Hindostan; and there, we trust, it will long continue to tell the story of brave men who have died for their country—who have either contributed to the success of her arms, or to the peaceful progress of her arts!

We shall take another view of the subject.

* A writer in the Architectural Publication Society's "Dictionary," suggests that, when an architect determine on the introduction of granite into a building, he should communicate early with the manufacturers, and allow as much time as possible for the execution of the work.

ON THE PARLIAMENTARY PROCESSES INVOLVED IN THE SANCTION OF PUBLIC WORKS.

THERE are probably few, except those more immediately concerned in operations requiring to be sanctioned by Parliament, who are in possession of a knowledge of the ordeal through which such measures have to pass before being properly authorised. In relation to large railway projects, the proceedings are so complex and numerous that the parties interested in the carrying out of some particular scheme cannot at all times mutually comprehend the views and interests of those with whom they may be co-operating. Parliamentary agents are supposed to have a knowledge of the forms required to be complied with in introducing a subject to the consideration of the House. They are also considered to be capable of affording some notion of the reception it may meet with; but the means by which they arrive at this knowledge is as obscure as their professional standing.

The functions of the solicitors engaged in connexion with any bill seeking powers from Parliament for the construction of public works, are probably more determinate. They have to reconcile opposing interests arising out of the invasion or infringement upon rights of property. Neither the Parliamentary agents, however, nor the solicitors, are qualified to form authoritative opinions as to the constructive details; the practical part is, therefore, altogether reserved within the province of the engineer.

Promoters, where such parties appear, are generally actuated by some fixed and silent policy, which no one seeks to fathom from its unfathomableness. Setting aside, however, their private aims, no doubt many great and successful enterprises of modern times must be attributed to their courage and perseverance. They form a class, but by no means so large a class as is commonly held to be the case, whose views, when they do meet with success, are a result owing to the skill and co-operation of others.

The first important step towards applying to Parliament for authority to construct a line of railway is the preparation of the requisite plans by actual survey on the part of the engineers. In the more remarkable undertakings, engineers themselves take the initiative, and are promoters as well as engineers. The plans required to be deposited before Parliament show the extent and locality of the proposed line. The deposit of plans has to be preceded by advertisements published once in the *London Gazette*, and once in each week for three successive weeks in the newspapers published nearest to the locality of the proposed works. All the advertisements must have appeared before the date of the deposit of plans. Their purport is to record that application is intended to be made to Parliament for leave to carry out certain works likely to prove of public benefit. If it be a railway that is contemplated, mention is made of the exact point of its commencement, the various parishes through which it is proposed to pass the point of its termination, and its junctions (if any) with existing lines. Here genius begins to give substance to the visions of the economist. The preparation of the Parliamentary plans is a work of anxious responsibility and labour, as the want of proper skill and judgment at this stage would be fatal to the interests of every one concerned. The plans required to be deposited are made to a certain scale, as ordered by the House, and consist of a line showing the direction of the proposed railway, with the property on each side of its entire length shown within certain limits, called the limits of deviation. Beyond these limits, when the actual construction of a line of railway is decided upon, the works cannot legally extend. For the most part the plans consist of a dark line representing the course of the railway, bounded by two dotted lines shewing how far the centre line or line of rails may be moved from one side to the other within the limits of deviation, in the event of authority for the construction of the line being obtained. These various lines are drawn over the plan made from actual survey of the houses and properties which may be interfered with; and every one of these properties, however trifling, is marked with a number corresponding to numbers in the reference-book deposited with the plans. The owner and occupier's names are given in a printed form to show that proper inquiries have been made by the solicitor's reference clerks, and as a guarantee that all those likely to be affected by the operation of the scheme have had due notice of the intentions of the promoters.

A section shewing the nature and extent of the gradients, or rise and fall of the line within certain distances throughout its entire length, is sometimes given beneath the plan of the line itself; but the gradients are frequently printed on separate sheets, following on after the plan. An Ordnance sheet, or authorized map of the locality, having the direction and course of the line marked in red, is prefixed to the deposited plans; and an advertisement, cut from one of the papers, showing the terms in which the intended application to Parliament had been published. The sheets bearing this information are bound together and made up into one roll, and are deposited before eight o'clock on the evening of the 30th of November, in the Private Bill Office, in the House, between the statues of Burke and Fox, and opposite those of Pitt and Chatham.

Lord Chatham may be said to be in an attitude protesting against the lodgment of the plans; Charles James Fox is apparently taking a contrary view of the matter. Edmund Burke is attempting to forestal the consequences of the measures being authorized; while Pitt, overleaping all the gradations of thought, seems looking upon his country from some remote world, puzzled and perplexed at all that he sees being enacted.

Besides the plans required to be deposited in the House, copies of them have to be deposited at or before the same moment, as in the Private Bill Office, with the clerks of the peace for the various parishes and counties through which the line is proposed to pass; and copies have also to be lodged with the Board of Trade.

On the 30th of November last, just before the clock struck eight, several groups of men might have been observed, standing silent and motionless as the statues by which they were surrounded, in the sculpture corridor at the end of St. Stephen's Hall. The Genius of Futurity beckoned the imagination of every one. There stood an assembly of men awaiting the solemn dawn of a new era of the history of the world, and conscious some of them that they were more or less the authors or creators of it. Presently the great clock struck, and just before the sound died away the key of the Private Bill Office turned upon schemes of human labour in Great Britain to the extent of one hundred millions of money,—just about one-fourth of the amount of the accumulated national debt of France at the period of the Revolution.

During the week preceding the 30th of November, in all the principal offices in Great George-street, lights may be seen burning throughout the night. The importance of all that is being carried on in this especial locality during this period can only be estimated by looking back for the past fifty years, and tracing the changes which have been wrought in the destiny of the country. An observer might discover here a spirit of application and wakefulness of a character quite different from that which marks all other occupations. For the whole of the day and night preceding the day for the deposit of plans, the hurried arrival from and back again to the various lithographers engaged in making the copies and plans and sections, the anxious revision and despatch, the more anxious dependence upon the character of the work as it finally leaves the printer's hands, the continual arrival of telegrams, the sudden apparition of parties believed to be in Wales or Devonshire, the peculiar stillness in which all the concluding and more momentous points are arranged, contribute towards forming a scene which those helping to compose it cannot comprehend the significance of at the moment. It is only, perhaps, at the distance of some two or three years, when the locomotive is speeding over what was once deemed the unconquerable inequalities of the earth's surface, that these triumphs call back the time when they were only labours of calculation and thought. After the deposit of the plans, books of reference, copy of *Gazette* notice, and maps, on the 30th of November a Bill has to be prepared giving full particulars of the undertaking, and this Bill has to be deposited in the Private Bill Office on or before the 23rd of December. The estimate of the entire cost of the proposed works has also to be prepared and deposited in the Private Bill Office on or before the 31st of December. The last technicality to be complied with before any measure can be said to have fully come under the consideration of the House is the deposit of eight per cent. on the amount of the estimated cost of the works. This deposit has to be made in the Court of Chancery on or before the 15th of January, and in many instances exceeds 100,000*l.* Shortly after this, the Bill will be brought out of the archives of the Private Bill Office and come before the examiner on standing orders, who sits for the first time in the beginning of the Session on the 18th of January. The duty of the examiner is to see that the rules made by the House, with regard to the introduction of measures submitted for consideration and approval, have been duly complied with. At this early stage the opposing interests come into collision and assume the character of preliminary warfare. It is singular here to observe that perpetual conflict of opinions, which, descending in order down through all the cycles of thought, at last appears in undiminished proportions entering into the most trifling and actual affairs of life. Representing still the two factors of state government and progress; the two sides of the senate of France; the opposing factions in America; the distracting councils of almost every government in the world; the warring elements between which the pathway of individual life itself is shaped. Before the examiner all the weak points of the scheme are attacked and laid bare by the counsel and witnesses for the opposers. Existing railway companies, like the holders of successfully working patents, lodge a perpetual opposition against parties endeavouring to acquire similar powers to their own.

In many cases these companies have succeeded in pulling the ladder up after them, but to accomplish this they have of course been backed by a considerable amount of railway influence inside the House. There are various Parliamentary centres of gravity towards which members are attracted in class, and they are thus enabled, without any apparent exercise of judgment, to vote for or against a measure. This is only as it relates to the influence members may bring to bear upon matters altogether apart from real Government questions. In the latter case they become homogeneous in proportion as they confront something impersonal, and the silent and invisible genius of the constitution renders the ejaculation of a single word impossible on the part of some members, while they are acting as members.

Many of the incidents brought out in the evidence given before the examiner are exceedingly amusing. Concerning railway projects, it is a very frequent circumstance for the opposing counsel to bring forward a witness to prove that he has seen a donkey grazing upon some portion of land, the description of which land in the books of reference lodged by the promoters would not lead any one to infer this to be the real nature of the land. Frequently this turns out to be a portion of the slopes of an existing railway embankment, but almost invariably it results that the donkey had no right to be there. It is to be wondered at why this ludicrous circumstance (and there are several kindred ones of a recurrent order) should so often be brought to be witnessed by those engaged in legislating upon railway matters, unless it be with some forethought of merriment.

Trifling inaccuracies in detail sometimes appear upon the investigation conducted by the examiner on Standing Orders which may even necessitate an official report of Standing Orders not having been complied with, although the prospects of the Bill may be in no way affected.

Of this circumstance very little knowledge seems to be generally entertained, and it is not uncommon to see the report copied into the various newspapers with additional comments, saying that the Bill has been lost through not having complied with Standing orders, whereas at the same moment the Bill may stand on a most favourable footing in the House.

In cases where the examiner has to report that the Standing Orders have not been complied with the Bill is referred to the Standing Order Committee of the House of Commons. If the Committee report that the Standing Orders have not been complied with, the matter is not allowed to proceed any further during the current session; but it will be most probably presented with amendments and modifications which will ensure its being more favourably considered in the ensuing Parliamentary session.

After a public works Bill has passed the examiner on Standing Orders and the Standing Order Committee, it then comes under the consideration of the referees, who decide whether the Bill shall be passed to be examined in committee or rejected.

Considerable dissatisfaction has been experienced this session by those concerned in the carrying out of large public works owing to the influence brought to bear upon these measures when they enter the Court of Referees. On one day alone, in the beginning of the second week in March, schemes were put aside in the court over which Lord Redesdale sometimes presides which must have caused, at the lowest estimate, a loss of 50,000*l.* to those who undertook to submit them to the consideration and approval of the House. This is the greatest difficulty which parties interested in the promotion of public works have to contend with. It is unfortunately beginning to be somewhat seriously felt that where a large amount of authority is invested in an individual form it is possible that it may be used by the person holding it in a moment of official caprice or simply *pour se distraire*. Under circumstances where heavy expenses have been incurred by those taking the initiative in promoting public works, it is necessary to discover some means of protec-

tion against the momentary decision of those holding a situation of official indifference. A careful and judicious consideration of public measures is no doubt essential, but this is not attained by the system at present in operation. Sooner or later the tribunals which now revise and shape the industrious tendency of the nation must be abolished, and engineers and architects be appointed to sanction undertakings which are at present authorized by expert hunters or legal functionaries.

Notwithstanding the disappointment sometimes arising from the operation of the present system, however, it is much to be preferred to the policy of granting concessions which is adopted on the Continent and abroad. From the parties aiding in procuring the concession from the Government downwards, until it reaches the idle hands of those who are instructed to regard it only as a marketable commodity, and to obtain the highest possible price in disposing of it, every one is interested in diminishing the fair profits of the work.

Cases have occurred in which no less a sum than 40,000*l.* has been asked by parties holding concessions authorising the carrying out of public works abroad. Probably six times the amount of money is expended before possession is obtained of the proper powers for executing public works abroad than is expended in England, and it has become a sort of profession to solicit these concessions from foreign Governments, and the concessions are imported to England for sale to contractors or capitalists.

THE MARKET-CROSSES OF SCOTLAND.*

As a lamentable instance of the bad state into which some market-crosses in Scotland have been allowed to fall, we may cite the cross of Alloa. There is the less excuse for this neglect, since Alloa (*Auld Waeg*—the way to the sea) is a prosperous place, and the leading town of a county which has turned out a rich field to the British archæologist. Is Alloa itself too much engrossed with its ale to give a thought to its antiquities? We are unwilling to think so; though it must be confessed that, touching "the ancient cross of Alloa," the facts don't tell well. Were there a law against the ill treatment or rough usage of market-crosses, Alloa Cross might certainly make out a good case for damages. Pulled down half a century ago, this unfortunate object found a refuge in the grounds of Alloa Park, the seat of the Earl of Mar;† but about five years since the column, for some inexplicable reason, was removed to the "flesh-market," in Bank-street, where it at present lies, or did lately lie, broken and disfigured. The structure is thus described:—"Exclusive of the square pedestal, the freestone column, which is octagonal in shape, and about 50 in. in circumference, is 9 ft. 6 in. in length, while the sculptured capital is 2 ft. 9 in. in height. The pillar is broken in two, and the sculpture work is damaged." Might not the town-council of Alloa follow the example of their brother magistrates of Edinburgh, and restore the burgh cross? The head of the Walk has been suggested as a site in every way suitable and appropriate; the injury which the relic has sustained could be repaired, as we are informed, without much difficulty; and the cost of restoration would be trifling. Granted that the memorial cannot be called striking or splendid, the fact that it is the burgh cross is argument sufficient for its restoration.

Or we might point out what has been done in Peebles as an example to Alloa. The history of the cross of that quiet and consequential little royal burgh, is the history of a narrow escape. However, if the present generation of Peebleans are able to boast of the possession of this time-honoured emblem of civic dignity, the thanks are not due to the town authorities, but to individual effort and private liberality. There was not much difference between a Peebles and a Perth bailie, or between an Ayr and an Alloa councillor, about the end of the last century. Bad taste appears to have fallen like a universal blight upon the municipal mind of the time, and among the first objects sacrificed to it was the town's cross. We are willing to make every allowance for our forefathers, who lived in rather troublous times, if their successors would show the possession of a better taste by correcting their shortcomings. In former ages, Peebles was a place of celebrity, and up to comparatively recent times a town of considerable importance. But like Rip Van Winkle, she went to sleep in her snug Tweed valley for a generation, and "as quiet as the grave, or Peebles," had passed into a proverb. It was only the other day that she awoke up at the scream of the railway whistle in her streets. The locomotive gave the place a fresh start in life. The old Cross of Peebles was a structure in keeping with the former importance of the burgh. It consisted of an octagonal building, 10 ft. high and 12 ft. in diameter. A door and inner flight of steps led to a paved roof or platform, from which rose an octagonal shaft of sandstone, 12 ft. high, and 3 ft. 3 in. in circumference, decorated on four sides with carved shields, and having an ornamental capital, bearing the crests of some of the Tweeddale family, and the arms of the burgh.* Above this was a vertical sun-dial with four sides, and the date, 1699, the whole being surmounted by an iron vane, pierced with the figures 1662. The cross stood in the middle of the High-street, opposite the head of the Northgate. Of the date of its erection there is no record. "This cross," says a local authority, "was not the first which had been erected, nor probably the second, but more likely to have been the third of a series on the same spot, and put up subsequent to the disastrous occupation of Scotland by Cromwell." One of the most interesting associations connected with the Peebles Cross was the ceremony of opening Beltane Fair, which was for a long period the great festival of the district. Beltane Day is celebrated in that remarkable poem, "Peebles to the Play," of which James I. is supposed to have been the author. The festival or fair took place on the 1st of May, and was opened by public proclamation at the cross by the magistrates, "attended with their officers and the burgh piper in full uniform;" after which they had an "entertainment." Since the year 1798, however, all ceremony has been dispensed with, and the so-called Beltane Fair of to-day is a very tame spectacle. From time immemorial the monarch's birthday was celebrated at the cross in much the same fashion, though on a smaller scale, as at the Cross of Edinburgh; and refractory Peebleans for many generations had been pilloried at it. In 1807 (March 25), as appears from the Burgh Records, "The provost reported that the cross was in a very ruinous situation, and that it was necessary either to have the same repaired, or taken down. The council agree that the cross be taken down and removed; and further resolve that the whole materials be sold by public roup." The shaft became the property of Sir John Hay, who had it set up as an object of interest in his grounds in the neighbourhood. There it remained until 1857, exactly half a century, when it was presented to the burgh and re-erected in the quadrangle of the Chambers Institution. The shaft was placed on a broad octagonal base, forming two steps of carved sandstone, and round the upper step, in raised letters, is the following inscription:—"The Old Cross of Peebles, removed from the street to King's Meadows, 1807; presented to the burgh by Sir Adam Hay, bart., 1857; and repaired and re-erected by W. Chambers, 1858." The site is an excellent one so far as the security and protection of the relic are concerned, and it was no doubt thought to be the most convenient site. We think, however, that the restored cross should, in every case where it is at all possible, occupy the original foundation, which, of course, was invariably in the open street, and the most conspicuous situation that the town afforded, so that it might be, as it were, within sight of every inhabitant. To place the cross apart from the thoroughfare, and guard the approach to it by lock and key, takes away from its municipal character, and turns pretty much into a mere antiquarian curiosity.

Looking at the fate of nine-tenths of the market-crosses of Scotland, one is inclined to regret that every town was not so fortunate as Melrose in having this object sustained by special endowment. "There is a ridge in a field, near the town, called the Corse-rig, which the proprietor of the said fields holds upon the sole condition that he shall keep up the cross." The Corse-rig is a quarter of an acre in extent. We are not aware whether the cross has been repaired recently, but about thirty or forty years ago the proprietor of the field expended 20*l.* in repairing it. The cross must be one of the oldest existing in Scotland. It is supposed to be coeval with the celebrated Abbey of Melrose, which dates from the twelfth century, but this is doubtful. The cross is in the form of an octagonal or circular flight of steps, with an upright shaft, surmounted by the crest of the Haddington family, this ornament having supplanted a popish emblem in 1604. Had a similar provision to that of Melrose been made in the case of every Scottish town, we should have had many an interesting cross, the loss of which we now lament, including the crosses of Dundee, Montrose, Selkirk, Ayr, and other places. The Selkirk cross—a very curious building, it is said, occupied the centre of the spacious market-place, but was many years ago swept away by order of the magistrates, "in conformity with a taste which has of late years proved as destructive to those fine old ornamental structures throughout the burghs of Scotland, as the ruthless order of the General Assembly of 1648, proved to their namesakes the crosses that had been almost everywhere preserved on their churches at the Reformation.* The cross of Ayr,—

> (Auld Ayr wham ne'er a town surpasses,
> For honest men and bonnie lasses),

is mentioned as having been a building of some elegance, in the form of a hexagon. It stood at the western extremity of the main street, but was removed to make way for certain improvements attendant on the erection of the new bridge in 1788. Some coins discovered at its foundation point to the reign of Charles II. as the date of its erection. If in this instance absolute improvements necessitated the removal of the cross, they did not also necessitate its destruction. It does not seem to have occurred to the civic authorities that since the cross was or had to be removed at any rate, the cost and labour of re-erecting it on some other suitable spot could not have been much greater than the labour of pulling it down. It was only the setting of it up again. The thing, unfortunately, was not seen in this light, and the cross was sacrificed. In the picturesque hamlet of Foulis, in Perthshire, there is a curious cross, of which the following description is given in the "Statistical Account of Scotland:"—"On one side is a representation of a wolf-chase, in bas-relief, in which there are figures of men on horseback, and a blood-hound. The wolf appears grasping a head in his fierce jaws, and tradition says that in the course of his chase he ran through the town of Foulis, and snatched off the head of a boy. In the same group of figures are six men, dressed in a peculiar style, and following an animal supposed to be led to the sacrifice. The figures on the other side are much defaced, and there are gyves or chains on it, which fastened to culprits and exposed them to infamy, a species of punishment similar to the pillory." In Dull, another village in the same county, there is a cross of sufficient interest to claim a word of notice. It is a tall time-worn obelisk, fixed into a large round socket, and stands in the centre of the village. Connected with this cross was a remarkable privilege attached to Dull monastery, long since in ruins. A considerable part of the surrounding ground was constituted into a sanctuary or holy-rood, after the manner of the sanctuary at the Holy-rood of Edinburgh, already mentioned, where debtors and offenders of all sorts were secured from molestation on fleeing to the above cross or its inviolable precincts, which extended for half a mile in a direct line from S.W. to N.E., and were pointed out by three crosses of similar description—a large one and two smaller ones. The largest of the three stood in the intermediate space betwixt the other two, and the place is still called Druimdiamhain, a corruption of Druimandion, meaning "the centre of defence or safety."† The only vestige of the village of Scone—a name famous in Scottish history—is the ancient cross, an upright column, measuring 13 ft. high, slightly ornamented at the top, standing on a circular pedestal of steps which gradually diminish to a small flat octagonal stage from which the pillar rises. The date of the cross we have not been able to discover.

The most noteworthy thing about the cross of

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* See p. 185, *ante*.

† It is a fortunate circumstance that a few of our crosses at least have, in their evil days, found a home in this way. The columns of the crosses of Edinburgh, Peebles, Alloa, and Fochabers,—the last, we believe, is standing in the Duke of Richmond's Park,—would otherwise probably have been entirely lost or destroyed.

* "A shield with three fishes proper, that in the centre swimming in a contrary direction to the other two. The motto beneath—*Contra nando incrementum*—(increase by swimming against the flood) is designed to signify that for every salmon that swims up two swim down the Tweed."—*Peebles and its Neighbourhood.*

* Picture of Scotland, 1827.

† Statistical Account of Scotland.

Lochmaben—an ancient royal burgh of Dumfriesshire—is its history. The structure itself, which is in the market-place, is barren of architectural attractions, being merely a long perpendicular stone fixed into a broad freestone socket. When the neighbouring castle of Elshieshields was built, two or three centuries ago, this stone, as the story goes, was left from the materials employed in its erection. At this time Lochmaben had no cross, and being anxious to invest their town with the burghal dignity which that object was held to confer, the magistrates "made over to the laird of Elshieshields, and his heirs and successors for ever, the mill and mill lands of Lochmaben, a part of the burgh property, as the price and purchase of the said stone, to the intent that it might be erected as a market-cross in their burgh." The bargain has turned out well for the heirs and successors of the laird. What the property may be worth at the present day we cannot say, but forty years ago the proprietor of Elshieshields was drawing from it annually the sum of 100*l.* sterling. At the date of the transaction the mill and mill lands yielded the town a yearly rental of only a few merks, and doubtless the worthy corporation thought that the bargain was all on their side. A few miles from Lochmaben is the beautiful village of Minnichive, in the middle of which there is a cross, erected in the year 1638. It is a freestone structure, 14 ft. in height, consisting of a pillar 9 ft. high, rising from a circular pedestal 5 ft. high, and devoid of ornament. In the town of Turriff, in Aberdeenshire, we find a form of cross common to a number of villages and burghs of barony throughout Scotland. It is a plain shaft of sandstone raised on a pedestal of circular steps, and measures 20 ft. from the base to the capital. Crosses of this description, it may be remarked, were seldom so high as this. That the cross of Turriff is an object of considerable antiquity is proved by the fact that the sheriff of the county, in more primitive times, occasionally held his courts at it. In the year 1557 an inquest is mentioned as being held, "*Apud Crucem de Turreff.*" Time, who, as says the poet, writes no wrinkles on the sea, treats market-crosses and human beings differently. About thirty years ago, this venerable memorial fell into a very dilapidated condition; but instead of "ordering it to be taken down, and the materials sold by public roup," it was carefully repaired. In spite of every effort to preserve it, however, of late years this interesting object has been fast going to decay, and we understand a desire has been expressed to rebuild the cross of Turriff. There is a cross similar to the above in the Aberdeenshire village of Old Rain or Rayne, but measuring only 12 ft. from the ground to the top. If we mistake not, there may still be seen fixed in the shaft an iron staple with links, the remains of the jougs in which offenders were exposed to public shame in former times; and we have heard that a part of the iron collar which, attached to a chain, clasped the neck of the delinquent, depended from the cross within the memory of people still living. The cross is believed to have been erected in the end of the seventeenth century, when the place was constituted by charter a burgh of barony, with regular markets and bailie courts. It was probably built by John Montgomery, who designed and erected the Cross of Aberdeen, and who was a mason in Old Rain at this period. The thriving seaport town of Macduff, Banffshire, has long possessed a market-cross. The present simple and unpretending erection, which stands near to the established church, bears the following inscription:—

"MACDUFF CROSS.
Rebuilt at Macduff, by the Earl of Fife 1783, when that place was constituted a Royal Burgh by George III.
May it flourish;
and long increase in
numbers and in
opulence;
while its Inhabitants gain the Blessings of Life
by Industry, Diligence, and Temperance."

The local belief is that the burgh is fulfilling to the letter the hope of its founder. If that be so, Macduff ought surely to be the happiest and most contented of burghs. Some further remarks on the subject of crosses we reserve for another occasion.

A Palmerston Monument for Sligo.—It is proposed to erect a monument to Lord Palmerston in the town of Sligo, near which was the greater part of his Irish property. The late Premier was very popular as a landlord.

THE YEW.

After the oak,* there is no British tree that in grandeur and endurance can vie with the yew (*Taxus baccata*); like the oak, its length of life is prodigious. Immense shells of dead yew-trees are spread sparingly all over the country, but living specimens of this tree cannot now be recorded as very common, and the ancient yew-tree groves have almost passed away. Though the yew is seldom seen in woods now, it is essentially of gregarious growth, and is stated to be (perhaps erroneously) very rare, or extinct in Ireland; that it was not so at one time is proved by its frequent exhumation from the peat bogs. It is fond of mountainous and hilly, but moist, districts, and abounds in all parts of Europe except the extreme north. Like all slow-growing trees, its wood, to an extreme degree, is close, hard, enduring, and little affected by water. One specimen of the wood of this tree may be seen in good condition at the British Museum, from the excavations at Nineveh, apparently quite free from any effect of time or insects; and another specimen, from the ancient submerged lake-dwellings of Moosseedorf, Canton Berne, of enormous antiquity. It frequently grows to an immense size, and some are recorded in this country more than 50 ft. in circumference.

Its use, at least in modern times, seems to be principally confined to various articles of furniture, for which it is in every respect specially adapted; for, in addition to its great hardness and durability, it possesses considerable beauty and variety of colour in grain; portions from gnarled and knotty protuberances of the trunk are particularly so, and in great demand for small ornamental articles of furniture, such as boxes, door-handles, bell-pulls, &c.; its use, however, is by no means confined to small objects, but larger movable household goods have been, and still are, made of this wood. It at one time was much used for bedsteads, on account of its being extremely repellent to insects; bugs and fleas cannot exist in its close proximity: this is a very singular characteristic of yew wood, as, up to the present time, no insect is *known* that attacks it, either in its living or dead condition.

That yew wood is not now more used for a greater variety of purposes may perhaps be owing to its comparative scarcity; but in ancient times the yew was the only wood used for the manufacture of the bows of our forefathers, and was exported to such an extent for similar purposes, that a law was made for its special protection. It seems reasonable to suppose that after the old timber trees had once disappeared, no pains were taken to replant the divested localities, partly owing perhaps to the introduction of fire-arms, and partly because when planted the tree was so long before it attained any considerable size.

One of the most interesting facts in connexion with the yew-tree is its frequent occurrence in churchyards, and most of the finest specimens in this country are to be found closely adjoining ecclesiastical buildings. The reason for this is not very clear; but it is evident, in many instances, that the yews were not planted near the churches, but that the churches were built near the yews, as the ages of several British specimens of this tree are known to be far greater than those of the buildings to which they are attached, many yew-trees dating anterior to the Norman conquest.† There seems to be some reason for supposing that this tree was considered sacred in this country before the introduction of Christianity, and that certain religious rites were performed in groves of yew; the first Christian churches being erected on the sites of heathen temples, they necessarily were built near yew-trees. But why this tree was retained in the churchyard, and Christian churches afterwards built near yews, yews ultimately planted in churchyards, and the wood used for religious purposes, as is proved by references to "consecrated yew," is certainly more difficult to understand. Many trifling reasons have been offered at various times, not worth repeating here; but, of all trees, perhaps no other has so many ghostly legends and superstitions in connexion with it. The shade of the yew was at one time considered fatal to any creature sleeping beneath. It was always an emblem of death and silence; and for this reason, and perhaps for its great length of life and freedom from deterioration, it may have been selected as an emblem of incorruptibility. It appears to the writer that the ancient belief of yew-wood counteracting and curing the bite of the serpent may in some way be connected with its retention; but in support of this or any other reason for its selection there is little or no evidence to bring forward.

To the landscape painter the yew-tree, as a beautiful natural object, is invaluable, the deep green colour of its foliage and the peculiar conformation of its branches forming an agreeable contrast to the fresher hues and less symmetrical forms of other woodland trees. But, interesting as is the gigantic trunk and huge masses of foliage to the landscape artist, the yew-tree increases in interest as we more fully comprehend its details and attributes. For ornamental compositions it is seldom selected,—not because its details are unfitted for ornament, but because designers have not become acquainted with the tree; had they known it, we should have more frequently seen paintings of the beautiful fleshy crimson fruits with which its branches are studded in autumn, in shape somewhat like a bell, and in colour scarlet-crimson (bearing a nut within, fruit and nut both being esculent and of a very agreeable flavour). The fruit sometimes varies with yellow berries, like the yellow-berried variety of the holly. Its flowers are inconspicuous, and appear in the spring, and the fruit in the autumn.

The yew-tree has this peculiarity,—the sexes are separated, one tree being the male, and consequently never bearing fruit, and the other the female, or fruit-bearing tree, quite depending on accidental circumstances for the transmission of the fertilising pollen of the male, without which, of course, the female would be as devoid of scarlet fruit as the male. Where the male and female trees are far apart, as they frequently are, this operation is sufficiently difficult to understand; but the fertilisation is probably effected accidentally by birds, insects, or the wind. When the fruit is ripe, in autumn, wasps often greedily attack it; this *single creature*, then, attached to the only edible part of the female tree, and that for a few weeks only, is the one solitary member of the animal creation that can correctly figure as an ornamental adjunct, but that it is one of no mean value any one can testify who may have examined this insect's beautiful bands of black and yellow.

No insect or caterpillar is peculiar to or lives upon either the foliage or wood of this tree, perhaps for the simple reason that all parts, excepting the fruit, are highly poisonous; and not to small creatures alone, for larger quadrupeds such as horses, oxen, &c., frequently die after nibbling the leaves. Deer, goats, and sheep have been said to be exempt, but the contrary is proved by the fact that last winter between thirty and forty deer were poisoned in the Duke of Beaufort's park, at Badminton, after eating a few leaves that approached the ground. Whether the pollen of the male flower is poisonous, as is well known to be the case with some other plants, and therefore dangerous to the consumers of honey if bees frequent the flowers, is not so clear. Not only is the tree exempt from all insects, but it is rare to find either moss, lichen, or fungus growing on the trunk or branches; we recently, however, observed near Hampton Court a remarkably fine parasite on a yew-tree, not unfrequent on *other* trees, but seldom seen on the yew, viz., *Polyporus sulfureus*: this forms a large irregular fleshy mass, of a most brilliant, luminous yellow colour, throwing down a sulphury yellow dust when ripe; and being (or said to be) phosphorescent in the dark, the beautiful contrast afforded by the yellow of the parasite, and the dark green foliage and dusky trunk, can be easily imagined.

The associations connected with the yew are full of interest: three of our kings were slain by bows of the "double fatal yew," viz., Harold, Rufus, and Cœur-de-Leon; the victories of Cressy, Poictiers, and Agincourt were gained by our archers, "dreadful with the bended yew." Mary Queen of Scots promised marriage to Darnley under this tree; to commemorate which a coin was struck. The first meeting of Henry VIII. and Anne Boleyn took place under a yew-tree; and to add no other incidents, the name of the town of Halifax is said to be indirectly derived from a legend, which we cannot repeat here, in connexion with a yew-tree, and to which many pilgrimages were made in times long past.

It is used indiscriminately in our churches, with other evergreens, as a Christmas decoration.

W. G. S.

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* See p. 158, *axte*.

† Though it may be, after all, that this shows the existence on the site of a church in Saxon times.

PARIS WATER SUPPLY.

M. RICHE delivered at the Sorbonne recently a lecture upon the water-supply of Paris, of which the following is a summary.

The superiority of spring water over river water was long known to the ancient inhabitants of Lutecia, and the Arcueil waters were very much prized; yet it was not till the thirteenth century that we find a religious corporation proprietors of a spring at Belleville, near Saint-Gervais-des-Près, which, by means of an aqueduct, supplied a fountain yielding 35,200 gallons per 24 hours. In 1855, Paris received 44,000 gallons per day, or, as the population was 200,000, less than $1\frac{3}{4}$ pint per inhabitant! Henry IV. abolished many privileges and monopolies tending to limit the water-supply, and installed the first pump, called the *Samaritan*, at the Pont-Neuf. In 1613, he set about reconstructing the celebrated aqueduct of Arcueil; but this great project was only put into execution by Marie de Medicis. But under Louis XIII. and Louis XIV., concessions awarded to favouritism caused such a dearth of water that a second pump, called that of Notre Dame, was set up in 1671, and remained till a few years ago. By this means Paris received 396,000 gallons per day, or 2·6 quarts per inhabitant. In 1777, the Périer Company constructed the Chaillot pumping engines, which raised water at the very outfall of the sewers, and in 1782 the state purchased and improved the plant of the company, increasing the water-supply to 1,760,800 gallons per day, giving 12·3 quarts per head of the population. This was still a very deficient supply. In 1797, the project of the Ourcq canal was set on foot; the works of this supply from the Marne were begun in 1801, and completed by Girard in 1822. The supply branch commences at Mareuil, and arrives at La Villette by an open canal 100 kilomètres long. These waters have three outlets, one ending at Monceaux by means of the "aquéduc de ceinture," another leading into the Saint-Denis canal, and a third into the Saint-Martin canal. To this quantity must be added the supply from eighteen steam engines, from the artesian wells of Grenelle and Passy, to have a sum total of the supply of Paris about six months ago. The 42,919,500 gallons which were then supplied to Paris every twenty-four hours were thus divided,—23,110,500 gallons from the Ourcq canal, 17,608,000 gallons from the Seine, and 2,201,000 gallons from Arcueil, the artesian wells, and Belleville springs, or 25·3 gallons per inhabitant.

This mass of water is still insufficient; and, really, when we consider that the Bois de Boulogne and de Vincennes absorb on Sundays 7,708,500 gallons; the fountains and sewers 5,500,000; the bornes-fontaines (only running for three hours daily) about 19,800,000; and private service about 17,600,000 gallons; we can easily comprehend how the supplies were completely exhausted last summer.

The Ourcq canal had been constructed for a two-fold purpose; it is traversed by 600 boats, manned by 1,600 men; it runs through 100 kilomètres of country to empty itself in a basin situated so that to interrupt the service would deprive Paris of the water for a month. Its water is muddy and selenitic. The Seine water raised at Chaillot, which furnished in 1857 the 5-6ths of the public supply, contains organic matters which, according to M. Dumas in his report to the Municipal Council, sometimes attain incredible proportions. Thus, after the dry season of 1858, there passed under the Pont Royal a mètre cube of sewage in 44 of water per second (a mètre cube = 220 gallons). Thus the Chaillot pumps supplied 2·3 per cent. of organic matter to the inhabitants.

At length, after a protracted examination and the analysis of 300 springs, the project of Mr. Belgrand, engineer in chief of the water of the town of Paris was adopted. The two sources fixed upon were both in the champagne district,—that of the Dhuys, rising between Château-Thierry and Châlons; and that of the Vanne between Troyes and Sens. The former yields 8,800,000 gallons per day, and the latter about 22,000,000 gallons. Their volumes had not sensibly diminished during the dry seasons of 1857, 1858, and 1859, and the waters contain no sulphate of lime; the carbonate of lime they hold is less than that in the Seine water. The Dhuys arrives into the highest quarters of Paris,* where it is allowed to fall through a cascade, which causes it to deposit its excess of carbonate of lime. It starts with two canals, a kilomètre long each, which are united into one; it follows the left bank of the Marne as far as Chalifert; there it crosses the river, and keeps the right bank as far as Belleville, which it reaches after a run of 140 kilomètres. At the Menilmontant hill the Dhuys is at an altitude of 354 ft., while the Ourcq basin has only 171 ft. The reservoirs we have already described contain 220,100,000 gallons, and are arched and covered over with a thick layer of earth. The reservoir for the Vanne water, at Menilmontant, will be 262 ft. in elevation. When this is completed, Paris will have a daily supply of 30,814,000 gallons of spring-water, or 18 gallons per inhabitant, solely for domestic use; adding to this the supply from the new turbine pumps at St. Maur, when completed, 100,145,500 gallons daily, or 58·77 gallons per inhabitant, will be supplied to the town of Paris in about three years hence.

* See *Builder*, vol. xxiii., p. 715.

CLEARWELL CHURCH.

THIS church, consecrated on April 5th, has been built by the munificence of the Dowager Countess Dunraven, of Clearwell Court, from the designs of Mr. John Middleton, of Cheltenham. It is constructed of the local red sandstone, with Bath stone dressings, and the style is that of the latter part of the thirteenth century. The plan comprises nave, aisles, and chancel, with organ-chamber and vestry on the north side, and a tower and spire at the south-west angle. The length of the nave is 61 ft. 3 in., the width 20 ft. 6 in.; the width of the aisles is 10 ft. 6 in.; the length of the chancel is 34 ft. 3 in., the width, 17 ft.

The nave is divided from the aisles by a bold arcade of four bays on either side, supported by piers of blue and white stone in bands, circular on plan, with moulded bases and foliated capitals. The division of each bay above the nave arcade is marked by a corbel with an angel supporting a marble shaft and foliated cap, which carries one of the principal trusses of the roof. Above the nave arcade is a clerestory, with rose-windows filled with tracery. The aisles are lighted by eight triplets.

The chancel is lighted by an east window with four lights, and two two-light windows on the south side. On the north side is an archway, moulded, forming an opening into the organ-chamber. Throughout the interior, the architect has blended the red and blue Forest stone with Bath stone. The interior has also mural decorations; the walls being banded with the blue Forest stone in slips 8 in. wide, and in the chancel these are all enriched with traced running patterns and foliations filled in with various coloured cements. Above the chancel-arch are panels with diapered backgrounds, and containing the Alpha and Omega, and a richly-foliated Cross, with passion-flower terminations.

The windows of the chancel are filled in with painted glass by Messrs. Hardman & Co. The east window has been erected by Lady Dunraven to the "Honour of God, and in Memory of her Son, the Honourable Windham Henry Wyndham Quinn."

The reredos has also been erected to the memory of the same gentleman by his widow, the Honourable Mrs. Wyndham Quinn. It was executed by Mr. Roddis, of Birmingham, and consists of three panels with red and green marble shafts, with enriched arches and gablets; the gablets contain inlaid marble crosses, and the centre one is surmounted by a Cross, with passion-flower ornaments. The panels contain carved representations of "The Crucifixion," "Christ Walking on the Sea," and "Christ Stilling the Waves." The baptistery is formed under the tower, which opens into the south aisle through an arch of massive character. The tower is of three stages. The belfry has four deeply-moulded two-light windows, with red stone shafts and carved caps. The spire, which is broached, rises from an enriched cornice; it is 120 ft. high, of red stone, with Bath stone dressings, and bands of blue stone.

The roofs of the nave and aisle are open-timbered; in the chancel the roof has a boarded ceiling, polygonal in section, divided into panels, with moulded ribs, and decorated throughout with gold and colour. The church will seat 400 persons. The chancel-seats and reading-desk are of oak, and are ornamented with carved decoration. The marbles used are the Derbyshire for the nave, and Italian and Irish, mixed with Serpentine, for the chancel and its arches.

The church has been heated by Messrs. Haden, of Stourbridge. The works have been carried out by Messrs. Wingate & Sons, of Gloucester. The carving, with the exception of the reredos before mentioned, by Mr. Bolton, of Worcester. The brasswork in the chancel is by Messrs. Hart & Son, of London; the ironwork by Messrs. Brawn, of Birmingham, and Mr. John Cormell, of Cheltenham; and the gates are by Messrs. C. & R. Marshall, of Cheltenham.

ST. LEONARD'S, HOLLINGTON, SUSSEX.

THIS church, so well known to the visitors of Hastings and St. Leonard's, is the ancient parish church of the latter, and the source whence it derives its name. It had no great architectural merits to boast of, but its situation is most lovely and picturesque. We have a pleasant recollection of a visit to it some years ago, described in our pages at the time.

The church had fallen into a sad state of dilapidation, when its restoration was undertaken by a lady, whose mother died, and was buried in its churchyard. It possessed, in common with most of the small Sussex churches, only a nave and chancel, of simple but good proportions. It dated from the middle of the thirteenth century: all the original windows, except one or two stones, had disappeared, and the chancel was quite modernized. The whole south side has been taken down and rebuilt, introducing new windows. The old nave roof has been retained, but has been boarded and panelled. The chancel roof is entirely new, and of a similar type. A new porch has been built, having on each side open arcades of stone, with a richly-moulded entrance arch: a new vestry has also been built. There is a double sedilia in the chancel of moulded and recessed arches, supported on shafts of Mansfield stone; on the caps of which, and on the new chancel-arch caps, are carved the vine, wheat, and passion-flower combined with conventional foliage. The chancel seats are of oak, with carved ends, and are executed by Mr. Pepper, of Brighton, as is also the wooden eagle. The pulpit is entirely of rich Pyrenean marbles, and was executed at Bagneres de Bigorre, from the architect's designs. The font and reredos will be of a similar character. The floors are laid with Minton's tiles, the sanctuary floor being of a more elaborate design than the rest.

The altar-cloth has been worked by the sisterhood at Clewer. The windows will all be filled with stained glass by Messrs. Clayton & Bell, and the roofs and walls will be decorated with colour and fresco paintings. The architects employed were Messrs. Slater & Carpenter. The works have been executed by Mr. Langridge, of Hollington, and the carving of the stonework was done by Messrs. Poole & Son, of Westminster.

SCHOOLS OF ART.

The Cambridge School.—A number of the students lately underwent an examination under the Government inspection, and besides the works done at the time of examination a large number of highly creditable drawings which the students have accomplished during the last session have been sent up to the Department. In addition to the Government prizes, several gentlemen in the town have interested themselves to offer further inducements to perseverance and industry.

The Stoke-upon-Trent School.—The works of the students in this school have been exhibited at the Minton Memorial Building, previously to their being forwarded to London, where they will take part in the national competition. The exhibition was generally considered to be the best ever held in connexion with this school, and Mr. Bacon, the head-master, and Mr. Green, his colleague, were deservedly complimented. Seven students competed for the following prizes offered by Mr. Alderman Copeland:—5*l.* for a drawing suitable for porcelain painting, and three prizes of 5*l.*, 3*l.*, and 2*l.*, for painting on porcelain. The award has not yet been made. Mr. M. D. Hollins offered 3*l.* and 2*l.* for modelling, and for these prizes four students competed. The prizes were awarded to T. Longmore and J. Henk. For more than twelve months Mr. Bacon has been engaged in teaching porcelain painting to Messrs. Minton & Co.'s apprentices, and the result was a capital and very interesting show

of landscape, flower, and figure painting on porcelain, together with numerous elaborate patterns by gilders, and some crest-painting. Altogether, the students showed between seventy and eighty pieces of porcelain painting. The exhibition was well attended, and indicated a satisfactory state of things in the school.

The Hanley School.—The drawings of the pupils at this school, intended to take part in the forthcoming national competition at South Kensington, were recently exhibited at the school. The room was crowded, especially in the evening, and the interest taken in the exhibition must have been encouraging to the committee and the master, Mr. Carter. The number of works which will take part in the national competition is between fifty and sixty, the productions of some thirty students. There is some probability of alterations likely to increase materially the efficiency of the school being made in the building.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

On March 28, Mr. J. R. Planché, Rouge Croix, in the chair, Mr. J. W. Bailey exhibited an ancient iron dagger, excavated in the railway works near to Barclay's Brewery, in Southwark, the handle and blade in one; also an iron trident, found in Southwark, and pronounced to be the weapon of a Roman gladiator. The same gentleman exhibited a curious ancient hammer-head, made of stag's-horn, and a vase or bottle of Late Roman or Early Saxon fabric, remarkably formed. It is perforated with small holes in the centre of the bottom, and has one hole at the base of the neck of the bottle, the stopper at the top of the bottle being permanently fixed, or, more accurately speaking, the top should be described as without any orifice. Mr. Brighouse exhibited a vase of Peruvian fabric, which curiously possessed similar openings and want of openings to those in the Roman one just described. The Peruvian vase was, however, the largest, and most highly finished, and is furnished with four handles round the neck, the upper hole being brought out through one of these. In this one, also, the orifice in the bottom seems to have had a tube rising from it inside, almost up to the top. In both cases, evidently, the purpose was to fill the bottles by sinking them upright in the water, and by the application of the thumb or finger to the vent-hole in the neck, to retain the water in the bottle. Mr. Blashill laid before the meeting drawings of the organ-screen at Christ Church, Hants, and expressed his belief that it had been saved from the destruction which had threatened it. Mr. E. Roberts exhibited a portrait of Edward VI., some years since in the possession of the late Mr. John Gough Nichols, and which has lately come into his own possession. It is on panel, is traced to have been at one time in Leicester Castle, and bears such marks of antiquity as to render it quite probable that it might be a portrait of the youthful monarch taken from life. Dr. T. N. Brushfield exhibited a valuable collection of Roman antiquities, discovered in Chester chiefly in the years 1863 and 1864, with a number of beautifully-executed drawings and photographs. In the space of a paragraph it would be impossible to convey an idea of the interest attaching to his exhibition and illustrations. One subject only can here be mentioned. Two fragments of Purbeck marble bear part of a Latin inscription, in letters 4 in. or 5 in. high. It appeared to be part of the frieze of the entablature of a portico or colonnade, and is remarkable from the rarity of that material in the Roman British buildings, and still more remarkable from the distance from which the marble had been brought. Various other exhibitions were made, and left no time for the reading of a paper.

THE PRESENT STATE OF HEALTH IN OUR LARGE TOWNS.

Liverpool.—Those who are in the habit of looking at that paragraph of the registrar's weekly return, which gives the annual rate of mortality in several of the largest towns in the United Kingdom for the past week, will now almost take it as a matter of course to find the death-rate in Liverpool very largely in excess of that prevailing in any of the other large towns; but the returns from that town for the past few weeks have been, even for Liverpool, so exceptionally high, as to demand special notice. During the year 1865 the average rate of mortality in eleven towns of the United Kingdom was 27·2 per 1,000; the rate of Liverpool was 36·4, showing a large increase of mortality in that borough over the average rate during the ten years 1851-60 which was 30·0. Since the beginning of the present year, however, the excessive mortality in Liverpool has been more remarkable. Except during the cold weather of the past few weeks, the state of health in our large towns has not been generally unfavourable since the 1st January; in the thirteen towns of the United Kingdom of which returns are published week by week, the average annual rate of mortality during the past thirteen weeks has been 30 per 1,000, not very high for the time of year. In London, during that period, the rate was only 26, a lower rate than prevailed in any of the other towns. The inhabitants of Liverpool have been dying at the rate of 46 per 1,000 annually, during the past thirteen weeks; and, in the two weeks ending respectively 17th and 24th ult., the rate rose to 57. In so large a town as Liverpool, this high rate of mortality signifies a weekly waste of between 250 and 300 lives beyond those who would have died had the death-rate not exceeded that which prevailed in the metropolis during the same period. During the first thirteen weeks of the present year, ending 31st ult., 5,078 births and 5,542 deaths were registered within the borough of Liverpool; so that, instead of there having been during that period any natural increase in the population by the excess of births over deaths, the deaths actually exceeded the births by 464. The average weekly excess of births over deaths, estimated upon the returns of the ten years 1851-60, and counted for increase of population, should be 47; this shows a loss of life since the 1st of January, by excessive mortality, of over 1,000 persons. It is not at present possible to analyze the causes of death, and to ascertain exactly under which heads this excess of mortality has principally arisen; but from the returns of the Medical Officer of Health for Liverpool, the number of deaths from a few diseases are given which will sufficiently answer our purpose. In the thirteen weeks 630 deaths appear to have resulted from typhus; in the metropolis the deaths from this cause in the same period were 837. As London contains more than six times the population of Liverpool, had the fatal cases of typhus been in the same proportion as in the latter town, they would have been nearly 4,000, instead of 837 in the eleven weeks. Measles, scarlatina, and whooping cough have been more than doubly as fatal in Liverpool as in London, and the excess is not confined to zymotic diseases; especially during the cold weather of the last few weeks, the diseases of the respiratory organs, including phthisis, appear to have been fatal to a much greater extent in Liverpool than in London. Overcrowding in dwellings, in a great part utterly unfit for human habitation, so weakens the constitution as to render it unfit to bear the attack of diseases not ordinarily fatal. That so fearful a waste of human life, in the second town of the United Kingdom, should be allowed to continue is incredible, even if it be not looked upon as a national disgrace.

Bristol.—During the year 1865, this city enjoyed a lower rate of mortality than any of the eleven large towns of the United Kingdom of which weekly returns were published, 23·5 per 1,000, the metropolis being second, with 24·4. Since the beginning of the present year, Bristol has lost its position as the healthiest of our large towns, and in the return for the week ending last Saturday, it appears ninth in the list of the ten English towns, its rate of mortality for that week only being exceeded by that of Liverpool. The deaths registered during any one week are liable to accidental fluctuations; but when, during eleven consecutive weeks the deaths continue considerably above the average, an unsatisfactory condition of the public health may fairly be assumed. The annual rate of mortality prevailing in Bristol during the past thirteen weeks has been 32 per 1,000,—a light rate when compared with that of Liverpool, or even those of Manchester and Leeds, but it shows a great falling off when contrasted with the death-rate in Bristol during the corresponding quarter of last year, when it did not exceed 28 per 1,000. The excess of births over deaths during the eleven weeks has only been 167; whereas, had the average weekly excess been maintained, it would have amounted to 416, showing a loss of life during that period through the excessive mortality of more than 200 persons. The local registrars have reported fever to have been somewhat prevalent, but it is impossible at present to say how far this may have caused the increase of deaths: diseases of the respiratory organs, especially bronchitis, no doubt contribute a very large proportion of the excess.

THE AUSTRALASIAN EXHIBITIONS.

Many of our professional readers may be pleased to learn that Mr. J. G. Knight, F.R.I.B.A., the secretary for Victoria, at the International Exhibition of 1862, and at the Dublin Exhibition of 1865, as well as secretary to the Intercolonial Exhibition of 1866, not yet held, has prepared an elaborate report on the Exhibition of "the Australasian Colonies at the International Exhibition, London, 1862," with extracts from the reports of the jurors, and other information taken from official sources. In directing the attention of the colonists of New South Wales, South Australia, Queensland, Western Australia, Tasmania, New Zealand, and Victoria, to the reports and awards made by the jurors of the International Exhibition of 1862, in favour of these countries, Mr. Knight says he is induced to believe that the information contained in his report will go far to illustrate the great national advantages to be derived from such exhibitions; and certainly those who examined the interesting colonial products at that exhibition, must cordially agree with Mr. Knight.

Sir Redmond Barry, the president of the coming Intercolonial Exhibition of Australia, has issued addresses, urging the colonial public and municipal authorities to exert themselves in favour of the Exhibition. He recommends preliminary local exhibitions. Regulations for the guidance of intending exhibitions, have also been circulated, together with a programme of the distribution of articles into classes. Dicker's *Mining Record*, in a leading article on the forthcoming Exhibition, remarks that the colonial press, as well as the various local legislatures, have taken up the subject with spirit, and that there is every prospect of a successful Exhibition.

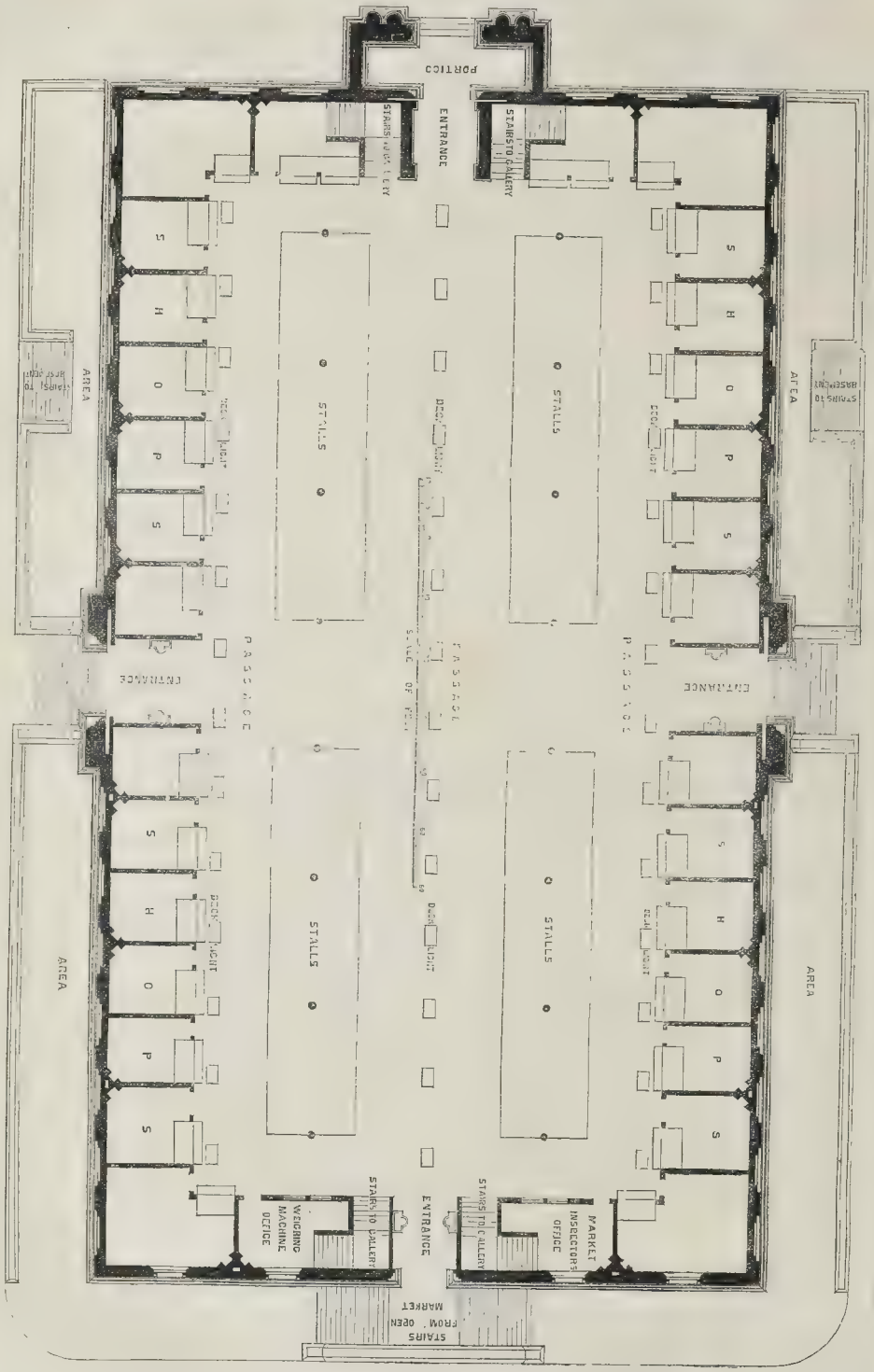
In a report to the Intercolonial Exhibition Commission of 1866, the Secretary, in speaking of the old building, points out the necessity of additional accommodation, and proposes the erection of a plain substantial building of stone or brick, as soft-wood timber is now dear. The new building might, he suggests, be afterwards made useful for other purposes. The whole matter has been referred to the building committee.

THE NEW MARKET HALL, BURNLEY.

In the early part of the year it was decided to erect a new market-hall for the town of Burnley, the existing market being inadequate to the wants of the rapidly-increasing borough. Designs were asked for, and premiums,—100*l.* for the first, and 20*l.* for the second best designs,—were offered, and were ultimately awarded,—1st, to Mr. J. Green, of Portsmouth, near Todmorden; and 2nd, to Mr. Waddington, of Burnley. The design of the first-named architect is, with some modifications, now being carried out, and we give a view and plan of the building.

The site, sloping considerably from the principal entrance towards the river Brun, affords the facility of a level entrance to the basement story, which is vaulted, and made fireproof for stores and general purposes. The upper story, serving as the general market, with entrances on each of its four sides, is proposed to be covered with wrought-iron roofs, supported by cast-iron columns and ornamental brackets and girders, in three spans, the central one 40 ft., and the two sides 35 ft. each. The area of the market will be lighted from the roofs, each of which has rough plate-glass skylights running the entire length, and raised as clerestories from the roof by cast-iron supports, and filled in with louvres for ventilation. The entire height of the central roof from the market floor is 36 ft. to the apex. Shops, with galleries over, are provided round the whole area: two of these are devoted to the offices of inspector and weighing-machine keeper.

The total cost of the market, exclusive of outside approaches and formation of new streets, will be a little under 10,000*l.*



THE NEW MARKET HALL, BURNLEY.—*Plan.*



THE NEW MARKET HALL, BURNLEY.—Mr. James Green, Architect.

NEW HOTELS.

The Royal Hotel, Cardiff. — A great hotel under this name has been erected in Cardiff by a company, from a design by Mr. C. E. Bernard, architect. The style of the building is Italian, somewhat freely treated, blending something of the Venetian in its character. Including the basements it is six stories high, and the upper portions command views of the more picturesque points of the Taff Valley within an area of several miles, the headland of Penarth, and the shipping in the Roads. The eastern and principal elevation is Italian. The design, from the nature of the building, is complex, and there is but little attempt at ornamentation beyond what its peculiarities afford. It is principally composed of Newbridge stone cemented over, with Bath stone dressings. The monotony of the tone is relieved by bands of red brick work. The entrance from St. Mary-street is ornamented with stone carvings. The building has a frontage in St. Mary-street of 102 ft., and a depth of 95 ft. in Park-road, the frontage on that road being somewhat more than the frontage in St. Mary-street. The builder is Mr. D. Jones, of Cardiff, and the clerk of the works Mr. Garrett. The first contract for the basement was let to Mr. D. Jones for 1,400*l.* The cost of the super-structure was 11,800*l.* The stabling, which is placed on the opposite side of Park-road, is erected at an additional cost of 1,000*l.*, and accommodation is provided for twenty-five horses. The system of bells in the hotel is based on the galvanic principle. The entire system has been laid by a workman from Paris, under the superintendence of Mr. Saunder, superintendent of the Electric Telegraph Company. A nob is pressed in the room, which communicates by means of a galvanic battery to an indicator placed opposite the servants' room in the upper floor: a small piece of brass falling out on a hinge indicates the number of the room in which the bell has been rung. The number of rooms extends to sixty-nine. The building is now open for business, but the formal opening has not yet taken place.

The Victoria Hotel, Southport.—The extensive alterations and additions to this hotel, carried out under the superintendence of Mr. William Mangnall, of Manchester, architect, by Mr. Charles Robertson, builder, are now completed. The front is plain. The principal entrance is from the Promenade, through a vestibule, with Spanish mahogany doors, in which are embossed plate-glass windows. The hall is spacious, and paved with Minton's coloured tiles. The side walls of the vestibule entrance are painted in panels, with lines and corner-pieces, the panels being filled in with diaper work. The ceilings of the vestibule and entrance are painted in bright colours, relieved by ornament and lines. The walls are of a greenish drab, enlivened by imitation marble dados, in different varieties, the columns and pilasters being all painted in imitation of Sienna marble, with white capitals. The woodwork is all grained in imitation of oak. There is a large staircase in front, which is lighted with several stained glass windows. The drawing-room, on the first floor, is 54 ft. long by about 30 ft. wide. Altogether forty new bedrooms, nine sitting-rooms, dining-room, drawing-room, ladies' coffee and ante-room and writing-room have been added to the hotel. Mr. Rothwell, of Manchester, was the decorator.

VENTILATION OF BUILDINGS.

An article in a recent number of the *Builder* (p. 213, *ante*) describes a mode claimed as the invention of M. Felix Achard, which he calls the "reversed" system of ventilation. The whole details of the method employed are precisely what have been in use for certainly twenty years in the United States, and amongst others, I can instance, as a special example, the McLean Insane Asylum, at Somerville, near Boston. The president of this Institution, Dr. Luther V. Bell showed me first over the buildings, about the year 1850, and explained the working of the system there employed in detail. Dr. Bell has, amongst other scientific works, written a treatise upon ventilation, which I until recently possessed, in which the subject was fully treated; and I remember distinctly that he claimed especial value for it, only in such cases as those in which the necessity for providing for the filthy habits of the unfortunate creatures under his charge forbade a direct system of ventilation through or near the floor, on account of the nuisances the apertures enabled them to create, and the offensive air that by such means was put into circulation throughout the building.

He distinctly claimed for this system only an exceptional value, fully agreeing with those who would for general purposes adopt a contrary course, as the admission of pure air from the ceiling, and its withdrawal from or near the floor, must necessitate the admixture of the foul and lighter portions of the atmosphere that have already done their duty in respiration. This seems to me an unanswerable argument against the practical working of any similar system, excepting in such peculiar cases as the one in question. The whole of the ventilating, warming, and culinary arrangements of the building alluded to, which is a State Institution, are of the very highest excellence, and have formed the subject of mention in previous pages of the *Builder*.

My principal wish is to give the merit of the "invention," now claimed in Paris, its correct parentage. I am somewhat jealous of securing their due meed of praise to our Yankee cousins for their practical efforts in sanitary matters, and can assure your readers that, despite the complaints justly made of occasional over-heated houses, railway-cars, and hotels, by hot-air furnaces and cast-iron stoves, they are far before us in very many appliances to assist the internal comfort and pure atmosphere of their buildings.

The provision of an evaporator, which the French seem to fancy a novelty, is a very old contrivance with the Americans, so that you can hardly buy a stove which has not a vase or other receptacle for water, perforated at the top and usually of elaborately-ornamental form. The hot-air furnaces likewise, have usually a jet of water playing in the air-chamber, and it is a common custom to introduce a small bit of resin into the pan of water to assist the restoration of the atmosphere vitiated by the heat, the precise operation of which chemists can, no doubt, explain.

Whilst upon this subject, permit me to allude to the letter of W. C. Dymond, C.E., in the *Builder* of February 24th. My intention is not to enter upon the details of the system of ventilation there so elaborately explained, but I wish to call attention to the fact that the smoke-flue is directed to be terminated by an apparatus which is practically only the well-known "ejector" of Professor Emerson, a machine used for the past five-and-twenty years in America; and such a favourite in Massachussets, that I dare venture to affirm that at least one house in four possesses it; and it is provided in profusion to nearly every school-house, church, and public building in all of the principal towns in that state.

During a professional residence of many years in different parts of the United States, I hardly remember a solitary instance where an attempt had not been made to introduce some simple and intelligent system of ventilation. The large metal shafts supplying hot air afforded a ready means of filling the room, whilst for adit, an opening into a flue near the ceiling (always on a much larger scale than customary here) generally sufficed. In proof of the truth of what I state, I may mention, that in every hardware repository, valves and registers of every size, for floor, for ceiling, and for wall apertures, could be readily procured, in even the smallest country towns, in almost exhaustless variety of form and design; whilst I have always met the very greatest difficulty in getting anything of the kind even in our largest warehouses.

Permit me, as the result of no ordinary experience in such matters, to suggest a very simple mode that may advantageously be adopted to supply pure air to a room, moderately warmed when the fire is ignited, and fresh and cool in summer time, and also to allow the escape of the overheated and exhausted atmospheric contents of the apartment.

Construct an air-drain as an horizontal shaft, leading from a covered aperture in an external wall, and passing behind the fire-back, an opening in the projection of the chimney-breast, at the side farthest from the grate. This is for supply; whilst for exhaust, a flat metal pipe leading above an aperture in the centre of the ceiling, through the external wall, and there terminating in a long horizontal box, with wire-gauze in the open ends, in the manner described in the *Builder* of February 17th, will, as a cheap and ready means, amply suffice.

Or, in building a new house, a flue may be left in the chimney stack, carried up from the level of the lowest ceiling, and terminating in such a manner in relation to the smoke-flues that there would be no danger of the descent of smoke, and each of the horizontal air-ducts may open into this. The size of such a flue should not be less than an opening equal to a foot square, which will be found sufficient for the ventilation of about six rooms of ordinary size. The smoother the inner face of the flue is made, the more rapid will be the discharge of the current of air within it. In America, my practice was to terminate this flue with an Emerson's ejector, the large disc at the top of which prevented down-draught. I would suggest the same method here, excepting that the whole series of openings for the escape of smoke should be covered over above the top, and with divisions between. *Billing's* system of chimney caps gives something of this arrangement, but is defective on account of wanting the light projecting disc at top; or, in other respects, it is precisely the same in principle as Emerson's. I have reason to conclude, however, that the simple box outside the building, as before described, will be found practically nearly as effective, and can be more easily applied.

In providing the supply-pipe to houses built in blocks, I would suggest that instead of cutting into the party wall, a flat metal tube 2 in. deep, and 8 in. to 12 in. high, might be effectively used. This could be so fitted as to require no more space than the plastering and projection of the base board, and would thus be easily added to a house already built. In conducting this tube in front of a smoke flue, and in leading it behind the grate, any ordinary mechanic could easily do all that would be requisite; the principal necessity for care being to fit the work sufficiently well that no smoke might penetrate the interior of the pipe. An addition may be made to this of a light, moveable, japanned metal bonnet, which could at times be placed before the aperture, and so constructed as to deflect the draught directly towards the fireplace when a necessity for more rapid combustion may be required.

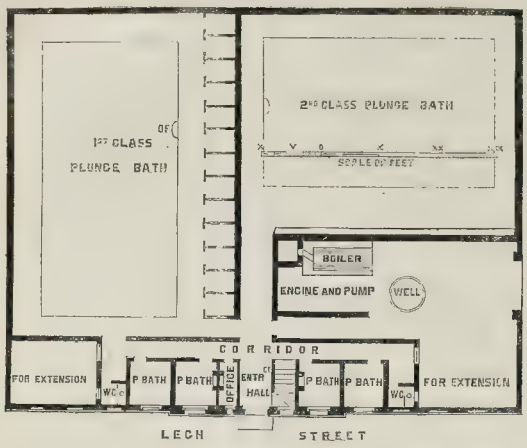
With such a system employed, the closer the doors and windows are fitted the better. There will be no objectionable draughts in its working, and both fire and lungs will be adequately fed with fresh air pouring in steadily, copiously, and imperceptibly. The result of this system, in every case that I can remember, has been satisfactory, and I shall be glad to think that this brief description may possibly assist the introduction of so simple a mode here.

Gervase Wheeler, Architect.

THE NEW NORTH DOCK WORKS, LIVERPOOL.

It is not only in one particular locality within the boundaries of the port, says the *Albion*, that dock and warehouse extension has been forced upon those in whom the conduct and management of the Dock Estate is vested. Some two or three years ago, in consequence of pressing demands made upon them by the steam shipping trade and others, the Dock Board resolved to convert the old Waterloo Dock, the Clarence and Waterloo Basins adjoining it, together with a considerable area of land on which unprofitable buildings stood, into two new docks, as well as an immense half-tide dock, surrounded by a noble pile of dock warehouses; and for some time past these have been in course of construction, under the superintendence of Mr. Lyster, the engineer to the Dock Estate. The gigantic character of these works, now actively in progress, can only be fully appreciated by a personal visit to the works themselves; and when we state that at the present time (and during the last two years) upwards of 1,200 artisans, in addition to an immense number of horses and wagons, are engaged upon them, some faint estimate may be formed of their magnitude and extent.

The entire area now being converted into docks, quays, and warehouses is upwards of sixteen acres in extent, and when completed the increase of dock space alone, irrespective of the space occupied by the warehouses and quays, will be more than doubled. The additional river frontage, from the Canada Dock to the Rimrose Bridge at Seaforth, will be one mile and a half in length, whilst the entire length of the line of docks, on the Lancashire side of the river alone, from Sefton-street at the south, to Rimrose Brook, Seaforth, at the north, will be upwards of seven miles in extent, covering an area of more than 1,000 acres.



PUBLIC BATHS, WARRINGTON.—*Mr. B. P. Coxon, Architect.*

BATHS IN WARRINGTON.

A SHORT time since a company was formed for the purpose of erecting public baths here. The directors applied to Mr. B. P. Coxon, consulting engineer to the borough, for plans of the work, which might be suitable to the town and to the company, with a capital of only 2,000*l.* The plan which we publish this week shows two large plunge-baths, first and second class, the former being 48 ft. by 23 ft. 6 in.; and the latter, 40 ft. by 25 ft. These are covered with board and slated roofs, about 25 ft. high, well lighted and ventilated. The baths will be lined with white glazed tiles, and polished flag coping and trellised woodwork. There are dressing-rooms to the large bath, and bench with hooks to the second-class bath. In the front of the building there are four private hot baths and conveniences, with room left for extension. Above the private baths is a dwelling-house for the bath-keeper. There is no architectural pretension in the elevation, which is composed of pointed brick and stone dressings. The whole of the baths will be heated and worked by an engine and boiler in the yard, where a well is to be sunk for the supply of water, the heating being secured by the exhaust from the engine passing into water in iron tanks, and so on to the several baths. The work, which is in a fair way of completion, is being carried out by Mr. Abel Pennington, builder, at a cost of 1,400*l.*, under the supervision of Mr. Coxon.

FROM SCOTLAND.

Stirling.—In September last, operations were commenced at Larbert for the erection of an asylum for the joint use of the counties of Stirling, Linlithgow, Dumbarton, and Clackmannan. The site is on the farm of Gowkhill, on the estate of Carronhall, the property of Lieutenant-colonel Dundas. The ground extends to seventy acres. The frontage of the building will be 438 ft. lengthwise, and the entire round of the blocks will be nearly 1½ mile. The depth of the east and west wings will be 205 ft. The style of architecture is of a mixed character, though the Baronial and Italian styles predominate to a considerable extent. On the ground-floor in the front of the centre block is the dining-hall, which measures 53 ft. 6 in. by 28 ft. 6 in., and over it is the chapel, which is of a corresponding size. Adjoining on either side and behind the dining-hall are ten day-rooms, dormitories, a dispensary, lavatories, corridors, servants' room, and laundry, in addition to other apartments. The east and west wings—the former of which is allocated to the males and the latter to the females—contain thirty-four single and strong rooms; while in the south and north fronts of either wing are embraced a number of rooms for a variety of purposes. In the centre block on the ground-floor there will be two verandahs, 75 ft. in length, supported by iron pillars, and lighted from the top. The one will run parallel with the other from south to north, and will be used respectively by males and females. Connected with the centre building will be two large baths, constructed on an improved principle, and furnished with water from cisterns placed on the top of the main block. At intervals of 50 ft., on the ground-floor, drinking fountains will be erected for the comfort and convenience of the patients. In the second-floor, the chapel will be flanked by dormitories, lavatories, attendants' rooms, store-rooms, general work-rooms, &c.,—the eastern and western wings, as on the ground-floor, being in considerable part taken up by single and strong rooms. In the back angle of either wing a tower will be erected, about 90 ft. high. On the south front there will be a considerable amount of ornamentation. The chapel will rise considerably above the general building. The entire range of buildings will be heated by steam, supplied from boilers in the sunk floor. The surrounding wall will be about 10 ft. in height. The cost of the asylum will be upwards of 20,000*l.*, and it is anticipated that nearly three years will be required to complete its erection. The original architect was Mr. William Stirling, of Glasgow; but, in consequence of that gentleman being indisposed, he has been succeeded by Mr. Brown, of Edinburgh. Mr. D. Davidson is clerk and inspector of works, and the contractors are the following:—Mason, Mr. John Duncanson, Glasgow; wright, Mr. Kemp, Bishopbriggs; slater, Mr. D. Draper, Falkirk; plumbers and ironworkers, Messrs. Wallace & Connell, Falkirk; plasterer, Mr. Neilson, Glasgow.

THE TRADES MOVEMENT.

Birmingham.—On Wednesday in last week there was a general meeting in the Town-hall, of the master builders, operative bricklayers, carpenters and joiners, and labourers, "for the purpose of appointing delegates to act as arbitrators under the provisions of the existing trade rules." There were about 1,400 men present in the body of the Hall and galleries, who represented in equal proportions the trades concerned. The masons only were not represented. On the platform were the representatives of the masters. The resolution was:—"That we, the master builders, operative bricklayers, carpenters and joiners, and labourers of Birmingham, do mutually agree to abide by and conform to all trade regulations which shall be made and agreed to by the delegates we are about to appoint, or which shall be settled by the casting vote of the chairman they may appoint." This was carried unanimously. Following is a list of the delegates who were appointed in the several trades:—

Bricklayers.—Operatives: Messrs. George Medlicott, Henry Simmons, Joseph Freeman, James Preece, Timothy Ward, and Edward Collins.—Employers: Messrs. Joseph Hardwick, William Parker, John Pritchard, Thomas Barnsley, William Briggs, and William Webb.

Carpenters and Joiners.—Operatives: Messrs. James Lewis, David Mayer, William Sheppard, Richard Makepeace, John Waldron, and Roger Bateson.—Employers: Messrs. Joseph Hardwick, John Cresswell, William Webb, William Briggs, Charles Jones, and David Murray.

Labourers.—Operatives: Messrs. Patrick Kearney, Patrick Rogers, John Kelly, John Riley, John Grady, and Thomas Keene.—Masters: Messrs. Joseph Hardwick, Edward Barnsley, Benjamin Smith, William Bloore, John Jeffery, and James Wilson.

At a meeting of the delegates, afterwards held, Mr. Thomas Lloyd was appointed chairman of the delegates.

Aberystwith.—The building trade masters have at length succeeded in arranging with their operatives to proceed with their work, but not until new hands had been brought down to take the place of masons and plasterers. It now appears that the same spirit of dissatisfaction has extended to the masons employed at the Cefn Viaduct on the Brecon Railway. They suspended operations, demanding an advance of wages. The men have in most instances resumed work, but another turn-out is anticipated.

Middleton.—The joiners and carpenters of Middleton and Tonge, in connexion with the Amalgamated Society, have issued a demand upon the masters for the Saturday half-holiday, and for an advance of wages at the rate of 2s. per week upon their usual earnings. Two months' notice is given.

Burton-on-Trent.—It is generally believed that the operative labourers and bricklayers have decided to turn out, in the event of the masters not agreeing to pay the advances asked for. The bricklayers ask for the weekly wages of 29s.; but the masters decline to accede to the request, and offer 28s. 6d. per week (the same as paid last summer), with a diminution of two hours in time. The labourers demand 18s. per week; but the masters propose to give 17s. per week (an advance of 1s. from last summer), with a diminution in time as above.

Barnsley.—The operative joiners lately applied to their employers for an advance of wages, on the ground of the high price of provisions. They have since had an interview with their masters, the result of which is that the latter have conceded 2s. a week. The advance asked was 3s.

Dewsbury.—A general meeting of journeymen joiners has been held, for the purpose of receiving reports respecting the willingness of the masters to concede the boon asked of them, to lessen the hours of work to nine each day. It was stated that the principal firms were willing to grant the request, and that others of less note would be compelled to follow.

Huddersfield.—The plasterers of Huddersfield have made a demand on their employers for an advance of 2s. a week, and a reduction of two hours' labour. The reduction will make the week 52 hours instead of 54 as at present; and they want 26s. instead of 24s. wages. The masters have agreed to concede the reduction of time, but not the advance of wages.

Bishop Auckland.—A meeting of joiners has been held to consider the advisableness of asking for an advance of 2s. per week. Resolutions in favour of the advance were adopted, and a deputation appointed, who waited upon their employers soliciting the increase of their wages to 24s. The masters have taken time to consider, and the men have been directed to turn out should the reply not be satisfactory.

Hull.—The cabinetmakers have resolved to ask for an advance of 10 per cent. upon their wages. A month's notice is to be given to the masters to accede to or reject the demand.

Carlisle.—There is some danger of the operative joiners being engaged in a strike. Some time ago they gave notice to the masters that they should require an advance of 3s. per week, the present ruling rate of wages being 24s. These notices have now expired, and the masters, at a recent meeting, resolved not to grant the concession.

Durham.—The strike of joiners has terminated, the masters conceding the 2s. per week; but the question of a reduction in the hours of labour is postponed until May.

Edinburgh.—There are here a large number of workmen on strike in various trades. In ad-

dition to upwards of a thousand tailors who struck work, the shoemakers have a dispute with their employers as to wages, and are not at work. The slaters are also disputing with their masters regarding the employment of unskilled workmen, and a number has already turned out to resist this step of the masters. The policemen have made a formal demand for increased wages; and the strike of the labourers still continues. The comparative success of the ploughmen's movement seems to have had a stimulating effect upon nearly all the other trades.

NEW CONVALESCENT HOME, NEAR EDINBURGH.

An anonymous gentleman, connected with Edinburgh, is having erected, at Corstorphine, a convalescent home, which he is to present to the managers of the Royal Infirmary. The home is intended for the accommodation of patients who, after having been successfully treated in the infirmary, may yet be unable at once to return to distant homes, or to resume occupations on which they have to depend for a livelihood. The home is intended to accommodate forty-four inmates, — twenty-six males, and eighteen females. The building consists of a centre block, from which wings extend east and west. A third wing, one story in height, extends backwards from the centre block, and contains the dining-hall, kitchen, laundry, &c. The centre block is three stories in height, and the front wings are two stories. Externally, the front of the building, which faces the south, is 210 ft. long. The style of architecture is of a simple and inexpensive character. The cost of the building, exclusive of the fen and the expense of enclosing and laying out the grounds, will be about 9,000*l.*; but the entire expense will not be less than 12,000*l.* Messrs. Peddie & Kinnear are the architects, and the contractors are,—Mason-work, Messrs. D. W. M'Gregor; joiner-work, Messrs. Davidson & Chisholm; plumber-work, Messrs. J. Brown & Son; slater-work, Mr. A. Drysdale; plasterer-work, Mr. Webster; smith-work, Messrs. Carrick & Son.

ECCLESIOLOGICAL SOCIETY.

At the last meeting of the committee, Mr. Gordon M. Hills met the committee, and read a paper in excuse of the scraping at Lincoln minster. It gave rise to an animated conversation. The committee afterwards examined Mr. Hills's designs for the new churches of St. Michael, Tenterden, Kent; and St. Aidan's, Liverpool; for a new church about to be built in Malta; and for the restoration of Amberley, Washington, and Ovingdean churches, Sussex. Mr. E. M. Barry met the committee, and explained the original scheme of Sir Charles Barry for completing a quadrangular court on the site of New Palace-yard, as a fitting approach to the Palace of Westminster. He also gave explanations as to the works immediately contemplated by the First Commissioner of Works, including a facing of the western basement of the Clock Tower with Gothic panelling, an arcade connecting the Clock Tower with Westminster Hall, and an ornamental wall and railing masking the irregularity of level between Bridge-street and New Palace-yard. The completion of the reredos in the chapel of St. Stephen within the palace was noticed.

The committee, having received a letter from the Bristol Architectural Society, resolved to memorialize the Town Council for the preservation of Colston's house.

Various architects submitted their designs.

OBITUARY.

The late Mr. George Rennie, F.R.S.—On the 30th of March (Good Friday), at 39, Wilton-crescent, died Mr. George Rennie, C.E., F.R.S., in the seventy-fifth year of his age. His father made a reputation by his works as an engineer,—specially Southwark and Waterloo Bridges; and his brother, the present Sir John Rennie, is equally eminent. Mr. George Rennie assisted his father in early life in the construction of the London and East-India Docks, the Plymouth breakwater, the construction of the Bell-rock Lighthouse, and other works. Mr. Rennie was elected Fellow of the Royal Society in 1822, and afterwards held the office of Vice-President of that society. He contributed several papers to the Philosophical Transactions. He was a member of the Royal Irish Academy, a Fellow of the Geological Society, and belonged to the Royal Academy of Turin and other foreign societies.

Mr. F. W. Fairholt, F.S.A.—We record with sincerest sorrow the death of this estimable gentleman, which took place on Tuesday last, after a long and severe illness. His knowledge and skill as an antiquary and antiquarian-draughtsman are widely known: the amiability of his disposition, and the readiness with which, without pretentiousness, he imparted from the stores of peculiar knowledge at his command to any who sought his aid, are less so, but deserve equal commendation. His works "On Costume," his "Dictionary of Terms of Art," his "History of Old Civic Pageantry," and "Up the Nile and Home again," are known doubtless to most of our readers. Mr. Fairbolt executed the drawings and engravings of the late Lord Londesborough's "Miscellanea Graphica," the "Inventorium Sepulchrale" of Bryan Faussett, Mr. Roach Smith's "Roman London" and "Antiquities of Richborough," Mr. Wright's Histories of Domestic Manners and Caricatures, and Mr. Halliwell's folio edition of "Shakespeare." Some of the earlier volumes of the *Builder* contain illustrations from his hand; and to the *Art Journal* he has been a constant and important contributor, both with pen and pencil for many years. His first literary effort was devoted to the Civic Pageants of London, and he leaves unfinished, as his last, a work on "Pageantry in the Middle Ages," as well as many unpublished sketches made in Egypt and elsewhere. We regret the man no less than the artist.

MONUMENTAL.

The execution of the Birmingham statue of James Watt has been entrusted to Mr. Alexander Munro, sculptor, by a unanimous vote of the committee. It will be 8 ft. high, and of Sicilian marble. Mr. Munro produced the statue of Watt in the Museum of Oxford.——A design, prepared by Mr. John Steell, of Edinburgh, sculptor, of a mural obelisk with medalion bust, in memory of the late Rev. Dr. Gordon, of Edinburgh, has been adopted by the committee; and the monument is making progress in the hands of Mr. Steell, and will shortly be erected in the Free High Church of that city.——It is proposed to open a public subscription in Paris for a monument to Joan of Arc on the site of the Butte des Moulins (which has just been demolished) opposite the Théâtre Français.——A wealthy Boston gentleman has signified his intention of adorning the public garden of that city with an allegorical statue in honour of the introduction of ether.

CASES UNDER THE METROPOLITAN BUILDING ACT.

PENALTY FOR WANT OF NOTICE.

Mr. William Wallace was summoned to the Thames Police Court by Mr. Edmund Woodthorpe, district surveyor of Limehouse, &c., for neglecting to give him notice of his intention to execute certain works at the rear of No. 9, Parnham-place, Salmons-lane, Limehouse, as required by section 38 of the Metropolitan Building Act (1855); also that the building in question was constructed of wood, in contravention of the provisions of the said Act.

Mr. Young, solicitor, who appeared on behalf of the defendant, stated that his client admitted neglecting to give notice of the works, but pleaded ignorance of the Act of Parliament. He (Mr. Young) considered that the erection would not be deemed a building within the meaning of the Act, it merely being a lean-to covered with boards, and the inclosing portion next the canal was but the raising of an ordinary fence. The covering was only added to keep the wet off the ground; and certainly a fowl-house would not be considered a building, and this was but a trifle larger.

Mr. Woodthorpe said that these erections were becoming very numerous in Limehouse; and, as the Act was for the prevention of fire, he, as a public officer, was only doing his duty in endeavouring to suppress them; and that the erection in question undoubtedly was a building within the meaning of the Act, otherwise he might find them being built 1,000 ft. long. He must therefore ask that an order be given for the removal of the same.

As there is no definition in the Act as to what constitutes a building, the magistrate adjourned the case for further consideration. At the adjourned hearing he cited the parallel case of "Stephen *v.* Gourley," 29 *Law Journal*, as to what a building is, wherein it was decided that,—

"The erection, which was built on wooden joists laid on the ground, without being let into or fastened to the soil, and the whole capable of being removed in its entirety, was a building within the meaning of the Act."

He therefore fined the defendant 5s. and costs, and further ordered that the building be pulled down forthwith.

William Spicer, of 4, Ratcliff-square, Jacob Joell, of 7, Ratcliff-square, and William Clack, of 3, London-street, Ratcliff, were also summoned for want of notice and irregular wooden buildings, being similar cases to the above. The magistrate severally fined them 5s. and costs, and ordered the buildings to be pulled down forthwith.

HOTEL FURNITURE.

"One who lives at Hotels" writes, with some reason,—I think you would be doing a service by pointing out the grievance in some of our new hotels, of the objectionable character of the bed-room furniture, most of them having thick stuff woollen furniture and hangings for their beds, the smell from which is very offensive, and, in a sleeping apartment, I think, positively unwholesome. Staying some time since at one of the most westerly of the new hotels, I had some friends, and showing them over the house they said they could not live in it on that account.

It is the more to be regretted, as to most persons, I believe, the bed would be considered preferable entirely without furniture, or, if necessary at all, that it should be very simple, washable, and inexpensive.

LIGHT AND AIR CASES.

Vice-Chancellor Sir W. P. Wood sat specially on the 28th ult. to deliver judgment in the cases *Dent* v. *The Auction Mart Company, Limited*; *Pilgrim* v. *The Auction Mart Company, Limited*; *The Mercers' Company* v. *The Same*.

In the course of a very elaborate judgment his Lordship said that cases of interference with light and air had been of late very much discussed, and especially within the last ten or twelve years, from the great demand for buildings of increased height and dimensions in the metropolis. The principles, however, on which, as laid down by Lord Eldon in "Attorney-General *v.* Nichols," 16 *Vesey*, 338, the Court had been in the habit of restraining interferences with light and air, had been in substance but little departed from, and had been recently recognised by Lord Westbury when chancellor. They were thus stated by Lord Eldon:—

"The foundation of this jurisdiction is that sort of material injury to the comfort of the existence of those who dwell in the neighbouring house requiring the application of a remedy to prevent as well as remedy an evil for which damages, more or less, would be given in an action at law.

There are many obvious cases of new buildings darkening those opposite to them, but not in such a degree that an injunction could be maintained, or an action upon the case, which, however might be maintained in many cases which would not support an injunction."

But, although the doctrine was thus clearly established, its application to particular cases was by no means easy. Generally, however, this Court would interpose in cases where substantial damages would be recovered at law. Those who erected buildings to the injury of their neighbours were not entitled, without the authority of any Act of Parliament, to purchase them out by payment of the damages awarded by a jury for the injury. The jurisdiction was analogous to that exercised in cases of specific performance or waste, where the injury could not, in the plaintiff's opinion, be adequately compensated in money, and was being done so rapidly and suddenly that, unless at once restrained by injunction, there would be no means of repairing the evil. Further than this, a plaintiff was entitled to the enjoyment undisturbed of such an amount of light as would enable him to use his house (as it stood) for any purpose to which it might reasonably be applied. If, therefore, Messrs. Dent were minded to use the room which was affected by the buildings of the defendant as a room for sorting samples, it was no objection that it had not been so used for many years past. In the case of Messrs. Dent & Co., which he might here observe had been presented with a most remarkable freedom from exaggeration, he might say with the Lord Chancellor,—"*Res ipsa loquitur* with a voice which cannot be gainsaid." Both as to light and air, a case for the interference of this Court was fully made out. The case in which Messrs. Pilgrim & Phillips were plaintiffs presented much more difficulty. The interference was lateral, and he was bound to say that there was much exaggeration in the view taken by the plaintiffs of the injury resulting from the building erected by the defendants. The question was, not whether other people could carry on that business with an amount of light less than that which was enjoyed by the plaintiffs, but whether the plaintiffs ought not still to be allowed to enjoy as much light as they had

acquired a right to. Regard being had to the situation of the property in one of the courts of the City, and the circumstance that if this invasion of light were permitted all the neighbours might do the same, Messrs. Pilgrim & Phillips had, in his opinion, sustained an injury sufficiently substantial to warrant him in granting an injunction. Their case unquestionably was not nearly so strong as that of Messrs. Dent, and had occasioned him more doubt; but upon the whole he thought that he ought not to summon a jury (for which, in his view of the case, there was no necessity), but that he was justified in making the same decree as in Dent's case. Upon the second branch of Messrs. Pilgrim & Phillips's case, the injury to the foundations by the excavations made by the defendants, the damage was undoubted, and did not rest merely in the apprehensions of the plaintiffs, and there was enough to support Messrs. Pilgrim's bill in this respect. The decree would be the same in effect in all three cases for perpetual injunction, &c. (leaving out in Messrs. Pilgrim & Phillips's case the word "air," the injury to which was not established, in his Honour's opinion), with inquiries and consequential directions.

COMPENSATION.

Dr. Musgrave v. *The St. John's Wood Railway Company.*—On the 9th of March Mr. Pownall held this inquiry, at the Westminster Palace Hotel. Mr. Hawkins, Q.C., for Dr. Musgrave, and Mr. Lloyd for the Company. It appears that Dr. Musgrave purchased a surgical practice of 200*l.* a year, in 1851, and removed it to the premises in question, No. 16, Finchley-road, the same year, the practice having increased to nearly 2,000*l.* The company requiring to purchase his house, of which he has six years and three-quarters unexpired tenancy, he has taken a much larger house opposite, for seventy-two years, at 24*l.* ground-rent, and given 1,950*l.* His expenditure in stables and removal has been 1,510*l.* The following evidence was given:—

Mr. H. Roberts.—Annual cost of the new house, including extra rates	£214
Deduct that of old house	130
	£84
For 6¾ years, worth	£480
Removal and refitting furniture	310
1,100*l.* expended, after allowing 100*l.* for repairs to old house, half to be charged to the Company	550
Loss of rent by two houses been held at the same time	160
Interruption of practice	550
Loss of time and personal trouble	150
	£2,220
Mr. Shaw.—Annual value of old house	£150
Rent reserved	105
Profit rent	£45
Worth for 6¾ years, with 10 per cent.	£260
Consequential damage a difference of 1 per cent. in his investment in the new house	588
Loss of rent	75
	£923

He had not included trade loss, but had included removal. Something should be added for personal trouble.

Mr. Dent.—Profit rent, 45*l.*, worth, with 10 per cent.	£273
Loss on furniture	150
Expenditure on new house, 3,380*l.*, of which the Company should pay 15 per cent.	504
Rent lost	84
	£1,010

Exclusive of any loss of practice.

Mr. Orridge, medical valuer, sold the business to Dr. Musgrave in 1851; it was then in the Acacia-road, and he recommended Dr. Musgrave to remove to the Finchley-road. The new house now taken is on the wrong side of the way: and if the practice were now to be sold, with a recent removal, and an over-rented house, it would not sell for so much by 1,000*l.*

Mr. Hawkins summed up entirely in support of Mr. Roberts's view.

Mr. Lloyd did not call any witnesses, but ridiculed the notion that there was to be any loss of practice. There had been two surgeons within a few doors of each other, and now Dr. Musgrave was, by the action of the railway, left in sole command of the spot. His witnesses would have agreed with Mr. Roberts's view of the value of the old house; or, deducting the sum of 100*l.*, admitted by Mr. Roberts for dilapidations, from Mr. Shaw's valuation, it would leave

	£136
Ten per cent.	14
Removal	200
Loss of rent	80
	£430

As regards the new house, he viewed it only as one suited to the position of the claimant, and which would be a benefit and enjoyment to him, and the Company ought not to be asked to pay any portion of it, much less to reinstate him.

Mr. Pownall's award is 1,952*l.*

At the Sheriff's Court, Red Lion-square, before Mr. Under-sheriff Burchell and a special jury, a railway compensation case, *Burdett* v. *The Metropolitan Railway*, was tried, in which a claim was made of upwards of 3,000*l.* for the premises and loss of trade as an ornamental decorator and upholsterer in Conduit-street, Westbourne-terrace, Paddington. A point was raised which led to considerable discussion. The house was rented at 95*l.* a year, and was stated to be worth, in consequence of the rise of property at Paddington, 200*l.* a year. The remainder of the lease, with 10 percentage for compulsory sale, was 606*l.* Sums were required for fixtures and removal of furniture, but the principal sum in dispute was for trade compensation. It was alleged that Mr. Burdett was entitled to three years' profits for the loss of trade by the railway, as his business would be destroyed by two-thirds. It was admitted that his profits were 1,450*l.* a year. His premises were in an excellent position, between the Great Western Hotel and Westbourne-terrace, and he had a great number of customers. He could not get premises within three-quarters of a mile, and the consequence would be that his trade would be very much injured, if not destroyed; and therefore, between 3,000*l.* and 4,000*l.* were demanded as trade compensation. On the part of the company a different theory was put forward. All the company wanted was a part of the area, and not the house, but the claimant had insisted on the company taking the whole. It was submitted that he need not remove, but on his behalf it was urged that he would be blocked up by the works of the company, and he claimed compensation for the great loss he would sustain. Mr. Lloyd, in his address to the jury, complained of the demand made for trade compensation, and declared that the claimant need not remove. He would pledge himself that Mr. Burdett might remain in the premises at the rent that the jury should decide that he ought to pay. Mr. Burdett had called on the company to take the whole of the property; he had a right to do it, and Shylock did the same. He declared that, beyond the value of the lease and the matters agreed, any sum beyond 200*l.* or 500*l.* would be monstrously excessive. Mr. Under-Sheriff Burchell told the jury that they had to assess the compensation on the evidence, and not on the remarks. The claimant had required the company to take the whole of the property, and Mr. Lloyd had offered that he might remain in the same on the present value. He did not see how the jury could act on that offer. No doubt the claimant had a right to require all the property to be taken, as the company wanted a portion, and the jury would say what in their opinion would be the loss he would sustain. The real question was the amount of trade compensation to be paid to him, and the jury would consider to what extent he was likely to be injured by the railway. The jury retired, and assessed the compensation at 2,405*l.* 2*s.* including 1,450*l.*, one year's profits for the loss of trade. They said they had estimated the rental of the house at 200*l.*

THE CAPE TOWN SCHOOL OF ART.

THE report of Mr. William Foster for 1865 has been printed. The school of art in Cape Town is associated with evening classes for teaching young men other branches of education. In the year 1865 the evening classes were attended by 146 persons, and morning classes by 40. The cost of these classes was 413*l.* odd; scholars' payments, 182*l.*; colonial grant, 100*l.*; donations and subscriptions, 19*l.* odd; actual deficiency, 42*l.* The school of practical art was opened in June, 1864, and 109 students have attended its classes during the past year. Their attainments, Mr. Foster says, have been most satisfactory. In the close of the report he says,—

"The difficulties of the earlier establishment of the institution are nearly overcome; but others, incident to its growth, are now before me. I am constrained to mention that the large house, the rental of which has been divided between the institution and myself, is no longer sufficient for the purposes of the former. The room appropriated for the school is far too small for healthy occupation. The Latin class has to be held in my dressing-room, the French class meets in my sitting-room, the reading class assembles on the landing outside my bedroom, and the whole of the lower floor is occupied by the reading-room and drawing classes of the school of art. The increase of the number of students has been so steady, and continued for so long, that it is manifest additional accommodation must be prepared for them.

He therefore proposes to erect new buildings, at a cost of 500*l.*, in addition to the old.

WASTE LANDS AND BOGS OF IRELAND.

FOR a long period the supplies of live stock for meat to the Metropolitan markets have been derived from Continental sources; such importations from France, Holland, and Germany, having increased until, according to the latest returns, they amount to *four-fifths of the total Metropolitan consumption!* Under such circumstances it does appear unaccountable that the attention of the Government has never been turned to the condition of Ireland, where a wide expanse of bog and waste is suffered to lie in primeval wilderness; although by the expenditure of a sum, small with regard to the value of such pastures when reclaimed, those pestiferous and ungenial deserts might be converted into rich feeding-grounds, sufficient for the supply of the whole United Kingdom.

The evil effect of these extensive wastes and morasses upon the climate of the sister island is now universally admitted; for it is proved from examples of fen lands reclaimed in England, that whole districts have not only become profitable pastures by drainage, but the health of townships situated therein has been improved and brought up to the standard of the most favourable returns by the Registrar-General.

If viewed only as regards the general aspect of the country, such scenes of desolation are unfavourable to a general settlement of population, and repel rather than invite the fixed residence of a native Irish proprietary; in fact, although there are many princely mansions in every county, yet since the union very few new structures have been erected in Ireland, farmhouses and homesteads being far inferior to the same class of buildings in this country. As to the homes or lairs of the peasantry, their *mud hovels*, shared with pigs and often with poultry, are little better than the wigwams of savage tribes, and here would be considered unfit to house cattle, or to answer for suitable dog-kennels. Photographic sketches of cottage homes, such as they are, with still life and real life, all sorts of animals huddled together, would disgust and astound the public: such sketches have been forwarded to us, and we may hereafter publish them in the *Builder*.

That a population subject to such disadvantages, debarred from providing suitable dwellings, or from renting small holdings, should emigrate, or prove turbulent at home, is hardly to be wondered at; or that with increasing families they should fly to less genial climes, where by labour and industry a free home is opened to them.

The wastes of Ireland exceed 5,000,000 acres, of which over 3,000,000 acres might be gained as the richest pasture, worth 30*s.* an acre within two years, and double that rent within ten years.

The population, taken as 5,000,000, is returned in statistical reports at 181 *souls to the square mile* of surface—the densest of Europe; but as the arable and pasture land is computed at only 5,000,000 acres, then this would give one inhabitant for every acre, or 640 *for every square mile of fertile and cultivable land!*

In France, the most populous country after Ireland, there are 177 to the square mile of superficies; but the fertile and cultivable lands of that country are, in proportion to its extent, double those of Ireland.

The reclamation of Irish bogs and wastes would, in the first place, give work and wages to the unemployed; it would, at the *average expense of 5l. an acre*, create the richest of pastures, and furnish locations for unsettled multitudes who now seek in vain for patches of ground whereon to raise a rude hovel. The Irish labourer in America is the most industrious settler. He grubs out the roots of the primeval forest, levels, drains, and warps it; but the domain is then his own. Landlords in Ireland very properly refuse to let an acre, or even five-acre plots, or to permit the subdivision of small tenures, for it only multiplies and increases poverty.

Concession by the State of reclaimed lands, in plots of not less than five acres, at 1*l.* an acre, would be favourably viewed by the holders or lessees as estates in-tail; and if the Government would thus let off the land rescued from barrenness, a profit of 20 per cent. per annum might be realized on the outlay.

In all reclamations of Crown or public wastes, the whole profit would accrue to the Crown or public; but as the largest scope of bog and waste lands is in the tenure of great proprietors, who suffer them to sleep in wilderness, the interposition of Parliament would be indispensable, to frame Acts whereby equitable compensation should be given, *in annual rental*, for all wastes so reclaimed; such compensation to be, in all cases, a fair proportion of the improved rental.

It would be impossible to drain tracts extending many miles, without arterial canals and ducts; therefore, all lands benefiting by the influence of such works must be made contributory, in an assessed ratio, calculated, if necessary, by jury valuation.

To attempt such work on an extended scale would be useless without an Act of Parliament, authorising the advance of money—say, at first, one million, at 4 per cent. interest,—the work to be projected and carried out under Governmental supervision.

That the bogs and morasses of Ireland influence the climate and make the atmosphere humid and ungenial is an acknowledged and proven fact. The bog of Allen, in the centre of the island, covers a range equal to 3,500 square miles; this consists of a mass of peat or turf varying from 15 ft. to 60 ft. in depth, scattered over the country. Indeed, more or less in all the counties, there are similar bogs and wastes which are made tributory to the public benefit only by the fuel dug out of them, and dried annually by a summer sun; unless the game and grouse, which afford some sport to the landlord

class may be thought an equivalent for such desolations.

The drainage of such tracts alone would correct the atmospheric humidity, and make the Irish climate one of the most genial of the temperate zones. It would give wages, content, and occupation to the people, identifying their interests with their native soil; and while it pacified a turbid country, would offer to England fields of pasture and real estate, under her own dominion, sufficient for the supply of her provision markets, and to make her independent of Dutch, Flemish, Norman, or other foreign supplies; together with the substitution of home farms, and freedom from rinderpest.

T. H. HARDINGE.

TYLER'S PATENT FASTENING FOR ZINC

MR. TYLER'S invention consists mainly of a "lug" fixed to the underside of the overlap of roll, and which enters a perforation made for it in the top of the roll below, and then slides to where the opening is too small to allow it to get out. By this arrangement the sheets are enabled to expand and contract without damage; and the external surface of the roof is not pierced,—advantages certainly. The arrangement seems likely to aid in extending the use of zinc as a covering, which has been much kept back by the employment of zinc too thin for the purpose and improperly laid. It seems clear that *stout* good zinc will prove a cheap and enduring covering when laid by persons who understand the operation.

PLASTER OF PARIS.

SIR,—What is the *chemical change* which plaster of Paris undergoes, when mixed with water and run into moulds? Considerable heat is evolved during the operation. After the water of crystallization has been driven off, can it be that it again enters into chemical combination with the sulphate of lime? and if so, could not broken moulds, &c., be subjected a second time to heat, and used as at first; or is there any other process by which once-used plaster can be converted into useful material? J. D. P.

OPEN SPACES.

Now that the housing of the working classes is likely to be proceeded with on a large scale, it seems desirable that the propriety of providing recreation grounds also should not be lost sight of. So long as building what are called model lodging-houses is carried out by detached companies, it would not pay them to give ground for the purpose: hence the want suggests itself of any future operations of this kind being the work of a public body like the Board of Works or City authorities, or an English Louis Napoleon. As a striking instance of this, I may remark that the building in Commercial-street, erected by the Peabody trustees, is an immense pile, admirably planned in all other respects, but the only provision for the inhabitants amusing themselves is a very small back yard.

The fact is, some body is wanted who will take the map of London and carry a street here and there where required right through the most crowded parts, and by building higher houses make room for more people, and to every given number of houses provide a square or open space of some kind; or, better still, make a clear sweep of all the small old houses and rebuild on the land so cleared.

As prevention is better than cure, why should not the same body have the power to lay out the land round London on an enlightened principle? Let a radius of say ten miles be drawn from St. Paul's, and let it be shown how it ought to be laid out when required for building purposes; a church here, baths there, a park at another place, and so on. Washington has been so laid out for nearly a century, and, I think, Philadelphia.

There is nothing Utopian in this, and it would secure uniformity of action, and ensure the acquisition of great blessings to the future generation, which otherwise could only be acquired at great cost after the land has been built upon—each man having built, where, what, and how he chose, with roads twisting and wriggling about to suit every man's particular little bit of land, but without the slightest attempt to accommodate London as a whole.

Again, with regard to the Thames Embankment, surely it is bad policy to build anything at all on it, no matter how handsome; here, at all events, the light and air if left to us are better than the finest buildings. Pull down and rebuild the old houses, and build finer if need be, but leave us God's light and air as we always have had them.

Our City Companies have large properties in London; it would pay them, as the leases expire, to make provision for recreation grounds, and even if it did not, they are surely justified in acting up to the spirit of the bequests of those who left the money, and not adhering too rigorously to the letter. J. P. WATERSON.

GRACE AND GRANDEUR.

In ancient times, while yet the world was young,
Ere Hesiod theorised, and Homer sung,
While yet Chaldea's primal kingdom ran,
Mistress of earth,—the dynasties of man,—
The proud Egyptian from the quarried mount
Hew'd living temples, for their dead enshrined,
Whose massive walls in sacred text recount
Their empire's grandeur, and their nation's mind.

But softer Greece the absent beauty felt,
For *all* was lovely where the Grecian dwelt;
And whilst she copied with inherent taste
The unrestrained imitation graced:
From the rude column, and the pond'rous hall,
The sculptured chambers and the crowded space,
By ease and elegance surpass'd them all,
But sacrificed their grandeur to their grace.

This saw the Latin race; and feeling well
How grace and grandeur in conception dwell,
Gave to their public works, Rome's chiefest arts,
The missing beauties, though they gave but part,
Whose aspect bore the impress of her might,—
Magnificent as useful, vast as high,
Whose ruins teach us she beheld aright
The charms she had not talent to apply.

But happier far, when from Judea's plain,
The wond'ring world received a purer reign;
A dower more splendid than the rising day,
That merged the Roman conquests in decay;
Then were the Pagans' obscene altars broke;
Then bow'd the fabled gods from Mystery's throne;
Then from mankind fell slavery's magian yoke,
And HE long typified was Lord alone.

Now later, nobler, fairer, on the close
Of idol discord Christian art arose;
Now a pure faith did every branch comprise,
Art,—one long worship, one blest sacrifice.
Then every form of beauty, grace, and skill,
The Gothic artist in one concord blent,
And ardent reverence gave his genius will
To harmonise each needed element.

An active faith each latent power improved,
Each heart one comprehensive system moved:
In this art worship earth and soul compete,
And Grace and Grandeur in one glory meet.

W. R. COOPER.

Working Men's College.

PATENTS CONNECTED WITH BUILDING.

FIRE-PROOF BUILDINGS. — *J. Cunningham.* Dated 26th April, 1865.—In performing this invention the inventor constructs the floors, partitions, and other internal portions, and sometimes part of the walls, of buildings, to render them fire-proof, of a number of lengths of iron or other metal, rolled or otherwise formed to resemble in transverse section the Z-iron of commerce; and these he places parallel to each other close together, or at such distances apart that the lateral limbs of the Z,—that is, these portions which are bent in opposite directions at right angles to the trunk,—shall be sufficiently far removed from each other that they will retain prepared lime, or other plaster, placed upon them, and so dispense with laths. The said lengths of iron are tied by rods, which pass through the trunks of the Z.s; and pieces of pipe on the said tie-rods, or other separating pieces, are used to keep them apart and in proper position. Where the lateral limbs are, broad holes might be punched or made in them, to give sufficient holding-spaces for the plaster.

CONSTRUCTING PARTITIONS, WALLS, FLOORS, AND ROOFS OF BUILDINGS.—*J. J. Bodmer.* Dated 13th June, 1865.—This invention consists in the manufacture, use, and adaptation of slabs or blocks of a plastic or other material, alone or in combination with lamellar ribs or framing of wood, iron, or other suitable material, for the purposes set forth; the objects being economy, simplicity in construction, and saving of space, combined with the advantage of immediate fitness for use.

CONSTRUCTION OF SHOP-FRONTS AND OTHER SIMILAR PARTS OF BUILDINGS. — *W. R. Corson.* Dated 8th August, 1865.—In carrying out this invention the inventor makes iron story-posts of the requisite form and section to sustain the upper part of the building, and to fulfil the purpose of sash-bars, and, when desired, also to receive grooved stiles for receiving revolving or sliding shutters. The glass is fitted against the cross-flange of the iron story-post, and is held in place by a moulding, fillet, or lead, which is secured to the iron by screws or otherwise; or a sash of the ordinary form may be fitted to the iron story-post. In doorways, if desired, he secures the frame to the story-post, or when the door is set back from the story-post, he fits a sash between the frame of the door and the iron post, or either to the back part of it or to the side of it, as the design may require; also, when the web or centre part of the story-post is cast with openings in it for lightness, he has it prepared to receive glass in those openings.—Not proceeded with.

MACHINERY TO BE USED IN THE MANUFACTURE OF STAIR RODS.—*T. Allcock.* Dated 10th August, 1865.—This invention consists in the employment in a lathe of a slide-rest fitted with peculiar cutters; these cutters are, by the action of the slide-rest, brought to bear upon the ends of the rods, and cut or turn such ends to the requisite form to receive the tips. This operation has hitherto been performed in an ordinary lathe with a single cutter worked by hand, involving much loss of time and uncertainty of performance; but by the employment of the slide and tools above named all irregularity of work and loss of time in shifting the rods is avoided, at least one-half the time being saved in performing the operation.

STENCH-TRAP AND SINK-PIPE PROTECTOR. — *W. H. Gummer.* Dated 29th August, 1865.—This invention is intended to be applied to the top of sink or other drain pipes to prevent the return of any stench or effluvium, and also to protect the same against being stopped up by the admission of any solid matter. The top or head of the sink or other pipe is formed or provided with a socket or cup-shaped enlargement, having a projecting flange on the upper edge, which supports a flat or slightly dished plate, the central part of which is perforated or formed into a grate, and is provided beneath with a short trumpet-shaped tube: the lower end of this tube dips into a cup suspended in the centre of the socket or cup-shaped enlargement at the head of the pipe. The lower edge of the trumpet-shaped tube dipping into the cup makes a water joint, and effectually prevents the return of any stench or effluvium, while the cup itself retains any solid or other matter which might be likely to stop the pipe; at the same time it allows any liquid or other matter not likely to stop the pipe to flow freely over its edge and pass down the latter.

CHURCH-BUILDING NEWS.

Derby.—The new church of St. James has been commenced on Rose-hill. It is to be built and faced with local stone inside and out, and will consist of nave and two aisles under three gable roofs, with circular chancel to hold 750. A parsonage-house is also building for the incumbent. The works are being carried out by Mr. Huddlestone, of Lincoln, builder, from the design of Mr. Joseph Peacock, of London. The incumbent of the new district is the Rev. Alfred Olivier.

Harrogate. — In April last, under the direction of the clergyman, the churchwardens, and a building committee, was commenced a series of enlargements, alterations, and improvements in low Harrogate Church. Amongst these are a new chancel, with open roof and encaustic floor, new pulpit and reading-desk, stained-glass window, new pews and stalls, and re-arrangement of the free sittings, giving additional accommodation to 100 persons; new windows of cathedral glass and stained border throughout the edifice; new warming apparatus; and a new font of Caen stone, constructed by Mr. Cowling, sculptor, and Mr. Topham, joiner, from a design by Mr. R. Dyson, architect. The cost of these alterations exceeds 760*l.*

Sydenham.—On Palm Sunday, the new church of St. Philip, in Wells-road, Sydenham, was opened. It holds 700, and has cost 5,000*l.* It has been erected over the site of the ancient medicinal springs, of which Evelyn in his Diary gives an account. The building and its fittings were designed by Mr. Edwin Nash, architect. The plan is that of a cross, with a semicircular

east end. The style is plain Early Mediæval. The stone used has been Reigate, Kentish rag, Speldhurst, and Bath; and for the pulpit, Caen and Painswick, with a little marble and spa. The font is of alabaster and Devonshire marble. The contractor was Mr. Carruthers, the carver Mr. Jaquet, and the gas-fittings were by Messrs. Peard & Jackson. There is a new organ by Messrs. Hill.

Heytesbury.—The ancient collegiate church of Heytesbury is now undergoing complete repair and restoration, from plans prepared by Mr. Butterfield. It is a spacious cruciform church, chiefly of Early English architecture. The pillars of the nave have fallen much out of the perpendicular, and it is proposed to rebuild them, and also a part of the tower, which contains a peal of six bells, and to which a new way of access must be made. Some Early English arches and columns have been long hidden behind the plaster of the walls in the chancel: these are to be opened and repaired, and the side aisles, which formerly existed, are to be rebuilt, and the high pitch of the original roof restored. The present galleries, one of which blocks up the arch of the nave, and entirely separates the chancel and transepts from the rest of the church, are to be pulled down, and the whole church reseated, whereby there will be an increase of accommodation, and a gain of many free sittings. The cost of these works will considerably exceed 5,000*l*., and the vicar, the Rev. John Knight, and the churchwardens, are receiving subscriptions and donations from the public, to whom an appeal has been made for about 500*l*. more than the present contract for works in the nave. The Heytesbury family have largely contributed, as have others, to the restorations.

Lyncombe.—Efforts are now being made to collect the means of erecting a church for the outlying parts of the parish, which project has been for many years talked of. A design has been prepared by Messrs. Hicks & Isaac, architects, in the Early Decorated style, with cruciform plan and surmounted by a spire.

Willenhall.—The chief stone of the rebuilding of St. Giles's Church has been laid. The present movement owes its commencement to the exertions and self-denial of the new incumbent, the Rev. G. H. Fisher, who has set aside 1,000*l*. out of the living, towards the cost of the rebuilding, and also to the liberality of Mrs. R. D. Gough, who has headed the subscription list with a like sum of 1,000*l*. The principal inhabitants of the town have also liberally responded to the appeal for contributions. The new edifice is to be in the Decorated style, and chiefly of stone. The total cost is estimated at about 3,700*l*., but if a new tower be added this will increase the total to about 5,000*l*. The architect is Mr. Griffin, and the contractor Mr. Horsman, both of Wolverhampton, and they hope to have the new church open for divine service in twelve months.

Colwall (near Malvern).—The parish church of Colwall has long stood in need of general restoration; but an eccentric opposition in the parish, added to the costliness of the proposed work (nearly 3,000*l*.), has hitherto obstructed its progress. The rector, however, the Rev. F. Custance, last year undertook the complete renovation of the chancel, which, among other unsightly features and dilapidations, exhibited a debased three-light east window and wooden chancel arch, supported by rude corbel-heads. The architect selected was Mr. H. Woodyer, of Grafham, near Guildford; and the builder, Mr. James Davis, of Malvern Wells; clerk of the works, Mr. James Walker. The chancel has now been rebuilt in the Early English style; Cradley rubble, with Bath stone dressings, being used. A deeply-recessed Early English triplet now forms the east window, filled in with stained glass, as a memorial to members of the rector's family. The window is by Mr. Hardman; and the subjects it embraces are,—in the centre, the Crucifixion; dexter, Raising the Widow's Son; sinister, Jairus's Daughter. Between the lancets of the window are engaged shafts of Forest of Dean grit stone, with bases, caps, and bandings to the shafts; and underneath the window is a moulded string-course, which also runs round the three sides of the chancel. A reredos has been erected of Caen stone, the pediment of which is ornamented with foliage and dog's-tooth mouldings, and capped with a finial and urn. In the central compartment of the reredos is a recessed *vesica piscis*, with lamb, flag, and banner, sculptured by Mr. Nicholls, of London; and on each side are recessed panels, of geometrical outline, inclosing angels burning incense. A stone chancel arch has superseded the wooden one. The arch, which is pointed, and has moulded soffit and labels springing from foliated bosses, is supported on Forest of Dean stone shafts, having moulded bases and carved foliage for caps. Underneath the arch is a wooden screen of stained deal, having a large central arch and three smaller ones on each side, with trefoil heads, dog's-tooth moulding, and moulded cornice. In the south wall of the chancel are three lancet-lights, with diamond quarries and borders; also a piscina and sedilia. The walls are stuccoed internally. The roof is open and of stained deal; and on the floor there are encaustic tiles, red, black, and buff, in small patterns and bandings. An organ-chamber has been erected on the north side of the chancel; and an instrument, by Mr. Nicholson, of Worcester, will shortly be erected here. Exteriorly there are buttresses at the angles of the east end of the chancel and to the side walls. Floriated and wheel crosses surmount the east gables of chancel and nave, and small Greek crosses in sunk panels are inserted under the east window and in the south wall.

Newport (Staffordshire).—A new church is about to be erected at Aston, in place of the old edifice which is to be taken down. The new one will be erected on a site closely adjoining the old church. The style will be Gothic, of the Decorated period. The form is a double rectangle, consisting of nave, north aisle, chancel, and chancel aisle, with bell turret. It was originally intended to have a tower and spire, but the idea was given up owing to the funds not being forthcoming; even as it is, we understand a sum something like 300*l*. is still required. The architect is Mr. G. E. Street, of London; and Messrs. Treasure, of Shrewsbury, have undertaken the contract. The new building will be of red sandstone from the quarry of Aston Hill. The dressings will be of Grinsill stone. The seats are to be open. The edifice is estimated to accommodate 332 persons, at a total cost of about 1,900*l*.

Cheltenham.—The building of All Saints' Church is to be begun immediately.——The foundation stone of a new church has been laid at Charlton Kings, by Mr. C. C. Higgs, by whom the site and 1,000*l*. endowment have been presented. The site is on the London-road, at the junction of the two thoroughfares from Charlton to Cheltenham. The church will be in the Early Decorated style, and will consist of a nave and side aisles, with chancel and chancel aisles. There will also be a tower and spire, connected with the main building by a short corridor. The building is intended to accommodate 850 persons. It will be erected from designs by Mr. Middleton, of Cheltenham; and the contract has been taken by Messrs. Jones, of Gloucester.

Froome Bishop.—St. Matthias Church, Froome's-hill, has been consecrated by the Bishop of Hereford. It is in the later style of Early English architecture. It consists of nave, south porch, and chancel, terminating at the east end with a semicircular apse. The vestry is on the north side. The length of the fabric is 62 ft. and the width 23 ft. The style of the nave is Early Geometrical, lighted on the south side by a two-light window (tracery head), and one lancet window. The north side has a double-light window, with tracery head; west end, two lancet windows with moulded heads and circular wooden gable. This gable on the west is surmounted by a double bell-cot. The whole is built of stone from the neighbouring quarry. The arches, &c., are Box ground stone; the nave is separated from the chancel by an arch which is the whole width, carried on corbels with carved capitals. The pulpit, which forms part of the chancel screen, is of stone, with medallions in sculpture and other carvings. The font, placed near the porch, is octagonal in design, carried on double columns, with moulded cases and bases. The seats, to accommodate 100 persons, are free. The architect was Mr. F. R. Kempson, of Hereford. The contractors are Messrs. Collins & Cullis, of Tewkesbury. The roof is covered with a greenish gray slate, from the quarries of Pembrokeshire. The cost of this small church was about 980*l*.

Hastings.—The foundation-stone of St. Paul's Church has been laid. It will be executed from the designs of Mr. John Newton, of the Adelphi, in the fourteenth century style. The church will consist of a nave and two side aisles, the south aisle terminating in the tower, and that on the north having a chancel aisle at its eastern extremity, containing the organ and vestry. The chancel will have a semicircular apse at the east end. The nave will be divided from the aisles by arcades of four arches: these, as indeed all the body of the church, will be executed in stone and variously coloured bricks. The nave, aisles, and tower will accommodate 692 adults, 292 free. The seats will be open, and with the stalls in the chancel will be executed in wainscot oak. The tower, which will be 82 ft. high, will be surmounted by a lofty spire. The chancel and tower are to be groined throughout with variegated brick and stone, the shafts being in Devonshire and other marbles, including a variety lately introduced from the Island of Tinos, in Greece. The spandrels of the groining of the apse will contain subjects executed in Salviati's Italian mosaics, the ribs being of alabaster, and will thus form a frame or crown to the reredos, which will be placed in the centre of the apse beneath.

PROVINCIAL NEWS.

Ryde.—The local commissioners have resolved that a premium of 25*l*. be offered for the best design of an assembly-room over the town-hall, and that the architects be restricted to the sum of 200*l*.

Matlock Bridge.—A company, on the limited liability principle, has been formed at Matlock Bridge for the purpose of erecting a commodious hotel, together with a market-hall and assembly-room suitable to the requirements of the place.

Worthing.—A new double almshouse, for the reception of widows or single women between the ages of fifty-five and seventy years, has been commenced on the land east of Humphrey's almshouses, and will, when completed, form a part of that charity. The design is by Mr. Wm. Burgess, of London; and the builders are Messrs. Hide & Patching, Worthing.

Kirkdale and Preston.—At the next general meeting of county-magistrates a recommendation of the Kirkdale Gaol visiting justices will be submitted for the enlargement of that gaol, at a cost not exceeding 21,000*l*., to be raised, if thought fit, on mortgage of the rates. At the same sessions the visiting justices of the Preston House of Correction will apply for 10,500*l*., to enable them to erect a new range of cells for female prisoners and a hospital at the prison.

Rochdale.—The chief stone of a new town-hall has been laid here by Mr. Bright, M.P. The architect is Mr. Crossland, of Leeds. The building will be erected on a large plot of ground called the Wood Estate, situated near the old parish church, and abutting on the river Roach. The hall opens on the north and east towards the town, having a background of high ground, which will be of gradual slope, planted with shrubs, and upon which stands the old church and vicarage. The form of the building will be like the letter E, with the back forming the principal façade towards the river; the top arm forming the east front towards the town; the middle arm will form the grand staircase; and the bottom arm magistrates' rooms and offices connected with the borough court. The clock-tower, rising to the height of 150 ft., will be at the north-east angle of the building. The full length of the river front will be 220 ft., beyond which the octagonal staircase will project, one on the east and one on the west front. The east front will be exactly half the length of the north, or 110 ft., the centre feature being the staircase before mentioned. The west front will be some 22 ft. shorter. In consequence of the depth required to be excavated for foundations it has been found desirable to add a distinct basement-story to the building, which will be used for store-rooms, workshops, and other purposes. The style of the hall will be English, of close of fourteenth century, free use being made of the mullioned windows of many lights, square-headed, for such offices as may be called domestic. The hall will be divided into seven equal bays, each bay being lighted by a three-light window, with tracery in the head and traceried transomes. The roof will be open, having hammer-beam, framed principals with traceried spandrels, and grotesque figures, holding candelabra from the ends of the hammer-beams. The filling-in of the roof will be of framed square panels, plastered for decoration. Over the platform at the west end will be a recessed organ-gallery, having a quadruple arcade with stone shafts and foliated capitals, over which will be a rose-window with radiating tracery. The council-room is spanned by four segmental arches, moulded, the spandrels

ing pierced with tracery. The arches carry e wooden ceiling, which is framed into square anels plastered for decoration, as are the ceilgs of the principal rooms. The clock-tower ill be 24 ft. square at the base, with octagonal uttresses projecting from each angle. The eight to the parapet will be 100 ft., and will be ivided into five stages, the two topmost being r clock and bells. An octagon stage, arcaded, nd of stone, will rise from the top of the tower, nd will be roofed with a high roof, finishing ith a bronze figure of St. George and the ragon. The whole of the walls outside will e of dressed ashlar, from the quarries in the eighbourhood of Todmorden, broken by projectg buttresses, and pierced by windows in chaacter with the different rooms and offices they ght. The façade is connected by arcades, the orch projecting beyond all. The tower doorway ill be sculptured, having thirteen niches, with anopies and bases to be filled with statues. In he centre bay of the large hall will be a statue f the Queen under a canopy. The roof will be overed with Westmoreland slates. The clock ace will be 11 ft. in diameter, and 88 ft. from the round.

Stockport.—There is now a prospect that the ew thoroughfare from the Market Place to St. eter's Gate will be commenced at an early eriod. Tenders were sent in for the construction f the bridge and viaduct at the last meeting of he local Highways (Public Works) Committee, here being five tenders for the brick and stonevork, and eight for the iron work, only four of he whole number being from townspeople. The ontract for the former was let to Mr. Peter ierce, builder, of this town, at 3,450*l.*; and that or the ironwork was given to Mr. George Underwood, of the Sefton Ironworks, Liverpool, at 490*l.* The bridge will consist of five brick arches, upported by brick piers with stone dressings, nd a centre arch or iron girder, one of the small rches leading into the Market Place, and the our others into St. Peter's Gate. There will be a flight of steps from both sides of the Underbank.

Keighley.—A special meeting of the members of the mechanics' institution has been held to receive from the building committee the scheme and plan of arrangements whereon they propose to erect the new building. The scheme was submitted to the meeting and approved by the members present. A resolution was then unanimously adopted, giving power to the committee for the new erection.

Books Received.

Detail Drawings and Sketches, measured and drawn from Ecclesiastical and Domestic Buildings of the Middle Ages in England and France. Parts I. to VI. By Frederick Rogers, Architect. London: Atchley & Co., Publishers, Great Russell-street, Bedford-square.

We have here the first part of a series of drawings in course of publication, from measured sketches taken at Rouen, Chartres, Mantes, Etampes, Lisieux, Caen, and Bayeux; and from Canterbury, Glastonbury, Wells, Salisbury, Ely, Lincoln, York, Fountains, Kirkstall, Byland, Selby, Whitby, Rievaulx, Furness, and other places.

There are to be 120 plates, numbered so as to form two volumes. Each part contains five plates, at the cost of 2s. 6d. to subscribers.

By giving in the same book examples from the two countries, Mr. Rogers seeks to afford the means of comparison, and to show that it is not to the disadvantage of England.

VARIORUM.

Debrett's "Illustrated Peerage" and Debrett's "Illustrated Baronetage" (both published by Dean & Son, Ludgate-hill), maintain their *prestige*. In both there seems to be a considerable extension of the biographical notes and of the ecclesiastical portion of the work. The fact that the latest creations,—such, for example, as Sir James Simpson and Sir William Fergusson,—are to be found in the Baronetage, shows the assiduity exhibited to make the book complete up to the last moment.——"The Argosy" floats on successfully, and with a cargo of increasing value. That for April is the best yet launched.——"Up and Down the Streets of London," by Mr. Mark Lemon, illustrated, is a good feature in *London Society*. "Paris before Easter," and "Notes in Rome," are interesting sketches.——The United Kingdom really united—Ireland to England;—and how to obtain good and cheap Beef and unfailing Crops. By Captain W. Macbay. London: Stanford." This gentleman proposes the formation of two great viaducts across the narrows of the Irish Channel, one between Port Patrick in Scotland and Donaghadee in Ireland, about twenty miles across, with a depth midway of seventy fathoms; and the other between St. David's Head in Wales, and Carnsore Point, Wexford, in Ireland, forty miles across, with a maximum depth of fifty-three fathoms! each viaduct to include four lines of rail, two for passengers and two for luggage, a carriageway, 40 ft. broad, and a footway of 6 ft.,—the two latter to be a public highway, and the former to be leased to a company. The projector proposes the use of convict labour to carry out his scheme, and he is of opinion that it might be completed during the lifetime of her Majesty, should she happily live to a good old age. The author surely knows little of convict labour if he thinks it possible by such means to remove mountains and throw them into the sea at the requisite rate to realise such a project even in the course of centuries. The joke of the London Correspondent of the *Liverpool Albion* about a company who had taken the Giant's Causeway, from which they were about to throw a magnificent bridge across the Irish Channel, was nothing to the captain's.

Miscellanea.

Presentation of Plate to the late City Surveyor of Carlisle.—Since the City Council's vote of thanks to Mr. Joseph Gordon, for his services, a massive silver tea and coffee service and other silver plate have been presented to him, at a large meeting of citizens, in the Bush Hotel.

Working Men's Institute for Malvern.—A public meeting, convened by the committee of the local Working Men's and Literary Institute, has been held, for the purpose of promoting the erection of buildings suitable for the institute. Lord Lyttelton, the lord lieutenant of the county, presided, and appropriate resolutions were passed promotive of the object in view. A suitable building, it was said, might be erected for 700*l.* to 800*l.*

Strange Story of a Fireproof Chest.—At the Randolph Hotel in Oxford, lately built, two men and a boy employed on the premises, from fun and curiosity, says the *Churchman*, got into a fire-proof plate-closet. Another servant closed the door. It fastened with a spring lock, and the horrified victims found themselves enclosed in an air-tight box about 3 ft. square by 6 ft. high. There was only just standing-room. Their cries soon alarmed the establishment, and at last the key was found, but it broke in the lock. The door resisted every effort of several sledge hammers. The escape of the prisoners was only effected after more than half an hour, by breaking through the wall with proper mason's tools. The boy had fainted, and one of the men was bleeding at the nose and mouth.

Decoration of the Concert-room at the Conservatoire of Paris.—This theatre has been renovated and decorated, in the néo-Greek style, by M. Adolphe Lance, and presents a marked contrast in appearance to that which it exhibited last year, when it was faded and dirty in the entrance. The *Society of Arts Journal* says,—"The back of the stage, which forms a hemicycle in ten panels, is decorated with figures of Apollo and the Muses, painted in wax by M. Mazerolle. The pilasters which support the roof of this portion are ornamented with lyres and laurel-wreaths, in light *rouge antique* and bright yellow, picked out with blue and powdered with stars. On the ceiling itself are six figures of genii supporting escutcheons, on which are the names of Haydn, Beethoven, Mozart, Gluck, Bach, and Handel. On the panels of the boxes are the names of Rossini, Cherubini, Mendelssohn, Weber, Méhul, Boëldieu, Orpée, Grétry, Spontini, Donizetti, Hérold, and Halévy. On the front of the balcony are busts of Æschylus, Corneille, Racine, Molière, Crebillon, Marivaux, Beaumarchais, Voltaire, and Regnard. A great improvement has been made in the arrangement of the seats, at the sacrifice of twenty places out of nine hundred."

Purchase of Leases.—The Lord Chancellor has decided (reversing a decree of Vice-Chancellor Wood) in the case of Southern *v.* Harriman, that an agreement for the purchase of a lease, which does not mention the length of the term granted by the lease, is void for uncertainty, and cannot be enforced.

Architectural Institute of Scotland.—At a general meeting of the Architectural Institute of Scotland, held on the 2nd of April, Mr. William Miller read a "Sketch of the Origin, Objects, and Progress of the Bill which was passed in 1827, 'For carrying into effect certain Improvements on the City of Edinburgh, and adjacent to the same.'"

Her Majesty and Mr. Peabody.—A very graceful letter has been written by the Queen to Mr. Peabody,—who, as an American, has declined a baronetcy, and the Grand Cross of the order of the Bath,—thanking him, in the national name, for his "more than princely munificence" to the metropolitan poor; and asking his acceptance of a miniature portrait of herself, which she will have specially painted for him.

Improvements in Rothbury.—In anticipation of the railway now in course of formation being completed, the following improvements are either in hand or in contemplation:—The supplying of Rothbury with pure water from the springs of Whitten Tower; the rebuilding of the old inn, the Three Half Moons, by Mrs. Hindhaugh; the building of a new bank, as a branch of the Alnwick and County; the building of a joint-stock hotel, to contain forty rooms; and the rebuilding of the Blue Bell Inn, by the Rothbury Brewery Company, who are also going to further enlarge their already extensive premises.

The Steeple of St. Bride's, London.—Recently it was resolved that Mr. Tress, the architect, be requested to obtain estimates of the necessary repairs to the tower and steeple. In accordance with this, Mr. Tress forwarded to the committee four tenders, and they recommended that the tender of Mr. Deards (being the lowest) for 1,577*l.* be accepted, upon his giving security for the due performance of the works. At a meeting of the ratepayers held on the 29th ultimo, the report was referred back to the committee to consider and report upon the mode by which the cost of the proposed repairs should be provided for.

Cost of Steam Traction on Roads.—An experiment has been tried in Kent by Messrs. Aveling & Porter, the working abilities of whose traction-engines are well known, in order to ascertain the cost of removing goods on the highway by steam power. It was found that the cost of conveyance just exceeded 1½d. per ton per mile, exclusive of turnpike tolls, which actually added 1½d. per mile. The road, however, was one where the tolls are shortly to be taken off, namely, between Rochester and Tenterden. The goods consisted of wagons of lime, ragstone, coal, and oil-cake. The rate of procedure averaged 3 miles an hour. The *Engineer*, which reports the experiment, says that the reporter has ascertained that goods conveyed in the ordinary way are usually charged on the same line of road three times the charge of steam power.

New College of Science for Ireland.—The Government have decided to convert the Museum of Irish Industry into a college of science for Ireland. As the sphere of action of this college on the basis broadly sketched out in this minute will be somewhat new, and beyond the limits hitherto placed on the action of the Science and Art Department in respect of the encouragement of science, my lords have appointed a commission to advise them on the subject. The following noblemen and gentlemen have consented to act on this commission:—Earl of Rosse, K.P., D.C.L., F.R.S., &c.; Lord Talbot de Malahide, F.R.S., &c.; Dr. Carpenter, M.D., F.R.S.; Rev. B. M. Cowie, B.D.; John Fowler, esq. (president of the Institution of Civil Engineers); Professor Frankland, Ph.D., F.R.S.; W. H. Gregory, esq., M.P.; Colonel Harness, C.B., R.E.; Professor Hofmann, Ph.D., F.R.S.; Professor Huxley, F.R.S.; Professor Jukes, F.R.S.; Sir Robert Kane, F.R.S.; Myles O'Reilly, esq., M.P.; Professor Lyon Playfair, C.B., LL.D., F.R.S.; Lieut.-gen. Sabine, R.A., D.C.L. (president of the Royal Society); Warrington W. Smyth, esq., M.A., F.R.S.; Professor Sullivan, Ph.D.; Professor Tyndall, D.C.L., F.R.S.; and Capt. Donnelly, R.E., who will also act as secretary.

COPPER.—The price has been reduced 5*l.* per ton, the present price for tough ingot being 91*l.* per ton.

SUBMARINE CABLE CONSTRUCTION. — Another cable in which cork is used to give partial buoyancy is spoken of. In this case "patent cork carpet," made of ground cork and India-rubber combined, or cork-carpet pulp and India-rubber, are used to aid in giving partial buoyancy to the cable while being laid. The invention has been patented, and is called "Guy's Patent Deep-sea Telegraph Cable."

PROPOSED NEW RAQUET COURTS AT ETON SCHOOL.—A meeting of old Etonians has been held at the Charing Cross Hotel, to consider the propriety of building two new raquet courts at Eton for the use of the school. The proposal has the sanction of the Provost and the Head Master, and of old Etonians at Oxford and Cambridge. The cost will be about 1,500*l.* A committee of old Etonians was provisionally named, and is now at work.

A NEW WARPING SLUICE FOR THE TRENT AT BURRINGHAM. — The foundation-stones of the middle pier of a new warping-sluice about to be erected on the east side of the river Trent, near the village of Burringham, have been laid. Mr. Durham, C.E., is the engineer; and the contractors are Messrs. Briggs & Leggotts. There are upwards of 800 acres of land to warp, and the preliminary work has satisfactorily progressed.

THE BOROUGH SURVEYOR OF WREXHAM, Mr. Hugh Davies, has been dismissed from his situation for having amongst other things written a letter which was inserted in the *Oswestry Advertiser*, making certain extra official remarks upon two members of the local board. Mr. William Turner, builder, was appointed *pro tem.* in the place of Mr. Davies, at a salary of 150*l.* per annum. The late surveyor was in "hot water" for a considerable time past with the members of the board, as to the manner in which the business was conducted.

CORN EXCHANGES.—The Horsham Corn Exchange, which, when completed, will be attached to and become part of the Black Horse Inn, West-street, has been commenced, but the alterations at the inn necessitated by the erection will take some time.——Preparations for erecting the new Corn Exchange at Dorchester are now in progress under the direction of the contractor, Mr. Welspring. The room will be 75 ft. by 36 ft.: the old Corn Exchange is 54 ft. by 30 ft.——A company has been formed at Gainsborough with the view of erecting a new Corn Exchange for the town.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—Mr. J. Beavington Atkinson at the last meeting delivered a lecture on "Raffaelle: his Position in the History of Art." The lecturer said it was a bold thing in these pre-Raffaellite, post-Raffaellite, and anti-Raffaellite days to attempt a eulogy on the greatest painter the world has known. He entered into an analysis of Raffaelle's works for the purpose of showing that the painter was supreme in truth as in beauty; that he threw himself into the drama of passion; and in all things became in his art the representative of humanity. A discussion followed.

CONTINUED FEVER IN ST. PANCRAS. — The medical officer of health for St. Pancras reported to the vestry, at their meeting, on Wednesday in last week, that in a court named Mary-place, Hampstead-road, no fewer than 37 cases of fever had occurred since the 9th of January last. The total number of persons recently attacked in that locality has been 72 out of 316, or at the rate of about 25 per cent. Even this did not include all the cases, because some had been sent to Middlesex Hospital and elsewhere out of the parish. Out of the 19 houses in the court above mentioned only four have escaped the ravages of typhus. After a short deliberation, the vestry unanimously resolved to apply for summonses for the abatement of the overcrowding and for the enforcing of cleansing and disinfecting measures; all destitute persons whose clothes and bedding shall be destroyed under the advice of the medical officer of health, with the view of getting rid of infection, to receive parochial compensation. The guardians were directed to give liberal relief to the inhabitants of the court, because it was considered that insufficient food, no less than over-crowding, tends to render people liable to attacks of typhus.

ISLINGTON WORKHOUSE COMPETITION. — Seven sets of designs have been sent in, and have been hung up for inspection by the Board.

BURSTING OF THE AIRE AND CALDER CANAL, NEAR BARNSLEY.—The Aire and Calder Canal burst on Sunday in last week, and nearly half a mile of the water was run off. The leakage was at last detected, and workmen were employed to throw into the canal bags of sawdust, hay, straw, and clay, but all their efforts were ineffectual until the water was dammed at the Old Mill and Aqueduct bridge. It is supposed that a slip in the rock underneath, consequent upon the coal having been got, is the cause of the accident.

THE INVENTOR OF THE STEAM HOIST.—Having lately stated that a steam hoist had been successfully tried at Newark Castle Wharf, and that a Mr. Nicholson was said to be the inventor of it, Mr. Isaiah Riley, of Freeling-street, Caledonian-road, London, writes to us, claiming the invention of the original steam hoist, although he appears to admit that the one described differs in some respects from his. Probably it is only these differences which Mr. Nicholson claims as of his invention. Mr. Riley, however, considers his own invention to possess advantages superior to the one tried at Newark Castle Wharf.

THE HAYMARKET THEATRE. — Dr. Westland Marston's new comedy, "The Favourite of Fortune," is an interesting and well-written piece, and is exceedingly well played by Miss Kate Saville, Miss Nelly Moore, Mr. Buckstone, and Mr. Sothern. The latter shows that he is a genuine actor, and that he is to be esteemed for more than his great success in one exceptional character. Miss Snowdon is overweighted in the *Widow Lorrington*, which, in the hands, say, of Mrs. Stirling, would be the great part of the piece. A capital exterior of a Gothic villa, and some equally excellent interiors, do credit to Mr. O'Connor and Mr. Morris, as painters and builders, and aid in obtaining for the whole a success genuine, and likely to be lasting.

THE CELLAR DWELLINGS OF LIVERPOOL.—At a recent meeting of the Liverpool Health Committee, a report being presented by the inspector of nuisances as to certain cellars unlawfully occupied as sleeping apartments, it was stated in a conversation that ensued that 9,000 cellars were still so improperly occupied. Mr. Whitty moved that the Parliamentary Committee be instructed to obtain in their next Bill powers to fill up those cellars which are repeatedly used in violation of the law. The borough surveyor said that it would cost 380,000*l.* to fill up all the cellars. An amendment, however, was adopted, which simply directed the Parliamentary sub-committee to report as to the best mode of preventing the unlawful occupation of cellars.

TENDERS

For roads at Temple Cowley, Oxford, for the British Land Company:—

Bosson	£416	0	0
Saul	320	0	0
Morriss	225	11	0
Coker	221	17	0
Brownsell	153	0	0
Pipkin	175	0	0
Phipps	110	10	0
Snow (too late)	105	0	0

For board-room, house, stabling, offices, &c., for the Milverton Board of Health, Leamington, Warwickshire. Mr. J. Cundall, architect:—

Hart	£1,075	0	0
Masters	960	0	0
Marriott	920	0	0
Jones	920	0	0
Woolison	772	0	0
Packwood	768	0	0
Green (accepted)	744	0	0

For a villa residence, for Mrs. Lee, at Knighton, Leicestershire. Quantities supplied. Messrs. Shenton & Baker, architects:—

Duxbury	£2,875	0	0
Herbert & Son	2,780	0	0
Hewit & Son	2,749	0	0
Cox	2,686	0	0
Neale & Sons	2,670	0	0
Porter	2,615	0	0
Osborne, Brothers	2,580	0	0
Hutchinson & Son (accepted)	2,578	0	0

For the new Victoria Iron Works, for Messrs. Page & Co., Bedford. All ironwork found by the proprietors. Quantities supplied. Mr. John Usher, architect:—

Donnelly	£7,227	0	0
Winn & Foster	6,560	0	0
Chinnock	6,204	0	0
Cunvin	5,657	0	0
Day & Hinton	5,265	0	0
Simms & Martin	5,245	0	0
Freeman & Son	3,979	0	0

For alterations at the Green Man, Featherstone-street, City-road:—

Terrey (accepted)	£932	0	0
Herring, pewterer	138	0	0

For alterations at the Pagoda, Bermondsey, New-road:—

Anley (accepted)	£430	10	0

For alterations, &c. at the Mason's Stables, Piccadilly, for the Park-lane Company, Limited. Mr. J. B. Garling, architect:—

Stimpson	£2,875	0	0
McLachlan	2,868	0	0
Jackson	2,423	0	0
King & Sons	2,390	0	0
Nixon	2,337	0	0

For parsonage-house, at Hemel Hempstead. Quantities supplied by Mr. Charles Poland. Mr. Joseph James, architect:—

Sear	£1,000	0	0
Humphrey	980	0	0

Accepted for eighty-one workmen's houses, at Saltaire. Messrs. Lockwood & Mawson, architects:—

Moulson & Son (excavator, mason, and bricklayers' work)	£13,000	0	0
Lves & Son (carpenters and joiners)	4,813	0	0
Duckworth (plasterer)	1,200	0	0
Stead (plumber)	521	0	0
J. & J. Hill (slaters)	790	0	0
Briggs & Mensforth (painters)	366	13	0

For erecting cabinet manufactory and show-rooms, in Bunhill-row, Finsbury, for Mr. Walker. Mr. F. G. Widdows, architect:—

Axford & Whillier	£7,664	0	0
Piper and Wheeler	7,164	0	0
Perry	7,140	0	0
Child & Son	7,129	0	0
Brass	7,093	0	0
Emor	7,079	0	0
Patman, Brothers	7,049	0	0
Smith, Brothers	6,981	0	0
Henshaw	6,645	0	0
Browne & Robinson	6,468	0	0

TO CORRESPONDENTS.

E. O. G.—H. T. G.—Mr. W.—G. M.—C. J. P.—Mr. P.—A. G.—W. W.—M. P.—A. B.—B. L. T.—W. L.—B. A.—E. W.—J. M. L.—D. E.—T. W.—G. T.—J. R.—W. N.—R.—R. S.—R. B.—R. H. C.—W. L.—E. A.—K. & Sons.—T. R. R.—S. D. B.—Bricklayer (we cannot attempt to teach him his business).—Mr. C. (too late).

We are compelled to decline printing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than **THREE o'clock, p.m.,** *on THURSDAY.*

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

NOTICE. — Mr. ALPHONS DÜRR, of Leipzig (Successor to Ludwig Denicke), has been appointed AGENT to receive Advertisements, and supply "The Builder," in GERMANY AND EASTERN EUROPE.

LEYTONSTONE, ESSEX.—The Fillebrook Estate, a valuable freehold property, most conveniently and agreeably situated, near to Epping Forest and the village of Leytonstone, and immediately contiguous to the railway station, bringing it within twenty-five minutes' ride of London. The estate comprises about 140 acres of building land, of an undulated character, with early possession, exceedingly well adapted for the erection of detached villa residences, schools, and public institutions, but at present let for agricultural and accommodation purposes; likewise the several excellent modern residences and grounds, known as Gainsborough Lodge, Holly Lodge, Walnut tree House, The Limes, and Nos. 1, 2, 7, and 8, Fillebrook-road, let at rents amounting to 664*l.* per annum; also a well secured ground rent of 17*l.* 10*s.* per annum, and other property.

MESSRS. DRIVER & CO. are instructed to SELL by AUCTION, at the GUILDHALL COFFEE-HOUSE, Gresham-street, on TUESDAY, MAY 8, the above valuable FREEHOLD PROPERTY.—Printed particulars, with plan of the building land, arranged in lots and blocks, to meet the requirements of private purchasers and speculators, may be obtained at the Place of Sale; at the Estate Exchange, Change-alley, Cornhill; at the principal Inns in the neighbourhood; of Messrs. SHOUBRIDGE, Solicitors, 1, Lincoln's Inn Fields, W.C.; and of Messrs. DRIVER & CO. Surveyors, Land Agents, and Auctioneers, 4, Whitehall, London, S.W.

NORTHUMBERLAND PARK, TOTTENHAM.—Within a few minutes' walk of the Park Railway Station.

MR. JACKSON will SELL by AUCTION, at GARRAWAY'S COFFEE-HOUSE, Cornhill, on TUESDAY, APRIL 17, at ONE for TWO o'clock, SIXTY PLOTS of valuable FREEHOLD BUILDING LAND, having important frontages to new roads, called Commonwealth and Farningham roads. The roads and sewers have been constructed at the expense of the Vendors, and the land is immediately available for building operations. Nine tenths of the purchase-money may remain on mortgage or contract at 5 per cent. interest, to be paid in nine years, by equal half-yearly instalments, but the whole or any part of the balance may be paid off at any time.—Particulars and conditions of sale may be obtained at the Northumberland Arms, Northumberland Park; White Hart; of Messrs. HUMPHREYS & SONS, Builders, Tottenham; of ROBERT KING, Esq. Solicitor, 83, Fenchurch-street, City; at Garraway's; and at the Auctioneer's Offices, 98, Mile End-road, E.

The Builder.

VOL. XXIV.—No. 1210.

The Dangers of the Streets.

So much attention has been recently called to the numerous accidents that weekly, or even daily, befall pedestrians in the streets of London, that it is almost incredible that some remedy for so grave an evil has not yet been devised. It is true that, amid the busy activity of the times in which we live, that which is every one's business is no one's business. People have a ague idea that a matter ought really to be looked to, that the public should be protected, that the uthorities should do something, and the like, rgetting that each busy grumbler is an integer hat goes to form the sum total called the public, nd a member of the community from which the authorities" emanate. The same hazy and ncomfortable idea may be held to preside in the rain of the "authorities" themselves; although, lternating with, and finally dominating, any esire to act in the matter, is the lesson taught y many a past experience, that action on their art would have but one certain result, that is, call down a torrent of criticism, if not a orm of abuse, from all sides. In other coun- ies, the prefect of the city or the Minister of the nterior would be looked to to take some steps prevent a wholesale slaughter of peaceable tizens, for such our system of street accidents literally becoming. But if we wait for the ord Mayor, or the Commissioner of Works, to rapple with the matter in earnest, we shall ave become so accustomed to our dangers as to ase to feel the necessity for their removal. he wish of the great wit that a bishop might immolated as a means of rousing up sufficient dignation against the directors of railway mpanies to induce them to abandon certain noxious regulations, will not readily be for- otten; but even an episcopal victim would fail secure redress in a case where valuable lives e daily perilled without exciting a sign of hope r the removal of the causes of danger.

In the case of street accidents, as in all other ases, where remedy is difficult and complicated, e first requisite towards obtaining redress, to state clearly the causes of the evil. In is instance there can be no hesitation on this ore. The cause of street accidents is mainly is. So great a population is gathered toge- er within a few square miles, that the ac- mmodation afforded by the public thorough- res for their passing backwards and forwards, as become in many parts of the metropolis ite inadequate. So long as a traffic in any ven direction is sparse, and vehicles follow each her at considerable intervals, on their respec- ve sides of the road, no considerable danger or convenience arises from the intermixture of arious kinds of traffic, or even from one line of affic crossing or intersecting another. But the oment that a stream of traffic is so large as to come continuous, not only does the intersec- on of a transverse stream become a source of lay and of danger, but even the passage of hicles in the same direction at different rates speed becomes highly objectionable; and the medy lies in the due provision that should be distinctly made for each line, and for each velocity of traffic.

In England, and that not only in the metropolis and the great towns, but in every village, and along every important highway, the first step in this direction has been taken with a consideration for the wants of the humbler, that is to say, of the *slower* passengers, that is very striking to those accustomed to the routes of other parts of the world. The *trottoir* or footway, paved in towns, neatly gravelled, pitched, or otherwise protected to some extent from destruction by weather, is a marked characteristic of England. The power of the people, and the respect paid by those who can afford to drive to those who cannot, is nowhere so clearly and yet so unobtrusively shown as in the footways of town and country. If our great lines of road, which have now become only local, instead of through channels of traffic, are rightly styled the Queen's highway, the footpath is the poor man's right, almost the poor man's park; and it is when, from the very necessity of the case, the roadway of the pedestrian is invaded by the equestrian or the carriage passenger, that the danger of which we speak arises, a danger against which English people, from the very security of their footways, are less prepared to guard than is the case among our continental neighbours.

The second step, in point of fact, if not in point of importance, in the orderly distribution of traffic has taken itself, as our French neighbours would say, in the metropolis. Throughout England provision is made for the comfort and security of those who walk, as divided from those who ride and from those who drive. In London, provision is made for those who ride, as distinguished from those who drive. In the parks, a fair and well-designed accommodation is provided for equestrians, and in the actual metropolis, at least in the more busy parts, equestrians are seldom seen. Pavements constructed to resist heavy and constant traffic are so unfitted for foothold for the saddle-horse, and so trying to the soundness of his legs, that mounted passengers rarely trust themselves upon them; and if at times you see a stiff form on a well-groomed horse, followed at due distance by that most correctly got up of all human domestics, an English groom, far better mounted than his master, slowly picking his way in the neighbourhood of the restored cross of Queen Eleanor, in what was once the village of Charing, you may be sure that the manner of the rider's neck-tie, no less than the colour of his hair, betokens a *memento temporis acti*, a relic of that "hot youth when the third George was king," and when the transit of the Regent through Bond-street left evidence perceptible to the practised senses of the courtier, in the long-abiding fragrance of attar of roses.

The third step in the distribution of traffic is one that is so obviously indicated by the simplest observation, that it is matter of wonder and of blame that it has not been already authoritatively enforced. It would be to the advantage of the heavy traffic itself, to the great benefit of the horses, to say nothing of the moral advantage to the drivers, that it should be absolutely separated from the light, and if instead of the word *light* we use the expression that should, but does not, characterise the traffic to which we now refer, that is to say, *fast*, it is obvious that such a separation is essential to the very existence of fast and punctual traffic, and in this case punctuality is of even more importance than speed. Any man of business would prefer devoting thirteen minutes to the mile, if certain to accomplish such mile in the allotted thirteen minutes, to attempting it in nine with the risk of its taking twenty.

It is, then, in our opinion, indispensable to the due conduct of the traffic of this great metropolis that no heavy wagon, no vehicle without springs, or drawn by animals unfit to go at a trot, should be allowed to pass through the streets between the hours of 9 a.m. and 6 p.m. The heavy traffic would soon accommodate itself to the larger, though quieter, portion of the twenty-four hours thus allotted to it; all parties would be gainers by the regulation, and the increase of accommodation that the streets would thus afford to the lighter and swifter traffic would be very large.

But even a step like this, wise and necessary as we deem it, would not be without an attendant disadvantage. Of all the improvements effected and effecting in London, there is none that so much has added to the comfort and to the safety of the pedestrian as the establishment of what have been called "islands." In the centre of some of the principal crossings a small space has been set apart for the shelter of the foot-passenger; so that, instead of having to rush fearfully across a double stream of carriages, first bearing on his right hand and then on his left, or *vice versa*, he can pause in safety in the midst of the torrent, collect his scattered senses, and look about him before he takes his second dive into the eddying tide. Now, what the island is to the steady and careful pedestrian, the heavy wagon is, to some extent, to the more active and venturous foot-passenger. It is safe to dive under the noses of those gigantic and noble animals that convey, for instance, the mighty barrels of our national beverage to the haunts of the thirsty. It is safe to make a rush under cover of the tail of a load of hay, even if a careering Hansom,—worst foe of the street passenger until he steps upon its foot-board, and best servant (?) from that time until the moment when he has to extricate himself from its trap-like doors,—be close behind. While the removal of the heavy traffic from cumbering the streets of London by day will so greatly augment the convenience of the carriage passenger, it must not be forgotten that it will tend not only to equalize but to increase the velocity of the traffic. The intervals between the vehicles will be increased; but, as each interval will be traversed at an increased velocity, it is by no means sure that the safety of the streets will be improved by this simple and urgently needed reform.

The next point, then, is to provide for the due accommodation of the pedestrian; to carry out in the metropolis that due provision for the protection of the humble passenger that so eminently characterises the main highways of England, and that, rightly or wrongly, we are apt to identify with the memory of our great King Alfred. It is not enough to endeavour to protect the man who walks at the expense of the man who drives. It is not enough to threaten the swift driver with the treadmill, as in St. Petersburg the pedestrian is protected by the dread of Siberia as the punishment of the careless *istvostchic*. It is, in this instance, happily as useless as it is always mischievous to endeavour to set class against class, for the man who walks this hour is driven the next; he is as likely to be knocked down in stepping from a cab or an omnibus as in slowly picking his way over a crossing; and the convenience of the man who is able and willing to pay for speed, that is to say, who takes this means of economising that time which to most of us is money, requires as much respect as does the convenience of him whom health, abundance of time, or pecuniary economy disposes to walk. There is required a due and ample provision for pedestrian traffic, and that without throttling the carriage-traffic, or unduly reducing a well-regulated and practical rate of speed.

The simple mode of doing this will hardly require to be indicated to those of us who are familiar with the great cities of Southern Europe. In those latitudes, where the vehement south wind sweeps along, charged with the vapours of the Mediterranean, or rather, if we believe the theory for which Lieutenant Maury has drawn

evidence from the microscope, heavy with the water of the South Pacific, a few hours of heavy rain will often throw down a sheet of water deeper than falls from the misty skies of our own island in a month or more; and the provision for carrying off this sheet of water, with which it is impossible to trifle, is of the simplest description. The roadway dips towards the middle, and is for the time, and for the greater portion of its width, converted into a watercourse. But it is not requisite in these cities, as under similar circumstances it would be in London, for those who need to cross the street (that contrive a double debt to pay) to wade or to swim. Stepping-stones in some places are provided; and where these would be inconvenient to the regular carriage-traffic, a light bridge spans the street. Disused when the street is dry, these bridges become the natural crossing when it is wet, and thus pedestrian and carriage passengers are alike protected, and the water is carried off into the bargain.

That something of this kind must sooner or later be adopted in London we have little doubt. The proposal will, in all probability, be met at first with incredulity,—with ridicule,—with objections as to architectural deformity,—with questions as to where the money is to come from. To these we do not care for the moment to reply. The best reply would be the erection of one of those footway bridges, and the spot that occurs at once as the most suitable is that great intersection of two lines of enormous traffic, that from north to south and that running east to west, that is found where Farringdon-street crosses Ludgate-street. Even the convergence of six or seven lines of traffic that renders the space between the Bank and the Mansion House the busiest, probably, in the world, is not so formidable to the pedestrian, and is not so exasperating to the carriage passenger, as is the great cross adorned by the noble and striking monument that records the efforts of English taste, as consecrating the memory of Mr. Alderman Waithman. If on this spot a pair of light iron foot-bridges were erected, so as to carry the foot traffic of the north and south pavements of Fleet-street and Ludgate-hill over the intersecting line of street, and if these two bridges were joined by a railing, something similar to the bridge between the paddle-boxes of a steamer, a safe and convenient provision would be made for both the east and west and north and south foot traffic. Each bridge should be as wide, at least, as the existing foot-way; as an architectural feature, and as a comfort to the pedestrian, it should be covered; but the consideration that it would be unwise to tempt any one to linger on the required space would have more weight, and an open-work iron bridge, the steps only being so shielded as to suit the use of female passengers, would in all probability best carry out the end in view. We cannot doubt that if such a bridge were erected, only, for instance, as a peace-offering to the City of London on the part of that great Ishmael among railway companies that was reported the other day to have scheduled St. Paul's Cathedral in its application for Parliamentary power of demolition, we cannot doubt that the example would be followed at all the crossings of most importance within two or three years.

There is yet another improvement, which we are not sanguine of seeing at once effected, but which we think will become necessary at no very distant day, and that is, to carry out the great principle of distribution of traffic one step further. At such a point, for instance, as the one we have selected, it will, in our opinion, become necessary for the due passenger-service of this great city that the two intersecting lines of traffic shall be carried on at different levels. The Farringdon-street, for instance, must make a gradual descent of some 6 ft., the Ludgate line must rise to a similar height, and a substantial bridge would remove this great cause of confusion and of delay. Whether the inclines that would join the two levels need carry, for example, the carriages coming from the Farringdon-street station up Ludgate-hill, should form part of the bridge, or whether the smaller portion of the traffic should be directed to another route, would be matter for special investigation.

When the engineer shall thus far have been allowed to do his duty, the Legislature may be asked to supplement it. When the driver of a light and fast vehicle is no longer checked and goaded by the preponderance of slow and heavy wagons; when he is no longer called to throw his horse upon its haunches at every street corner, or at the will of every rash or timid foot-passenger who bobs across his road; when the material occasions of accident that are so numerous as to make him reckless are removed, then it will be fair and right to visit any rash heedlessness or wanton violence with sharp and certain penalty.

Provide properly for the pedestrian, provide properly for the carriage passenger, and then let him who oversteps his limit bear the full and fitting penalty.

We do not think that any course materially differing from that which is here suggested will render the streets of London safe for the public. As regards the safety of life and limb the question comes home to every one. As regards the actual pecuniary loss involved by the waste of time in our streets at present, to say nothing of the inaptitude for business occasioned by the irritation arising from delay, we shall, probably, be speaking within limits if we say that the money thus wasted, or the money's worth of time, in one year, would provide footway bridges for all the more important crossings. Dr. Livingstone tells us that the traveller is in less danger in the wilds of Africa from savage animals than the pedestrian is from accident in the streets of London. This, if not a crime, is at least a blunder of very enormous magnitude. "There is not only disgrace and dishonour, monster, but an infinite loss." It is not only a shame, but a miscalculation. A moderate outlay of money, and a resolute will to treat the matter not as a job or a makeshift, but as a great municipal and international requisite, which must be dealt with thoroughly, and dealt with on principle, and London may be the most commodious, as she is the most wealthy, of the capitals of Europe.

THE MORTALITY IN OUR LARGE TOWNS DURING THE THIRTEEN WEEKS ENDING 31st MARCH, 1866.

ON Saturday, 31st of March, ended the first, and, as it is styled in the Registrar-General's returns, the winter quarter of 1866. The usual official quarterly return will not appear until the end of the month; but, by using the facts that have been published successively in the thirteen weekly returns, we are enabled to calculate the rate of mortality which has prevailed during that period in ten large cities and boroughs of England, the population of which is estimated to the middle of this year at 5,197,064. The influence of extremes of temperature upon health is now so generally understood, that we count upon an increase of deaths from diseases of the respiratory organs, with as great a certainty, on the continuance of a frost, as upon the deaths in hot summer weather being raised by fatal cases of diarrhœa. The past quarter, however, may be considered as a proof that a mild winter is not necessarily a healthy one, especially in large towns; for the temperature was high, and the mortality at the same time excessive. At the Royal Observatory, Greenwich, the mean temperature of the quarter was 41·3°, whereas in the winter quarter of 1865 it was only 36·5°, which was 2° below the average of the same quarter in 94 years; therefore, the temperature of last quarter would appear to have been 2·8° above the average of 94 years. The rainfall in the quarter was also excessive, amounting to 9·6 inches, exceeding by 3·5 inches the fall in the same period of 1865, and being 4·7 inches above the average of 48 years. As above stated, in spite of the mildness of the season, the health of the ten large towns of which weekly returns are published, was most unfavourable; the annual rate of mortality during the quarter in the aggregate of the ten towns being 30·4 in 1,000 persons living. Except in London, the mortality in each of the towns was largely in excess of that which prevailed during the same quarter in 1865. The metropolis enjoyed during the quarter the lowest rate of mortality, 26·2; the rates in the other towns varied from this to 45·9, the highest rate of the quarter, in Liverpool. The following table will show the mortality to 1,000 persons living in each of the towns, in order from the lowest:—

		Death rate in Winter Quarter. 1866.	Ditto in corresponding Quarter 1865.
1.	London	26·2	28·0
2.	Hull	27·0	—
3.	Newcastle	30·4	—
4.	Birmingham	30·7	28·7
5.	Bristol	32·2	28·1
6.	Salford	34·3	28·0
7.	Sheffield	33·5	—
8.	Leeds	36·8	32·0
9.	Manchester	37·4	34·1
10.	Liverpool	45·9	39·8

The returns for the *boroughs* of Sheffield, Newcastle, and Hull, were not published for the winter quarter of 1865: a comparison, therefore, between the rates of mortality in those towns, in 1865 and 1866, is not available; in the other towns the excess in the death-rate, varied from 2 per 1,000 in Birmingham, to 6·1 in Liverpool. It is unfortunately, at present, impossible to give any analysis of the causes of death in the different towns; but from the remarks of registrars appended to their "weekly returns," a pretty clear insight may be obtained of the principal diseases which have tended most to swell the death returns. Almost invariably diseases of the respiratory organs are more fatal during the winter quarter of the year than any other class of diseases, and although the weather of the past thirteen weeks has been, on the whole, more than usually favourable for all affections of the lungs, there is little reason to believe that the deaths referred to these causes were much below the average. On the contrary, in several of the towns, especially in Bristol, bronchitis, of a very fatal, and almost epidemic character, has been exceedingly prevalent. It is to the zymotic diseases, however, that we must really look for the cause of the great excess of mortality in most of the large towns. In London, where, as above noticed, the death-rate in 1866 showed a decrease upon that of 1865, the deaths referred to typhus, whooping-cough, and scarlatina, were each less than those in the previous year, measles and small-pox alone showing a small excess. Typhus was terribly fatal in Liverpool, and fever was generally prevalent in Leeds, Manchester, and Salford. Whooping-cough has, during the quarter, been reported as epidemic in Liverpool, Manchester, Birmingham, and Sheffield, and the deaths referred to this disease have been very largely in excess of the average. Those who live in London, knowing as they do, how very much remains to be done to reduce the mortality in its most crowded parts, and the condition in which so large a proportion of its inhabitants are still living, naturally feel astonishment to find that the death-rates in all the other large towns of England are in excess of that in London, and cannot avoid drawing inferences as to what the sanitary condition of those towns must be. In London, probably, two of the most important elements in the improvement of its health, are the "main drainage," and the extensive demolition of houses for the formation of the numerous metropolitan railways. The first of these speaks for itself; as to the latter, a word or two may be necessary to explain an apparent paradox. The mere demolition of houses would in itself be a crying evil, and much capital has been made out of it by a class of persons who attempt to stem the torrent of invading railways, with about as much success as met the command of Canute to the rising tide. Railways naturally choose the poorest neighbourhoods for their course, as being the cheapest, and in many instances the houses destroyed have been among the most notorious of the well-known fever nests in the metropolis.

The evil that was threatened to arise from these demolitions has resulted rather in the commencement of one of the most essential blessings that could be conferred upon the labouring classes. The model dwellings that have been erected, and fully tenanted for some time past, have, no doubt, already somewhat reduced the mortality from typhus and the infantile zymotic diseases above mentioned. The good work that has been so long wanting, and without which no material reduction in the mortality of our large towns can be effected, is now begun; and, as its full advantage and necessity obtain more public recognition, we may hope to find it prosecuted with a will, until all those human rookeries which now swell our death-rates, fill to overflowing our fever hospitals, and are a standing disgrace to any wealthy and civilised city, have disappeared. London, as it should do, has set an example in the two instances of main drainage and the erection of suitable dwellings for the poor, which, it is to be expected, will, ere long, be followed by those of our provincial towns, whose present death-rates tell the tale of so much wasted life and energy. Liverpool, Manchester, and Leeds are especially called upon to leave no chance untried of improving their sanitary condition. In many of our provincial towns whole nests of houses still remain built back to back, than which, it is now well known, a more effectual encouragement to fevers and other of the same class of diseases, could not be invented. The rivers, too, which

flow through several of the towns have become almost a greater sanitary nuisance than even the Thames was to London. Of them it is only necessary to cite the Aire at Leeds, which comes down to that town already polluted with the sewerage of Bradford, and the Don at Sheffield. With our impending cholera epidemic, which may, like an invading army, attack us this summer, we should look to our defences,—our present sanitary condition; for who believes that the town in which the death-rate is now 50 per 1,000 of its inhabitants, will not suffer far more severely than one where the rate of mortality is only 26 per 1,000.

EXHIBITION OF NATIONAL PORTRAITS.

On Monday next the great Exhibition of Portraits at South Kensington, more than 1,000 in number, will be open to the public. We have walked through,—returned, visited, and re-visited within the last few days, and shall have something to say about it. It is so well got together,—bringing to London so much that is unknown to the best of hand-book readers,—that we must more than praise it. Let Kensington go on as it is going on, and it will become the university of education it seeks to be. The arrangement of the portraits in *chronological* arcades, or well-sized and well-lighted rooms, is much to be commended. The *hanging* on a pea-green background is admirable, and the spectator will find that he is at once pleased and instructed.

The collection is weak, *numerically*, in Vandycks, though in what is to be seen of this great master in portrait painting, the full-lengths of Algernon Percy, Earl of Northumberland, of Prince Rupert, and Prince Maurice, more than maintain the judgment of two centuries and a half of men and women well qualified to speak and entitled to be heard.

That the Exhibition will prove an educational success; that it will at once please Queen Victoria and "Queen Pecunia," there cannot be a doubt. It is the Homeric child of a Stanley; has been well brought out; and will make a good figure in the world.

Next week we will go into details.

THE "NORTHUMBERLAND."

It would have been matter of very sincere satisfaction to ourselves if the anticipations which we ventured to express with regard to the second attempt to launch the *Northumberland* had not been verified by the event. It is not as matter of mere literary inference, but of practical professional experience, that we express the opinion that in dealing with all great engineering questions into which the action of water enters as a disturbing element, the only course to be taken is to make sure, to leave nothing to chance, but at once, and in the first instance, to provide power fully adequate to overcome the greatest amount of resistance. Especially we deprecated the idea of placing any reliance on the aid of lighters, and the event has fully justified this dislike on our part.

It seems that after full allowance has been made for the buoyant power of the Thames (which the prevailing winds did not raise to any very extraordinary height at the recent spring tides) on the hull of the vessel, the lighters, and the camels, a dead weight of four thousand tons had to be pushed bodily into the water. The ways were laid at the very slight inclination of one in twenty-four, so that the aid to be expected from the force of gravity, if the vessel had been free to start without friction, was a hundred and sixty-six tons. But it appears from the statement that a lift of two inches and a half took place at the stern-post; that deflexion to at least this extent had taken place in the ways. The arrest of the motion of the launch, accompanied as it was with much smoke, and every natural sign of the enormous stress brought at the moment to bear upon the substructure, concurs with the above-named indication in assuring us that, to some extent, the ways beneath the keel have been deranged; in fact, it would be idle to maintain that such is not the case, more or less. A depression or displacement of the ways would not only, to the extent to which it took place, counteract the advantage to be gained by the original incline of 1 in 24, but in all probability would act as a direct fastening of the enormous superincumbent weight to the piles and framework so solidly fixed in the bed of the river. The problem, then, was no longer to push a weight of 4,000 tons down an incline on which the initial velocity, if motion once commenced, would be sufficient to propel it, but to push it over a surface offering more resistance than a level bed, and most likely to overcome means of attachment to its bed more powerful and more unyielding than could have been effected by the careful skill of the engineer if directed to that very purpose.

It is now said to be proposed to cut away the present subway in detail, and to replace it by one at a steeper incline. Such a task, under such circumstances, would be without precedent; and, as there were 24 ft. of water under the stern at high tide, it does not seem possible that it should be fully carried out without much work being done under water. We are unwilling to speak more positively without a special survey being available; but if, after all, partial demolition of the *Northumberland* be found necessary, it will be subject of great regret that this step should not have been resorted to while it might have been done with the least damage to the vessel, and with the effect of saving time, labour, and expense of no trifling magnitude.

SOME CHARACTERISTICS WITH REFERENCE TO THE FINE ARTS.

I have on various occasions endeavoured to show that the function of the fine arts, and their sole function, is to reflect the civilization of the age in which they are cultivated, and of the people among whom they are cultivated. While the philosopher, or the man of science, is concerned with fundamental *conceptions*, or explanations of the laws of the universe or of the nature of things, the artist is concerned with *expression*, or depiction of the appearances of things. Thus, the fine arts reflect, illustrate, and follow, but never lead. It is the artist's mission neither to grope curiously in the mouldering past, nor to speculate boldly on the mysterious future, but to consider what actually and truly *is*, in his own time, and to depict *that* modestly and fearlessly, in his own way, thinking for himself. If he does this—if he really *thinks*—then, being part and parcel and a result of the age, or what it has made him, he cannot help reflecting the age, and cannot repeat archaic types in the vacuous, hopeless, helpless manner in which men incapable of artistic thought now lose themselves in depicting neither the past nor the present.

But while I have taken some pains to illustrate the above truths, I have also tried to point out the momentous import of the artist's power of *choice*; that his higher function is to portray the veracious, the noble, and the beautiful in relation to his own age, casting aside, as a general rule, all that is antagonistic to them; and that thus any indications of either must, in intention at least, be of some value.

Happily, it is now unnecessary to combat the theological objections to the fine arts, which were urged by St. Augustine, Tertullian, Leo Isauricus, and other Iconoclasts, were revived at the period of the Reformation, and which prompted Cromwell's soldiery to burn and destroy wherever they marched, and to stall their horses in cathedrals. Occasional outbursts against the decoration of churches are, however, still to be heard: in 1757, the proposal to introduce a stained glass window at St. Margaret's, Westminster, was opposed as savouring of "superstition;" in 1858, the altar painting at All Souls', Langham-place, was cut into pieces; and numerous such instances might be cited. The monstrous character of many of the Mediæval representations of Christian subjects, and the fact that art has been so powerful an instrument in the hands of priesthoods, have induced in many well-meaning men a feeling antagonistic to religious artistic productions. But it has not yet been shown why churches and chapels should form the sole exceptions to the natural law which teaches us to make all we do as beautiful as feasible; this being considered also as a *duty* due to ourselves and to posterity. Now, tangible manifestations of the beautiful may be in all matters fostered and encouraged, not for purposes of mental tyranny and theological mysticism, but for their own sake in the promotion of wisdom and virtue: for, at length, *art is free*.

But the fine arts are free only when erroneous views do not interfere with their legitimate cultivation. Only a few years since, so distinguished a man as the then Primate of England countenanced a petition by some clergymen, protesting against the casts, in the Crystal Palace, of some of the greatest triumphs of art, solely on account of their being naked. Yet it is manifest that the nude human form is the noblest, most beautiful, and most instructive subject which nature presents to art. The person who blushes on contemplating the Apollo Belvedere, or the Venus de Medici, or any other production of the kind, must possess an ill-balanced mind or a perverted morality. A statue is to be contemplated from the distinctively *art* point of view, irrespectively of its being nude or draped; and—specially in "the austerest form of naked majesty"—the handiwork of the tailor or milliner is often an indelicacy and impertinence. James Barry forcibly urges;—"It is not on showing or concealing the naked that modesty or lewdness depends; they arise entirely from the choice and intentions of the artist himself; a great mind can raise great and virtuous ideas though he shows all the parts of the body in their natural way. The Greeks, and other great designers, gave into this practice of the naked, in order to show, in its full extent, the idea of character they meant to establish. If it was beauty, they show it to you in all the limbs; strength the same; and the agonies of the Laocoon are as discernible in his foot as in his face. This naked nature, or but thinly and partially clad, speaks a universal language, which is understood and valued in all times and countries, when the Grecian dress, language, and manners, are neither regarded nor known."

Such profound consideration is rare indeed in these days. Artists seem to imagine that genuine success can be attained without thinking for themselves; without weary drudgery and unceasing labour. Men also undertake too much. A reputation is suddenly achieved, and the owner is loaded with commissions that no dozen men could discharge properly. In art much more *apparent* work is done now than in ancient days, but not nearly so much *real* work, if we take the numbers of the workers into consideration. Men also see a few distinguished personages in olden times, and fancy they can easily become as distinguished in modern times, without reflecting on the difference in the proportionate numbers of those striving for fame. As we travel fast, so we try to think fast; but steam and the human mind are different things. We can send our thoughts with the rapidity of lightning, but we cannot think them thus quickly. Nothing is done well but what is done deliberately. Perfection, or an approach to it, was never yet attained in a hurry. Thoughtful diligence raised those matchless cathedrals, which yet advanced as slowly as the ages. So in painting,—noble things are never off-hand strokes of genius, as puppyism imagines. Raffaelle, Michelangelo said, owed more to diligence than to genius; and the towering Tuscan worked most laboriously to produce his deathless works.

It is, however, useless to conceal the fact that the English people have not displayed, with the increase of their wealth, proportionate aptitude for the fine arts. We pride ourselves on being a "practical" nation—a loose and delusive term;—and we retain our character of a shopkeeping-race, with matter-of-fact ideas of cash, cotton, and currency. When the fine arts become fully developed, and thus forcibly interest the mind and sensibly touch the heart, their influence will be palpably felt, alike in promoting commerce as in lessening the undue absorption in the pursuit of wealth, which is really the bane of our civilization. The greatness of Venice, of Genoa, and Florence may be attributed almost equally to commerce and art. In those cities art ennobled commerce. To a commercial man was, in a marked degree, owing the extraordinary impetus given to the fine arts at the close of the fifteenth century. The most distinguished merchant in Europe, Lorenzo de Medici is far more celebrated for the refinement and poetry of his nature. His portrait still hangs in the Uffizi at Florence. A large head, with a broad forehead and flowing hair; a powerful brow; a mouth with lips firmly set over a noble chin; a face worn and anxious; and eyes looking forward with calm, fixed serenity. There were, in those days, intellectual giants associated with art; and Lorenzo was one of the most conspicuous. With the generosity of genius, he not only invited artists to study in the gardens where his treasures of art were deposited, but he enabled them to do so by allowing stipends and awarding

prizes to those who signalised themselves by their productions. The Siena merchant, Agostino Ghigi, will ever be remembered by the entwinement of his name with that of Raffaelle; and the wealthy Colonna, Doria, Altieri, and other families, are similarly embalmed in art. But when we have become ancients, and all about us is matter of dim antiquity, and our very dust is peered at curiously and reverently as precious for what it tells of by-gone days, will any English millionaire that ever existed, or any English statesman, be spoken of in art as Lorenzo, Mæcenas, or Pericles are spoken of now?—men, the accident of whose lives was commerce or politics, but whose leisure was so devoted to noble studies as to exempt them from the "wrong of time" and preserve their memories for ever.

For the merchants of England, however they excel those of olden Italy in wealth, are very distant indeed from rivalling their appreciation of art and literature. Thackeray's Crœsus "thought Shakspeare was a great dramatic poet, and ought to be patronised." What did condescending Crœsus mean by being patronised? honoured and respected? No: only *paid*, to minister to the vanity of Crœsus, who had money and ignorance, and little else. To judges of this calibre, in fact, much of the worthless art of the present day is due, although some have valuable collections of paintings, chosen by others, and noble libraries, for ostentation, or to gain reputation in art or literature, without one qualification beyond the opulence to purchase what they never can understand.

Was this the state of things when art was great? was money or worth more considered? In Greece, Winckelmann tells us,—"A wise man was the most highly honoured; he was known in every city, as the richest is among us; just as the younger Scipio was, who brought the statue of Cybele to Rome. The artist also could attain to this respect. Socrates, indeed, pronounced artists the only truly wise, as being *actually*, not apparently so; it was probably from this conviction that Æsop constantly associated with sculptors and architects. At a much later period, Diognetus, the painter, was one of those who taught Marcus Aurelius philosophy. The best workman of the most humble craft might succeed in rendering his name immortal; and we are told that the Greeks were accustomed to pray the gods that their names might never die." The names of many of the Grecian ceramic artists—Corœbus, Dibutades, Talus, Cherestratus, among others—are preserved; and medals were struck and statues erected in their honour. So highly was sculpture appreciated in Rome, that emperors sought reputation by its practice. In the Middle Ages, the arts were cultivated by persons in the highest position, as William of Wykeham and Bishop Fox. At the period of the revival, Giotto, Ghiberti, Da Vinci, Michelangelo, Raffaelle, Titian, and other artists, commanded extraordinary consideration. In Venice, the workers in glass were peculiarly privileged, and admitted to the highest honours. Wherever the arts are legitimately cultivated, the social position of distinguished artists is scarcely inferior to that of the foremost in the land; and in Isaiah we find ranked together, "the captain of fifty, and the honourable man, and the counsellor, and the cunning artificer, and the eloquent orator." The status which artists occupy in France explains much of the superiority of the arts in that country. But in England, as Mr. Fergusson justly reasons,—"It is absurd to expect that men of intellectual power or high social position will occupy themselves seriously about such arts as we at present possess; while, on the contrary, were they virtually progressive and fully up to the intellectual height of the age, they are far too attractive and ennobling not to draw to themselves the highest and the best intellects of the day." They are meant to convey such lessons of wisdom and beauty as books *cannot* inculcate; and those who are able to attain these noble ends should be treated as nature's noblemen.

It is difficult to decide the precise extent to which artists on the one hand, and the public on the other, are blameable for existing erroneous developments of art. But much censure rests on the former, who are beginning to realise certain consequences of their copyism of past styles. People appreciate only what is *understandable*; and so long as architects, for instance, regard their calling as a mere thing of piling bricks and stones for show and grandeur; of lintelling, of arching, with a little carving here, and a projection or column or two there, just to relieve the bareness; or, as now the rage, to blazon fronts with the most absurdly incongruous materials and colours; so long will their works be regarded as dry and uninteresting by those who cannot sympathise with parodies of the ancient polities, or with absolute inanities.

In architecture more than in anything else, our thoughtlessness, selfishness, and parsimony, are manifested. True, we have costly public structures, aping the generosity of old, but proving manifestly our destitution of thought and feeling. If we want a fine edifice, we borrow, or rather steal it: we are not sufficiently disinterested to think for ourselves. Posterity will imagine that we intended to mock the Classic fane, or the Gothic shrine, and to say men have thought enough. Why should we not seize as spoils the *débris* they have left? What is it to us whether our use of them is the *right* use? For even such will be our message to the future. When, with grave and earnest seeking far back in the mist and darkness of the sepulchred past, the cere-cloths of our inner life are unfolded, and our descendants peer wistfully through the dust to learn the wisdom of our ways as they really were, will such teaching profit them greatly, and make them venerate us the more they see, and honour our integrity, the more they discover of us? What is concluded of the honesty of the artist who copies his contemporary's work and then claims the result as his own? There is really no distinction above paltering with words between copying ancients and moderns. The thoughts of the ancient men were, and are still, their thoughts, their property. They are left to us in trust as bases for further advances; to aid our onward march; to teach us the ideas and feelings of old, that we may thereby be assisted in forming our own. We are false to the ancients, to ourselves, and to posterity, to take improper advantage of archaic works, solely to get money more quickly by not exercising our own minds. To the complacent self-laudation of some conspicuous modern Mediævalists it is sickening to listen. Whatever may have been the case in the time of Jones and Wren, now, when the fallacy of repeating effete styles is obvious, the continuation of a system virtually turning architecture into a manufacturing trade, while hypocritically or ignorantly pretending it is something far superior, is due mainly to selfish motives at the very best. The intellectual vigour of the present age never was surpassed, not even when Pericles was supreme at Athens, when Augustus reigned at Rome, and Leo sat in the papal chair. Deficiency of talent when the age boasts such names among its luminaries as Humboldt, Compte, Watt, Herschel, Macaulay, Mill, Lamartine, Brougham! Will the aboriginal stranger of the future sketch one edifice built within these 250 years to prove to his countrymen far away over the restless waters our wondrous artistic originality? Well may your able and unanswered correspondent "Liverpool," while shattering some of the models in that modern Tyre, exclaim,—"Is the human mind exhausted that it should remain architecturally fallow so long? Or is it that we have been employing our time in making baby-houses decorated with the stuck-on appendages which, in the language borrowed from millinery, are appropriately termed dressings? Were we not too stuffed up with self-sufficiency to take a lesson from the Divine Architect, what different motives would animate our designs." Yet the present system is not merely defended, but its opponents, like most opponents of shameful systems, are recklessly condemned. "Pray do not think that I ask you in any way to listen to any of the empty and idiotic talk about a new style," says, as liberally as modestly, the President of the Architectural Association as president of that body.* New! Of course, to some minds, it must, as such, *ipso facto*, independently of its being true, be necessarily empty and idiotic. Because, as one of the splendid intellects just named, — John Stuart Mill, — explains, — "Originality is the one thing which unoriginal minds cannot feel the use of. They cannot see what it is to do for them: how should they? If they could see what it would do for them, it would not be originality. The first service which originality has to render them, is that of opening their eyes: which, being once fully done, they would have a chance of being themselves original. Meanwhile, recollecting that nothing was ever yet done which some one was not the first to do, and that all good things which exist are the fruits of originality, let them be modest enough to believe that there is something still left for it to accomplish, and assure themselves that they are more in need of originality the less they are conscious of the want."

I have said what may be unpleasing in certain obscure quarters in indicating "some characteristics." But I verily believe that more good has been done by saying unpleasing than pleasing things; as the surgeon who calmly inserts the knife is often a far better friend to the patient than one who, "infirm of purpose," defers the operation till the morrow. For the future:—

> "Before the curing of a strong disease,
> Even in the instant of repair and health
> The fit is strongest; evils, that take leave,
> On their departure most of all show evil."

EDWARD L. TARBUCK.

* See vol. xxiii., p. 779.

GÖETHE, CARLYLE, AND ART.

SIR,—You allowed me some few weeks back, on the retirement of Mr. Gladstone as Rector of the Edinburgh University, to comment in few words on the strangely ignorant address—artistically looked at—delivered to the students by that very eminent person: permit me to add a few more words on the address of his successor, the new Lord Rector, Mr. Thomas Carlyle, the words of which address go far deeper into the matter than Mr. Gladstone's, and are Mr. Carlyle's own, for the most part, and not mere gatherings of book quotations and arrays of learned authorities. They are, as it seems to me, radically and foundationally wrong, and altogether ruinous to follow and go by. They are modern, too, and of the day—almost fashionable.

Of all modern and living *writers*, Mr. Carlyle certainly has had, if not the widest, the deepest influence; and of his many books that far-famed and celebrated one "Sartor Resartus" the very deepest. To not a few this book has been as a sort of Gospel; they have read it as religious people do the New Testament, and fancy they find in it all that well needs to be seen, or known, or felt. What are its principles, and what is it all about; and what does it want to do and to bring about; and has it anything to do with fine art and the present address of April 2nd, '66?

Yes: it has to do with fine art and the present address, and with the previous one, that by Mr. Gladstone, as well. "To the eye of vulgar logic," says Mr. Carlyle, "what is man? An omnivorous biped that wears clothes. To the eye of pure reason, what is he? A soul, a spirit, and divine apparition." "Strip him," says he, in another place, "of all his cloth-rags, highest imperial sceptres, Charlemagne mantles, gipsy blankets, and the rest of the lumber, and what find ye? The same viscera, tissues, livers, lights, and other life-tackle are there." In short, to sum up the whole book, "the true Shekinah is man;"—naked man, without clothing of any sort or kind, savage or civilized, low or fashionable. "When I see a crowd," says he, "all their enwrapments fall from off them, and society in a state of nakedness spontaneously suggests itself." So entirely at last does this most wonderful individual throw away from him all and everything with any tendency even to hide "man," that he shouts out, "Wild as it looks, this philosophy of clothes, it promises to reveal new coming eras, the first dim rudiments and already budding germs of a nobler era. Is not such worth striving for? Forward, then, with us, courageous reader, be it towards failure or towards success!"

What the Edinburgh students really think of all this we here, of course, cannot say; but it must certainly have struck them how very different it is all from Mr. Gladstone's more learned and refined teaching. To the eye of the learned and refined, what is man,—Mr. Gladstone may be supposed to have asked the students,—the highest man, the Greek, the humanistic element? He answers, the annexation of deity to manhood, clothed or no, and "the reciprocal incorporation of deity into manhood, the meeting point of earth and heaven." Such, indeed, is the late Lord Rector's veneration for deified man (not Mr. Carlyle's unclothed) that he says, quoting, "that if an ox gore a human being he shall be stoned, but shall not be eaten; but even this provision falls greatly short," he tells us, "of the Greek law, since even the animal that kills is conscious, and kills from excited passion;" and then it is that he ventures to suggest his celebrated theory,

"that the *anthropomorphic* spirit of the Greek religion was the source of that excellence in art which has become to these ages a model for imitation and a tribunal without appeal." Without advanced scholarship and learning, we are told, nothing can be done. Has any Edinburgh student, or reader in London, thoroughly mastered and compared these two addresses—these two notions of man? Mr. Carlyle, be it observed, never talked about *art* but once, when he said, "Oil painting is a business I never practised."

I have said that the "Sartor Resartus" has had very many eminent students; one of them is Mr. Ruskin, and it will be interesting, just now, to see what so advanced a scholar has to say on such a wide subject as "man" and his works,—*i. e.*, his art works. "I have never known," says Mr. Ruskin, energetically and *positively*, "art in any age or country, or of any kind, of any value whatever where either the subject of it or the artist, or both, was not inspired by either god or goddess, fate or fury, saint or demon. I do not say, observe, '*religion*,' but merely of a belief in some invisible power." "Be so much," he continues, "of a Pythagorean as to believe in something awful and impenetrable connected with beans, and forthwith you are not weaker but stronger than the kitchen-maid who perceives in them only an adaptability to being boiled."

Sir, I must ask you to note carefully that all these eminent authorities are not only, and for the mere sake of it, theorising, but that they are seeking to inculcate and bring about a better and more capable and comprehensive *practice*. "Where shall we get a better art?" says Mr. Gladstone; and he replies, "From Greece." "Where shall we get a doll with bluer eyes and with art in her?" says Mr. Ruskin; and he replies, "Out of spiritualism and *imagination*." "How shall we all grow happier?" says Mr. Carlyle. "Why, sirs, from the being *drilled* into a firmer faith."

So far, therefore, there is, strange to say, a sort of agreement between these three forward teachers. They all seem to persistently and steadily *avoid*, perhaps without knowing it, the looking at things, humanistic and otherwise, practically and through actual eyesight. Much learning hath well-nigh driven them mad. What is the unfortunate student to do in the effort to follow out these impracticable and torturing teachings and directions? He is fairly bewildered, not knowing which way to turn or look, gives it all up, and either does nothing or goes his own foolish way and spoils everything he takes up or touches.

And now, here it is that a light breaks in upon us, and that light from the most unlooked for of sources, viz., wonderful to say, from Mr. Carlyle's great teacher and inspirer, the great Göethe!—that great sun, as he calls him, hero of modernism, and prophet of literature, and who has best of all expressed himself concerning the age he lived in, and who has succeeded in giving to the world one of the most remarkable bits of writing known to be executed in these late centuries; so much so, indeed, that he says, "I would rather have written it than all the books that have appeared since I came into the world." Here, therefore, have we something at last: from the teacher of the taught, from one inspired,—let us hope with common sense. Sir, I ask your careful attention to it, for it may be the true turning point of modern art efforts.

Know, then, that this same Göethe wrote a book when an old man (seventy years old), one of the most beautiful he ever did write, "Wilhelm Meister's Travels." It is not a book of travels, nor a novel, nor a play, nor a biography, nor a guide to wisdom, but a sort of everything in one, full of mild wisdom," says Mr. Carlyle. It is not so very mild either; suffice it to say, that it is one of the very few books that can by any possibility live. "Ehrfurt! Reverence," says Mr. Carlyle, "is the main thing in it." I am afraid not. It always has struck me as being of the earth, *earthy*. Of all the books ever written about "man," it is the earthiest; so much so, indeed, that some of it, Mr. Carlyle tells us, he has not been able to translate for British ears. Neither the wisdom, knowledge, nor actions of the book are mild; and it is not a little curious to see in the translator's preface to it how completely he has spiritualized and misread it. It is therefore as a production of this *earth*, and the things on it, that it will now serve so well our present purpose.

Here is a bit of its earthiness, and a proof of its mundane character and objects, and what it was that its illustrious author wanted to bring about. Three elders, or the wisest, undertake to remodel things, and to teach those who can be taught anything, according as each has faculty and need. I quote from Mr. Carlyle's address:—"The boys of a sort of model academy are all trained to go through certain *gesticulations*, to lay their hands on their breasts, and look up to heaven, and they thus give their three reverences. The first and simplest for what is above us, the soul of all Pagan religions; then reverence for what is around us, *i.e.*, for earthy matters and common things and people; and then for what is beneath us, pain, sorrow, and *contradiction*," and even for things odious to respectable flesh and blood. Did the new Lord Rector actually recommend this, gesticulation and all, to the students of Edinburgh University, and through it to Harrow, or Westminster, or Eton? No; certainly not. Having thoroughly misread the book, it is but fine talking with him, and he would no more do this than would Mr. Gladstone or Mr. Ruskin; but Göethe really *means* it practically and physically, and calls it Art! Yes; Art—Fine Art. The highest art is nature in action. Imagine, sir, a Westminster scholar being told to lay his hands on his breast and look up and gesticulate and *genuflect*, and then told by his master,—perhaps an archdeacon,—"Well done. That, sir, is art!" Or imagine, if possible, Mr. Ruskin being assured by his Oxford tutor that to *draw* and *paint* "gesticulations," as in sacred art, you must *see* the gesticulations first, as the sacred painters in reality did; and that he (Ruskin) must really now burn—not being made of asbestos—his big book on the "Imaginative Faculty," as entirely useless, and to the very last degree false in art and pernicious, and as leading to nothing but error, delusion, and falsehood! But Göethe meant all this to be carried out in actual practice, and called it as it really is,—*and would we had it*,—Art!

A real Art Society, founded on nature in action, has yet to be,—to supersede our Royal Academies, Art Departments, and Working Men's Colleges.

Mr. Carlyle's address fills five columns of the *Times*; I have but a few more lines for him; pray sir, permit them. More earthiness. Göethe goes on to tell the way in which they seek to teach to their students the sciences and arts, whatever each one may be fit for. Wilhelm left his own boy there thinking they, the wisest, would make of him a "master of arts," or something else big and important; but, when he came back for him, he saw "a thundering cloud of dust coming over the plain. It turned out to be a tempest of wild horses managed by young lads who had a turn for it. His own son was among them, and he found that the breaking of colts was the thing he was best fit for." This is what Göethe calls art, which, says Mr. Carlyle to his Edinburgh boys, "I cannot make clear to any of you unless you see it already," upon which they all laughed. "I would not attempt," he goes on, "to define it as music, painting, and poetry, and so on; it is in quite a higher sense than the common one, and in which I am afraid most of our painters, poets, music men," and I would add, respectfully, sculptors, *architects*, and contributors to newspapers, "would not pass muster." "Very wise and beautiful all this," says the Lord Rector; "I confess it seems to me a shadow of what will come;"—may we add, practically. If the father of a lad wish him to study Greek art, says a contributor to one of our monthlies, he must spend something like 100*l.* to put himself in possession of any sufficiently illustrative *books of reference!* I should rather advise the earnest student following Göethe, to go and first look at the Greek work itself, and then to buy a colt with one-tenth of the money, and in his own person *act out* a little Greek art; and if any dull teacher pester him with a book, thick or thin, to cast it from him as useless, and mentally warping and as positively hindering him from using his eyesight, feeling the colt under him, and *seeing* in his companion riders the Greek figures in the wonderful frieze *in living action* again. Sir, we are coming at it all by degrees. An ounce of mother-wit is worth a pound of clergy.

But a word more. I have said that Mr. Carlyle has, as it seems to me, entirely misunderstood this book of Göethe's and Göethe himself, although he read it hard and translated it better than any other man could have done. The preface negatives the text; Göethe was of the earth-born, and exemplified in himself the most wonderful union of intellectual activity and strength with boyishness—there is no other word—ever before seen in one man. "I live for culture," said he, and he might have added "amusement." He has mastered everything; all sorts of arts and sciences, and with a sort of prophetic insight into the future of them practically; while at the very same time—and here is the wonder—he was just like a schoolboy, pleased with the veriest trifles, with tumbling, rope-dancing, common acting, street shows, pic-nics, ordinary common talk; things almost, at least in these genteel days, to be ashamed of; and that which Carlyle, Gladstone, or Mr. Ruskin would shrink from with fright, Göethe was at home in,—Göethe the earth-born. Had he lived in London now-a-days, the upper regions of a Surrey-side theatre, or the Crystal Palace on an Easter Monday, would have filled, for the time, his vast and all-comprehensive intellect.

C. Bruce Allen.

NEW GRAVING DOCKS.

The Thames Ironworks Company have just completed and opened at Blackwall two new dry-docks, one of which is large enough to receive the *Northumberland*, the dimensions being 420 ft. long, 64 ft. wide at the entrance, and 24 ft. deep over the cill. The smaller dock is 310 ft. long, 46 ft. wide, and 21 ft. deep. The works were commenced in November, 1864, and have therefore been completed in less than a year and a half. The foundation had to be carried through a considerable depth of consolidated mud, peat, and gravel (usually known as "Blackwall rock") to the London clay, and this depth was made good again by concrete. The general construction of the docks is of brickwork, with stone alters, the only piles used being for the coffer-dams and the sheeting of the river walls. The cills are laid with a granite face, against which the caissons shut like a door, the old plan of sinking the caissons into a groove being abandoned. The cost of the two docks and the caissons was 68,000*l.* The contract was carried out by Messrs. John Aird & Sons from the designs of Mr. Alfred Giles, and the pumping-engines were supplied by Messrs. Maudslay & Field. During the high tides of the 17th ult., when the caisson was first tried, and the water pumped out of the large dock, there was no less than 27 ft. of water over the cill. This is stated to be by far the largest private dock on the Thames. The first ship, the *William Penn*, was docked on Monday, and taken out again on Wednesday.

THE AMALGAMATED SOCIETY OF CARPENTERS AND JOINERS.

The sixth annual report of this society, for the year 1865, shows a great and rapid extension of the society since we last brought its operations under notice in the *Builder*. This will be more precisely seen from the preliminary remarks of the general secretary, Mr. A. Applegarth, from which we may condense a passage or two:—

The results of the past year show that in every particular our progress has by far exceeded that of any previous year of the society's existence. In the London district, eleven new branches have been opened, and in various parts of the country we have opened forty-two others. The increase in members and funds is equally satisfactory. The increase of last year would in itself constitute a society of fifty-three branches, with 2,391 members, and a fund of 3,754*l.* 3s. 6½d., which, added to our previous years' numbers make an aggregate of 134 branches, 5,670 members, and a fund of 8,320*l.* 13s. 7d.

During the year, 1,941*l.* 8s. 1½d. have been paid for trade privileges; 1,369*l.* 15s. 5d. for sick benefit; 257*l.* 10s. for funeral benefit; donation to members out of employment, 291*l.* 16s. 2½d.; accident benefit, 200*l.* In all, the expenditure amounted to 6,733*l.* 11s. 5½d. The amount paid for funeral benefit, considering the great increase in our numbers, is far below the amount paid during the year 1864; while two of our members who had been disabled from following their employment for life have received 100*l.* each, as accident benefit, which is provided for those who are unfortunate enough to need it.

During the last year no less than fifty-two different towns have obtained an advance of wages, varying from 8d. to 4s. per week. In

thirty different towns the members have obtained a reduction in their working hours, varying from half an hour to five hours per week; and it is worthy of special remark that, since the opening of a branch of this society in Bradford, the working hours of that town have been reduced 8½ per week, and an advance obtained of 1s. per week, and this at the cost of a few shillings.

In addition to the above, in many towns our members have secured the adoption of a "Code of Working Rules," mutually agreed to by, and equally binding on, employer and employed.

In many instances, these advantages were granted when asked for, and in the best possible spirit. In others, after repeated meetings between the employers and our members, and mutual concessions. But, in some few instances, after vainly trying to avoid it, we were obliged to resort to the "old way" of settling these difficulties, which no one more than ourselves regretted.

"Since issuing our last annual report, overtures have been made by the Associated Joiners of Scotland with a view to effect a common understanding between the two bodies."

MACADAMISED ROADS IN PARIS.

THE application of steam rollers, or "*compresseurs*," as they are called, for forming the macadamised roads of the new thoroughfares in Paris has been very successful. M. Combes, some years ago, mentioned at a meeting of the Société d'Encouragement that this class of machines had been the object of repeated essays on the part of the acting engineers. There have been two systems put to lengthened trials, that of M. Lemoine and that of M. Ballaison. Preference has been given to the latter; both, however, are at work in various parts of the metropolis. The Lemoine engine is composed of only one roller, with a smaller at each end of the machine, merely to serve as guiding wheels. The total weight is twelve tons. In the experiments made, as compared with horse-labour and the ancient rollers, it was found that the work done cost less by one-half, in time and money, than with horses, including all repairs and the prime cost. This machine has some inconveniences.—1. The lofty and strange appearance often frightens horses, even when at rest, standing as it does seemingly on one wheel only. 2. The weight of twelve tons on a single roller is often liable to crush the stones when the layer is from 4 in. to 8 in thick, and to leave a deep impression, thus creating a wave of stones before it which sometimes stops it altogether, and renders it necessary to use screw-jacks to get it out of the rut so formed. 3. Lastly (but this is only a detail of construction), the toothed-wheel on the roller-axis has almost the same diameter with it; so that stones often get into the spaces, and being carried to the smaller wheel give so great a shock as to endanger the driving shaft. To avoid these inconveniences the roadway is first passed over by horse-rollers, and, when pretty well equalised, the engine is put on. The Ballaison machine has two rollers, the engine being between them and the boiler on one of them. The motion is communicated by a gault chain. With fuel and water the weight is 13¼ tons; but with springs and iron framework it weighs 15¼ tons. The force is 10-horse power, and the consumption of coal 7 to 8 kilog. per horse power.

ST. DENIS.

THE restoration of the basilica of Saint Denis, according to the *Pays*, proceeds rapidly. There are two sorts of work carried on;—the consolidation and the restoring of the ancient pile of the thirteenth century to its primitive aspect and pristine grandeur, which had been very considerably altered. The bays of the right aisle had been closed by window-sashes to form what is called a winter-choir; this species of enclave, of incongruous aspect, is happily to disappear, as well as the winter-choir, and the bays will be restored into chapels forming pendants to those on the left. The small sacristy which follows is also to be transformed into a chapel. The grand sacristy, which dates from the first empire, is to be also assimilated, in style, to the basilica. The fourteen paintings, ornamenting the panels, and of which some are the works of Guerin, Gros, and Heim, are to be transported to the Louvre in the gallery of the French school. The vault of the nave is to be painted and decorated with fleurons as in the time of Philip the Hardy, and the pavement of the choir is to be lowered beyond the transept; the raising of it having destroyed the proportions of the piers. Four flights of stairs lead from the raised floor of the apse; two of these are placed at the sides of the grand altar and two in the axes of the side aisles. The piers of this part of the church, being very short, give to the *pourtour* of the back choir a lighter aspect, and to the general perspective a greater depth, without any sacrifice of harmony. Below is the crypt with the imperial vault.

The tomb of Dagobert I., the only one terminated, those of Louis XII., François I., and Henry II., are to be replaced in their primitive order at the sides of the choir in the side aisles. The tomb of Dagobert, at the right of the grand altar, will have as *pendant*, on the left, that of Napoleon I. The high altar, which had lost its characteristics under the various ornaments with which it was embellished, has been restored in the Gothic style of the thirteenth century. The chapel which is on the right of the sacristy, called the Chapel of the Constables, is also to be completely restored; it dates from the fourteenth century, and has a separate crypt. It was here that were inhumed Charles Vaud Charles VI., and was deposited in 1435 the coffin of Isabeau de Baviere, brought by two domestics of the queen and a boatman from the port of Saint Landry. Some time ago, the workmen discovered a leaden coffin of rich workmanship, that was supposed to belong to the Constable Duguesclin. The modern stained glass windows, placed in the church twenty or thirty years ago, are to be replaced by others more in keeping with the perfection of the present arts. There remains only one of the two towers, the sight of which used to make Louis XIV. shiver; and the solitary spire, which is to be taken down and rebuilt along with the two towers.

THE TRADES MOVEMENT.

London. — A numerously-attended delegate meeting of the carpenters and joiners of London and its vicinity has been held in Bloomsbury, in furtherance of the movement for an advance from 7½d. to 8d. per hour. Delegates were in attendance from several large firms not represented at the former meeting, including Messrs. Myers's, Trollope's, Patrick's, Higgs's, King's, l'Anson's, &c. The Chairman said the business of the meeting was to receive the reports from the new delegates, and to decide upon the propriety of sending in a circular to the employers calling their attention to the memorial sent in last September, asking for the ½d. advance on the 5th of May next, and asking for a reply on or before the 16th inst. The new delegates gave in their reports, from which it appeared that the whole of the men they represented, with the exception of one firm, were prepared to support the ½d. advance. The Chairman then read the draft of the circular proposed to be sent in to the employers, which, after some discussion, was adopted, and ordered to be got ready for presentation immediately to every employer in the metropolis. A resolution was then adopted, declaring that the men in any firm taking action in regard to the memorial without the sanction of the committee, would not be recognized or supported. The meeting then adjourned, to await the reply of the employers.

Woolwich.—The strike in the Woolwich building trades, for the one o'clock time on Saturdays, which lasted four weeks, has been brought to a close by the employers conceding the terms of the men. The bulk of the men on strike resumed work on this understanding, but after being at work a few hours were informed that although the one o'clock time had been conceded, the wages would be reduced in proportion. The consequence of this notice was that the great body of the men again turned out, while of the 200 that remained in, one and all declared they would strike on the Saturday if the old rate of wages were not paid. The result was, that the men remaining at work were paid the same rate of wages as they were receiving when they worked till four o'clock, and finding this to be the case, the men, as a body, all resumed work.

Wolverhampton.—The plasterers in Wolverhampton have determined that henceforth they will settle all disputes between themselves and their employers by arbitration, and not by strikes.

Cheltenham.—The carpenters are on strike, and the masters have passed resolutions,—That the wages of a skilled mechanic shall be raised to 4s. per day of ten hours. That the hours of work shall be from six o'clock in the morning till six o'clock in the evening for the first five days in the week during the summer, and from six o'clock in the morning until two o'clock on Saturdays, allowing one hour and a half in each day for meals, except on Saturdays, when one half hour only shall be allowed for breakfast. That all wages shall be reckoned and paid according to the actual number of hours worked during the week. That the aforesaid regulations shall come into operation on Monday, the 21st of April.

Thornbury (Gloucestershire).—A meeting of the operatives in the building trade has been held. There was a very small attendance, and no carpenter was present. It was resolved to memorialise the masters for an advance of 3s. per week on the present rate of wages. The masters intend, it is said, to resist the application.

Walsall.—The labourers and bricklayers of this town have notified their intention to strike, until the masters agree to pay the advances asked for. The labourers demand 18s. per week; but the masters decline to give it, and offer them 17s., with a diminution of two hours in time. The bricklayers ask for the weekly wages of 29s.; this the masters also decline to give, and propose 28s. 6d., with the same diminution in time. Notices have been issued by the master builders, from which it appears that they are determined to abide by their offers in each case.

Wakefield.—The bricklayers and masons and their labourers have lately struck for an advance of wages, and the joiners have asked for a diminution in the hours of labour. Amicable arrangements have been come to in all cases, except that of the labourers, who still remain on strike.

Grimsby. — The house-joiners have been on strike. The discontentment in this case was a wages question. The *employés* at the establishment of Messrs. Brown & Son made a demand for an advance of 6d. per day, the standard wages having been 25s. per week for good workmen, some having as little as 21s., and the demand being refused, the men struck. An arrangement, however, was effected, by the masters giving an advance of 2s. per week to the whole of the men on strike, and they resumed work. Thus, the wages for the better class of workmen now stand at 27s. per week.

Bishop-Auckland. — The anticipated strike amongst the joiners of Bishop-Auckland has been averted, the masters having conceded the advance from 24s. to 26s. per week, and the half-holiday on Saturdays.

Darlington. — In accordance with a notice given some time since, the operative joiners at Darlington have turned out on strike. The dispute is one of wages, the men demanding a rise from 27s. to 30s. per week. This the masters resist, and several meetings have been held. A strike of the bricklayers is likewise apprehended.

Burton-on-Trent.—The society men amongst the bricklayers and labourers ceased work on account of the masters declining to accede to their request in respect to wages. The labourers ask for 18s. per week; the masters offer them 17s. per week, with half-holiday on Saturday. The bricklayers demand 29s. per week, which the masters refuse to give; but they offer 28s. 6d. per week, with half-holiday on Saturday.

Carlisle.—The operative joiners have gone out on strike, in consequence of the masters refusing to give them the 3s. a week extra wages which they demand. The number of men thus out of work is about 120. The cabinet-makers, who number about 30, have demanded a similar increase of wages, coupled with a reduction of one hour a week in the hours of labour on Saturdays. As the masters are said to have made up their minds to refuse to accede to these demands, it was anticipated that the men would also go out on strike. The masters have joined the Carlisle Builders' Association. The marble masons are out on strike for a reduction in the hours of labour; and the stonemasons, as we have before stated, have sent in a notice demanding a reduction of their time by 2½ hours a week, coupled with an advance of 2s. a week in their wages.

Dumfries.—The operative joiners of Dumfries and Maxwelltown recently memorialised the employers for a rise of wages. Instead of being paid at the rate of 21s. a week, they requested that they might have 5d. an hour, which, for 57

hours, amounts to 23s. 9d. per week. This rise of 2s. 9d. a week was agreed to by the masters.

Inverness.—The operative carpenters turned out on strike, in keeping with a previous intimation to their employers to that effect, and on receipt a few days since of the reply refusing the required increase of wages. They have since increased their former demand of 4½d. per working hour to 5d., or from 1*l.* 2s. 6½d. to 1*l.* 3s. 9d. a week.

FROM AUSTRALIA.

Melbourne. — The foundation stone of the new premises for the Melbourne Banking Company, now in course of erection at the north-west corner of Little Collins and Queen streets, opposite the present banking premises, has been laid by the Hon. J. P. Bear, M.L.C. The new building is to be in the Italian style of architecture, and is to be erected by Mr. James Lawrence, after a design by Mr. L. Terry. The frontage to Queen-street will be 113 ft. 10 in., by 50 ft. depth to Little Collins-street. It will be two stories high, the entire height being 45 ft. The lower story will have rusticated arched openings, and the upper story will be of the Ionic order. In the upper portion of the building the accommodation will be of a superior character. There will be five strong-rooms, built of bluestone ashlar. The foundations are of bluestone ashlar, and the superstructure is to be of brick, built entirely in cement. The building is to be completed for the transaction of business on the 20th June next, and entirely finished in eight months.

Adelaide.—The National Bank and the Imperial Insurance Company have erected new premises, which adjoin each other under the same cornice. The bank façade is divided into two stories; the lower—Ionic—stands on an elevated base, and consists of a centre and two wings, divided from the upper story by a plain cornice. The entrance doorway is in the centre, with rusticated dressings, carved transome, and moulded archivolt and impost; the spaces under the windows are filled between the bases of the columns with a massive stone balustrade. The upper story is Corinthian with a cantilever cornice, finished with blocking and balustrade. The windows are enriched with carved frieze and brackets, moulded architraves and pediment. This description of work is continued up the street on the south side called Apollo-place. The telling-room is 48 ft. long, 33½ ft. wide, and 24 ft. high, entered through an inner porch. The fittings are of Sydney cedar, carved and moulded, and French polished. The floor is in black and white marble. The upper portion of the building is reserved for residence. The whole building is lighted with gas. The fronts are of cut stone. These works have been performed by Messrs. English & Brown, and the furniture by Mr. Debney, under the superintendence of Messrs. Wright & Woods, architects. The Imperial Fire Office front is divided into three stories,—Doric, Ionic, and Composite,—with their proper cornices. Under the building is a spacious cellar. Above are the Company's offices. Other offices are in the occupation of tenants. This is the first insurance company in this city that has set the example of erecting for themselves offices of a substantial kind. The front, like the National Bank, is of cut stone, and, though of different design from the Bank, has been so arranged that the two make a harmonious pile of building. The architects and builders are the same as were employed at the Bank.

THE LATE MR. TURNBULL, CLERK OF WORKS, WINDSOR CASTLE.

The death of this gentleman, who has long been overseer of the works at Windsor Castle, will be heard of with regret by many of our readers. On Saturday last his remains were interred, by the desire of her Majesty, in the catacombs of St. George's Chapel, being followed to the grave by Mr. C. Myers, of the firm of Myers & Sons, the contractors; Mr. W. Seabrook, her Majesty's Inspector in the Lord Chamberlain's Department; Mr. Lohelein, for the Queen; Mr. Turnbull's relatives, and other friends. Mr. Turnbull, who died on Monday, the 2nd inst., in the 59th year of his age, had held his appointment under the Office of Works for about twenty years. Being in failing health, Mr. Turnbull resided during the recent winter in the Isle of Wight; thence he went to Hastings, where he rapidly got worse; and, on his return to Windsor, on the 9th ult., her Majesty commanded a special train to be placed at his disposal, and after his arrival, paid him a visit. Mr. Turnbull acted as architect in the erection of some of the late Prince Consort's farms; as he did, also, for various private individuals in Eton and Windsor.

PLASTER OF PARIS.

In reply to "J. D. P.," a correspondent writes: The late Mr. C. H. Smith, who had much to do with plaster of Paris during his whole lifetime, considered that there was *no* process by which once-used plaster could be made to serve the same purpose again.

He also explained, in the following manner, the state in which water existed on being mixed with plaster and cast into moulds:—"Take, for instance, a pound of plaster of Paris, and a pound of water: mix them in the usual manner. When set, or hardened, put the solid mass into a warm place, such as before a fire, until thoroughly dry; in this state it is quite certain that no fluid water remains, a large proportion of which escaped by the warmth of the fire, and might have been seen passing off in the state of vapour. If the mixture be now accurately weighed, this loss will be appreciable; but there will, notwithstanding, be found considerably more than one pound of dry plaster of Paris. Whence, then, can this increase of solid matter arise? The answer must be, 'from the water converted from the fluid into the hydrate or solid state.' This is an example of water in its state of chemical combination with other bodies, which appears inexplicable to those unacquainted with the principles of chemistry, to whom the aeriform, liquid, and frozen are the only familiar conditions of water."

THE HERBERT HOSPITAL, WOOLWICH.

In accordance with promise, we return to Captain Douglas Galton's very complete report descriptive of the Herbert Hospital at Woolwich, and give an isometrical view of the buildings and the plan of the ground floor. Descriptive particulars and comments will be found in our last volume.*

The hospital is on the southern slopes, and a little below the summit level, of a ridge of ground extending from Shooter's Hill along the Dover-road. We may add some notices of detached portions. Thus as to the kitchen,—the whole of the cooking for the patients and hospital staff, excepting the officers, as well as the bread-baking for the establishment, is carried out in one compact panelled iron cooking-stove fixed in the centre of the kitchen, with an underground smoke-flue communicating with the chimney-shaft. This apparatus occupies a floor space of nearly 15 ft. square, and contains the requisite fittings for cooking and baking, is described as perfectly simple, requires no skilled attendance, and consumes very little fuel.

The apparatus contains five iron boilers or caldrons, for meat, soup, beef tea, gruel, puddings, tea, and cocoa, of capacities varying from 20 to 50 gallons. Each boiler is furnished with a hinged and balanced cover fitted steam-tight, a large tap for supplying steam or boiling water, and another for emptying, and each can be converted at pleasure into a steaming-pan for potatoes and other vegetables. The apparatus has also two large steam-boilers, with the necessary safety-valves and taps, and self-acting feed arrangements, as well as two iron pastry-ovens, and two hot-plates for boiling, stewing, or frying, and two ventilated brick roasting-ovens, each capable of holding about fifteen joints: these ovens, by closing the valves, become ordinary bread ovens of the capacity of three bushels each. The whole is worked by two furnaces, each furnished with its necessary regulating dampers, soot-holes, and ashpit; the anticipated daily consumption of fuel is about 1¼ cwt. of coal for each furnace. The object of this double arrangement of all the parts is to enable the apparatus to be worked at half or full power, according to the number of patients, and also to admit of occasional repairs without any interruption to the cooking and baking. The central position of the apparatus in the kitchen affords the advantage of perfect access to every portion, and leaves the kitchen-walls clear for dressers and shelves.

Between the cooking-stove and the serving windows is fixed a polished iron counter or carving table heated by steam, 20 ft. in length and 3 ft. high, with five pewter dishes let into its top surface, as many scales and weights for the due adjustment of the rations, and underneath it a series of hot closets for plates and dishes, with sliding doors before and behind: the whole is supplied with steam from the cooking apparatus boilers.*

Lifts, worked by hydraulic power on Sir William Armstrong's principle, are placed at each pavilion communicating between the basement and each ward floor, by means of which it is intended that diets, coals, medicines, &c. shall be passed up from the basements to the wards. There are nine of these hydraulic lifts, and they were supplied from the works of Sir W. Armstrong at Elswick. Each of them is capable of raising a load of 2 cwt., and has a range of lift equal to the height between the basement floor and the upper floor of the building, and all parts of the machinery and pipes were tested to a pressure of 2,500 lb. per square inch before being delivered. They are made of a size sufficient for raising trays, coals, &c., but are not intended for lifting patients or other persons.

For working these lifts a high-pressure steam engine of 15-horse power, and an accumulator with a ram 7 in. diameter, and a stroke of 12 ft., have also been supplied from the Elswick works. The working pressure on the lifts is about 800 lb. per square inch.

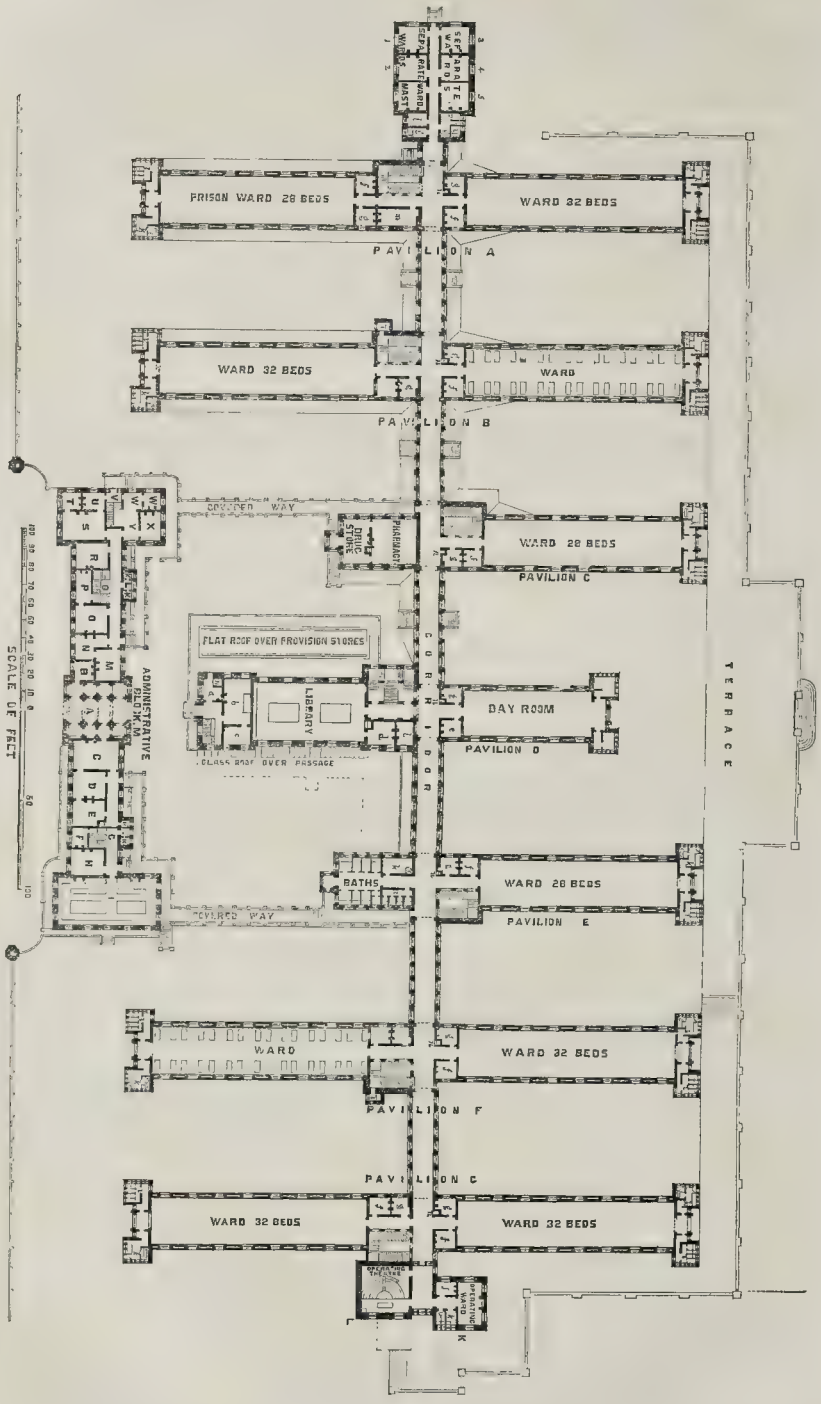
The means of ward ventilation which have been adopted in the Herbert Hospital are very simple. In weather when fires are not needed ventilation is effected first and mainly by the windows, and, in addition, by Sherringham's † ventilators, introduced between the windows on each side of the ward close to the ceiling, and by a shaft at each angle of the ward carried up above the roof for the escape of the foul air. The united area of these shafts affords from 10 to 14 square inches of area per patient, according to their height, *i.e.*, according to whether they are for the wards on the ground floor or first floor; they are terminated in the ward by louvres, which in the event of a down-draught would throw the air up towards the ceiling.

In weather which requires fires an important means of admitting fresh air is provided by specially constructed open fireplaces placed in the middle of the wards. The draught of the open fireplace removes a large quantity of air from near the floor of the ward, where it is coldest. The air thus removed, as well as that removed by the shafts, is replaced by fresh air previously warmed by contact with the chimney-flue and sides of the fireplace. These grates warm the wards partly by direct radiation, and partly by warming slightly a large mass of fresh air, taken, not from the ward, but from the outer atmosphere. Their essential characteristic is the introduction of fresh warmed air from without, and they are placed in the central line of the ward in order to distribute the fresh warmed air more equally than if placed at the side, and also for the purpose of obtaining a larger amount of heating surface to warm the fresh air which is admitted along the side of the horizontal flue. The fire stands in an iron cradle fitted to the fire-clay back and side, and a current of air is brought through the fire-clay, where it becomes heated, on to the top of the fire, to assist in the combustion of the gases and the prevention of smoke. The top of the stove is coved inside to lead the smoke easily into the chimney, which runs horizontally under the floor to the side wall of the ward, and is placed in a trough along which air direct from the outer air is brought, so as to pass in contact with the flue, and thus to extract heat from it before it passes into the ward: these inlets for fresh warmed air are arranged to afford an area of from 8 to 14 square inches per bed. These horizontal flues were originally designed to be of fire-clay, but their size, as designed, was not sufficient to cause the stove to draw well, and they were consequently enlarged so as to give an area of 110 square inches. It was,

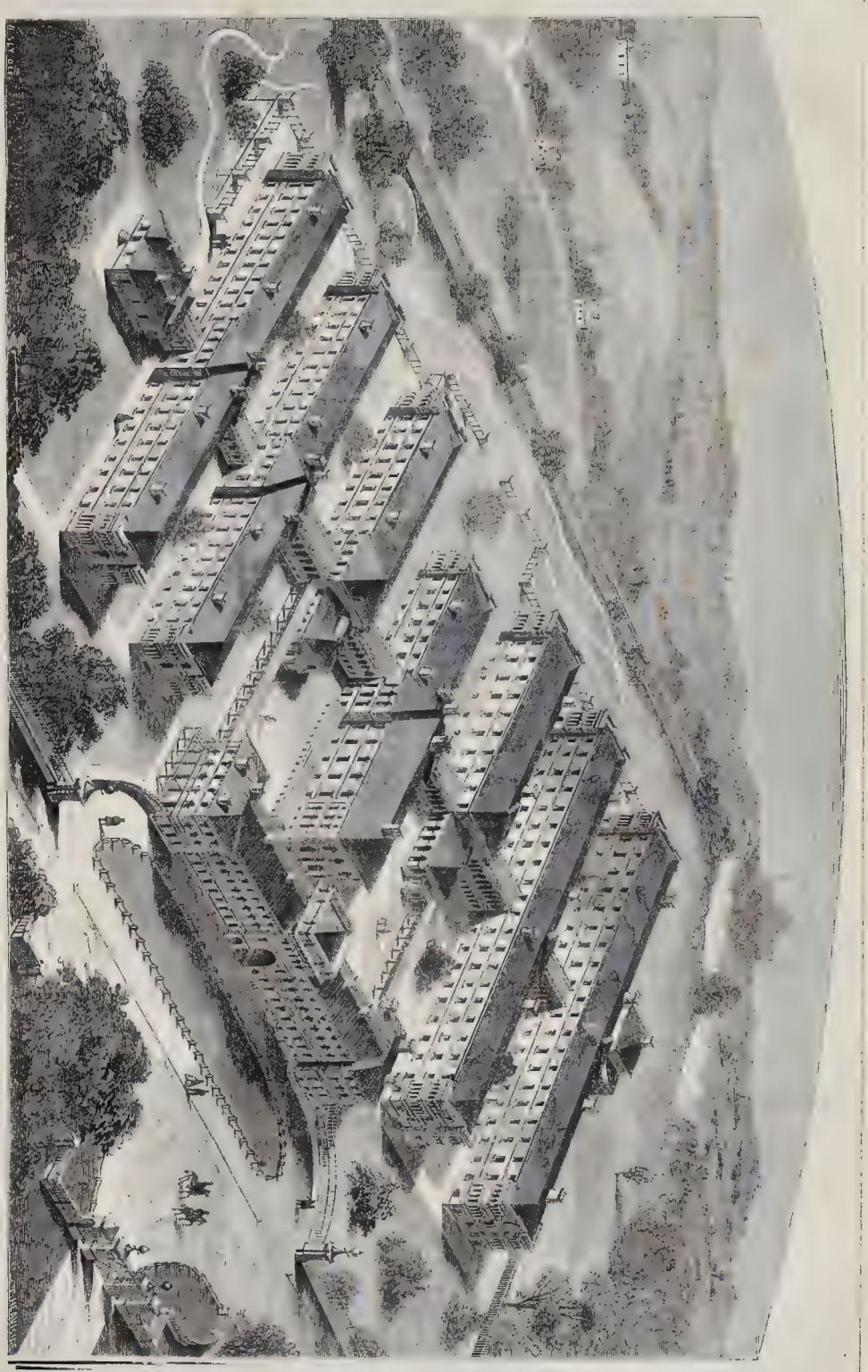
* Vol. xxiii., p. 183.

* These fittings have been supplied and erected by the patentees, Messrs. Benham & Sons, of Wigmore-street, Cavendish-square, who also fitted the kitchens of the Victoria Hospital, Netley, and the Royal Marine Infirmary, Woolwich.

† The mode of action of Sherringham's ventilators is found to depend very much on the direction of the wind. Thus they will occasionally act as outlets for impure air, as well as inlets for fresh air.



THE HERBERT HOSPITAL, WOOLWICH.—*Plan of Ground Floor.*



THE HERBERT HOSPITAL, WOOLWICH.—*Erected from the Designs of* Capt. Douglas Galton, *assisted by* Mr. R. O. Mennie, *Surveyor of Works to the War Department.*

however, found necessary, in order to preserve the requisite area in the trough for fresh air, to make the flues of iron instead of fire-clay; and to prevent the air being overheated by the iron an outer casing of iron was put over them, and the interval filled with a thin coat of fire-clay: the hearth, which is of iron, has been similarly treated. Arrangements are made, in the floor by means of panels, in the trough, and in the flues, to enable the trough to be easily opened along its whole length, and the flue to be lifted out so that the air passage may be easily cleaned periodically. The horizontal flue is swept by means of an opening at its end close to the stove in the ward, through which a brush can be pushed so as to force the soot into the vertical flue with which it communicates in the side wall, and which is carried from the top to the bottom of the building. At the bottom of the vertical flue, and outside the building, is a soot-door, by means of which the soot can be removed; the outer wall close to the soot-door is covered with glass to prevent the soot from dirtying the wall. In order to prevent any chance of smoke when a fire is first lighted, a spare flue is provided, close to the ward flue, from a fire in the basement, and by means of which the vertical ward flue can be heated and a draught obtained. This can be used if wanted to assist ventilation in summer, by extracting air through the ward fireplaces. The separate wards, the operation ward, the wards for special cases, and the itch ward are ventilated by means of extracting flues placed near the ceiling at the side of the chimney breast, by Sherringham's ventilators for admitting fresh cold air, and by the ventilating grate of a pattern similar to that adopted for barracks for warming and admitting fresh warmed air.

In designing the plans for the hospital and the contingent arrangements, Capt. Galton was assisted by Mr. R. O. Mennie, Surveyor of Works to the War Department. Captain Newsome, R.E., superintended the works as executive officer under the Commanding Royal Engineer, who was at first Colonel Ford, R.E., and afterwards Colonel Hawkins, R.E.; and he was assisted by Mr. Ware, Mr. Parry, and Mr. Tait, clerks of works. Messrs. Myers & Son were the contractors. Mr. Homersham, C.E., was employed to design and superintend the construction of the reservoirs for softening water placed on Shooter's Hill.

The advantages which the principles of hospital construction embodied in the Herbert Hospital afford, may be briefly summed up as follows:—

1. Limitation of the number of sick under one roof.
2. Complete separation from each other of the wards containing sick.
3. Abundance of fresh air and ventilation in every part of the building allotted to sick.
4. Complete separation of the ward offices from the wards.
5. The use of non-absorbent surfaces in the wards and ward offices.
6. Abundance of light, as well as light-coloured surfaces, especially in the ward offices, by which cleanliness is promoted.
7. Facility of administration.

These principles, we need not remind our readers, were set forth and urged by us at a time when the War Department were less impressed with their importance than, fortunately, they now are.

REFERENCES.

Front Building.

A. Carriage entrance.
B. Porter's room.
C. Waiting-room.
D. Examination-room.
E. Surgeon's room.
F. Linen Nurse's room.
G. Nurses' staircase.
H. Mending-room.
I. Clean linen store.
K. Water-closets.
L. Lavatories.
M. Governor's room.
N. Clerk's room.
O. Principal Medical Officer's room.
P. Clerk's room.
Q. Officers' staircase.
R. Registrar's room.
S. T. U. Captain of Orderlies' rooms.
V. Orderlies' staircase.
W. Sergt. Major's quarters.
X. Paymaster's room.
Y. Clerk's room.

Main Building.

a. Steward's room.
b. Purveyor's room.
c. Clerk's room.
d. Librarian's room.
e. N.C. Officers' quarters.
f. Nurses.
g. Sculleries.
h. Dressing-room.
i. Water-closets, sinks, &c.
k. Lavatories, baths, &c.
l. Ward-master.
m. Guard-room.
n. Lifts.

The Guildhall "Industrial" Exhibition.—The greatest dissatisfaction is manifested with reference to the manner in which the committee have mismanaged this affair.

THE NATIONAL GALLERY QUESTION.

In the House of Commons, on Monday, in committee of supply, on the vote of 85,437*l.* to complete the sum of 105,437*l.* for public buildings being asked for,

Mr. C. Bentinck requested some explanation respecting an item of 1,200*l.* for the National Gallery.

Mr. Cowper said it was determined to buy that portion of the ground behind the National Gallery which was now occupied by the workhouse and the schools, and also five houses near to St. Martin's-lane. Whether an additional building to the present should be erected on the ground thus obtained, or whether the present unworthy edifice should be pulled down and an entirely new building erected, had not yet been determined. But the Government had decided to invite plans from, at first, six architects; but subsequently they had resolved to increase the number to ten. These gentlemen would be paid 200*l.* each for their plans and opinion, and no plan would be adopted until on a future occasion the opinion of Parliament could be had respecting it.

Mr. Beresford Hope said, he thought the ten architects might be properly increased to a dozen. He would like to know the names of the gentlemen selected.

Mr. C. Bentinck expressed a hope that no pseudo-mediæval style of building would be erected in Trafalgar-square. He also urged the appointment of a competent tribunal to decide on the schemes of the competing architects.

Mr. Hope said he could not think that the question of style ought to be foreclosed, nor did he think that the building in Trafalgar-square should be classic.

Mr. Locke remarked that his understanding of the arrangement made was, that the National Gallery was not to be taken down.

Mr. Cowper said, as no decision had as yet been arrived at, he thought it best, in giving instructions to the architects, to request them to prepare two alternative plans,—one for an entirely new building, and one simply for alterations of and additions to the existing building. What he proposed to do was to get plans which would enable the Government and the House to decide when the time for decision came.

Mr. Hope observed that the development of art education, the facility of travel, and the great æsthetic propensities of the age had brought out an astonishing amount of architectural talent; and he was sorry, therefore, that an unlimited competition could not be started; but he feared to raise the question, lest the matter should slip through their fingers, and they should get nothing at all. He claimed, however, that the limited competition should be very large; and he called upon his right hon. friend to own that there were a great many men able to do the work if they could only find them. He hoped his right hon. friend would consequently be very liberal and very extensive in his invitations. Even though the number of competitors for the law courts should be necessarily small, twenty would not cover the number of men quite competent to undertake the buildings at the National Gallery and to complete a work in Trafalgar-square that would be a credit to the country.

Mr. Cowper said, with respect to the mode in which the award on the different plans should be made, that he might simply allude to the course he had taken two years ago, when plans were required for the Natural History Museum and the Patent Museum. A commission was appointed, which had on it a majority of persons belonging to the architectural profession, and seemed to give very general satisfaction. He had endeavoured then to find architects who were not sufficiently mixed up with the ordinary business of their profession to have any bias or special prejudices attributed to them. With regard to the use of gas, it had been found by experience that it might be used for the exhibition of pictures without injury, and in a new building it would be easy to make proper arrangements for ventilation. The new gallery was, of course, intended to be large enough to hold not only the present pictures, but all the future additions that were likely to be made to them. It might be thought right to place in it the cartoons now at South Kensington, and also the collection of original drawings in the British Museum, but those were matters for future consideration. With regard to the architects who were to compete for the improvement of the gallery, he should endeavour to select that number of persons whose experience, reputation, and general qualifications would be a guarantee that they would be qualified to erect satisfactorily a public building. The number had not yet been finally filled up. When the designs had been obtained they would be exhibited to that House and the public. It was intended to include the National Portrait Gallery in the enlarged building; but the Royal Academy had been told that they must vacate that portion of the gallery which had been hitherto occupied by them, and they were prepared to leave as soon as they could find proper accommodation elsewhere.

The vote was then agreed to.

STATE OF ST. PAUL'S, DEPTFORD.

An inhabitant writes,—I have the pleasure of reading your excellent publication once a week, and cannot but admire your strictures and remarks on sanitary matters. If you would take a walk to Deptford High-street, and turn to the left, down Hamilton-street (in particular), as well as Hyde-street, you would find the lower end (of the first-named street) one sheet of water, which has no means of discharging itself: so it soaks into the earth, year after year, and must ultimately evolve miasma, which some day or other will exhibit itself in an outbreak of fever or sickness amongst the inhabitants.

FABRICATION OF A CEMENT WITH A BASIS OF PLASTER OF PARIS, OR GYPSUM.

The plaster is first burned, or roasted, in the ordinary way, in an appropriate furnace, so as to drive off the water. After this, it is broken into small fragments, which are immersed in a solution of alkaline silicate, containing an alkaline carbonate. The solution which answers best is composed of silicate of potash, containing a sufficient number of equivalents of carbonate of potash, to avoid the precipitation of the silica, in the following proportions:—0·880 kilog. (1·94 lb.) of silicate of potash containing 0·255 kilog. (·56 lb.) of carbonate of potash, in 4·54 litres (a gallon) of water, a solution having a specific gravity of 1,200, but which may vary according to the use for which the cement is intended. As, for example, it can be employed of the strength above indicated in a great many cases where the best quality is required; and, if an ordinary cement is only necessary, it can be diluted with two parts of water to one of the solution. If a cement be required to harden slowly, sulphate of potash may be added to the carbonate, so that the indurating action of the silica upon the plaster may thus be varied in tone at pleasure. After having left the plaster steeped in the solution for twenty-four hours or so, it is taken out and left to drain in a compact mass, in order that the diffusion of the solution through the plaster may take place more effectually; the cement is then taken back to the furnace, and reheated to 150° or 250° C. (302° to 482° Fah.), to drive off all the water, after which it is ground to powder, and can be coloured to any desired hue by mixing with a pigment.

A MASONS' STRIKE A HUNDRED YEARS AGO.

Sir,—I had just read your able and sensible remarks on combinations in the last number of the *Builder*, wondering where it is all to end, and pondering much whether the operatives of England and their employers will one day realize the fable of the Kilkenny cats; when, happening to turn over the pages of an old Scottish magazine for another purpose, I stumbled upon the following authentic *morceau*, which I have copied out, and now forward to you. It is an account of a combination and strike of the Edinburgh masons in the year 1764, together with full details of the method which they employed to submit their differences to arbitration. It will be read with interest in the light of our present knowledge and experience, more particularly since it contains some interesting facts relative to the trade and the rate of wages a hundred years ago. It is also curious from this point of view,—that it anticipates the theory of jurisprudence involved in the French Councils of Conciliation, and would also seem to

show that Lord St. Leonards' views on arbitration have long ago been tried in the balance and found wanting. Your readers will remember that the old combination laws were then in full force:—

"MASONS' STRIKE IN EDINBURGH.

In the beginning of July, 1764, the journeymen masons in and about Edinburgh entered into a combination not to work unless their wages should be augmented from a merk Scots a day in summer, and 10d. in winter, their present wages, to 15d. in summer and 12d. in winter. This resolution they communicated to their masters on Saturday, July 7, and their demand not having been complied with, they left off work on Monday, the 9th. On the 16th they published an advertisement in the newspapers, offering to serve the lieges in mason work at the wages above demanded, independent of the masters; and on the 17th a petition in their behalf was given in to the magistrates and council, representing,—That, notwithstanding the increase of the expense of living, their wages have not been increased for a hundred years past. That they do not mean by a general association, or obstinate refusal to work, to distress the lieges or their masters, and force them to comply with an unreasonable demand; for that many of the petitioners have got, and all the subscribers have been offered and can get, the wages now demanded, if they will leave the city and go to work in any other place in Scotland; but having an attachment to the city by family connexions and other engagements, they would rather continue in it upon reasonable encouragement than remove; adding, that they do not propose the wages now asked should be a general rule, being willing to agree, both now and in time coming, that none should be entitled to them but skilful and experienced journeymen, certified to be so by two master masons of Edinburgh; and they craved such relief as to the magistrates and council should seem meet. The petition was subscribed by twenty-six journeymen masons. It was remitted by the council to the magistrates.

Answers were given in for the master masons in and about the city on the 20th, signed by fourteen of them, by authority of the whole; in which they represent that circular letters were written on Friday, July 6th, and distributed next day to most of the masters in or about the city, which contained these words,—'We petition for 1s. 3d. per day in summer, and 1s. in winter, regular payment. This we expect none of you will refuse, as the demand is so reasonable. We are all positive to set work in town and suburbs, if you deny this petition, on Monday, the 9th current, for we are all unanimously agreed to this by subscription.' That to this the masters made no reply, nor did they take any step upon it, other than at a meeting to resolve not to heighten the wages. That a compliance with the present demand would be of ill tendency with respect to other artificers, as appears in some measure already, the journeymen wrights having intimated to their masters, on Saturday last, that they are to stop work on Monday next, if their wages are not augmented. That it cannot be known where such demands will end, nor can there be any security against a demand of a second and third augmentation, when the journeymen think proper. That within memory masons' wages were from sevenpence to a merk a-day, according as they deserved, and that they then began work at five o'clock in the morning, whereas now they do not begin till six, their stated hours being from six to six, of which time one hour is allowed for breakfast, and another for dinner; but that several other trades work much later; and that, as the journeymen have contessedly entered into a combination, they have plainly transgressed the law, and therefore, in place of meriting a reward, they have exposed themselves to punishment.

Replies were given in for the journeymen on the 28th in which they seem inclined to deny (though but faintly) their having written and circulated such a letter as that quoted by the masters;—they endeavour to retort the charge of a combination, alleging, that the masters have combined not to give them reasonable wages:—they say that the only security against future demands must be the rate of vivres according to which wages ought to be ruled;—and in reply to an allegation of the masters, that higher wages would not be given anywhere else in Scotland they produced a letter from a town in the west of Scotland, dated July 17th, the third day after the advertisement appeared in the papers, offering the wages demanded, and desiring ten or twelve good masons to be sent thither.

Judgment was given on the 15th of August, viz. "The lord provost and magistrates, having considered this petition, with answers and replies, find the methods taken by the journeymen masons to obtain redress of the grievances complained of, to be illegal, tumultuous, and unwarrantable; and in respect thereof, refuse the petition; and find, that the petitioners are bound to work for the freemen master masons for such wages as the said masters shall think reasonable, agreeably to use and wont."*

One thing I do not exactly comprehend in this account is, why the magistrates and town council were selected by the masons as the court of arbitration in preference to the court of session, which long exercised its judicial functions in the regulation of prices in Scotland. Probably this may have arisen from the connexion of the magistrates with the Dean of Guild court, which still exercises the power of inspecting and regulating buildings in Edinburgh. In conclusion, I regret my authority does not supply any information as to how this strike terminated. But I think it probable that either then, or soon afterwards, the wages of masons must have risen; for I recollect seeing it stated somewhere—most probably in the *Builder*—that the wages of masons in Scotland towards the close of the last century or the beginning of this, were either ten or twelve shillings a week. ALPHA.

* Scottish Journal of Topography, Antiquities, Traditions, &c., vol. i., p. 364. An extinct publication.

THE MARKET CROSS OF GALASHIELS.

I PERUSED your article on the Market Crosses with much pleasure, and thoroughly coincide with the writer in his anxiety that these interesting memorials of bygone times and customs should be preserved. The cross which used to stand in the "Mercat-place" of Galashiels was hurled from its pedestal within the memory of men still living, and now lies crumbling and moss-covered among some outhouses of the lord of the manor—Scott of Gala. Major Scott is the representative of a distinguished family, easily traceable through century after century, and as such is deeply attached to the traditions and associations of the numerous relics studded over his estate. Surely it would not be difficult to obtain his sanction to have the shaft of this interesting old cross erected on its former stance. I trust that by giving publicity to this you will help to have the matter brought before those who ought to take action. XIAN.

EXTENSION OF "PARTNERSHIPS OF INDUSTRY."

WRITING to us on this subject, Mr. E. O. Greening says,—It cannot, I think, be made too widely known, that not only has no loss attended the shareholders in companies avowedly formed on the basis of a union of interests between employers and employed, but that, on the contrary, their property stands better for the arrangement. Messrs. John Crossley, Sons, & Co., Limited, carpet manufacturers, of Halifax, are paying 15 per cent.; and their shares, with 10*l.* paid, are selling for 17*l.* each.

Messrs. Henry Briggs, Sons, & Co., Limited, of the Whitwood and Methley Collieries, Yorkshire, have worked six months on the new system, paid an ad interim dividend of 10 per cent., and their new shares are being issued at 1*l.* premium. They show an increased production and other good results.

Messrs. Greening & Company, Limited, manufacturers of iron gates, fences, &c., of Manchester, I have already reported upon, and need only add, that shares in that company cannot now be had.

CHURCH GLAZING.

WITH reference to the inquiry of "A Parish Priest," as to the use of sheet glass in churches in lieu of the old system of quarry glazing,—an instance of it may be seen at the Church of St. Leonard, Stanton Fitzwarren, Wilts, which has lately been restored by Mr. Hugall. Several of the windows are filled with sheets of cathedral glass the width of the lights, with a running pattern of natural foliage, somewhat conventionally treated, painted on them, as in stained-glass windows. The designs include the vine, wheat, passion-flower, fig, olive, &c. It produces a very good effect when viewed from the interior, though the external appearance is not so good as where the old style of glazing has been resorted to. S. B. B.

"EXPERIMENTS ON THE STRENGTH OF TIMBER."

IN looking over the last volume of the *Builder*, I find at p. 115, a paragraph with the above heading, in which are recorded the deflexions produced in seven pieces of timber of large scantling, supported at each end, and loaded with various weights in the middle. The chief value of such experiments is to enable us to determine the values of the constant E (called the *modulus of elasticity*) in the equation,

$$\text{Deflexion } (\delta) = \frac{Wl^3}{4bbd^3}$$

For if δ, b, d, l, and W are all given, E is at once determined from

$$E = \frac{Wl^3}{4\delta bd^3}$$

b, d, l, and δ being all in inches, and W in pounds.

I will take the several experiments seriatim, and find E for each specimen, referring the reader to the article itself for the scantlings.

Nos. 1 and 2, beam of pitch pine, quite dry, rather shaky, but nearly free from knots. The average of the first three values of W, is 5 tons, and the average corresponding deflexion ·413 in. From this we find E = 1,757,974.

In No. 2, the average deflexion is ·323 in., which gives E = 2,247,825. Hence the average value of E from the two experiments is 2,002,900 for pitch pine.

Nos. 3 and 4, beam of Baltic timber of good quality. Here the average of the first four deflexions is 1·2325 in., with an average value of W = 6¼ tons. From this we get E = 1,558,332.

No. 4 is the same beam weighted a second time, after having received a permanent set from the former experiments, so that the results cannot be applied for finding E.

No. 5, beam of Dantzic timber of *very superior quality*. Average of first four deflexions is ·62, with same weight as in No. 3. From this we find E = 1,514,943.

No. 6, beam of Memel timber, rather coarse and knotty, would have broken with 11 tons 12 cwt. Average of first three deflexions, 1·403 in., with average value of W = 5 tons. In this case we find E = 808,343, showing that the specimen was a very weak one.

No. 7, beam formed of two 3 in. yellow planks, bolted together. Average of first four deflexions, is ·884 in., with an average weight of 26 cwt.

In this case E = 1,639,521.

It would be more correct to call them experiments on the *stiffness* rather than on the *strength* of beams; as the *stiffness*, or resistance to flexure, varies as the *cube* of the depth; while the *strength*, or resistance to fracture, varies as the *square* of the depth.

E. WYNDHAM TARN, M.A.

ANCIENT NORTHUMBERLAND CHURCHES.

AN interesting paper titled "Notes on Four Ancient Northumberland Churches: Ponteland, Embleton, Rock, and Eglingham," was read by Mr. F. R. Wilson, architect, Alnwick, at a recent meeting of the Newcastle Society of Antiquaries. Mr. Wilson said there was an archæological fact of considerable interest connected with two of the churches—now in his hands for restoration and additions. He was not aware that the circumstance had been noticed before that among the lands with which Merton College, Oxford, had been endowed, there were tracts in the parishes of Ponteland and Embleton, in the county of Northumberland. The vicarages of both these parishes were in the gift of the college, the warden and scholars being the rectors of the chancels of both churches. After describing the characteristic features of the architecture of the church of Ponteland—which he said he identified with that of the lifetime of Walter De Merton, at the close of the thirteenth century, and of which the College of Merton was a superb specimen—he turned to Embleton Church, and, judging from the exact correspondence of the workmanship, he thought both had been repaired by the same workmen. There was only thirty-five miles' distance between the churches of Ponteland and Embleton. The Norman church at Rock, he said, was of a type that was very frequent in this part of the country at one time. Five of these churches had been built for chapelries in connexion with Lindisfarne Priory. These were Shilbottle, Rennington, St. Leonard's (Alnwick), Berwick, and Tuggal. Speaking of Eglingham, he observed the church had for a tower one of the sturdy characteristic edifices of the period when Northumbrians had been wont to take refuge in their places of worship. Mr. Wilson described minutely the leading antiquarian features of the churches, and in all of which he is at present engaged, either effecting repairs or making alterations and additions.

COMPENSATION CASES.

PROPERTY IN THE STRAND.

Benham v. *Law Courts' Concentration Site*, was heard before Mr. High Bailiff Turner and a special jury, at the court in Portugal-street, on April 6th, 1866. Mr. Hawkins, Q.C., Mr. Horace Lloyd with him, appeared for the claimant, and Mr. Montague Chambers, with Mr. Day and Mr. MacMahon for the Commissioners. The claimant is the freeholder of 248, Strand, which is occupied by Mr. Beeton, the publisher, at 140*l.* a year for 7¼ years to come. Mr. E. Roberts, Mr.

C. Shoppee, Mr. Farmer, Mr. Chinnock, and Mr. Wheeler were called for the claimant, and estimated the reversionary rent at from 350*l.* to 400*l.* a year, which produced a value of from 6,360*l.* to 6,692*l.*, including the current rent. The witnesses for the Commissioners were Mr. R. Vigers, Mr. Eiloart, Mr. H. R. Abraham, Mr. Shaw, and Mr. Dent, whose estimates, at from 200*l.* to 230*l.* a year, amounted to from 4,282*l.* to 4,433*l.* The jury retired for a short time, and returned a verdict of 5,600*l.*, which is at the rate of 310*l.* per annum.

Mr. Evan Jones v. *The Metropolitan District Railway.*—This case was opened, in the Sheriffs' Court, Red Lion-square, on Wednesday last, before Mr. Humphreys and a special jury, to assess the sum to be paid by the company for property belonging to Mr. Evan Jones, extending from Crescent-place, Brompton, to Cumberland-street, Chelsea. It was of a somewhat curious and involved character, including houses, stabling, and special accommodation for trades. Messrs. G. & H. Godwin, for the claimant, made the value something over 7,000*l.*, and were supported in this view by Professor Donaldson, Mr. Sancton Wood, Mr. Baker (Kilburn), and others. Mr. Ritchie (Hunt & Ritchie), acting for the company, had witnesses to support a lower valuation. No witnesses, however, were called; for the jury having visited and viewed the place, it was settled by mutual arrangement in Court, that the company should take only a portion of the property, and pay the sum of 2,500*l.*; the value of any other part of it that might be needed, to be settled by Mr. Godwin and Mr. Ritchie, without evidence or legal interference. Mr. Hawkins and Mr. Bush Cooper acted for the claimant; Mr. Serjeant Parry and Mr. Hollway for the company.

Bedlam against The Great Eastern Railway Company.—At Guildhall, on Tuesday last, before a special jury, under the presidency of the Hon. Mr. Denman, Q.C., as assessor, a railway compensation case, Bridewell and Bethlehem Hospital *v.* The Great Eastern Railway Company, was heard, in which a claim was made on the part of the governors of the hospital for 97,821*l.*, and of that sum 8,300*l.* was a charge of 10 per cent. on account of compulsory sale. The property required was in Liverpool-street, for the new terminal station of the Great Eastern Railway, and comprised about sixty houses, in which two public-houses were included. Mr. Clark (Farebrother, Clark, & Co.) was the first witness examined, and was followed by several others. His plan was to utilize the property by clearing the land when the leases expired, and in twenty years' time all the leases would expire. There was a great demand for office accommodation in the locality, and a large revenue could be obtained. The total area, including the site of the buildings and the street between Baker's-buildings and the street called Liverpool-buildings, comprised 48,741 superficial feet, from which deductions were to be made as to a street, a public-house, and other houses, leaving 40,111 superficial feet to be dealt with as land, which would realise 3*s.* per foot, and the result was a valuation of 88,307*l.*, to which 10 per cent. for compulsory sale was to be added, and the whole claim was, as stated, 97,821*l.* Several other valuers gave similar opinions. Mr. Currey, architect, had laid out the ground for offices, and a large annual revenue was to be obtained. Mr. l'Anson gave his valuation at 94,828*l.*, and considered that office accommodation was the best way to utilise the property. The last witness called on the part of the claimants was Mr. Sydney Smirke, the architect. He approved the plan of Mr. Carrey, and believed that, as had been stated, for 75,000*l.* offices could be erected which would produce a good return to the hospital. Mr. Lloyd announced that he had concluded the evidence on the part of the claimants, and the further hearing was adjourned to Monday, when Mr. Bovill would call evidence on the other side. It was arranged that the case should be finished on Monday next.

St. Paul's Churchyard. At Guildhall, before the Common Serjeant and a special jury, the case, "Farlow *v.* The Commissioners of City Sewers," concerned the value of property at "Number One," St. Paul's Churchyard, required by the Commissioners to widen the public thoroughfare. The claim as made was 17,682*l.* The jury had a view of the plot of ground, now inclosed at the corner of St. Paul's Churchyard, and, according to the evidence of three surveyors and valuers, the value was estimated at 15,000*l.* The area was 412 ft. superficial, and the annual rental value was estimated at 30*s.* per foot, making it 600*l.*, and at twenty-five years' purchase, 15,000*l.*, to which 10 per cent. was to be added for compulsory sale, and with 582*l.* agreed upon for expenses in the commencement of a house before the Commissioners resolved to take the property, made the claim 17,682*l.* On the other side about 8,000*l.* was represented as the utmost value. It was estimated by several surveyors from 15*s.* to 20*s.* per foot, and it was stated that the house to be built on the land would not fetch more than 350*l.* a year, while on the other side it was stated an offer of 800*l.* a year had been made. Among the witnesses for the Commissioners was Mr. Pownall, the surveyor, who was now engaged by the Government in purchasing property for the new Law Courts and for the new Post Office. He considered the site was not worth more than 13*s.* per foot, and his total valuation was 6,655*l.* Mr. Lloyd, in his address to the jury, stated that, according to the evidence given, the land was worth upwards of 1,000,000*l.* an acre. It was impossible that any trade could be carried on in the city of London at such rentals as were now demanded, and he had no doubt that property must decrease in value, or that trade would be greatly lessened in the city of London. The jury retired for some time, and on their return assessed the compensation, including the 582*l.* agreed upon, at 10,482*l.*

A new street is to be constructed from the Mansion House to the Thames Embankment, and among other premises to be demolished are those of Messrs. Davidson, the music publishers. The Metropolitan Board offered 2,500*l.* as compensation, but a claim was made for 6,750*l.* When the case was tried, the plaintiff stated that the net profits of the business were 1,800*l.* a year. The stereo-plate and music blocks exceeded 10,000*l.*, and a loss of 25 per cent. was estimated on the removal. The plaintiff further required two years' profits as trade compensation. The jury gave a verdict for 3,000*l.*

COMPETITION.

Aylesbury Sewage Plans. — The Aylesbury Board of Health, after some discussion, have decided that of the fourteen plans sent in for competition the one by Mr. W. D. Sandoe, surveyor, Luton, Beds, is the best, and have accordingly adjudged the premium of 20*l.* to that plan.

ROYAL ITALIAN OPERA.

Madlle. Morensi made a successful *début* on Thursday, the 5th, as *Azucena* in "Il Trovatore." With a commanding figure and power of tragical expression, she well sustained the character throughout. Signor Mario (*Manrico*) sang better than he has done for several years, and delighted his audience. The power of a fine voice is shown strikingly in the case of Signor Graziani, who, without caring to exhibit any histrionic power or, even, feeling, maintains a high popularity. He showed more of the latter desirable qualification in "Un Ballo in Maschera," given on Monday night. Madlle. Fricci in this was excellent. The new *prima donna*, Madlle. Orgeni, who has appeared in the "Traviata," was deservedly successful. With a little more vigour in the first act of the opera, her personation of *Violetta* would leave little to be desired.

IRELAND.

Belfast Albert Memorial Clock Tower.—With regret it is to be told that this is yet a bone of contention. Considerable dissatisfaction was caused in the first place by the decision of the committee as to the merits of the selected designs, which, be it remembered, were the work, all three, of Belfast men. The first of the successful competitors showed very good taste in withdrawing, when he discovered that his partner was serving on the committee. The second in order was then chosen, and received his order for the work. The third has recently stepped forward to prove the injustice done him, in refusing him the second prize, and in selecting a design which, to carry it out in its integrity, must have cost nearly twice the sum stipulated in the conditions issued to competing architects; and the work is now *in statu quo*. One of the daily papers of the town, in its advocacy of the claims of Mr. Barre, whose design is to be carried out, when a main sewer, which stops the way, shall have been diverted, asks, naïvely, "what higher compliment could be paid to the taste and judgment manifested by the committee in selecting Mr. Barre's beautiful design, than that it was so superior to all others submitted, as to require 1,500*l.* in addition to the 1,800*l.* to complete it!"

Almshouses, Dungannon.—The trustees to the "Charles Shiel" Charity, have determined on erecting five separate blocks of almshouses, in suitable localities. The first of these is now about to be erected in the town of Dungannon, from the designs of Messrs. Lanyon, Lynn, & Lanyon, and will occupy a healthy site, containing three acres. It comprises a row of residences, returned at each end, giving a frontage of 490 ft. These residences consist of five 4-roomed houses, five 3-roomed houses, and ten 2-roomed houses, each having a pantry, a scullery, a W.C., and a yard averaging 25 ft. by 10 ft. In the middle of the front, are a clock tower, committee and reading rooms, and a superintendent's house, containing six rooms. There is at the rear an airing-ground common to all. It has evidently been the aim of the architect to avoid the conventional poor-house treatment. The style adopted is Early French, and though for the most part the work is plain, it is carried out uniformly. The central clock-tower, 70 ft. high, forms the chief feature. The materials to be used are, for the walling, sandstone of the district, with limestone bands, cells, and corbels. The slating is to be in alternate bands of Killaloe, grey, and Bangor red slates. The cost will be about 4,500*l.* for each block.

FROM SCOTLAND.

Airdrie.—A large oil-work, under the management of a limited liability company, is about to be erected at Coatdyke, a small village situated midway between Airdrie and Coatbridge. Contracts have been entered into for supplies of shale, &c.; and it is stated that the company will also offer to supply the towns of Airdrie and Coatbridge with gas of good quality at a charge of 2*s.* per 1,000 cubic feet. The work is expected to consist of about 150 retorts, and will afford employment to a large number of men. Land for the erection of the work has been leased, and building operations will be immediately commenced.

PROVINCIAL NEWS.

Towcester. — The new Town-hall and Corn Exchange at Towcester have been opened with a public *déjeûner* and public entertainment. The new building is of a classic design, the front being composed of Bath stone with Duston stone bands. In the front of the building on the ground floor are four large windows with semi-circular arches, and on the first floor are smaller windows of a similar character; all the windows being secured outside with revolving shutters. The building is surmounted by a turret and bell-chamber, which has been added to the original design, in order to accommodate the clock which has been subscribed for by the ladies of Towcester and the neighbourhood. The caps to the arches are covered with natural foliage conventionalized. The tower, dome, and spire are zinc, with ornamental castings. The side part of the building is faced with white brick. The building contains, on the ground floor, a large hall, 58 ft. by 36 ft.; a retiring-room, 14 ft. by 12 ft.; a working men's reading-room, 22 ft. by 17 ft.; and a working men's coffee-room, 26 ft. by 17 ft., with serving-room attached. To the right of the front entrance are several offices, and on the left a private residence and a shop with a private entrance. The large hall is warmed with Messrs. Haden's apparatus, and lighted with pendant star-burners. The room is ventilated at the top, and also by means of small windows round the room, which are opened by ropes concealed in the wall. The pilasters in the large hall are finished in Parian cement. At the end of the hall is a large enriched arch. The building has been erected by Mr. J. Wheeler, builder, Towcester, from the designs and under the superintendence of Mr. T. H. Vernon, of London, a native of Towcester. The plastering has been done by Messrs. Banks, of this town.

CHURCH-BUILDING NEWS.

Chilton Cantelo.—The parish church of Chilton Cantelo, Somerset, has been re-opened, after having been rebuilt, at the cost of the rector and patron of the living, the Rev. the Provost of Eton. The church consists of a nave and chancel, small transepts, or, rather, side chapels, north and south of the east end of the nave, a south porch, and a western tower. The latter is a specimen of the Late Perpendicular towers so common in Somersetshire. Being in a good state of preservation it has been left untouched, except that the pinnacles, which never appear to have been finished, have now been added, and that the roof and floors are entirely new, the bells also being rehung in a new frame. The

rest of the church has been entirely pulled down, and it is now rebuilt exactly on the lines of the old foundations, with the exception of a slight partial shifting of the south wall of the chancel, and the moving of the porch nearer than formerly to the west end. The proportions of the old building and the characteristic features of the remains of its earlier architecture have been adhered to, and, where possible, all parts interesting from their antiquity or beauty have been preserved, and built into the walls again in their old positions. A peculiarity in all the earlier windows was the cusping of the inner arch, which feature has now been introduced by the architect throughout, except in the south transept, where it did not appear originally. During the process of demolition a curious mural painting was discovered, running round the walls of the north transept. It was executed in distemper, on the plaster, and it was found quite impossible to preserve it: tracings, however, were taken of it. The subject represented was the Death of the Virgin, followed by her Entombment, and Assumption, and her Coronation by our Lord in Heaven. The only colours used were red, yellow, and a greenish black. The ancient rood-screen has been restored and replaced in its original position. The roofs throughout are of English oak, as well as the floors and joists. The sittings, chancels, stalls, and joiners' work are of wainscot. The church is built of Camel-hill stone, with quoins and dressings of Ham-hill stone, with which the building is lined throughout. The whole of the masonry was carried out by Messrs. Trask, of Norton; and the roofs and carpenters' work were executed on the premises, under the direction of Mr. W. Russell, of Chilton Cantelo. The seats and the rest of the joiners' work were done by Mr. Futcher, of Salisbury. The church was paved by Messrs. Simpson, of the Strand, with Maw's tiles, the pavement of the chancel having marbles. The windows throughout the church, except the western one, are filled with stained glass, by Messrs. Heaton, Butler, & Bayne, who also executed the mosaic reredos. The churchyard has been levelled, and is now being surrounded by a dwarf wall and wrought-iron fence, the work of Mr. Petter, of Yeovil. The whole of the works were designed by Mr. Arthur Blomfield, and carried out under his direction.

Uffington (Stamford).—The church here has been re-opened, after having been closed for upwards of twelve months for restoration. The edifice, except the tower and chancel, has been entirely rebuilt. The ancient pillars of the nave were thrust out to such an extent by the dilapidated timbering of the roof as to require them to be taken down and rebuilt entirely. These ancient pillars, with their cusps and bases, have been replaced. The south aisle has been rebuilt, and three of the ancient windows refixed. The south aisle is new. The new roofs are of English oak, grown upon the estate of Sir John Trollope. The fittings are also of oak; the seat ends having arm-rests carved, and the framing generally is of perforated tracery. The pulpit, the gift of Mr. Merlbyr Guest, is carved, and the base is corbelled out in Ketton stone, with different coloured marbles. The floors are of tiles, with glazed borders and centres of encaustics. The work of restoration has been carried out under the direction of Mr. E. Browning, of Stamford.

Louth.—The old Church of the Holy Trinity, Louth, a singular structure built about forty years ago, in the anyhow style of architecture, having been found inadequate for its purpose, the new church was commenced nearly a twelvemonth ago, and, so far as the interior is concerned, is now completed, and was consecrated on the 5th inst. by the bishop of the diocese. The new church consists of nave of five bays, north and south aisle, chancel, organ-chamber, and vestry, and tower 10 ft. square at the north-west angle. Ancaster stone is used for the outer walling generally, the worked stone to doors and windows, nave piers, chancel piers and arches, and all internal jambs, arches, and sills. The internal walling is in rough stucco. The church is exceedingly plain inside, the effect gained being by harmony of proportion rather than by decoration; and the only ornament is the carving to the nave and other piers, corbels, &c., which is an intermixture of the natural and conventional types, and has been satisfactorily executed by Messrs. Mawer & Ingle, of Leeds. The church will accommodate about 650. The style adopted is First Pointed. Messrs. Haden & Son, of Trowbridge, have supplied the heating apparatus; Messrs. Hart & Son the polished brass lights in the chancel; the nave and aisles being lighted by ornamental iron gas brackets, designed by the architects, in the spandrels of the arches over the capitals, and executed by Mr. Watkinson, of Louth. The pulpit is of Yorkshire, red Mansfield, and Caen stone; the reading-desk of pitch pine, with foliage, carved by Mr. Wallis, of Louth, who also did the carving to the chancel stalls. The font is of similarly varied stones as the pulpit; the carving beneath the bowl consists of the water-cress, water-lily, water-soldier, marsh-mallow, and sagittarius. Messrs. Rogers & Marsden, of Louth, are the architects; and Mr. Chas. Clark, of Louth, the builder.

Quorndon (Leicestershire).—St. Bartholomew's Church has been re-opened for public worship, after being renovated, cleaned, and restored under the superintendence of Mr. Ewen Christian, of London. The contract was taken by Mr. W. H. Hull, of Loughborough, for 1,889*l.* 19s.; Mr. W. Moss, also of Loughborough, sub-contracting for the woodwork, &c. Mr. R. Dick, of Ticknall, was clerk of the works. The stone-work of the exterior of the church has been restored where necessary, new gable-coping fixed, and floriated Latin crosses erected on the nave, chancel, and south aisle. In the interior the deformations of the past century have been, with but slight exceptions, removed; pews have given way to open seats; the old "three-decker" has been replaced by a reading-desk, lectern, and low pulpit; and the gallery, which obscured the west window, has been demolished. The east window is the only one in the church which is, as yet, filled with stained glass, and is the gift of Mr. Edward Warner, J.P., of Quorn Hall, and was designed and executed by Messrs. Wailes, of Newcastle. The centre compartment is a representation of the Crucifixion, and on either side the Resurrection and Ascension: above are the four Evangelists, and in the lower compartments Joseph and his brethren, Abraham offering Isaac, and the taking up of Elijah into heaven. The sittings, which are quite plain and open, are of red deal, stained and varnished. The gas standards and brackets were supplied by Mr. T. G. Messenger, of Loughborough. The chancel floor is laid with encaustic tiles. The roof of the nave is of oak, and in the chancel and aisles of deal, stained and varnished. The clerestory windows have been renewed, and the capitals restored. The church is heated by a stove placed at the south-west corner, from the London Heating Apparatus Company, Gray's patent. The belfry floor is elevated above the west window, and the bell-wheels have been repaired.

DISSENTING CHURCH-BUILDING NEWS.

Plymouth.—The Wesleyan new chapel, in King-street, has been opened. The original designs of the building were prepared by the late Mr. J. Coad, and have been carried out, after some alteration had been made, by Mr. J. Foster, of Plymouth. The building is in the Italian style of architecture, and exceedingly plain in its general features. The frontage is in King-street, and it lies back a few yards on a slightly elevated position. The facings of the south and west sides are of dressed limestone ashlar, the dressings of all the doors and windows being of Portland cement, manufactured by Messrs. Buchanan, of Southampton, which the architect is confident is equal in durability to Portland stone. The chapel is approached by a flight of steps, leading to a lofty portico, having a staircase leading to the east and west galleries on either side, the area of the chapel, which is divided into four aisles, being entered through four doors. The extreme length of the area is about 200 ft., and the width 85 ft. The galleries extend round the east, west, and south sides, with another in a recess at the north end, in which provision is made for the erection of an organ. There is no pulpit, but in front of the south gallery a platform has been erected, with a flight of stairs on either side. The pews are of yellow pine, stained and varnished, and capped with a mahogany beading; the backs slightly inclined. The floor of the chapel is not level, there being a fall of nearly 2 ft. from the front entrance to the platform. The building is calculated to seat 1,600 persons, 700 of the seats free, and 200 in the south gallery are for children. There are two vestries in the rear of the chapel. The gas arrangements have been carried out by Mr. Cornelius, of Plymouth. Behind the chapel there is a large space of unoccupied ground, which the trustees have secured with a view to eventually building thereon large day and Sunday schools, and vestries, at a further cost of 4,000*l.* The cost of the building, including the purchase of ground, is 8,500*l.*, of which sum about 4,000*l.* had been raised previous to the opening.

Ripon.—The New Wesleyan Chapel at Grewelthorpe has been opened for divine worship. The building is in the Early Pointed style, and is a parallelogram from east to west. The internal dimensions are 40 ft. by 37 ft., and 30 ft. from the floor to the collar-beam. It is entered by one centre door in the gable, which opens into a vestibule, from which the chapel is entered by two inner doors. Two aisles divide the seats in the body of the chapel into three blocks. A light gallery runs round the chapel, at the further end of which the organ is placed. A minister's vestry is formed below the organ-gallery: in front of this is the platform, which serves the purpose of pulpit. The roof is arched from the centre of the collar-beam. The whole of the principal timbers are open, and all the woodwork is stained and varnished. The ironwork is finished in ultramarine blue. The chapel will accommodate 250 persons with seats. The total cost will be about 500*l.* Mr. Thornton, of Ripon, was the builder. The woodwork was executed by Mr. Wm. Wood, of Masham. The staining was done by Mr. Jackson, of Grewelthorpe.

SCHOOL-BUILDING NEWS.

Doncaster.—Between 4,000*l.* and 5,000*l.* have now been subscribed for the erection of a new grammar-school building, to accommodate 200 pupils. It is proposed to erect it on cloisters. Mr. Scott is to be asked to prepare a rough plan of the requisite building, and a building committee will then be appointed. Mr. Denison, in the mean time, acts as secretary to the subscribers.

Coatham.—New schools have been erected here in connexion with the Church of England, to supplant the old one, which had been found totally inadequate for the present wants. The new schools, which were designed by Mr. Clephan, of Stockton, architect, are built of red Staffordshire bricks, relieved with blue brick over the window arches, and comprise infant school, mixed school, class-room, and master's house. These schools were opened on Easter Monday.

Openshaw. — The foundation-stone of new schools in connexion with the United Methodist Free Churches, to be called the Cobden Memorial Schools, has been laid in Tipton-street. The building is to be 60 ft. by 33 ft., and will be composed of plain brick, with stock brick facings. The schools will consist of two large rooms, each 30 ft. by 42 ft., with class-rooms, and will afford accommodation for about 600 scholars. The structure will cost about 800*l.*, the builders being Messrs. Hoyland, of Bradford.

Books Received.

Engineering Facts and Figures for 1865. Edited by ANDREW BETTS BROWN, Mechanical Engineer. London and Edinburgh. A. Fullarton & Co. 1866.

COMPILATIONS are multiplying rather too plentifully: this "annual register of progress in mechanical engineering and construction" may be useful in its way, but it is confessedly a mere compilation from various journals, the *Builder* inclusive. Moreover, although we have an editor's name appended, we are told in the preface that the editor does not edit the work, so that it does not appear who does so. The nominal editor, in a slovenly preface of a couple of paragraphs, says,—

"Professional engagements, and other circumstances, have prevented the Editor from giving that attention to the details of the work which he would have wished to have bestowed upon them; delegation, therefore, to another gentleman has been therefore [*sic*] necessary to secure that efficiency which he believes is attained in the present volume."

This is an ingenious way of evading responsibility, while allowing one's name to appear upon a title-page as a responsible editor.

Nevertheless, a compilation such as this, from journals "conducted with admirable ability," cannot but "contain a vast variety of valuable facts and papers." There is a good deal of matter as to steam-boilers, fuel, and furnaces, general machinery, and tools, metals, railways, and so on.

Miscellanea.

Paris.—The Petit Cour des Études of the École des Beaux Arts has just been newly restored and ornamented with wall paintings in the Pompeian style: this work is due to the architect, M. Duban, the eminent restorer of the Louvre and of the Château de Blois. Two large pictures, painted by M. Robert Fleury, for the Salle d'Audience of the new Tribunal de Commerce, of which we gave an elevation and plan,* have been just placed in their frames: one represents the institution of consular jurisdiction in 1563 by Michel l'Hospital; the other, Colbert giving to the French commerce the grand ordonnance of 1673.

Proposed Public Hall for Headcorn.—The local Mutual Improvement Society has issued a prospectus, inviting subscriptions towards the formation of a company to be called the Headcorn Hall Company (Limited), consisting of 500 shares of 1*l.* each. The object is the building of a house, reading-room, and lecture-hall, in the village, for social, moral, literary, and scientific purposes. It is estimated that 500*l.* will cover all expenses, including the purchasing of a site, erecting a building, and fitting up the same, and the expenses of the company. It is not contemplated to erect an ornamental building, but a plain one to contain 300 to 350 persons. The want of such a room, it is said, has long been felt at Headcorn.

The Homes of the Jewish Poor.—At a special meeting of the Jewish Board of Guardians, recently, Mr. H. H. Collins, architect, called attention to the lamentable condition of the so-called "homes" of the Jewish poor, and the miserable localities in which they were situated, and to the method in which homes, in the true acceptation of the word, had been provided for the poor man by the system inducted by Mr. Ackroyd, at Leeds, and adopted successfully by Mr. John Crossley, at Halifax. He also directed attention to the proposed consolidation of the infirmaries of the metropolitan workhouses, a movement initiated by their co-religionist, Mr. Ernest Hart, and a co-operation with which might serve to partially relieve themselves from the heavy medical expenses connected with the Board. The chairman promised due consideration of the subject in the future deliberations of the board.

A Sanatorium for Birmingham.—A public meeting of the inhabitants of Birmingham has been held in the town-hall, to consider what measures should be taken in support of the movement to establish a sanatorium. The mayor presided. Resolutions were unanimously passed to the effect that, in order to carry out the scheme on a scale commensurate with its importance, an appeal should be made to the public for additional donations and for annual subscriptions, more especially since the large sums already secured from the cotton fund, and when supplemented by the munificent offers of private individuals, render its success comparatively easy of attainment; and that an appeal be made to the public to assist in supplying so needful a supplement to the existing medical character of the town. A committee was appointed, and a hope was expressed that the foundation-stone of the institution might be laid this year. Ten subscriptions of 100*l.* each were announced, and other sums also.

Railway Matters.—The Government inspector has officially examined and passed the new connecting line of railway between Clapham Junction and Dover Railway to Ludgate-hill. By this link-line a route between the City (Ludgate-hill) and Richmond, Twickenham, Bushey Park, Kingston, Kew, Hounslow, and the western and southern suburbs of the metropolis has been completed.——There has been a serious accident on the Monmouth branch of the Great Western Railway (Newport and Hereford section), the tunnel near the town having broken in and completely stopped the traffic. Some workmen were employed in repairing the tunnel when the crown of the arch, at a distance of about 100 yards from the west entrance, broke in.——Arrangements have been made in England for the supply of 100 locomotives and tenders to the Delhi Railway, a portion to be delivered in the present year, and a portion in each succeeding year up to 1871.——In imitation of the English, several of the American railroad companies intend relaying their lines with steel rails.

* Vide *Builder*, November 4, 1865, No. 1187.

Fatal Accident with an Auger.—At Clapton, a boy who had been watching a bellhanger boring a hole through a garden door, supposing the workman to have finished, applied his left eye to the hole, when the auger entered the poor fellow's eye, perforated the brain, and caused death on the following day.

Measurement of Timber.—In consequence of the abolition of the duty on timber, it is apprehended that great difficulties will arise from the discontinuance of Customs' measurements, and the president of the Hull Chamber of Commerce has written on the subject to Mr. Gladstone, who says, in reply, that he will consult the Customs department as to whether anything can be done to obviate these difficulties. It is proposed to pay the Customs authorities 2d. per load for measuring imported timber.

New Town-hall Question, Winchester.—At a special meeting of the town council, a motion was made for the adoption of a report of the Local General Purposes Committee, including one from the city surveyor, Mr. W. Coles, in which the purchase of the museum and its site for conversion into a town-hall was recommended. An amendment, however, was put, that the report be not adopted; and, after some discussion, in course of which opponents of the measure admitted the necessity for a new town-hall, but objected to the proposal in question, the amendment was carried by a majority of 14 to 8.

Votes for Public Buildings, Parks, &c.—In Committee of Supply, on Monday, in the House of Commons, the following, amongst other sums, were voted:—78,769*l.* for royal parks and pleasure-grounds; 49,090*l.*, to complete the sum of 61,090*l.*, for the maintenance of and works at the Houses of Parliament; 48,500*l.*, to complete a sum of 63,500*l.*, for the new Foreign Office; 38,000*l.*, to complete a sum of 58,000*l.*, for the site of the new Public Offices; 20,500*l.*, to complete a sum of 23,500*l.*, for the Probate Court and Registries; 17,070*l.*, to complete a sum of 27,070*l.*, for the Public Record Office; 4,000*l.*, to complete a sum of 6,000*l.*, for Nelson's Column; 6,600*l.* to complete a sum of 11,600*l.* for the Patent Office buildings. On the vote for royal parks, &c., being asked for, Mr. Selwyn, after paying a compliment to the manner in which the late Sir William Hooker, director of Kew Gardens, had discharged his duties, said he wished to know when the temperate plant-house in those gardens would be completed; and in reply, Mr. Cowper said he had taken time to consider whether it would be expedient to erect two wings to the temperate plant-house, and this was the cause of the delay. He had now decided that it would not be right to expend 14,000*l.* in erecting those wings; and that decision having been come to, the place would be at once finished and put in order.

The Decay of Stonework at Westminster Palace.—In reply to questions in Committee of Supply in the House of Commons on Monday, Mr. Cowper said,—With respect to the alleged decay of the stonework of the building for the Houses of Parliament, he thought there was a great deal of misunderstanding and exaggeration abroad. As far as he could ascertain by a careful study of the building, the only portions of it which showed serious signs of decay were certain horizontal lines below projections, where the drip of the rain collected without any means of escape. When this was the case, the acids of the soot with which the rain was charged acted injuriously on the stonework, and produced decay, but it was not at all general, or of a character to excite any particular apprehension regarding the future. When he came into office he found that there had been a trial of two solutions, which it was proposed to employ for the purpose of arresting decay, and a commission which examined the subjects gave a preference to that of Mr. Szerelmy. That had accordingly been applied to all the interior courts, and so far as it had gone it had answered perfectly, nor was there any appearance of decay; but there were no sufficient grounds of encouragement for confidence in its efficacy. It was composed chiefly of zinc and bitumen, and he had not thought himself warranted in sanctioning its continued application. He had taken measures to have six of the most promising schemes which had been recommended to him applied to the western front near the House of Lords, under the careful inspection of an experienced chemist, and he expected that in the course of the present year, or the next, a satisfactory report of the result would be made.

Proposed Central Hall of Arts and Sciences. Boxes and stalls have now been purchased to the amount of 100,000*l.*

"Edward VI."—We are asked to say that the portrait of Edward VI. exhibited by Mr. E. Roberts, at the last meeting of the British Archæological Association, belonged to the late Mr. J. B. Nicholls, and not to Mr. John *Gough* Nicholls.

"Society for Help to Needlewomen."—We have before mentioned this society, which provides clothes for the poor made by the poor; and we would now draw attention to the circumstance that a Bazaar in aid of it will be held at Willis's Rooms, on the 19th, and two following days. The Charity is formed especially to aid all classes of society, and we earnestly hope that it will meet with support.

Gas.—The Sheppy Gas Consumers' Company have declared a dividend of 10 per cent. upon their ordinary shares.——The Isle of Thanet Gas Company have reduced the price of their gas from 4s. 6d. to 4s. per 1,000 cubic feet.——The Ledbury Gas Company have reduced theirs from 7s. to 6s.——The Continental Union Gas Company have declared an interim dividend of 8 per cent. per annum, for the half-year ending December 31st.

Presentation to a Builder.—In these days when each recurring summer brings with it painful struggles between operatives of the building trade and their employers in the shape of "strikes," it is peculiarly pleasing, as remarked by the *Dorset Express*, to record the evidence of the hearty good understanding which exists between the chief builder and his workmen in this neighbourhood. Mr. Wellspring, who employs about 250 workmen, has just been presented by them with a silver tea and coffee service, and his son with a silver inkstand, gold pen, and pencil-case. The presentation took place at a supper in the Royal Oak Inn, Dorchester.

The late Mr. C. Wye Williams.—This well-known engineer has died in Liverpool, at the good old age of eighty-seven. He did much to develop the steam-shipping trade of the country, and especially of Liverpool, both commercially and by improvements in steam-boilers. He devoted much of his time to the laboratory, and was hence little known personally even in Liverpool; but his writings on "Heat, and its Relation to Water and Steam," and on "The Combustion of Coal and the Prevention of Smoke, chemically and practically considered," are well known. He gained the prize of 500*l.* at Newcastle, for improvements in marine steam-boilers, and the Society of Arts' 25*l.* gold medal, for his essay on smoke prevention. Mr. Williams was an associate of the Institute of Naval Architects, and of the Institution of Civil Engineers.

Saint Mary Redcliff Church, Bristol.—"During the last two or three days," says a Bristol paper, "a large amount of scaffolding has been raised to the top of the tower of the above church, for the purpose of again placing a spire upon it, similar to the one which formerly adorned it, before it was struck down by lightning." We wish it were so, but funds are not yet forthcoming for what must precede this, namely, the restoration of the tower. The real cause for the erection of the scaffolding is that the large turrets at the top of the tower, at the foot of the spire, have long been in a miserable and failing state, and some of them now show such unmistakable signs of disruption, and are so eminently dangerous, that it has become necessary to take them down to prevent accidents.

The Architectural Institute of Scotland and Edinburgh Street Improvements.—A report has been made by the Sub-committee of Council of the Architectural Institute of Scotland, appointed to examine Lord Provost Chambers's proposed opening up of the closes in the Old Town. The committee approve of the general principles of the scheme, but suggest various improvements of it in detail, and an extension of the plan. Buildings of historical and architectural interest, they recommend, should be preserved, restored, or re-erected. Considering the efforts at Leith-walk and elsewhere, the committee do not think much temporary hardship would be entailed upon the poorer classes by a gradual carrying out of the improvements. There are some features of Mr. Coyne's plan which the reporters recommend for adoption. As the readiest means of bringing their views and suggestions before the Institute, they give plans in connexion with their report.

LLANTONY ABBEY RUINS. — The episcopalian monk, Father Ignatius, is said to have completed the purchase of Llantony Abbey, in Wales.

NEW INFIRMARY FOR PRESTON. — The first stone of the new infirmary was laid last week. The building is estimated to cost about 12,000*l*.

DAY CENSUS OF THE CITY OF LONDON. The ward clerks have issued papers intimating that what is termed a "day" census is about to be taken in the City of London. It is now proposed to include all persons engaged or employed by day in the city. The actual population can only be ascertained by a house-to-house visitation, or by obtaining returns such as are now asked for in the "day" census.

THE METRIC DECIMAL SYSTEM OF WEIGHTS AND MEASURES.—Sir John Bowring called the attention of the magistrates of Devon, at the quarter sessions just held at Exeter, to the desirableness of conveying to the public, through the local committees of weights and measures, the needful information upon the metric decimal system as legalised by the late Parliament. Earl Fortescue seconded the motion, and a metric standard was decided to be purchased, and the committee instructed to take the needful steps for making the system known. We hope the same steps will be taken by the magistrates of other counties.

THE PALESTINE EXPLORATION FUND.—A fifth report has been received from Captain Wilson, of the Royal Engineers, giving topographical, archæological, geological, and other notes of progress through various places, most of them of very minor interest and importance. Photographs have been taken, and a few scratchings in search of archæological remains have been here and there made; but we fear that pottering about in this way will do less for the realization of the objects of the fund than might be done by going over less ground and doing more thoroughly some work of great interest which would tend to excite the popular attention so that the fund would be gladly increased and sustained for the carrying out of further explorations.

LIVERPOOL GALLERY OF INVENTIONS AND SCIENCE. —This gallery was founded by the late Sir William Brown, Bart., and it is under the management of a committee appointed by the Architectural and Archæological Society, the Chemists' Association, the Historic Society of Lancashire and Cheshire, and the Liverpool Polytechnic Society. The object of the Gallery is to bring under public notice inventions and manufactures calculated to economize labour, utilize natural productions, promote health, and open up new fields of industry. The chief aim of the committee is to render the Gallery practically useful rather than to make it a storehouse for things either abstrusely scientific or out of date. Mr. Astrup Cariss, of Lord-street, is the honorary secretary.

WORKING MEN'S DWELLINGS, LIVERPOOL. — In the town-council last week, Mr. Picton moved a resolution to the effect "that the improvement committee be instructed to inquire and report to the council on the subject of sites for the erection of improved dwellings for the working classes," supporting his motion by various observations. He wished, he said, to take advantage of public influence, municipal capital, and the powers of the council, without falling into the errors or difficulties which frequently resulted from corporations entering into private speculations, whilst at the same time he desired to have private sympathy and benevolence where it could be judiciously employed. He had expressed himself adverse to the corporation erecting workmen's dwellings, and was still opposed to it if a better plan could be devised. To whatever committee the motion might be referred, he hoped steps would be taken to find open spaces of moderate size, to have plans prepared for dwellings on the most improved and economical system, and that the corporation having bought the land should sell it by auction or otherwise for the erection of houses according to the plans. His own opinion was, that a workmen's cottage containing a living-room, two bedrooms, and the necessary offices, should be built, taking them four stories high for an average rent of about 3s. 6d. a week, including rates and water, and that they might be made to pay 5 or 6 per cent. Mr. Chilton said he was convinced the great cause of the excessive mortality of Liverpool was overcrowding. Other gentlemen spoke on the subject, but the council, by a majority of 20 to 10, rejected the motion.

SHINCLIFFE SCHOOLS.—The parish of Shincliffe has lately been provided with two new schools,—one for boys and the other for girls, built under the superintendence of Mr. Ebdy, of Durham, architect. These schools have just been completed. The girls' school is 46 ft. by 19 ft., and adjoins the teachers' residence. The whole are built of dark red bricks, relieved with white brick strings and arches. The style of the architecture is Early French. The school roof is open throughout. The principals are constructed of wood and iron. The fittings in school and residence are stained and varnished. The whole of the windows in the school are formed of bricks, laid to form a groove around the opening, which admit of the windows being glazed without frames.

NEW COLLEGE BUILDINGS IN BOMBAY. — The chief stone of the Cowasjee Jehangheer Buildings for the Elphinstone College at Bombay, was laid on the 7th of March by his Excellency Sir Bartle Frere, in the presence of a large assemblage. In 1863, Mr. Cowasjee Jehanghier gave 10,000*l*. towards erecting a building for a college, and in the following year he added 10,000*l*. more. These sums, in addition to what had previously been subscribed, have enabled the committee appointed by the Government to commence operations; and an edifice, to cost about 55,000*l*., is now in course of erection. The college will consist of three stories—the ground floor, for lecture-rooms, &c.; the second floor, for library and sitting-rooms for the principal and professors; and the third, for dormitories for fifty resident students.

WORKING MEN'S HALLS FOR CAMBRIDGE.—With a view to the moral, social, and intellectual improvement of the working classes of Barnwell and New Town, halls are being erected in those districts, upon plans that it is believed will be attractive to those for whose benefit they are to be established. The one in Barnwell is nearly completed: it stands at the bottom of Fitzroy-street, facing the east-road. The building will contain one large room, 59 ft. by 30 ft., capable of holding 500 persons, a coffee-room, library, kitchen, bar, keeping-room, and two bed-rooms. The contractor is Mr. T. Harvey. A meeting has been held in New Town, presided over by the Incumbent of St. Paul's, for the purpose of taking steps for the erection of a Working Men's Hall in that district. A plan has been submitted for converting the Infant School-room, Union-road, into such a building, which has met with approval.

A CURIOUS WORK.—At a jeweller's in Broadway, New York, is a work of art (?) which has been called a "Dual Mortuary Memorial" to Washington and Lincoln. The structure is 10 ft. high, and is a compound of the obelisk, the tablet, the sarcophagus, the shrine, the urn, the column, and every other known device for perpetuating the memory of the dead. The material is sea-shells, in vast variety, and of every imaginable colour. At about 3 ft. from the base there is a Grecian temple supported by five pillars, which sustain a dome. On the floor of this temple rests a sarcophagus, with the American flag in shells. Above this the structure assumes the form of the obelisk, and rises to the height of 10 ft. from the ground, the whole being surmounted by the golden eagle resting on a globe. There have been used in its construction more than two millions of tropical sea-shells, from the size of a grain of wheat to those a foot long. It is the work of Mr. Mott, of Cuba.

MONUMENTS IN CHURCHES.—The testatrix, in the case of Hoare *v.* Osborne, gave a bequest in trust for keeping in repair a monument in Hungarton Church; and the question was, whether such a bequest was valid? Vice-Chancellor Kindersley said:—"As to a monument in a church there is no clear decision one way or the other, but in the absence of authority, the court is bound to hold such a gift good as a charity, on the ground that whatever comes within the meaning of the terms of the statute of Elizabeth, or analogous thereto, is a charity. It is clearly for the benefit of the parish, not only that the church itself but that its ornaments, whether mural or otherwise, should be kept in a decent condition, and that they should not be allowed to get into a state of dilapidation and decay. Therefore, the gift as to the monument is good. Take for instance the monuments in Westminster Abbey. A gift of a sum of money to keep them in perpetual repair would be a public benefit, and to the advantage of the frequenters of that building for public worship."

SOUTH KENSINGTON MUSEUM.—During Easter week, 30,000 persons visited the museum.

INTENSE HEAT FROM GAS.—M. Schlœsing has succeeded, it is said, in discovering an arrangement by which an intense heat, sufficient to melt iron, can be got from ordinary gas. The principle of his contrivance is the complete combustion of proportionate amounts of gas and air within a confined space. A copper tube, carefully pierced, is the chief instrument in securing these results. M. Schlœsing was able to melt a piece of iron, weighing 400 gms., in twenty minutes, by his plan.

STRATFORD-UPON-AVON. — On Good Friday, March 30th, a large number of persons from Birmingham and other places visited this town. Divine service was held in the different churches, and in the afternoon the ceremony of laying a foundation-stone of a new Primitive Methodist Chapel, in Great William-street, was performed by Mr. Dunn, in the midst of a large concourse of persons; after which a tea-meeting was held in the Corn Exchange, when upwards of 800 sat down. Mr. Thomas T. Allen is the architect, and Messrs. J. & G. Callaway the builders.

TENDERS

For roads at Stevenage, for the British Land Company.

Read & Bourne	£210 0 0
Coker	202 18 0
Matthews	118 0 0

For the erection of premises, 34, Throgmorton-street, for Mr. Pigou. Mr. J. S. Scott, architect:—

Sewell & Son	£3,493 0 0
King & Sons	3,462 0 0
Foster	3,160 0 0

For an hotel, ale stores, storekeeper's cottage, and stables, at Herne Bay, for Messrs. Shepherd, Neame, & Co. Mr. B. Adkins, architect:—

Goodman	£1,490 0 0
Welby	1,216 0 0
Peyman (accepted)	1,060 0 0

For works to be done at Paddington Workhouse:—

Pool	£233 0 0!
Minty	230 0 0
Beals	210 0 0
Thorp	199 0 0
Lewis	182 0 0
Garner	169 0 0
Brazier	109 0 0
Routen (accepted)	105 0 0
Sizen	50 0 0!

For erecting a malt-house at Derby, exclusive of plaster floors, cement, and all kiln tiles, for Mr. George Wheeldon. Mr. Benjamin Wilson, architect:—

Fryer	£2,839 0. 0
Dusantoy	2,798 0 0
Stoddard	2,696 0 0
Bullock (accepted)	2,798 0 0

For the erection of a building for Messrs. Pountains, wine merchants, Derby. Mr. Benjamin Wilson, architect:—

Thompson (accepted)	£5,911 0 0

For warehouse and out-offices, for Mr. Goodwin, Worcester. Mr. Andrew Coombe, architect. Quantities supplied —

Drew	£277 0 0
Wainwright	275 0 0
Beard (accepted)	245 0 0

For the erection of the Greyhound Inn, Streatham-common, for Mr. William Ward. Messrs. Mayhew & Calder, architects:—

Hyde	£2,200 0 0
Selleck	2,149 0 0
Curtis	2,145 0 0
Green	2,116 0 0
Stacey	1,972 0 0
Mason	1,944 0 0

For the erection of a villa at Thorpe-next-Norwich, for Mr. J. Gilman. Plate-glass not included. Mr. James S. Benest, architect:—

Hood	£500 0 0

For the erection of a house and shop, Chapel-field-road, Norwich. Mr. James S. Benest, architect:—

Balls	£720 0 0

For East Bilney Hall, Norfolk, for Mr. W. T. Collison. Mr. F. Codd, architect. Quantities by Messrs. Church & Rickwood. Exclusive of bricks, sand, mantels, grates, &c.:—

	If oak for ceilings and joinery of two rooms and hall.	If all deal.
Castle	£6,831 0 0	£6,517 0 0
Kirk	6,260 0 0	5,900 0 0
Jones	5,995 0 0	5,800 0 0
Balls	4,922 0 0	4,693 0 0
Girling	4,879 0 0	4,775 0 0
Lacey (accepted)	4,436 0 0	4,240 0 0

For building three houses, Grove-lane, Camberwell, for Mr. R. Samuell. Mr. Murphy, architect:—

Partridge	£986 0 0
Peskett	687 0 0
Babbs	681 13 0
Cook	630 0 0

For rebuilding the Plough and Harrow Tavern, Battersea Park, for Mr. William Pace. Mr. Charles Bowes, architect:—

Lathey, Brothers (accepted)	£1,990 0 0

The Builder.

VOL. XXIV.—No. 1211.



Aberdeen Granite.

THERE are certain subjects, such as gold and silver or precious stones, which never fail to prove interesting to all classes of writers and readers, and the reason, we think, is obvious: they possess a universal and popular as well as a professional and scientific value, and besides, their ramifications one way and another are quite interminable.

The subject of granite belongs to this class or *genus* of article, and we are led to carry further our recent notices of granite-working by going back to granite itself. It is a favourite theme, to begin, with the poets,—particularly when they are in search of adamantine metaphors. The philosophers are always working at it in some manner; although with all their speculation they have not as yet been able to demonstrate the true theory of its cosmical genesis. As to the geologists, they are sadly puzzled about the superimposition of its rocks; and the chemists, with all their analytical researches, are still unable to explain thoroughly the true methods of its physical metamorphoses.

With regard to "the profession" in which we are more immediately interested—even in our time when granite has forced itself into every department of construction as well as decoration—we question very much if there be a subject (unless, perhaps, it might be iron), on which it would be possible to find so many inexact impressions, to use a mild phrase, or, to speak more plainly, so much absolute ignorance. Whoever shall supply in these days a sound, exhaustive, and philosophical monograph upon Granite will undoubtedly do the State, as well as the scientific world, some service.

We make no pretension, however, to perform such a laborious task, supposing the requisite qualification. All we can endeavour to do is to make some contribution towards it; and even in this we shall try to avoid the shoals and quicksands with which the subject is beset, particularly when regarded from what is called an abstract point of view. For example, the attempt to obtain some reliable insight into the natural history of granite—into its origin and physical constitution—is about the most hopeless labour in which an inquirer after physical truth could engage. If we commence with Liebnitz and his school, we quickly find ourselves in a "wilderness of speculation." If, in order to grope our way out of here, we lay hold of Werner and his disciples, we are speedily submerged in an "ocean of conjecture." No sooner do we emerge from this by the aid of Hutton and Sir Charles Lyell than we get entangled in a "labyrinth of doubt." To this succeeds, under the auspices of Professors Sedgwick and Phillips, a "whirlwind of opposing doctrine." And if, having with exemplary patience, made some balance of testimony and arrived at some conclusion under this difficulty, we march under the standard of the bold Sir Henry de la Beche, or the redoubtable Sir Roderick Murchison, we shall feel ourselves finally projected into a "vortex of uncertainty"! Such is the sum and substance of what we can ascertain about the origin of granite in "the present state of our knowledge."

Nor do we find ourselves very much better off when we come to define the place of granite among the great families of rocks. Some geologists hold that granite is not only the lowest, but, in its origin, the most ancient of all the substances which constitute the (so called) crust of the globe. For, wherever the floor or foundation upon which the subsequent or newer rock formations rest has been reached, or the escarpment or core against which they happen to be piled has been traced, that foundation, escarpment, or core is invariably found to be granite or a rock of granitic origin. Other geologists, however, of a more recent school, begin to regard this theory as erroneous. For granite has been found associated with formations of various ages. Even since the beginning of the Tertiary epoch, it has been discovered, that its intrusion among the eocene strata of Central Europe has raised the Alps more than 10,000 ft. above the level of the sea; and that granitic masses are found posterior even to the lias formation. In the course of the geological survey of Canada, under Sir William Logan, a vast series of crystalline rocks have been discovered superimposed upon a limestone containing organic remains. This, as Sir Charles Lyell pointed out, destroys all our preconceived notions of the order of the "primordial" rocks. On such a question one would suppose that the Scottish geologists would throw some light. "But no class of rocks are so little studied," says Mr. Page, "as the granite."* "Granite," says Professor Nichol, "was long described as the most ancient of rocks,—the first-born of old chaos. In Scotland I know none older than the gneiss, and much of the gneiss is younger than the old red sandstone."† The celebrated Scottish geologist, Dr. Macculloch, indeed, demonstrated as far back as 1824, from examples at Cape Wrath, in Sutherlandshire, the fact that granite had been erupted through a layer of gneiss;‡ and an equally celebrated Scotsman, Sir Roderick Murchison, has told us, only about ten years ago, that this "fundamental gneiss" is the oldest rock in the British Islands.§ These facts would seem to dispose most satisfactorily of the alleged superior antiquity of granite rocks; but more remains. "There is good reason to believe," says Mr. Geikie, "that granite is not an igneous rock at all, in the ordinary sense of the word;‖ but that, instead of bursting through and upheaving the gneiss and schist, it is itself only a further stage of the metamorphism of these rocks themselves." The opinions of geologists in the present day are therefore, it should seem, more and more tending to regard granite as possibly of very late formation; requiring, however, the co-existance of intense heat and gradual cooling under the influence of immense pressure—or at least an equivalent sum of the forces of chemical action. But it must be remembered, of course, that this is merely the latest opinion, and one upon which we do not feel ourselves called upon to pronounce.

We are on much safer grounds when we come to define granite as a mineral. Granite is a massive and compact aggregation of three crystallized minerals—quartz, feldspar, and mica, occasionally accompanied by minute proportions of other minerals, such as schorl, or tourmaline, zircon, actinolite, fluorspar, and talc. Granite assumes different forms according to the proportion of those ingredients, or to their presence or absence in the composition of the rock: thus pure granite consists of a mixture of about three parts feldspar, two parts quartz, and one of mica, whatever the colour. The French authors call the pure rock of this description eurite; when mica is almost absent from the group, pigmatite; and when feldspar occurs in abnormal quantities, the granite becomes porphyritic,—a term, we may mention, without strict scientific meaning. Indeed, the physical metamorphoses of granite are exceedingly variable: when schorl takes the place of mica, as in Devonshire, the compound is denominated schorl granite; when hornblende takes the place of mica, the compound is syenite; with equal proportions of mica, it is then syenitic granite; when talc is present in large proportions, the granite is said to be talcose. Finally, when mica preponderates to such an extent as to allow the rock to assume a slaty cleavage, it is called gneiss; which, however, by some geologists, is regarded as a metamorphic, and not a crystalline, deposit.

Of all these inferior granitic compounds, undoubtedly the most important is syenite,—a compound granular rock, composed of quartz, hornblende, and feldspar. Syenite is of a greyish colour, structure granular, sometimes coarse, sometimes fine. Its presence in Britain is comparatively limited; in granite districts the mica will occasionally be replaced by hornblende, and so produce it. But perhaps the most beautiful kind we possess is quarried at Montmade, in the north of the island of Jersey. In this variety feldspar is red, and the hornblende dark; and from this combination a rich purple tint is evolved in polishing the surfaces. Unfortunately it can only be raised in moderate-sized cubes, and so it lacks the perfectly royal character of its prototype, the true Egyptian syenite. In the British Museum, specimens may be seen in those quaint figures and emblems fashioned 3,000 years ago by that singular race of people, which are still apparently as fresh as when they came from under the tool of the sculptor, and give promise of an almost unlimited endurance.

We have no room to speak of the geographical distribution of granite; but with regard to its occurrence in the north of Scotland, we may state, on the authority of Professor Nichol, that igneous rocks are scattered irregularly over the whole country. Here they occur in large mountain masses; there in innumerable tortuous, branching veins, forced in among the strata. In mineral character they are equally various. First in importance and extent is granite, the most abundant variety of which is a uniform granular mixture of grey quartz, red or grey feldspar, and mica, silvery white or deep shining black. This kind prevails over wide districts in huge mountains, such as Loch-na-Gar, Ben MacDhui, and Cairn Gorm. But the present heights and hollows of the Highlands are not to be traced, Mr. Geikie tells us, to any of the original convolutions of the old crystalline rocks. Nor can they be assigned, as they often are in a popular way, to grand primeval eruptions of granite. That rock, it is true, covers a considerable space in the Highlands, and rises up among the highest mountain groups; but there are also wide spaces of low ground abounding in granite. The long, lonely moor of Rannoch, for instance, lies, in large measure, on granite, while the range of mountains that bounds its south-eastern margin consists, not of granite, but of quartz rock.

We may here interpose a single word with regard to the climate of these granite mountains, in the very centre of which it must always be remembered her Majesty has fixed her summer residence. It is now well ascertained that the unhealthiness of a climate increases as the temperature rises above 60 degrees; and since the

* Advanced Text Book of Geol., p. 96. 1865.
† Geology and Scenery of the North of Scotland, p. 12. 1866.
‡ Geol. of the Western Isles, p. 262.
§ Quarterly Jour. of Geol. Soc., vol. xx.
‖ The Scenery of Scotland viewed in connexion with its Physical Geology, p. 97. By Archibald Geikie, F.R.S. 8vo. 1865.

summer temperature of the highlands of Aberdeenshire does not rise beyond 60 degrees, they offer the substantial advantages of the most healthy and invigorating climate *during summer* in the British Islands. Of course, the distinction between eastern and western districts similarly circumstanced with respect to hills, must be carefully kept in mind, as it makes all the difference between a wet and a dry climate. The rainfall at Ballater is only 21 in., while that of Portree is 140 inches.* The superior natural drainage of a granite soil is also an important element in the salubrity of the country.

We must now proceed to say something about the granite quarries. For about 200 years the working of granite has been known in the neighbourhood of Aberdeen for building purposes. At first the demand was very limited. But now the granite quarries constitute its most valuable mineral treasures. In the year 1741, the magistrates of Aberdeen ordained that the outside walls of houses should be built of stone, in consequence of a fire that burned down the old timber houses. This led to a vast increase of granite building. About the year 1764, the durability of Aberdeen granite being ascertained, it was recommended for paving the streets of London, and in the course of about thirty years, stones of larger dimensions were supplied. From Rubislaw the first known quarry, now the property of Messrs. John Gibb & Son, stones were furnished for the Portsmouth Dock, the Bell Rock Lighthouse, &c. About the year 1820, under the advice of Sir J. Rennie principally, large quantities of granite were supplied from various Aberdeen quarries, for Waterloo Bridge, Sheerness Docks, London Bridge, &c. The superiority of Aberdeenshire granite, owing to its durability and clean appearance, has yearly increased. The demand for carriage-ways, paving curb, building, and engineering purposes of all kinds, has given rise to numerous quarries being opened, the chief of these being Rubislaw, Dancing Cairn, Sclathie, Tyre Beggars, Kennay, Cairngall, and Stirling Hill.

The ordinary granite of Aberdeenshire is a small-grained stone, of the common ternary compound of quartz, feldspar, and mica. Sometimes it passes into greenstone of the trap family, and sometimes into basalt. It forms the great mass of the Grampian chain. All the quarries around Aberdeen are of white granite, with a bluish tint. The granite quarried near Peterhead is of a red colour, and of much larger grain than that of Aberdeen. Of these local varieties of rock, we shall mention three, the grey, the blue, and the red. The grey granite is of a close grain, and contains more mica than the red. It is brought from quarries on the Dee, a short way above Aberdeen. The blue granites are partly supplied from the quarry of Rubislaw; but principally from that of Cairngall, a clear blue and finely grained material, which is more of a syenite than a granite, and is used for the finest description of work. The red granite is of a larger grian, abounding in feldspar, usually of a fine roseate hue, and in quartz of a clear pearly white, intermingled with small specks of mica. This granite bears the strongest resemblance to the Oriental syenite; it is chiefly found, as we have said, in the vicinity of Peterhead. These varieties of granite are often met with in the immediate vicinity of one another, and a granite of one kind may sometimes be found traversed by veins of a different one. As a general rule a stone could not be matched except from the quarry whence it was cut. The texture of the various rocks likewise differ much. For example, the felspathic crystals are found in every variety of size, from those of the coarse-grained Stirling Hill stone, to rocks in which they are microscopic in size.

The first impressions the traveller receives of an Aberdeenshire granite quarry are such as are not soon forgotten. Supposing we take a seat on some ancient boulder close to its upper verge, we may look down upon an excavation extending over a vast area, irregular in its shape and most striking in its varied outline. It presents the appearance, both in depth and length, of a huge crater-like void, the result of human labour extending through many generations. On the faces of the rock, slung by ropes in the dark recesses below, and upon the floor of the quarry, are gangs of workmen busy with various kinds of mechanical contrivances, and with the aid of horses, removing the ponderous stones; their real size is diminished by their distance and by the gigantic scale of the surrounding objects. Some quarrymen are shaping blocks to their final purposes, and others are carting away all the *débris* that is valueless. Suddenly a loud call from below, a shrill whistle, or it may be the sound of a horn, claims the observer's attention, and he is warned to retire to a distance safe from the effects of a blast of gunpowder, for by this force alone are large masses cleft from the parent rock. He seeks some friendly cover; and presently, far down in the very heart of the mountain, the mine explodes, and the stillness of the atmosphere is broken by its half-stifled boom. Upon returning to his seat, the voices of the workmen once more blend with the harmonious and peal-like ring of the highly-tempered steel tools; and the cheerfulness and general activity of the scene below again strongly contrast with the solitude and wildness above and around.

The granite in the Aberdeen quarries lies in huge irregular masses, with seams in all directions, in most cases from east to west, and the dip to the north, although there are rocks with nearly horizontal seams or "joints." Almost all the quarries are composed of liver stone, that is, of rock which splits in any direction. But it is highly important to know that granite, with all its seeming closeness of texture and obduracy, has even in the finest specimens a distinct cleavage, which is easily discernible by the experienced quarryman. His knowledge is, of course, useful to him in hammering or splitting a block; also in ascertaining the dip of the rock in the quarry. There is much rock of inferior quality, we may mention, owing to "dries," bad colour, quarry shakes, or other imperfections arising perhaps from the action of electrical currents or other obscure terrestrial phenomena.

The method of quarrying granite is very simple. The masses of rock are reft from their native beds, as we have seen, by gunpowder, introduced by means of boxes, formed by steel jumpers of the necessary length, from 10 ft. to 30 ft. applied by manual labour. These holes are charged by the proper quantities of gunpowder, which is exploded by means of a fusee impervious to damp. After the misshapen lumps of rock are dragged into the floor of the quarries; the cutters shape the stone roughly by driving soft iron wedges into holes made on the side of the intended fracture, placed about 5 in. or 6 in. apart. After this a final shape is given to them by a heavy punch, about twenty or twenty-five pounds weight, before the transit to the works or elsewhere. By this process the quarry masons are technically said to leave the blocks "scappled." But we must explain what that signifies.

According to the best authorities, the local varieties of worked Aberdeenshire granite are as follows, the terms differing somewhat from the English nomenclature:—

1. *Hammer-blocks.*—Used for basement,—foundations, &c. (underfitting).

2. *Scappled blocks.*—Squared with the heavy pick, for dock and heavy engineering work.

3. *Rough-picked.*—A better finish than No. 2 (used for similar purposes).

4. *Close-picked.*—The beds and arrises made fair, and the outer surfaces made as fine as the pick will make them. Used for ashlar.

5. *Single-axed.*—A finer finish than No. 4. Used for corners (quoins), rebates, and cornices, in house-building.

6. *Fine-axing.*—The finest finish given to dressed granite, by means of the patent axe we described. Used in the best work in house-building, for cemetery memorials, and as a finish to contrast with polished work.

In the Aberdeenshire quarries stones of very large size can be produced, and columns, such as those in the Exchange of Riga, have been furnished, of 25 ft. in length, of one block. Works are readily executed, composed of blocks from 5 tons to 10 tons weight, and when required, larger sizes can be given. The largest block of granite ever quarried in Scotland was from the Cairn-gall quarry, and intended for the sarcophagus of the royal mausoleum at Frogmore. It measured 10 ft. by 8 ft. by 4 ft., and weighed over 33 tons. We may add, that with ordinary care blocks of almost any size may be obtained, free from flaws or imperfections.

Quarried stones cost from 3s. to 8s. per cubic foot; but it is worth noticing that the practice has long existed on the Aberdeenshire estates, of the tenants being allowed their building materials for the carting away.

With regard to its physical properties, we may state, first of all, that Aberdeenshire granite gives 13 to 14 cubic feet to the ton, according to the variety and density of the grain; that is equal to a specific gravity of 2·613 to 2·956. Its bearing or crushing power is enormous. A small shaft, say 5 ft. long by 4 in. in diameter, will bear a weight of many tons. Beardmore* quotes the crushing force at 8,000 lb. per inch superficial: the experiments of George Rennie made granite crush under a load equal to 10,900 lb. per inch super. Its breaking point is very high: in such work as lintels, &c., over an opening it will bear considerably more weight than any stone whatsoever; but as yet no experiments have been made to determine the limit.

All these varieties of granite are susceptible of a high and enduring polish, which they retain, unimpaired by the weather, in almost any climate. As to the absorbing power, some open grains will imbibe a considerable quantity of moisture; but in all the finer varieties it is imperceptible.

The durability of granite is a very important question, and would require more space than we can at present afford to do it justice. Aberdeenshire granites, from the nature of their mineralogical structure and their physical constitution, are undoubtedly the most durable of rocks. In weak granites such as those of Devonshire the feldspar usually preponderates, which is very liable to decomposition from the action of the atmosphere. The celebrated "Kaolin" or porcelain clay, which is found in large beds or deposits in the valleys of Cornwall and Devon, consists entirely of the quartz and mica which have been set at liberty by the decomposition of the feldspar of the granite rocks. In selecting, therefore, a granite for any of the innumerable uses to which it is applied, the presence of feldspar in irregular and inordinate quantities is to be avoided. Such decomposition is equally noticeable in Limoges and North-western Spain. It should be added that the porphyries of Egypt and Cornwall are very beautiful when polished, although their beauty depends on the very cause which leads to their decay—the presence of large crystals of feldspar. As to the durability of granite used in buildings, it can be shown in Aberdeen that it never decays in any appreciable degree. For on the oldest specimens, which must have been taken from outlyers or stones on the surface several hundred years ago (these being, of course, inferior materials), the marks of the workmen's tools are still distinctly visible. Reasoning from analogy, we should say that granite is the proper material for light-houses and sea-walls, even by the process of natural selection. Compare the bluff headlands of Cornwall and Peterhead with the chalk cliffs of Sussex and Kent, or the Norfolk marls, or even with the coast lines of red sandstone. But we should, at the same time, hesitate to say that it was always and under any circumstances the best material for foundations, particularly when exposed to the action of mineral springs and other subterranean solvents. As to its durability when applied to building and interior decoration there can be no dispute.

For all such purposes of the architect and the engineer granite is every day getting more in request. We need not refer to the Thames Embankment and the Mersey Docks, nor is it necessary to mention its uses in sea-walls and piers, in viaducts and bridges. It should seem that mounds of earth or huge walls of granite are now the last resources of the military engineer who presumes to contend with Armstrong guns and such like missile weapons. One most appropriate use of large granite blocks is that of carrying the heavy weight and sustaining the extraordinary vibrations of ponderous machinery. Upon these applications we cannot dwell at present. We shall conclude with a few words on the subject of granite pavement and granite buildings.

The granite cubes intended for paving and such work in the streets of London are all prepared in the quarries. They were used for a long time with not much work on them, so that the streets were rougher a good deal than they are at present, and required more repair. About the year 1820, the institution of Civil Engineers considered the subject, and the late Mr. Telford, the president, suggested several improvements in the preparation and laying out of the stone,—which, though costing more money, were generally adopted by the parishes and surveyors. The form most approved of at present seems to be a thin cube, about 9 inches in depth,

* See the Rev. J. T. Morris's "Treatise on Meteorology," p. 92. 1866.

* Manual of Hydrology. 8vo. London. 1862.

3 inches in thickness, and not exceeding 18 inches in length, fair-dressed throughout, and the top not kept too smooth. Owing to the closeness and toughness of grain of the Aberdeen granite it has long been used for paving, curb, pitching, &c.

But for this purpose suitable material is found in the Channel Islands, in Ireland, in Argyleshire, Dumfriesshire, and other places. These dressed granite cubes, however, so famous for their durability, still form a staple export at Aberdeen. The gross quantity shipped at that port in a year on the average amounts to 50,000 tons, and the value of the commodity varies from 22s. to 30s. per ton; and this, it must be remembered, is only one branch of the granite trade.

Cheapness at the quarry and facility of transport, accompanied with fair quality, will always determine the introduction of such unopened granite supply.

In order to study granite building we must go to Aberdeen. The houses in that northern city are built chiefly of dressed ashlar in their front walls, while the back is composed of square hammer-dressed stones, and the gables, when there are no window openings, of rough or mashed rubble. The back and gables are, generally speaking, rough cast. The dressed ashlar consists of stones, very nearly of one uniform size, varying from 18 in. by 12 in. to 24 in. by 12 in. The cost of granite masonwork, we were told, is about one-fourth more than freestone, and about one-third more than brick; but since political economy requires that houses should cost about the same in whatever quarter of the country, it is necessary to make up for this increased cost of the external walls by punishing the interior; the timber work, accordingly, of the Aberdeen houses is uncommonly slight, the scantlings are very small, and the finishings inexpensive. The plumber work is better than we expected, but the plaster work is very poor. We cannot help thinking that such a distribution of the cost might suffer some amendment. Such cyclopean masonry, perhaps, may be a necessity of the material; but that it is neither the soundest in point of construction, nor the most economical in point of cost, no one who has studied the subject can doubt for a moment; for an eye accustomed to linear perspective will detect even in Union-street faltering lines in the lintels, and irregularities in the cornices of those heavy granite buildings; and there can be no doubt that the question of expense has operated to a serious extent in retarding the erection of that humble class of domiciles of which at this moment Aberdeen stands so much in need.

MONUMENT TO SCHINKEL AT BERLIN.

A monument is about to be erected to the memory of a man who has done more than any one else to adorn and beautify the Prussian metropolis, and whose name is as well known as his talents and genius are appreciated in architectural circles in every country in Europe.

Carl Friedrich Schinkel was born March 13, 1781, at Ruppin, in the province of Pomerania, which at that time belonged to Sweden, but is now part of the Prussian monarchy. His father, who was a Lutheran clergyman, died in the prime of his life, and his mother removed to Berlin in 1794, to give her son the advantage of a better education than he could obtain in a small country town. When Schinkel, at the age of eighteen, left the gymnasium or high school of the Grey Convent, there was an exhibition of the architectural drawings of the younger Gilly, who was celebrated for the classical beauty of his designs; and these awakened in the youth such a degree of enthusiasm for architecture as to decide him at once on the choice of his profession, in which he subsequently made such a brilliant career. Under Gilly's guidance he applied himself so diligently to his professional duties that, on the death of that architect, two years later, he was employed in finishing those buildings that were not completed. But the state of war in which Prussia was at that time involved, and especially the occupation of Berlin by the French armies of the First Empire, were certainly not favourable for the erection either of public or private buildings, and Schinkel was obliged for some time to utilize his talent for painting, in order to earn his daily subsistence. Having made a journey to Italy to complete his studies, he painted some landscapes, many of which are still preserved in the National Gallery and the Collection of the School for Architecture, which established his reputation and gave him the means of living comfortably and supporting his aged mother in comparative affluence. On the conclusion of peace he returned to his favourite profession, in the exercise of which he advanced rapidly and gained official favour; for, in 1810, he was appointed member of the Government Board of Architecture; in 1811, he was elected a member of the Academy of Arts; in 1815, he became Architectural Councillor (*Geheimer Ober-Bau-Rath*); and, finally, in 1839, Head Director of Public Buildings, which post he retained till his death, on the 9th of October, 1841.

The first architectural work of importance, erected by Schinkel at Berlin, after the close of the war, was the head guardhouse, opposite the palace of the then king (Frederick William III.), which is generally admitted to be a striking specimen of the Doric style of architecture. But he had previously given ample proof of his genius and powers of invention, for it was from his designs that the triumphal arches and other festive decorations that adorned the city on the happy return of the king and the royal family were erected. These designs are reverently preserved in the School for Architecture, amongst the collection of three thousand six hundred drawings, by his own hand, in the possession of that institution.

Schinkel's reputation as a first-rate artist was now unequivocally established, and it gave him plenty of occupation, not only at Berlin, but in the provinces, and even in foreign countries, especially in Russia and Poland. When the seat of the Greek government was removed to Athens, in 1834, Schinkel received a flattering letter from King Otho, inviting him to come to Athens to select a site for the new palace, and make designs for the same. He did so; and the drawings he made on that occasion, which the writer of this article has had an opportunity to examine, are of the most splendid description, and well worthy of the genius of such an imaginative artist devotedly attached to the classical style of architecture. His idea was nothing more nor less than a full restoration of the whole of the Acropolis, including the Parthenon, or Temple of Minerva, and the beautiful Erechtheum. He proposed to pull down that barbarous great square tower erected at the western end, in the Middle Ages, and to remove the quaint though characteristic battlements on the north and south sides that denote the period of Venetian rule and power: the entrance was to be by the Propylæa, as of old, but modified for practical use, and the adaptation of a handsome carriage-road winding round between the Pnyx and the Areopagus. And in the midst of these restored classical remains of antiquity and former splendour was to be placed the palace of the young monarch who had been called to rule over these turbulent Greeks, and who had been wisely counselled by his royal parent that it was far more honourable and deserving of credit to be called the Restorer of Athens than the Founder of Othonopolis, as it was proposed by a very strong party to name a new city to be built on the Isthmus of Corinth as the metropolis of the kingdom.

But all this labour—and none but a practical architect can fully realise and appreciate the amount of labour bestowed on such a comprehensive scheme, with all its elaborate ornaments and other details—was unfortunately thrown away, and the magnificent idea shipwrecked, as many other bold designs have been before, on the rocky shoals of pecuniary expense; for it was found that the execution of the works would have cost a great deal more than the whole annual revenue of the young kingdom. Besides, the practical king of Bavaria (Ludwig I.) did not fail to point out the inconvenience that must necessarily arise from having the new palace placed at so great a distance from, and at such an elevation above, the city. And thus the plan was abandoned, and the designs of Professor Gärtner, of Munich, adopted and executed, both as regards the site and the style of architecture.

Berlin is indebted to the genius of Schinkel for most of its present ornamental public buildings, among which may here be mentioned the new Museum, the Theatre Royal, the Werder Church, the bridge leading to the palace, the Academy of Arts, and four churches in the suburbs. At Potsdam he built the St. Nicholas Church, the Casino, the bridge over the Havel, and Castle Glienecke; at Aix-la-Chapelle and Hamburg the theatre; at Oppeln and Düsseldorf the Government buildings; and at Colberg the Hôtel de Ville. The restoration of the ruined castle of Stoltzenfels on the Rhine was executed from his designs after his death by his pupil Stüler, as was also the Palace of Babelsburg (the favourite residence of the present Crown Prince) by his former pupils Persius and Strack, though with some modifications of the original conception. He likewise painted the originals of the great fresco pictures under the arcade of the Museum; and from his designs the Gothic monument was erected to the memory of the Prussians who fell in the war of liberation, on the Kreutzberg at Berlin. Besides these, he made innumerable plans and designs for buildings that were never executed, among which was a palace for the Emperor of Russia in the Crimea, a Gothic Cathedral and a Guildhall for Berlin, a country palace for the King near Potsdam, a monument to the ancient Teuton hero Hermann, who delivered Germany from the Roman yoke, and seven different designs for a monument to Frederick the Great. He also commenced and made considerable progress with a Manual of Architecture, in which he intended to embody his own professional experiences for the benefit of future generations. This work was never completed, but the 463 drawings he made to illustrate it and the manuscripts found among his papers tend to show the elaborate footing on which it was his intention to publish it.

With all this labour on his hands, Schinkel found time to pay attention to every new invention and improvement in the arts. The Berlin theatres are indebted to him for the original sketches of the beautiful decorative scenery for which they are so justly famed, having made nearly a hundred, which were all executed by Gropius. He was always applied to, to furnish decorations for court festivities and masquerades, and uniformly acquitted himself to the perfect satisfaction of his Royal employer.

The monument about to be erected is to take the form of a colossal statue of the deceased, the head being uncovered, and the body of the figure partly enveloped in the drapery of a cloak; the left hand holds a scroll, and the right one a pencil, as if about to embody a new idea that has flashed across his imagination. It will be placed on the square in front of the Academy for Architecture, which was built by himself, and in which for many years he gave lectures to the rising generation of artists. Professor Fr. Drake has just finished his model of the statue, which embodies in a striking manner the personal features and figure of the deceased, in the adaptation of which that sculptor has already given proof of his eminent talent, as evinced in the statue of the late Professor Rauch. In both these cases the problem was perhaps more easy to solve for him than any other artist, as he was for many years on terms of the greatest intimacy with both these distinguished men, and therefore enjoyed a peculiar facility of embodying their personality in a work of art, and in the case of Schinkel even of making use of a model statuette taken during his lifetime, and for which he stood to Drake in 1830. This statuette, indeed, forms the groundwork upon which the new statue has been modelled.

THE EXHIBITION OF NATIONAL PORTRAITS.

The private view of the collection on Saturday last was attended by about 1,300 persons, including many eminent individuals and lovers of art. The opinion was pretty generally expressed that, spite of obvious objections and inconvenience, the determination on the part of the managers of the Exhibition to accept the title and the painter's name given by the various owners of the pictures, was right. The principle adopted, however, ought to be well understood by visitors, or they will be led to rare beliefs. Mr. Samuel Redgrave, who has had special charge of the Exhibition, has prefixed to the catalogue a brief introduction. The catalogue itself has been compiled, with pains, by Mr. R. H. Soden Smith, the Rev. J. Beck, and Mr. R. F. Sketchley. In the introduction, reference is made to the discovery of the will supposed to be Holbein's, which, if that opinion be correct, would, as our readers know, dispossess him of the authorship of important pictures that have been ascribed to him. Mr. Redgrave says it is almost universally stated that his death took place in 1545, and that the will discovered would prove his death to have happened in 1534. There is some slip, however, here. The generally ascribed date for Holbein's death is 1554; and the will found by Mr. Black would make it

1543. We agree with Mr. Redgrave in thinking there is yet just sufficient absence of absolute proof of the identity of the testator with the painter to allow of that further examination of a question of so great interest which the present collection very opportunely offers.

"The distinguished antiquaries who have come to the conclusion that Holbein died eleven years earlier than the date hitherto accepted, have felt the difficulty as to the painters to whom must be attributed the portraits of the latter end of the reign of Henry VIII., and during the reign of Edward VI., and they name, chiefly from the household books of the former sovereign, some painters, also mentioned by Walpole, who they think might have been the painters of these works, and whose reputation has been merged in the fame of Holbein. But it would not be difficult to shew that these were mere craftsmen, employed in painting the heraldic devices of the time, whose art had nothing in common with the art of Holbein."

Up to this time the question has been left in the hands of the antiquary. No distinguished painter has expressed any opinion, yet it is one on which the artist might be able to judge. Mr. Redgrave thinks an artist's professional knowledge would enable him to trace the technical manner of painting, and the characteristics which constitute the originality of all true genius: and thus determine, with as much certainty as with regard to hand-writing, whether the earlier and the later works which have been usually attributed to Holbein, are the productions of the same mind and the same hand. Where, however, shall we find the man who can do this with certainty. It is a much more difficult matter than Mr. Redgrave thinks. There is at this time no person, Mr. Henry Farrer being gone, who has any public reputation for a knowledge of old pictures. The opportunity, nevertheless, should not be lost, but an endeavour should be made to settle this Holbein question.

The exhibition brings creditably into notice the works of some native artists,—John Riley (died 1691), John Greenhill (died 1676), Michael Wright (died about 1700), and a few others, not very widely known.

A meeting of the Committee of Advice was held on the preceding Friday, the Earl of Derby in the chair, when future arrangements were discussed. It was asked if pictures of the remaining periods were to form one or two exhibitions, and it was answered that this would be regulated by the favour shown by the public to the present attempt. Some amusing sparring took place between the Chairman and Lord Granville touching the Bill to enable trustees to lend pictures for such a purpose without responsibility, which passed the House of Lords, had been sent to the Commons, and was never heard afterwards. It has, however, since turned up.

On the opening day (her Majesty and the Prince Consort present) of the Art-Treasures Exhibition of the United Kingdom, "collected at Manchester in 1857," he who largely helped to form it had the high pleasure of conducting England's late much-valued and lamented Prime Minister over the "British Portrait Gallery."

Lord Palmerston that morning was "in merry pin," willing to communicate, willing to listen, and willing to learn. He looked and lingered, with singular delight, at the Bodleian picture of the great Lord Treasurer Burleigh, mounted in state on a mule. A noble friend, within seeing and within hearing, caught the statesman's eye, dwelling, with a twinkle of roguish humour, at the picture. A brother peer asked (with a wink) Burleigh's living representative as Lord High Treasurer what he would "take" to go as Lord Treasurer, mounted, Burleigh-like, on a mule, from Downing-street, along Piccadilly, to the Ring in Hyde Park. A loud fit of laughter (of the Premier's starting) was the appropriate reply. Lord Palmerston more than appeared to enjoy the collection of portraits with a keener relish of what he saw, and so well understood (actual art, perhaps, excepted), than any other part of the whole exhibition.

It is odd (we may observe, laughingly), before we become critical and eulogistic, that the exhibition of a Crown educational committee should commence its course of instruction, its universal "little go" and "great go" with (No. 1) Rosamond Clifford.

"Who has not heard tell of fair Rosamond?"

lent by her Majesty from Hampton Court, with No. 33 (Jane Shore), from the same Royal palace,—

"Hampton me taught to wish her first for mine;"*

* Henry Howard, Earl of Surrey.

and close its exhibition with Lucy Walters, Moll Davis of the Duke's Theatre, and Nell Gwyn of the King's, and those famous ladies, the *Goodmans* (Carwell) Duchess of Portsmouth, the Jennings Duchess of Tyrconnell. We do not complain; we only smile,—an exhibition of the kind (which all fully approve) could not be successfully complete without such chronological characteristic canvas and panel representations.

The Duchess of Portsmouth was the last survivor in the flesh of all who re-appear on canvas or panel at Kensington. She died in 1734.

Critics, connoisseurs, artists, auctioneers of art, collectors, and dealers, are properly loud in expressive admiration of a small panel portrait (12 in. by 9 in.), a Gorhambury Grimston (No. 17 in the catalogue),—unknown in life, but now memorable in death and—in art. "Edward Grimston." The catalogue (sadly confused in its dates) tells us that it is inscribed on the reverse, "Petrus Christus me fecit anno 1446." This, then, is an early ancestor of the founder of the Grimstons of Gorhambury, and of Sir Harbottle Grimston, the friend and patron of Bishop Burnet. One of the many uses of a gathering like this at Kensington, is the discovery or "find" of a work altogether unknown to men who have had many opportunities of seeing and cataloguing the galleries and cabinets of art in England. The *Holbein* of the founder of *Trinity* College, Oxford, Sir Thomas Pope, lent by the Countess of Caledon (from Tittenhanger), is more than fine, and almost a discovery and recovery at the same time.

All who remember Hampton Court thirty years since will be glad to renew their acquaintance with one of the finest Holbein portraits in the world, the portrait of Sir Henry Guildford, which the late Prince Consort had the good taste to appreciate and the hard-heartedness to carry to Windsor, where it was seldom seen.

The "Erasmus," by G. Penny, contributed by her Majesty, made us fretful, and wishful that Dr. Mead's Erasmus (a genuine Holbein) had left, on loan, Longford Castle, in Wiltshire, Earl of Radnor's, for a little Kensington air and a larger approbation.

Unhappily the Cardinal Wolsey (148), sent from Wolsey's foundation (Christ Church College, Oxford), is a repainted portrait, though the best we possess of the Cardinal Archbishop of York, in his "full-blown dignity" or "vanity" of "Human Wishes." Wolsey, in the representations that have survived (none good), is drawn holding a silver pomander-case in his hand, as a disinfective. When sitters could not produce silver pomanders, ingenious face-painters (Kit-Kat size was then unknown), introduced oranges, each stander or sitter in the family group holding an orange,—a custom immortalized in art and literature in the famous family picture of "The Vicar of Wakefield."

No. 163, "The Family of Sir Thomas More," by Holbein, a much talked-about picture, calls for fuller consideration than we can give to it after a short though careful inspection. Its presence at Kensington will awaken our antiquaries and artists, and find ample employment for the many skilled contributors to "Notes and Queries."

The fine Mabuse (58) "Three Children of Henry VII.," from Hampton Court, the editor could have told us, is not so fine as the Wilton (Lord Pembroke's) original, or as the Corsham (Lord Methuen's) repetition.

Of the elder Sir Thomas Wyat, of the reign of Henry VIII., we have interesting examples (68), from the Bodleian; and (98), the property of John Bruce, F.S.A., who is known to have given laborious and successful attention to the lives of the Wyats. Lord Romney contributes a portrait of the younger (No. 182), possessing, it is said, a good genealogy.

Among the "Portraits of Painters," by themselves (No. 186), Sir Antonio More, sent by Earl Spencer, from Althorp, is marvellously fine. It is a three-quarter.

Of Queen Mary (Queen of Philip of Spain) Mr. Stopford lends an instructive and valuable Lucas de Heere. In her right hand is a paper endorsed "The Supplication of Thomas Hungan." Who was Hungan?

As Burleigh House and Hatfield House require more than golden keys (of Lord High Treasurer and Lord High Chancellor) to get into, disappointed travellers for instruction and pleasure in England will be pleased to find that the two Cecils—of direct Lord Burleigh extraction, the Marquis of Exeter and the Marquis of Salisbury—have contributed largely from their ample resources.

The Earl of Yarborough's Walter Deverenx (263) *first* Earl of Essex, though a good picture, is not genuine.

The collection is happily rich in Queen Elizabeths. The finest of all is the Marquis of Salisbury's, well known by the engraving before Sir Henry Ellis's "Collection of Historical Letters." We shall have a few words to say hereafter on the portraits of a great Queen, whose birthday (17th November) was a holiday in London (especially among the apprentices) a century after her death.

In "similitudes" genuine and doubtful of Mary Queen of Scots, the collection is rich. The subject of Mary's portraits has been treated with so much exhaustive exactness by Mr. Albert Way, that it is no longer a subject—to let.

The Chandos Shakspeare (No. 335), lent by the National Portrait Gallery, more than suggested and pleasantly recalled a few criticisms and personal recollections for another week's *Builder*.

The catalogue, — an octavo of some 200 pages,—is as yet only in "proof," inviting revision: most of it is done with care. The measurements, taken within the frame, are especially to be praised for present and future use.

THE CONSTRUCTION OF PINERIES.

As very fine pine-apples have been produced in abundance in this country, fruit having been got from planted suckers in little more than eighteen months by a right mode of procedure, it may be well to give our professional readers and amateurs an idea of the kind of pineries which have been used by a successful cultivator, whose produce has been spoken of in the horticultural press with high commendation, and who has obtained other distinctions in consequence of rearing pine-apples of the finest quality.

To this end we shall glean a few details from a practical and well-written treatise on the subject by Mr. David Thomson, of Archerfield Gardens, in Haddingtonshire, Scotland.*

The pine-apple, we may, in the first place, briefly remark, derived its name from its striking resemblance in shape to some pine-cones. It is a native of the West Indies, and was first introduced into this country from Holland, in 1690.

The situation of the pinery should be one well sheltered from cutting winds, and having a full south aspect. There is nothing that necessitates hard firing to keep up a given temperature more than exposure to high winds, and the more conducive to healthy growth will the atmosphere be when the heat can be maintained without hard forcing. The sheltering objects, however, must not be allowed to interfere with a full exposure to sunshine at all seasons.

During by far the greater portion of the year, pines cannot possibly have more light and sun than is necessary to produce a stocky fruitful growth in the dull atmosphere which so much prevails in this country. Pineries should, therefore, be constructed so as to admit and diffuse as much light and sunshine as can be had. In the few months when at times the sun may be more scorching than is desirable, a slight shading can easily be applied. When the sash-and-rafter principle is adopted, Mr. Thomson advises that the sashes should not be less than 6 ft. wide, and divided into five openings or panes of glass.

For summer growth he gives the preference to span-roofed houses, running north and south (fig. 1). In the morning and afternoon they receive the full sun, and for a period in the middle of the day, when the sun is in his meridian, the pines are, in such houses, partially shaded from the scorching rays of the sun, while at the same time they are exposed to a great diffusion of light. Such houses are decidedly the best for summer growth; but, for six months of the year, they do not, from their position, embrace so much direct sunshine as a lean-to house facing due south. Moreover, from the greater amount of glass as a radiating surface in span-roofed houses, they require more fire-heat to keep up the temperature. In these respects the lean-to gives advantages over the span-roofed pinery in whatever position the latter is placed. For starting pines in December and the two following months, as well as for swelling off fruit during winter and early spring,

* A Practical Treatise on the Culture of the Pine-apple. By David Thomson. W. Blackwood & Sons, Edinburgh and London. 1866.

CONSTRUCTION OF PINERIES.

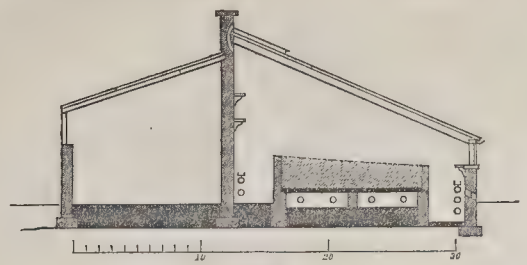


Fig. 2.

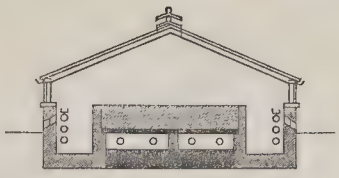


Fig. 1.

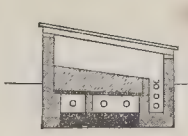


Fig. 3.

lean-to houses, as represented by fig. 2, are recommended.

The dimensions of the two pineries represented by the woodcuts are 40 ft. by 18 ft., which give a house of handsome proportions. It is more desirable to have several structures of moderate size than a less number of larger ones. A constant succession of ripe fruit is much more easily kept up by having a number of compartments.

For a sucker pit, a common lean-to pit, as represented by fig. 3, is very well adapted, as the young plants can be kept near the glass, and well exposed to light. It will be observed that the accommodation preferred and recommended is partly span-roofed and partly lean-to.

In the formation of the pine-ground, the lean-to or early houses should be on the north of the space selected, so that the back wall forms the shelter from the north which is so desirable; the span-roofed structures to stand north and south, or at right angles with the early lean-to houses, and at a sufficient distance from them not to obstruct sunshine. The early house would thus be nearest the boiler in the back shed, and would form the best shelter to the span-roofed or succession pits, which should not be very high. Such houses and arrangements are not absolutely necessary for the production of first-rate pines; but these arrangements afford great advantages and convenience.

The pine-apple being a fruit which requires a high temperature, particularly in some of its stages of growth, there should be a good command of heat both for top and bottom. It is only a false economy to stint the amount of pipes employed, but a larger heating surface moderately heated is much more conducive to the health of plants than a smaller surface kept at scorching heat. Mr. Thomson therefore recommends, as shown in the sections given, a liberal amount of pipes, and plenty of boiler power. Besides this, he feels fully persuaded, from his experience in the use of coverings applied to the glass, that, in the case of fruit swelling off during the colder months of the year, the double glazing now discussed in the gardening press would be an immense advantage.

A decided objection is made to flat-roofed pineries. They are dark, and very productive of drip in winter, both conditions undesirable in the culture of most plants, and particularly in that of the pine-apple. Ventilation should be amply provided for at the apex of the roof; and, particularly in fruiting-houses, there should also be ventilators at intervals along the front, so placed as to cause the air to pass inward in contact with the hot-water pipes. Front ventilation is not to be recommended as a rule, but it is well to provide for it in the erection of pineries, so that in very hot, calm days it can be applied, especially in the case of fruit that is colouring.

All pineries and pits should be provided with a steadily-acting steaming apparatus, which can be used or not, according as circumstances demand. An open gutter rising out of the flow-pipe at the front of the house, into which the water, on its way from the boiler, flows and passes along the whole length of the house, and descending into the return-pipe, is the best means of keeping up a steady supply of moisture. This can be used or not, at the seasons when moisture is required or not required, by simply corking up the pipes through which the water flows into the open gutter. The pipes should also be so arranged that, by means of stop-cocks, the bottom-heat can be shut off, and applied and regulated according to the amount recommended for the different stages of the growth of the pine.

In all pine-stoves there should be a tank into which to conduct the rain-water from the roof, and passing through the tank a coil of hot-water pipe to warm it. This, in cases where pines are grown extensively, saves a vast amount of trouble in warming water, or in drawing it from the heating apparatus, which latter, on account of its rustiness, is not desirable.

The house or pit intended for the reception of the sucker plants after they are shifted should be thoroughly cleansed. The glass and wood-work should be all washed, and the walls white-washed with hot lime, so that there may be admitted and diffused as much light as possible, which for a stocky and fruitful growth early in the season is one of the most important conditions in the cultivation of the pine-apple. In the case of those who are dependent on fermenting material for bottom heat, all that may be necessary in relation to that will be to mix into the surface of the bed about 6 in. or 8 in. of fresh tan, well mixing it with a foot of the surface of the old bed.

As to the best sorts of plants for culture, and the details of management, we must refer our readers to Mr. Thomson's volume, in which they will find instructions to enable them to keep up a constant succession of fine ripe pine-apples all the year round,—when they know how to do it.

PROFESSIONAL NOTES IN MEXICO.

Having recently returned from travels in Mexico, it may be interesting to your readers to have some further account of my wanderings in foreign lands, in the shape of professional and other notes.

I left England and its advanced civilization with feelings of regret, for the barbarous wilds, extensive prairies, and dense forests of this semi-civilised empire of the adventurous and gifted Maximilian. Our voyage out was of the usual monotonous cast, rough seas and wild skies, breezes and storms, storms and calms, but still the gallant steamer carried us safely through, and we arrived at St. Thomas, that singularly picturesque little island, of the virgin group, "the gem of the Tropics." After separating, with regret, from many of our fellow voyagers bound to other places, we pursued the even tenor of our way over seas without a ripple, with cloudless skies, and soon reached Cuba, along the north side of which we coasted, and entered the beautiful harbour of Havana, a strong "north" prevailing at the time.

This harbour is perfectly land-locked, very capacious, and has a narrow entrance; it is strongly protected by six forts, and it is generally considered one of the best and most commodious in the world.

The city of Havana is situated in close proximity to the harbour, and has a very picturesque and beautiful appearance from it; the buildings are principally erected of a bright cream-coloured stone, handsomely decorated, and with many-coloured verandahs, balconies, and jalousies, giving the whole a splendid aspect when lighted up by the bright rays of a tropical sun.

Having heard so much of this far-famed city of the West, I landed to explore and examine the place and judge for myself whether the glowing descriptions given of this beautiful city were overrated or not, and I was much delighted and gratified with my visit. The city is well laid out, and it possesses many magnificent buildings, of the Spanish type of architecture; but many of the streets are narrow, erected thus, doubtless, to exclude the rays of a tropical sun. The streets appeared to be well paved and flagged, with water channels down the centre; but the drainage is very defective, and the water-supply, which was very deficient, is about to be improved by the establishment of waterworks. As in most ancient Spanish-built towns, the "Plaza des Armis," occupies an important feature in the plan, serving at the same time as a central place for military reviews or evolutions of troops, and a useful place of exercise and promenade for the inhabitants.

In the "Plaza des Armis," is situated the Captain General's Palace, a building of considerable extent and magnificence, and adjoining it are ornamental gardens, embellished with statuary. The "Paseo" running through the centre of the city is also an object of great attraction, as it is beautifully laid out and ornamented with statuary and numerous fountains, and when lighted up, as it is, brilliantly at night, and adorned with graceful and elegantly dressed ladies, flitting about in their aërial-like Spanish costume, the place has a fairy-like aspect.

In the "Paseo" I observed a street tramway, worked by horses and cars, on the American principle, and which is connected with the railways laid out in the island, but which rather marred the beauty of the scene, as railways are seldom picturesque. It is, nevertheless, found very convenient, and is worked with advantage there, although such a system of transit is not thought desirable in "modern Babylon."

At night the streets are splendidly illuminated with lamps, which gives the peculiar picturesque architecture (Spanish) of the place a striking and dazzling effect.

There are many well-filled and handsomely arranged "stores," where all the productions of the civilized world may be purchased, and the most refined and *recherché* taste gratified; the streets, in the cool shade of evening, abound with well-built and elegant carriages and richly caparisoned horses,—the horses, harness, and carriages being bedizened and covered with silver; and there are many equestrians with silver ornamented dresses, and saddles and bridles richly mounted with silver. These generally drive in or parade the streets in the witching hours of evening, luxuriating in the delights and splendour of the place, and astonishing and dazzling the eyes of those unaccustomed to such displays of wealth and magnificence.

I was much interested in a strange-looking and rather elegant carriage, called a "Volante." It is made to hold two persons, and sometimes a low middle seat is fixed to accommodate a third. There are two very huge wheels, larger than a Hansom's, rough, strong, and thick, and of considerable weight. The axles of the wheel are not capped, but the naves are made of steel, polished. The body is not unlike a cabriolet's, and is supported on the axletree, and swings forward from it on springs, so that the whole weight, instead of being supported, hangs from it; the back of the carriage

is open, and a curtain is arranged to draw and to cover the open space when necessary. A metal band is placed across the footboard, to support the feet, and is polished bright so as to look like silver. The shafts extend from the back of the carriage to the front, where they touch the horse at the saddle, and are about 14 ft. long, and do not go beyond the lug depending from the saddle in which they hang. This immense length leaves a wide interval, exceeding 6 ft., between the carriage and the horse's tail, and therefore a large part of the weight rests on the horse's back, and in addition he has to carry a postilion; but with the fashionable world of Havana a second horse is sometimes used, and the postilion rides the second horse alongside the other in the shafts. The postilion, who is generally a negro of the blackest hue, wears a gay and showy costume. The usual dress is white breeches, scarlet jacket with gold lace, and broad-brimmed "Panama" hat. Many of the "volantes" ply for hire, like the cabs of London.

Amongst the buildings of interest there are the cathedral and several Catholic churches, and some well-conducted hotels, a theatre of considerable magnitude and splendour, and other places of amusement. The governor's garden, outside the walls, is also an object of great attraction. In fact, Havana may be considered the most prosperous, splendid, and luxurious city in the West; its commanding situation on the map of the world, the picturesque character of the scenery around, the capacious harbour, affording ample accommodation for shipping, are advantages which few localities possess, and which place this lovely city in the first rank of importance in the Western world.

But with all its wealth, luxuriance, and elegance, its advantages of position, and facilities for trade and commerce, it is far from being a desirable place of residence, — there lurks within its charming roseate boundaries a deadly and blighting foe, a penetrating insidious miasma, that preys fearfully, and too often fatally, on Europeans: I mean, yellow fever. None that are not thoroughly acclimatised can withstand the attacks of this dreadful enemy to man; and I sincerely believe the deadly effect of this disease arises principally from deficient sanitary arrangements: the drainage is very shallow and deficient, and there are untrapped gratings at intervals in the street, emitting offensive smells. The water-supply is bad (or was), and the back accommodation to the houses is generally of such a filthy character as to disgust most Europeans.

I believe, if perfect sanitary works were introduced, the health of Havana would improve; the deadly miasma that emanates from and floats about over the fair city like a pall, impregnating the atmosphere you breathe, would be overcome; and, with the aid of the delicious cool trade-winds, pure air would circulate abundantly through the streets and in and amongst the houses, and the blessings of health would be added to the charms of this beautiful city.

At New Orleans, where General Butler organized even an imperfect system of drainage and other sanitary regulations, the general health of the place is much improved, and cases of yellow fever are scarcely known.

We left Havana with regret, having reposed within its delightful precincts only twenty-four hours, and soon reached the Gulf Stream, keeping well to the north of the dangerous Campeachy Bank, where we met with a current so strong, that we could scarcely make head against it; and on the morning of the fourth day after leaving Havana, we were roused up by daybreak to see the celebrated Peak of Orizaba, a volcanic cone-like mountain, some 17,000 feet above the sea, with about 5,000 feet of its summit enveloped in a mantle of perpetual snow: we were then about 150 miles from Vera Cruz, and more than 250 miles from the Peak.

The mountain had a very singular appearance when viewed from the sea. Sometimes partially obscured with clouds, its snow-capped summit would appear above, looking like lands suspended in the heavens; at others, the light fleecy clouds would pass away, and the rising sun, in gorgeous splendour shining, would reflect its many-coloured beams upon this grand and imposing work of Nature, its rough and rugged sides giving alternately light and shade, and its bright snow-white cap a brilliancy and effect that no pen can describe or artist paint.

"Who can paint like Nature?"

Our steady-going steamer delivered us safe and in good condition at Vera Cruz, a city as remarkable as Havana for being the graveyard of Europeans.

Vera Cruz has no harbour, — nothing but an open roadstead; and no shipping can lie safely there during the season when the destructive "nortes" prevail, viz., from October to February or March. It is rather strange that being the principal means of ingress and egress of trade for a large territory like Mexico, no attempt has been made to form a harbour there, or even on the coast to the south of Vera Cruz (San Antonio), where there is a good natural harbour, which is much frequented by shipping when the "nortes" are expected: at the time of my visit, the French and English men-of-war were lying there.

Vera Cruz appears a small place from the harbour; its approaches are strongly defended by a fort called St. Juan de Ulloa, mounting many guns to the west, on an island, and another fortification to the north, besides a strong loop-holed wall along the beach for small arms.

There is a mole projecting out some distance from the shore, which serves as a landing-place for passengers and merchandise; but the swell is so great sometimes that boats are swamped alongside.

The custom-house, a capacious building, is immediately at the end of the mole, through the gates of which you have to pass to enter the city.

Vera Cruz is situated very low, very little above the level of the sea, and on examination is a much larger place than it appears: it is well and regularly laid out, the streets running east and west and north and south, crossing each other at right angles; they are tolerable wide, well paved, and with good side-paths. The drainage runs upon the surface, down the channels in the centre of the street.

In the centre of the city and nearly opposite the Mole, is the Plaza des Armis, a square of considerable extent, on one side of which is the Diligentia Hotel, on another the cathedral, on another the court-house, and the other is occupied with stores. This square is enclosed from the streets with a dwarf wall, around which seats are placed, and the middle is laid out ornamentally, and planted with the bright and gorgeous flowers of the country and ornamental trees. At night it is brilliantly lighted up.

The city, when I was there, was garrisoned with Egyptian troops, who wore the peculiar white costume of the East: they are fine soldiers, and much dreaded for their ferocity by the rebellious Mexicans; in the evening sometimes their military bands play the wild and thrilling airs of their native country, which are full of most sweet music, and attract all the beauty and fashion of Vera Cruz. The principal public buildings consist of a cathedral and some churches in ruins, the court-house, a handsome building of Spanish arcaded architecture with a lofty campanile at the north end, a custom-house, baths, nicely fitted up and lined with porcelain, and a railway-station in course of erection.

The cathedral, though of rough exterior, is magnificently fitted up and embellished in the interior, which I shall hereafter describe in speaking of Cordova, as nearly all the Roman Catholic cathedrals resemble each other in arrangement and finish. There are many fine houses and stores in the city, two or three stories high. As in this part of Mexico they are not much affected with earthquakes, many of them are erected in the fronts on pillars and arches, so that an arcade is formed in front, at the back of which are the stores; in other parts there are no arcades, and the stores abut close up to the sidepaths of the street.

The former style of building is very suitable and convenient, as it affords a place of shade from the sun, and of shelter during the rainy season. The houses have mostly flat roofs, which they use for various purposes, such as drying clothes. The walls of the houses are built of small rubble masonry, into which flat red bricks are introduced at intervals for bond, and they are afterwards finished off with plaster; the fronts of some of them are very much ornamented with plaster pilasters, capitals, mouldings, &c., and even colour is introduced to produce effect. Many of the houses have ornamental balconies, verandahs, and jalousies.

Vera Cruz, like the city of Havana, can boast of its street tramway: a line is laid down from the railway station, running through the principal street from north to south, and round the north end to the Mole: it is worked by horses and American cars. This tramway is found a great convenience, and is much used by the inhabitants. The city hitherto has been badly supplied with water, that necessary element of life having been brought in with mules in small casks; but at the present moment they are laying iron pipes for an improved supply, to be obtained from a river about ten miles' distance from Vera Cruz. The city is also well lighted with gas, which must be attended with considerable expense to the inhabitants, as they obtain their supply of coal from Great Britain.

Vera Cruz, also, like Havana, suffers from the terrible effects of its bad drainage, and is scarcely ever free from that destructive disease, yellow fever. After sun-down, and when the dew rises, if you go into the street, the olfactory organs are annoyed with a villainous compound of concentrated smells; so much so as to almost overpower you, and which frequently produces a disastrous effect upon strangers, rendering the place dangerous at such times to those not acclimatized. There is a capacious cemetery to the west of the city, as in most Spanish-built places, which contains many fine monuments, and appears from a cursory view to be crowded with the victims of this unhealthy place.

The "Alameda," to the south of Vera Cruz, is a very interesting promenade, extending to a distance of about half a mile: there is a level wide pathway which is formed of small rubble stone smoothly plastered over, and a dwarf wall is erected on each side as a boundary, and which is widened in a semicircular form at intervals; along this wall numerous seats are placed, and at the back the grounds are planted with the gay and brightly tinted flowers of the tropics, and ornamental trees. The fashionable world of Vera Cruz does not make such a showy and grand display of carriages as opulent and purse-proud Havana; but it is equally distinguished for equestrians, the Mexicans being bold and skilful riders, and proud of their showy dress and horsemanship. The temperature of Vera Cruz is generally very high in ordinary seasons; the thermometer ranges from 80° to 90°, and frequently reaches as high as 105° in the shade: this high rate of temperature renders the air of the city very oppressive at times, and this is much aggravated by the high sand-banks which are thrown up by the "Nortes" to the north of the city, totally excluding the cool and refreshing sea breezes.

As Mexico is just now emerging from half a century of anarchy and misgovernment, and opening upon a new era under a singularly gifted, enlightened, and benevolent Emperor, it is to be hoped that the public health will form one of the primary objects of Imperial legislation, more particularly as emigration is required to consolidate and strengthen the foundations of the new empire, and to open up the vast resources of the country, which have never yet been developed: the unhealthy character of Vera Cruz and other places in the "Tierra Caliente" is so proverbial that few emigrants will venture their lives on the hazard of such a die.

If the regeneration of Mexico be seriously contemplated, it is only to be effected by the infusion of new blood, and a more active and vigorous race of people. The climate in many places is so very enervating, that the descendants of the ancient conquerors of the country are become seriously degenerated, indolent, and demoralized, and totally unequal to the emergency of Mexico resuscitating, Phœnix-like, from her ashes, through their instrumentality. Many French, Germans, and Americans have expressed an intention of becoming permanent settlers there, provided the Government is strong enough to protect their property and persons, to properly administer the laws, and to govern the country. In drawing attention to the professional works in Mexico, one of the first and most important subjects for the future of that country is, I think, the Imperial Mexican Railway, a line which has been in course of construction for some years from Vera Cruz to Cameron, by capitalists in Mexico, under the professional advice of American engineers, but which languished for the want of funds to prosecute the works, until the invasion of Mexico by the French rendered its extension necessary in a military point of view, and they undertook to carry it out from Cameron to Paso del Macho, a distance of ten miles, and apply the revenue received from the customs at Vera Cruz to pay the expenses; but finding that inadequate to prosecute successfully and with vigour so large a work, a company of capitalists was formed in England, under imperial auspices, to carry out the line from Paso del Macho to the city of Mexico, with a branch line to Puebla.

This railway (a single line) was originally designed and laid out from Vera Cruz to Orizaba, a distance of about ninety miles, with a capital of one million sterling; it was afterwards surveyed and extended to the city of Mexico, with a branch line to Puebla, with the intention of ultimately extending it to the Pacific Ocean, so as to unite the two seas together. It is 300 miles long, with a branch of thirty miles to Puebla. The capital of the proposed line is now extended to 5,400,000*l.*, or nearly 16,000*l.* per mile, with a concession in perpetuity and a subvention of six million dollars from the Imperial Mexican Government, the exclusive right of constructing any branch line within sixty miles of the main line, importation of all materials used in the construction, rolling stock, &c., duty free, and other advantages, which place the line in a favourable position in a commercial point of view.

The contract for the work was taken by Messrs. Smith, Knight, & Co. (Limited), but I see has recently been transferred to Mr. Crawley, for the sum of 5,239,120*l.*, to complete the works, purchase the land, and provide stations, rolling stock, &c., and remodel those works already imperfectly done; and the engineers are to have 180,000*l.* for laying out and superintending the works of the line, which amounts to a little in excess of the capital; but there is no provision for extra charges and prices which are sure to arise in the execution of such an extensive work.

The line of railway already opened commences at Vera Cruz, and terminates at Paso del Macho, passing Solidad, Cameron, and some Indian villages a distance of fifty-three miles.

This part of the line has been laid out on the American system of engineering, and the whole works have turned out a miserable failure,—short chopped up gradients, following nearly the undulations of the grounds, sharp curves, light works, bad drainage, no ballast, bad permanent way; in fact, all the objectionable principles of American engineering are fully exemplified on this short line; and the railway was so rough in travelling over that you had great difficulty in keeping your seat,—in fact, it is almost as rough as the tossing about of a boat in a rough seaway. I will shortly describe the mode of executing the works. The earthwork is generally done by running a greater part of the cuttings to spoil, and going into side cuttings to make the embankments; and this is done to lessen the lead, or the "haul," as the Americans term it, and therefore the expense; and may answer very well where land is of little value, as it is there, although very productive. But in England the cost of land required for such a system would be ruinous, as more than double the quantity is required for the line, slopes, &c.; and, if the cost of land on the average in England for the railways has been about 5,000*l.* per mile, it would be upwards of 10,000*l.* per mile if such a system were adopted, or more than the total cost per mile of many single lines of railway as executed now, since more care is used, and a spirit of economy is infused into the management of them.

The cuttings and embankments are laid out too narrow, being only 16 ft. wide for the upper works, and nothing extra taken for drains, &c. The permanent way is generally laid on transverse sleepers, with the rails spiked down to them. There are no chairs to receive the rails, or other arrangement to prevent the rails from being forced by the weight and concussion of the traffic into the sleeper; and there are no fish-plates to hold the joints of the rails together, and this may account for the American system of railways so frequently getting out of order, and the many serious accidents that occur.

On the part of the line that is opened from Vera Cruz to Paso del Macho, no ballast is laid on to receive the permanent way. The sleepers are merely placed on the ordinary earth, whatever might be its geological character. No gravel, broken stone, burnt clay, or other material is used to form a dry solid bed for the upper works; and the surface formation being frequently soft, plastic, yielding clay, the sleepers sink into the soft subsoil, and the effect in travelling is a rolling tumbling motion, most unpleasant to experience, reminding one, as I have said, of a boat in a short chopping sea.

B. B., C.E.

Leeds Town Hall.—We are told that the Leeds Town Council have commissioned Mr. W. D. Keyworth, jun., of London, sculptor, to execute, in Portland stone, four colossal lions, to adorn the front of their town-hall.

THE "NORTHUMBERLAND" LAUNCHED AT LAST.

After a month of peril and expense this noble vessel is at last safely afloat. The launch was hailed with an enthusiasm which was the more lively from the circumstance that the event, which so many thousands witnessed, had in it, after all, something of the nature of a surprise. So great was the difficulty to be overcome, so late were the preparations before they were completed, and so far from favourable were wind and tide, that the general impression was that the disappointment of Monday would be repeated on Tuesday, and that the fine, clear outline of the iron hull would remain high above the surface of the Thames.

The officers in charge of the launch have succeeded in their hazardous task by acting on the rule which we pointed out of having adequate, and more than adequate power at command. This they have happily effected, not by lightening the vessel, as we at first suggested, and as the *Examiner* more lately urged, but by the employment of camels, or large pontoons, built expressly to fit the keel of the *Northumberland*, and giving a lifting power of some 1,600 tons in addition to the buoyancy of the vessel herself. The difficulty of applying such additional flotage was shown almost at the last hour, by the failure to fix one of the largest camels, which caused the postponement of the attempt on Monday; but once securely fixed, the amount of buoyancy would, of course, be matter of exact calculation, and the work to be done by the hydraulic rams in pushing forward the cradle was thus brought within the limits of practicability. Slowly the mighty mass yielded to the effort; but, even when once afloat, fears were for a time entertained lest the steam-tug power employed was sufficient to prevent the great iron-clad from drifting ashore.

One engineering lesson of great importance may be deduced from the launch, or rather from its long delay. We can now put our finger with certitude on the cause of the accident. It might have been predicted with great probability by any mechanic whose attention had been called to the fact that the ways were laid at two inclines, so that there was an angle about half way, at which angle, very naturally, the great superincumbent weight caused the cradle to nip the ways, and the launch to be suspended. It is true that this angle was not an actual ascent, but a change from a flatter to a steeper gradient, from one in twenty-four, or about half the usual pitch, to one in thirteen. But it must be borne in mind that in passing over this angle, the keel would cease to be uniformly borne by the ways, the difference in the pitch being such that, taking the ship as half way over the point in question, if the bows still rested on the ways, the stern would have left them by not less than 20 ft. However the cradle might adjust itself to such a difficulty, the formidable obstacle thus caused to the launch is obvious, and the additional pitch of the outer half of the ways has been the real cause of the hitch in the launch of the *Northumberland*, unduly and unnecessarily as that risk was augmented by plating the vessel before launching to her full and enormous weight.

THE ELM.

If we were asked to name the most popular and well-known of British trees, the answer would certainly be the elm (*Ulmus campestris*); for this there are many reasons, and the principal one perhaps is its being so constantly planted near towns and villages as to be known (by sight, if not by name) to all. In parks, gardens, and road-sides, it is planted all over the country, and is at once known by its lofty, upright, and graceful growth, though often attaining an immense size, it seldom possesses the rugged and grotesque beauty of the oak or the yew; all its branches generally tend upwards, dividing and sub-dividing as they reach the summit, where the smaller branchlets form a dense mass: the tree does not lose this character even in winter, when the branches are quite leafless. It is in this intricate mass of the smaller upper branches that some birds so especially love to nest, and every one familiar with certain elms will remember how the nests gradually became apparent at the fall of the year, after the first autumn storms had swept away the leaves. The bark is rugged and irregularly incised, closely resembling the oak; the leaves are small in comparison with the size of the tree, one specimen having been estimated to produce seven millions of leaves, sufficient to cover a space of five acres: from their one-sided growth (like the well-known *Begonia*) they are puzzling alike to the naturalist and the art-student. The leaf-buds of the elm in early spring are particularly small and of a very delicate green. The beauty of the tree in April, before the leaves are fully out, is incomparable, particularly when seen in masses, such as occur in avenues in parks and in situations where they are planted in dense clumps. The flowers grow from the old wood, and are fully out before the leaves appear, forming crimson pendulous clusters of great beauty, but not being very conspicuous, are generally unheeded; the fruit is flat and leaf-like, bearing a single seed in the centre: this is not so commonly seen as is the flower. Many forms and varieties of this tree, more or less common in this country, have been described as distinct species, and there is considerable confusion as to whether certain supposed characters are really distinct and permanent or not: it is one instance among many where man tries in vain to draw a boundary line between a species and its neighbours. Some systematic botanists are, however, content to recognise all the forms as naturalised in this country under two heads, viz., the one under consideration, common in central and southern England; and the form known as the wych elm (*U. montana*), a smaller tree with larger leaves, common in hilly districts in Scotland and northern England; some competent authorities even cut the gordian knot by grouping them all under one head by the name of common elm, of which the wych elm is to be considered a variety (this does not include the American and the so-called Spanish elm of Jamaica).

The common elm, the plant of our parks and roadsides, is a native of the western districts of Asia, and of eastern, central, and southern Europe. It has been supposed, with good reason, on these grounds and from the fact of its seldom producing fruit in Britain, not to be a native of this country, its presence being due to introduction in distant times; it is, therefore, not found in a native state here in woods and forests, but is generally confined to the neighbourhood of man's abode, where it has been planted.

It is not particular as to soil, and is of rapid and vigorous growth, producing in a short time timber of great value for building purposes. During the process of seasoning, it, however, loses much of its bulk and weight, when it becomes little affected by wet; and for this reason it has been invariably selected for damp situations. Its generally very straight stem rendered it fitting for the old water-pipes, for which it was much used. Keels and the submerged parts of vessels were at one time invariably made of it. It is generally selected for use in the piles for bridges and similar structures, for coffins, and for numberless other purposes, where endurance in a wet situation is required, and where the wood of other trees, if as good for the purpose as elm, is not as readily and cheaply procured. The variety or species known as wych elm is believed to be truly indigenous to this country, where it constantly matures its seed; its general character is different to the common elm; the central upright stem being lost in this species, and the branches are inclined to droop, the leaves are much larger, and the timber it produces is sound and tough, but said to be inferior to the common form. The gnarled and knotted excrescences are much used by cabinetmakers for fancy work.

The elm is somewhat deficient in direct historical associations and classical allusions: although many references are made to the tree by poets and historians, ancient and modern, the statement that the tree was introduced to this country by the crusaders appears to be wholly without foundation; other unimportant associations of the tree we will pass over.

The peculiarities of its branching and leafage are readily caught by the artist, and for this reason it may be said to occur in nearly all landscape compositions, from the finished picture of the mature artist, to the meaningless scratch of the illustrator of "Mokeana," in a halfpenny magazine. The elm-tree is pressed into service by artists of every grade, and when pictures of *fêtes* and sporting views are given in the illustrated papers, the trees figured are invariably elms; the mannerism of one artist is so repeatedly copied by another, and his by a third, that the

poor elm-tree, as pictorially represented, often becomes quite a conventional object.

Where the elm-tree grows *there* may be found its numerous parasites: flies, beetles, moths, butterflies, caterpillars, and fleas abound in every part of it: some do a great deal of damage, and others very little; some are quite peculiar to the tree, whilst others are more cosmopolitan in their instincts. These creatures all suggest themselves as fitting companions for the elm, with its one-sided leaves and crimson flowers, when it is desired to introduce it as a decorative object.

When the autumn winds rush through its trembling branches, and its bright yellow leaves are driven hither and thither by the wind, a large and singular parasite often takes up its abode towards the top of the tree, generally in some hollow place, or on a wound where a branch has been snapped off—this is *Agaricus ulmarius*, so called from its attachment to the elm-tree only; it usually takes the form of a large massive group of white mushrooms, that are well known to be esculent, but generally out of the reach of man. They are of rapid growth, disappearing with the frosts of winter, and reappearing in the following early autumn. This parasite is said to be uncommon in some districts, but is generally abundant enough in St. James's Park; last and many previous autumns nearly every elm within a quarter of a mile of the Horse Guards bore one or two fine large groups of these large edible excrescences.

One of the most singular of all vegetable growths, the "Jew's-ear" (*Hirneola auricula-Judæ*), although not altogether peculiar to, appears frequently on the trunk of, the elm-tree. It is not confined to the living tree, but will at times appear on elm stakes and gate-posts. In its early state it does not always take the precise form of an ear; but when well grown it presents an exact counterpart of a human ear, the folding and undulation and the delicate veining are exact duplicates of the ear of man. The substance is dusky, downy, soft, and flesh-like, and is in every way a precise and startling transcript of the human original. The "Jew's-ear" has been well known from very ancient times, and was at one time, and is in some places now, supposed to possess magical curative powers. It is still an article of commerce, and sold in some markets, both at home and abroad.

Perhaps more common than the above, and appearing in the autumn on the trunks and fallen branches of this and other trees, is *Tremella mesenterica*, so called from its close resemblance to the human mesentery. In olden times these objects sadly puzzled our forefathers, who considered them as belonging neither to the animal nor the vegetable kingdoms, and looked upon them with awe and suspicion, as possessed of occult power, and as productions of witchcraft and magic. W. G. S.

FEVER IN LONDON: ITS LESSONS.*

THE deaths from this cause in London from 1851 to 1860 were 21,870, and in the four following years, 11,990. These represent about 290,000 cases of fever in the fourteen years, chiefly among the poorest. Of course, they represent poverty filth, misery, and a great cost to the paying classes,—a cost not easy to be calculated. You must know, also, that these cases have been increasing. The annual average from 1851 to 1860 was 2,187; from 1861 to 1864, 2,992. This, at the lowest calculation, is an average annual increase of 6,500 cases of fever in the latter period over the former in London alone.

If any disease may be said to be *the test* of the sanitary neglect of a locality, fever in its various forms is essentially that disease. As surely as we find fever year after year breaking out or continuing about the same spot, so sure is work to be done there, and there is a very reasonable ground for believing that, with prompt, good, and appropriate work, the disease may be banished, or very nearly so. One of my earliest sanitary lessons as a parish surgeon was this:—I had one house that specially teazed me: this was before the vestry days. Every fresh occupant was nearly sure to have fever. This went on year after year, and cost the parish very much money, and the poor many a life; it also created a few paupers. Now and then the house was partially cleansed and fumigated, especially after a new case had been taken to the hospital. People said, "See, now, cleansing and white-washing will not prevent it; it comes from the habits of the poor." One said drunkenness, another dirt, another Providence; but, as a partial and superficial cleansing will not banish fever, I was at length tired of it, and recommended emptying the house and thoroughly cleansing it from top to bottom, with due attention to drains, water-butt, &c., and keeping the house empty for three or four weeks. It was done; and the house was from that time for years after, as effectually cleared of fever as if none had ever been there. I mention this because it is a typical case. Dr. Jeaffreson is very clear upon this in his advice to the sanitary authorities. Speaking of cases from my own parish, he said, "The facts most prominent in relation to these cases were that they came continuously month by month from the same buildings, or building, even. This was explained by the fact that eight or ten cases had been sent to the Fever Hospital, and the premises still remained overcrowded and filthy. The sick were removed, and the healthy were at once admitted to the infected rooms, to catch the disease in their turn." He says, "If infected rooms were scrubbed and limewashed from top to bottom, and kept empty afterwards for not less than ten days, there is no doubt they would become safe habitations, provided decent sanitary regulations were afterwards enforced." This is my experience. In my earlier time, before the Lodging-house Acts were in force, one of the hotbeds of the disease was the common lodging-house. In my later time, after the Acts got into operation, it became more and more rare to find infectious disease, especially fever, in them; and, when brought in, the by-law of prompt removal, cleansing, and keeping empty, effectually prevented the spread of the disease. Fever, in the opinion of a great French authority, is an artificial disease, and may be produced or destroyed at will; and in the opinion of those who are best acquainted with the subject, he is not far out. The prison records of Howard's time show how it may be produced, and Howard's work shows how it may be destroyed; and the Lodging-house Acts which are really carried out tell the same tale in a less marked manner. Mr. Simon's words are as remarkable as they are true. "Fever is essentially a disease of filth. True, a few deaths cannot be accepted as a conclusive proof of sanitary neglect in the district where they occurred; for unavoidable contagion may have been imported. Even the fatal cases themselves may have come from a fever-nest in some adjoining jurisdiction. But I do not hesitate to say that the registration of any fever deaths in a district not suffering from famine is a thing which, for the credit of the local sanitary authority, ought to be susceptible of some such application." And here let me note well the words, "imported from some adjoining jurisdiction." You will at once see how little it avails for one parish, or district, or street to be clean and wholesome, if gross neglect and consequent infectious and putrid disease are common in another district, parish, or street not far off. And this points as strongly as any argument can, if not for some central great power, at least to some sufficiently authoritative court of appeal. Dr. Greenhow notes in some places an annual average death-rate from fever of 21 in 100,000, and in other places running up to 204, 207, and 209. Such facts require special and authoritative investigation, and the Blue Books of the health department of the Privy Council give instances of such special investigations. The power to deal with them is yet to come. It is of importance to note the age at which people are stricken down by this disease. The majority are of those who have had time to become useful, at a time sufficiently advanced to repay some of the trouble and cost of their earlier time. In this economical sense it is peculiarly unfortunate if we let fever go on. Of 2,497 cases admitted into the Fever Hospital in 1864, 510 were under fifteen, 1,720 from fifteen to fifty, 267 over fifty. See also how it concerns the parishes. The "poor ratepayer" has become a sort of proverb, ever in the mouth for obstructive purposes when any good was to be done, if that good was to cost money. The ratepayer is likely to be poor when he is surrounded by typhus and its miserable concomitants and associations on the one hand, and on the other hand governed by persons who see so little before them that they fail to see how much they might save and how many they might save by damming up or stamping out such diseases. In a given number of patients admitted at the Fever Hospital, 215 were domestic servants or policemen for whom fees were paid; 71 were admitted free, but 3,324 were admitted by parish orders. This shows well enough where the seed is, where the nesting is; and it shows well enough that it is essentially a Poor-law question; and now, while the Poor-law is before us, in connexion with fever, let me tell you how it does, or, rather, how it does not, provide. Impressed with the prevalence of fever in my parish, as a guardian, November, 1863, I moved the following resolution: "That the clerk write to the district medical officers, and request that they will be pleased to send weekly to the Board, in writing, the name and address in the case of every parish patient visited at his or her own house, where, in the opinion of the medical officer, the bad state of the premises stands either as the cause of disease or as retarding recovery." This was carried unanimously enough; but as the Poor-law does not provide clearly for this innovation, it soon ceased to be acted upon. I further urged that, in the weekly return of the medical officers, under the Poor-law, it would be sufficient to underline every address of a house with conditions like those comprised in my resolution, so that the attention of the health officer might be authoritatively and promptly drawn to the spot. It was further moved in the sanitary committee of the same parish, "That each case reported in the death-register as typhus shall be specially reported upon at each meeting of committee, such report to comprise the condition of the premises, rooms, number of inhabitants to each room, probable causes of fever when ascertainable, and measures taken or suggestions made for preventing the extension of the disease, and such other particulars as the medical officer may think necessary."

This resolution the committee refused to adopt, and since that time there have been more than 2,000 cases in the parish.*

* * * * * *

Until we have compulsory power for sound, effectual, and prompt work in the homes of the poorest, compulsory power to purchase sites covered with houses, poisoning and making poor their neighbourhoods, and in themselves unfit for human habitation, so long will our poorest be producers and propagators of disease, uneducated, irreligious, immoral, and I may say brutal. So long will they not only themselves rely on poor-rates, but they will bequeath to us their children after them.

In conclusion, let me in a few words note some of the requirements which come out of the consideration of my subject.

I deplore the frequency with which the public ear and the vestry ear are filled with accounts of difficulties, — of impossibilities, as they are called. Our first duty is, where there is so much to be done, to attend to the multitude of matters which are possible, and, while doing so, we shall learn to diminish the list of the "impossible."

We must have better and healthier homes for the poorest classes,—not the palaces designed by philanthropists, with appliances which do not often come within the means of the lower middle class, but cheap, wholesome, and suitable places. It is manifest that the very high prices paid by these people for their miserable homes is enough to pay profitably for better places. The authorities of the poorer localities would display great economic wisdom in getting and using public money at 3½ per cent. for this purpose; and in the construction of such houses the local authority should possess far greater power to insist upon all reasonable health conditions.

All houses let to weekly tenants should be registered, and brought, by means of by-laws sanctioned by a central authority and administered by the local, into some kind of resemblance to the management of the common lodging-houses. This may be done with due regard to the rights of a man in his home.

Places are required into which poor tenants unaffected with infectious disease can be removed when they can find no other during the cleansing of an infected house.

Local hospitals with plenty of ventilation and air-space for the reception of those infected by disease.

Better nursing for the sick poor, and a better mode of supplying the prepared necessaries in sustenance during illness.

* From a paper by Mr. W. Rendle, surgeon, read at a meeting of "The Metropolitan Sanitary Association."

* Our own exposure of the abominable condition of parts of this parish,—St. George's, Southwark,—will be remembered by our readers.—ED.

Information without any delay to the sanitary officers of cases of infectious disease, and of premises and conditions likely to give rise to the same found in the visits of medical officers and inspectors under the Poor Law.

Alterations of the Poor Law, so far as all these matters concern, as they generally do, persons in receipt of parish relief.

Power for prompt action to remove infected persons from filthy and infected houses, or in cases where there is danger of infection to others.

The change of some of our laws which are permissive into laws obligatory; the permission to act being most usually construed into permission not to act.

When it is important to do sanitary work, and it is the duty of the local authority to do it; in case of dangerous delay or neglect, that a central power might on appeal come in and do it, and charge it to the local authority.

THE TRADES MOVEMENT.

London.—The Master Builders' Association, comprising nearly the whole of the leading firms, held a meeting on Wednesday in last week, at which the notice of the masons and joiners that they would require 8d. an hour, instead of 7½d., by the 1st of May, 1866, was taken into consideration, and a sub-committee of six members appointed to effect some arrangement of the question. On Friday evening last, Mr. George Myers, of Lambeth, who is a member of the sub-committee, sent for deputations from the masons and joiners in his employ, and asked them whether, provided the extra 0½d. per hour were granted, the men would agree to work one hour less during the winter months on all out-door jobs and unprotected buildings, the time for working in the shop to remain at ten hours all the year round. If the men agreed to this, he was prepared to recommend that course to be taken by the masters generally at the meeting to be held on Monday. Shop meetings of the masons and joiners were therefore held on Saturday, when the proposal of Mr. Myers was submitted for consideration, and accepted by a large majority of the men. The result was at once communicated to Mr. Myers, with the understanding that a general meeting of the delegates of the carpenters and joiners would be held on Wednesday, to receive the reply of the employers. Favourable replies having been received from Messrs. Cubitt, Smith & Taylor, and Myers, the meeting referred to, after a long and protracted discussion, passed the following resolution, out of several proposed, by an overwhelming majority:—"That we accept the proposal of the master builders of 8d. per hour, with the condition that the time of nine hours per day be worked both in shops and on out-door jobs, from the 9th of November to the 14th of February." This resolution was then ordered to be conveyed by the delegates to the employers. An adjourned meeting will be held to hear the result, which, it is anticipated will be favourable.

Gloucester.—The masters of the carpenters who are on strike here have held two meetings, but they will not concede the hour asked for by the men. It is said with some firms the working time is less than that now demanded; and the men on strike say if they yield, an injustice will be done to their fellows.

Exeter.—The journeymen carpenters at Exeter, and two or three other places in the West of England besides Gloucester, are out on strike, in consequence of the masters having refused to accede to the demand for an advance in the weekly wages, of 3s. The average pay at present is 21s. The Amalgamated Society of Operative Carpenters and Joiners have agreed to allow every man on strike 12s. per week.

Newport.—The journeymen carpenters of Newport have struck for 6d. per day advance of wages, which the masters have in some cases conceded.

Leek. The joiners in this town are now out on strike for an advance of wages and a reduction of the hours of labour, the notice of four months which they had given their employers having expired.

Manchester.—The stonemasons have for the last twelve months been agitating for various little "reforms" in connexion with their own trade. These include an advance of 1s. per week on the wages, which are 32s. in summer and 29s. in winter,—the Liverpool stonemasons having already obtained a similar increase; a reduction of one hour in the working time on Saturdays—so that the men shall leave the yards at twelve instead of one o'clock; an allowance for walking time beyond certain defined limits in going to work; and an increase of 3d. per day when working on hard stone, as a compensation for the extra wear and tear of tools. The men gave notice to the masters six months ago of their intention to turn out unless their wishes were complied with. An intimation was lately received that the masters would only grant the extra shilling asked for, but this offer was rejected. Finally, the masters also gave up the hour on Saturdays, but would yield no further concessions. About 500 stonemasons assembled last week to consider this proposal; and, after considerable discussion, it was agreed to accept the offer of the masters, and to let the other matters remain in abeyance, as well as another disputed point relative to arbitration, which the men are averse to, preferring to settle all questions of difference with the masters themselves.

Jarrow.—On Tuesday, in last week, a meeting of workmen was held, to consider the question of the nine hours movement, and to hear the result of sectional meetings held among the men of Messrs. Palmer & Co.'s ship-building works. An *employé* of Messrs. Palmer presided, and said he was glad to state the unanimous opinion of the sectional meetings was against a strike. A report was read about the movement on the Clyde and other large ship-building yards in Scotland, which stated that the masters had reduced the labour two hours per week, making the time 57 hours. A resolution to the effect that a deputation should wait upon Mr. Palmer, to inquire if he would accede to the 57 hours, and pay their wages weekly, instead of fortnightly, was carried.

Newcastle and Gateshead.—The operative stonemasons are on strike for a reduction of their hours of labour from ten to nine hours per day during five days in the week, and a half-holiday on Saturdays, or 50½ hours per week. The men have been working ten hours per day during five days in the week, and have enjoyed a Saturday half-holiday since June last. The masters offer to pay the men 6½d. per hour, which will yield them 1*l.* 8s. 4d. per week in summer, and 1*l.* 6s. in winter, provided they work whole time. They, however, refuse to accept it. The nine hours agitation in the iron ship-building yards is about at an end on the Tees and at Hartlepool, as the masters have been able to fill the yards with non-union men. The ship-joiners usually employed in the iron ship-building yards of the Tyne remain out on strike for reduction of their time to nine hours; but the masters are determined not to concede it, and they are getting their joiners' work done at other parts.

Edinburgh.—The labourers' strike continues, and most of those in union have got employment elsewhere. The Masters' Association have offered 4d. an hour on certain conditions, but the offer has not been accepted.

Galashiels.—The journeymen masons have resolved to demand a rise of wages to 6½d. per hour. A deputation from the meeting waited on the master builders, who readily granted the request.

Falkirk.—The employers have agreed to give the operative slaters 5d. per hour, which the men, in the mean time, have accepted.

Coatbridge.—The miners here have been on strike, but the masters have given in to their demand for an advance of 6d. per day of eight hours, and in consequence the price of coal has been raised 1s. 5d., and in some instances 1s. 10d., per ton. The Ayrshire miners are also agitating for a rise of wages and threatening strikes, as in many other branches of industry throughout Scotland.

Crieff.—The demand recently made by the masons for an advance of ½d. per hour has been granted. The rate now is 5d. per hour.

Aberdeen.—Upwards of 150 joiners yet remain out on strike. A committee of operatives offer to take work on their own account, preparatory to a co-operative company being formed. About seventy of the house-painters are also out on strike. The demand made by them is for an advance of wages 3s. per week, and the masters have agreed to give 2s. The strike is only a partial one. A disgraceful affair, arising out of the present strike among the house-carpenters and joiners, has just occurred. Mr. Rainnie, builder, had agreed to give the advance of 2s. per week asked by his workmen, but refused to sign any document to that effect, as requested by the committee of operatives. Mr. Rainnie's workmen resumed work, but a messenger was sent to him asking a written statement regarding the concession he had made to his workmen. This he again declined to give, and when the workmen were leaving for the day, they were surrounded by a great crowd of brother workmen and others, and pelted with missiles. This continued for a considerable time, the men who had returned to their work being struck and maltreated unmercifully. Fortunately the police were soon on the ground. This mode of intimidation has considerably damaged the position taken up by the carpenters in the strike.

ARCHITECTURAL COMMITTEE FOR PARIS EXHIBITION.

The endeavours to insure that the British Art Section of the Exhibition shall be properly and honourably represented so far as architecture is concerned are progressing satisfactorily. The British Commissioners of the Exhibition have confided to the committee the general arrangement and selection of the drawings and models which may be intended for exhibition. They have further placed at the disposal of the committee the large series of galleries at South Kensington, which are now occupied by the National Collection of Portraits, and have suggested that the drawings and models sent to the committee should be arranged in them, so as to form a Public Exhibition in London during December next. This is a very important suggestion, and it is to be hoped that the committee will be enabled to make this Exhibition one worthy of the country. It will, we suppose, include many works that will not be sent to Paris. The British Commissioners have agreed to take upon themselves the whole expense and the trouble of the various arrangements required after the drawings and models have been sent to South Kensington, and until their return thither from Paris; so that the expenses of the exhibitors will be limited to the cost of conveyance to and from South Kensington, and of any stands that may be required for models.

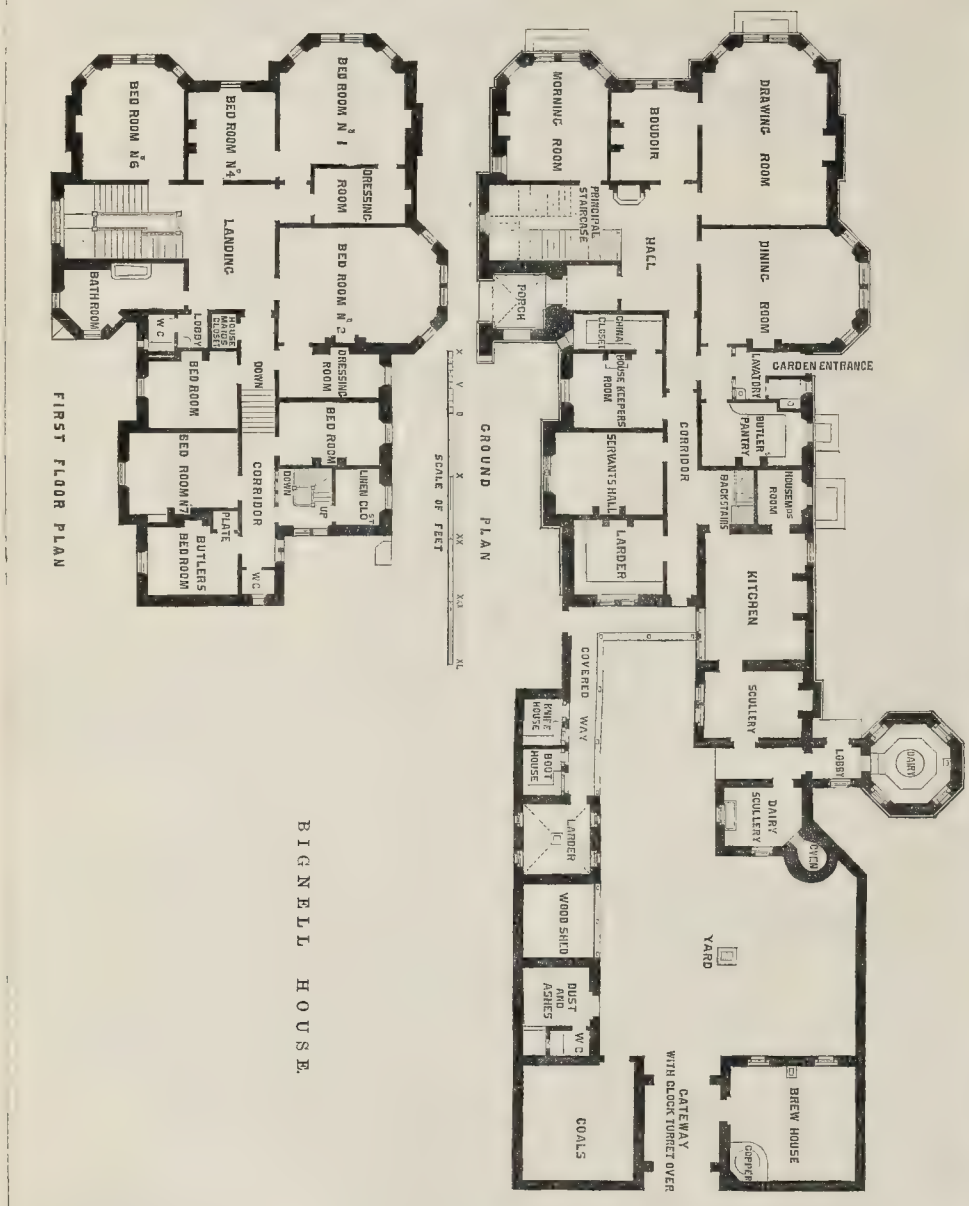
BIGNELL HOUSE, NEAR BICESTER.

Bignell House, the residence of the Misses Drake, and of which we give illustrations, is built of a hard stone quarried upon the estate, the dressed work about the building being of Bath stone; the walls are lined internally with brick; the roofs are covered with brindle-coloured tiles.

The entrance-porch is vaulted in stone. The floor of the inner porch is laid with ornamental tiles; and the floor in the hall is of oak. The staircase is constructed of wood, with cut balusters and wrought newels. The ceilings of the principal rooms and hall are constructed with girders and binders, moulded and stopped, dividing the ceilings into panels. These timbers, as well as all other woodwork in sight, are intended to be simply varnished. The kitchen has an open roof, with a lantern affording good light and ventilation. The kitchen offices are complete in their arrangement. There is a dairy, of an octagon form, distinct from the other buildings, although connected with them, and it has a private entrance from the lawn. The roof over the gateway to entrance to courtyard is surmounted by a turret, with a clock, which is visible from the entrance and garden fronts. The stabling, &c., occupy a site near the house.

Messrs. Orchard, of Banbury, were the builders, the work being carried out from the designs and under the superintendence of Mr. Wm. Wilkinson, of Oxford. Mr. T. Lewis was clerk of the works. The cost of the house, exclusive of stables and other additions, will be about 5,000*l.*

Poisonous Water.—"What killed Dr. Hodgkin?" says the *Medical Times*. "Impure water. We wonder that travellers do not carry with them a little bottle of permanganate of potass, a few drops of which would speedily purify any water. A friend of ours, who has just returned from India, tells us that he has derived the greatest benefit from its employment. In cases where the water was turbid, and tasting and smelling of decaying organic matter, the addition of a few drops of the solution of the permanganate made it in a few minutes as clear and sweet as spring water."



BIGNELL HOUSE.



EIGNELL HOUSE, NEAR BICESTER.—Mr. William Wilkinson, Architect.

EAST LYDFORD CHURCH, SOMERTON, SOMERSET.

This new church was consecrated on the 4th inst., by Dr. Anderson, Bishop of Rupert's Town (acting for the bishop of the diocese, who was suffering from indisposition). It is built at the sole cost of the Rev. John James Moss, the rector (on a new site given by him), as a memorial of his late wife. The old church, which possessed no architectural interest, was in a very dilapidated condition, and quite unfit for use. Being situated in a low meadow, it was frequently liable to inundation; so much so, that during floods it was inaccessible. The plan of the new church consists of nave, chancel, and a bold south porch, with tower at north side of chancel arch. The latter is square at base, but changes into an octagon a little above the eaves' line, and is crowned with a spire about 100 ft. high. The general material of the wall is blue lias, the dressings being of Doulting stone; and the interior of the church faced with ashlar. The nave roof is covered with grey Bridgwater tiles, and the chancel with the local stone (taken from the old church). Over the window on the north side, at base of tower, is a sculptured *bas-relief*, containing an inscription written by Lieut.-General Sir Edward Cust, the father of the late Mrs. Moss. The font was presented by Mrs. Egerton, sister to the deceased lady. The chancel is fitted up with open benches of wainscot, and is paved with encaustic tiles. The cinquefoil window in the west gable of the nave is filled with glass by Hudson, of London.

The church is in the Early Decorated style, and was erected from the designs of Mr. Ferrey, architect, by Mr. Maurice Davis, of Langport, builder, at a cost somewhat under 3,000*l.*, and will accommodate about 150 persons. It stands on a beautiful plateau of grass, surrounded by fine elms, and is altogether very picturesquely situated.

OLD CHELSEA CHURCH.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

At a meeting, April 11th, Mr. G. R. Wright, F.S.A., in the chair, an interesting account of the Borough of Clickminin, in Orkney, the joint production of Sir Henry Dryden, bart., and Mr. J. T. Irvine, was read. It was illustrated with complete drawings of this very good specimen of a "Pict's House." Dr. James Copland added some particulars from his own knowledge of this building, and of two other "Picts' houses" in the Orkneys. Their resemblance to the nouraghis of Sardinia was also noticed. Mr. H. H. Burnell then read a paper, by the Rev. J. Blunt, with additions by himself, on the old church of Chelsea. A large part of Mr. Blunt's paper was reserved for the next meeting. Mr. Blunt suggested that the ancient dedication of the church was to All Saints, though it has long been appropriated to St. Luke. The chancel, with the chantries north and south of it, are the only portions of ancient work left. The north chantry, called the Manor Chantry, once contained the monuments of the Brays, now in very imperfect condition, having been destroyed or removed to make space for those of the Gervoise family. There remains, however, an ancient brass in the floor. Of the south, or More Chantry, he stated that the monument of Sir Thomas More was removed from it to the chancel, and the chantry had been occupied by the monuments of the Georges family, now also removed, displaced, and destroyed. The writer showed that, notwithstanding the current contrary opinion, founded on Aubrey's assertion, the More monument is the original one for which Sir Thomas Moore himself dictated the epitaph.

Mr. Burnell, the architect of the improvements effected subsequently to 1857, spoke positively as to the non-existence of a crypt which conjecture had placed under the More chantry. The foundation of the west end of the church, before it was enlarged in 1666, he found west of Lord Dacre's tomb. On the north side of the chancel an aumbry, and on the south a piscina were found, coeval with the chancel (early fourteenth century). The arch between the More chantry and the chancel is a specimen of Italian workmanship, dated 1528; a date confirmed by the objects represented in the carved ornaments, those objects being connected with the Roman Catholic ritual. It is a remarkably early instance of the use of Italian architecture in this country.

In a window of this chapel, then partly bricked up, were found in the brickwork, in 1858, remains of the stained glass which once filled it. The body of Sir Thomas More was, according to Aubrey, interred in this chapel; and his head, after an exposure of fourteen days, —testifying to the passers by on London Bridge the remorseless cruelty of Henry VIII., and his barbarous insensibility to virtue, patriotism, and talent,—was consigned to a vault in St. Dunstan's Church, Canterbury. It was seen and drawn in that vault in 1715.

LEITH.

The prosperous and increasing trade of this town is evinced by the additions which are from time to time being made to the docks and the business premises in their vicinity. The already extensive flour-mills of Messrs. A. & B. Tod, in Commercial-street, are in course of being greatly enlarged, and, with the additional accommodation will, we believe, be the largest works of the kind in the kingdom. The present mills are constructed in the form of a triangle with a court-yard towards the street, and are worked by engines of 400-horse power, and twenty-seven pair of stones. The additional buildings are being erected in the court-yard, and will also be provided with an engine of 400-horse power and twenty-seven pairs of stones. The façade will have a frontage of 122 ft., of seven stories, rising to a height of 70 ft. The elevation will be imposing, and not devoid of architectural effect. The central portion of the building is slightly recessed, the windows having plain architraves, and the upper story is treated as an attic; on each flank are wings, with round-headed windows rising to an equal height with the two stories of the central portion, and at the angles are rustic quoins; these are surmounted by pilasters, with an entablature and pediment on the same level as the attic story. One of the wings is occupied by the engine and machinery on the ground-floor, and three stories of the other are to be used as offices; those wings are separated from the central portion by fire-proof walls. A grain and flour store are to be erected in the rear, which will rise to a height of six stories, and afford a floor-space of 14,000 ft.; it will have six cart-entrances, so arranged that carts can load under cover and pass from one side to the other without turning or backing. Messrs. Paterson & Shiells are the architects.

ASSESSMENT COMMITTEES AND UNION VALUATIONS.

Of all combinations most inquiringly to be regarded — whether of persons, committees, or associations—none are more questionable in the moral effect they exercise over the body politic than a combination of those whose official transactions, under the guise and semblance of legality, operate speciously at least, or so as to impress the discerning mind with the idea that either willingly or wilfully their main effort and purpose consist in striving to misinterpret, evade, and circumvent the full and free operation of the law, the provisions of which, by statutory enactment, they were themselves appointed to administer, and for which purpose, as a legislative body, they were so constituted and called into existence. When, for example, we find combinations arise which affect in the greater or lesser degree the 651 unions of which England and Wales are composed, involving the levying and collection (according to the last returns) of no less a sum than 9,512,655*l.*, and a total expenditure of 9,325,072*l.*, 42,864*l.* having been expended for parochial assessment, the importance of the matter is evident. The passing the "Union Assessment Committee Act, 1862," in the further development of the great scheme of parochial jurisprudence, brought into being 651 distinct and separate assessment committees as representative of the several unions before referred to, each committee consisting of one-third *ex officio* and two-thirds elected guardians, to whom has been confided the appellate jurisdiction over and arbitration of "the net annual or rateable value" (in conventional term, "valuation") respectively of every acre or plot or patch of land, from the manor, mansion, and park of the nobleman, to the allotment piece of the commoner, as legally rateable, not specially exempted nor extra-parochial,—in short, the determination of the assessment of every hereditament held in beneficial occupation throughout the country—from the Bank of England, the Docks, the New River, water and gas works, railways in all their ramifications, and all other similar properties, manufacturing, distributing, or productive, throughout the country, downwards to the smallest tenantable hut or hovel. Jurisdiction so vast, united with powers so comprehensive, necessarily requires a certain degree of knowledge and experience, which could not reasonably be expected from bodies or committees thus accidentally brought together. Had an original valuation of the country been expected in the first instance, a thorough acquaintance with the laws and practice of parochial assessment and valuation, as expounded by the decisions of the Court of Queen's Bench, also of surveying and "estimating," would have naturally been pre-supposed and expected from such a tribunal as the Court of Appellate Jurisdiction now referred to (which in reality each assessment committee forms), had the Legislature confided the actual and bonâ fide valuation indiscriminately to a committee thus brought together. Appellate jurisdiction and arbitration, therefore, on items of controverted rating and disputed value, rather appear to predominate attributively in the constitution of this committee, since no appellant can obtain redress, either at Quarter Session or even in the Court of Queen's Bench, until after prior adjudication on each individual case by an assessment committee. The preliminary power of pre-nomination, or prior valuation, when held in combination with the faculty of ultimate determination, would most assuredly prove anomalous, and represent as *mal* an association as the identity, combination, and appearance of the superintending power and authority when made manifest in an executive capacity, the one being destructive of the other, and both open to suspicion. Thus much as regards the power, constitution, and qualifications of committees, appointed under the Parochial Assessment Act by virtue of the statute 1862; and since this period, excepting where interfered with by local Acts (which present an exemption), or now remaining incomplete. Every parish and union throughout the country, inclusive of the city of London, has been either revalued, or had the existing valuation corrected, readjusted, or confirmed, through the agency of its representative assessment committee, a work in theory second in statistical and numerical importance to the Ordnance survey, and to which, if rightly put together and concluded, each corresponding parochial "Valuation List" should form its own *terrier*, and in mass constructively, as a whole, the "Book of Reference."

It is, however, to be regretted in the first instance, that assessment committees, in some cases, appear to have resorted somewhat early to combination, at least in many parts,—either in county or district association,—to discuss and determine upon "a scale or per-centage" deduction which had been or should be made from annual value, in order correctly to arrive at or attain that great desideratum,—"net annual value." Under this head nothing possibly can be more clear and definite than the Act of Parliament 6 & 7 William IV., c. 96,—he who runs may read,—which enacts that this, and by inference all items therein included, should "be made upon an estimate of the several hereditaments." This direction is unqualified. Nevertheless, wherever the combination now referred to has existed to settle "deductions," it was sectional in its origin,—as motives were obvious; proceedings were consequently arbitrary, and conclusions incongruous and conflicting; therefore, in special application, "unfair, unjust, and unequal," and subversive of the letter as of the spirit of the Act (last referred to), the preamble of which recites,—"Whereas it is desirable to establish one uniform mode of rating throughout England and Wales." Uniformity of deduction proves no uniformity of valuation, unless all circumstances, states, and conditions are equal. The application indiscriminately, therefore, of no uniform or per-centage scale of deduction in grouped or collective application can satisfy the terms and conditions of the Parochial Assessment Act so long as the well-known terms "each and several" convey a synonymous signification; and this statute has reference to the "several hereditaments rated," the valuation of which, to be legal, must be separately "estimated,"—as separately rateable,—which principle must be definite, singular, and demonstrative in its application. It should here be stated of the

"Assessment Committee Act of 1862," that "nothing therein contained," &c., shall in any way interfere with the provisions of the original "Act to regulate Parochial Assessments," since it is clearly set forth that the former is merely referrible to the executive body as exponent, or, rather, as the amplification of the latter. The two Acts must be read concurrently to be illustrated by the original statute as the only true basis and standard of assessment, otherwise no "equal pound rate" can possibly be sustained, nor the "competent sum or sums of money" be raised in accordance with the statute 43rd Elizabeth, "according to the ability of the same."

That the proceedings of some assessment committees out of the 651 (who all stand alike in mutual responsibility to the Poor Law Board, each having annually to report its doings) are not exactly in concert with the rest, nor in exact conformity with the foregoing recapitulation and reading of the statutes, will be seen on reference to the requirements of the assessment committee of the Clun Union, Bishop's Castle, Shropshire; *ex. gr.*, on this committee endeavouring to obtain the services of a *competent* surveyor to perform the valuation of this union (16th March last), one proviso is distinctly reserved in relation to this *vexata questio*, "statuteable deductions," viz. "The valuer, when appointed, will receive instructions from the Assessment Committee as to *deductions* he will make from the gross estimated rental in order to arrive at the rateable value."

After the foregoing observations comment will be superfluous, unless this assessment committee mistake their own qualifications,—since the text of the Parochial Assessment Act has already been quoted correctly, and we have again made reference to the statute, from which we learn that the foregoing proviso is not only made in contravention of 6 & 7 Will. IV., c. 96, but under the further instructions to be given in relation to "statuteable deductions," the practice hereof will be in diametrical opposition to, as in declared violation of, the enactments therein set forth, whether made under combination or not. If recognised under the former, so much the worse, since peradventure this fundamental error may possibly prevail and pervade the assessment of the entire county. Verily, assessment committees might just as well make their own valuations at once as define their own "deductions," and so place themselves in antagonism with every ratepayer throughout the union, as some committees have done before, adopting as surveyor substitute the casual collector or amateur assistant overseer. By this expedient, the appellate jurisdiction of this court of legal arbitration might thus merge the exercise of its own proper functions in the confusion of advocacy, with the right of final adjudication reserved, or a trace upon appellate jurisdiction altogether. If the so-called discretion of any assessment committee whatever is to prevail in matters of preliminary valuation, then, in a moral as in a fiscal sense, before such a tribunal, each case will be prejudged, and the final issue consequently must become little else than a fiction or a sham, at once partial, uncertain, and inconclusive.

NORTHERN ARCHITECTURAL ASSOCIATION.

THE ordinary quarterly meeting of the above Association was held in the OldCastle, Newcastle, on Tuesday, the 10th inst., when there was a numerous attendance. Mr. Dunn, vice-president, in the chair.

Messrs. Dunn, Oliver, and Pritchett were appointed delegates to attend the annual meeting of the Architectural Alliance.

The report of last year's proceedings of the Alliance was referred to the committee, to report upon at a special meeting to be called for that purpose.

Mr. G. G. Hoskings and Mr. Ullathorne were elected members.

The secretary then read a letter from Mr. Robson, hon. secretary of the Master Builders' Association, calling attention to the fact of the dispute now waging between the masons and the masters. The letter asked that the Association should remain neutral in the dispute; the masons were on strike for a diminution of the hours of labour, and it was reported that the demand had been acceded to by Mr. Parnell, a member of the Architectural Association, on account of the men engaged under him at the *Newcastle Daily Chronicle* offices, thus rendering ineffectual the means taken by the builders, prolonging the strike, and causing a serious loss to those who had heavy contracts on hand, through their being obliged to give way to the demands of the men. In answer to this, Mr. Parnell wrote, that there was no foundation for the complaint of his having acted against the interests of the masters. The matter in dispute referred to the building intended for the *Chronicle* offices, where some mason-work is necessary for the engine-beds. This being required, he instructed the foreman to make the best arrangement he could with the men, as time was of great importance. A conversation ensued on this matter, and it was agreed that the explanation of Mr. Parnell was perfectly satisfactory. Mr. Thompson thought it was unwise of architects to undertake work where a contractor was not responsible. Mr. Oliver stated, that from an interview he had had with Mr. Parnell, he had arrived at the conclusion that Mr. Parnell was not responsible for the complaints made against him. In this case, Mr. Parnell's employer required the work to be done at the new *Chronicle* office as quickly as possible, cost what it might, because all arrangements had been made for the completion of the work in a given time. Messrs. Walker, Kyle, Hogg, and Dunn also took part in the discussion, all more or less agreeing in the course adopted by Mr. Parnell, and ultimately it was agreed that the Association could do nothing in the matter between the master builders and the men. They also deemed Mr. Parnell's explanation satisfactory, and believed that he had no intention to injure the interests of the master builders. A letter was read from the secretary of the voluntary examination committee desiring an expression of opinion as to the results of the examinations. This was referred to the committee.

The new bye-laws of the Corporation of Newcastle next came under consideration, when a strong feeling was expressed as to some minor points, such as the depositing of elevations in addition to sections and plans and general specifications, which was thought unnecessary. Mr. Oliver was requested to attend to the interests of the Association as regarded these matters, that gentleman being a member of the Town Council.

Mr. Dunn exhibited an interior view of the proposed museum for the Antiquarian Society, and Mr. Oliver exhibited drawings of the parish church of St. Cuthbert, at Bedlington, which is now in course of restoration under his direction.

Mr. Lamb then read a paper on "Perpendicular Gothic Architecture," for which a vote of thanks was accorded by the meeting.

FINANCE AND PANIC.

THE past winter, while it has been unprecedentedly mild, has not been, the gardeners tell us, favourable to vegetation. Never, they say, have they lost so many flowers. Frost, their natural foe at the season, they have means to resist; but against the more insidious evil of damp they have had no power to guard, and thus the lovely show of varied blooms with which our suburban nurseries have welcomed Easter have been diminished by an uncounted number of "damped" plants.

There are plants of another growth, not raised, indeed, under glass, for sunlight is not their element, but which may properly be said to have been forced, to which the winter has been even more unkind. Those rapid, unnatural, and unhealthy growths, ill-managed and speculative trading companies, have suffered far more damage than the tenderest green-leaved plants; and, as it is not so easy to ascertain the actual state of health of one of these artificial organizations as it is to observe how leaf and bud and blossom shrivel and fade, or swell and push and flourish, so is the panic that has followed one or two cases of destruction wide and disastrous.

That such misfortunes, to call them by a polite name, would occur, was plain to every man of consideration when the old law of partnership was altered. That law, like very much of our statute and even of our common law, was attended with serious disadvantages; but it was clear, intelligible, tolerably well understood, and the habits of the people had been formed in accordance with its very stringent provisions. It cannot be said that it was just. It was one of those laws which no legislature for an ideal state or improviser of a code would have proposed. It is possible that, the good and evil which it effected fairly weighed against one another, it was desirable that it should be altered; but it was certain that such an alteration would be attended with a crop of misadventures before the public mind became accustomed to the new order of things. And so it has proved and is proving.

It cannot be doubted that the principle of association is one of the earliest, and one of the most fertile that are developed by civilization. It is a great social principle; nor can it be considered to be peculiar to civilised men, or indeed to mankind at all, for we find its most regular and most faultless operation in the divinely instructed politics of the bee and of the ant. But it has its function and its limit, and can no more be trifled with with impunity than it can safely be left out of sight. It is by associating their wealth, their skill, their science, that men have made the great physical and intellectual, or rather scientific, progress that was prophesied or dreamed of by Bacon. But for association to be successful, it is obvious not only that it must be well directed and well conducted, but that the contributions as well as the contributors shall be of real and actual value. An association of needy men does not constitute a great capitalist.

That word "capitalist" is one that, if words had to give account of their actions, would have much to answer for. It is one of those few half-understood expressions, by the use of which a subject that should be dealt with by common sense is set apart as forming a pseudo-science. As to their own immediate personal money matters, most men, indeed, admit the guidance of ordinary prudence. But let a question arise ever so little beyond the limits of personal experience, and the wise maxims that unconsciously regulate the transactions of daily life are too often forgotten, and men eagerly listen either to the groundless hopes, or the equally groundless fears of their most casual acquaintance, and seek the advice of others no better fitted than themselves to advise as to questions that only require clear, plain, and honest statement to solve themselves.

Nothing can be more simple than the facts which form the basis of associations for purposes of business. When the object to be attained is of such magnitude as to exceed the means of individuals to carry out, it can only be attained by the combination of the resources of several, or of many individuals. Railways, for example, requiring the outlay of millions of money, in obtaining Acts of Parliament, purchase of land, and construction of works, before any returns can be earned, can only be made by the Government of the country, which commands large resources, or by the association of shareholders, as in this country. But while it is necessary, in order to collect the large sums of money which must be expended before any earnings come in, to resort to combination of resources, it is well known that the application of these resources will be less carefully and less skilfully directed than in the case of individual enterprise. If two railways, of equal length and under similar circumstances, were constructed, one by a large company and the other by a single individual, no one can doubt that the latter would be much more economically completed than the former. According to experience and according to human nature, a man looks after the expenditure of his own money in his own enterprise far more keenly than he would do if he were merely the officer of an association dealing with the funds of the association. While, therefore, for purposes of such magnitude as to render association necessary, the company, if honestly and ably administered, may amply succeed; if the limits of the enterprise be so far reduced as to allow individual enterprise to compete with associated enterprise, the former will, in all probability, carry the day. The great company may have actually wasted a quarter of its funds; but its work is done, and whether it be the shareholders or the public that suffer (which will depend on the possibility of competition on the part of other great companies), the enterprise goes on. But in a small company such a waste of resources would at once put the association at a corresponding disadvantage as regarded individual competition, and the destruction of the company, or, at least, great loss to the shareholders, would be the certain result.

It is for these plain and simple reasons, stated, perhaps, with some circumlocution in order to avoid any of the words invented or claimed by the lecturers on political economy, that the change of the law as to liabilities of partners, and the rapid rise of a large crop of limited companies, was certain to produce a considerable amount of disaster. It is true that other causes have combined to render the pressure now felt more severe. The great influx of Californian and Australian gold, which has rendered that metal more plentiful, and has, therefore, raised the price of all other articles, as measured in gold, has caused a disturbance which it is difficult accurately to measure; although if we regard it as indicated, either by the price of diamonds and precious stones, the price of meat and cattle, or the prices paid for journeymen's labour, we shall have reason to conclude that a fall in the value of gold to the extent of twenty per cent. has taken or is taking place by a gradual process that is not very severely felt, except by persons of fixed incomes. The great disturbance to our manufactures caused by the American war, the large exports of goods to America since its close, and the extremely unsettled state of all financial transactions in or with the Transatlantic republic, is a second element of troubles in the commercial world. And the imminence of a great European war, a war of which, condemned though it be alike by wisdom and by justice, every day brings some fresh menace, depresses the price of all public securities, and increases the general feeling of vague incertitude to which home politics add their share.

In a social atmosphere thus menaced with storm from so many points of the horizon, the exposure of the manner in which some companies have been concocted, and in which others have been carried on, has probably been the exciting cause of a panic which, if unreasoning, as panic always is, has not been altogether unfounded. To the man who, having money to invest, brings to bear on the question of how best to lay by his earnings in a safe and reproductive form, the same patient thought and practical sagacity that have enabled him to accumulate them, we can only say, wait the turn of the tide, the panic can not hurt you. A *bonâ fide* investment is not affected by fluctuations in the market price, unless you are forced to sell,—that is to say, in nine cases out of ten, unless you have endeavoured to invest money that you had not earned. But with the speculator the case is different. The man who incurs liability by the purchase of shares in an undertaking which he himself is incompetent to conduct, and of the conducting of which he is unable to form a sound opinion; who has perhaps been tempted to buy by the very premium at which he purchased the shares, or by the promise of dividends to be earned by his company such as no individual competitor in the business ever drew from his best personal exertions,—this man we can only recommend to take comfort in the fact that his subscription is now limited in amount, and that in losing his money to that extent, he has purchased a very valuable lesson as to the disposal of his future earnings.

IMPROVEMENT OF WORKHOUSE INFIRMARIES.

A very numerous and influential deputation of the Association for the Improvement of London Workhouse Infirmaries, headed by the Earl of Carnarvon, the Archbishop of York, and others, had an interview with the Hon. C. P. Villiers, M.P., the president of the Board of Trade, on Saturday last, and laid before him the resolutions passed at the public meeting held lately at Willis's Rooms, and the views of the committee on the subject. The latter, endorsed by a number of eminent medical men, may be thus expressed:—

The sick poor should be separated from the able-bodied paupers, and their treatment should be placed under a distinct management. In lieu of sick-wards annexed to each workhouse, consolidated infirmaries should be provided, where the following rules of hospital management should be adopted under skilled supervision. They are those generally accepted in this and other European countries. 1. The buildings should be specially devised for the purpose, of suitable construction, and on healthy sites. The rules laid down by the Barrack and Hospital Commission may be consulted with advantage on this subject. 2. Not less than 1,000 (and for particular classes of cases 1,200 to 1,500) cubic feet of air should be allowed to each patient. 3. The nursing should be conducted entirely by a paid staff, and there should be not less than one day-nurse, one night-nurse, and one assistant nurse for each fifty patients. 4. There should be resident medical officers in the proportion of not less than one for 250 patients. 5. The medical officers should not have any pecuniary interest whatever in the medicine supplied, nor should they be charged with the duty of dispensing them. 6. A judicious classification of patients should be strictly observed, the epileptic and imbecile, the acutely sick, and the aged and infirm being treated in separate wards. 7. The aged and infirm, the chronically sick, and the convalescent should be provided with day-rooms, separate from the dormitories.

Mr. Villiers, in reply, showed that he is wholly with the Society in their views, and gave reason to hope that something will be attempted in the required direction. The least that can be done is to place the sick of our parishes on the footing of ordinary hospital patients.

PROPOSED DWELLINGS FOR WORKING CLASSES, AT LAUSANNE.

A scheme is on foot at Lausanne, for the erection of improved dwellings for the working classes, which shall combine the two essentia requisites of comfort and economy in construction. A sum of 16,000*l.* will be required, and it is contemplated that, with proper management a return of 6 per cent. may be obtained The design embraces a large refectory. which may also be used for lectures, concerts, &c., schools for the children, wash-house, fitted with every convenience for drying and ironing; baths, bakehouse, and other offices In addition to these conveniences, work shops are to be erected for the use of the co operative societies. The inner court, which is to be provided with balconies at each story, is to be covered with a glass roof, so as to afford a dry open space, serving both as a playground for the children, and a place of recreation for their elders. The building will contain 300 rooms, excluding the offices in the basement and ground-floor. The promoters estimate the returns from the latter at 200*l.* annually, and propose to make a charge of 3*l.* 7s. 6d. per year for each of the rooms. The total returns would, supposing all the rooms to be occupied, amount to upwards of 1,200*l.* per annum.

The Familistery, at Guise, made known to the English public in our pages, is the model aimed at. The illustrations we published of that establishment are understood to have influenced the movement in Lausanne.

IMPROVEMENT OF DWELLINGS.

Central Cottage Improvement Society. — The annual general meeting of the members and friends of this society has been held at Willis's Rooms, St. James's,—the Rev. T. Pyne in the chair. The report for 1865-6 stated that during the past two years the society has been working steadily on, and the secretary has replied to numerous letters of inquiry on subjects connected with cottage building in all parts of the kingdom, and some from abroad. About 50 sets of plans have been sold to persons not subscribers, and a considerable number of cottages have been erected in various parts of this country and in Ireland. The council congratulated the members upon the successful formation of several provincial associations for cottage improvement, which had realised good dividends. The balance showed that the funds of the society were not sufficient for its purposes. The report was adopted, and various resolutions were passed in furtherance of the society's views. A general opinion was expressed that in consequence of the encroachments of metropolitan railways the subject was rapidly rising in importance, and while the building of homes for the working classes in London was a most valuable boon, an equal necessity now existed for giving them the advantage of suburban dwellings, which the cheap trains would enable them easily to reach.

The Cellar Dwellings of Liverpool.—At a recent meeting of the Liverpool Health Committee, a report being presented by the inspector of nuisances as to certain cellars unlawfully occupied as sleeping apartments, it was stated in a conversation that ensued that 9,000 cellars still improperly occupied. Mr. Whitty moved that the Parliamentary committee be instructed to obtain in their next bill powers to fill up those cellars which are repeatedly used in violation of the law. The borough surveyor said it would cost 380,000*l.* to fill up all the cellars.

Overcrowding in Liverpool, and its Remedy.—The town council have confirmed the recommendation of the improvement committee, to apply to Parliament for powers, in the next Improvement Bill, to open out a new street, twenty yards wide, through a densely-crowded district in Vauxhall Ward, extending from Lime-kiln-lane to Great Howard-street. Thence the new street will be continued by the London and North-Western Railway Company, the same width, to the line of docks, forming a direct communication with Trafalgar and Victoria Docks. In its course it will widen narrow and unhealthy streets, and cut through twenty of the closed courts, which form such an objectionable feature of this and other districts of the town, where overcrowding has assumed some of its worst and most demoralising forms, while it will open out sites for the erection of improved blocks of labourers' dwellings. The labourers' dwelling sub-committee of the health committee also have resolved to recommend the council to set aside suitable sites on the corporation estates, for the erection of labourers' dwellings, on plans approved of by the council, such sites to be sold on chief rents for that purpose only. A number of sites have been inspected.

COMPETITIONS.

Bolton Mechanics' Institution.—The committee have awarded the premium of 20*l.* for the best design for the new Mechanics' Institution, to No. 5, "As you like it," by Messrs. Cunliffe & Freeman, architects, of Bolton, who were the only local competitors; the second, 10*l.*, being awarded to No. 30, "Truth prevails," by Mr. W. B. Stewart, of Scarborough. Of the remaining four selected designs, "Spes" was by Mr. Wm. Hill, of Leeds; "Education," Mr. Julian Young, of Derby; "Non dubitanter," Messrs. Jeffery & Skiller, of Hastings; and a circular device, Mr. R. W. Hughes, of Preston. The whole of the plans remained on view in the Reading-room till Thursday, and 73 individuals had affixed their signature to a book—40 in favour of "As you like it;" 24 for "Spes;" and 9 for "Truth prevails."

PROPOSED LAW COURTS COMPETITION.

The commissioners met on Wednesday last, and decided on increasing the number of competitors to twelve. The judges met on Thursday afternoon, but owing to the debate in the House they were obliged to adjourn before coming to a final decision.

NEW BUILDING IN MANCHESTER.

The new buildings for the Lancashire Insurance Office, at the corner of St. Ann's-square, which have been recently erected by the directors of the Lancashire Insurance Company, form an architectural improvement in the centre of the town which may be considered worthy of notice. The site occupied by the new building is about 120 ft. between Exchange-street and Barton's-buildings, and about 57 ft. wide between Red Lion-street and the repository of Messrs. Agnew & Son. The general style of the design of the two fronts may be described as Ionic, freely treated, with a decoration of incised work in the stone, which gives a peculiar character to the façades. The arrangement of the roof and the external accommodation thereon, appear to have led the architect into a style of design in the upper part, which may, by sticklers for precedent, be deemed rather incongruous with the Ionic order. There are two principal entrance doorways, one in Exchange-street, and the other in Red Lion-street, and these are made ornamental by carvings in the stone-work of the arms of the Lancashire Insurance Company. The windows in the second story have ornamental stone balustrades, and above have the central windows in the story above. In the roof there are dormer windows, between which are circular glazed openings. The principal offices of the Lancashire Insurance Company are on the

ground floor, approached by well-lighted passages, and the company's board-room and other conveniences are on the first-floor. The remainder of the building is arranged as large rooms, office, stores, and two convenient shops. These latter are made entirely fireproof, and defended against the designs of burglars by being entirely surrounded by thick iron boiler plates, riveted together, and forming a complete inner lining. All the openings in the shops and on the street-floor level are provided with Bunnett's ironproof shutters. In a central part of the building is an open court for the purpose of affording light and ventilation to the staircase, corridors, lavatories, and various offices. The walls of this court are covered with glazed white tiles, which reflect the light, and which are washed bright by every shower of rain. The following is a more minute description of the premises occupied by the insurance company:—The principal office or telling-room is 57 ft. long, 35 ft. 6 in. wide, and 50 ft. high to the eye of the dome. The room is square in the central portion below, and formed into a circular dome above, from which ample light is diffused through plate-glass of a light azure tint. In the direction of the length of the room, there is at each end an arched recess, having a balustraded gallery, fitted with presses and closets for stationery. Under one of these galleries is a large fire-proof safe, of two floors in height. At the sides of the rooms are also arched recesses, but of comparatively small depth. In each of the two deep recesses is a *bas-relief*, by Mr. Lynn, of London, representing fire insurance in one, and life insurance in the other. The arms of London, Manchester, Liverpool, and Glasgow are represented upon four spandrels supporting the dome; and above these, forming a circle round the dome, are sixteen panels filled in with ornamental designs. The fittings and furniture throughout are of oak. Adjoining the principal room is a vestibule leading to the manager's room, waiting-rooms, &c., which are spacious and convenient. The board-room is on the first floor, having its principal approach from the main staircase and corridor, but also communicating with the principal office by means of a circular stair. Telegraphs and speaking-tubes are used as a means of communication between the principal office, the board-room, and the manager's room. The exterior is built with Huddersfield stone, elaborately worked, and there is some good carving in the ornamental portions. The architect is Mr. Thomas Turner, of Glasgow and Belfast; and the entire contract for the building has been executed by Messrs. Neill & Sons, of Strangeways, Manchester.

THE EDINBURGH SANITARY STREET IMPROVEMENTS.

The City Council have adopted the following among other resolutions approved by the Lord Provost's Committee:—

1. That the time has now come when important sanitary and other improvements should be effected in the city.
2. That, in order to defray the cost of these improvements, an assessment (leviable in equal proportions from landlords and tenants), at a rate not exceeding twopence per pound per annum on the gross rental, should be levied for a period not exceeding twenty years.
3. That, in order to fix the precise nature and extent of the improvements, it be remitted to the Lord Provost's Committee to take such professional assistance as they may consider necessary to prepare the requisite surveys, plans, and estimates.

In the course of his remarks, the Lord Provost, who moved the resolutions, stated that long before a single tenement is pulled down there will be hundreds of new dwellings for workmen erected on grounds belonging to Heriot's hospital. He was quite willing to modify or cast aside his own notions, and leave the matter to the professional advisers who may be employed, including the City Officer of Public Health. In the face of several amendments the resolutions were agreed to by a majority of 21 to 16.

COMPENSATIONS.

F. George v. *The Metropolitan and St. John's Wood Railway.*—This case was heard at the Sheriffs' Court, Red Lion-square, before Mr. Humphreys, coroner, and a special jury. The claim was 7,000*l.*, for leasehold residential property, "All Saints' Lodge," near All Saints' Church, Finchley-road, St. John's Wood. Mr. Hawkins, Q.C., and Mr. Murphy appeared for the claimant; Mr. Lloyd represented the company. Mr. George was called and several witnesses. He took the property in 1849, and paid 2,746*l.* He laid out 900*l.* before he went in, and had expended sums in stabling, conservatories, and a large aquarium, and had handsomely fitted up the residence. He had no wish to leave, but, as the company had given him notice that they wanted a "slip" of his ground, he had required them to take the whole, under the 92nd clause of the Lands Clauses Act. It was stated in this case that if Mr. George had taken compensation for a slip he could not afterwards have made a further claim, whatever damage had been done to the property. The present rental was stated to be 300*l.* a year, so much had property increased in the neighbourhood. Several surveyors were examined in support of the claim, and, after the case had occupied some time, a verdict was agreed upon for 5,500*l.*, with an understanding as to the present occupancy by Mr. George.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held at the House, in Conduit-street, on Friday evening, the 6th instant.

The chair was taken by Mr. E. J. Tarver.

The following gentlemen were elected members of the Association:—Mr. Alfred Waterhouse, 8, New Cavendish-street; Mr. R. Marnock, St. John-street, Regent's Park; Mr. F. Dyer, 18, Bucklersbury; Mr. G. A. Allen, 3, Westminster-chambers; and Mr. G. C. Menie, Overton-road, Angel-town.

Mr. J. D. Mathews (hon. sec.) read a letter from Mr. J. W. Papworth, one of the examiners nominated by the Institute, to the effect that his brother examiners wished him to act as secretary and to request that the honorary secretaries of the Association would consider the course of experiments, and would either communicate its entire approval of the results or any suggestions which the Association upon consideration might deem to be desirable.

Mr. Riddett said, that the voluntary examination class had not yet met, in consequence of the uncertainty which appeared to exist in reference to the examinations by the Institute. As, however, there had been a recent examination, a meeting of the Association would be called with the view of starting the class again.

Mr. L. W. Ridge, referring to the portion of Mr. Papworth's communication requesting suggestions from the Association, observed that, what in his opinion was wanted to give effect to the voluntary examinations was, that the Institute should give a certificate that Mr. So-and-so had duly presented himself, and had passed a satisfactory examination. If this were signed by the examiners, he thought it would be satisfactory. He hoped, however, that the Association would respond to the invitation on the part of the examiners and moderators, and make suggestions out of which some useful results might arise.

A member inquired whether it was not true that the Institute had intimated that it was not prepared, or possibly had not the power, to grant diplomas to architects.

Mr. Ridge said he for one certainly did not consider the Institute had intimated anything of the sort. On the contrary, he was disposed to gather from the letter of Mr. Papworth that they would consider in a favourable spirit any suggestions tending towards the accomplishment of that object which the Association might have to offer.

Mr. Mathews said it would be for the Association to consider whether they might not make a suggestion to the Institute to give a diploma, a certificate, or a medal.

Mr. Riddett suggested whether it would not be desirable to postpone replying to the letter until after the next meeting of the Association.

Mr. Mathews thought this would not be possible, as the Institute expected an answer by the 7th of May.

Mr. T. Roger Smith said the Institute was now considering a number of suggestions, and that under such circumstances it would be very undesirable to delay any which the Association might have to offer. A suggestion had been made that there should be first and second class certificates of merit: that some certificate was desirable he had no doubt, and he recommended the Association to agitate the question until it was granted, which it was sure to be sooner or later.

Mr. Ridge then proposed a resolution, to the effect that the Association considered it to be highly desirable that a certificate setting forth that he had passed in a particular class should be given to a candidate passing the examination, and that it should be signed by the examiners, and bear the seal of the Institute.

Mr. T. R. Smith said he was willing to second the resolution, on the understanding that it be forwarded to Mr. Papworth.

The resolution was then put and carried unanimously.

Mr. Florence then brought forward a scheme for the formation of a class for water-colour drawing. Having observed upon the importance of an architect being able to colour his own sketches to his satisfaction, he observed that it was proposed that the class should meet on alternate Fridays for two hours, and that it should consist of twelve members, who should subscribe three guineas each for a course of twelve lessons. It was also proposed to have some lessons in out-door sketching, for which, however, a separate charge would be made. Mr. Florence added that he had been in communication with several artists of distinction, and that one of great eminence had consented to direct the studies of the class.

The Chairman inquired in what manner the selection of candidates was to be made in case more than twelve gentlemen wished to join the class?

Mr. Florence presumed that no one would join the class who had not already some knowledge of sketching.

In reply to an inquiry, Mr. Florence stated that Mr. Aaron Penley was the artist who was willing to undertake the direction of the class.

The Chairman said he hoped that several candidates would come forward to join the class, as it was impossible to overrate the importance to an architect of being able to colour his own drawings.

It was then arranged that the subject should be further taken into consideration on the following Friday.

The Chairman said, that as Mr. F. P. Cockerell, who had promised a paper on the works and sketches of the late Professor Cockerell, was unable to be present, it was proposed to resume the adjourned debate on Mr. T. R. Smith's paper, "Study as a Preparation for Practice," read on the evening of the 8th of December last.

Some discussion followed, in which Mr. Ridge, Mr. Mathews, Mr. T. R. Smith, and others took part.

OPENING OF SWINDON CORN EXCHANGE.

The new Corn Exchange at Swindon has been formally opened. The new building adjoins the town-hall, a convenient site, held Mr. Goddard, M.P., on a lease for ninety-nine years. The style is Grecian, and the material native stone, with Bath stone dressings. There is a tower 83 ft. high, with space for clock on three sides. The approach to the Corn Exchange is from the square, with entrance under the tower through a vestibule. The room is 110 ft. long by 50 ft. wide, and 26 ft. high to the under-side of the roof, which is partly open. The under-side of the tie-beams, 12 ft. from the walls on each side, is ceiled and divided into panels, the centre timbers being open and covered with glass; this, with windows all round the room, gives ample light. It is also provided with sixty star gaslights. The woodwork is varnished only. Adjoining the Exchange is the butter and poultry market, which is also covered with glass; a large dome occupies the centre, under which is to be a fountain. Under the Corn Exchange are cellars for storeage. The building is arranged for public meetings. Messrs. Wilson & Wilcox, of Bath, were the architects, under whom Mr. Phillips has carried out the works. Mr. H. Winfield officiated as clerk of the works.

MINOR WORKS UNDER GOVERNMENT.

Sir,—Can you inform your readers who it is that is responsible for the total want of attention and taste often exhibited in the minor works of our public buildings belonging to Government, by which they are disfigured and made the laughing-stock of foreigners.

There has very lately been a new entrance made, as an addition, at the north end of the Banqueting House used as the Chapel Royal, Whitehall; and it has been built by such clumsy

workmen that, though it is only some 10 ft. long, they could not manage to build either straight or level, as any schoolboy could see by looking at the cornice; while a thing called a door frontispiece has been formed with a *Grecian* pediment mould to a building which is one of our most valued and admired Italian structures.

Some few years ago, the offices of the Post-office were enlarged and brought forward as far as the columns on each side of the atrium, and in refixing the capitals of the pilasters, there was not one that was correctly placed, some up, some down, some in, and some out.

Surely Government could afford to pay for proper workmen and a proper overseer.

A READER.

ARTICLED PUPILS.

SIR,—I beg you will be kind enough to afford me a small space in your "correspondence" column to state a few facts for your consideration, and to invite the opinion of your numerous readers on them for my guidance.

I am articled to an eminent architect for six years; more than three of which have expired, without, I may say, my having been taught a single particle of my profession. Anything I have learnt has been by dint of constant labour at home in the evening; which, after working all day, is rather hard; or picked up from visitors, such as contractors, &c., coming to the office.

I saw by some letters in your paper a short time ago, that the master is only required to teach the practical part of his business, but I am taught none. Now, sir, as I shall be of age very soon, before my apprenticeship has been completed, can you kindly advise me what to do, as it is a question of great importance to me?

ANXIETY.

ST. JOHN'S CROSS, EDINBURGH.

IN the very interesting article on "The Market Crosses of Scotland," in the *Builder*, of March 17th, the writer desiderates information as to what has become of St. John's Cross, which formerly stood in the Canongate, Edinburgh, opposite to St. John-street. If he will look at p. 497 of last year's *Builder*, he will find that this interesting cross is still in existence, together with some account of its distinctive features and history. On another occasion I will be glad to inform him and your readers what has become of the Girth Cross. I cannot at the moment lay my hand on my notes, and dare not to trust to memory.

F. M.

LIGHT IN THE STREETS.

AN EXTRA light has been put upon the highway to knowledge: in other words, the road through Brompton to the South Kensington Museum is being lighted by more than double the former number of lamp-posts. I do not write merely to praise the good step, but to suggest that the top four panes, or what may be called the roof of the lamp, should be lined with bright tin, or, if not too expensive, silvered glass, which would then throw the light where it is wanted, and so do of service.

S. G.

*** We have before now described a street-lamp used in Paris, intended to effect what our correspondent wisely desires.

SULPHATE OF IRON AS A DISINFECTANT.

SIR,—Great attention is paid, and with reason, in this country, in Holland, and in Belgium, to the disinfection of stalls and of the excrements of animals of the bovine race infected with typhus, in order to arrest the ravages of this terribly contagious malady.

The use of phosphoric acid, which is proposed for this purpose, is rational in that it enriches the manure, but not if you consider the expense, the difficulty of transport, and the many precautions necessary in handling it.

Sulphate of iron, on the contrary, is of insignificant value (say a farthing per pound), economical, and easy of employment; and having great effect upon all animal matters, would completely purify the infected places and the manures of animals suffering from typhus. It does not injure the manure, but conserves its most energetic parts by converting the carbonate of ammonia into sulphate of ammonia, a fixed salt, which is easily appropriated by the plants.

It was in 1845 that Mr. Schattermann, director of the mines of Bouxwiller, departement du Bas-Rhin, proposed the disinfection of fecal matters and of manures by means of sulphate of iron, and since then this salt has been generally employed in France for this purpose, as well as to purify the slaughter-houses, ditches, and all places where noxious emanations arise. Its use is very simple. Dissolved it gives a very acid liquid that can be handled without danger, and which penetrates everywhere when used to wash the infected places, or to mix with the manures.

When the cholera was at Marseilles, great quantities of sulphate of iron were used, not only in France, but also in Switzerland and in Germany, to disinfect closets, slaughter-houses, and all places giving off noxious emanations, and with perfectly satisfactory results.

I would add that if cattle that have died from rinderpest were saturated with a solution of sulphate of iron, they might be removed with perfect safety, even in the daytime, and the cost of disinfection would be some few pence only.

W. G. S. MOCKFORD.

THE PREVALENCE OF THE YEW.

IN your interesting article a short time since, on the "yew tree," you raised an inquiry as to its frequency in the old churchyards. It is easily accounted for. The yew was formerly cultivated near the church for the sake of its branches, as a substitute for palms on Palm Sunday. After a special blessing for the occasion, the boughs were carried in procession (in remembrance of our Lord's triumphal entry into Jerusalem, commemorated on that day), and held during the recital of the Passion according to St. Matthew. The old rubric for the day, which is very curious, directs the priest to bless branches of palm, olive, or *other trees* (*sive aliarum arborum*), and to distribute them to the people, after which, the procession takes place. Palm branches were often imported for the purpose; but in England, box, willow, and chiefly yew, were used as substitutes. Hence the frequency of the tree in the old churchyards.

EDMUND BOSHELL.

GRANITE TURNING.

IT will perhaps be interesting to you to know that *Guernsey granite* can be turned on a lathe. About two years since, I saw a block of Guernsey granite which had been turned for one of the balusters for the Thames Embankment. I saw this at the office of the Metropolitan Board of Works, in Mr. Lovick's room. The turning was most perfect, and had been executed by a Frenchman with a peculiar tool, the composition of which was a secret.

I may add, that Guernsey granite, or syenite, is the hardest known stone of its class, and will bear more crushing than any other, as proved by the experiments of the Trinity Corporation, who instituted a series of experiments to test the relative resisting power of granites. In their experiments, Guernsey granite was found capable of sustaining a greater crushing weight than any other granite tried, including Aberdeen granite.

Picks, of iron and steel, weighing 18 lb., are usual in rough-dressing this stone.

A. GIFFARD.

CHURCH-BUILDING NEWS.

Cambridge.—The works of St. John's College new chapel go on steadily, says the local *Chronicle*. The main timbers are on from the apse, within a couple of bays from the tower, and give an idea of the outline that may be expected. Workmen are engaged on the organ-chamber roof, on the north side of the chapel, which is a detached roof, the same pitch as the chapel. The carvers are cutting away at the apse windows and windows adjoining: some of these are completed. The arcade caps and other carving works already finished show that this department will be thoroughly carried out. Masons are turning the tower arches of the ante-chapel, and setting the window-tracing and arches of the ante-chapel aisles. The mullions and jambs of the great west window are up to the tracery springing. The aisles of this ante-chapel will have ceiling of grained stonework, and so will the roof of the organ-chamber. The tower stands in the centre of the ante-chapel, and will be open for two stories, giving an elevation of about 100 ft. to the groined floor of the belfry. The main entrance is from the first court of the college, into the south aisle of the ante-chapel. The sides of this doorway are of great depth, and, with the arched head, will be full of sculpture and carving. It is the intention to fill the windows with stained glass, some of which are already ordered of Messrs. Clayton & Bell. The groined ceiling of the chapel will be finished in panels of inlaid woodwork.

Wolverhampton.—The foundation-stone of a new edifice, to be called Christ Church, Waterloo-road North, has been laid. The site of the new church, which will be in connexion with St. Peter's parish, is a plot of land at the extreme end of Waterloo-road North, and near the junction of the Stafford-road. New streets are here being formed, rows of new houses are rapidly springing up all around, and a large tract of land is offered to be disposed of for building purposes. The design for the church is in the Early Decorated style, to include a nave and aisles, with tower and spire at the south-east corner, and an apsidal chancel. The materials to be used in the construction of the edifice will be Codsall stone, with Bath stone dressings. The roof will be open-timbered, the latter stained and varnished, and, when completed, the church is intended to accommodate between 800 and 900 persons. The part to be now erected will be the principal portion of the nave, containing five bays. This will cost 1,800*l.*, including the site, of which nearly 900*l.* are still required. The architect is Mr. E. Banks, and Messrs. G. & F. Higham are the contractors.

Taynton (*Gloucestershire*).—Taynton Church, says the *Gloucestershire Chronicle*, is known as being perhaps the ugliest sacred building in the county. Erected, as was remarked by the preacher at the re-opening service, in a time when men despised and hated the splendours of church architecture, it was built in defiance of all ecclesiastical rule, north and south, and without a chancel. The founder was the Puritan alderman and friend of Cromwell, Thomas Pury. The date was 1660. The thick, plain cut walls and meaningless shape remained long, and remain now, as an evidence of Thomas Pury's sour Puritanical bigotry. The needful restoration of this church has been now nearly accomplished. The old plaster ceiling has been removed, and the space between the oaken rafters covered with blue plaster. There are three windows on the east and west sides inclosed in wooden frames, which were not weather-proof. These have given place to stone frames and mullions, with tracery in the heads. A badly-shaped window over the porch has been blocked up, and replaced by another, slightly arched. A gallery still disfigures the north end, where it must remain, for the sake of the room it affords, until a chancel can be added. The floor and walls are covered with monuments, several of them to the Holder family. The walls have been replastered. Outside, loose, heavy stones covering the roof have been replaced by Broseley tiles, and new coping stones have been put on the gable. The parapet wall of the porch has been removed, and a steep roof, corresponding with that of the church placed upon it. In front the mortar has been cleaned out of the joints of the stones, which have been pointed with dark mortar. This is being done all round the building. The little wood turret containing the bell has been faced with oak weather-boarding. The vestry at the south-end, behind the pulpit, has been re-opened, re-roofed, and re-floored. This vestry is used as a day-school. The church and school are warmed by Messrs. Haden's hot-air warming apparatus. The restoration has been effected by Messrs. Teague, of Tibberton, builders. The whole cost is nearly 500*l.* The only work not yet completed is the pointing of the outside, and the re-building of the churchyard wall. Mr. Full-james has given his aid as architect of the restorations.

Neath.—Briton Ferry New Church has just been covered in, and forms one of the principal features in this rapidly increasing town. Mr.

R. Pritchard, of Llandaff, is the architect, and the builder is Mr. R. Roderick, of Margam. In consequence of the advanced state of the edifice the whole of the workmen employed have been regaled with a first-class supper, supplied by the incumbent of the place, the Rev. David Lewis.

Sparkbrook.—The foundation stone of Christ Church, Sparkbrook, has been laid. Mr. Sampson S. Lloyd gave the greatest portion of the site on which the new church will be erected. The other portion of the land was presented by the trustees of the Blue Coat School, and the funds were also aided by a large donation from the Church Extension Society. The church will be 104 ft. in length, 58 ft. in width, with a chancel of 25 ft., and will contain accommodation for 890 persons, all the seats being on the floor. Should this be insufficient, additional room can be made for some seventy more. The church spire will be 300 ft. in height, the material employed being Hampstead stone, with white Bath facings. The architects are Messrs. Medland, Maberley, & Medland, of London and Gloucester, the contractors being Messrs. Samuel Briggs & Son. The edifice is estimated to cost 6,771*l.*, of which 5,200*l.* have been subscribed or promised.

West Dean.—The new church recently erected in this parish has been consecrated by the Bishop of Salisbury. It is dedicated to St.-Mary-the-Virgin; is from the design of Messrs. Pownall & Young, of London; and is in the Early English style, comprising an apsidal chancel with side chapel on the north, a nave, and south porch. There is a slightly Swiss character about the edifice. The chancel is raised above the level of the nave, from which it is separated by a dwarf stone screen in the southern angle of which is the pulpit. There are four single lancets in the apse, filled with Early English pattern glass, by Messrs. Lavers & Barraud. The roof is blue, with gold stars, the outer portion dispersed in running patterns upon a stained and varnished ground. The floors are laid with Minton's tiles, and the edifice is fitted with a warming apparatus by Messrs. Haden. The sittings are of stained pine. Messrs. John Crook & Son, of West Dean, were the contractors.

Gloucester.—St. Nicholas's church has been re-opened after partial restoration at a cost of about 1,900*l.* The flooring has been raised a foot, and rests on a foundation of concrete. The south arcade has been taken down, and the columns raised. The old gallery at the west end has been removed, and part of the carved panelling has been placed over the children's benches at that end. The organ now stands at the east end of the narrow north aisle, with an oaken screen in front of it. The coating of whitewash has been removed from the columns of the two arcades—decayed stones have been taken away—and the capitals of the two upper ones on either side have been recarved; as have also the corbels on which rest the transverse beams supporting the roof. The capitals of the columns have been carved with foliage, the corbels with figures of angels, &c. The beams themselves have been replaced and carved; and the ceiling and all the walls have been scraped and plastered. The chancel has been renovated. The large east window has been replaced, and it is now filled with stained glass, bearing emblems of the Trinity, the Cross, and the usual figures in the centre of each light. There is a new dormer window on the north side, and a new south window. The three-decker pulpit has been replaced by a carved oaken pulpit on the north side of the chancel arch. The pews have given place to modern open sittings, at the end of each of which is a piece of the panelling of the old pews. The carving that was in the church has been used. The columns and walls were cut into and weakened to make places for monuments. Wherever it has been necessary, these have been removed. Outside, the tower has been restored. The porch of the south aisle leading into Westgate-street has been renewed. A new porch has been built at the old entrance to the nave, and thus there is exposed a Norman Agnus Dei, discovered during the restoration. The chancel and aisles have been covered with coloured Broseley tiles; and the bulging wall of the north aisle has been renewed, and strengthened with additional buttresses. Mr. Jacques, jun., of Gloucester has been the architect of the restoration, and the work has been carried out by Messrs. Shepherd & Meredith.

Bradenstoke.—The new church at Bradenstoke has been consecrated. The edifice, which is capable of holding about 230 persons, is placed in the centre of the village of Clack, and has been erected after a design by Mr. Hansom, of Clifton. The building is of Gothic character. The pillars separating the aisle from the nave are of red Devonshire marble: all the supports and stonework, both in the interior and exterior of the church, are carved; the chancel is paved with glazed tiles in pattern. Mr. Pinniger, of Tytherton, near Chippenham, was the builder employed.

Aust.—The parish church has been re-opened for divine worship after undergoing a restoration. The church possesses an interest on account of its having been presented to John Wycliffe, in the year 1375, by King Edward III., and it was here he spent many years of his ministry. The church, however, fell into a state of great dilapidation, and an appeal to the parishioners for funds wherewith to restore it met with a hearty response. Mr. Leppincott, the lord of the manor, Mrs. Leppincott, and some of the local gentry contributed largely to the work. The restoration was commenced about twelve months ago. The old deal boxes which served for pews have all been taken away, and seats of more modern design substituted. Like many other ancient parish churches the carved oaken ceiling had been covered with plaster, but all this has been removed, and the roof restored to its original condition. On many of the panels are the initials "J. W." The cost of restoring the chancel has been defrayed by Mr. Leppincott, and three stained-glass windows have been put in the chancel at the expense of Mrs. Leppincott. Two carved stone stalls have been placed in the chancel for the accommodation of the choir, and a reredos of carved stone, executed by Mr. Margetson, of Bristol, has been fixed over the altar. The centre aisle has been paved with encaustic tiles, by Mr. Godwin, of Hereford. The communion-rails are by Mr. Skidmore, of Coventry. A carved stone pulpit has taken the place of the old one, and a new reading-desk has been erected. A vestry has been erected on the north side of the church. Messrs. Pope & Bindon, of Bristol, were the architects employed, and Mr. H. Hughes, of Bristol, the builder. The total cost is about 1,200*l.*, and the church will now accommodate 180 persons.

DISSENTING CHURCH-BUILDING NEWS.

Dewsbury.—A new church which has just been erected in Swindon-road, Dewsbury, by the Unitarians, has been formally opened for Divine worship. It is a stone structure of Early English architecture, erected from designs by Mr. Crawford, of Leeds, at a cost of 1,500*l.*, the whole of which sum has been raised by public subscription.

Bolton.—The foundation-stone of a new Independent Chapel has been laid by Sir James Watts, at Edgworth, near Bolton. The chapel, which will be Gothic in style, is expected to cost 1,600*l.* or 1,700*l.*

Droylsden.—The foundation-stone of a new chapel in connexion with the Wesleyan Methodists has been laid at Droylsden. Since 1826, when the building in Market-street, now used both as chapel and schools, was opened, the population has largely increased, and it was determined to build a new chapel close by the old one, the latter to be thereafter set apart for the schools. A site was purchased from Mr. Christie, of Droylsden, in close proximity to the present chapel, and plans were obtained from Mr. J. W. Best, of Bolton, for a chapel which will accommodate about 630, one-third free. The cost is estimated at 2,400*l.* The building will be in the Italian style, and of brick with stone dressings. It will face the Manchester and Ashton road, at the point where it intersects Market-street. There will be a gallery round the chapel, which will be lighted by means of sunlights. The ceiling will be relieved with a moulded cornice. The gallery front will be formed of moulded panels, divided into bays by carved pilasters, and the gallery itself will be supported by columns with Corinthian capitals. The contractors for the work are Messrs. Bates & Baguley, of Droylesden.

Folkestone.—A Wesleyan chapel has been built here, from the designs of Mr. Joseph Gardener, at a cost of a little over 4,000*l.*, and is calculated to accommodate 900 persons. It has been formally opened.

Thorncliffe (*Sheffield*).—The new Wesleyan chapel at Thorncliffe has been opened for divine worship. The chapel is built on the site of the old one, on Mount Pleasant. The architecture is Early French Decorated, and the building consists of a tower, about 80 ft. high, a nave, two transepts, and an apse. There is a gallery in each of the transepts, and also one beneath the tower. The roof, which is of stained deal, is cored, ribbed, and bordered. The chapel is capable of accommodating about 600 persons, the sittings being open benches, of stained and varnished deal. The pulpit and reading-desk are of the same material. The building is heated by a hot-water apparatus, and it is lighted by two star-lights suspended from the ceilings and by several side lights. The architects are Messrs. Wilson & Wilcox, of London and Bath, and the builder is Mr. Robinson, of Barnsley. The total cost of the chapel is about 4,000*l.*, of which sum 3,000*l.* have been raised.

STAINED GLASS.

St. Mary's, Tetbury.—A memorial window has been placed in this church, by Mr. James Alexander, of Doncaster, in memory of his deceased wife. The artists were Messrs. Wailes, of Newcastle. The cost is about 200*l.*

St. Peter's School Chapel, York.—Two stained-glass windows have been erected at the east end of this chapel—one in memory of the Rev. John Lees, formerly mathematical master of this school, the other as a mark of respect to the Rev. Canon Hey, for many years head-master. The latter window represents the burial of our Saviour. In one compartment are the figures of John and Peter carrying the body to the sepulchre, and in the immediately adjoining section are representations of three women watching the event. In the lower compartments are the sealing of the sepulchre, and the soldiers watching it. Over the canopy is the emblematic representation of the pelican feeding its young. At the base is the inscription. The memorial of the Rev. John Lees is a continuation of the same subject. The chief compartments portray the three Marys arriving at the tomb, and the Angel seated, exclaiming, "He is not here, He is risen." Beneath are incidents which occurred after the Resurrection, including the appearance of our Lord to Mary Magdalene in the garden, and the unbelieving Thomas thrusting his hand into the side of our Lord. Over the canopy is the figure of the Lamb, symbolic of the Saviour, and at the base the inscription. Both windows came from the establishment of Messrs. Clayton & Bell, of London, and they have been erected by Mr. R. Powell.

St. Matthew's, Ipswich.—A stained-glass window, in memory of the late Mr. James Jeffries, has been placed in the south chancel aisle of this church, by Mrs. Jeffries. The subjects are the "Six Acts of Mercy," one of which fills each of the six compartments. The work was executed by Messrs. Heatley & Butler, of London.

Saffron Walden Church.—An east window has been placed in the chancel of this church by the vicar's churchwarden, Mr. Joseph Lecand Taylor. The artists were Messrs. Ward & Hughes, of London. It is a five-light transomed window of the Perpendicular period, containing in the lower series of compartments, each under a light architectural canopy, and supported by an ornamental base, the following subjects, viz.—"The Nativity of our Saviour and Adoration of the Magi," "Our Lord's Baptism," "The Crucifixion," "The Last Supper," and "The Angel and the Marys at the Sepulchre." The next five lights above are wholly occupied with the subject of our Lord's Ascension. Next above, the tracery openings contain a choir of angels with harps and palm branches. Below is an inscription (in the glass) "To the Memory of Eliza Taylor, died January 5, 1865." The stone work was quite new when the church was much restored in 1860, and is a copy of the old and original stone frame which had been plastered over for seventy years, and which came to light during the alterations, when the old altar-piece was taken down.

Sidmouth Church.—The subjects depicted in the window about to be presented by her Majesty to this church in memory of H.R.H. the late Duke of Kent, are as follow: In the upper compartment is represented our Lord in glory, seated with orb and sceptre in his hand, surrounded by angels. Below are four angels holding crowns and palm branches. In the centre compartment is represented our Lord blessing little children. On each side of this are designs representing Christian charity, viz., feeding the hungry, giving drink to the thirsty, clothing the

ked, visiting the sick, hospitality to the anger, visiting the prisoner; together with o others suggestive of benevolent institutions, ., the care of orphans and religious education. low are five of the acts of St. Nicholas;—the ief and endowment of three young women; e calming of a tempest; the consecration of Nicholas; sailors discharging a cargo of n, increased by St. Nicholas in return for ne taken for charity; and St. Nicholas staying hand of the executioner.

Books Received.

Descriptive Treatise on Mathematical Drawing Instruments, their Construction, Uses, &c., and Suggestions for Improvement; with Hints upon Drawing, Colouring, and Drawing Material. By Wm. F. Stanley. Published by the author, at 5, Great Turnstile, Holborn, London.

have been often asked for descriptions of ious mathematical instruments, and cannot better than refer students to this work. It practical and reliable treatise by the mathetical instrument maker to the Government, arious departments, and contains a clear and ficient description of all the drawing instruents in general use; also the best instruments to employed for producing every description of metrical form, as the ellipse, helix, parabola, choid, arcs of high radii, geometrical ornants, &c., with many important and popular truments not yet adequately described in nt, such as the ediograph, centrolinead, coming scale, geometrical pen, &c. The work is viceably bound in cloth, and illustrated by r 200 engravings specially prepared.

The information given is no mere paste-and-sors work, but freshly written from personal owledge, and therefore especially valuable, and re was great need of such a work. We have here strated descriptions of the conchoidograph, ediograph, the centrolinead, the computing le, and many others, as well as of the better wn and more simple instruments in use. As pecimen of the work, though without the antage of the illustration, we may here give Stanley's description of his own conchoidoph:—

It is a drawing instrument constructed by the author, roduce the conchoid of Nicomedes. It is intended to sed to describe columns and pilasters, with and without flutes, upon architectural drawings. It may also be t to strike the wave-line, the semi-ellipse, and for e other purposes.

he principle of the instrument is illustrated in Nicholn's 'Five Orders of Architecture,' in which, speaking of inishing columns, he says:—'The best and most le manner is by means of an instrument, invented by medes, to describe the first conchoid, for this being ied to the bottom of the shaft, performs at one sweep the swelling and the diminution, giving such a pful form to the column that it is universally allowed the most perfect practice hitherto discovered. The nns in the Pantheon at Rome, accounted among the beautiful among the antique, are traced in this ner.

s instrument that is then described by Nicholson is ted to give the workman the true form of the full-column upon the stone, for which a small portion of the conchoid is required. This instrument could e reduced to a drawing instrument without a difct construction, from its very limited action, particfrom its being adapted to work to one hand only, rom the want of any system of adjustment. Nevertss, the principle of action is so correct that it only red a little study of constructive detail to render it icient drawing instrument.

e writer's conchoidograph consists of one straight rule, to the centre of which another similar rule is d at right angles. Each of the rules has an undergroove along it, and a metal slide that moves easily in groove. The slide in the rule, which is shown in ontal position upon the engraving, has a screw, will clamp it to the groove where required. Above ides, and centred upon them, are two heads, similar am-compass heads; these are made so as to allow a bar to slide through them, which may be clamped to head by a screw above. At the end of the bar is tet to carry ink or pencil point. The instrument is rted a short distance from the drawing upon four two of these are placed in a line through the centre e instrument, so that by causing them to touch the of a tee-square, the instrument is set at once in a al position.

use the Conchoidograph for delineating columns; it is sary, first, to set out the vertical centre line of the n, and from the centre line to set off the semieters of top and bottom. The tee-square is then ht up to a line with the bottom of the column, and strument placed upon it, so that the two centre legs ought against the upper edge of the tee-square, and ow vertical edge of the instrument is against the line of the column. The three screws attached to ding heads are released, so that all parts of the inent are quite free. The slides and bar are brought rline with the bottom of the column, and the pen or point placed over the mark which indicates the iameter; in this position the sliding head nearest n is clamped to the bar. The pen or pencil is then ht up to the top semi-diameter, and the other slide backwards until the pen or pencil will fall upon the ed setting. In this position the back slide is to be clamped to the *sliding groove*, so that the head remains *stationary*, and the bar slides through it. It is now set, and the line may be delineated.

To draw the corresponding side of the column; the instrument is turned over on the tee-square to the reverse hand, without further setting.

This explanation may appear long, but by carefully going over it once, the instrument may be set in two minutes for any column. The necessity for drawing the centre and top and bottom semi-diameter, of course regards the first setting of the instrument only, and may be done on a separate piece of paper if required; as the instrument once set answers for all the columns and pilasters on the same drawing, the separate setting out of either the base or the cap will be sufficient.

The instrument may also be made to draw all the flutes of the column afterwards, perfectly and with little difficulty."

VARIORUM.

"Scientific Opinion: Office, 11, Southampton-street, Strand." This new weekly journal is based on an excellent idea, analogous to that of *Public Opinion*. The contents are not merely compilation, but are interspersed with original matter on the scientific questions of the day. The editor, we believe, is Professor Lawson, who is also the editor of the very successful and popular *Science Review*. —— "The Breath of Life and the Breath of Death; and a People without a Country. Hardwicke, Piccadilly." This tractate relates to the important subject of open spaces around London, requisite both for fresh air to the metropolis and for recreation to the citizens. It is full time the Londoners were aroused by such exhortations as these to the peril they now stand in of being shut up altogether from the open fields in their enervating prison of brick.——"Gas Works: the Necessity for Removing them from the Metropolis, as at Paris. By Thomas B. Simpson. Freeman, 102, Fleet-street." This is a subject closely connected with the preceding. Since there is neither necessity nor advantage to the public in having the defiling and pernicious agency of gas manufacture going on within the limits of the metropolis and contaminating its atmosphere, the Legislature ought to be urged to compel gas companies to be off with their foul works to a safe distance. Even as it is, we have gas companies preferring to supply districts at a distance from their works rather than those at hand. Thus the Imperial Gas Company, whose works are at Fulham, do not supply that district, which is supplied from the Nine Elms Gas Works by the London Gas Company, while the Imperial actually supply Hampstead and Holloway! Their own practice, therefore, proves that there is no necessity for gas-works being located within the limits of the metropolitan population at all. The purpose of the pamphlet under notice is to draw attention to this important subject, at a very fitting time. ——"Report of the Sub-Committee (of the Social Science Association) on the Patent Law. London: 1, Adam-street, Adelphi." This report gives the results of a general consideration of the advisability of patenting inventions and the best mode of doing so. The interest of the public rather than of inventors has been the ruling principle kept in view by the reporters, who think that a patent law *is* expedient.

Miscellanea.

The Sheffield Main Drainage Scheme.—The borough surveyor, Mr. Samuel F. Holmes, has laid before the highway committee a report on the drainage of the town, together with plans, sections, specifications, and estimates of the cost of the several intercepting drains required to carry beyond the limits of the borough the whole of the sewage at present flowing into the rivers Sheaf, Porter, Rivelin, and Don. The natural fall of the drainage areas of the borough, he states, is into the rivers Sheaf and Porter on the south and south-west, and into the Rivelin and Don on the north and east. The present report does not embrace the mode of dealing with the sewage when so intercepted and carried to Blackburn Forge, nor does the estimate include the cost of perfecting the street drainage of those portions of the town at present imperfectly drained. The reporter states, however, that, when the proposed intercepting drains are completed, there will remain no engineering difficulty to contend with. By the adoption of additional storm outlets the proposed drains, he considered, would be of sufficient capacity to carry away the sewage from a population of 400,000. The schedule of the proposed drains gives the total estimated cost at 41,411*l.*

The New Atlantic Telegraph.—The preparations on board the *Great Eastern* for receiving the telegraph have been completed, and the work of stowing away the cable in tanks prepared for its reception has commenced. At the end of June, or beginning of July, according to present arrangements, the *Great Eastern* will again commence laying the cable.

Cambridge.—Great exertion is being made in pulling down and clearing away a large number of houses opposite Trinity College, for the enlargement of the hostel. The work was commenced some years back by the late Master of Trinity. Mr. Selwyn is the architect, and Messrs. George Smith & Co., are the contractors. Casterton stone is to be used.

French Prize for Electric Light and Heat.—The *Moniteur* contains a decree by which a prize of 50,000f. is allotted, within the next five years, to the person who will discover a system by which the voltaic battery can be applied with economy to heating or lighting purposes, to the advancement of chemistry, manufactures, machines, or medical science.

Cement for Submarine Works.—At a recent meeting of the French Academy, a paper by M. Poirel, "On the Different Kinds of Cement which are used in the Fabrication of Artificial Blocks for the Foundation of Submarine Works," was read. M. Poirel stated that the only cement which can effectually resist the disintegrating effects of salt-water is that made of the *pozzolano* of Rome.

Society of Engineers.—At the last meeting of this society, Mr. Zerah Colburn, president, in the chair, the following gentlemen were duly elected. As members: Mr. Thomas Cargill, of Clapham; Mr. Haines Rowell, of Lee; Mr. E. S. Cathells, of Shrewsbury; Mr. James Blackburn, of Droylesden, near Manchester; and Mr. R. W. Carter, of Everton, Liverpool. As an Associate: Mr. Frank Livesay, of Dulwich. A paper, "On the Utilisation of Sewage," by Mr. Baldwin Latham, C.E., was read and discussed.

Value of a House in Piccadilly.—The family residence of the late Right Hon. Lord Willoughby d'Eresby, situated No. 142, Piccadilly, between Hamilton-place and Hyde Park, commanding views of the Green Park and Constitution-hill, with stabling in Hamilton-mews, held on lease from the Crown for a present term of forty years, at a low ground-rent, was disposed of at the mansion, by Mr. Phillips, of New Bond-street, by order of the trustees, for the large sum of 24,700*l.*, the tenant's fixtures to be taken by the purchaser of the lease; these fetched 550*l.* in addition—total, 25,250*l.* The frontage is under 30 ft.

Steel for Columns.—In France a few experiments were made some time ago by M. G. H. Love, upon small pillars made of Turton's steel, and having rounded ends. These pillars were one centimètre or 0·39 in. in diameter, the lengths being ten, twenty, and thirty times the diameter. The steel of which the pillars were composed was found by experiment to have a tensile breaking strength of 108,500 lb. per square inch. According to *Engineering*, the results show that, as in the case of cast and wrought iron, the resisting power of steel to compression decreases as the proportion which the length of the column bears to the diameter is increased; but this decrease in strength does not seem to be so rapid as in the case of the two first-mentioned materials. M. Love's own deductions are, that steel and cast-iron columns, having a length of from one and a half to five diameters, offer about the same resistance to compression; whilst columns of wrought iron of the same proportions offer only about half such resistance. When the length of the column is increased to ten diameters, however, he considers that steel offers a greater resistance than cast-iron, in the proportion of 41 to 31, the proportionate resistance of wrought iron being represented by 17. As the proportion of length to diameter increases, the resisting power of cast iron diminishes more rapidly than that of wrought iron, and that of wrought iron more quickly than that of steel, so that when the length reaches forty diameters, he estimates the strength of similar columns of the three materials to be in the proportion of the numbers 375, 562, and 1,500. It is wrong to found a law upon so few experiments; but, if the data above given are confirmed by future trials, steel will prove a valuable material for resisting compressive strains.

FALL OF A TEMPORARY GRAND STAND AT CHELTENHAM STEEPLECHASES.—The centre of a temporary stand, erected by a Gloucester tradesman, collapsed during the races at Cheltenham, and nearly 400 persons, chiefly men, who were on it, fell among the *débris* and on each other. Nine were seriously, and many more greatly injured by the fall. The construction is said to have been bad. No screws were used, only nails.

NEW IRON CHURCH FOR DEMERARA.—This is building in Glasgow, by Messrs. Thomas Edington & Son, from the designs of Mr. Honeyman, architect. The details are in the Gothic style of architecture. The nave consists of three aisles, the centre aisle having a clerestory. The length of the nave inside is 105 ft., and its width 70 ft., and the chancel is 35 ft. square. The height of the nave to ridge of centre aisle is 58 ft., and the height of chancel 48 ft. The roofs will be of dressed timber, except the principal couples, which are of iron. The nave has a hammer-beam roof, with angels carved on the ends of the hammer-beams, and richly filled-in spandrels of cast-iron above and below. The spandrels, forming arcading under clerestory walls, are filled in with Gothic scroll-work, and all the pillars have foliated capitals. The couples of the chancel spring from coupled twisted shafts, and the ridge will have an ornamental cresting. It should be added that the walls will be of brick, and that the design embraces a steeple 150 ft. high, constructed almost entirely of iron.

PADDLES AND SCREWS SUPERSEDED: THE HYDRAULIC PROPELLER.—A successful trial trip has been made with the *Nautilus*, a steam-vessel fitted with "the hydraulic propeller." The new motive apparatus differs greatly from paddles or screw-propellers. The engine and boiler are the same, but the steam power is applied through a wheel inside the vessel. This wheel takes up water (which is admitted into the metal case containing it, from the sea, by holes in the bottom of the vessel), and drives it out again with great force through two nozzles, one on each side of the vessel, above the water-line. The power thus exercised is said to be similar to the recoil produced by firing guns. The advantages claimed for this new propeller are, greater power at a less cost of fuel, the absence of vibration, and more efficient control in rough weather. In fact, the vessel, it is said, can be turned any way without a rudder, and may be stopped in half her length. Her average speed is 11½ miles an hour. The Admiralty have now in course of construction a gunboat, the *Waterwitch*, upon the same principle as the *Nautilus*. The inventor is Mr. Ruthven, of Edinburgh, who has till now been labouring in vain, since 1839, to get his invention into notice in this country, although a vessel on his principle has been constantly at work in Prussian waters ever since 1853.

THE VITAL AND OTHER STATISTICS OF GLASGOW FOR 1865. — Mr. West Watson, the City Chamberlain of Glasgow, has prepared the first part of his annual report on the vital, social, and economic statistics of the city. It deals with the mortality during the year; with births, marriages, and the increase of the population; with dwelling-houses and rental; and with the number and distribution of the present electoral body. "The mortality of 1865 within the municipal boundaries," says the report, "has amounted to 13,912; and if we estimate the population within the same boundaries as 430,000 at midsummer, it follows that the death-rate has been 32·353 in 1,000, or 3·235 per cent.; or, in other words, that one in 30·90, or say, in 31 of the population of Glasgow, has died during the year,—a high death-rate no doubt, but one which seems likely to be mitigated in the present year, if the results, as far as they have yet gone, may be accepted as a criterion. If the Registrar-General of England is correct in his position that the necessary or unavoidable mortality in a healthy community ought not to exceed 17 in 1,000, we seem to have a considerable amount of improvement to get through before we arrive at his standard of excellence." Of the 3,285 deaths from 1 up to 5 years of age, 1,747 occurred from 1 to 2 years; thus making the total mortality under 2 years of age 4,913, which is 35·315 per cent., or somewhat more than one-third of the total mortality. Nevertheless, the infantile mortality of Glasgow is lower now than it was eighty years ago. Of the total deaths, an average of 1 in 9½ arose from typhus, and 1 in 580 from smallpox, chiefly infantile.

ARCHITECTURAL MUSEUM LECTURES.—As a long interval has occurred, it may be useful to remind our readers that the next lecture of this course,—"Existing Obstacles to the Progress of Gothic Architecture in England," by Mr. F. S. Powell, M.P., will be delivered at the Museum in Jermyn-street, St. James's, on Wednesday next, the 25th.

IMPROVEMENT COMMITTEE.—The following are the members forming the parliamentary select committee on the Thames Embankment (North) Approaches Bill, the Thames Embankment (Chelsea) Bill, and the Park-lane Improvement Bill:—Mr. William Cowper, Mr. Tite, Lord Henry Lennox, Mr. Beresford Hope, Mr. Hughes, and Mr. Baillie Cochrane.

FEVER IN MANCHESTER AND SALFORD: THE MANCHESTER AND SALFORD SANITARY ASSOCIATION.—At the annual meeting of the supporters of this association, Dr. Morgan read a voluminous report, from which we take the following abstract:—The returns of the association showed that the total number of new cases of continued fever last year was 3,788, and that of the patients 350 died, or 1 in every 10·8. In each of the four quarters of the year, there was a steady and continuous rise in the number of seizures. From the returns of the registrars it appeared that the loss occasioned by death from this cause in the eleven districts of the sanitary association—districts containing in the aggregate an estimated population of 429,475—amounted to 911. On the assumption that each of these deaths represented eleven cases of sickness, it would appear that in the course of the year 1865, no fewer than about 10,000 persons experienced attacks of continued fever. The money expended on these fever patients was not less than 30,000*l.*, and of the persons who died upwards of 60 per cent. were in the prime of life. Inquiry showed that in the most notorious fever districts of Manchester and Salford, the characteristics of the poorer dwellings were a complete absence of ventilation, and overcrowding. The impurity of the outer air, and the small proportion of oxygen which it contained were also to be considered, as well as the frequently imperfect way in which the surface drainage was provided for. Many of the houses it was impossible to purify or disinfect.

THE POLLUTION OF THE THAMES.—The first report of the commissioners appointed to inquire into the best means of preventing the pollution of rivers, commencing with the Thames, has been issued. The commissioners have made a personal inspection of the Thames, and have visited and made public inquiry in Oxford, Reading, Windsor, Kingston, Richmond, Lechlade, Great Marlow, Worthing, Croydon, and South Norwood. Among their main conclusions are the following:—That the navigation works on the upper Thames are in a neglected and ruinous condition, and that some of the weirs and locks are dangerous;—that sewage from towns, villages, and houses on the bank of the river pollutes the water;—that the river is fouled by refuse from paper-mills and tanneries, as also by floating carcasses of animals;—that there are many shoals and some mud-banks in the river consequent on the incompetence of the Thames Commissioners to maintain it in a navigable and proper state;—and that town and house sewage may be so utilized on land as to prevent the river from the danger of pollution. The commissioners also submit various recommendations, amongst which are the following:—That the whole river be placed under the superintendence of one governing body. That this body be the existing Conservancy Board, provided that the Board receive an addition of an adequate number of representatives of the local interests of the upper Thames;—that after the lapse of a period to be allowed for the alteration of existing arrangements, it be made unlawful for any sewage, unless the same has been passed over land so as to become purified, or for any injurious refuse from paper-mills, tanneries, and other works, to be cast into the Thames between Cricklade and the commencement of the metropolitan sewerage system;—that the conservators be empowered to levy upon all waterworks taking water for domestic or trade purposes from the River Thames, a rental in proportion to the volume abstracted; and that powers be given to the conservators to make embankments throughout the valley of the Thames, and carry out arterial drainage operations, the cost of such improvements to be met by a tax upon the properties so improved.

RATE OF MORTALITY.—The annual rate of mo tality last week was 26 per 1,000 in Londo 31 in Edinburgh, and 35 in Dublin; 31 in Bristo 27 in Birmingham, 40 in Liverpool, 38 in Ma chester, 35 in Salford, 30 in Sheffield, 31 i Leeds, 29 in Hull, 36 in Newcastle-upon-Tyn and 39 in Glasgow.

THE ROYAL ACADEMY.—In reply to M Gregory, Mr. Cowper said (in the House Commons) he had received a letter from th President of the Royal Academy stating that th Academy had determined to make the alteration in its constitution which were thought expedien by the Government, and he should be prepare to lay the communication on the table.

THE COAL DUTIES.—The committee on th Local Government and Taxation of the Me tropolis, at the close of their sitting on Frida last, passed a resolution recommending th House of Commons to continue the coal dutie in their present form, for the completion of th Thames Embankment and other improvement instituted by the Board of Works, and likewis the improvement of Holborn Valley and New gate-street, recommended by the Corporation.

PROPOSED ENLARGEMENT OF THE SUSSE COUNTY LUNATIC ASYLUM.—The Court of Quarte Sessions (held at Lewes) have ordered the pre paration of plans and estimates for the enlarge ment of the asylum at Hayward's Heath. Th proposal, the carrying out of which is estimate to cost 9,200*l.*, is to include semi-detached build ings, for the reception of infectious and con tagious diseases. By this enlargement it i calculated that additional accommodation wi be afforded for 130 patients.

SANITARY INSPECTION IN ST. PANCRAS.—Th vestry of St. Pancras having appointed tw additional inspectors to make a house-to-hous visitation in localities requiring sanitary im provement, Dr. Hillier, the medical officer o health, has reported the results of their firs week's work, which he states are such as t convince any one previously sceptical of th need of such a measure. Mr. Boreham has bee examining the streets and courts near Cromer street, Gray's-inn-road, which were foun very defective in sanitary arrangements. Wh doubted it?

TENDERS

For the erection of new warehouses in Southwar street, for Mr. W. V. Wright. Messrs. Wimble & Taylo architects:—

Adamson & Sons	£11,478 0 0
Little	11,221 0 0
Downs	11,132 0 0
Marsland	10,580 0 0
Colls & Sons	10,440 0 0
Hart	10,420 0 0
Ramsay	10,336 0 0
Hill & Son	10,279 0 0
Newman & Mann	10,228 0 0

For building five houses and shops, and a tavern, Conduit-street, Paddington, for the Metropolitan Ra way Company. Mr. A. Evers, architect. Quantities Messrs. Pain & Clark:—

		Add for shop fronts.	Deduct f malms instead red brick
Langridge	£19,900	350	39
Patrick & Son	16,460	249	30
Carter & Son	16,360	165	13
Gammon	16,198	281	52
Foster	15,960	145	16
Piper & Wheeler	15,730	176	—
Sawyer	15,532	240	—
Webb & Son	15,194	210	—
Ebbs & Sons	14,900	250	13

For a mansion and stable buildings, for Mr. A. Barin at Longmead, Bishopstoke, Hants. Mr. G. E. Stre architect:—

Nicholson & Son	£13,704 0 0
Wall & Hook	13,570 0 0
Myers & Sons	13,460 0 0
Bull & Son	12,760 0 0
Dove, Brothers	12,540 0 0
Futcher	11,991 0 0
Sawyer	11,785 0 0
Rodger & Booth	11,350 0 0

For the erection of a public-house in the Wells-ro Sydenham. Mr. Nicholas Lake, architect:—

Cheer	£1,619 0 0
Kent	1,553 0 0
Barrett	1,547 0 0
Wood & Munn	1,408 0 0
Wills	1,393 0 0

For the erection of a dwelling-house in Neat-str Camberwell. Mr. Nicholas Lake, architect:—

Wood & Munn	£810 0 0
Wills	799 0 0
Thompson	743 0 0
Sharp	697 10 0

The Builder.

VOL. XXIV.—No. 1212.

The Art-Union of London.

THE annual meeting of the members of this association was held on Tuesday last, in the Adelphi Theatre, for the purpose of receiving the Council's Report, and for the distribution of the amount subscribed for the purchase of works of art, for the year 1866. The president of the association, Lord Houghton, was to have presided, but was compelled to attend a committee on Private Bills in the House of Lords. The chair was taken at noon by Professor Donaldson, Ph. D., who briefly opened the proceedings, and called upon the Honorary Secretary to read the Report for the past year.

Mr. Godwin accordingly read the Report, as follows:—

"The public have appreciated, in a manner honourable to themselves, "The Story of the Norman Conquest," as told by Mr. Maclise, and your Council have the gratification to report that the subscriptions for the year amount to the sum of £13,648, showing an increase of £1,941 on last year. The volume is in the hands of the subscribers, and has elicited from art-critics, as well as from the general body, the highest praise and admiration. For the ensuing year an engraving has been made by Mr. H. Lemon, from a picture by Mr. Le Jeune, entitled "Pity." The plate is at press, and the impressions will be ready for delivery early in the year.

"Many of the local secretaries and agents having again expressed a strong opinion that the production of a chromolithograph, to be received by every subscriber for a certain year, would be generally satisfactory, the Council have selected for that purpose Mulready's well-known picture "Choosing the Wedding Gown," and have commissioned Mr. Vincent Brooks to execute the work. This is now doing, and there is good reason to expect an excellent result. It will require thirty-four stones; in other words, each example will pass through the press thirty-four times.

"Subscribers were informed, in the last report, that the copyright of Mr. Maclise's great work, in the Westminster Palace, "The Meeting of Wellington and Blucher after the Battle of Waterloo," has been purchased for the Association. Arrangements have since been made with Mr. Lumb Stocks, A.R.A., to produce an engraving from it, and the work is already in progress. Endeavours were made in the first instance to obtain a copy of the picture for the purposes of the engraver, by means of photography, and the magnesium light, natural white light not entering the apartment. The experiment, however, though made by the best hands, was not entirely successful, and the painting is now being copied for us by the artist. The Council have to thank the Right Hon. William Cowper, Chief Commissioner of Her Majesty's Works, for the readiness with which he afforded required facilities.

"Mr. Maclise has recently completed the corresponding picture in the Victoria Gallery, "The Death of Nelson," a work of extraordinary power and merit, remarkable alike for colour and drawing, general effect, and the variety and fitness of the collateral incidents depicted. The details are selected and painted with a carefulness and finish that might be thought to belong exclusively to works of a cabinet size; and yet these in no way interfere with the main intention of the picture, or lessen the amount of human interest excited. All honour to the admirable artist who has thus nobly sustained the character of the British School of Painting, and produced works that, it may be hoped, will long preserve the memory of men dear to their country: works full of energy, delight, and noble prompting. The Council have gratification in stating that they have purchased from Mr. Maclise the original oil painting "The Death of Nelson," from which the mural work has been executed, and which will be found in the Royal Academy Exhibition now about to open. Arrangements will be entered into to engrave this picture in the highest style of art for general distribution amongst the subscribers. The engraving will be made to accord exactly with that of "Wellington and Blucher;" and fit presentments of these two noble works will thus be scattered far and wide over the kingdom and its dependencies.

"When the Waterloo picture was first shown, a controversy was raised as to the truth of the incident represented,—the meeting of Wellington and Blucher at "La Belle Alliance" on the day of the battle; and as this is even now at times revived, it may be as well here to record the evidence that settles the question. At the instance of H.M. the Queen, an inquiry as to the facts of the case was made through the Princess of Prussia of a Prussian officer, General Nostitz, who was with Blucher all the day of the battle; and this is the General's reply:—

"'Having had the honour of being the personal aide-de-camp of Prince Blucher throughout the campaigns of 1813, '14, and '15, and having been constantly at his side during those years at every important moment, I can answer the inquiry addressed to me respecting the meeting of the Duke of Wellington and Prince Blucher at 'La Belle Alliance' on the evening of the 18th of June most positively, that this meeting really took place, that the generals congratulated each other on the brilliant victory jointly won by them, and concerted measures for the pursuit of the enemy during the night. I shall be very happy if this declaration of mine shall tend to remove doubts for which, after the account given by the Generals themselves of this historical fact, there has never been any justification."

To return to our own business. A leading literary journal, in commending a recent step taken by the Council, commences the paragraph with the assertion that the Art-Union of London has spent many years "in the production of merely popular and generally unworthy works of art." This assertion cannot be supported by facts; and as it conveys the tone of easy depreciation adopted by some few public writers in speaking of this association, one observation on the subject seems desirable. The list of artists whose pictures have been engraved for the Art-Union, by Doo, Lightfoot, Willmore, E. Goodall, Watt, Lumb Stocks, Sharpe, and others, includes the names of Landseer, J. P. Knight, Tenniel, Hilton, Lee, Callcott, Stanfield, E. M. Ward, Mulready, Uwins, Webster, O'Neil, Frost, Turner, Frith, Leitch, Goodall, Cross, F. R. Pickersgill, Maclise; our volumes of illustrations, executed by the first engravers, are by Noel Paton, Corbould, Selous, Duncan, Armitage, Harding, Jenkins, John Leech, John Martin, F. Tayler, Ansdell, John Gilbert, Wehnert; and our bronzes and statuettes in Parian are after Flaxman, Westmacott, Armstead, Calder Marshall, Thornycroft, Stephens, Bell, Chantrey, Lawlor, Durham, Gibson, Wyon, Foley. If these be the producers of "generally unworthy works of art," the Council have to learn where the men capable of executing more worthy works are to be found in England.

The medallic series is increasing in extent. The medal commemorative of Benjamin West has been completed by Mr. Wilson, and examples of it will form part of the present distribution. The Council have further determined to commemorate in this series Dyce, Gibson, C. R. Leslie, and Sir Richard Westmacott, and have commissioned Mr. G. G. Adams, Mr. Joseph S. Wyon, Mr. Alfred Wyon, and Mr. Leonard C. Wyon respectively, to produce medals of these artists. The small amount of encouragement given for the practice of the art in England continues to be matter of regret. The ancient medals offer a rich treasury of reference. They give us the forms of buildings and the faces of men that were otherwise unknown to us; they establish dates and confirm history.

A metal inkstand, of which examples are to be allotted on the present occasion, has been produced for the Association. On this, by means of the electrotype process, the heads from our commemorative medals form the chief ornamentation, and justify the inscription upon it:—

"Though time will wear us and we must grow old,—
Such men are not forgot as soon as cold."

On the occasion of a recent visit paid by one of your honorary secretaries to the Imperial Collection of Medals in Paris, which contains numerous specimens of the medals of almost every country, it was found that there was only one example of English work. Understanding from the director that he would willingly receive and exhibit the Art-Union medals if sent, and gladly forward some of their works in return, the Council have presented a set to that establishment, where it is hoped it may afford an honourable testimony to the state of that class of art in England. Your Council have also acceded to requests for some of our engravings to hang in the meeting-room of the Literary Institution in Pera, Constantinople; and to similar requests from other distant parts of the world. In India arrangements have been lately made to give increased publicity to the productions and operations of the Society.

The list of local secretaries continues to increase. It spreads over the earth and lengthens the chain binding men together for a common good object,—it serves to increase one of the most solid bases of human brotherhood,—love of art. A glance through the list of subscribers shows that they are gathered not merely from every nook and corner of the United Kingdom, but from the Antipodes and every intervening portion of the globe where English men and women are congregated.

The Council thank,—not as a mere matter of course, but with hearty sincerity,—all those gentlemen who thus co-operate with them; adding an expression of that gratitude which is inspired by the hope of services to come.

A vacancy has been caused in the Council by the regretted death of James Stewart, esq., of the Bank of England, who for many years gave valuable attention to the finances of the Association; in his place the Council have thought it right to elect James Hopgood, esq., who kindly acts as honorary solicitor. They have also elected Samuel Smiles, esq., and Thomas Williams, esq.

The Association has to deplore the loss of its late president, the Right Honourable Lord Monteagle, who had held the office since the death of His Royal Highness the Duke of Cambridge, and had previously served as vice-president. At a time when difficulties threatened the Association Lord Monteagle rendered essential assistance in placing it on a firm and legal foundation. His genial and efficient assistance at our annual meetings is within the knowledge of the general body of members, and has often been recognized with their warmest thanks.

The Council have much satisfaction in announcing that the Right Honourable Lord Houghton, D.C.L., who had previously served on the Council, has accepted the office of President, to which he had been unanimously elected.

The accounts have been audited by two members of the general body of subscribers, Mr. Atkinson and Mr. Hampson, and three members of the Finance Committee.

The receipts and expenditure may be thus briefly stated, a detailed account will be printed as usual with the Report:—

Amount of subscriptions		£13,684 2 6
Amount allotted as prizes	£7,264 10 0	
Cost of plates, printing, &c. "Norman Conquest"	3,769 10 9	
Printing, advertising, salaries, collectors' and agents' expenses, &c. &c	2,650 1 9	
		£13,684 2 6

The amount set apart for the purchase of works of art from the public galleries by the prizeholders themselves will be thus divided:—

20 works at	£10	each.
20 ,,	15	,,
20 ,,	20	,,
20 ,,	25	,,
12 works at	£30	each.
10 ,,	35	,,
10 ,,	40	,,
5 ,,	45	,,
10 ,,	50	,,
8 ,,	60	,,
6 ,,	75	,,
4 ,,	100	,,
3 ,,	150	,,
1 work	200	,,
1 ,,	250	,,

To these are added,—

A Bronze Statuette of the "Queen on Horseback."
A Bronze Statuette of a "Boy at a Stream."
A Marble Bust of "Hebe."
20 Medallion Bronze Inkstands.
100 "Psyche" Vases.
80 Busts in Porcelain of his Royal Highness the Prince of Wales.
60 Sets of Photographs from the Society's Plates.
80 Chromo-Lithographs, "Young England."
250 Chromo-Lithographs, "Wild Roses."
200 Volumes of Etchings, by R. Brandard.
100 Silver Medals, commemorative of Benjamin West, P.R.A.

Making, with the Parian busts due to those who have subscribed for ten years consecutively without gaining a prize, 1,243 prizes, in addition to the volume of engravings received by every member.

On the plan followed previously, the smaller prizes will be allotted by numbers drawn from the wheel, in the same manner as the picture prizes; but as the drawing of these prizes would occupy more time than the proper business of the theatre would allow, the drawing will take place at the office to-morrow morning, at ten o'clock, when any members desirous of being present are invited to attend.

The reserved fund now amounts to 12,810*l.*

The works of art selected by the prizeholders of last year were exhibited to the members and their friends, and for part of the time to the public free, without any limitation whatever, in the gallery of "The Institute of Painters in Water Colours," Pall-mall, with the kind permission of that body.

The practice of painting in water-colours has greatly extended in England, and an additional gallery for the exhibition of pictures in that medium has been opened, under the title of the "General Water-Colour Exhibition." In compliance with the request of the Committee by which it is managed, this has been added to the list of exhibitions from which our prizeholders may select pictures. The Council repeat, emphatically, the annual expression of their hope, that selections will be made with the greatest care and discrimination by those who have the good fortune to obtain the right to buy themselves works of art.

The attention of the Council has been directed to the fact that, on the motion of Lord Robert Montagu, the House of Commons has appointed a select committee to inquire into "the operation of the Art-Union Laws." Your Council, if invited, will not fail to give every assistance in their power to that committee, quite satisfied as to what must be the result of examination so far as the proceedings of this corporation are concerned. The inquiry has, probably, reference to the misapplication, in other quarters, of the powers given by the Acts of Parliament relating to art-unions. The Art-Union of London has raised, and spent amongst artists, the large sum of 340,000*l.*; has led thousands of persons to find a pleasure before unthought of, in the contemplation of works of fine art; and, moreover, given them the means of doing so. When Reynolds set up in Plymouth, no print of any value, according to Northcote, had been ever seen there in a shop. The increase of a love for art in every part of the kingdom since the establishment of the Art-Union of London, the increased importance attaching to works of art, and the immensely improved position of artists, are undeniable facts; and those who have inquired the most carefully into the subject are the least likely to speak slightingly of the part played by the Art-Union in bringing about this admirable change.

The late Lord Carlisle, years ago, at a public meeting, expressed the pleasure he had experienced on one occasion in finding on the walls of a log-hut in the back woods of America, two of the engravings issued by this association. More recently, a friend has mentioned the surprise and gratification given him, in like manner, by meeting with our engraving "A Merrymaking in the Olden Time," in the heart of China; and the anxiety with which our publications and prizes have been welcomed at the "Diggings" and in other distant regions, has been more than once reported to the Council, and proves the genial influence of our efforts to extend the appreciation of the fine arts throughout the empire.

It will be remembered, that the premium offered by the Council for the best life-size figure or group was awarded, in 1864, to Mr. C. B. Birch, for his "Wood-Nymph." The sculptor has since then produced the group in marble, and with the obliging permission of the Art-Committee of the Privy Council, it now stands in one of the new courts of the South Kensington Museum. Reproductions of it, in statuary Parian, under the direction of the sculptor, will form prizes on a future occasion.

With reference to the court just now mentioned, the Council would point with great satisfaction to the revived use of mosaic work in the mural decoration there, as well as elsewhere in the country. The introduction of artistic terra-cotta on a large scale in other parts of the Kensington Museum calls also for their recognition.

The Exhibition of National Portraits now open in connexion with the Museum must be viewed as an event of great interest and value, and should induce study, as well from a line-art point of view as with reference to history. The extent of art-riches possessed by England was unknown till of late years. The public may look soon to see new, or, at any rate, greatly enlarged and improved galleries for the National collection of pictures, a building for the Royal Academy of Arts, a Natural History Museum in South Kensington, and new Law Courts. An anxious desire must be largely felt that these structures may be worthy of the country and the time; to which end architecture, sculpture, and painting must work together, and work well.

The approaching International Exhibition in Paris calls upon our artists and art-workmen for exertion. England should be well represented there, if she is to maintain her place in the markets of the world and in its estimation. Those who stand still in the race will be run over.

Amongst the doings of the time in our direction, the numerous local Industrial Exhibitions of the past year should not be overlooked, as showing, if not any great acquaintance with art, an increasing desire on the part of large numbers of persons to obtain that acquaintance. It

would be well, perhaps, if, at these most useful gatherings, which assist so greatly in blending the interests of high and low, it were made clear when prizes are given to so-called works of art, that the reward is for the effort under the circumstances, and not always because the result itself is admirable. To lead the multitude to suppose that the weak daubs and hideous models to which in many cases prizes have been awarded, are things to be admired, is retarding the education of the eye, and lowering the standard by which judgments are to be formed. The Schools of Design in connexion with the Government Department of Art, can scarcely fail to exercise a large influence in giving widely a perception of beauty and the power of judgment. If they do not at present produce many great designers (not a common article anywhere), they are scattering over the kingdom men and women who have learnt how to see, and many of whom can teach others how to see: men and women who know,—

> "There's not a tree, a plant, a leaf, a flower,
> But has its own peculiar beauty's dower;"

and who will spread far and wide that knowledge and those feelings which tend to produce taste. An earnest English writer has justly laid down as evidence of good education in art the existence of "a lively susceptibility of the emotion of beauty, and a fixed determination of the principle of taste towards that which is beautiful, analogous to that of the reason towards truth and reality; or, rather resembling that fixed and determined purpose of the will towards that which is good and right by which the moral character is (as Aristotle tells us) completely and effectually formed."

To aid in implanting this susceptibility, -in giving a nation a delight in beauty,—is no small work. It is painful to think of the thousands who, living in the midst of beauty, have not the power of recognising it. All who are wise will assiduously nourish the faculty; for we easily grow dead to such impressions, and allow the material and mechanical to obtain uncontrolled sway.

To be able to appreciate the work of a great master shows acquirement, and is itself a possession. A noble picture—a picture wherein we see,

> "The spirit of the years to come,
> Yearning to mix himself with life,"

seizes the soul rather than the eyes—has more to do with the imagination than the senses. Embodying the deep thoughts of the inward man it begets thoughts in those who can perceive, and raises the mind above the difficulties and casualties of every-day life.

On lower grounds, art-education is doing, and will do, much for the country. Remember how small an amount of art will raise the value of any quantity of raw material, and that artistic skill can give an impetus to the whole industry of a people, find for it wider markets, gain for it fresh rewards. The want of a collection of pictures in each of our cities and principal towns—such as is found in nearly every town in France—still remains a discreditable fact If we cannot produce great genius, we can at least popularize art, spread its pleasures, raise the standard of taste, and prepare a public capable of appreciating and rewarding. The Council of the Art-Union of London, with your help, will continue to play their part earnestly in this good work.

The Chairman said that, after hearing the Report (the adoption of which he moved), he had very few words to add: but he was sure they must feel with him that these anniversaries of the Society were invaluable. They were a protest against the idea that the rich monopolized the cultivation of the fine arts, and the gratification these bestowed, for they showed that every one who had a guinea to spare, if he had a taste for refinement, could obtain a work of art which might form the commencement of a fine collection. These anniversaries were also important in connexion with the fine arts, inasmuch as through them the Art-Union of London came annually before its members, stated its receipts, and showed how it applied them. They had nothing to conceal, but rather wished to show what they endeavoured to do for the cultivation of the fine arts, and also in instructing the great mass of the population in matters connected with the fine arts. The Art-Union of London might be considered a branch of the Council of Education of this empire. Their schools were the exhibitions that were open during the year; their teachers were the pictures that lined the walls of those exhibitions; their premiums were the works of art which they offered as prizes. When they recollected that there were nearly 14,000 subscribers to the Art-Union, sometimes more, they could conceive how large an influence the association possessed. This was not an art-education to be debased by unworthy matters; at the same time they must not neglect those to whom was due the intrinsic merit of the works themselves. The promotion of the arts within some few years had materially changed. In former times it was usual for noblemen,—a Devonshire, a Lansdowne, or a Bedford,—to visit the studios of the artists, and give orders to execute pictures: now it was the picture-dealers who were the great patrons of art. It was a mere commercial speculation on their part, of course, and, therefore, it was the more necessary for that association to infuse into the public mind a higher and a nobler ideal of art. As it was, when he looked at many of the pictures which lined the walls of the public exhibition rooms, he was astonished that the English school, high as it stood in European estimation, should be able to maintain the position it did. They saw few noble efforts in historic subjects, and little done to maintain the study of the fine arts at the high position which it ought to occupy. There was generally plenty of subjects fit for the drawing or dining rooms of the merchant princes of Birmingham, Manchester, and Liverpool, and it was time that the artists threw a great deal of merit into those works. But those highest efforts of art, those great historic pictures which ought to line the walls of their exhibitions, were very rare. Nevertheless, there were some artists to paint such pictures, and some lovers of art to purchase them. He recollected a reproach made to the Art-Union that it should have so cumbrous an object as a statue for a prize for one of its subscribers. Could they conceive how that should be a reproach? Why, a fine statue was an object held in honour by every nation imbued with the feelings of art, and what mattered it whether it was cumbrous or was capable of being carried away in the hand? He wished to impress on members who might be entitled to purchase prizes to consider well the responsibility which attached to the selection of the prizes. This was most important to the Art-Union, which accorded to its prize-members the right of selection. If they made a bad selection, how much did that right suffer, and how much also did the cause of the promotion of art suffer. A friend of his, a lady, got a ten-guinea prize, and she selected a water-colour drawing—a mere sketch, but full of the real spirit of art—a sketch by Copley Fielding. Some years after, she received an offer from a gentleman who had learnt the existence of the sketch to buy it, and ultimately he purchased it for forty guineas. He wished to emphasize the observations made by the honorary secretaries in the report as to the importance of judicious selection. Once, in Kent, in a remote village of that county, he was attracted by one of their fine old wooden houses, and, sketching it, was asked by the owner to view the interior. There he found several admirably selected pictures—prints and prizes of the Art-Union; and he learnt from the possessor that the influence of these pictures in the neighbourhood had been most gratifying, as exciting a love and a taste for art, and adding to the subscribers of their Association. He therefore hoped that the prize-holders, in selecting their prizes, would judge carefully, and with a view to promoting the great objects they had in view—the advancement of art and the honour of artists. He concluded by proposing a resolution that the report then read be received and adopted, and he called on Mr. George Cruikshank to second the motion.

Mr. George Cruikshank said he was sure they were more than satisfied with the report. He did not think he had ever heard one more complete or excellent. He also expressed his thanks to the chairman for his address, and concurred with him in wishing that every one present might carry away a prize. He believed art to be a very powerful and potent educator; he remembered, when a boy, the deep and lasting impression and advantage he had derived from the contemplation of good works of art. He would only add one word, and that was, to express his belief that the purity which distinguished works of art of the present day reflected high honour upon the artists of their country. He cordially seconded the motion.

The report was then received and adopted.

Sir Francis Graham Moon, bart., moved, in warm terms, a vote of thanks to the hon. secretaries of the society.

Mr. Francis Bennoch seconded the resolution. Their two hon. secretaries had met them for thirty years, year after year; for thirty years they had read reports, embracing all the important points of art. He thought the occurrence unexampled.

The resolution was then agreed to.

Mr. Godwin, in returning thanks, said he had come into the theatre that day with a full determination to deliver up his trust. He had considered it now time that some one else should have the opportunity of occupying his place, but in consequence of what had been said to him he had made up his mind to postpone that determination for a little time. He had given considerable thought and energy to the affairs of the Art-Union for many years, and he thought some one else should now take the post. If he left the Art-Union now he should leave it in a state of great prosperity, and extending all over the civilized world. It exasperated him, he must confess, to notice the manner in which writers outside, at times depreciated the Society, mainly because they did not know its operations. The Art-Union was not established to buy pictures of Sir Edwin Landseer, who did not want buyers; but how could they have veterans if they did not look up recruits? And many artists now at the top of their profession considered it a fortunate thing to have had their works selected in early days by members of the Art-Union. The Art-Union directed itself to the public: the originators said, "Let us make an art-educated public, and then the painters will be called upon to supply good art." And they had succeeded. The Art-Union of London had had an immense deal to do with the creation of the present love and demand for art, and deserved much more gratitude than it got out of doors, simply because some of those who criticised it knew little or nothing about it.

Mr. Lewis Pocock also returned warm thanks.

The Chairman said the services and character of Mr. T. S. Watson, their assistant secretary, were of high value to the society, and called for that recognition and thanks which Mr. Watson's own modest and retiring nature restrained him from seeking. It gave him great gratification, in his own name and that of the council and the members, to make this statement respecting the services of their able assistant secretary.

Mr. Pocock said they were all extremely indebted to Mr. Webster for his unvarying kindness to the Art-Union, and in giving them the use of his theatre, in which to hold their meetings. He had great pleasure in moving,—"That the warm thanks of this meeting be given to Mr. Benjamin Webster for his kindness in again granting the use of his theatre for this meeting, and to Mr. J. Kinloch for his active co-operation."

Mr. Edgar Bowring seconded the motion. Nothing that he could say could add to the unanimity with which the resolution would be agreed to; and, besides, he knew they were all as anxious as he was to see the wheels of fortune set going, for probably, like himself, they were all looking forward to get a prize.

The resolution having been carried unanimously, the drawing was proceeded with, Miss Carr and Miss King officiating at the wheels; and Mr. Dafforne (of the *Art-Journal*), and Mr. T. B. Robinson acting as scrutineers.

We give a list of the principal prizeholders, and have only to add that the proceedings were closed with a hearty vote of thanks to Professor Donaldson for his conduct in the chair.

* The Rev. R. Greswell.

LIST OF PRIZEHOLDERS.

250*l.*—Broad, G. J., Diss, Norfolk.

200*l.*—Barclay, R., 95, Farringdon-street.

150*l.*—I. J., Wanganui, New Zealand; Van Oven, L., York-terrace, Regent's-park; Wallis, F. J., La Guaira, Venezuela.

100*l.*—Iacona, J., John-street, Adelphi; Anderson, Alex. Horseferry-road; Campbell, Miss, Sackville-street, W.; Fox, G. J., Atherstone.

75*l.*—Dennis, A., Geelong, Pick, E. Plymouth; Robertson, T., Hackney; Southward, J., Ballarat; Stewart, W. D., Fenchurch-street; Streeter, G., Isle of Grain.

60*l.*—Aston, G. E., Capel-court; Biddle, J. Leamington; Brockwell, Dr., Cleator, Cumb.; Gadd, H. Chichester; Hands, J. H., Birmingham; Lender, R. E., Sheffield; Tennant, A., Stone; Woolcock, J., Helston.

50*l.*—Blake, E., Blackfriars-road; Clarke, E. P., Wymondham; Clennie, J., Caterham; Green, Jno., Rose-hill, Bolton; Horrell, F. J., South-place, Finsbury; Nelson, Jno., Dalton-in-Furness; Pearson, J. A., Hyde-park-square; Phillips, W. J., Hammersmith; Smith, J. M., Leeds; Stone, Miss, Chiselhurst.

45*l.*—Clifford, F. M., Kensington; Getting, Miss, Portsdown-road, N.; Lace, F. J., Cross-hills, Leeds; McStevenson, P. G., Shrewsbury; Phillips, F., Newport.

40*l.*—Bagshaw, W. E., Old Broad-street; Barron, W. J., Aldermanbury; Buckton, G., High-street, Hull; Fickling, A., Kingston, S.W.; Oram, W. E. S., Woolwich; Senier, T., Bradford; Strugnell, F. W., Edgware-road; Swann, Rev. F. H., Spilsby; Walker, F., St. Thomas's Hospital, S.; Welch, E., Stockton-on-Tees.

35*l.*—Bond, Charles, Oxford-street; Campbell, W., jun., Falkirk; Grey, Mrs. C., Narreeb, Victoria; Groves, W. E., Blandford; Hedges, C., Nuneham, Oxon; Herman, W., 38, Harmood-street; Johnson, H. L., Leek; Root, G. W., Hartford, U.S.; Watson, W. W., Glasgow; Williams, F. E., Swansea.

30*l.*—Cheetham, J., Chadderton; Dunstan, J., St. Columb; Foster, R., Kilmarnock; Goni-y-Plon, Justo, Frontera; Johnson, J. E., Cambridge; Longfield, Mrs., Cloyne; Loveridge, S., Wolverhampton; Rosling, J., Reigate; Simonds, H. A., Reading; Pooles, H. A., St. Swithin's-lane; Treweeke, W., Brenge, Cornwall, Wilshin, J., Southgate.

25*l.*—Benzie, J., Cranbrook; Bridgwood, Captain, Longton; Chesterman, S., Banbury; Fisher, W., Kadina, Australia; Foster, Rev. J., Foxearth; George, Mme. E., Dunedin, N.Z.; James, F., Hampton-park, Bristol; Holden, J. F., Manchester; Lamilliard, H. G., Halifax, N.S.; Locke, Rev. C., Myddelton-square; Morris, Mrs. J., Sandgate; Northcote, S., St. Paul's Churchyard; Oding, C. F., Ripon; Owen, J. S., Dursley; Page, J., jun., Hobart Town; Pike, T. J., North Audley-street; Richardson, E., Wapping; Sharpe, W., Workhouse, Birmingham; Twiss, Robert, Sloane-street, W.; Wright, M., Leeds.

20*l.*—Atkin, R. L., Hartshill; Billiter, R. H., Barcombe, Lewes, Blackmore, H., Brook-street, W.; Cole, J. H.,

Sydenham; Dublin, Mr. Alderman, Hornsey; Edwards, W., Great Marlborough-street; Harris, G., Gower-street; Harrison, J., Lincoln; Hodge, H. E., Gawler, South Australia; Isaacson, S. H., Kentish Town; K. L., Wanganui, New Zealand; Leibrandt, J., Cape Town; McBean, A. H., Leghorn; Mills, D., Cape Town; Reynolds, J. W., Gloucester-street; Robb, R., Bristol Hill; Smith, J. E., North End, Fulham; Sutcliffe, Mrs. H., Manchester; Tandy, T. Ely-place; Tomlinson, J., jun., Great Yarmouth.

15l.—Bright, A. S., Brighton; Fergusson, L., Santa Martha; Godfrey, F., Newton Abbot; Gross, W., Botesdale; Hodgson, J., Newcastle-upon-Tyne; Hodgson, R., Devonshire-st., W.; Hugesdon, C., Deptford; McKelvie, D. B., Greenock; McLeod, W., Asylum, Cheltea; Mills, G., St. George's-terrace, Regent's-park; Nicholson, Jas., South Shields; Oldrey, E., Plymouth; Parsons, J. G., Great Yarmouth; Purdy, W., Old Broad-street; Ray, S., Coleman-street, E.C.; Richardson, J., Lisburn; Rumbold, H. E. W., Bond-street; Smith, Mrs. R., Tasmania; Tooke, Mrs., East Grinstead; Williams, A., Windsor.

10l.—Allison, W. Austinfriars; Brundritt, W. W., Runcorn; Croxford, C., Brentford; Dottridge, J., New Cross; Glynne, Rev. H. Hawarden; Harrison, F. M., Torrington-square; Hindley, F., 134, Oxford-street; Holmes, Joseph, Leeds; Hughes, John, Camberwell; Lewis, B., Cornhill; Lloyd, W., Portmadoc; Lumgair, J., Arbroath; Owen, T. Greenwich; Phillips, H. F., Euston-square; Pringle, C. W., Woolwich Dockyard; Purdy, W., 54, Old Broad-street; Reay, H., 2nd Life Guards; Schmixt, Carl, Crefeld, Prussia; Steele, A., 251, Hampstead-road; Walker, Enoch, 25, Old-street-road.

Entitled to a Bronze Statuette of the "Queen on Horseback."—Muller, H. A., Calcutta.

Entitled to a Bronze Statuette, "A Youth at a Stream."—Porter, Mrs. C., Harrow.

Entitled to a Marble Bust of "Hebe."—Chapman, C., 6, Pump-court, Temple.

Entitled to a Bronze Medallion Inkstand.—Baird, D., St. James's-square, Edinburgh; Cave, S., M.P., 36, Wilton-place; Charlton, Mrs., North Brixton; Clark, J. S., Wood-street, Liverpool; Dawber, R., jun., Lincoln; Edwards, W., 32, Great Sutton-street; Hervey, John, Maidenhead; Hills, T., Sandgate; Jones, R., Banbury; Loutit, R. T., Adelaide; Maxwell, H. Newtown Stewart; Pearce, J. R., 77, Cornhill; Powell, C., Tyer's-terrace, Vauxhall; Robson, J., jun., Pontefract; Ross, H., Furnival's-inn; Sellers, M. H., Buckingham-street; Shaw, Mrs. H., Buxton; Smith, C., Wanganui, New Zealand; Taylor, J., jun., Cleckheaton; Wilmot, H. W., Ball's Pond-road.

Entitled each to a "Cupid and Psyche" Vase.—Andrews, H. J., Adelaide; Bagge, J., Spring Bank, Adelaide; Barnby, George, Malton; Barnick, B. W., Keighley; Bell, E. H., 17, Broad-street, W.; Birch, C. J., Cambridge-place, S.W.; Bishop, R., 16, Tokenhouse-yard; Brown, T., Longfield, Headingley; Cavell, E. S., 10, Hilldrop-road, N.; Chapman, Mrs. I., Tachbrook-street; Clapham, G. D., Dunmow; Clark, J. A., Halifax, Nova Scotia; Copeland, H., Chelmsford; Crowther, James, Rotherham; Crutch, Rev. S. S., Lee, Tring; Dancer, F., Chiswick; Davis, A., 60, Houndsditch; De Castro, F., Cambridge; H. A., Edinburgh; Dixon, J., Melbourne; Drake, E., Offord-terrace, Islington; Earle, M. A., New York; Eynaud, W. S., Malta; Fearis, Mrs., Bloomfield-terrace, S.W.; Florence, Mrs., Christchurch-road; Foster, Col., Grindlay & Co.; Frost, John, Mansfield; Frost, W. F., Salford; Gale, H. L., Malta; George, T. W. Mills, Devonbury; Gibson, J., Clapham; Gitney, Miss M. A., Brighton; Goodfellow, Gen., St. Stephen's-crescent; Grant, John, 76, Cornhill; Green, Rev. S., Port Adelaide; Greenaway, J., Wine-office-court; Greenfield, A., Nelson, New Zealand; Greeves, J. W., 9, Mabledon-place; Hart, W., Ashtree, Upper Norwood; Harvey, M., Walsall; Hayward, J., Deptford; Hendry, J., 78, Warwick-square; Hepburn, J. C., Derby-road, N.E.; Hill, Mrs., Crewe; Hosd, Lewis, Rye; Hollis, S., 29, Campbell-terrace, S.; Hoyland, Dr., Constantinople; Hume, P., Glasgow; Hutchinson, T., Rugby; James, A., Westbourne-gardens; Johnson, M. J., Doctors'-commons; Keane, W. H. E., St. John, North Bristol; King, S. J., St. John, North Bristol; Lane, Capt. H. B., Guards' Club; Larkin, T. L., Burton-on-Trent; Liddell, J., 11, Colchester-street, S.W.; Lingard, J. M., Stockport; McCausland, Colonel, Colchester; McKenzie, R., Phœnix-street, Soho; Mauger, J. Guernsey; Metcalf, T., 21, Moreton-terrace, S.W.; Monk, G., Halifax, Nova Scotia; Monteiro, Mrs., 39, Sussex-street; Munns, J. E., Ashford; Nelson, Jno., Louth; Nettlefold, J. H., Birmingham; Overbury, J. W., 33, Highbury-place; Owen, T., Merthyr Tydfil; Paterson, Capt. J., Calcutta; Pearse, W. H., Flora-place, Plymouth; Pearson, J., Holbeck; Phillips, R. B., Farnsgdon; Potter, G. W. R., Bedford-street; Powell, Hugh, 170, Euston-road; Putnam, G., 22, Leadenhall-street; Rabau, A. B., Shirehampton, Bristol; Reading, E., Rock-place, Warwick; Roberts, Mrs. E., Hobart Town; Schofield, John, Winchmore-hill; Seifferth, C. B., Liebfield; Sewell, C., High-street, Barnes; Shackerley, Miss, Northwich; Shemmonds, H., Lichfield; Smeaton, A., Roe Town, Australia; Smiles, W., M.D., Bedford-square; Smith, W., Stockport; Stevens, R. C., St. Christchurch; Stirrup, J., Dilhorn, Cheadle; Stott, T., Wye, Kent; Swainson, R. E., Northampton-square; Taylor, F. Y., Walthamstow; Thomas, John, Birmingham; Thompson, J. T., Newcastle-upon-Tyne; Todd, H., Glasgow; Tyndall, Mrs., Moreland, Red-hill; Wehnert, E. H., Park-village, W.; Westall, Miss, Holland-place, S.W.; Wethrell, S. J., Boston, United States; Wilson, J. W., Chelmsford; Wright, J., Birmingham.

Entitled each to a Bust of H.R.H. the Prince of Wales.—Adams, S., Ware; Aston, J. H., Capel-court, E.C.; Atkins, J., New York; Atkinson, T. K., Kendal; Babbage, O. A., Adelaide; Baker, L. J., Stock Exchange; Barnard, C., Epsom; Bayley, H., 122, Leadenhall-street; Beaumont, Dr. T., Knaresborough; Best, J. T., Redhill; Blackmur, W. B., Greenwich; Boger, Miss, Stonehouse; Bond, J., Preston; Brundrit, J., Runcorn; Campbell, J., Queensland; Carter, W. J., Barnsley; Caswell, S., Fleetwood; Church, A. F., Halifax, N.S.; Clapham, Miss, Scarborough; Clegram, W. B., Gloucester; Corbett, Rev. A., Market Drayton; Cowlishaw, W. F., Canterbury, New Zealand; Drew, Mrs., Probus, Truro; Edwards, Miss, Harleyford-road; Ellis, W., Grimsby; Flower, F. W., Oporto; Fownes, E., 41, Cheapside; Fuller, J., Maidenhead; Gellatley, J., Geelong; Granger, B., James-street, Adelphi; Greatbatch, W., Longton; Greenhalgh, W. F., Leeds; Hale, P., Tunbridge Wells; Handford, G. C., King's-road, S.W.; Hawkin, J., Canterbury, New Zealand; Holt, Mrs. R., St. John, New Brunswick; Horton, J., Kingston, Jamaica; Howard, H. O., San Francisco; Hutton, C. W., Cape of Good Hope; Inderwick, J., Princes-street, Soho; Ingham, S., Wellington-street, Leeds; Keats, J. T., Gawler Town, South America; Kingsmill, T., Trinity-terrace, S.; Lacy, J., Caversham-road, N.W.; Ledbetter, W. A., Melton Mowbray; Legge, Rev. J. W., Aberdeen; Manning, T. E., Brattan-Clovelly; McHitchin, M. W., Newcastle-on-Tyne; McWaters, J., Montaro, Adelaide; Machu, J. H., Lower Tulse-hill; Maud, E. Leeds; Mills, 8, Trafalgar-road, S.E.; Morgan, D., Merthyr Tydfil; Munday, D., Adelaide; Murch, W., Bernard-street, W.C.; Murray, —, Ayr, N.B.; Nauson, J. Hackney; Nicholson, R., Maidenhead; Nightingale, S., Kingston, S.W.; Oliver, G., West Bromwich; Parker, E., Liverpool; Parr, G., St. Helen's; Perry, Miss, Bromsgrove; Petrie, George, Rochdale; Phillips, J., M.D., Jamaica; Rae, R., Liverpool; Roberts, C., St. John's-wood-park; Sargood, F. J. Moorgate-street-buildings; Sealy, H., Stanhope-street, N.W.; Sharp, Rev. J. W., Moreton-in-Marsh; Shepherd, M., Upper Tulse-hill; Speller, E., Devonshire-street, W.; Taylor, S., Barbadoes; Tayloe, T., Laurence Pountney-hill; Thornton, E. M., Brook-street, E.C.; Tomlinson, Rev. J. P., Lymington; Walton, J., Ceylon; Watkins, Mrs., St. Petersburg; Weaver, W. G., Hobart Town; Wilson, R., Derby.

ON THE STREETS.

THE naming of London streets has often been a matter of complaint, and a few feeble measures have been taken to improve matters, involving, nevertheless, troublesome alterations to title deeds; but till builders are awakened to a recognition of the perplexities they are perpetuating, we shall probably have the mystification continued. Perhaps enough has been said about the extent of the existing evil; but a word in season may diminish the extension of the nuisance with which we are threatened on all sides.

Beginning with Adam and Eve and ending with Queen Victoria, there can be no real need for the endless repetitions with which London is made more labyrinthical than it is. Seeing that there was an Adam-and-Eve-court why could not the builder of Adam-and-Eve-yard call his investment after Cain and Abel, or the good Seth, instead of confusing the posterity of our first father and mother for as many generations as brick and mortar will hold together? But there is a deep groove-like working in men's minds in all matters relating to street nomenclature that prevents any such range of idea. Although her Majesty is named Alexandrina as well as Victoria, between fifty and sixty streets and public places were named after the latter appellation soon after her accession, and not one after the former. In 1858, there was not a single group of houses of any kind distinguished by the prefix Alexandrina. We repeat that, supposing we were limited in our choice for names of streets to those of individuals, we need have no such sameness. In reality we have no limitation we can urge as an excuse for it.

Distinctive names are retained in the memory so much more easily than those having a resemblance or sound in common, that it is a matter of surprise they are not fixed upon, were it but for this reason. How many juveniles would remember the exact limit or extent of the Great Fire of London were it not that their memories are assisted by the startling names Pudding-lane and Pie-corner? But our forefathers, generally, were not to blame so much as we moderns and our immediate predecessors in this matter. They certainly repeated popular names in many instances, and in most towns gave the leading streets the same appellations as those by which similar thoroughfares were distinguished in other places; but they were guiltless of the folly of ringing the changes upon one idea to the extent common with us. Doubtless they had their High-street in a thousand towns, but they were innocent of Upper High-street, Lower High-street, New High-street, Old High-street, High-street North, South, East, and West, High-crescent, High-place, High-terrace, High-square, with their several Upper, Lower, New, Old, North, South, East, and West variations, labyrinthically spread over the same neighbourhood. Moreover, they had plenty of distinctive terms for other parts of their towns that were poetical, descriptive, and appropriate, which we do not aim at rivalling. In the neighbourhood of abbeys, for instance, we find very suggestive names still in use; along the banks of rivers, up steep hill-sides cut out in stairs, down sloping vistas melting in landscape, through mellow gateways striding old roads, we come upon names not reproduced since the days of the Canterbury pilgrims. And if each town had a thoroughfare named after some similar thoroughfare in other towns, it had also, in many cases, special terms of its own for minor ways. The Yarmouth Rows converging from the Dutch quay, with its scanty intermittent fringe of trees and masts in stiff contrast, and other parts of the town, to the Market-place, to suit the narrow dimensions of which there is a special conveyance in use resembling ancient Roman chariots; the entries of the north; the chares of Newcastle-upon-Tyne, built in the days when that town and county had just risen to sufficient importance to be entitled to a quarter of distinguished traitors as a pendant to its chief gate; the Venetian-like alleys of the south, which echo no traffic louder than the tread and shuffle of human feet and buzz of human voices, are cases in point. Then they had garths, nooks, closes, baileys, courts, sides, cotes, gates, lanes, arbours, stairs, &c., besides our modern rents, yards, squares, follies, and interminable streets, roads, crescents, terraces, and places. It is like dreaming of sunshine to turn over, in one's remembrance, the quaint picturesque names of such old places. This row of shadowy sombre houses, rising Venice-like out of water, is Delf-street. It is in one of the Cinque ports. Just in the position occupied by areas in London streets, ran, when we last saw it, a deep canal-like cutting, over which were thrown the wide slabs which formed the approaches to the doors. The water in it was called the Delf water, and was the common water supply of the neighbourhood. (*Delf* or *delfe* is an old word signifying a mine or quarry, or vein underground, from the Saxon *delwan*, to dig). This wide street of low stone houses, rising steeply up from a large pebble-paved market square, with the mark of the bull's ring still in the centre of it, till the houses are supplanted by a jagged basaltic rock, higher than any of them, crowned with trees, whose branches sweep to and fro high above their chimney-tops, and the road strikes across 12 miles of bleak, black, and brown moorland, is Clayport. There is water running down this street too, but it is in a shallow channel, stained rust colour with the iron it contains. About a third of the way up the height of this street, stood one of the old towers of the town, and from either side of the spot now depart narrow roadways, that occupy the sites of the corresponding parts of the town wall. From the top of this Clayport you can see the ocean and the Cheviots, with the intervening castles and hunting-grounds of the ancient Percies. But why Clayport? Claye, in old Norman French, meant a hurdle of rods wattled together. In Mediæval fortification Clayes were wattles made of strong stakes interwoven with osiers, or other small twigs, to cover lodgments with earth heaped over them. Probably this gate was defended by some such outwork in old times, and hence the name. Whence, though, the term "Seal" for one of the public ways in Hexham? Can it be a corruption of "Ciel" (Heaven), as has been lately suggested? There are departures from the meaning of terms quite as startling close at hand. Every mews is a misnomer growing out of the circumstance that the place where the royal hawks were once kept was turned into the royal stables.

It is said that the word "chare" is inexplicable. Saxon scholars have suggested, *cerre diverticulum*, the turning or bending of a way at its starting-point. But there appear to be two possible roots both more likely to be the true one than this. To chare in old times meant to execute small jobs. Hence our word "charwoman." A chare was a small piece of work, such as a narrow alley would be in contrast with a street. Add to this, that their dimensions made them passable to no vehicle wider than the charr, or chariot, still used in Yarmouth, and we seem to have made a home-thrust. In the south midland counties the words "charr" and "charks" were applied to pitcoal charred, as charcoal is now to burnt wood; and taking into consideration the early coal trade at Newcastle, coke, or its transit, or its workers, may have given rise to the term "chare." The Northumbrians rejoice over the puzzle. They have an old story to the effect that one of the witnesses in a criminal case at the assizes swore that *he saw three men come out of the foot of a chare.* The Judge exclaimed that he must be insane, and directed the jury not to take his evidence into consideration. But the foreman of the jury smilingly declared that he was quite sound in his mind, and his meaning quite clear. Pudding-chare appears an odd combination; but is easily explained, pudding being the old word for tripe, and for a mixture of barley and pig, much relished still in the north, got up in the same form as the sausage. As the preparation of these comestibles is a distinct art, the early professors of it, doubtless, gave name to the lanes in which they carried it on.

Nearly every town in the kingdom possesses localities endowed with names indicative of their

occupation by groups of people following one trade, just as the Jews gave name to Old Jewry and the Lombards to Lombard-street. In London especially we have Skinner-street, Weavers'-lane, Shoe-lane, Sadlers'-place, Ropemakers'-fields, Printing-house-square, Pottersfields, Poultry, Mercers'-place, Goldsmiths'-row, Glasshouse-yard, Clothfair, Bowyer's-yard, and many other places named after trades. The Danes have named one quarter of Copenhagen after beasts and plants, having a Hedgehog-street, Unicorn-street, Elk-street, &c., intersected by others bearing the floral designations of Heartsease, Tulip, Mint, &c. Londoners, however, have exhibited but a morbid zoological taste, confining themselves to White Lions, White Harts, Bleeding Harts, Red Bulls, Red Lions, varied only by Green Men and the equally rare Phœnix. But they have not been without their unaccountable and frivolous eccentricities, as witness Threadneedle-street, Duck's-foot-lane, Horse-ly-down-lane, Pewter-Platter-yard, Pickle-Herring Wharf, Wardrobe-place, Seven Sisters-road, Whalebone-court, World's End, Sermon-lane, Manifold-place, and a score or more of other queerly-named places. The Portuguese take the lead, perhaps, of all Europeans in odd street names, having a Kill-horses-street (Rua Matacavallos), a Break-bones-street (Rua Quebraossos), a Bread-and-Butter-street (Rua do Pàs e Mantega), culminating in a Devil's-street. The Rue de Boue (Mud-street), of Poitiers, might be truthfully repeated in many places; but the Rue Raison-partout (Reason-everywhere-street), of the same French town, could not be appropriately accepted so frequently. The A. B. C.-street of Hamburg, though distinctive, is not agreeably suggestive, nor scarcely instructively so, being as elementary as the First-street, Second-street, Third-street, Fourth-street, &c., of our Transatlantic cousins.

Returning to London. We may still trace Plantagenet London as well as Tudor London, by the street names. Then, inclosing these comes Stuart London, with its Whitehall, Hyde Park, Pall-mall, James-street, Charles-street, Buckingham-street, Gwynne-street, Anne-street, and more modern streets, named after its celebrities, Milton, Addison, Harley. Inlaid with portions of this, and stretching beyond, is Hanoverian London. Here we have fifty acceptations of the idea of complimenting the Brunswick line by calling streets after the name of that royal house, crossed by twenty-three suspicions that Hanover is more euphonical. Who does not recognise Germany in London in such street architecture of which white and ruddy Marlborough House is a specimen? George III.'s long reign has left lasting marks on London street nomenclature. Count the numerous George-streets and Charlotte-streets. There are no less than seventy-eight adoptions of the title of Gloucester. The royal dukes of Kent, Cambridge, York, Clarence, and Cumberland are also well represented. The regent and his regency are particularly distinguished in his own name as well as in that of his queen and pavilion. Pitt, as well as Chatham and Fox, painted on street corners, remind us of the same times. In all London there is only one place, a wharf, named after Napoleon. There are fifty-five repetitions of Wellington, and twenty of Waterloo. Popular hero as Nelson was, his name is recorded but thirteen times.

Although we have Alpha-road and Omega-place, the heathen deities have not found much favour on the banks of the Thames. Apollo, Diana, Hercules, and Minerva, although represented, are quite overpowered in the preference given to Mediæval saints. Even Britannia, Caledonia, and Hibernia make no great show. The four Evangelists are, however, popular prefixes. Thirty-three different saints are made sponsors for hundreds of streets; and we have rows of houses called after Baalzephon, Hephzibah, Jireh, serving as foils to the more attractive sounds and ideas, Angel, Paradise, Salutation, Holywell, Magdalen, Jacob's Well, &c. As we have Trinity-street, so we have Unity-place and Unity Bridge. We have, likewise, plenty of Cross streets, and a Crucifix-lane. Out of the ten thousand and more streets in this great metropolis, is it not curious that there is not one named after that in which Saul of Tarsus dwelt in Damascus, mentioned in the Acts of the Apostles, "Arise, and go into the street which is called Straight?" And, again, is it not also curious that out of the ninety instances in which streets are mentioned in the Scriptures, this is the only one which is named?

Reminding us of the pleasant landscapes shown on Elizabethan maps as surrounding London in Tudor days, are such names to streets as Hawthorndean, Hayfield, Ivy-lane, Hedge-row, Lavender-hill, the six Love-lanes, Orchard-street, Sweet-apple-court, &c. We look at such places in the same breathless, almost incredulous, way in which our grandchildren will regard Primrose-hill, or as that in which our grandfathers must have surveyed the rapidly disappearing traces of favourite wells, fairs, markets, and other once extra-mural attractions. It would be well if such truly pleasurable associations of idea and identity were borne in mind by the builders of the present great extension of this vast city.

Street-namers would do well, too, to remember that there are other ways of keeping public benefactors in grateful remembrance, besides giving them a grave in Westminster Abbey, or a monument. This has been urged so often that it seems almost childish to allude to it as a suggestion. But, where is Cobden-street? Which is the way to Palmerston-street? In what direction lies Stephenson-road? Where is Peabody-street to be? Is the popular esteem for any modern artist or *littérateur* impressed upon the surface of things metropolitan? In fine, do the people make use of this people's power of conferring distinction or indicating approval? Are Belsize, Kilburn, Hampstead, South Kensington, and that gourd-like neighbourhood between Nottinghill and Wormwood Scrubbs, any wiser in their choice of names than Tyburnia, Belgravia, and Westburnia were before them? Are the new districts in the east taking warning by the confusion engendered in the west? We much fear (excepting where controlled by the Metropolitan Board of Works) that they are perpetuating the upper, lower, old, new perplexities, complicated with reference to points of the compass,—an instrument, by the way, that not one person in ten thousand carries about him. If weathercocks, with their accompaniments, were part of the completeness of a street, this last distinction might be of some use under certain organised arrangement, but in their absence it is useless. There is a loving-kindness in shortening the toil and vexation of wayfarers. When this can be done in combination with a scheme for holding up to remembrance the names of those "who love their fellow men," as effectually as Ben Adhem's "angel writing in a book of gold," we can only account for the non-performance by concluding that the question has not been sufficiently advocated in the right quarters. We trust, therefore, that builders of new streets will give their future names due consideration.

VENTILATION OF THE HOUSES OF PARLIAMENT.

The appearance of another report on the ventilation of the Houses of Parliament reminds us of an exclamation uttered by Lord Brougham many years ago during a debate on this subject in the House of Lords,—"I do not want explanation, I want air." The document now before us has been drawn up by Dr. Percy, in accordance with a request from the First Commissioner of Works, that he would examine and "report upon the warming, ventilating, and lighting of the Houses of Parliament."

Before considering the report in detail, it will perhaps be worth while to give a short sketch of the present system of warming and ventilating the Houses of Parliament. The plan of mechanical propulsion by fans has long since been abandoned, and the air is now put in motion by heat, precisely as in most of our collieries. There are two great upcast shafts, namely, one of the turrets of the Victoria tower and the clock tower, and seven other smaller shafts. In the first two there are coke fires for the sole purpose of causing an upward current of air, but in the others the ascent of the air was effected by the smoke-flues, which terminated in these shafts. Recently, however, coke fires have been added to some of them, the ascensional power not having been found sufficient. "The upcast shafts now in operation at the Houses of Parliament would far more than suffice to ventilate buildings covering a much larger area, if suitable communications existed between them and all the rooms and passages, which, unfortunately, is not the case."

Noble lords and honourable members do not seem to have much to complain of under the present arrangements, whatever might have been the case in the early days of the new house, when Dr. Reid's system was in full force. A Dr. Percy remarks at the outset of his report "it is not reasonable to expect that in any considerable assembly of men there should be uniformity in bodily conditions, and, consequently, agreement as to what is the most comfortable temperature. If specific proof were needed in support of this conclusion, it might be supplied from the record of complaints concerning temperature from members of the House of Commons. While in some instances such complaints may have been well founded, it is certain that in other instances they resulted from the special bodily conditions of individuals. It has occurred that complaints have proceeded simultaneously from two members sitting side by side, or close to each other, one complaining that the temperature was uncomfortably low, and the other that it was uncomfortably high. It is easily understood that a degree of warmth which would be pronounced "comfortable" by some of our Scottish friends, would be unbearable by a hot-blooded and enthusiastic Irish member. We are not all of the compliant nature of the courtier Osric, who was ready to find it "indifferently cold," or "very sultry," at the bidding of Hamlet.

Dr. Percy disposes of many complaints as to insufficient ventilation in a similar manner. He points out that from our childhood we have been accustomed to associate the idea of ventilation with open windows, and rightly so, as far as ordinary dwelling-houses are concerned; "that we can hardly believe there can be efficient ventilation during summer in any apartment with closed windows, even though it may be proved that much more air passes through when the windows are shut than when they are open." The former is in fact the case in the House of Commons, as has been repeatedly proved by experiment. When the windows are opened, the quantity of air which passes through the House is diminished, and the temperature rises in a few minutes afterwards. A moment's consideration will, we think, convince most of us that ventilation, in popular language, means open doors and windows, and, in consequence, a disagreeable draught. Unless we *see* the ventilation, so to speak, we are, as a rule, unwilling to believe that it really exists. We prefer to walk by sight rather than by faith.

With reference to the quantity of air required for each person, Dr. Percy states that at least 1,600 cubic feet per hour are necessary; but, at the same time, says that the best authorities on ventilation agree that it is desirable to supply about 2,000 ft. per hour to each individual. "Dr. Reid regarded 10 cubic feet per minute as generally sufficient, but occasionally supplied 60 cubic feet per minute." Let the results of calculation or of practical experiment be what they may, this much is certain, that so long as any sensible odour is produced in a room by emanations from the occupants, the ventilation of that room must be considered imperfect. These emanations, which may in some sense be regarded as the products of the respiratory process of the skin, are too subtle for the most refined methods of analysis. They may be detected, it is true, by chemical tests, and their presence is instantly rendered manifest to our sense of smell. On the other hand, the quantity of carbonic acid given off by each person may be calculated with comparative accuracy. During the last Session of Parliament and the recess numerous experiments have been made with the view to determine the quantity of air passed through the House of Lords and the House of Commons. It is satisfactory to know that it has generally exceeded the proportion declared by the best authorities to be amply sufficient. On the night of the 12th of March, when leave was given to bring in the Reform Bill, about 1,500,000, cubic feet, or between 9,000,000 and 10,000,000 gallons, of air passed through the House of Commons every hour.

The source of this air-supply is evidently a question of some importance, and Dr. Percy states that one of the inlets to the Commons is close to the entrance to the ladies' gallery, where carriages sometimes wait for a considerable time, and that, if any horse-dung happen to fall there, the air entering is instantly infected. If a person, while smoking, merely walks through the Commons' Court, in a few seconds a distinct odour of tobacco-smoke will be perceived, especially near the Speaker's chair. Some of the "fresh" air which supplied the Speaker's house passed over two urinals.

We were much surprised to learn that there are no trustworthy plans of the arrangements

for warming and ventilating the Houses of Parliament. Dr. Percy says, "There are many hundreds of air-courses under as well as above ground,—beneath floors, in walls, over ceilings, and in roofs; some for supplying cold air, others for supplying warm air, and others, again, for carrying off vitiated air; there are air-valves in every part of the building; there are enormous smoke-flues running horizontally within and immediately under the roofs, with hundreds of chimneys in communication; there are, it is asserted, steam-pipes, of which the aggregate length is about fifteen miles, and about 1,200 stop-cocks and valves connected with these pipes; and there is a multitude of holes and crannies as intricate and tortuous as the windings of a rabbit-warren. It is not possible that any man should accurately remember these details, even if he had seen every stone and brick laid; and, in the absence of plans, occasional blundering will be inevitable." This evil will, however, soon be remedied, since a draughtsman and two assistants have been engaged for several months in exploring and mapping the air-passages. It seems singular that the plan should be made from the apparatus, instead of the apparatus being laid down according to the plan. This is, we suppose, to be explained by the fact that it has been found necessary to depart from the original design in so many instances, that the labour of keeping a faithful record of the alterations became too great. In the course of the explorations now going on much has been discovered which was previously unknown to the department. Duplicate plans will be deposited at the Office of Works for future reference.

The highly dangerous condition of the House of Commons roof, which was exposed to great risk of fire from the heat caused by the quantity of gas consumed, has been remedied. A mass of superfluous and easily inflammable deal timber has been removed, and where necessary sheet-iron has been substituted; but the general system of ventilation remains unchanged. The old state of things is described by Dr. Percy as follows:—"In the chamber above the ceiling of the House of Commons about 1,000 ft. of gas are consumed every hour during the evening sittings; and the products of combustion, after having passed through a series of vertical sheet-iron pipes into two large horizontal sheet-iron pipes, escaped from the latter at a comparatively high temperature, and came immediately into contact with light, easily inflammable flaps and doors of deal. . . . In the centre, from one end to the other, immediately over the lights, was a wooden gangway." The late Mr. Braidwood was, we believe, the first to point out the extreme danger of allowing wood to remain exposed even to temperature far short of that generally necessary for its ignition. In his evidence before a committee of the House of Lords he stated that, by long exposure to heat, not much exceeding that of boiling water, timber is brought into such a condition that something like spontaneous combustion takes place, and that *the time might be eight or ten years.* General Morin also points out the danger from the same cause. It is difficult to account for the fact, which seems, however, to be sufficiently well established. The "spontaneous combustion" theory is hardly sufficient, and it may perhaps be worth while to consider the question a little more closely. In the first place, it must be borne in mind that combustion is nothing more than an exceedingly violent chemical combination. Whenever the conditions necessary for this combination are fulfilled combustion takes place. In the strict sense of the word, therefore, no combustion can be properly called spontaneous. Several cases are on record in which heaps of oily cotton waste or greasy rags have taken fire. This has been caused by the rapid oxidization of the oil, which, having been absorbed by the rags, was exposed in a finely divided state to the action of the air. The "spontaneous" combustion of wood above referred to must obviously be explained according to some other theory.

The report next considers, at some length, the ventilation of the committee rooms, which in some cases appears to be very bad. In the Commons, the rooms 20 to 26 are unprovided with any special provision for a supply of fresh air from below, it having been originally intended to introduce fresh air at one part of the ceiling and to extract the vitiated air from another part; but the result was a failure. One day during last session there were 164 persons crowded into the space between the barrier and the wall in No. 23 room, and the standing-room for each amounted only to 1·57 superficial feet, while the number of cubic feet to each person was only 48. "With such crowding as this," says Dr. Percy, "the existing arrangements render the task of ventilating the room as hopeless as it would be to endeavour to ventilate a cask of red herrings."

It will probably be recollected that some little uneasiness was created last session by a report that steam boilers were placed immediately under each House of Parliament, and that the boilers were, moreover, in a very dangerous condition. The rumour proved to be incorrect, both in regard to the position and the state of the boilers; but, to remove every possible cause of alarm, they have now been placed under the inspection of the Manchester Association for the Prevention of Steam Boiler Explosions.

The gas consumed at the Houses of Parliament is supplied through a special main by the Chartered Gas Company, and, with a small exception, is of 20-candle illuminating power. The price charged is six shillings per 1,000 cubic feet. During the year ending January 9 last, the gas-bill amounted to 3,505*l.*, a sum which at first sight looks enormous. The illumination of the clock dials costs 250*l.* per annum, and whilst the House of Peers is lighted for 31*l.* 10s., the darkness of the House of Commons can only be dispelled by an expenditure of 167*l.* 8s. We do not wish to be thought mean, but we should like to know whether the expenditure under the following heads is not a little extravagant:—

Peers' librarian's	residence	£64 10s.
,, ,,	kitchen	192 6
Commons',,	residence	67 4
,, ,,	cooking apparatus	65 14
Clerk of House's	residence	163 4

It will be noticed that the peers' librarian burns almost exactly three times as much gas in his kitchen as he does in the other part of his residence. Perhaps, however, the whole of the cooking for the House of Peers is done there. But the Commons' librarian appears to use gas to the extent of 65*l.* 14s. for his own private purposes, since we find that a separate charge of 296*l.* 8s. 7d. is made for the Commons' kitchen.

A dangerous accident occurred, in October last, in the residence of the librarian of the House of Lords, owing to the fracture of a cast-iron gas main, which passed through the wall in the basement without any play. This being the *third* accident of the same kind, it was considered high time that "something should be done." Every main has now sufficient play where it passes through a wall, so as to provide against fracture by any slight settlement of the foundation. It appears, as in the case of the warming and ventilating arrangements, that there are no plans in existence of the distribution of the gas mains in the various courtyards, so that much time and labour has been expended in the exploration.

CONDITION AND MAINTENANCE OF THE NATIONAL ARMOURY IN THE TOWER OF LONDON.

Recent public observations on the management and uses of our museums, and the apparent probability that some Parliamentary inquiry will be shortly made in that direction, lead us to think that the publication at this time of the following statement respecting the National Armoury in the Tower of London may be useful and lead to good results. It was drawn up at the request of a late member of the Government by one who, it will be admitted, is well qualified to speak, and has a right to be heard on the subject. It so fully agrees with what we have advanced and urged from time to time in these pages, that it is scarcely necessary for us to say we fully concur in the prayer of the memorial:—

In obedience to your direction I have the honour to submit to you a statement, as brief as I can make it, of the late and present state of the Tower Amoury, accompanied by such suggestions as you have kindly requested me to offer for its improvement and conservation.

In the year 1825, Dr. Samuel Rush Meyrick received the Royal commands to re-arrange the Horse and Spanish Armouries, as they were then called; but instead of that learned antiquary being permitted to exercise his taste and knowledge to the extent he desired, he was hampered by instructions which greatly detracted from the value of his services, and compelled him to compromise with a system which should have been utterly destroyed. He was allowed to place the principal equestrian figures in chronological order, and to do away with the gross absurdity of exhibiting a suit of the reign of Elizabeth as one that belonged to William the Conqueror; but, at the same time that he demolished "the line of kings," he was ordered to appropriate every suit to some great personage of the period to which it belonged, distinguishing the few that could actually be identified by stars upon the flags above them. This childish "make-believe" arrangement exists to this day, and so little care is taken to preserve the modicum of truth contained in it, that on my recent visit the card that indicated the suit which undoubtedly belonged to Robert Dudley, Earl of Leicester, was hanging at the nose of a horse placed five or six below the one it should have been attached to. Dr. Meyrick having been knighted for his gratuitous services, and the fact of his having rearranged the collection honourably recorded in gilt letters upon a board placed in a conspicuous position in the Grand Armoury, the care and increase of it were confided to the chief store-keeper for the time being, whose qualifications for his important and responsible position did not include of necessity any knowledge of ancient armour, and he was consequently left to the tender mercies of dishonest dealers, or the discretion of casual advisers. The consequence has been, that although some valuable additions have been occasionally made, many palpable forgeries and clumsy casts have been purchased at large prices, whilst rare and genuine articles have been lightly rejected, and allowed to leave the country, or to pass into the hands of enlightened and liberal English collectors. I refrain from lengthening this paper by instancing facts, but am fully prepared to do so if desired. I can show, that valuable articles which had been sold or abstracted from the armoury, have been actually offered to the authorities, and rejected unrecognised by them; while the presence at this moment of the rankest forgeries, *some carefully preserved under glass*, is sufficiently notorious to antiquaries to substantiate my assertion, and spare me the pain of resorting to what might appear invidious personality. It is quite enough for my present object that, *there they are.* On whose authority—by whose advice—they were purchased, and *after public exposure in the newspapers, still exhibited*,—is now a matter of secondary importance. No fault can be imputed to the purchasers beyond an error of judgment; the onus lies upon those who confided to them so peculiar and precious a charge, without ascertaining or caring whether or not they possessed the necessary qualifications. The present state of the Tower Armoury I have no hesitation in describing as disgraceful to a country in which archæological science is so rapidly progressing. Independently of the exhibition of the forgeries alluded to, the most egregious blunders have been perpetrated. In the setting up of genuine suits, helmets, gauntlets, and other pieces are mismatched and incorrectly appropriated. With the exception of the central line of equestrian figures, there is scarcely an attempt at anything like chronological arrangement; and on several of these, helmets are placed some fifty or sixty years earlier in date than the rest of the armour. The indiscriminate crowding of the glass cases with pieces of all periods and descriptions renders it next to impossible for the student to acquire information, or the visitor to be impressed with the real value and interest of the collection.

I have, lastly, to offer my humble opinion as to the steps which should be taken for the correction of these errors and the improvement of the collection. It will, I think, be conceded that both these objects are desirable, even in a pecuniary point of view.

The Armoury is shown to the public at sixpence per head, and between two and three thousand pounds have been annually received for admission. According to a printed return now before me, I find that in 1839-40, the number of visitors amounted to 84,872, and the sum received to 2,121*l.* In 1840-41 the number of visitors was 95,231, and produce, 2,380*l.* These receipts are surely capable of being increased by imparting continually fresh interest to the exhibition,—by encouraging a taste for, and by disseminating a knowledge of, this branch of archæology. The Tower Armoury is *the only collection of objects of art or antiquity at the head of which there is neither an artist nor an antiquary!* I therefore consider the appointment of a competent and permanent curator as a matter of paramount importance. The mere re-arrange-

ment, unaccompanied by continual supervision, would be useless, as experience has proved.

In reply to your observation, Sir, respecting "another purchasing power," I took the liberty to remark, that the case of the Tower differed widely from that of the British Museum, to which the admission is gratuitous, and for the support of which a grant of money is annually voted by Parliament.

The Tower Armoury is self-supporting. The money received for its exhibition renders it unnecessary to go to the House of Commons for assistance. The purchasing power already exists; it is the misapplication of it that calls for remedy. More than enough is taken annually for the payment of the requisite officers and attendants and the purchase of antiquities. The surplus is now transmitted to the Paymaster-General, I believe. I respectfully submit that every penny received from the public for admission to the Armoury should be expended in its improvement and preservation. In calling your attention to these circumstances, Sir, I feel I am performing a duty to the public generally as well as to that literary and antiquarian portion of it of which I have been for upwards of forty years a humble but hard-working member.

That it would be most gratifying to me to be selected to fill such an office as I have indicated I frankly admit; but, with less hope of being believed, I as unhesitatingly declare that I would cheerfully resign any such pretension could I see the great object for which I am labouring likely to be carried out by a more competent person.

J. R. Planché, Rouge Croix.

THE MEDIÆVAL MUSEUM, FLORENCE.*

The objects for sacred use contained in this museum,—crucifixes, chalices, triptychs, reliquaries, croziers, and vestments,—are so numerous, and of such value, both intrinsic and extrinsic, as to afford amplest illustration of the influences of the Church upon art and industry. Traceable in the character of many among these specimens, we may observe the ascetic devoteeism of Byzantium, the rude but enthusiastic faith of the Middle Ages, and the elegant sumptuous piety of the sixteenth or seventeenth century, represented by the costly altar-furniture from the palatial chapels of the Medici's grand dukes. Though not placed with any regard to chronologic order, it is in such classification that curiosities like these should be considered, that the study may prove instructive, otherwise we may carry away but a vague recollection of a sort of fairy-land magnificence and gorgeous confusion. First, in order of date, must be signalized those strange productions that seem to lower the most awful and consecrated subject to a level with vulgar caricature; the bronze crucifixes, marked as Byzantine, the figure in some instances crowned with a heavy fantastic diadem, and clad in a long tunic from the waist downwards,—this garb, in one example, coloured in blue enamel, the eyes in the same crucifix being formed of black gems, and the cross, on which this figure is chiselled in relief, instead of being in the round, supporting two others, smaller and in lower relief, probably meant for the Virgin and St. John, at the extremities of the arms. In each example the feet of the crucified are apart, fastened by two nails, as always found in the earliest treatment of the subject; and in one of these bronzes, evidently later, the iconoclast feeling is apparent in the figure being absolutely flat, a mere outline incised on the surface, with the mystic symbols of the evangelists in circlets at the cross's extremities. The custode's report is that all these bronzes are of the twelfth century; but we should refer several to a much earlier date, calling to mind other specimens, very analogous in character, at the Vatican, which authorities assume to be of the ninth or tenth century. We know that the crucifix did not become a familiar symbol in Christian worship till the seventh century; but that examples of its production appeared earlier; and it is probably to one of these bronzes that Piper refers (*Mythol. der Christlichen Kunst*) as the earliest example of the subject among art-works in this material extant at Florence, and referrible to the fifth century. Next in order of date we may place the several specimens of enamel on bronze, figures of saints and the Virgin, in form of radiated discs or stars, that may have served either for wearing round the neck, like the blessed medals still in popular Italian use, or for the "pax," to be handed round and kissed after the communion at high mass, the earliest known specimen of which is an ivory with reliefs, set in silver, of the eighth century, now at the church of Cividale in Friuli. And next may, perhaps, be dated the ivory diptychs and triptychs of the fifteenth century, one presenting, in tiny and over-crowded figures, the whole evangelic history from the Annunciation to the Crucifixion; another, the Crucifixion, with two groups of saints: as to the use of which objects, we may remember that authorities establish their introduction into a church at a period quite primitive, even in the second century; and that they served originally as tablets for registering the names to be read from the *ambon* during the rites, of those high in rank, civil or ecclesiastical, or eminent in sanctity, for whom, whether alive or dead, the prayers of the faithful were especially demanded. An immense number of ivory diptychs, some Pagan in origin as in the subjects of their reliefs, are scattered over the churches, museums, and libraries of Italy, in some instances used for cases and manuscript volumes of sacred books; the collection in the Christian Museum at the Vatican, surpassing all others we have had opportunity of seeing. The episcopal and papal rings and seals, one ring provided with the *sigillum piscatoris*, for sealing pontifical briefs, are precious and elaborate, but most of them deprived of their gems; the earliest in indicated date being the ponderous ring of Pope Paul II. The seals, a copious collection, are both for ecclesiastic and civic uses; some with the Madonna or other sacred figures in concave, others with the various devices of the Florentine Republic. In that chapel where Giotto's frescoes, comprising the portraits of Dante and other celebrities, were brought to light in 1840, after ages of concealment under whitewash, has been appropriately placed a rich assortment of altar-vessels (fifteenth and sixteenth centuries) sacerdotal vestments, and croziers, the latter adorned with tiny statuettes and niello figures of saints, a silver lamb within the curve of each head-piece; and perhaps no more splendid specimens could be found of this episcopal sceptre, which, Baronius tells us, became the symbol of mitred pastors from the fourth century. The gorgeous copes and chasubles, unfolded to view in the same cabinet with these, exhibit embroidered figures and groups, in whose style we recognise the sixteenth century,—one singularly-chosen subject, a combat between two warriors armed *cap-à-pié* (David and Goliah, perhaps); another requiring complex details, the approval of the Order of Friars Mendicant granted by the Pope to St. Francis.

Turning to the sculptures of sacred subjects, we find ourselves among more familiar works and names of recognised eminence, after passing through the series of colossal statues, a Madonna and the two chief Apostles, and statuettes by unknown artists, referrible to the fourteenth century,—these latter possessing no very marked characteristics. A majestic statue (heroic scale) of an Apostle with a book, under a Gothic canopy, is ascribed to Donatello; and arriving at the principal hall of bronzes, we find some more renowned works by that master, his "David" forming a companion to that of Verrocchio, &c.; also the reliefs of the "Sacrifice of Abraham," by Brunelleschi and Ghiberti, offered in competition for the portals of the Baptistery; among several other reliefs, that of the Crucifixion by Pollajuolo, distinguished by the exaggerated but expressive attitudes of its numerous figures, and the "Lifting up of the Serpent in the Wilderness," by Danti, of Perugia. Of the modern bronze crucifixes one by Gion Bologna struck us as the finest; another, smaller in scale, ascribed to Cellini, seems scarce worthy of that master; a beautifully finished ivory, given, by the custode's report, to the former artist, we thought superior to every presentment of the subject in such material we have yet seen. Two terra-cottas, by Luca della Robbia—the figures white on tinted ground—of the Virgin and Cherubim adoring the Divine Infant, one with the little St. John, the other with the eternal Father added to the angelic group, possess a beauty and refined sweetness entitling them to rank with the artist's best. Of painted glass we have here but one example (except those, quite recent, tinted with much warmth of effect, in the narrow lancet windows of the antique chapel) —that earlier work being a window taken from the cathedral of Cortona, without tracery or architectural frame; its subjects, in two compartments, the Adoration of the Magi, and Mary and Joseph worshipping the Infant, treated with much freedom and vigour of style, but wanting the rich gem-like glow of more ancient glass-painting;—the date of this, sixteenth century (as the Medici arms among ornamental accessories announce); the artist, Marsiglia.*

In one of the largest halls we see the accumulated splendours of the Medician chapels, more noticeable (save in some exquisitely-wrought ivory statuettes) for intrinsic costliness than for artistic excellence, one entire and very copious set of altar-vessels and ornaments being in amber, ivory, alabaster, and agate, among which treasures we may admire the statuettes of saintly bishops, with figures all amber, faces and croziers in ivory; also an amber knight (St. George?) seated on an ivory steed. Still more varied in contents and more meritorious in execution are the sets entirely in ivory, from another royal chapel, including some fine crucifixes and statuettes of saints; one of the Redeemer bound for scourging, beautiful in finish and pathetic in character; another of a lovely child treading on a skull, felicitous in idea and treatment; a St. George on a prancing steed, and St. Sebastian bound to the tree for martyrdom, all fine examples of elaboration. Other statuettes, of profane and Pagan, even comic, subjects, are inappropriately mixed among these sacred ivory works, the best among which display characteristics of the sixteenth century, while others, in false and extravagant taste, are at once recognisable as more modern. In illuminated choir-books this museum is not particularly rich,—little, indeed, as compared with the signal wealth of other collections in this kind, the Riccardi and Laurentian, which Florence may well be proud to possess. But two missals from the Hospital of S. Maria Nuova, with miniatures of the fifteenth century, are among the finest here or elsewhere extant; one with an elaborately-tinted frontispiece, representing the deposition from the cross, remarkable for its varied grouping round the dead, and the cheerful, luminous landscape that spreads far in the background.

Exquisite and splendid is a silver cross, covered on both sides with brilliant enamels, representing single saintly figures, angels, and sacred scenes, by Maso da Finiguerra, whose name is upon it. It has not the crucified form, and seems rather the ornament for a boudoir than for a church; the decorative character enhanced by a sort of finial bordering of lapis lazuli globules, in flower-like chasing of gilt silver.

Turning away from the art-works that may be classed together as sacred in use or subject, one is perplexed in the attempt to select for description out of such rich variety. The numismatic collection is the most complete we have seen, or that is (that we are aware) to be found in Italy, comprising coins of the first successors of Charlemagne, in the ninth century; those of all the Italian states, from early Mediæval periods downwards; those with effigies of popes, from the fifteenth century (Paul II. and Sixtus IV. the earliest), and all those of Florence, from the twelfth century (the remotest date, 1182), till the reign of the last Grand Duke, the more antique in this series having the figure of St. John Baptist on the obverse; and two (1530) observable as being of the silver coined from church-plate, to supply the necessities of the siege in that last year before Florence lost her liberties. Among the medallion portraits are two, one coloured wax, of Savonarola contemplating a crucifix, highly characteristic. Another curiosity in the historic portrait line is a painted wooden bust of Oliver Cromwell, very like a burly butcher, and even if authentic (which seems questionable), far from interesting. Some of the *Cassoni* (gilt and painted coffers for bridal *trousseaux*) for which Florentine art is famous, are adorned with pictures of the fifteenth century, highly finished, and curious for the illustration of local costumes, pageants, a tournament, &c. The jewelry and gem-cameos (from the fifteenth to the seventeenth century) form a small, but most

* See p. 207, *ante*.

* The artist, named from his native town, Marseilles, whose life is given by Vasari, as "Guglielmo da Marcilla." He was a Dominican friar, and having left France, settled at Arezzo, was called to Rome by Julius II. to paint windows in the Vatican; and in that city executed the only works of his still seen there, on two windows at *S. Maria del Popolo*. Vasari bestows great praise on him as the first to introduce glass-painting on the best principles, or, at least, to found a school for such arts, in Tuscany; and the biographer mentions these works, executed by order of a Cardinal, at Cortona, not (according to Vasari) at the cathedral, but in the parish church known as the *pieve*.

precious compartment. The Faience, in great variety, comprises many vases and tazze, painted with copies from Raffaelle, from the frescoes of the Vatican *Stanze*, and others; also a large tazza, with a sketch, in blue tint, of the "Israelites gathering Manna," surrounded by a wreath of graceful arabesques, by the great master's own hand. As to the armour and weapons, a gallant and glittering show, we shall not attempt description, satisfied to admire the generally picturesque disposal of these trophies, which might have inspired the genius of Walter Scott; and to pay a tribute of respect to relics that may be received without superstition, the richly-embossed cuirass of Ferruccio, the similar steel pieces (quite plain) of Giovanni di Medici, the helm and shield of the Prince of Orange (the besieger of Rome), the most of the Florentine carroccio, and, richest of all, the two superb shields wrought by Cellini, with figures in relief, and gilt inlaid metal. Another compartment is filled with Oriental weapons, Turkish and Persian muskets, swords, daggers, adorned with silver, ivory, mother-of-pearl, in a variety presenting all the costly refinements that could possibly be brought to bear on the science of war. The Venetian glasses for the banquet or ornamentation display that manufacture in the utmost marvels of its fairy achievements; and here are etherial goblets in which Circe might have mingled her enchantment-draughts! Two frescoes, transferred from a ground-floor wall to one on the first story, are ascribed to Correggio or Michelangelo; by the former, a sweet Madonna and Child; by the latter, Justice, a full-length figure, majestic and nobly graceful, with her sword and balance, between two other females, young and old, who are seated and looking up to her. But perhaps in the eyes of many critics, the choicest gem in this whole museum would be a relief on grey stone, far indeed from finish, by Leonardo da Vinci, its subject allegoric, Discord, or a Fury, sweeping in vehement action through the midst of groups of figures in the nude; and most graceful, faultless in treatment, with a wide perspective of classic architecture in the background; beside this priceless treasure being exhibited a cast of it by the sculptor Santarelli (of Florence), to whom it belongs.

We observe with regret how many objects here are private property, only lent at the pleasure of owners; but, it is to be hoped, for ultimate purchase by the State. The directors allow sketching by visitors who have applied for permission, but only of those objects owned by Government; others, however, to be copied with permission from their several proprietors. On first entering these spacious vaulted halls, one is struck by their imposing and truly romantic aspect, so picturesquely appropriate to their present destination; for the "Pretorio" is indeed a complete Mediæval monument, preserved in all the integrity of its olden character, and standing like a majestic spectre of the past in the midst of the beautiful modern city; the stately gloom of its interior impressing us like some high-wrought chapter in the Waverley novels. A recent work, compiled with care and learning, "Il Palazzo del Potesta," by Signor Uccelli (Florence, 1865), supplies the full story of its origin and several constructions, of the dark and fierce tragedies perpetrated within its walls, of its rescue from abject uses in our own time, and recent restorations so intelligently carried out.*

ON THE STONE OF THE HOUSES OF PARLIAMENT.

Circumstances having revived the inquiry as to the steps that have been taken with reference to the stonework of the Houses of Parliament, and a chemical report on the results of certain processes that have been tried there being promised by the Government, the following paper, written by the late Mr. C. H. Smith just before his death, may be usefully published:—

If the amount of decay, or destruction in the masonry of the grand work at Westminster, were anything like what the public are given to understand from the numerous reports and discussions thereon, it would be using far too mild a term to call it a national discredit—it would be more like a national swindle or robbery. An eminent architect has stated that "never in the course of his experience had he seen decay going on so rapidly;" and, on another occasion, "a decay so extensive that, he thought, the professional experience of any architect could not find any parallel whatever." A noble lord has lately stated in the House of Commons, that "there is something in the atmosphere of London so hostile to stone that paint cannot save it, and a committee is now sitting to see how they can prevent it (the stone of the Houses of Parliament) from crumbling to pieces into the Thames." Such remarks as these, and many others equally strong, may constantly be heard from numerous individuals whenever the Palace of Westminster is mentioned. Non-professional critics have caught the infection, even down to the policemen on duty, who believe in their discrimination, and say they can point out all the bad stones in the building. Notwithstanding such bold assertions, or assumptions, if the building be fairly and carefully examined without prejudice, or by an observer wholly uninfluenced by preconceived notions, founded on hearsay evidence only, he will find positive proof that the generally received opinion as to the amount of decay is very considerably over-rated; that the relative quantity of defective stone is insignificantly small, compared with the immense amount which is of a good and durable quality, and which, to the present time, shows no symptoms of change. As an example, the Victoria Tower is an immense erection, wrought into the most delicately projecting ornaments, elevated considerably above the protective influence of surrounding buildings, exposed on all sides to the severest changes of temperature and atmospheric influences, and situated quite within reach of what many persons may determine to be the pernicious exhalations from the river; yet, with all these disadvantages, the majestic tower of Victoria is found eighteen years after its foundations were laid to be in such an excellent state of preservation as almost to defy the scrutinizing, minutia-seeking critic to point out a decided specimen of decayed stone in this lofty edifice.

In works of nature we may look for perfection, and find it without much difficulty. In efforts of human ingenuity, perfection is hopeless; it is an imaginary attribute. In all building operations, the application of materials and labour may be considered as a system of compromising: we have perfection in view, but never attain it; yet it is the ultimate interest and duty of architects and builders to arrive as near as possible to that condition. If the stone-merchant, owing to ignorance, or some fraudulent motive, should supply a defective material, after he had contracted and stipulated that none but the best should be delivered at the building, he would in the end suffer for the transaction by displeasing his customers, and bringing the identical stone into disuse and disrepute, and thus to some extent ruin his trade. Circumstances of this description had been practised in the Portland trade, which originated the inquiry after a new material, to be employed in constructing the Houses of Parliament.

If we estimate the proportional quantity of good, bad, and indifferent stone in the Palace of Westminster by the standard of other large buildings, either in town or country, we shall find that while no edifice is wholly free from defects of this kind, many works of high architectural pretension have a much larger proportion of perishable stone in their elevations than is to be found in the Houses of Parliament. There is scarcely, indeed, I may say, positively, there is not a quarry in the British Isles that does not contain more or less stone of a quality which, when used for external purposes, will readily yield to atmospheric influences; therefore, if such material be used indiscriminately in a building, some of the stones will decay long before others. If Portland stone had been used, without the strictest supervision, instead of Magnesian limestone from either Bolsover, Anston, or Mansfield-Woodhouse, in all probability a much greater quantity of bad stone would have been inserted in the building than is now to be found there.

A few instances may be stated, to prove that, unless under the most arbitrary control for selection, Portland stone will be supplied of a perishable and worthless quality, and frequently mixed, without distinction, with the most perfect and durable. The same architect who had the entire management of St. Paul's Cathedral acted also in a similar capacity in the design and execution of Temple Bar; yet the stone of the City gateway, especially the western elevation, is considerably more decayed, and the mouldings generally are more effaced and injured by weathering, than any part of Wren's metropolitan church. The southern or river front of Somerset House is remarkable for being constructed with two kinds of Portland stone; above the granite plinth, up to the cornice under the balustrade of the terrace, it is in a most capital state of preservation; but a conspicuous line of demarcation may be seen along the cornice of the basement, all above which, or from the level of the terrace to the top of the building, is constructed with Portland stone, of so inferior a quality that it is in a perishable state, and fast mouldering away. Thus a fresh surface of stone, exhibiting its natural colour, is always exposed to view, whilst the lower portion of the same edifice, being constructed with durable Portland stone, retains its original surface, with a colouring of soot and dirt, the effect of a London atmosphere. Both the archway entrances, that from Piccadilly to Hyde Park, and the one from the Green Park, were erected immediately one after the other, by the same mason, under the direction of the same architect, and intended to be built with the same kind of stone; but although the conditions of atmosphere, aspect, and situation are precisely similar, there is a remarkable difference in the quality of the Portland stone. The Ionic entrance is infinitely more decayed and weather-worn than its Corinthian neighbour; nevertheless the last-named archway is not without a few stones which are in a perishing condition. I shall notice another instance, merely to show how completely the subject of stone for building was neglected in former times, even by men of first-rate eminence in their profession. The Bank of England may altogether be viewed as a very fair specimen of Portland stone, considering that forty or fifty years have passed since the greater portion was erected, as there is at this time only a very small appearance of decay in the stone; yet the same architect, Sir John Soane, allowed the front of his own freehold residence, in Lincoln's Inn-fields, to be constructed with Portland stone of such an inferior quality, that at the time of his decease it was rapidly mouldering away, and was soon after painted with oil-colour, in order to avert further disintegration of the stone.

Too much importance is generally attributed to those causes of failure which are insignificant and unavoidable; and too little attention is given to practical matters of great value, and which are frequently within our control. We are all apt to look with the utmost attention where we wish to find a certain object; and pass by with careless indifference some points where that same object is likely to be found. The London atmosphere is blamed for many of the diseases to which animals and vegetables are subject; and of late years it has been asserted and believed that minerals of a delicate constitution become likewise diseased, and perish, if removed from their rural district, and fixed in the wall of a metropolitan building. If there be any truth in these statements, why bring such tender materials into so destructive a climate? Why not leave them in their native atmosphere, and bring away none but those of a strong, well-formed, and durable nature, such as can withstand so pernicious an atmosphere without injury? For it is quite evident that premature decay only affects some of the stones; therefore it is equally certain that better judgment or further discrimination should be exercised in the selection.

We are told that the situations of the Houses of Parliament and the Museum of Geology are widely different; that the said Museum in Jermyn-street is not built on the bank of a *sewer*. Similar ideas have already been, to a certain extent, answered by the case previously named, of the river front of Somerset House, which is built on the same bank of the same *sewer*, and yet that portion of the elevation which is nearest to the *sewer* is much less decayed than the upper part of the building, which is considerably raised above the river's influence. It has also been publicly stated that the mansion Bylaugh Hall, Norfolk, is built with stone similar to that of the new Houses of Parliament; and that the stone of that country-house is in perfect condition, the assertion of the correspondent being, that "it is positively impossible for any

* This volume informs us of the different theories respecting the frescoes which all are now, we believe, agreed in ascribing to Giotto; and, noticing some inevitable losses of olden detail in the restoration, tells of the usage of crowning with olive in republican times, with gilt metal in those of monarchy, for festive occasions, the sculptured figures of two lions over a portal. Pity it is that the diadems of these honoured beasts were sold for a few francs as useless paraphernalia, instead of being kept for the museum, when the palace was restored as we now see it!

material to retain its surface more thoroughly." The gentleman to whom this information, by letter, was addressed, attributed the cause of the difference of the stone in the buildings at Westminster and in Norfolk to be, "simply, that one is in town, the other in the country; one being built on the bank of a sewer, the other in pure air, uncontaminated with the acids contained in a London atmosphere." This is a generally received opinion; and is an extremely ingenious theory, but its influence on the surface of stone is considerably overrated. We all readily admit that there is a difference between the atmosphere in town and country; that the air and rain of London are in some degree pernicious to stone when exposed to their influence; nevertheless, if we suppose all other conditions to be equal, the same stone that would endure for a century in the country without alteration, might probably show symptoms of decay, if openly exposed in London, at the expiration of ninety-nine years. It is also admitted that an insignificant cause will produce a very surprising effect if continued for ages; but such remarks do not apply to the Parliament Houses, and some other buildings in London, which present unmistakable evidence of decay within a few years after their completion.

In the midst of the busy, smoky, acetic air of London there are two remarkable instances of buildings, very near each other, which show that there is at least one other cause besides atmosphere to operate on the decay of stone. The masonry of the unfinished Record Office in Fetter-lane is, to all appearance, as good a specimen of stone from the Anston or other quarries as is likely to be found in any building in the middle of a large city. Within a very short distance eastward the new law buildings at Lincoln's Inn were erected with Anston stone, about seven years earlier than the Record Office, and may probably be considered as the most unsatisfactory specimen of the durability of that material in the metropolis; an immense quantity of the stone already shows abundant disintegration from the surface of the blocks, and decay is, beyond all doubt, rapidly progressing.* No peculiar atmospheric influence or local circumstances alone will satisfactorily explain why so large a portion of the stone in one building should remain apparently unaltered, perhaps as perfect as when left by the mason, while so many of the stones in another building, within two or three hundred yards, are gradually decomposing, disintegrating, or wasting away from their surfaces. The arrangement of the atoms which form the grains or crystals, and the quality of cement which unites those grains into a mass, must be examined to find out the cause of the influence of weather, and of so much difference in durability which we now know by experience to exist amongst building stones.

Some most ingenious theories have been devised, for the purpose of what is termed, "imitating the action of atmosphere, during successive winters, on the surface of stones." The plan of Monsieur Brard was received by critical assent, amongst the learned, both in France and England, as fully answering the intended object. Thousands of excellent people put the most implicit faith in great names, and believe what they hear, provided it gives an impression of scientific inquiry. Brard's process has been proved to be fallacious and worthless.†

The first stage of decay, on Anston stone, is indicated by spots of a lighter colour than the usual surface; these enlarge, and unite with each other, until the face of the stone becomes of a pale yellowish-brown tint. Upon closer examination, there seems to be, under an exceedingly thin film, a sort of disruption of the particles, sufficient to overcome their cohesion, and thus a powdery, incoherent, light-coloured surface is the result. The projections, such as moulded cornices and string-courses, together with carved ornaments, heraldry, sculptures, and other parts most exposed to weather, are generally in excellent condition, whereas the greatest amount of decay is conspicuous on the bed mouldings and plain surfaces, immediately under the projections. It is worthy of remark, that some few stones at the Parliament Houses, and many at the new buildings of Lincoln's-inn, present unequivocal evidence of their surfaces having undergone a certain amount of decomposition or disintegration since they were finished by the workmen; and, to all appearance, the same progress of decay is now at least retarded, if not altogether at an end. Upon this principle, it is possible that in many other cases the present mouldering appearance of certain stones may, at no very distant period, altogether cease.

There can be no difficulty whatever in rendering small specimens of stone completely weather-proof, and it is impossible to say what may not ultimately be accomplished by men of science; but with our present knowledge of the subject, as is the case with numerous other projects or inventions, I foresee almost insurmountable difficulties in carrying out such contrivances upon a large scale, so that they can be practically applied, and completely answer the intended purpose, in such an elaborate building as the Palace at Westminster. It is admitted that the number of defective stones is small, compared with those of a good and durable quality; therefore, painting over the entire edifice, to make sure of preserving those few stones which are decidedly in a perishing condition, must be doing a wonderful deal too much, a great waste of men's time and materials, and a positive disfigurement to a building erected with stone, which is naturally of a pleasing colour. There is also danger in trying experiments upon a large scale on a specimen of masonic workmanship, erected and finished at an enormous expense, such as the Houses of Parliament, without having first ascertained their precise effect on the stone by well-directed investigations, during at least eight or ten years' exposure to the weather, because few substances, applied in a fluid state, will remain neutral while in contact with stone; they will either preserve it, or in some degree tend to decompose it, and probably be worse than useless.

The long series of heraldic carvings, representing the arms, with their supporters, &c., of all the British sovereigns, executed in very bold relief, on stones not less than 6 ft. or 7 ft. high, occupying the whole of the river front, are in a most excellent state of preservation—scarcely a trace of decay on any of them; yet these stones are, without a single exception, all placed in the building vertically, that is to say, contrary to the way in which the stones lie in the quarry. The same remark will apply to all the full-length statues, placed in niches about the building, and exposed to the various aspects; they are likewise carved in stones which naturally lie flatwise in the quarries,* and I am not aware of any symptoms of change for the worse in a single instance throughout the entire collection; therefore it is a great mistake to suppose that decay has either originated or been hastened by inattention to placing the stones in the building as they lay in the quarry.

Although much information has been elicited during the inquiry by the committee appointed by the First Commissioner of Her Majesty's Works, &c., the impression on the minds of most persons seems to tend more towards the negative than the affirmative side of the question,—implying rather the absence of any satisfactory proposition or plan likely to answer the object in pursuit. Several ingenious, scientific theories, to prevent decay of stone, have been propounded and experimentally tried, but their results are uncertain, except for a very limited period. It seems to be the general opinion, that hitherto, decay is merely superficial; unquestionably on the surface of the stones only; and that beyond a quarter of an inch, or thereabouts, from the external or exposed part, the mass of the stone is uninjured, as free from change as when first placed in the building twenty years since. Such being the case, no very great harm can arise, even if decay is allowed to go on uninterruptedly, at the same rate, during another twenty years; and there is no reason to suppose that the mischief will proceed more rapidly than heretofore, but, on the contrary, from numerous evidences, there is good reason to believe, that after a while, the progress of decay will be much slower, or that the disruption will be arrested by a self-formed indurated surface, which appears to resist further disintegration, and will probably remain uninjured for an indefinite period of time.

In the meantime, experiments might be progressing at the building,—not, in a wholesale manner, painting thousands of yards of masonry, without distinction or observation as regards good, bad, or indifferent stones,—but by carefully trying certain processes on portions only,—say one-half the surface of particular stones actually decaying. In course of time, the unprepared part of the specimen will most likely continue to decay; but, if the indurating process be of any use, the prepared part ought to be unaltered, and comparatively in a perfect state. The conservative power of a solution might also be tried on specimens of different classes of stone; Caen and Bath of the soft kinds, Portland and Anston of the harder varieties, choosing pieces of their respective kinds, well known to be of a perishable quality. In London there will be no difficulty in procuring such specimens; each piece should be about 3 ft. long, and of sufficient girth, to be accurately worked into a few mouldings, such as a piece of cornice. When the working is completed, let each piece be broken (not sawed) in the middle, lengthwise, so as to leave clean fractures, with abundant indentations; the two parts will fit each other without the possibility of either being counterfeited. Let only one piece of each specimen be well prepared with the indurating solution, taking care not to use more or less of the fluid, in proportion to the size of the specimen, than would be used if a large edifice were to be prepared for conservation. Then place the prepared and unprepared specimens of each kind of stone side by side on the top of some elevated building, where they will be fully exposed to all weathers, during several years, more or less, according to circumstances. We know before hand that in course of time the unprepared pieces will show evidences of decay; but if the preservative process answer the intended purpose, if the stones have absorbed the fluid sufficiently deep from their surfaces to be the means of rendering them durable, the prepared portions ought to be found, after a few years, unaltered and comparatively in a perfect state, while their counterparts, having been subjected to precisely the same variations of weather, would perhaps be in an advanced stage of decay, and their architectural features nearly obliterated. Experiments thus performed and recorded would be valuable, because they would prove, as nearly as possible, whether eventually a certain process might be serviceable or useless, or indeed injurious to the stonework.

The decay which has already taken place on the exterior of the building is confined principally to some of the parapets, where the stone is exposed to weathering, on two or three faces; also in the sloping sills, bed-moulds, bases, plinths, and, to a limited extent, on the plain faces of ashlar, above and below them, where the masonry is constantly rendered alternately wet and dry, or within the influence of the greatest amount of moisture, which is the severest test to which any stone can be subjected. It is remarkable that, throughout the building, the artistic parts, or carved ornaments as well as those stones which have been elaborated with long patience and diligence, and which are replete with intricate panels, mouldings, and other specimens of excellent workmanship, are almost invariably in a good state of preservation; whereas the greatest portion of decay has generally occurred on plain stones, or those with a very small amount of workmanship, and which might, therefore, be cut out, or removed, and replaced with new ones, at a cost little more than the value of the stone and men's time fixing it in the building. At any rate, it would cost much less than 7,000*l.*,* which is the sum named in the Parliamentary report, 28th March, 1860, for "covering the several portions of the external stonework of the new Palace at Westminster with Mr. N. C. Szerelmey's preservative composition." This mode of procedure,—that is to say, taking out bad stones and inserting good ones in their places,—would be far more satisfactory to all parties, except patentees or inventors of conservative processes, charged for by the yard superficial, as the building would remain in its primitive entirety, and the natural colour of the stone unaltered, except by time and the dirt of a London atmosphere. On the other hand, if the edifice is to be painted all over, like Buckingham Palace, it might as well have been erected with Bath, Caen, or other soft, cheap stone, or even with cement, and thereby have saved the cost of the

* It is not a little surprising to learn that the stone of the last-named building was selected by a man employed at the quarries for the express purpose.

† "Annales de Chimie et de Physique," vol. 38; also, "Transactions of Royal Institute of British Architects, 1842," vol. i., part 2, page 164.

* The circumstance of these stones being thus placed was intentional, not by accident or inadvertence, as there is not, throughout the entire Anston or Bolsover district, a bed of stone measuring more than 3 ft. or 4 ft. in thickness.

* This sum is independent of 3,517*l.* 10*s.* 11*d.* already paid for indurating or preserving the external stonework and iron roofs since the year 1853.

travelling commission, and also about half the expense of workmanship; but repainting would have been indispensable every fourth or fifth year. C. H. Smith.

EXHIBITION OF NATIONAL PORTRAITS.

EDWARD GRIMSTON.

The Earl of Verulam, the owner of the fine portrait of Edward Grimston, referred to in our last, writes thus:—

Sir,—In the last number of the *Builder* there is a description of a small portrait of mine, Edward Grimston: date 1446. With reference to that description, I hope to be excused for thinking the subject was not so unknown in his own time as is supposed.

In 1445 this Edward Grimston was, for his "good and loyal service," joined with another gentleman as captain of the castle of Valoiques, in France. In 1446 he was appointed one of the ambassadors to the court of Burgundy, for the purpose of making a treaty; and it will be found in Rymer's "Fœdera" that this treaty was completed by Edward Grimston *Armiger* and Dr. Thomas Kent. My ancestor subsequently married Philippa, the widow of Thomas Lord Roos. She was a first cousin once removed of Edward IV., and petitioned him to re-grant some ten or eleven manors, forfeited by her late husband, upon which her dower was settled, on account of "nearness of blood to the king."

The instructions of Henry VI. for the treaty with Burgundy are in my possession at Gorhambury. The grant of the capitainerie is now before me, as well as a copy of the petition to King Edward IV. Verulam.

Great Stanhope-street.

INTERCOLONIAL EXHIBITION.

Touching this exhibition, of which we have already spoken, Mr. J. G. Knight, secretary, writes to us from Melbourne, expressing the desire of the commissioners to "attract the notice of any who may have effected improvements in mining machinery, to the field which is here open for the disposal of really good workable appliances, especially those adapted for boring and tunnelling for gold, quartz, coal, copper, and other minerals. The commissioners desire to exhibit all the mechanical improvements of this kind that can be gathered together, believing that by so doing the interests of the colonies, as well as those of the home manufacturers, will be materially promoted. Full-sized machinery or working models would be equally acceptable; and I may add, that as the building in which the Exhibition will be held is to become hereafter a public museum and department of industrial art, such mechanical illustrations could be made permanently accessible to the public, thus securing a publicity far beyond that of the few months during which the Exhibition will be open. According to the wish of the exhibitors the goods would be thus received for permanent exhibition, or at the close of the present one be handed over to any person duly authorised as agent."

INTERNATIONAL HORTICULTURAL EXHIBITION.

The building for the intended Exhibition, opening on the 22nd of May, is making rapid progress on the site of the Great Exhibition of 1862. An area 563 ft. in length, from north to south, being the whole distance between the permanent buildings of the Horticultural Gardens and the Cromwell-road, and 293 ft. in width from east to west, is now enclosed with a framework of timber, forming seven distinct spans. The two central spans are 45 ft. in width and 30 ft. in height to the ridge pole. The other spans are 40 ft. in width and 25 ft. in height to the ridge pole. The framework will be covered in partly with glass and partly with 38,000 yards of Russia duck. The portions covering the roof and some to cover in entirely a span or compartment to be devoted to orchids and other delicate plants requiring artificial heat will be oiled, so as to keep out rain, and in the case of the orchids to retain heat and moisture. The arrangement of the various classes of flowers and plants will be, to judge from the plans, of a pleasing character. Each class of flowers and plants will be arranged either *en parterre* or on sloping banks of turf on either side of the several spans. The general uniformity of parallelism implied by seven spans is broken by various central parterres of curved outline, and by artificially modifying the dead level of the surface. The superficial contents of the enclosure are represented by 162,980 square feet, which is divided into areas of 65,000 square feet for general show plants; 10,000 ft. for orchids; 24,000 ft. for specialties, such as single plants and specimens which require extra space to show off their beauties or peculiarities. The promenades will take up 50,000 superficial feet; refreshment tent for exhibitors, and for receiving and unpacking plants, 13,980 ft. It is calculated that the area, 3¾ acres, will accommodate 15,000 spectators at one time.

The general effect of the whole can scarcely fail to be very charming. Mr. Unite is the contractor for the works. The cost of the building will be about 3,000*l.*, and the sum of 2,500*l.* will be given in prizes. The subscription-list is already large.

INSTITUTE OF PAINTERS IN WATER COLOURS.

We scarcely remember a more interesting exhibition here than is formed by the present 329 pictures. The older members maintain their position, and those more recently elected justify the selection. Mr. Henry Warren's large picture "Deborah sitting in Judgment," from a passage by Dean Stanley, though too artificially composed, is an able and remarkable work. Of Mr. Edward Corbould's two elaborate pictures, "The Entry of Jehu into Jezreel" and "Undine," we prefer the latter, full as it is of grace and quaint fancy. The former is, nevertheless, noticeable for movement and power of colour. Mr. L. Haghe stands pre-eminent, whether we look to his pictures professing only to represent interiors, such as "The Church of St. Gomar, Lierre, Belgium," and a bit from the Church of St. Mark, Venice; or to those where the human figure and human passions play more prominent parts, as in "The Sortie" and "The Return," pictures that tell a story. Mr. Edmund Warren has never shown a more admirable work than his small drawing "Woodland Shade." Mr. Wehnert is becoming himself again: his "Shylock and Jessica" deserves high praise. Mr. Vacher is strong in those Eastern landscapes with which he has identified himself. We would especially mention "The Lybian Mountains" and "Dendera." Mr. Carl Werner, too, sends some of his best work; see, for example, "Thebes: Temple of Carnack." Mr. Guido Bach is a good accession: the expression in "Reverie" and "Homeless" is excellent. Mr. W. W. Deane, though a little woolly, exactly hits the colour and effect of the interior of St. Mark's. Mr. Jopling's very remarkable piece of colour, called "Ching-a-ring-a-ring-Ching," deservedly obtains for him renewed attention. Mr. Henry Tidey, Mr. C. Cattermole, Mr. J. C. Reed, Mr. John Mogford, Mr. R. K. Penson, Mr. Fahey, Mr. John Chase (Recollections of Antwerp), Mr. B. R. Green (some bold architectural subjects), Mrs. Elizabeth Murray, Mr. C. Green, Mr. Luson Thomas, Mr. W. Lucas ("The Wedding Gown"), Mr. Telbin (a brilliant vision of Venice), Mr. Kilburne, and a few others, send pictures well deserving notice.

DEFECTIVE MUSICAL APTITUDE IN THE UPPER CLASSES.

The effects of want of right musical culture on the upper classes in England for generations past, notwithstanding the fashion of patronizing vocal and instrumental gymnastics of the operatic order, were curiously attested by Mr. Hullah in his examination before the Musical Education Committee, at the Society of Arts, last week. In reply to questions Mr. Hullah said:—"I think there is this difference between England and other countries—that the greatest aptitude and the finest taste, in foreign countries, are found among the aristocracy, and that precisely the reverse is the case in England. I say this after a very long continued observation. We go, for instance, to a national school to commence a singing-class, and out of 100, or even 200 children, boys and girls, there perhaps will not be one who cannot, the first time of trying, sing the scale fairly in tune. We go to a public school like Eton or Harrow, and out of every half-dozen boys, one or two will make the most hideous noises that can be conceived. I make every allowance for temper and unwillingness to learn; but the difficulties of teaching music in schools of the higher classes are enormously greater than in those of the lower. The physical powers called into requisition in music have been uncultivated among the higher classes in England for many generations past—since the middle of the seventeenth century. The middle classes share in the advantages and the disadvantages of both the other classes. Considerable difficulties would arise in the institution of an academy, from the fact that so small a proportion of the higher class takes any real interest in music. English people of rank go to the opera. That is a social affair, which has little to do with music itself."

THE LAW COURTS COMPETITION.

The Judges of Designs have selected six additional architects, and withdrawn the objectionable condition. The list, of twelve, now stands thus:—Mr. H. R. Abraham, Mr. E. M. Barry, Mr. R. Brandon, Mr. Burges, Mr. T. N. Deane, Mr. Garling, Mr. Gibson, Mr. H. F. Lockwood, Mr. Seddon, Mr. Scott, Mr. Street, and Mr. Waterhouse. They have all accepted their nomination, and are at work.

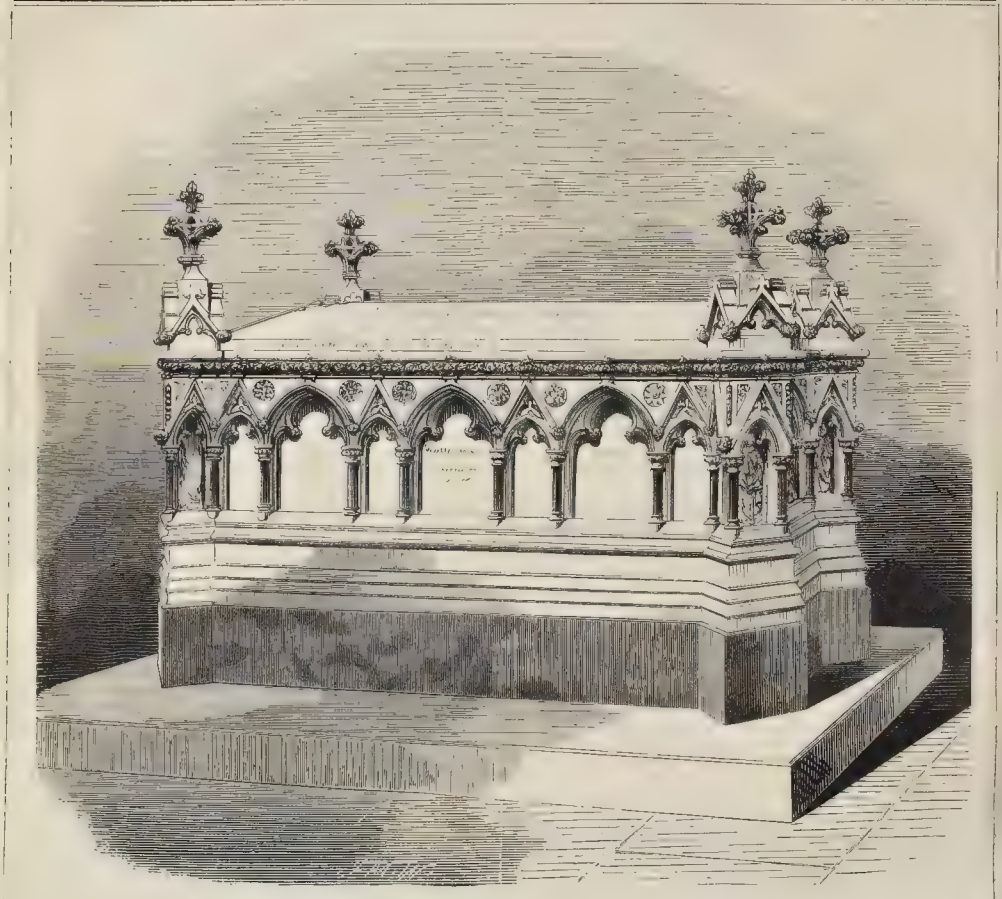
MONUMENT TO GENERAL FORSTER WALKER.

The monuments which have been transmitted to us from the Middle Ages are almost without exception true expressions of the state of art and feeling during the periods at which they were severally erected. They have a further interest as memorials of all classes of individuals, many of whom were distinguished in the annals of the world, and more particularly as having borne an active part in the history of our own country, and who by their wisdom, valour, and piety have contributed largely to the formation of our constitution, both in church and state. These monuments are further distinguished by their genuine feeling and their harmony with the general principles of art as exhibited in its various departments at the several periods when they were erected. They may also be regarded with special interest as giving us, in many cases, the only authentic portraits of the individual to whose memory they have been raised. Our modern monuments (*i.e.*, embracing the period from the Reformation), it must be admitted, have been for the most part deficient (with some exceptions) in the above qualities, in many cases degenerating (with a great amount of cost and pretension) into the ludicrous. Many of our finest old churches are defaced and degraded by the admission into them of such monstrosities.

The study of art in all its departments, which is now prosecuted with energy, is accomplishing a considerable improvement in this direction, and we have less frequently occasion to witness the introduction of incongruous objects.

The monument shown by the accompanying engraving is placed in Kensal Green Cemetery, and was executed by Mr. J. Forsyth, from the design of Mr. Edward Blore, whose long attention to the study of monumental art is well known. It professes in its details to be a correct representation of corresponding details of the period selected for imitation (1250), with the exception of the arms and trophy, which did not form part of Mr. Blore's original design, but were added at the express wish of the lady at whose cost the monument was erected. Use has been made of the different materials which are at present available for architectural purposes, and consist of granite, Sicilian and other marbles, Portland stone, &c. The inscriptions are all incised and filled in with lead, thus rendering them capable of long endurance. In the canopies at the angles are sculptured angels representing Faith, Hope, Charity, and Patience. This monument was erected by Isabella, the only surviving daughter of General Forster Walker, as a tribute of affection to the memory of her parents. The execution throughout seems very satisfactory.

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MONUMENT, IN KENSAL GREEN CEMETERY, TO GENERAL FORSTER WALKER.

Designed by Mr. Edward Blore, F.R.S. J. Forsyth, *Sculptor.*

THE ROYAL DRAMATIC COLLEGE, MAYBURY, NEAR WOKING.

We have before now given particulars of the aggregation of residences which, under the title of the Royal Dramatic College, has been built at Maybury, as a retreat for actors who, having played their part upon the stage of life, find themselves in need of help. More recently a central hall has been added, and we take the occasion afforded by an interesting gathering which occurred in it on Monday last, to publish a view of the college, showing with the new portion the intended wings to complete the building.

The residences were erected in 1862, and are built of red and black brick, with Bath stone dressings, and are covered with green and purple slates.

The structure includes twenty sets of residences, half of which are on the first-floor, each comprising living-room and kitchen, scullery, and bedroom, also a W.C. The rooms average in size 150ft. super. each. Every other house has, on the first-floor, a bow-window. The various corridors and passages, both externally and internally, are finished in different coloured bricks. The capitals of the arcade are carved to represent scenes out of Shakspeare's plays.

The hall, which has lately been erected, at a cost of 2,500*l*., from the design of Messrs. Smith & Son, who were not the original architects, is 60 ft. long and 28 ft. wide, having a north gallery, 8 ft. 6 in. wide, its entire length. The hall is lighted from the roof, which is open-timbered and mansard-shaped. It is double glazed between the common rafters, which are moulded and chamfered, and have trefoil cusped heads, supported on double principals, springing from hammer-beams and enriched corbels.

The hall is paved with Minton's tiles, presented by Mr. Daniel, of New Bond-street, and is heated by one of Lumley's stoves, the gift of Mr. Burton, of Oxford-street.

There is a spacious cellar under the hall, and a small library on the first-floor. The bath-room, wash-house, bakehouse, and coal-stores are at the back, in a detached building, and common to all recipients. Mr. Harris, of Woking, we may add, was the builder of the hall.

The meeting to which we have referred took place on Monday, under the presidency of Mr. Benjamin Webster, master of the college, in accordance with this clause in the will of the late T. P. Cooke:—"On the 23rd day of April in each year, which is the birthday of our immortal dramatic poet Shakspeare, and which is my own natal day also, a public holiday or treat shall be given to the pensioners of the college," the dividends of 1,000*l*. Three per Cents. being appropriated for paying the expenses of the entertainment. By another clause in his will, he gave the sum of 2,000*l*. to the college, the interest of which is to be applied in awarding a prize of not less than 100*l*. every one, two, or three years, as the committee of management at the college might decide, to the author of the best nautical and national drama, all the profits and proceeds to be derived from the copyright and representation of which are to go to the college and not to the author. At the close of the dinner the master said, the premium, after the careful and matured deliberation of the committee, had been awarded to Mr. Angiolo R. Slous, for his drama "True to the Core," a play that, as connected with the repulse of the Spanish Armada, was of a nature to interest every Englishman, and which, when produced in the metropolis, as it shortly would be by an enterprising manager, would, he believed, prove a source of delight to thousands.

Mr. Slous, who was very warmly received by the company, expressed his deep acknowledgments for the kind way in which his play had been spoken of, and the flattering encouragements which had been held out to him from all sides as to its complete theatrical success.

Having had the satisfaction of hearing the play read, we would add our congratulations to those the author has already received. We fully agree with those who believe that, if properly produced and acted, it can scarcely fail to be a great success. We object *in toto* to the small provision made for the author, 100*l*. He should participate in the financial success. It is such notions as are apparent in this stipulation that have driven British literary talent into other channels, and left the British stage dependent on foreign aid.



THE ROYAL DRAMATIC COLLEGE, MAYBURY, NEAR WOKING, SURREY.

IPSWICH NEW TOWN HALL.

The foundation stone of this building has at last been laid. The works are being carried out under the direction of Messrs. Bellamy & Hardy, architects, the contract amounting to 11,750*l.*, being taken by Mr. E. Gibbons, of Ipswich, and the masonry is being executed by Mr. R. Ireland, of Ipswich. Mr. W. P. Ribbans, the borough surveyor, and Mr. E. Catchpole act as clerks of the works. The building has now so far progressed as to be in some places considerably above the level of the ground. The style is Venetian. The principal front towards the Cornhill is divided into centre and side wings. The centre is composed of three canopied openings surmounted by a tower and clock turret, with illuminated dials. Balconies are provided in the first or principal story from which public meetings held on the Cornhill may be addressed. The wings on either sides are divided by vermiculated pilasters forming arched and deeply recessed bays for windows. Picked Mansfield stone will be used for the plinth of the building, and the columns and the pilasters throughout. The grand staircase will also be of picked Mansfield stone. The height of the building from the ground to the top of the balustrade will be 55 ft., and to the top of the tower will be 100 ft.

THE TRADES MOVEMENT.

We cannot recollect of any trades movement so general and simultaneous as the present, and are of opinion that there are urgent motives reproductive of it, over and above the influence of unions, or the general desire of the working classes to improve their condition. No doubt the very general increase in the cost of living throughout the country has much to do with it; but whether that be a permanent increase, originating in the abundance and cheapening of gold from the immense quantities of late years got in California, Australia, and elsewhere, may be a question. In the money market, so far as we can understand, gold is at present dear in this country, though it be cheaper in France.

With us there is scarcely a single branch of industry in which workpeople are not agitating for rise of wages. It is so with weavers, tailors, shoemakers, gardeners, scavengers: the very washerwomen and nurses are astir for increased wages. The movement in the building trades may have led the way, but it no longer monopolises the public attention, although to it ours must be confined. We may remark, however, that, with the required rise of wages, clothing, rents, &c., must still farther rise, and neutralise the benefit of the increase; and, if so, how or when is the movement to end?

London.—A numerous meeting of the Master Builders' Association was held at the Freemasons' Tavern last week, to consider the resolutions of the delegates of the men respecting the advance of wages to 8d. per hour. After an hour and a half's discussion, the following resolution was adopted:—"That the advance of ½d. per hour be given to the most skilled mechanics, one less skilled to be at liberty to accept a less rate. The hours of labour to be nine hours per day, from the 9th of November to the 14th of February, and ten for the remainder of the year. That the labourers to be advanced ½d. per hour on the same conditions. The advance to commence on the 5th of May next." This resolution is almost in the same terms as that adopted by the delegates, with the exception of the distinction drawn between the "most skilled" and "less skilled" mechanics.—A crowded meeting of delegates from the carpenters and joiners have since resolved, after a long discussion, (with but three dissentients out of 150 delegates,—"That we, the delegates, consider the resolution of the master builders indefinite and unsatisfactory, and that it ought not to be received unless the masters consent to make 8d. per hour the standard rate of wages, they having at all times the right and power of discharging inefficient workmen; and, further, that we are of opinion that the hours of working from the 5th of November to the 14th of February should be the same both in shops and on outdoor jobs, namely, nine per day." It was further resolved that this resolution should be submitted to the constituents of the delegates for confirmation, rejection, or amendment in shop meetings, and the result reported to an adjourned meeting. It was also resolved that the opinion of the men should be at the same time taken as to the propriety of a joint committee of masters and men being appointed to draw up a code of rules for the London district.

Derby.—The labourers having applied to the master builders for a rise of wages to 19s. a week, the masters sent a deputation of six to meet a similar deputation from the labourers, when it was agreed that the weekly wages should be 18s. for fifty-six hours, or 3s. 2d. for the first five days of the week, and 2s. 2d. for Saturday.

Birmingham.—The carpenters and joiners have come to an agreement by arbitration with the masters on various points, as regards wages, hours of work, overtime, distance, authority of masters, trade societies, and arbitration in future disputes. The rate of wages is to be 6½d., and not 6¾d. as asked, but superior and inferior workmen to be paid as the foreman or employer may decide. Amongst the articles of agreement were the following:—

"Each master shall have power to conduct his own business in any way he may think advantageous in the matter of letting piecework, in taking apprentices, in using machinery and implements, and in all details of management not infringing the individual liberty of the workman. But no master shall take or employ more than one articled improver to every ten workmen in his service.

Trade Societies will not countenance any interference with a workman because he is not a member of a trade society; and as regards individual members, it being impossible to bind them by any present resolution, the societies pledge themselves to discourage all such interference.

All trade regulations and all disputes that may arise between masters and workmen shall be settled by six delegates, appointed by each party to the dispute, who shall, if necessary, appoint an independent chairman, with a casting vote; and if either masters or workmen desire any alteration in or addition to the foregoing rules, a notice in writing, stating the nature of the proposed alteration or addition, shall be given on or before the 1st day of January in any year, and the proposal shall be accepted or rejected before the 1st day of March then next. If accepted, the new rule shall come into force on the 1st of May then next."

At a meeting of the workmen, after a little grumbling, the delegates were thanked for the arrangement.——A general meeting of the master painters of the town has been held, to approve or otherwise certain alterations in the rate of wages, in compliance with a requisition by the men. Mr. John Whitworth presided, and there was a large attendance. Mr. Mitchell, the secretary, read the report of the sub-committee, which recommended that the rate of wages should be 5½d. per hour, and 6d. per hour for overtime. Several other alterations in the hours of labour were also recommended. It was resolved unanimously that the proposed scale should be adopted, and, in accordance with the trade rules, should take effect from the 1st of May.

Gloucester.—The strike of the carpenters and joiners is not ended. Messrs. W. Jones & Sons, of Worcester-street, have yielded, and their men have resumed work. The builders have resolved, "That the carpenters and joiners shall work sixty hours per week, viz., from six o'clock a.m. until six o'clock p.m.; Saturdays, six o'clock until two o'clock; and the standard wages shall be 25s. per week, or 5d. per hour, for skilled workmen."

Darlington.—The joiners now on strike are receiving each, weekly, 13s. 6d. from the society. A number of the men have left the town to seek employment elsewhere. The bricklayers have given notice that unless their wages are raised from 33s. to 36s. per week, they will cease to work on the 1st of June.

Sunderland.—The negotiations between the operative painters of the borough and their employers with respect to the lessening of the hours of labour have resulted in a strike on the part of the workmen. The operatives ask that they commence work at seven instead of six on Monday mornings, and cease at one instead of four on Saturdays. The master painters, it appears, were willing to allow the reduction of hours on Saturday afternoons during the eight summer months, and would hold a meeting on the 1st of November to consider the question of hours of labour during the winter season.

Newcastle-upon-Tyne.—A meeting of the master builders of the North of England has been held at Newcastle, to consider what steps should be taken by the employers regarding the existing strike. Mr. Falconer moved the first resolution, which was as follows:—"That the building trades of the towns here represented agree to combine for their mutual interests." Mr. Bowron (Stockton) seconded the resolution, which was unanimously adopted. Mr. Holdroyd (South Shields) then proposed, "That the towns represented at the meeting act in no way prejudicially to the interests of the builders in their present struggle." Mr. George F. Shotton (North Shields) seconded this resolution, which was also unanimously adopted. Mr. James Young (Sunderland) proposed,—"That from the 1st of May next, the builders of the towns here represented, without annulling any agreement already in force, pay their masons by the hour, and that those towns which have existing agreements with the masons, which preclude this for the time being, will, as soon as existing agreements expire, adopt and follow payment by the hour." Mr. Blakiston, of Middlesborough, seconded this resolution, which, with the following, was unanimously passed. Mr. E. B. Reed proposed the next resolution:—"That a copy of the resolutions here agreed to be printed and forwarded to the secretary of the operative masons at each town here represented." Some other resolutions in support of the objects of the association were also carried. The offer made to the operatives, we understand, was 6½d., and not 6¾d. as reported.

Wigton.—The journeymen painters sent notices to the masters, requesting an advance in their wages on and after the 16th of April to 22s. when working not more than three miles from home, and 24s. when employed more than three miles away. They also required to leave work at four o'clock on Saturday afternoons. We have not yet heard of the result.

Carlisle.—The strike of the joiners and cabinet-makers continues. At a meeting of masters, attended by nearly the whole of the members of the building trade of the city, a unanimous feeling was expressed that the masters must make common cause in this crisis. Mr. Mault, secretary to the General Builders' Association, attended, by invitation, to concert, with the trades, measures for settling the various disputes caused by the continual demands of the men. An influential committee was appointed to carry out the views of the meeting.

Inverness.—A meeting of the operative carpenters has been held, and a deputation sent to the employers renewing their increased demand of 5d. an hour, or 23s. 9d. per week. The masters offered 4½d., and finally 4¾d. per hour; but both these offers were rejected by the men on their being laid before them. Ultimately, however, the workmen proposed to lower their demand to 23s. per week. A meeting of employers is to be held in order to come to a decision on the matter.

BELFAST WESLEYAN COLLEGE.

The foundation-stone of this building was laid in the autumn of last year, with the usual ceremonial. The college has now made considerable progress, and is sufficiently advanced to demand a descriptive notice.

The site selected could not easily be excelled for convenience, beauty, and health, placed as it is on the side of a hill, and having approaches from the Botanic, University, and Malone roads. It stands nearly opposite, but at right angles, to the Queen's College.

The college will be a Gothic structure, of the usual academic type,—the details Early English in character. It comprises a longitudinal main building, 190 ft. long, with two transverse wings, each 130 ft. in length, projecting both to front and rear. In the centre a massive tower projects boldly from the main building. A plateau or terrace in front will be laid out in ornamental beds and walks. There is also a central rear building, containing the refectory, kitchen, laundry, and offices.

The college is to serve for two distinct purposes, namely, a theological college and a preparatory school. The left side of the building is devoted to the collegiate department, the right to the school, the departments common to both occupying the centre.

The principal entrance and the president's house occupy the centre of the front; the theological tutor, on the left, and the head-master, on the right, have their residences in the main building, each having a separate entrance.

At one side of the principal entrance are the waiting-room and board-room, and at the other the president's hall and staircase, also his study and dressing-room. The rest of the president's, tutors', and head-master's apartments are in the basement and on the first-floor of the front building. Each house is perfectly distinct and self-contained. Behind the entrance-hall a corridor or cloister leads right and left to the school-room and lecture-hall, which form the

front projecting wing, each about 55 ft. by 27 ft. in the clear.

The lecture-hall has a partially open roof, with semicircular ribs to the principals, and ornamental pierced boarding filling the spandrels.

The school-room is 20 ft. high, and has a dormitory over.

The total number of students to be accommodated is 20; of boarders, 80; and of day pupils, a little over 100.

A separate entrance is provided for the students, and one for the boys, in their relative staircase towers. These latter form a good feature in the design. To the lecture-hall a distinct entrance is provided for the admission of the public, on the occasion of lectures, distribution of prizes, &c.

The rear projecting wings contain the class-rooms and the library of each department, with dormitories over. The rear central building is connected with the main building by a central staircase, with two side passages to the dining-room, which measures 50 ft. by 25 ft. in the clear, and has an open roof. In one corner is a recess containing a lift communicating with the kitchen, which is immediately beneath. To the rear of the dining-hall are placed the butler's pantry, matron's rooms, stores, &c., with a back entrance. The main kitchen, scullories, servants' rooms, and minor offices, are in the basement. The rear projecting wings are so planned as to be capable of further extension.

Extending over the residences, the students' bedrooms occupy a portion of the second-floor of the front, a separate room being given to each. Large dormitories, extending over residences and schoolroom, are provided for the boys, in some of which the system of division into cubicles is adopted. Separate bedrooms for the under-masters are placed in immediate connexion with the boys' dormitories. Water-closets, lavatories, and bath-rooms, in proportion to the number to be accommodated, are provided in suitable places.

At the lateral entrances, stone staircases in the side towers give access to the upper floor. The first-floor of the building, at the rear of the dining-hall, at one side contains a hospital; at the other, apartments for the matron and female servants, each side approached by a separate staircase.

The building is intended to be of Belfast red brick, with dressings of freestone from Glasgow; the rubble walling in the basement is of the freestone of the locality.

It is intended for the present to omit a portion of the wings. The cost of the building, as now contracted for, will be 11,000*l.* The architect whose design, selected in a limited competition, is being carried out, is Mr. William Fogerty, of Dublin. The builder is Mr. James Henry, of Belfast.

CHARGE FOR ESTIMATING.

STEVENSON AND WATSON *v.* HALL.

IN this case in Bloomsbury County Court, before Mr. C. L. Russell, Judge; plaintiffs, builders, &c., Charlotte-street, Fitzroy-square, sued defendant, described as tailor and lodging-house-keeper, Duke-street, Portland-place, to recover the sum of 7*l.* 10s., alleged to be due for making an estimate of the amount they should have charged for rebuilding the premises of that person, and for which they sent in a tender which was not accepted.

The question in point was an important one to the trade, many members of which were present to hear the decision given.

Mr. De la Mare was for the plaintiffs, and Mr. C. Williams, solicitor, Alfred-place, Bedford-square, for defendant.

It appeared from the evidence of the plaintiff, Watson, that he was desired by defendant to send in an estimate for what he could do the work that was required to be done, which he did, but it not being accepted, he, for the trouble he had been put to in making it out, applied for commission on the charges he had named therein, which being refused, he took these proceedings to recover that sum at per centage.

In cross-examination, plaintiff stated he considered it usual to charge commission on any estimate a person might make who sent in a tender for work, whether the tender was accepted or not.

On the part of defendant, it was contended that no such rule existed, and that Watson, who knew him, after repeatedly asking if he might send in an estimate for what sum he would do the work, was told "he might, if he liked," never however being actually engaged to do so. There were several other competitors, the successful one being Mr. J. Hurren, of Acton-street, Gray's-inn-road, and neither of them had made any claim.

Mr. Bull, architect, Mr. Good, builders' surveyor, and Mr. Dawson, builder, all swore that the practice of the trade was for a person who wished to get a job to send in an estimate at his own risk, the latter saying that within the last few months he had made twenty-seven, out of which only fifteen had been accepted.

The Judge observed that, from what he had heard, the plaintiffs had no legal claim to the demand made, in accordance with which opinion his decision would be.

Judgment for defendant, with an order on plaintiffs to pay all costs.

ARTISANS' LOAN SOCIETY.

THERE is in France an association called the "Société du Prince Impérial," which was established to enable workmen to purchase tools and materials by granting loans for this purpose. The loans are not to exceed 500 fr., and are repayable in three years at most, by weekly or monthly instalments. During the four years of its existence, the society has lent a sum of 2,211,095 fr. to 8,415 borrowers. On the 31st of March of the present year the amount due to the society was 26,155 fr., the number of loans completely paid up being 1,183. Very few losses had been sustained, the payments having been made with regularity. The capital of the society has gradually increased since its formation, as is shown by the following figures:—1862, 752,458 fr.; 1863, 1,331,338 fr; 1864, 1,590,418 fr.; 1865, 1,814,870 fr.; March 31, 1866, 2,001,881 fr. The capital has been raised in various ways, by subscriptions, donations, legacies, and interest on loans, which latter has produced 151,715 fr. It will be seen that the total sum lent exceeds by 209,213 fr. the total capital possessed by the association.

IRRIGATION AND UTILIZATION OF SEWAGE.

THE reservoirs and other works in connexion with the irrigation works at Buscot, are so far completed as to admit of an immense water-wheel being brought into requisition. The operation of pumping water into the reservoirs has commenced. The wheel, being fixed near the river Thames, is driven by that stream, and the water which has been collected from the whole estate (upwards of 3,000 acres) is thus forced into the reservoirs on the upper portion of the estate, from whence it is proposed to disperse it to any part of the estate where it may be required.——Mr. C. F. Cotterill, of Cannock, in Staffordshire, has been for some time occupied in establishing a system for utilising the sewage of that town. The works have been so far completed. Mr. Cotterill applies the sewage in a liquid state to lands in the immediate neighbourhood of the town. The sewage is conveyed by earthenware pipes to the land, and then by means of channels cut in the soil it is applied for purposes of irrigation. It is forced through the pipes by its own weight. At present no deodorising process is used.

LIVERPOOL ARCHITECTURAL SOCIETY.

ST. GEORGE'S HALL.

AT the last week's meeting of this Society; Mr. Joseph Boult, president, in the chair; Mr. John A. P. Macbride read a paper on "Sculpture in connexion with Architecture." He remarked that he found no works of authority on this subject; and if there were none such, there was a great want in the literature of art. Having enunciated the principle that sculpture was the art-voice of architecture, and that without this function it was, in connexion with architecture, impertinent and out of place, he first applied the principle to St. Paul's, in London, and then to St. George's Hall, in Liverpool. Mr. Picton never did a truer and better thing than in opposing the erection of the Prince Consort equestrian statue on the ground at the east front of St. George's Hall. The sculptor, Mr. Thornycroft, for whom he had the greatest possible respect, had a perfect right to endeavour to secure the best possible place on which to set his work; at the same time he did not think that Mr. Thornycroft could have fixed on a more unfavourable position, for the lines of the building, considered as a background, would play the very mischief with the effect of the work. The building would destroy the effect of the statue, and the statue that of the building.

A brief discussion followed, Mr. F. Howard agreeing with Mr. Macbride that the proposed site was not a suitable one for the Prince Consort statue. Mr. Kilpin, in referring to the sculptured pediment of St. George's Hall, remarked that the whole building was erected with funds that were the produce of commerce, and therefore sculpture emblematic of commerce was not at all unfit for it. As to sculpture in connexion with architecture, it was useful in giving effect; but architecture could do very well without it.

WOODEN BUILDINGS, UNDER METROPOLITAN BUILDING ACT.

AT Wandsworth Police Court, Mr. A. Smith, of the British Flag, in Culvert-road, Battersea, appeared before Mr. Dayman, to answer a summons at the instance of Mr. Taylor, the district surveyor, for erecting a wooden building contrary to the provisions of the Building Act.

The building complained of was a skittle-alley shed, 34 ft. by 12 ft., placed on a vacant piece of ground close to a public road, and just opposite the British Flag beer-house. The defendant at first disputed that it was a building, and said it was a carriage which could be removed on wheels. Mr. Taylor's clerk explained to the magistrate that the building was a skittle-alley, and its use had been complained of by the vestry.

Mr. Dayman pointed out to the defendant that he might put a house upon wheels, but by doing so it would not cease to be a house. He also said that, according to the present mechanical contrivances, anything could be moved, even to St. Paul's Cathedral. The defendant then stated that he constructed the building for sale. He described it as a portable skittle-alley, and he wanted time to enable him to dispose of it.

Mr. Dayman said a man could not be permitted to endanger other buildings while he waited for a customer. He (Mr. Dayman) had no doubt that it was a building within the meaning of the Act. It appeared to him that the defendant first violated the law, and then asked for an indulgence. He ordered him to take down the building within three days, and told him that in the event of his not complying he would render himself liable to a penalty of 20*l.* a day during such default.

GAS.

Imperial Gas Company's Bill.—The evidence went to show that, owing to the great increase in the demand for gas, a large extension of the manufacturing and storing premises had become absolutely necessary. The Bill asked for powers to purchase indefinitely, by agreement, 100 acres of land, without specifying any particular locality. The chairman, Lord Llanover, said he had acted as chairman of committees of this nature for many years, but he could not recollect an instance in which such extraordinary powers had ever been given to a company. If such a power were granted, land might be acquired by agreement in Grosvenor-square or Belgrave-square, and gas-works might be erected thereon. The unanimous feeling of the committee was that no such power should be given to any company, and they decided that the clause in question must be expunged.

The Sheffield Gas Company's Bill and the Corporation Opposition.—The sub-committee of the corporation have arranged with the company the terms of a compromise. The leading points are,—that the company's dividend on the new capital shall be at 7 per cent. for its maximum, while the price of gas remains at 3s. 6d.; that it shall increase to 7½ per cent. when the price drops to 3s. 3d.; that at 3s., the dividend shall be 9 per cent., and so on, the dividend increasing as the price is reduced.

Miscellaneous.—The Swinton and Mexbro' Gas Company have declared a dividend of 7 per cent. on old shares, and also on the amount paid up on new shares, and a reduction in the price of gas to the extent of 6d. per 1,000 ft.

COMPENSATION CASES.

Bethlehem Hospital.—The case between the Governors of Bethlehem Hospital and the Great Eastern Railway Company, already mentioned in our pages, was concluded at Guildhall on Monday. The governors had put in a claim for 100,000*l.* for property in Liverpool-street, and their witnesses estimated its value at from 94,000*l.* to 106,000*l.*, whilst the witnesses called on the part of the company named from 41,900*l.* to 50,000*l.*—The Hon. Mr. Denman was the assessor, and a verdict for 61,050*l.* was given.

The Proposed Law Courts.—In the case at the Old Insolvent Debtors' Court, "Gedge *v.* The Commissioners of the New Law Courts," the question was the value of a freehold house, No. 12, St. Clement's-lane, required for the site of the New Law Courts. Mr. Serjeant Parry and Mr. Rosher were for the claimant; Mr. Hawkins, Q.C., and Mr. M'Mahon for the Commissioners. The claim was 2,000*l.* The house was let for a lodging-house at 50*l.* a year, and the lease would expire in 1884. The place was licensed for forty beds, and well situated for the working classes. A good profit was made, and the money certain. It was a difficult matter to procure accommodation for the poorer classes. Property had increased in value. A few years ago the rent was 90*l.* a year. It had been increased to 50*l.*, and was now worth 85*l.* a year. Valuers were examined on each side. The highest claim for Mr. Gedge was 2,057*l.*, and the lowest 1,809*l.* On the part of the Commissioners the lowest was 935*l.*, and the highest about 1,064*l.* The jury gave a verdict for 1,110*l.*

City Improvement.—At Guildhall the case "Thomas and Bakeway *v.* The Commissioners of Sewers," respected a piece of ground in Threadneedle-street required to widen the thoroughfare in the City. Mr. Hawkins, Q.C., and Mr. Philbrick were for the claimants, who are stockbrokers, and held the lease of 60 years unexpired. Mr. Lloyd and Mr. J. O. Griffits represented the Commissioners. The claim had reference to No. 49, Threadneedle-street. On one side the gross rental was put at 1,070*l.*, and on the part of the Commissioners from 700*l.* to 740*l.* The net income was put on one side at 432*l.*, and on the other as low as 140*l.* The Common Serjeant, in putting the case before the jury, told them that there was certainly a very great difference in the opinion of the witnesses, and on social matters men did see differently, according to the bias in their mind. He went carefully through the evidence, and the jury assessed the compensation at 4,432*l.*

PROVINCIAL NEWS.

Southampton.—The iron pier now in course of erection opposite the Victoria Hospital will be finished in the course of a few weeks. It will cost, it is said, close upon 60,000*l.*

Camborne (Cornwall).—The foundation-stone has been laid of a large building to be devoted to market purposes, public meetings, the administration of justice, and the furtherance of the business generally of the town. The buildings will occupy a central site in the town, having on one side the main roads to Hayle and Penzance, and on another side the principal road to Helston, &c. They are in the Italian style, with a clock tower at the angle or junction of the two street fronts. These fronts, as to the first story, in which all doorways and windows will form a series of semicircular-headed openings, are to be built chiefly of granite, having rockwork face and rusticated beds and joints. The other stories of the building are to be relieved and ornamented with dressings in granite and Bath stone. The main string-courses are of block form, and the walls, including the tower, will be finished with a cantilever cornice. The ashlar is to be procured from a local quarry, and being of a yellowish colour, is expected to form an agreeable contrast to the granite dressings, &c. The accommodation as to the market will comprise a covered and ventilated market-place, about 124 ft. wide, averaging 111 ft. in length, and 26 ft. 6 in. high. There will be a gallery about 134 ft. in length, approached by two broad flights of stairs, and intended to be alloted to persons selling butter, poultry, and such like goods. The public buildings embrace an entrance-hall, 32 ft. 7 in. long by 18 ft. wide, having two entrances, one in Penzance-street, the other in Market-street. In this hall are the principal stairs to the public music or lecture hall, &c. The ground-floor also contains a town-hall, a magistrates' retiring-room, witnesses' room, a committee or general business room, a private entrance and stairs to public hall, &c., and an arcade approach to the market, &c. The second-floor accommodation gives a public hall, 56 ft. long by 32 ft. 7 in. wide, with a landing-place outside, 32 ft. 7 in. long by about 12 ft. 6 in. wide. The town-hall, &c., will be available for general meetings. The public hall will be both illuminated and ventilated by an arrangement of two 35-jet sun-burners. The architect is Mr. Wm. Bond, architect of Tehidy Estate.

COMPETITIONS.

Proposed Church on the Humberstone-road, Leicester.—About thirty designs were sent in, and the Committee have awarded the first premium, 25*l.*, to—1. Mr. George D. Irwin, Sunderland; and the premium of 10*l.* each for the two plans next in order of merit to "Fides."—2. Mr. Samuel Hancorn, Newport, Monmouthshire; and to "Alpha."—3. Bellamy and Hardy, Lincoln. The two plans for which commendation was given are "Truth."—4. Mr. John Marshall Hooker, London; and "Trefoil."—5. Clarke & Son, Northampton. The secretaries were requested to ascertain whether the architects to whom premiums have been given are willing to guarantee the building of the church according to the plans they have sent, and the estimates they have given, or to provide builders that will do it?

Bury St. Edmund's.—Whiting-street Chapel.—Plans for reseating and rearranging this chapel, and for the erection of a new Gothic front (the first instalment towards a Gothic chapel which is intended to be built to replace the present one), have been prepared by Messrs. Bacon & Bell, of London and Bury St. Edmund's, and the works will commence shortly under their superintendence.

Clock Tower, Limerick.—The competition for the Testimonial Clock Tower to Mr. Peter Tait, of Limerick, has resulted in the usual dissatisfaction to the unsuccessful competitors, and in the award of the first premium to Mr. Corbett, town surveyor, of Limerick; the second to Mr. W. Fogerty; and the third to Mr. Fitzgerald. It is now in course of erection, under the superintendence of Mr. Corbett. The cost will be about 900*l.*

THE HORIZONTAL SMOKE EXODE OR VOMITORIUM.

SIR,—Like every other person concerned in building transactions, I have always felt an interest in the question of ventilation. The proper supply of air and the expulsion of smoke have equally proved to be difficulties in dwellings of all sizes, from the hut to the lordly mansion. I was naturally attracted by the description of Dr. Edwards's new invention, called the "Vomitorium" or "Exode," which appeared in your influential magazine, and in another scientific publication; and I determined to give it a trial in two of my small houses in Chelsea which had given me much trouble.

These two cottages consist each of two rooms, each room being occupied by separate families; and in both houses the upper apartments are approached by a narrow and steep staircase. The rooms constantly smoked, and the ventilation was imperfect,—a defect partly due to the inmates' dislike of air. Of course, the elevation of these buildings is low, and their being overtopped by adjacent houses aggravated the smoke obstruction.

Before making the experiments in brick and mortar,—as recommended by Dr. Edwards,—I determined to imitate his apparatus in zinc, and apply it to these cottages. I removed the chimney-pots, and in their stead I placed a zinc cylinder, the cross section of which is equal to the sum of the calibres of the four tributary flues; and it projected at each extremity 2 ft. beyond the flues. Into each flue a quadrangular conduit of zinc was put, and which rose upwards into the channel of the vomitorium, showing a collar of about 6 in. in depth. These four conduits were soldered to the metal of the main tube or smoke-receptacle. On each side of this cylinder, I caused to be made six tubular apertures at the lower part, and through them currents of air are directed upwards towards the mouths of the flues. Thus the vomitorium is always full of air, supplied from the open ends of this receptacle, and from these lateral openings. The smoke ascends through the four conduits described, and rises upwards to the roof, and passes outwards at each end, or sometimes at one end and sometimes at the other. I did not close the extremities with the perforated shield suggested by Dr. Edwards, but reserved that resource against any hinderance that might arise from violent winds.

The machinery has now been in action more than a month, and its success has been complete. The fires burn with great briskness,—so much so, that the inmates complain of the increased consumption of coal; they burn coke, and heap up the grate with scarcely-combustible rubbish, and yet a return of smoke into the rooms never occurs. Furthermore, when any of the rooms are without fires, no down-draught has been observed from the smoke of the adjacent flues. The lateral currents of air infringing against the lips of the metallic conduits, and reflected upwards, seem to act like elastic valves placed over the mouths of the same, and thus render the return of the smoke impossible. I do not, however, pretend to theorise about the reasons of these effects; I merely relate facts, and I shall be happy to show the apparatus at work to any gentleman who may favour me with a call; or, in my absence, my son, Mr. Christopher Callow, will supply any information that may be wanted.

JOHN CALLOW.

PREVENTION OF SMOKE.

I AM induced, by seeing an obituary notice of the late Mr. Williams in your columns, to send you the following, as illustrating the value of one of his suggestions for consuming smoke, as described in his work on the combustion of coal (Weale, London), which, with some modifications, has been followed out here by Messrs. A. Herbertson & Son, who, fitting in a Cornish boiler for the engine that drives their wood-cutting machine, introduced jets of air into the gaseous smoke as it passes the furnace-bridge, which has simply and effectually consumed the smoke, yielding increased heat and giving sufficient draught without resorting to a lofty chimney-stalk, thus with advantage to themselves, and preventing an annoyance complained of by their neighbours. Seeing that such a simple and efficient plan can so easily and cheaply be adopted, it is but right to call the attention of our manufacturers and others to the above fact. Meantime, the eulogium delivered by the smoke-loving German at the grave of his "little good, little ill sort of a friend," applies here. As he walked three times round the grave, pondering what qualifications he could find that his relative had possessed, he found vent in his feelings at last, and exclaimed, "Oh, but he whas goot at the shmoke!"

J. K.

WATER-PROOFING WALLS.

OBSERVING in the *Builder* a notice respecting damp walls in out-buildings, allow me to suggest a probable cure.

While in Dorset, I was applied to by a lady, for a remedy for the above, and as I had for many years been in the habit of applying "bright American varnish" with great success to very exposed wood-work, I recommended the lady to make an experiment on the part of her house where not much seen. On passing by a few weeks afterwards, I observed all the front glowing to an evening sky.

On inquiry, I found that the varnish had so well succeeded in a small way that the lady had applied the same to the whole building, with equal success; and, when afterwards painted, there was no appearance of wet or "varnish."

The "bright American varnish" is very inexpensive, costing, I think, about 3*s.* per gallon, and may be procured from most sea-ports. I should recommend one coat of varnish as a trial, and if not quite successful then another, followed by three good coats of paint.

FREDERICK ROGERS, Captain R.N.

DISINFECTANTS.

SIR,—Your number of last week contained a letter on "Disinfectants," from Mr. W. G. S. Mockford, in which sulphate of iron was strongly recommended. From personal observations, I know that he is quite right as to the general use of this substance on the Continent for disinfecting purposes; but I also know from personal experience that it really does not disinfect at all. It would be hard to show chemically how sulphate

of iron should be possessed of disinfecting properties beyond other sulphates, most of which —sulphate of lime (gypsum) included—by reason of a small amount of free sulphuric acid which they contain, act upon ammonia. On the Continent, disinfection has been very imperfectly studied, whereas in this country the attention of Hofmann and other distinguished chemists having been directed to the subject, the chemistry of disinfectants has been completely elucidated. Let Mr. Mockford turn to any of our modern standard works on general chemistry, and he will see that sulphate of iron is now not even included among true disinfecting agents. In times like the present, when the community is suffering so seriously from the effects of infection among cattle, and perhaps is on the eve of greater suffering from cholera, I consider it a most mischievous thing for any one to rush inadequately informed into print on such a subject. Let us suppose that, on the strength of Mr. Mockford's eulogy of sulphate of iron, some one should be so foolish as to rely upon it in circumstances imperatively requiring the use of disinfectants, and that, as for certain would be the case, the infection, say of scarlet fever, remained uncontrolled. Would not that gentleman be indirectly responsible for the deaths which might ensue, but which might have been prevented had better advice been followed?

INTRA CREPIDAM.

CHURCH GLAZING.

I KNOW not the writer "S. B. B.," who has introduced my name in his letter to you on this subject, but if I had not been prevented, I should have stated the fact of my having used the large sheets of cathedral glass, because I have been so satisfied as to the effect produced by them in the Church of All Saints', Kensington Park, W. When I determined to use them, I asked for tenders from several artists and manufacturers, and the prices varied from 8s. 6d. to 1s. 10½d. per foot, at which latter price one contract is completed, and another in progress, by Messrs. Horwood, of Frome-Selwood.

J. W. HUGALL.

ESTIMATES FOR MODEL COTTAGES.

SIR,—Much dissatisfaction having arisen in model cottage competition, which, I think, could be avoided by a right understanding at the outset, as an intending competitor, there are questions that I think need an explanation, namely, is the price given to be at London or country prices? Of what materials are the walls to be constructed, brick or concrete? And is the builder's undertaking to carry out the work for the sum specified, to accompany the drawings, &c., or is that to be a future consideration?

W. E. BROWNE.

CHURCH-BUILDING NEWS.

Wareham.—Holme church has been consecrated. The edifice has been erected at the cost of Mr. Nathaniel Bond. Mr. John Hicks, of Dorchester, was the architect, and the building was erected by Messrs. Wellspring & Son, of the same town. The carving was executed by Mr. R. J. Boulton, of Worcester. The cost of the whole work is about 1,500*l.* The church is in the Early English style, and consists of a nave 32 ft. by 16 ft., and a chancel 15½ ft. by 13 ft., having a small vestry on its north side. The entrance porch is on the south side, and is 8 ft. by 7 ft. The edifice is provided with a bell turret, 39 ft. high, surmounted by a finial. The whole of the exterior walls are built with red sandstone quarried on the estate, except the quoins and dressings of the windows, which are of stone from Ham-hill. Accommodation is provided for fifty-four persons on open elm benches in the nave. The roof is composed of open timbers, stained and varnished, with circular ribs resting on carved Bath stone caps, having Purbeck marble shafts on Bath stone corbels. Pennent stone has been used for the flooring. The chancel arch is built of alternate courses of Ham-hill and Bath stone. The jambs are of the same material, with three Purbeck marble shafts having carved caps. The east window consists of three lancet lights, and the inside arches are supported by Purbeck marble shafts, with caps and bases of carved Bath stone. The roof is covered with Purbeck stone tiles.

Melton Mowbray.—A sum of 2,300*l.* has been raised for the restoration of the church here, which will be carried out under Mr. Scott's direction.

Cheddleton.—The restoration of the church here has received two further instalments towards completion in a new reredos and painted window which have been recently added. The window is the gift of the Rev. John Sneyd, of Ashcombe Park, who is one of the churchwardens. It is a baptismal window of two lights, and is at the west end of the south aisle, over the spot where the font is to be placed. The obedience of Naaman in washing in the Jordan for the cleansing of his leprosy is represented in one light, and in the other is painted the baptism of Christ in the river Jordan. The window is in the Cinque-Cento style of Christian art, and was executed by Messrs. Morris, Marshall, & Co., of London. The reredos is a gift of Mr. Edward Wood, of Newbold Hall, whose ancestors (the Arblasters) are buried here. It is a triptych, composed of a centre-piece of ancient Flemish carving in oak, representing the entombment of Christ, the figures being the bodies of Christ, Joseph of Arimathea, the three Maries, Saints John and Joseph. The sides or panels represent the Annunciation, and are painted on oak, as is also the centre-piece. The whole has been done under the immediate superintendence of Mr. G. G. Scott, jun., of London, the architect of the church. The new part of the woodwork has been executed by Messrs. Rattee & Kett, of Cambridge; and the painting by Messrs. Morris, Marshall, & Co.

Romiley (Stockport).—St. Chad's Church has been consecrated. The land on which this new stone edifice has been built and the burial-ground formed was given by Mr. Lawrence Heyworth, of Birch Vale, Romiley. It is about an acre in extent. The edifice can be seen from nearly all parts of the parish, though its spire is not yet erected. The total cost of the church (exclusive of the spire) will be about 3,500*l.* The church is entered through a central western door, which has carved pillars, and arch mouldings. Immediately on the left hand, at the end of the north aisle, is the baptistery, forming the basement of the tower, and containing a font of Caen stone. The nave is of four bays, the eastern being the widest, and opening north and south into transepts. The south transept is the deepest, and is devoted to school children. The north aisle is of two bays, and the south of three. The whole of the floors, excepting under the seats, are laid with tiles, in patterns. The central apse window is filled with stained glass, by Messrs. Heaton, Butler, & Bayne, of London, and the two side apse windows with diamond quarry glass, a coloured pattern being painted on each diamond, by Messrs. Edmundson, of Manchester. These three windows are given by Mr. Wright. Two rose windows, of different designs, pierce the gables of the two transepts, and there is a large four-light traceried window over the west door. Outside the edifice, there are several carved caps, bosses, and heads; and inside, the capitals of all the pillars have been carved by Mr. Williams, of Manchester. These are of white Bath stone, red circular shafts of Nottinghamshire stone supporting them. The roofs are covered with red and blue tiles, and there being no clerestory, the nave roof runs down over the aisles. The church has been built by Messrs. Thackrah & Peirce, of Stockport, from the designs of the architect, Mr. J. Medland Taylor, of Manchester. It contains 600 sittings.

Ancoats (Manchester).—The consecration of St. Jude's Church, which is situated at the junction of Kirby and Mill streets, Ancoats, took place on the 14th inst. The church is in the Early Geometrical style, cruciform in plan, with tower and spire at the corner of Mill and Kirby streets. There are four entrances,—two to the south, one to the east, and one to the north. The nave roof is in one span, intersected at the transepts by bold groin principals. The chancel is approached by three steps. The stalls are of red deal, simply varnished. The floor is paved with Maw's encaustic tiles. To the west of the chancel is the organ-chamber, communicating with the chancel and nave through pointed arches. To the east is the vestry. The chancel is lighted by a large circular traceried window, filled with grisaille glass, by Messrs. Lavers & Barraud, and by two small pointed windows at either side, filled in with cathedral glass. The transept gables are pierced by circular traceried windows above and coupled pointed windows below. The nave gable is pierced by a large five-light window, and the side-walls have two-light windows. The exterior of the church is of seconds bricks, with the arches to the doors and windows in red, white, and blue Staffordshire stock bricks. The arches have been so designed as to present a different arrangement of colour from various points of view. The tower is divided into three stages: in the upper is the belfry, with shafted traceried openings, filled in with slate louvres. The spire is banded with stone and blue bricks, and terminated with a gilt finial, giving a height from the ground of 120 ft. The roofs are covered with slate, arranged in coloured bands, and furnished with ornamental cresting. The windows are filled in with quarried cathedral glass, by Messrs. Edmundson & Son, of Manchester. The artificial lighting is by coronæ, standards, and brackets. The general contractor for the building was Mr. James Lucas. The masonry was done by Messrs. Ellis & Hinchcliffe. The church will accommodate 987 persons,—the south and transept galleries holding 295: 50¼ of the sittings are free. The cost of the edifice, including the enclosure walls and fittings, is 5,000*l.*, and site, 1,250*l.* The building has been erected from the designs and under the superintendence of Mr. John Lowe, of Manchester, architect.

Staincliffe.—The foundation-stone of a new church has been laid at Staincliffe. Mr. J. B. Greenwood has given the site and 1,500*l.* towards the building. Mr. W. H. Crossland, of Leeds, is the architect. The plan has nave and aisles, with arcades of five; a chancel, with a north aisle (which serves both for vestry and organ-chamber), a western tower and two western porches—one on each side, at the extremity of the aisles. The chancel is raised on three steps, and the sanctuary on two more besides the footpace. There are chancel-seats and subsellæ. The style of the edifice is Middle-Pointed, with geometrical tracery. The tower is of three stages, with angle turrets (too dwarfed in scale), embattled parapet, and an octagonal stone spire, which has no lights except four, one on each cardinal face, at the bottom. The belfry-stage has on each side a three-light window, with transome and tracery. The west window of the church is of four lights, with tracery, and a quatrefoiled circle in the head. The east window is a geometrical design, of five lights, with a large circle in the head with trefoils and other figures. The chancel-arch is corbelled off. A clerestory has been added of two-light windows, with traceried heads.

DISSENTING CHURCH-BUILDING NEWS.

Bollington (near Macclesfield).—The foundation stone has been laid here of a new Congregational chapel and schools. The chapel will seat 460 persons. The school, which will accommodate about 450 scholars on the upper floor, also includes, on the ground floor, an infants' school, three large class-rooms, a vestry, and the usual conveniences. The school building is so planned as regards the chapel that should future circumstances require an addition, it may easily be made to the chapel in the form of a transept, thereby affording 300 additional sittings. The walls will be faced externally with Kerridge parpoints set in courses, and the masonry to the doors, windows, &c. will be executed in Hollington stone. The principal entrance to the chapel will be through an open recessed porch accessible by a coupled pointed archway under a four-light geometric window in the south gable. At the south-east angle of the building there will be a tower and spire 90 ft. high. The architect is Mr. W. Williamson, of Manchester, and the style in which he has designed the building is Early Decorated. The contracts have been let separately to local tradesmen. All the wall stones for the exterior, as also the pulpit, have been presented by local gentlemen, exclusive of which the cost will be about 2,500*l.*, more than half of which has already been subscribed. This is the twenty-ninth of the thirty chapels to aid in the erection of which the Lancashire bicentenary committee was principally formed.

Hertford.—The new Wesleyan chapel in the Ware-road has been opened. The edifice is in the Early English style of architecture, and has a window over the entrance-door. In the rear there are school-rooms, which open into the chapel, and will be used as vestries. The architect was Mr. Pocock, of London, and the builder Mr. Charles Bint, of Hertford.

Ringwood.—The newly-erected Congregational church here has been opened. The building is in the Early English style of architecture, slightly varied, and the material is white brick with Bath stone dressings. Two spires or towers are carried up 65 ft. high in the front, and at each of the front angles there is a pinnacle. The edifice is lighted with five lancet windows on each side, and a large four-light tracery win-

dow in the front. Over this window a clock is to be placed. The body of the church has two separate entrances, by large double doors, from the street. It will accommodate about 650 persons. It is open-seated, and cushioned alike throughout. Over the main entrance is a gallery for children. There are also side galleries, many of the seats in which are free. The organ-gallery is immediately behind the pulpit, and over the minister's vestry. The roof is a double one, a roof proper and a masked roof. The entrances, and also the communion platform, are laid with tesselated tiles. The entire length of the church, exclusive of the minister's vestry and organ-gallery, is 60 ft., by 37 ft. wide. The minister's vestry is 13 ft. by 24 ft. The building will be heated with hot-water apparatus. The architect was Mr. H. T. Hillier, of Ryde, and the builders were Messrs. Tuck & Carley; the stonework was by Mr. Knott, of Wimborne. The ground on which the church stands was given by Messrs. A. Carter & Co., and the estimated cost of the building and the alteration of the old chapel, suitable for a school-room, will exceed 2,000*l*.

Books Received.

A Handbook for Readers at the British Museum. By Thomas Nichols, Assistant at the Museum. London: Longmans & Co. 1866.

The main object of this manual is to assist persons holding tickets of admission to the Reading-room of the British Museum, by detailing the regulations and arrangements affecting the use of the room, and by describing the plans and scopes of the various catalogues of the printed books and manuscripts in the National Library. The volume contains upwards of 160 closely-printed pages of well-condensed matter, which may show what a large amount of information (all of it important to readers) is contained in it. Every reader ought to have a copy of this very useful, and, indeed, to them, indispensable book.

Local Museum Notes. No. I. Edited by the Treasurer of the *Wimbledon Local Museum.* London: Hardwicke, 1866.

The various modes in which a local museum, for the illustration of the mineral, vegetable, and animal kingdom, within five miles say from a parish church, may be originated and established, have been carefully considered by the editor, Mr. Toynbee, F.R.S., and the result is a recommendation of the simple, inexpensive, and practical plan for the commencement of such a museum which is developed in the pamphlet under notice, and which has received the approval of Professor Owen.

VARIORUM.

"Dictionary of Chemistry, founded on the late Dr. Ure's. By H. Watts, F.C.S., and others. Part 33rd. Longmans & Co." The present part of this valuable dictionary extends from Phosphorus to Potassium. A large proportion of the contents is devoted to the many interesting combinations of phosphorus. Photography is also treated of briefly; and to Platinum a good few pages are devoted.

Miscellanea.

Crystal Palace.—On May-day a concert of five thousand voices will be given by children and others connected with the Metropolitan Schools, conducted by Mr. G. W. Martin. Ethardo will also re-appear, his lofty pole for the nonce being converted into a gigantic May-pole. On the following day, Mr. Charles Dickens has undertaken to give a reading of "Little Dombey." Other specialties intervene, and on the following Saturday, 5th May, the concert season will be inaugurated by a performance in the Handel Orchestra of Handel's "Acis and Galatea,"—Mdlle. Titiens, Signori Gardoni and Stagno, with Mr. Santley, being the principal vocalists. The great flower-show of the season will be held on Saturday, 12th May; and there will be the great display of fireworks, and illumination of fountains, water temples, and gardens, on Thursday, the 17th of May.

Statue of the Prince Consort at Birmingham.—The governors of King Edward's School at Birmingham have notified to the Consort Memorial Committee that they are ready to receive the proposed statue of the Prince as a gift, and to place it in such a position on their premises as may be agreed upon by the governors and the committee. The terms have been acceded to by the committee.

Thames Embankment Railway.—In reply to Mr. Crawford, in the Commons, Mr. Gibson stated that under the Metropolitan District Railway Act a large portion of the railway (between Westminster and Blackfriars along the Thames Embankment) must be tunnelled, but a certain small portion might be constructed in open cutting. A letter of the engineer to the fine, which appeared in the *Times*, states that an eighth of a mile is the outside length of this open cutting.

Halls for Workmen's Trades and Friendly Societies.—The *South London Chronicle* says,—The desire of working men to remove the business of their societies from places where temptations to waste their means abound, has received an excellent illustration on the part of the Ancient Order of Foresters, a decision having been taken to purchase Portman Hall, Paddington, and to raise the purchase-money by share-subscriptions, payable in weekly instalments. A project for a painters' hall in London is also on the *tapis*.

The Catalogue of Paris Exhibition, 1867. The proprietors of the *Art-Journal* announce their intention to issue an Illustrated Catalogue of the principal objects of Art-manufacture contained in the Universal Exhibition of the Works of all Nations to be held in Paris, including 1,000 engravings. It will be edited by Mr. S. C. Hall, who edited the Illustrated Catalogue which accompanied the *Art-Journal* in 1851, and also that issued with the *Art-Journal* in 1862. We are glad to learn, for the sake of our indefatigable countryman, that the Emperor of the French has in this case departed from an existing rule and accepted the dedication of the work.

The Inventor of the Steam Hoist.—Mr. Nicholson, of the Trent Iron Works, Newark, writes us, in notice of a paragraph in our number of the 7th instant,—"I no more claim to be the inventor of the steam hoist than I do of the steam engine: what I do claim is to be the inventor of some important improvements in steam hoists, which I believe render this machine better than any that have been previously made. Some further modifications, now in forward progress, will add to the efficiency and handiness of my machine for ordinary builders' purposes." In giving a place to Mr. Riley's statement we expressed our belief that Mr. Nicholson merely claimed improvements.

Table of Geological Strata, Building-Stones, &c.—A table for the use of architects or builders, engineers, and others, has been arranged by Mr. M. A. Purcell, C.E., and published by Stanford, of Charing-cross, under the title of "Geological Table of the Fossiliferous Strata, and their Characteristic Fossils, arranged in the Order of Superposition and in Chronological Sequence." It gives, under four headings, the geological systems, formations, life characteristics, and observations on the respective strata. Thus the geological names, Permian, Trias, &c., may be said to be converted, explained, and amplified into those limestones, sandstones, slates, and other materials which constitute the earth's crust in the respective geological formations.

Gas at Moscow.—Great progress has been made in the construction of the works at Moscow during the past summer, and highly satisfactory reports have been received here by the gas company as to the number of intending consumers. In this country about 10,000 tons of pipes, gasholders, purifiers, condensers, hydraulic mains, and other apparatus have been prepared. The whole will probably be on the ground in two months. Since the beginning of the present year the company have been actively occupied in fixing the internal pipes in the houses, and applications have been already received, in the course of about three months, for more than 38,000 lights, exclusive of the large government establishments, hospitals, and barracks, many of which will take from 500 to 1,000 lights each. The company may commence operations in October next, one year in advance of the period required by the concession, with a demand for gas estimated at 50,000 lights.

Public Health Acts.—In answer to Lord E. Montagu, in the Commons, Mr. Bruce states that he hopes to be able very shortly to lay upon the table a Bill for the amendment of the Public Health Acts, but that the measure will not contain any clauses relating to the pollution of rivers.

Buildings for Irish Records.—On the motion to go into supply, Mr. Childers, in reply to a question, said that the Irish Record Buildings were either just finished or were at the point of being finished, at an expense of 36,000*l*. The architect had full information respecting the record buildings in England, and it was expected that the Irish record buildings would contain accommodation of an ample kind for the proper custody of the records.

Accidents.—A small church in the course of erection at Sandy Pond, near Bishop Auckland, has been partly blown down by a gale of wind The church is building at the expense of the Newton Gap Coal Company, for the use of their workmen. —— A serious accident occurred on Easter Sunday in the church of Notre-Dame-de-Kazan, at St. Petersburg. The grand chandelier, weighing more than 16 cwt., suddenly fell, killing two people and seriously wounding two others. By good luck there were few people in the church.

Industrial Dwellings, Notting Hill.—At the last committee-meeting of the Society for Improving the Condition of the Labouring Classes, a letter was read from Mr. James Murray, architect, enclosing a description of the industrial dwellings now being erected at Nottinghill, for Sir S. Morton Peto, bart., and consisting of forty-eight houses for families, each entirely private and distinct from the others; in addition to these, a "workmen's dining-hall," on the plans adopted at Glasgow and Birmingham, and a "workmen's club."

Want of Portland Stone.—The demand for Portland stone has now become greater than the supply. In the month of February, says the *Dorset Express*, Mr. Steward had a Government order for 1,500 tons, and last month an additional order for 1,000 tons of Roach stone, neither of which orders he was able to execute, and the stone had to be obtained in Yorkshire. The cause of not being able to supply the demand is, that no one but a Portlander is allowed by the quarrymen to work in the quarries. Yet lately two additional quarries have been opened, and the necessary gear has been put up. How are they to be worked?

Ancient Cities discovered.—The American Department of State have received despatches from their consul at Tobasco, Mexico, in which he communicates the discovery of the ruins of two ancient cities, which have remained unknown since the days of the Conquest. The first, he says, from its topography and situation, he is led to believe, is one that was occupied by Cortez at the time of his invasion of Tobasco; the other is situated in the north-eastern portion of the State, nearly opposite the present city of Laguna de Los Terminus, and was known before the Conquest as Xicolanea, and traditions connected with it trace its origin to a period at least 200 years before the Christian era.

British Museum.—The accounts, estimates, &c., of the British Museum, have been published. The expenditure for the year ended the 31st ult. was 101,808*l*. 14s. 4d.; and the sum required for the ensuing year is estimated at 102,744*l*. During the year 1865, 369,967 persons visited the general collections, exclusive of readers. This is a less number than that in any previous year from 1860. In the reading-room about 4,158 books are used per day. The number of readers in 1865 was 100,271, or, on an average, 349 per diem, each reader having consulted twelve books daily. 29,686 volumes have been added to the library. The number of deliveries of manuscripts to readers during the year was 2,311, and to artists and others in the rooms of the department 4,199. The collection of manuscripts has been added to by 1,177 documents, 180 original charters, and 231 casts of seals. At the sale of the celebrated collection of the late Count Pourtales a number of antiquities were purchased for the Greek and Roman departments, and various other purchases, presents, &c., are recorded. Professor Owen reports 16,700 additions to the department of zoology, 10,079 to that of geology, and 3,623 to that of mineralogy.

THE MODERN SPHYNX.—This Egyptian (Hall) mystery or riddle has been solved. The apparently detached living head belongs to a body concealed behind two angularly-placed mirrors which give the effect of all being open beneath the table on which the head appears, giving the illusion of a head without a body. The principle is the same as that of the mysterious cabinet at the Polytechnic, which either conceals or shows the person or persons within, according as the mirrors are drawn out or put back on the sides of the cabinet.

STATE OF WOLF-ROCK LIGHTHOUSE.—Messrs' Douglas, engineers to the lighthouse now erecting on the Wolf-rock, between the headland of Tol-pedn-Penwith and the Scilly Isles, recently visited the rock, and found that, notwithstanding the heavy gales and tempestuous seas, the foundation of the lighthouse is not injured. In a gale before Christmas several of the large stones were washed away, and some other damage done; but since that time there has been no further injury. The engineers are now waiting for settled weather, that the work may be continued.

SUPPOSED ORIGIN OF PETROLEUM.—It has been suggested by Professor Wilbur, of Hamilton, Canada West, that the mineral oil now called petroleum originated in the decomposition of ancient marine vegetation in the geological strata which were deposited in the ocean and afterwards became dry land. Coal, originating, it is believed, in land vegetation in a similar way, produces mineral oils closely akin to the American petroleum when the coal is decomposed by the heat of distillation. Some shaley strata are found saturated with mineral oil: this is the origin of Young's paraffine, which is essentially the same sort of thing as the American petroleum.

STATISTICS OF BRUSSELS.—The recently-published "Annuaire de la Mortalité de la Ville de Bruxelles," shows that during the year 1865, the relative number of legitimate and illegitimate births was 3·14 to 1. The number of persons who died in their own homes was 4,334, whilst 1,520 died in the hospitals and prisons. These numbers appear to be very disproportionate. As regards the causes of death, we find that nearly one-third of the cases were owing to diseases of the respiratory organs, whilst only 98 cases of typhoid fever were reported, or 1·9 per cent. The work contains the necessary tables and registers of temperature for the comparison of the vital statistics of Brussels with those of the other European capitals.

PICTURE BY MR. F. MADOX BROWN.—Mr. Madox Brown has recently exhibited a newly-finished picture to a few of his friends,—"Jacob and Joseph's Coat," a work of high merit. Four of the brothers are represented as having come back with the coat. Simeon stands in the immediate foreground, half out of the picture, with a guilty and blustering look; Judah just behind him, stands silently watching the effect of Levi's falsity; Issachar sucks the head of his shepherd's crook, and wonders at his father's despair; Benjamin sits next his father, and, evidently doubtful, examines the garment. Jacob sits under a spreading fig-tree. A ladder, the sign of Jacob, is introduced, on which are seen the feet of one gathering the fruit. The story is well told, and the intended expression throughout admirably conveyed.

BRISTOL ARCHITECTURAL SOCIETY.—At a quarterly meeting of this society, held on the 18th inst., the hon. secretary, Mr. Phipps, announced that in reply to the address of the president, he had received letters from, and memorials had been addressed to, the corporation of Bristol in favour of the preservation of Colston's Hall, by the following societies:—The Archæological Institute, the Society of Antiquaries, the Royal Institute of British Architects, the Architectural Societies of Yorkshire, Lincolnshire, Nottingham, Lancashire, Rutland, Northamptonshire, Worcestershire, Bedfordshire, Northumberland, Durham, Manchester, Ireland, the Royal Institute of Architects, the Council of the Architectural Museum, and the Bath Antiquarian Field Club. He was sure that after such a long list of memorials the house ought to be preserved. A paper was then read by Signor G. Salviati, on behalf of his father, Dr. Salviati. The subject was "Mosaics: their origin, nature, and different styles; their progressive development and application; and the introduction of the art of enamel mosaic into England."

EDUCATION ABROAD.—The Educational Society of Lyons offers a prize of 400 frs. for the best Essay, either in French or in any other language, on the following question:—Whether parents are not in most cases to blame for the little success obtained by masters in the education of children?

THE SMOKE NUISANCE.—The Home Secretary, in reply to Sir R. Peel, in the Commons, states that a Bill is now in preparation by the Vice-President of the Council, one object of which will be to provide some summary and efficient means of dealing not only with the nuisance of smoke, but also with other nuisances, with respect to which local authorities will be compelled to do their duty.

RAILWAY SAFETY CURBS.—Messrs. Wright & Co., of New Broad-street, London, have patented an invention for the prevention of accidents on railways. It comprises a safety-curb and life-guard, which are intended to confine the train to the rails, and so to prevent loss of life from the breaking of axles, tyres, springs, &c., and, moreover, enable a speed of 100 miles per hour to be performed with safety. The curb is, in fact, an additional rail, which is elevated and applied on each side of the ordinary way, and which weighs 168 lb. per yard. The life-guards are four supports, placed one at each corner of the carriage, engine, and tender, which, in case of an axle or wheel breaking, are designed to lodge on and in the curb, and keep the carriages suspended, thereby preventing injury to the passengers. The curb is also to be employed for applying the break upon, by means of which, in cases of collision, the carriages may not only be held down and confined to the rails, but more readily stopped, and with less wear and tear to the working parts. The invention is particularly recommended for bridges, tunnels, viaducts, high embankments, sharp curves, steep inclines, underground and suburban railways, and will also afford wider carriages, with a pathway down the middle, after the American system, permitting the guards to pass from one end of the train to the other.

MODERN DOMESTIC ARCHITECTURE.—Standish, near Stonehouse, Gloucestershire, the mansion of Mr. Richard Potter, has just been renovated and decorated. On entering, a hall presents itself about 25 ft. by 16 ft., with the ceiling panelled in colours of pale blue, brightened with tints of lake, amber, and violet. The cornices are in gold, and white and green in relief. To the right are two drawing-rooms, about 50 ft. long, decorated (in a style after Raffaelle), with the seasons, embodying emblems of every month in the year. The dining-room has been plainly painted, with a Grecian pattern panelled round the top and bottom of walls on a dead green. The woodwork is done to represent marble, excepting the door, which is oak. The study is also finished in oak and gold, introducing crimson on the oak. The grand staircase has a painted glass ceiling. The boudoir is done in white moire antique, panels to walls and flowered border, satin wood and gold to the three doorways. A second staircase leads to the grand billiard-room. The ceiling is panelled in Italian style of a late date. The walls are painted in Early Italian with Etruscan figures worked on the minor panels, and full-size subjects on those more important. There are representations of Time and Judgment, Patience and Virtue, and the arms of the family are also painted in shields supported by figures. The skirtings and doorways are of marble. The whole of the work has been carried out by Mr. William May, of Bath.

TENDERS

For new shop-front, bar-fittings, and general repairs to the Gloucester Arms, Upper Park-place, for Mr. G. Moss. Messrs. J. Bird & Walters, architects:—

Cole	£886 10 0
Henshaw	759 0 0
Williams	737 0 0
Ebbs & Sons	695 0 0
Brown	645 0 0

For two houses and and offices, at Wimbledon, for Mr. G. Walker. Mr. D. Brandon, architect —

		For Brick Dressings instead of Stone, deduct.
I'Anson	£7,240	£100
Conder	7,000	100
Myers	6,528	72
Piper & Wheeler	5,923	70
Parsons & Townsend	5,706	96
Nicholson & Son	5,533	68
Roberts	5,300	110

For public-house and cottages, to be built at Maldon, for Messrs. Gray & Sons. Mr. W. Adams, architect:—

Bickmore	£905 0 0
Saunders	890 0 0
Harris	875 0 0
Cockett	855 0 0

For the erection of villa, at Thornton Heath. Mr. Edmeston, architect. Quantities by Messrs. Birdseye & Stoner:—

Wilcher	£1,586 0 0
Dennis & Gray	1,749 0 0
Nixon	1,655 0 0
Killby	1,569 0 0
King & Hippell	1,520 0 0

For the London Steam-Crane and Engine Works, at Leicester (exclusive of ironwork). Mr. A. Manning, architect:—

Porter	£1,289 0 0
Neale & Sons	1,265 0 0
Duxbury	1,165 0 0
Holmes	1,115 0 0

Accepted for works at Wakefield, for Messrs. George Lee & Sons. Messrs. Lockwood & Mawson, architects. Quantities supplied:—

Masonry and Brickwork.

A. & J. Binns	£4,790 10 0

Carpenter and Joiner's Work.

Illingworth & Son	£1,696 0 0

Ironfounder's Work.

Hall	£2,300 0 0

Plumber's Work.

Keighley	£1,200 0 0

Slater's Work.

Hill	£635 0 0

Painter's Work.

Briggs & Menstorth	£300 0 0

Plasterer's Work.

Tattersall	45 0 0

For the erection of a new wing and residences to the Metropolitan Benefit Societies' Asylum, at Ball's Pond-road. Mr. W. P. Griffith, architect. Quantities not supplied:—

Dimsdale (accepted)	£2,560 0 0

For New Boys' School, Walthamstow. Mr. W. Wigginton, architect:—

Ennor	£2,167 0 0
Axford & Whillier	1,895 0 0
Kellby	1,863 0 0
Hearle	1,743 0 0
Perry	1,718 0 0
Hill & Keddell	1,697 0 0
Turner	1,590 0 0
Reed (accepted)	1,597 0 0

For the erection of six shops, in the Kentish Town-road, for Mr. Fox. Mr. F. F. Holsworth, architect. Quantities supplied by Messrs. Richardson & Waghorn:—

		Add for Shoring.
Tracey & Co.	£4,350	£5 0 0
Kelly, Brothers	4,167	12 10 0
Nutt & Co.	4,082	5 0 0
Manley & Rogers*	3,918	5 0 0
Hyde	3,898	...

* Accepted.

For sewer work, at Putney, for the Wandsworth District Board of Works:—

Pearson	£7,050 0 0
Hiscock & Williams	7,000 0 0
Blackmore	7,000 0 0
Whittick	6,920 0 0
Robinson	6,650 0 0
Thackrah	6,456 0 0
Aviss & Son	6,070 0 0
Hill & Keddell	6,063 0 0

For alterations and additions, to Water Park, Doonass, Co. Clare, for Mr. John Lecky Phelps. Mr. W. Fogerty, architect. Quantities by Mr. E. P. Gribbon:—

Cavanagh & Flynn	£3,196 0 0
Hunter	3,150 0 0
Ryan & Son	2,911 0 0
Scanlan	2,864 0 0
Wallace & Son (accepted)	2,465 0 0

For house, at Hook, Surrey. Mr. H. Walker, architect:—

Nightingale	£1,200 0 0
Jenkins	1,164 0 0
Andrews	1,124 0 0
Tamlee	1,088 0 0
Kilsey	995 0 0
Keys	995 0 0
Pesketh	993 0 0

For Austin Friars-chambers, City (second portion). Mr. W. Wigginton, architect:—

		Add White Tiling.	Deduct old Material.
Ashby & Horner'	£5,319	£597	£95
Browne & Robinson	5,301	620	80
Killby	5,278	604	71
Ennor	5,186	617	76
Hill & Keddell	5,103	609	86
Axford & Whillier*	5,082	611	90

* Accepted.

For the erection of Chapel and School Mission Home, Bier-lane, Windsor, Berks., for Rev. H. Hawtrey. Mr. William Sim, architect:—

Snowball	£670 0 0
Holden	668 10 0
Hollis	565 0 0
Caley	537 0 0
Hards	459 0 0

For decoration at Jews' Synagogue, Great St. Helen's Bishopsgate. Mr. N. S. Joseph, architect:—

Clarke & Co.	£814 0 0
Newman & Mann	799 0 0
King & Sons	774 0 0
Heaps	685 0 0
Cohen	680 0 0

TO CORRESPONDENTS.

E. P. (write to Mr. Baigent, Winchester).—Capt. R.—J. S. (it is not concrete).—W. N. N.—A. C.—P.—G. D. L.—B. B.—Dr. M.—B. F.—G. H.—J. C.—C. J. H.—J. D. F.—R. & W.—J. M.—F. & T.—F. R. W.—W. H. G.—W. B.—N. W. C.—Mr. C.—G. R. H.—J. J. K.—Mr. C.—W. H. H.—W. F.—A. K.—W. A.—A. M.—H. B.—J. F. F.—S. H.—H. C. R.—R. W. J.—C.—C. T. N.—J. P. (we cannot look back).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

Note —The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than **THREE o'clock, p.m.,** *on THURSDAY.*

[ADVERTISEMENTS.]

THE BATH STONE COMPANY, Limited, having opened new Quarries, are now prepared to apply any of the following STONES, viz., Box Ground, Corsham Down, Farleigh, and Combe Down.—Prices and terms on application to E. A. TUCKER, Manager, 4, Railway-place, Bath.

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

BROMPTON.—Freehold Building Land, in the Earl's-court road, in close proximity to the stations on the Metropolitan District and West London Railways, and within a few minutes' walk of the South Kensington Museum and Horticultural Gardens. By direction of the Trustees of the late Mrs. Westerton.

MESSRS. PRICE & CLARK will SELL by AUCTION, at GARRAWAY'S, on TUESDAY, 8th MAY, at TWELVE for ONE, important FREEHOLD BUILDING LAND, possessing double frontages, situate in the Earl's-court-road, the corners of Brewer's-lane, near St. Peter's Church, the property situate in the main road leading from the Old Brompton-road to Kensington, and from its favourable position, combined with the rapidly increasing value of land in the locality, a large amount of the many improvements and large building operations now in progress, strongly recommends itself as a favourable opportunity of investing Income by means of ground rents.—Particulars had of Messrs. COMER & WAINWRIGHT, Solicitors, Staple-inn, Holborn; and at the Offices of PRICE & CLARK, 48, Chancery-lane.

JUNIOR CARLTON CLUB, PALL-MALL.—First Portion of the Building Materials, to clear the ground.

MESSRS. GLASIER & SONS are instructed to SELL by AUCTION, on the PREMISES, on TUESDAY, MAY 8th, at TWELVE for ONE o'clock, the valuable BUILDING MATERIALS and FITTINGS of THREE HOUSES, Nos. 35, 36, & 37, Pall-mall, comprising about 50 thousand capital stock bricks, plain tiles, timber in roofs, floors, &c. doors, pale glass, sashes and frames, capital stone staircase with iron and mahogany handrail, stone coping and paving, 3 stationary marble chimney-pieces, &c. register stoves and ranges, lead flats, gutters, cisterns and pipes, copper flat, zinc and metal skylight, hot-water apparatus, ship-lap and wood shutters, useful prepared and other fittings and fixtures.—On view day prior and morning of Sale, and catalogues had of D. BRANDON, Esq. 24, Berkeley-square; on the Premises; and at the Offices of the Auctioneers, 41 Charing-cross, S. W.

On MONDAY, APRIL 30, at ELEVEN for TWELVE, on account of the Executor of late.—To Timber Merchants, Builders, Carpenters, Joiners, and Others.

MR. LEREW will SELL by AUCTION, at CAMDEN TERRACE, Camden Town, near the old Eagle Tavern and Railway Station, a large quantity of PLANKS, DEALS, and BATTENS, flooring, quartering, very fat stuff, match boards, wide pine, chimney-pieces, slates, brick-, coast pine, ironmongery, stoves, ranges, cowls, scaffold-poles, pudogs, truck, mowing machine, and useful stock.—Auction Offices, 2, Cardington-street, Hampstead-road, N.W.

KING'S CROSS.—The Midland Railway Company requiring the premises immediately,

MR. LEREW is instructed by Mr. Crace, Timber Merchant, to SELL by AUCTION, on the PREMISES, 17, Weston-street, Old Saint Pancras-road, opposite the Great Northern Railway Station, on THURSDAY, MAY 3rd, at TWELVE, the extensive well seasoned STOCK: comprising 30 0 0 feet wide pine boards, 50 0 feet mahogany in plank and boards, 4,000 feet oak, 5,000 feet beech, 2,000 feet ash and plank, 1,000 feet elm, 1,000 feet mahogany, 50,000 feet mouldings, 30,000 feet quartering, 400 square yellow and white flooring, 50 squares match lining, a large quantity of dry cut stuff, some yellow and whitedeal planks, deals, and battens, panelled doors, slating battens, veneers, round walnut tops, a few sticks of yellow timber, timber carriage, timber and light spring carts, truck, 4 timber jacks, 20 frames and pit saws, weighing machine and weights, harness, and miscellaneous stock; also, a 6-roll cottage pianoforte, and a bronze-three-light telescope gasolier.—May be viewed the day prior, and catalogues had on the Premises; and of the Auctioneer, 2, Cardington-street, Hampstead-road, N.W.

STRATFORD.—Freehold Building Land in the centre of the town.

MR. JOHN M. DEAN will SELL by AUCTION, at the SWAN INN, Stratford, on THURSDAY, MAY 3, at THREE o'clock, FIFTY PLOTS of most Eligible FREEHOLD BUILDING LAND, including one valuable site for a Tavern. The whole situated in the centre of the town, midway between the two railway stations, and having important frontages to Broad-street, East-street, and Calum-street, which streets are being constructed in accordance with the requirements of the Local Board of Health.—Particulars and conditions of sale, with plans, may be had of ANDREW STOREY, Esq. 6, Bridge-street, Bedford-row; Messrs. J. & W. ORICK, Solicitors, Maldon; the Swan Inn, Stratford; and of MR. JOHN M. DEAN, Auctioneer and Surveyor, the Grove, Stratford, E.

KENT.—Highly valuable Freehold Building Land, close to the Railway Station at Tunbridge.

MESSRS. CHARLTON & SKINNER are instructed to OFFER for SALE by AUCTION, in the month of MAY, as that valuable FREEHOLD MEADOW, containing by admeasurement 4a. 2r. 9p., with a commanding situation, direct opposite the Railway Station at Tunbridge, on the South-Eastern line, which will be divided into Building Lots suitable for the erection of private houses and business premises. Further information may be had at the Office of Mr. STENNING, Solicitor; or of Messrs. CHARLTON & SKINNER, Land Agents and Surveyors, Tunbridge, where a plan of the property may be seen.

FIRE ENGINEERING.

Now ready, with numerous Illustrations, Diagrams, etc. handsomely printed, 544 pp. Demy 8vo. Price 17. 4s. postage 10d.

FIRES, FIRE-ENGINES, and FIRE BRIGADES;

with a History of Manual and Steam Fire-Engines, their Construction, Use, and Management: Remarks on Fire-proof Buildings, and the Preservation of Life from Fire; Statistics of the Fire Appliances in English Towns; Foreign Fire Systems; Hints for the Formation of, and Rules for, Fire-Brigades; and an Account of American Steam Fire-Engines.

By CHARLES F. T. YOUNG, C.E.

Author of "The Economy of Steam Power on Common Roads," etc.

London: LOCKWOOD & CO. 7, Stationers' Hall Court.

Three Acres of Land, opposite the Station, Chalk Farm.

MR. ELOART will SELL by AUCTION, on FRIDAY, 11th MAY, at GARRAWAY'S, the above property, known as Rede's Nursery, at the foot of Haverstock-hill, available for a builder or contractor, coal depot, &c.; or, with consent of the freeholder, for building purposes. Held for 46 years at only 61*l* per annum.—Particulars of the Auctioneer, 27, Chancery-lane

13, UPPER STREET, ISLINGTON.—To Builders, House Decorators, Paper-hangers, and Others.

MR. EWINS will SELL by AUCTION, on MONDAY, APRIL 30th, at TWELVE, PAPER-HANGINGS, comprising rich gold, flock, satin, drawing, dining, library, parlour, bed-room, and marble papers, &c.; ten cases sheet-glass, one ton white lead, dry colours, glazed doors; also ironmongery, including cut and wrought nails and spikes, screws, trim, mortise, and other locks, hinges, stoves, ranges, brass and cast-iron goods of the usual description, wagon-tire with pitent axles, pole bar and cushions.—On view Saturday preceding, and Catalogues had.

HOLME, HUNTS.—Sale of Plant, on completion of the West of England Land Drainage and Inclosure Company's Works of Warp Irrigation, &c. at Holme near Peterborough

MESSRS. BRISTOW & SON will SELL by AUCTION, on FRIDAY, MAY 11, 1866, upon the PREMISES, near to the Holme Station on the Great Northern Railway, the following valuable PLANT, viz.:—Steel rails and double iron rails, 1,180 yards of portable wood and iron rails, 8 pairs of points, complete; 2 yards portable wood and iron points, 1,200 wood sleepers, 41 wagons, side tippers; 3 anchors, 3 snatch-blocks, 30 high porters, 64 low porters, 14 sets of harness, 8 harrows, 271 feet of cast-iron water pipes, 60 feet of india-rubber tubing, 3 pumps, a quantity of chain, shafts, cutter, corn-bruiser, wood engine house, wool cabin with stove, carpenter's tools, 2 water-cranes, ropes, sacking, old and new iron, new oak and elm planks, firewood, 700 feet of deal planks, 600 feet of deal kicks, bedding jack, steel yards, and other valuable effects.—Sale to commence at ELEVEN o'clock. Catalogues may be had of the Auctioneers, by post, on application.

GROSVENOR-PLACE IMPROVEMENTS.—Extensive Sale of superior Building Materials, on MONDAY and TUESDAY, APRIL 30th, and MAY 1st.

MR. GEO. HAINES will SELL by AUCTION, on the PREMISES, at TWELVE punctually, the whole of the capital MATERIALS of THREE noble MANSIONS, Nos. 20, 21, and 22, Grosvenor place, late in the occupation of the Earl of Colchester and others, comprising 600,000 prime stock bricks, 20 tons of lead, water closet, slab, fire-proof and fittings, the numerous bed chambers and reception-rooms, 11 Spanish mahogany doors, marble chimney pieces, large library bookcase, iron railings, white jasmine, creepers, and shrubs, and the fixtures of the large kitchens.—May be viewed; Catalogues at the Auctioneer's Offices, No. 2, Lower Belgrave-street, Eaton-square.

WOOD GREEN.—To small Capitalists.—Plots of Freehold Building Land, in close proximity to the Alexandra Park and Palace, now in course of rapid completion

MR. MACARTHUR will SELL by AUCTION, at the GUILDHALL COFFEE HOUSE, London on MONDAY next, at TWELVE for ONE o'clock precisely, a further portion of the SPRINGFIELD PARK ESTATE. Half the purchase money may remain on mortgage.—Particulars, with plans and conditions of sale, may be had at the principal Inns in the neighbourhood; and of GEO. A. JAMES, Esq. Solicitor, 22, Essex-street, Strand; of THOS. GIRLING BRAY, Esq. Surveyor, Wood Green; at the Place of Sale; and of the Auctioneer, 22, Essex-street, Strand, W.C.

LONDON AND SOUTH-WESTERN RAILWAY COMPANY.—Sale of Surplus Lands.—Teddington, Hampton-wick, and New Kingston.—Freehold Residences and Building Land

MR. FULLER is instructed to SELL by AUCTION, at the LONDON TAVERN, Bishopsgate-street, City, on WEDNESDAY, MAY 23rd, 1866, at ONE for TWO precisely, PWO PRETTY RESIDENCES and TWENTY EIGHT PLOTS of very valuable FREEHOLD LAND immediately available for building purposes, being situated adjoining the Teddington Hampton Wick, and New Kingston Stations, on the London and South Western Railway, within easy access of Bushey Park, Richmond Park, Kew Gardens Hampton Court Park and Gardens, and the River Thames; all made and all hours of the day by railway or omnibus from the City of West End, and possessing frontages to excellent roads. Possession will be given on completion of the purchase. Particulars with plans will be ready fourteen days prior to sale, and may be had of Mr. LEWIS CHOMLEY, Solicitor, London; and South-Western Railway, Waterloo Bridge Station; of the Station Masters at the Teddington, Hampton Wick, and New Kingston Stations; at the Royal Oak Inn, New Kingston; the Swan, and the Rose and Crown, Hampton Wick; the Clarence Arms Hotel, Teddington; at the London Tavern, Bishopsgate street; and of the Auctioneer, MR. FULLER, 7, Whitehall-gardens.

KENSINGTON.—Freehold House, Shops, and Building Land.

MR. FULLER is instructed to SELL by AUCTION (unless previously disposed of by private Contract, at GARRAWAY'S COFFEE-HOUSE, Change-alley, Cornhill, on MONDAY, JUNE 11, at ONE o'clock precisely, an important FREEHOLD ESTATE situate and being Nos. 11 and 12, Newland-terrace, High-street, Kensington: consisting of a dwelling-house, two shops, and workshop, and the rear of the whole as building land, with a Midwinter, and the two shops are leased to Mr. Westerton and Mr. Etc, for terms expiring September, 1885, when, by judicious management, there is not the least doubt the whole could be made to produce a large rental. May be viewed by permission of the tenants. Particulars with the ready fourteen days prior to sale, and may be had of Messrs. PARKER, ROOKE, & PARKERS, Solicitors, 17, Bedford-row; of the Tenants; at Garraway's Coffee-house, Change-alley Cornhill; and of the Auctioneer, Mr. FULLER, No. 3, Whitehall-gardens.

ELTHAM, KENT.—Freehold Building Estate of 110 Acres.

MR. FULLER is instructed to SELL by AUCTION (unless previously disposed of by Private Contract), at GARRAWAY'S COFFEE-HOUSE, Cornhill, early in JUNE, a FREEHOLD BUILDING ESTATE, comprising about 110 acres (in lots or various sizes, so as to meet the requirements of purchasers), well adapted for the erection of villas and villa residences, being situate at Eltham, Kent, one of the most healthy and favourite suburbs of London, possessing frontages to good roads, prettily timbered, in an elevated position, commanding excellent views over undulating fully wooded country, and of easy access from all parts of the metropolis. It is surrounded by the estates of the Crown; of Clare Hall, Cambridge; of Lord Sidney; of Sir Edward Page Turner, bart.; and also by the Aviary Hill Estate, the residence of James Boyd, esq. Two thirds of the purchase money may, if desired, remain on mortgage at 4 per cent. Particulars with plans, will be ready fourteen days prior to sale; and may be had of F. F. REVES, Esq. Solicitor, 28, Parliament-street, Westminster; at the Castle, Eltham; the Bell, Maidstone; the Five Masons' Arms, Dover; the Rose and Crown, Wandsworth; the Old Railway Station, Lewisham; the Crown and Sceptre, Greenwich; the White Hart, Bromley; and of the Auctioneer, Mr. FULLER, 3, Whitehall-gardens.

Preliminary Announcement.—Cheadle, near Manchester.

MR. JOHN DACRE has great pleasure in announcing that he has received instructions from Messrs. Garside & Stead, railway contractors, to SELL by AUCTION, on MONDAY and TUESDAY, the 7th and 8th days of MAY next, the CONTRACTOR'S PLANT used in the construction of the Cheadle Branch Railway: comprising locomotive engines 100 tons of contractors' rails, 40 lb. per yard; 60 tons of bridge rails, 65 lb. per yard; 120 tip wagons, 50 of which have Owen's wrought-iron wheels at tipping end; 8 powerful seasoned sawing horses; mortar mill, 9-ft. pan; centres, balks, elm and oak timber, planks, barrows, carts, wagons, trollies, sleepers, excellent plantation, contents of smiths' shop, engine shed, &c.—Catalogues may be procured on and after the 28th instant, from Messrs. GARSIDE & STEAD, Cheadle; or at the Auctioneer's Office, Kirkgate, Otley.

BRENTWOOD, ESSEX.—About 60 acres of very valuable Freehold Building Land, close to the Railway Station, and having considerable frontage to the turnpike and other wide roads; several Plots of Accommodation Land; a superior Freehold Residence in the High street, Ten Cottages, Two Beer-houses, and an Improved Rent of 50*l*. per annum.

MESSRS. BEADEL are instructed to SELL by AUCTION, at the GUILDHALL HOTEL, Gresham-street, London, on THURSDAY, MAY 10, at TWELVE for ONE o'clock, in 19 lots, the above valuable PROPERTY, which comprises a great number of most eligible sites for building, on the immediate outskirts of the town of Brentwood, with very extensive frontages to the turnpike road from Brentwood to London, and on the road leading to the railway station. The land lies high, sloping gradually on one side towards the railway, and offers unusual advantages for the erection of detached and semi-detached villa residences, for which there is a considerable demand. Also an improved rent of 50*l*. secured on lease, of which ten years are unexpired. Brentwood is situate about 18 miles from London, and has the advantage of first class railway accommodation; it also possesses a well endowed and high-class grammar school. The town and neighbourhood are remarkably healthy, and the former is abundantly supplied with excellent water. A pack of staghounds, two packs of foxhounds, and several packs of harriers and beagles hunt the district.—Further particulars may be obtained of A. B. FRANCIS, Esq. 10, Tokenhouse-yard, London, E.C.; of J. A. COPLAND, Esq. Solicitor, Chelmsford; at the White Hart, Brentwood; and of Messrs. BEADEL, 25, Gresham-st. London, E.C.

To Contractors, Builders, and Others.

MR. ALFRED MADELEY, is instructed to SELL by AUCTION, on the PREMISES of the late firm of Thompson & Fryer, Builders and Contractors, Egginton-road, Derby, on TUESDAY, WEDNESDAY, and THURSDAY, May 1st, 2nd, and 3rd, 1866; the PLANT and STOCK-IN-TRADE not required by the surviving partner. The Effects comprise a 6-horse power portable steam-engine; double-action 10-inch steam pump; sewer pump; circular saw-bench and saws, mortar-mill with iron rollers and pan, pole-driving machine, shear legs, 16 inch timber drag, stone drags and carts, gig, spring cart, stone trollies; crabs, pulley-blocks, ropes and chains, scaffold-poles and planks, ladders, wheelbarrows; stone, worked and unworked; grindstones, chimney-pieces; mahogany pillar, lignum vitæ, cedar boards, veneers; joiners' benches, builders' ironmongery and fire grates; smith's forge, bellows, and tools; bricks, Newcastle tiles, sewerage pipes, chimney pots; scantling, paper-hangings; beam-mill, hay chopper; basket-making tools; gas-fittings, and other Effects. Sale to commence each day at ELEVEN o'clock precisely.—Detailed catalogues will be ready one week previous to the sale, and may be obtained of the Auctioneer; of Mr. FRYER, Builder, Kedleston-road; and of Messrs. CLULOW & SON, Printers, Victoria-street, Derby.

Auction Offices, 31, Corn Market, Derby.

CITY FREEHOLD, forming a portion of the surplus property of the London, Chatham, and Dover Railway Company.

MESSRS. VIGERS will SELL by AUCTION, at the LONDON TAVERN, Bishopsgate-street, City, on THURSDAY, MAY 10, at TWELVE for ONE precisely, in Nine Lots, by order of the Directors, THREE PLOTS of valuable FREEHOLD BUILDING LAND, with frontages to Ludgate-hill, New Bridge-street, and Little Bridge-street. ELEVEN Stretches FREEHOLD HOUSES, numbered 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, and 38, New Bridge street, one of the most important and improving thoroughfares in the city of London

Nos. 28 and 29.—Two capital houses, let on lease to Mr. W. G. Garbutt, for a term of which three years were unexpired at Ladyday, 1866

Nos. 30 and 31,—Two excellent residences (formerly one house), containing 24 rooms and basement offices.

No. 32.—A large house, let on lease to the British Empire Mutual Life Assurance Company for a term, of which 41 years were unexpired at Ladyday, 1866

No. 34.—A Building recently erected, with stone front, and fitted as offices, with area to same, let on the occupation to the Royal Life Insurance Company, but possession to be had on completion of the purchase.

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Particulars, with plans and conditions of Sale, may be obtained of Messrs. FRESHFIELDS & NEWMAN, Solicitors, 5, Bank-buildings, City; at the London Tavern; at the Estate Exchange, Change-alley, Cornhill; and of Messrs. VIGERS, 3, Frederick's-place, Old Jewry.

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ROBERT ASCROFT, Town Clerk.
Preston, 12th April, 1866.

COVENTRY CEMETERY. — SUPERINTENDENT and REGISTRAR WANTED.—Salary, 100l per annum, with liberty to practise as an ornamental gardener.—The Corporation of Coventry are in WANT of a competent PERSON to undertake the duties of SUPERINTENDENT and REGISTRAR of the COVENTRY CEMETERY. It is requisite that he should have a practical knowledge of mapping, for the purpose of setting out and identifying each grave space, a practical acquaintance with hardy trees and shrubs, their habits and culture, and a knowledge of book-keeping sufficient for keeping the cemetery accounts. In addition to the general superintendence of the cemetery, and the keeping of the accounts, he would have to attend to the registration of burials, and the furnishing of burial certificates. There is a residence for the superintendent at the cemetery, containing two rooms, and an office below stairs, and two bedrooms above.—Applications in the handwriting of the applicant, stating age, whether married or single, and, if married, what family, should, together with testimonials as to character and competency, be sent to my Office, 23, Bailey-lane, Coventry, on or before MONDAY, the 21st day of MAY next. Satisfactory security will be required to the extent of 500l.
Coventry, 20th April, 1866. THOS. BROWETT, Town Clerk.

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The Builder.

VOL. XXIV.—No. 1213.

No more Coals.

ENGLISH society, or at least that portion of its members that is wont to regard the news of the day as material for contemporary history, rubbed its eyes over the breakfast-table a few mornings ago, to assure itself that it was reading, and not dreaming; for the morning papers recorded, not without some wondering comment of their own, the astounding fact that the voice of science had made itself heard in a debate on a subject that has been hitherto given over altogether to the professed politician, and that philosophy had been talked and had been listened to in the House of Commons. In a debate on that annually occurring question, the repeal of the malt tax, Mr. Mill took an appropriate occasion of suggesting to the legislative wisdom of the country the consideration that something was due to posterity, and he enforced this advice by referring to that most important question of the approaching exhaustion of the coalfields of Great Britain, which has recently attracted very serious attention among those who look beyond the mere questions and cares of the day. By the time that our great grandchildren occupy our seats, it is estimated by Mr. Jevons that all the coal that lies within 4,000 feet of the soil of Great Britain will be consumed. The question has in it this practical weight, that while the rate of consumption of coal is matter only of estimate, our present consumption of 100,000,000 of tons per annum being rapidly on the increase, and while the actual quantity of coal now existing at any given depth is matter also only of estimate, the fact that the supply is limited, and that that limit, wherever it be, must be reached sooner or later, if our present rate of consumption goes on, is certain and indubitable. It may not be till the time of our fourth descendants that the coal-owners of Durham and of Wales will find themselves, to use an expressive vulgarism, out in the cold; but then, on the other hand, it may be even in the time of our grandchildren; and, hasten or postpone the evil day as we may, its arrival is as inevitable as that of death itself.

It is therefore incumbent on those who would deal honestly by their children's children to look this great danger in the face, and to regard it, not with helpless dismay, but with wise precaution. The first lesson that the man of science will draw from the prediction is the importance of preventing the reckless and enormous waste of fuel, the consequences of which imperil our own health and destroy our own cleanliness and comfort, no less than they diminish the inheritance that we have to leave to those who come after us. The film of vaporized but unconsumed carbon that is daily deteriorating at the same time that lace-patterned paper on the walls of the boudoir, for which the Hebrew millionaire paid 3¾ guineas a yard, narrow width, and the more priceless, if less regarded, structure of the lungs of the poor sempstress, is not only applied to a purpose more injurious to ourselves than our most powerful artillery has yet proved to our enemies, but is thus applied at an annual cost, taken out of the estate of our children, far greater than that of the army estimates—ay, and of the navy estimates to boot. We are not only daily wasting the contents of the precious mines that we ought to leave to our descendants, but we are so conducting that waste as to ensure a large amount of positive injury to health and to comfort by the process. Such is an unexaggerated statement of our present wasteful expenditure of our limited supply of fuel.

It is true that the evils we anticipate are often found to bring with them their own remedy. Fresh supplies of heat and of power may come into service before our coal is exhausted. We have a marked recent example of this possibility in the case of petroleum. But this consideration is more encouraging to the philanthropist than to the patriot. The great race may be run at an increased speed; but we may no longer be the foremost runners. Mankind may be the better off if American rock-oil, or African coal, or Asiatic bituminous products, are substituted for the produce of the pits of Newcastle or of South Wales; but Northumberland and Monmouthshire will be frightful losers by the transfer. English capital may find a field for its employment in the distant scenes from which our new supplies may come; but if such be the case, the profits of the capitalist will soon cease to be spent in a district to which he is no longer bound by any but sentimental ties. The man who counts the sails that hang to dry over the waters of the Mersey and of the Thames, who listens to the roar of 800 trains passing (as will shortly be the case) in twenty-four hours over a single viaduct, or who sees the midnight sky reddened with the glowing furnaces of the "black country," or bright with the countless gas-burners of London, may smile at the idea that prosperity so gigantic can ever pass away. Yet it is not necessary to go so far as the unintelligible mounds that mark the sites of Babylon and of Nineveh to see how empire deserts her ancient thrones. The tourist who visits Bordeaux, Brindisi, or Bruges, may bear home memorable lessons from their deserted streets. The capital of the English dominion in France, the scene of the court of the Black Prince, the great emporium of some of the finest vintages of the south, yet boasts of bustling streets and crowded quays; but long lines of tenantless and decaying houses, in the very heart of the gay city, tell of loss of wealth and of commerce, and of the effects of the substitution, by English legislation, of Spanish for French wines for the bulk of the consumption of this country. Brindisi, the great Adriatic port of the Roman empire, unrivalled on the coasts of Italy for its commodious and well-protected double harbour, and promising hereafter to be the point of departure of the India mails, is the only city in southern Italy which is surrounded by a broad belt of barren ground, bearing only bushes of myrtle and of cistus, though well suited for cereal crops. Enter the city, and you will think one house out of five inhabited; visit the port, and you may find a solitary vessel has floated over the bar that yet covers the sunken fleet of Pompey. It is true that the desolation of Brindisi may be attributed to some extent to malaria; but on the other hand, malaria may be attributed in great measure to neglect and to desolation; and in this instance, perhaps, it is entirely due to the faithless, listless inactivity which, under centuries of political and religious misgovernment, has turned this garden of Europe into a discomfortable wilderness. In the great deserted cities of the Low Countries, once the home of all that was most hopeful and most energetic among any of the Teutonic races, we read the results, not so much of the Spanish tyranny, as of that unbridled democratic turbulence that rendered all government save that of the sword impossible; of that unresting and discontented spirit that displays itself in our own trades-unions and rejoices in strikes. In each of the instances we have mentioned, political causes alone have, more or less, desolated cities which, by their localities and by the industry of their inhabitants, were once deservedly and eminently prosperous. So great a blow as the exhaustion of coal-mines cannot be pointed to in history, and yet history is full of instances of municipal and national decay.

In the face of considerations of this nature, it is clear that the very instinct of self-preservation, when extending no further than to our third or fourth generation of descendants, prescribes certain grand rules with which no administration of the national finances can tamper without grave dereliction of duty. That taxes should be as little onerous as possible in their mode of collection, that they should be by preference, and as far as possible, indirect, and therefore optional, and that they should be reduced to that extent which will produce the maximum revenue according to those principles which recent experience has educed from successful fiscal improvements, no one will venture openly to deny. That, so soon as taxation is thus theoretically perfect, or as nearly approximating to such a state as the complex machinery of social life allows, the surplus should be devoted to diminishing that heavy burden of eight hundred and fifty millions of debt that now encumbers our national property, is a proposition of which the foregoing considerations only too plainly show the justice. In the case of the malt-tax, the impropriety of a sacrifice of five or six millions of revenue, arising from the consumption of an article of luxury, for such it is, even if it be called the poor man's luxury, is evident from the very arguments of the opponents of the tax. It is urged that five or six millions of revenue involve a burden to a much larger amount on the consumers of beer. Let us admit this to be the case. Let us remember that malt liquor, while grateful and almost indispensable to many, is at all events not an unmixed benefit to its consumers. If we set apart those whose health is impaired by its use, even in moderation, which will be found to be a rapidly-increasing class, and those whose health and wealth are impaired by its consumption in excess; if we remember that the most laborious workmen, such as smiths in large smithies, cannot drink beer, but drink water only, and that those men who consume the largest quantities of beer under the stimulus of unusual exertion, as mowers in hay-time, would no doubt be greatly benefited by following the example of the Staffordshire smiths, we shall have good reason to doubt whether any advantage would be derived from stimulating the consumption of beer. Now if this consumption follow the usual rule, as in the case of tea, and if the reduction of the price of beer by a considerable reduction of the malt duty would so encourage the consumption as to make the revenue derived from the lower rate rapidly advance towards the actual amount,—or, still more, if we suppose the duty actually removed, and a minimum quantity of twenty millions of pounds worth of beer, in addition to our present draught, to be annually consumed,—we think no one but a brewer could view the result with complacency. A penny on a pot of beer now, as compared to ten shillings a ton on the coals consumed by our grand-children, is a wise and not very self-sacrificing economy.

The debate touched on some of those vulgar commonplaces and selfish sneers by which those who have no respect for their ancestors express their contempt for their descendants. "What have we to do with posterity?" "Am I my grandson's keeper?" Without following the honourable member for Westminster in his eloquent rebuke of the blind and shameless selfish-

ness that prompts such expressions, we cannot but remark that almost all that is noble in the art of the builder arises from a regard to posterity. To house ourselves in comfort, to provide for the requirements of our social life, both in public and in private, would but lightly tax the skill of the architect, if the great idea of COMMEMORATION were laid aside. It is as memorials of the past and of the present that churches and palaces have grown into magnificence,—that monuments of all descriptions, from the simplest footstone by a village grave to the storied shrine of the Confessor have ever come into existence. If we say that the taking thought for posterity is one main point of distinction between the civilised and the uncivilised man, we shall, perhaps, be unjust to the latter; but the evidence given of that forethought by laws and institutions, and no less by the creations of the sculptor and the architect, is certainly a peculiar feature of civilization.

Due provision for posterity is an eminent characteristic of our own race. To this instinct,—for it is rather an instinct than a principle,—we owe very much of the position we now occupy among the nations of the earth. It is a part of the very pith and marrow of the English character, and is so integral a portion of the nature of all men of mark among us, that, whether we regard the noble who traces his descent from the martial companions of the conquering Duke of Normandy, or the sturdy founder of his own house, who engraves the alpaca on his bright new silver out of gratitude to the animal from which his fortune was derived, the idea of handing down his property to his children's children underlies almost every arrangement of his life. That which each man is so anxious to do for his own children, shall we, collectively and as a people, fail to do for our own?

We are glad to learn from a reply made by Sir George Grey to a question asked by Mr. Liddell, that the large amount of information relative to the exhaustion of the coal-fields which is in the possession of the geological survey department is about to be put into a shape that will allow it to be laid on the table of the House, and thus brought before the public.

THE ARCHITECTURAL EXHIBITION.

THE sixteenth exhibition of the Architectural Exhibition Society was opened in the galleries in Condnit-street, by a private view on Monday last, and a conversazione on Tuesday. The collection is not numerous, and for its want of fulness we may assign the cause of a new direction having entered office late in the season; nevertheless there are 290 frames of illustrations by 120 exhibitors, which can scarcely fail to afford much useful information. We shall be surprised indeed if, when architecture has fairly settled down in its home here, and the Exhibition is rightly managed, a great and general amount of public, as well as professional, interest is not evinced in this periodical collection, representing, as it ought to do, and showing to the British public and foreigners, the yearly state and progress of the architectural talent of the nation. Take the present display as a moderate example, and see how largely the institutions of the country are affected by the part the architect plays in them. There are memorials of the Prince Consort at Belfast, of medical officers who fell in the Crimea at Netley Hospital, and of O'Connell in Dublin; theatres at South Shields and Nottingham, and "the Surrey;" the proposed gigantic Midland Railway Station and Hotel at St. Pancras, London; hotels at Ullswater, Penrith, and Saltburn-by-the-Sea. London and provincial street architecture is represented by warehouses in Commercial and Southwark streets; "premises" in Bishopsgate-street; "houses and shops" in Newington Causeway; "warehouses and hotel" in Clerkenwell; "chambers" in Victoria-street; "Bank-buildings," Manchester, and "Alexandra-buildings," Liverpool. There are a workhouse at Driffield; the Exchange at Middlesbrough; Royal Arcade, Brighton; Keighley and Chester Town-halls; Brill's Brighton Baths; Dulwich College estate railway bridges; the "Old White Hart," Chelmsford; and militia stores, Bath. We have plans for laying out of estates at Brighton and Croydon; villas at Holloway; workmen's dwellings for an ordnance company, and a "proposed new club." Of religious edifices there are a new cathedral at Sligo; a church and priory at Haverstock Hill; the Presbytery at Cork; and churches at Dublin, Charlton, Hastings, Hanworth, Agar Town, Bray, Sheffield, Llanelly, Dublin, Wribbenhall, Stratford, Islington, Leicester, Whitby, Merrifield, Nordelph, Frome Selwood, Upwell, Kingweston, Haverstock Hill, Hampstead, Kingsdown, Hunslet-moor, Copley Halifax, Bootle, Burwash, Newcastle, Byford, Weaste, Stroud, and Maidenhead. Scholastic and benevolent institutions are represented by the Girls' Orphanage, Bletchingly; Orphanage of the Sacred Heart, Roehampton; buildings for the Sisterhood, Oxford; Grammar-school at Felstead; Masonic Institution for Boys at Tottenham; Merchant Seamen's Hospital Asylum, Knaresbrook; School Chapel, Elsecar; School buildings, Victoria Docks; for Gospel Oak, Kentish Town; for "Friends Endowed," at Reeth; for Wesleyans at Darlington and Highbury, and St. Andrew's College, Bradfield, near Reading. There are rectory houses for Upwell and Welney, in Norfolk; mansions at Fawkham, Kent; Nunappleton, Yorkshire; Llandinan, Gloucestershire; Clerwood, Edinburgh; at Shephalbury; at Wingham, Kent; and at Bockelton Court, Worcestershire. Decorative high-class religious art is shown by the altar and reredos in Hereford Cathedral; cemetery cross at Glossop; and the reredos at Sherborne Abbey. And of works abroad there are illustrations of the new buildings of the Piazza Statuto, Turin; the Bombay International Exhibition; the Custom-house, Bombay; and improvements for Madrid. The interest of the present display is further enhanced by the contributions of those who, by their sketches abroad, early studies, or amateur work, lend their subsidiary aid to the development of the profession of the architect and the architecture of the kingdom; and of these we should enumerate sixty-three instructive pencil "sketches made on the continent in autumn, 1865," by the recipient on Monday last of the Institute Royal Gold Medal; eight finished water-colour drawings of continental subjects by a prominent prize medallist, Mr. R. P. Spiers; drawings of buildings in Egypt, by a well-known reverend literary critic; sketches in France, by one of the hon. secretaries, and others; sketches by members of the class of design of the Architectural Association; and a series of illustrations from the Dictionary of Architecture: these latter alone, taken apparently at random, happily illustrate, like the Exhibition itself, the diversity of detail which practical men have to deal with; viz., a porch, a staircase, ice-pit, painted glass, hospital, screen, and triforium.

There are a few distinctive features in this Exhibition which we desire to notice before proceeding to review the works contained in it. Photography, as on previous occasions, is largely made use of as an architectural aid. Out of the 290 framed illustrations, there are 46 framed photographic collections of drawings, buildings, and decorative works. One exhibitor has 15 subjects in one frame from "drawings of buildings, executed, in progress, or to be executed" by him. Another has a "sheet of photographs"—four large and two small—views taken from works actually executed, and the author exhibits his portrait in the centre of them; a third has "coloured photographs from drawings;" a fourth has three different views of a church "recently erected;" and thus, in various ways, is the comparatively new art brought into practical use. That it is valuable in representing the details and *chiaroscuro* effect of buildings actually executed there is no doubt; but that there is any utility in exhibiting a dark colourless series of reduced photographic copies of drawings of buildings to be executed we very much doubt. Eight views (being part of 120 photographs of a work) contributed by Mr. James Fergusson, show buildings in Ahmedabad, capital of Goozerat, Bombay Presidency; and there is a specimen of lithophotography by Bullock & Co. Among the few distinctive miscellaneous works in the Exhibition there are some beautiful specimens of embroidered "figure-subjects worked in silk and part-appliqué work;" "embroidery for altar-frontal," and "embroidered cross worked in silk," all by Frank Smith; also a "panel in glass mosaic,"—a representation, by Lavers & Barraud, of "the Annunciation," executed by Rust & Co.; and there is one solitary specimen of oak wood-carving by one solitary lady contributor: a "carved panel" about 18 in. square, consisting of intersecting triangles, with the interstices filled with delicate trefoils and quatrefoils, and having a shield and crest in the centre, with motto "*Dum spiro spero.*" The whole is an elaborate piece of careful carving, but the public is left in the dark as to whether the fair exhibitor has actually carved it (which is the case) or only exhibits it. The catalogue simply states "Carved Panel. Miss Bloxam." If we remember rightly, it is founded on an ancient seal. Attention will be drawn to the designs for the St. Pancras Station of the Midland Railway, proposed in competition, December, 1865. Of these, Mr. F. P. Cockerell contributes six sheets (121, 122, 122A, 123, 123A, 124); Mr. Owen Jones three (127, 128, 129); and Mr. T. C. Sorby (the third premiated design) four (142, 143, 144, 145). The prize and accepted design, that by Mr. G. G. Scott, is provokingly absent. True to the predilections of these three gentlemen, the designs of the former are classic and sombre in style, very little colour being introduced, and the roofs tinted black; those by Mr. Jones full of colour, the façades being relieved by red granite columns and ornamentation, and the roofs tinted green; and the latter mixed and grandiose, with a yellowish tone pervading the whole, the roof being covered with patent tiles. The conditions of the competition were that the hotel should be placed on the western side of the site, and that the design for the vast roof of the terminus, in one span, supplied by the engineer, Mr. Barlow, should be adopted by, and introduced into the design on the central and eastern sides of the site, by all the competitors. These conditions have been observed in two different ways, remarkable as involving a great principle of design. Mr. Cockerell says on one of his drawings, "The roof of the station, though higher than the front elevation, would not be visible from any portion of the Euston Road. It is, therefore, omitted in the drawing. It is obvious, from the fact of its axis not being on a line with the centre of the front, that it is undesirable that it should form a part of the composition." Following his principle of uniformity, he conceals and masks the roof of the station, the grandest feature of the project, and converts his composition into a façade, that looks more like buildings for a university than a railway terminus.

Mr. Sorby follows in the same wake, for he, too, ignores the roof of the terminus altogether, and in aiming at regularity, sinks the distinctive character of the hotel by the side of the terminus, as well as the railway shed, and converts his design into a vast sort of Pitti Palace, with additional stories and two central towers (142). Mr. Owen Jones, however, boldly grapples with the engineer's design, and assuming for the nonce to be *Ingegnere-architetto*, he brings the vast span of the roof to the front, and, placing it between two towers, makes it (though in a more ornamental manner) like the terminus at King's Cross, and the Strasbourg Railway in Paris, at once the prominent and leading feature of the frontage. He also, unlike his competitors, keeps up the distinctive character of the monster hotel by the side of it, joining the hotel and terminus by a wing of lower proportions. To say that it is no use to deal architecturally with the great railway roof is a great mistake, and we need only be convinced of the error by contrasting the front view, where it is dealt with, with the rear view (127) of Mr. Jones's design; for here the railway shed appears in all its unmasked bareness, and presents that stupendous boiler-like appearance which spoils the river-view of the Charing Cross and Blackfriars Railway termini. *Au reste*, we find little novelty in style in either of the designs. The same oft-repeated rustications and cornices, capitals, string-courses and pilasters, varied in their arrangement, to suit the taste of each particular architect, and different in proportion only to the extent to which stories upon stories are piled up *ad infinitum*, like the tall houses in the old town at Edinburgh. The roof-lines are treated by each competitor with a marked difference. Mr. Cockerell adopts the high pitch mansard-roof, which has a very flat upper portion for its section; Mr. Jones the steep straight pitch roof with metal crestings; and Mr. Sorby relies upon a massive ornamental balustraded parapet and cornice to disguise a portion of his flattish roof behind it. There is only one plan shown, that by Mr. Cockerell (122A), from which we gather that probably the arrangements of all would be pretty perfect in this respect, seeing that railway travelling and experience have taught us to be intelligent as to the requirements for a great terminus, and that they would be nearly certain to be complete, if, as in all probability on this occasion, they were designed in co-operation with the company's engineer. The drawings are all conscientiously and handsomely produced.

We cross over to a view of a building which attracts us by its extreme coolness of appearance; the whole mass being tinted, roof and walls

alike, a cool grey, and the windows pale green, the "perspective view of the building designed for the International Exhibition, Bombay" (249), by Messrs. T. Roger Smith, and James Trubshawe, previously mentioned in our columns. Three Norway churches joined together with three square towers, surmounted by domes, bestriding each of them, best convey the peculiar appearance of this edifice. The roofs on each side are stepped five times, or have as many lean-to roofs one below the other in tiers, each with a wide projecting eave, the lowest tier having several small gables intersecting it. A Crystal-Palace effect is aimed at by the introduction of large semicircular brattished and latticed opens in the gable-ends of each transept and end of the building. There is nothing to indicate what the roofs are composed of, whether glass, zinc, or painted wood, and no mention in the catalogue whether the building is to be executed or is in course of execution. We believe, however, that at present it is only a project. Not far from this (231), the Augustinian church, John-street, Dublin, is depicted in a large and handsome drawing by Messrs. Pugin and Ashlin. It represents the western front in full, and the northern side very acutely foreshortened in perspective; thus giving a very weak appearance to the steep roof, with cresting in lieu of a spire, which surmounts the tower in the centre of the western front. The style is the Geometric, and the design generally is bold and effective in treatment, but the central eight-light window occupies the whole of the lower part of the front of the tower, with the exception of the buttresses at the corners, and gives the tower the appearance of being very weak. In 228 we see a view of some new buildings of the Piazza Statuto, Turin, in course of erection for the International Financial Society, originally designed by Signor Bollati, of Turin, and altered and amended by Messrs. Banks and Barry. This is a grand project for Turin, looking like a twin Buckingham Palace, and we hope that, with the change of the Italian capital, it may not come to grief. Mr. J. P. Jones shows his Madrid improvements in 217, 218, 219, 220, as well as by reduced photographs of the same (81). They are all in large, bold, highly-coloured elevations, and for want of any plans or descriptions we surmise them to represent monster hotels, lofty houses in flats, with shops below, under arcades, and terraces of mansions. The character of them all is a mixture of Venetia-Gothic with Renaissance, French, and Indian examples, where long rows of arcades, like the Doge's palace at Venice, are introduced, three or four other rows of windows, balconies, and verandahs being super-imposed; the metal-work is painted a bright emerald-green, and the roofs respectively are red, green, and striped red and grey.

Workmen's dwellings are properly forming subjects for employers to grasp, and here, in 151, we have a clean and prettily coloured view of a block of these erected at East Greenwich for the Blakely Ordnance Company, by A. Manning. A central clock-tower intersects a long narrow row of flats, four stories high, and each flat has a covered balcony the entire length. The clock is useful, no doubt, as workmen's wives are frequently the source of the unpunctuality of their husbands, from want of the possession of a clock and knowledge of the time. This drawing shows gentlemen on horseback and swellish people walking and riding about in the foreground close to the building. We object to three things—that there are no plan, no children, and no playgrounds shown. There seems to be a want of recreation-yards for the children of working men, by the way, in the buildings erected for Mr. Peabody. Mr. Bassett Keeling represents St. Paul's Church, Stratford, Essex, by four photographic views (53, 54, 55, 56). The columns which support the arcade, dividing nave from aisles in the interior, have a weak and wooden-leg appearance; the columns are of metal, small in diameter, apparently 8 or 10 inches, the stone capitals upon them widen suddenly, having springers wrought thereon, to receive the ornamental brick arches, the springers of which, widening out again, start upon the stone cap. Thus we have a wall of about 2 ft. 6 in. standing on a column about 10 in. diameter, presenting a dumpy appearance, quite out of character with the handsome mediæval treatment of the rest of the edifice. The hotels at Ulleswater and Penrith (173 and 222), by Mr. J. Ross, deserve notice, as these buildings are planted down in the mountainous and beautiful Lake districts, and may be much frequented by tourists. In the former the design scarcely suits the scenery; there are too many gables and internal gutters about it, these being suggestive of leakage in a country where much snowy and rainy weather prevails; in the latter the north-country features of stepped gables and conical turrets are revived and effectually introduced. In both the buildings the native red stone is used, and a warmth of effect is necessarily produced.

Mr. Charles Barry exhibits Dulwich College estate Railway Bridges, executed by the London, Chatham, and Dover Railway Company (225). An ordinary girder bridge is masked by a simple lattice parapet, and by artificial columns for support, to form the space below into a centre, with two arched side-passages; the latter arrangement merely introduced to contribute a graceful effect to the bridge, and to aid in its appearance in the landscape: the main parts of the drawing are filled up by a pretty landscape and well-ornamented grounds. We shall resume our review next week.

CONVERSAZIONE OF THE ARCHITECTURAL EXHIBITION SOCIETY.

THIS *conversazione* was held in the Conduit-street galleries on Tuesday evening, when a few brief hours were agreeably spent in examining the collection of drawings contained in the Exhibition, the contents of which we describe elsewhere. It was announced that the President, Mr. Beresford Hope, M.P., would deliver an opening address; but as time passed and that gentleman did not appear, Mr. Bell was called to the Chair. Apologizing for the President's absence, who, he said, was probably detained in his place in the House of Commons, Mr. Bell stated that the *conversazione*, he thought, was a pleasant way of commencing the Exhibition, and he offered congratulations on its marked improvement. It should for its object unite various subjects; viz., illustrations of designs executed, to be executed, and of those works which architects wish should be executed, though often controlled by cost or caprices of patrons; the Exhibition should also include drawings of antiquities as models of design. He thought in all these respects the present Exhibition was a fair representation. He called on the Hon. Secretary to give some details of the management of the Institution.

Mr. R. W. Edis stated that they were in a more prosperous condition now than last year. At present they had 160 subscribers, as compared with 124 last year. This year a new feature had been introduced in the direction by the appointment of provincial local hon. secretaries, and this had been so far successful; but he hoped that next year the list would be more numerous. The great object of the Society was to secure a definite place for exhibition, and all the profession should take an interest in it, and help it. If the senior members intended to keep away, the sooner the Society was extinguished and the place closed the better; but he was glad to say that many of the senior members had come forward. They required help at first, and he hoped the senior members would come forward; for if they considered it an honour to be placed in the lobby with the "rejected addresses" at the Royal Academy, surely they should think it an honour to be represented here. He congratulated them upon the financial position of the Society. Last year they were in debt 40*l.* or 50*l.*; now they were out of debt, and had something in pocket, and he hoped the Society would go on and prosper.

Mr. W. White, having been called upon by the Chairman, said he was taken by surprise, but was happy to see their friends present. The assembly was not so full as on previous occasions, the weather and politics having influenced the attendance of company at the Meeting, as well as that of their President. He would second the Chairman's observations as to the generally good character of the Exhibition. It was not full, nor were the walls covered to the ceiling; but this was because the promoters of the Exhibition did not care to send indifferent drawings. He would mention what he thought were the uses of the Exhibition: first, to bring together what had been done, to show the progress of the year; secondly, the opportunity of comparing drawings with buildings. The Exhibition would doubtless be interesting to ladies, as there were not many plans, elevations, and sections; but the absence of these made it otherwise to the speaker, for without these, in addition to the perspective views, it was impossible to judge of the merits of the works.

Mr. T. Roger Smith, at the invitation of the Chairman, said there were few positions more trying than that of speaking with no text; however, he congratulated the Meeting upon the vigour in existence in connexion with the Exhibition. It had been remodelled, and this was the commencing of a new series, with two active and energetic secretaries, and an excellent council. They had a claim on the architectural world, and architects should send drawings of their competions, their designs and studies, for their mutual instruction. Although he observed very many drawings of recent prominent buildings exhibited there, yet a considerable proportion of these were not represented. There should be a strong effort made next year for all architects to send, and this effort should be renewed year after year. He understood the real difficulty that architects had was in the non-existence of drawings prepared for exhibition. As perspectives were generally made at the commencement of a work, and as the building proceeded it was probably altered and modified, the drawings were no longer faithful. He would draw attention to the drawings exhibited by Mr. Truefitt, where a building in progress was represented partly by a tracing and partly a photograph, and he would urge others to exhibit in the same way. Another feature of this Exhibition was that of the series of sketches exhibited by Mr. M. D. Wyatt, Mr. Spiers, Mr. Wells, Mr. Mocatta, Mr. Edis, the Rev. J. L. Petit, and others. These were most interesting, and deserved careful scrutiny and attention. He thought there was an original value attached to the collection first exhibited that evening, and he looked forward to as much improvement next year as was observable this year.

The Rev. J. L. Petit said he could only repeat what the previous speakers had said, and he was glad to observe the general merit of the Exhibition, and its improvement. He was glad to see so great a proportion of perspective views, but still he should have been pleased to see the upper part of the blank walls covered with plans and elevations, as these were equally valuable. As the architects were proud to see their drawings there, so he considered it a great honour to see his sketches there.

As the President had not yet arrived, the Meeting resolved itself into a *conversazione*, and adjourned to the refreshment-room; soon after which Mr. Hope arrived, and made his apologies for having been detained. He reviewed the position and direction of the Society, and thought there was honour and credit due to those who had left, as well as a brilliant future for those who now manage it. He was convinced, as he had said at the Royal Institute up-stairs, that an Architectural Exhibition was imperatively necessary, where designs for buildings, and for the constructive details in glass painting, and so on, could be shown. He referred to architecture at the Royal Academy. How much space, how much encouragement, how much facility for the public could be found there? In the architectural department there was palpably, offensively, and, by circumstances, what he would call a dragging impediment. In this, the sixteenth year of the Architectural Exhibition, he considered honour was due to those who had carried it on so long, yet there were trouble and anxiety for the fresh administration. Something was begun, something to show it is now a permanent Society; and by continued and united determination it should go on. He would speak, however, plainly, bluntly, uncomplimentarily. The Exhibition was not supported as it ought to be. The Exhibition ought to be self-supporting, and instead of a necessity for canvassing, there should be a difficulty in assigning places to contributors whose demands were in excess of the space available. He did not come there to lecture and scold, but he must speak out his mind. As the Lord Mayor at the banquet, he bid them heartily welcome, though he had no loving cup to pass to them.

At the conclusion of the President's brief address, the company gradually dispersed.

WREXHAM SURVEYORSHIP.—A meeting of the town council has taken place, for the purpose of receiving applications from those wishing to be appointed borough surveyor, in the place of Mr. Hugh Davies, resigned. There were forty-five applications with testimonials, and the council adjourned the appointment, for the purpose of examining the testimonials more fully.

THE AGE AND AUTHENTICITY OF THE NATIONAL PORTRAITS TESTED BY COSTUME AND HERALDRY.

Looking at the important advantages to education and art which may result, or might have resulted, from the valuable suggestion of the Earl of Derby, liberally replied to as it has been by her Majesty, the nobility, gentry, the universities, and many of the great corporate bodies of the United Kingdom, it is a matter of regret that a severer taste has not been exercised by those members of the committee to whom the special business of selection appears to have been confided.

I fully admit the propriety of the rule adopted "to exhibit every portrait *accepted*, under the title and with the name of the painter given by the possessor;" but it is the *acceptance*, or rather, *selection*, not of disputed, but glaringly apocryphal portraits, and which have neither merit nor curiosity as works of art to recommend their exhibition, that causes my regret.

A good apple—I will not say of discord, but of contention—thrown amongst the critics, such as the so-called "Children of Henry VII.," or Mr. Andrew Fountaine's wonderful portrait by Sir Antonio More, stated to be that of Princess (afterwards Queen) Elizabeth, must be productive of most interesting discussion, and can scarcely fail to elicit very valuable information; but the exhibition of such pictures as form the majority of what is called "the Plantagenet series," without one word of warning appended to their descriptions in the catalogue, even as to the period at which they were obviously painted, is, I conceive, an error, which I have less hesitation in pointing out, as it is the only one the intelligent and zealous gentlemen entrusted with this great and responsible labour can be said to have committed.

It is unnecessary for me to dwell longer on this point, as it has been handled most ably by the critic of the *Times*, in the number of that journal, for Monday, April 16th, who, after alluding to the more flagrant fabrications, and making every allowance for the delicate position of the selectors, observes, "the uncritical method of selection has been apparently that followed in the present exhibition, and it has led to its being encumbered with some things that are positively worthless; and still more that are likely to *mislead and bewilder*." The truth of this I feel all the more deeply, as my name appears in the list of "the Committee of Advice:" a fact which may naturally induce some persons to believe my advice had at least been asked upon the subject, and that I am, to a certain extent, responsible for the very error I complain of.

The special character of my notices of this exhibition, which will be confined to the costume delineated, and not affect criticism on the merits of the painting, will, I trust, justify the observations I have felt it my duty to make respecting the admission of obvious fabrications, worthless in point of art, and mischievous as regards instruction. What can be more unfortunate, for instance, than placing, as No. 1, in this collection, the picture of a female, in a high standing ruff, and an indescribable head-dress, of no period whatever, entitled "Rosamond Clifford," the celebrated "Rosa Munda," mistress of King Henry II., who lived in the twelfth century! Her habit is described in the catalogue as "a dress and tippet edged with fur, open ruff." There is no tippet, and the costume altogether is as imaginary as the portrait. "A stage dress of the Restoration," as it has been happily termed by another writer. What possible object could be served by requesting her Majesty to suffer this picture to be removed from Hampton Court? The painter is unknown, fortunately for him, and no similar dress was worn for at least four hundred years after the death of the individual it is stated to represent. How is art or education to be advanced by such an exhibition? The only advantage I can hope will result from it is, that the picture will not be taken back to Hampton Court to "mislead and bewilder" the holiday-making public, who throng that fine old suite of apartments, and should see nothing that did not instruct whilst it amused them.

No. 2 is as objectionable as No. 1. Here we have Sir William Wallace, the Scottish warrior and patriot, who was beheaded in London in 1305, represented in *plate* armour, which, as far as it can be seen, is similar to that worn in the time of Charles I. A diminutive dragon surmounts what was called in the seventeenth century an iron pot; and a striped mantle is fastened on the breast by a circular brooch, on which appears the word "Libertas." It is stated to have been formerly the property of the Abbey of Glenluce, Wigtonshire, and to have passed on the suppression of the monasteries to the family of Hay of Park. How this statement is to be reconciled with the unmistakable character of the costume, such as it is, I leave to the connoisseurs of mediæval painting to determine. Was it impossible civilly to decline accepting the loan of this picture from Mr. Robert Vans Agnew?

No. 3, Edward III., from the Royal Collection at Windsor, probably copied at the close of the fifteenth century from an illuminated manuscript, calls for no remark from me.

No. 4, John of Gaunt, Duke of Lancaster. Here we have for the first time a painter's name, and it is that of Lucas Cornelli (Cornelis or Cornelius), a Dutch painter born at Leyden in 1493, and who is known by the *sobriquet* of "The Cook," from the fact that his talent was so little appreciated in his native country, that he was compelled to turn cook to provide for his family. In a fortunate hour for him he came over to England, and Henry VIII. made him his painter. Bryan tells us that his best-known pictures are the fifteen portraits of the constables of Queenborough Castle, formerly at Penshurst, and this is one of them.

This celebrated prince is represented in armour, with a jupon, on which are depicted the royal arms of Castile and Leon impaling his personal arms, which renders it probable that Cornelli took the effigy of John of Gaunt in old St. Paul's Cathedral for his model; as Sandford, in his "Genealogical History," tells us such were the arms displayed on it, and justifies it as good marshalling, because the arms of *baron* and *femme* are never seen on military equipments of any sort. He certainly bore them so in a circular seal engraved in Sandford and other works.

The bascinet or conical head-piece is not correctly drawn: the painter of the sixteenth century evidently did not understand the armour of the fourteenth century; and the arms are repeated on the right of the figure with some variation, Castile and Leon being borne in an escutcheon of pretence, the whole surrounded by the garter and surmounted by a coronet in the style of the Tudor period. John of Gaunt was Constable of Queenborough in the third year of the reign of Edward III. (A.D. 1330), so this portrait could not have been painted much under two hundred years after that period; but it is interesting, as it probably gives us an idea of the effigy of "Time-honoured Lancaster," which was destroyed with old St. Paul's during the disastrous fire of London in 1666.

No. 5, William of Wykeham, Bishop of Winchester, died 1404. This famous architect and statesman has evidently, from the character of the border of the shield of arms on the right of the figure, been painted in the sixteenth century from, probably, his sepulchral effigy at Winchester. It has, of course, no claim to be considered a contemporary portrait, having been painted more than a hundred years after his death.

No. 6, John Wycliffe, the great Reformer, who died 31st December, 1384. Very suspicious. The black cap looks just about one hundred years later. It is a copy of the picture in the Vicarage House at Wycliffe. The story of the recognition of a descendant from his likeness to this portrait is curious, however, if not convincing.

No. 7, Richard II. This is really a curious picture, and in its original state had every appearance of being contemporaneous, or nearly so, with the unfortunate monarch. But it has undergone woful treatment from somebody. It was shown to me in the Jerusalem Chamber at Westminster many years ago, by the very Rev. Dr. Milman, then Dean of Westminster and now of St. Paul's, and my recollection of it varies greatly from its present appearance. Carter has engraved it in his "Specimens of Ancient Painting and Soulpture," and a comparison of the print with the painting will be more instructive than any argument. I believe it to have been copied by order of John Lord Lumley, *circa* 1594, as the portrait of Richard, similarly seated and robed, but in better drawing and with slight alteration of attitude, is extant at Lumley Castle. The king's tunic is powdered with crowned Rs and roses, as upon his effigy in Westminster Abbey, and the background with crosses *fleché* and flowers which have so faded they are all but invisible. Whatever may be the veritable age and history of this picture, however it may have been tampered with, it deserved to be placed at the head of the catalogue.

Nos. 8 and 9, are half-length portraits of old Dan Chaucer, both identical in costume and attitude with each other, and with the well-known full-length, small size, so often engraved from Occleve, of which there is a replica in the additional MSS. in the British Museum, engraved by Mr. Shaw, in his "Mediæval Dress and Ornaments." It is very likely a fair representation of the man, "in his habit as he lived;" but I leave to better judges of art than myself the task of suggesting at what period and by whom these copies were painted.

No. 10, King Henry IV. Of this presently.

No. 11, Thomas Arundel or Fitzalan, Archbishop of Canterbury. This is one of the fifteen constables of Queenborough, painted, I presume, by Cornelli, "the cook," and as it is kindly lent by the noble possessor of Penshurst, the Lord de Lisle and Dudley, it is one of those which have not changed owners. The archbishop died in the reign of Henry IV. This picture was painted in the reign of Henry VIII., and like that of John of Gaunt, most probably designed from an effigy.

No. 12, James Earl of Douglas. The Douglas of Chevy Chase, killed at Otterbourne, the 19th of August, 1388, is here seen with the collar of the order of St. Michael round his neck, instituted by Louis XI. of France, at Amboise, on the 1st of August, 1469. The whole costume is also of the latest portion of the fifteenth century. Over the left shoulder is seen the pass-guard of the shoulder-shield (sometimes called the "*manteau d'armes*"), an extra defence worn with the tilting suit, and not known before the reign of Edward IV. in England. Is it necessary to say anything more of the appropriation of this really clever Italian painting of the fifteenth century to "the Earle of Douglas, surnamed the Black?"

No. 13, Henry IV. Underneath this portrait is inscribed, "Henry IV., King of England, who layd the first stone of this hous (Hampton Court, Herefordshire), and left this picture in it when it was given to Lentall, whoe sold it to Cornwall of Bruford, whoe sold it to the ancestors of the Lord Coningsby, in the reign of Henry VI." Here is a pedigree which would be quite conclusive but for the awkward test of costume, which, to the eye of any one tolerably acquainted with the subject, satisfactorily proves that the end of the story is the only portion that may probably be true, as the whole character of the dress is of the time of Henry VI., in whose reign it was probably painted, as well as sold to "the ancestors of the Lord Coningsby." That it was ever left by Henry IV. himself in the house he gave to Rowland Lentall I take the liberty to doubt; and feel convinced that, as the valiant Rowland was yeoman of the robes to that monarch he would have objected to the fashion of the chaperon and the general cut of the garments, they being unlike any articles of dress he ever could have had charge of. Compare also the fashion of hair and beard with the fine and perfect effigy of the king in Canterbury Cathedral. The hair was at that period, and during the succeeding reign, cropped very close all round above the ears. Whiskers were unknown, and the beard and moustache of very peculiar form. Some visitors may be puzzled by the appearance of white lions with foxes' tails, and the brush of the latter animal by itself introduced amongst other ornaments of the modern frame enclosing the picture. The tail of a fox is reported to have been a badge of the house of Lancaster. Henry V. entered Harfleur with a fox's tail carried before him at the end of a lance. Tradition refers its origin to a saying reported of Henry IV., that "if the lion's skin were not long enough, it was policy to piece it out with the fox's tail." The painter of the frame has, without the least authority, carried out the idea by affixing foxes' tails to *white* lions, which were badges of the house of York, derived from the Earls of March, and worn as pendants to the livery collars of suns and white roses by the adherents to Edward IV. Their support of the red rose of Lancaster is an act of generosity on their part, which could scarcely be expected even from such noble animals as lions. No. 10, which I have passed over, is a poor copy of this picture.

Nos. 14 and 15, Henry V. and Henry VI., both from Eton College. I should be loth to say anything in depreciation of these portraits. I cannot honestly say I think them contemporaneous; but it is probable they were painted shortly after the death of the latter monarch, and may have some claim to be considered likenesses. That of Henry V. certainly resembles

the best representations we know of him. The head of his effigy having been unfortunately made of silver, has disappeared from Westminster Abbey; but we have his face on his coins, his figure in several contemporary illuminated MSS., and the comparison is not unfavourable to the portrait. A drawing of the effigy of Henry VI. on his monument, formerly in St. George's Chapel, Windsor, was made by some artist or herald in the reign of Henry VIII., and is now in the British Museum, but gives us little help as to features. Two or three series of the kings of England appear to have been painted at the close of the fifteenth century, and several portraits are to be seen in the Royal Collection, the rooms of the Society of Antiquaries, at Somerset House, and other places.

No. 16, Marriage of Henry VI. This fine specimen of art of the fifteenth century is well known to antiquaries by engravings and the description of it by its former possessor, Horace Walpole. The costume proves it to have been painted in the latter half of the century, certainly long after the event it represents. The steeple head-dress of the female in attendance on Margaret of Anjou is not seen in illuminated MSS. which can safely be dated earlier than 1461, the year of Edward IV.'s accession. A variety of this remarkable *coiffure* still exists in Normandy, where it is generally known as the *cauchoise*, being principally worn by the women of Caux. Margaret is drawn with her hair falling loose behind her, the fashion of that period at coronations and state nuptials. Elizabeth of York, queen of Henry VII., at her coronation "wore her fair yellow hair hanging down plain behind her back, with a calle (cawl) of pipes over it." It is said that this picture was painted for an altar-piece at Shene, and probably by order of Henry VII., for his chapel there: if so, the painter may have imagined he was representing a fashion of the period at which the event took place, when he introduced the steeple head-dress which had just been discarded; but there is nothing in the rest of the costume which would militate against the suggestion that the picture might have been painted in 1470, during the temporary success of the Lancastrian party which compelled Edward IV. to retire into Flanders. It is with some timidity I add,—if it be an undoubted fact that it *is* the marriage of King Henry VI. we have before us.

No. 17, Edward Grimston. How refreshing to look upon this charming and genuine portrait, painted by Petrus Christus, in 1446; and how much it is to be regretted that the features of none of the still more important Englishmen of that period have been handed down to us with the same skill and indubitable authority. Lord Verulam is to be congratulated on the possession of such a picture.

No. 18, Sir John Donne and Lady Donne. Another most interesting picture, said to be by Van Eyck, whose name is branded on the panel, but assigned by others to Memling, and by some to Memling and Van-der-Goes. To me it matters not who painted it. My business is with the costume, which is a perfect study for visitors who take an interest in that branch of archæology. The super tunic, of which the exact name is unknown, and which I, therefore, have called the sideless garment, from the large apertures on each side, showing the close fitting kirtle beneath it, is here most clearly depicted in the figure of the saint, on the right of the picture; but what is still rarer is the collar of suns and white roses, with the white lion of March dependent (the livery collar of King Edward IV.), borne both by Sir John and his lady. It is frequently to be met with in monumental effigies of the period, but this is the only example I know of in painting. Sir John was in the service of that monarch, and retired with him to Flanders in 1470, to escape from the Earl of Warwick.

No. 19, John Talbot, first Earl of Shrewsbury. The terror of the French, slain, after a series of victories, in the battle of Chatillon, 30th July, 1453, at the advanced age of eighty. He is represented in his tabard of arms. A copy of this portrait is in the Heralds' College, which is said to have hung over the tomb of the earl's wife, in old St. Paul's Cathedral, and been saved at the Great Fire of London.

No. 20 is a companion portrait of that lady, Margaret Beauchamp, Countess of Shrewsbury. Her hair in a cawl, embroidered with lions, and wearing a mantle of the family arms. Both are half-lengths, interesting as works of the period, but increasing our regret that they are not from the pencil of a greater contemporary artist, such as Petrus Christus.

No. 21, Sir John Fortescue, chief justice of the King's Bench, 1442, taken prisoner at the battle of Tewkesbury, 1471. He is said to have died in Gloucestershire at the age of ninety. The costume in which he is represented is quite of the termination of the fifteenth century, but the countenance is that of a man of fifty at the outside, which I presume Sir John would have been some years before the battle of Tewkesbury, as he could scarcely have reached the position of chief justice of the King's Bench before the age of forty. However, he might have lived to wear such a dress, and the painter has probably made him look much younger. Such things are done in our time. It is thought by connoisseurs to be by a good Flemish painter, and the question will obtrude itself, Does it really represent Sir John Fortescue?

No. 22, Bishop Waynflete. I have nothing to remark upon this picture, which may have been painted from the life, or from an effigy, as he died in 1486, 3rd of Richard III.

No. 23, Richard Nevil, Earl of Warwick. We have here the most ludicrous example of misappropriation I have almost ever met with. A portly old gentleman in the peascod-bellied doublet and bombasted hose of quite the end of the reign of Elizabeth or beginning of that of James I. (say *circa* 1600) is presented to us as the famous king maker, killed at the battle of Barnet in 1471! Nor is this all; on a table-cover is a shield of arms displaying "gules a saltier *engrailed*, argent." Any one at all conversant with heraldry knows that the saltier of those Nevils was not engrailed, and that Richard Earl of Warwick bore over it a label of three points, gobonnée, argent, and azure.

As the portrait is, no doubt, a genuine one of its period, and painted from the life, it will be worth some trouble to identify it. I find in old ordinaries and alphabets of arms, a coat similar to that here depicted attributed to a family of Nevil or Nevelle, of Westmoreland; but whether any off-shoots from the great Nevil tree that is said to have overshadowed all England, I cannot at present say. One thing is certain, that it is preposterous to call this picture by the name it now bears. It may prove to be a most interesting one if identified, and is therefore deserving of all consideration, and not to be classed in the same category with a worthless Wallace and a theatrical Fair Rosamond.

No. 24, Edward IV. One of those traditionary portraits which must neither be utterly rejected nor implicity relied upon. It may be doubted if any of the series previous to Henry VII. were painted from the life; but they may have been copied from coins, medals, effigies, tapestry, or even earlier paintings, which have not come down to us, or are still to be discovered. With the evidence we have in the accounts of Royal expenditure from the time of Henry III., and even earlier, of payments to painters for the representation of historical or legendary subjects, and the continual discovery of mural paintings of the thirteenth and succeeding centuries, it is impossible not to believe that the persons of our sovereigns, and the more important personages of these realms, were not delineated, however rudely, by artists of their own day. Designs must certainly have been made for their great seals, not to speak of their sepulchral effigies, which are admitted on all hands to be the most faithful representation of the persons they commemorate, both in feature and habit, that was within the power of the sculptor.

The great obstacle to the formation of a decided opinion regarding such portraits as the one under consideration, is the total absence of any article of dress or ornament to which a positive date of invention or fashion could be given. The costume may be of any period during the latter half of the fifteenth century. The gold chains and other decorations have no distinctive character. There is no family collar, no household badge, not a point to lay one's finger on and say, "this" or "that" was unknown during the lifetime of the individual supposed to be represented. It would seem as if any such indication had been studiously avoided. We must give these pictures, therefore, "the benefit of the doubt" till further information is accidentally afforded us.

No. 25, George Plantagenet, Duke of Clarence. This is another of the fifteen constables of Queenborough painted by Lucas Cornelli, and, like the picture of John of Gaunt, designed no doubt from the duke's effigy. The painter's ignorance of armour has led him into many blunders of detail. There is nothing in the picture, painted some fifty years after the duke's murder, that calls for further observation from me.

No. 26, Isabel Nevil, Duchess of Clarence. This portrait, said to be of the wife of the prince just named, is undoubtedly a misappropriation of a very creditable picture. Isabel Nevil died after the birth of her second child in 1476, a year previous to the murder of her husband. She never could have seen the costume in which she is here represented. In the Warwick roll she has been depicted by Rous, who most likely knew her personally and survived her, in the proper habit of her time, with the high steeple head-dress and pendent veil. Who may have been the original of the portrait here exhibited I do not pretend to suggest; but she must have been a lady, in the prime of life, in the early part of the following century, as the visitor may convince himself by comparing the costume with that of the ladies of the reigns of Henry VII. and Henry VIII. in the adjoining gallery.

No. 27, Humphrey Plantagenet, Duke of Gloster. This, whatever may be the merit of the painting, which is believed to be of the school of Cologne, cannot be received as affording us a veritable portrait of "Good Duke Humphrey," who was murdered in 1447. How his name became associated with this altar-piece, which is suspected of being composed of four wings belonging to "distinct triptyches," I cannot pretend to say; but the arms on the left wing above the figure of the pilgrim may lead to a discovery of the family for whom, at least, that panel was painted. I have not yet been able to identify them.

No. 28, Margaret Plantagenet, Countess of Salisbury, cruelly beheaded by order of Henry VIII., in 1541; probably painted at the time she was restored to her dignity as heir to her brother, in 1513. Can that which is attributed to her mother, Isabel Nevil (No. 26, *ante*), have been also painted from her? The costume is of exactly the same period, and there is no greater dissimilarity of feature than frequently to be found in two portraits of the same person by different hands.

Nos. 29, 30, and 31, three portraits of Queen Elizabeth Woodville. No. 30, from Windsor Castle, I believe to be the original; the other two are copies by painters who did not understand the peculiar head-dress in which the queen of Edward IV. is represented: many varieties of it are to be seen in the numerous illuminated MSS. of the period. No. 31, from Queen's College, Cambridge, is scarcely to be called a copy. It is an enlarged portrait of a much more recent date, founded upon, rather than copied from, the original in her Majesty's possession.

No. 32, Margaret Plantagenet, Duchess of Burgundy, sister of Edward IV., in the steeple head-dress of her time.

Nos. 33, 34, 35, three portraits of Jane Shore. I certainly cannot attempt to decide from the *costume* of the two last specimens which is the original. No. 33, however, from Hampton Court, could never have been painted from the life, whatever the others may have been. "Mistress Shore" is said to have died in old age and extreme poverty in 1527, *temp.* Henry VIII. This portrait represents a woman still young and handsome, in a dress of the fashion prevalent in the reign of James I. The description on the left of the picture is very precise and categorical, but the costume is much more precise and difficult to dispute. The picture was certainly not painted within half a century of the received date of the poor creature's death, and therefore, if not misnamed, it must be a purely imaginative portrait by a painter of the seventeenth century.

No. 36, Sir Thomas Lyttleton, K.B. Here is a fine full-length portrait of a judge in a ruff, and with a pair of gloves of the time of Elizabeth at the earliest presented to us as that of the great lawyer, who died A.D. 1481, in the reign of Edward IV. If the visitor will carry the recollection of this picture with him to the further end of the eastern gallery he will find sufficient confirmation of this assertion. It is an interesting question who was really the legal dignitary who sat, or rather stood, for this portrait, as well as who painted it. No judge of painting could attribute this picture to the fifteenth century.

No. 37, Sir Henry Wentworth, another of the series of the constables of Queenborough, and also from Penshurst. The painter, if Lucas Cornelli, could scarcely have seen Sir Henry; but there might be a portrait of him by an

earlier hand, as he was living in the reign of Henry VII.

No. 38, Richard III. I must refer my readers to my observations on No. 24.

No. 39, Henry Chicheley, Archbishop of Canterbury. A copy made in 1837 by Herbert Smith, from the original at Lambeth. As the Archbishop died in 1443, the original was probably painted from an effigy, and the picture is here catalogued out of its chronological order.

J. R. PLANCHÉ.

THE MARKET CROSSES OF SCOTLAND.*

RESUMING our remarks on the Market Crosses of Scotland, we proceed to give some account of Glasgow Cross. It is to be regretted that less is known of this cross than is known regarding many like objects of inferior interest in themselves, and belonging to places of less importance than the commercial capital of the sister kingdom. Although the cross is frequently mentioned by name in the annals of the city, the old historians of St. Mungo have left us in ignorance as to its architectural features. What is now called the "Cross of Glasgow," many of our readers are doubtless aware, is the site of the old cross, not the cross itself. In the thirteenth and fourteenth centuries the recognised centre of the town was a locality named the "Bell of the Brae"—a term for the highest part upon the slope of a hill. This spot, then the great rendezvous of chapmen and traders, was situated at the intersection of the High-street with the lines of Rotten-row and Drygate. Here, at the upper end of the High-street, stood the original Crux Foralis of the town. About the year 1420, as is conjectured, the cross (in name at least) was transferred to the lower extremity of the street—the site at present known as the cross. There is reason to believe that it had then existed for about two centuries. As regards its appearance, it may be presumed that it was after the pattern of market-crosses in other towns of similar size and importance as Glasgow. From the town records for the year 1575, we learn that one James Rankene was found guilty of removing "ane greit croce," *lying* in the Rotten-row, and the property of the town.† Stealing the market cross!—one more indignity added to the list of indignities to which these burghal palladia have been subjected. The above entry undoubtedly refers to the Bell of the Brae Cross, which had been allowed seemingly to fall into decay. And supposing the date assigned by Glasgow annalists to be correct, this cross must have been discarded, and a new structure erected at the bottom of High-street. If, on the other hand, the original cross removed, was afterwards re-erected, its transference could not have taken place so early as the year 1420. Be this as it may, the site of the new or restored cross was in the middle of the street or crossway forming the junction of the four great thoroughfares—High-street, to the north; the Saltmarket, to the south; the Gallowgate, to the east; and Trongate and Argyll-street, to the west. The cross (like most other market-crosses) was almost in front of the old Tolbooth, with its ancient cross steeple and famous peal of musical bells. Glasgow was formerly much celebrated for its bells. Hence the old rhyme,—

> Glasgow for bells,
> Lithgow for wells,
> Falkirk for beans and peas,
> Peebles for clashes and lees.‡

Before the existence of the present Royal Exchange, the cross was the place where merchants most did congregate, and the bells chimed favourite Scottish airs every day during change hours. McUre gives a quaint description of the cross steeple and its bells, in his eccentric "History of Glasgow," published in 1736. We find a curious entry in the Burgh Records for 1590, which sets forth, that "David Duncane, servand to George Esdaill, and William Blair, pypar," were summoned before the council, the former for "clymming upoun the Croce and breking of the samin;" and the latter "for being upoun the heid of the Croce, and playing upoun the heid thairof with ane pyp." What punishment was awarded to these ancient roughs is not stated. We also gather from the records that it was long customary for traders to bring their merchandise to the cross, on either side of which they arranged their booths and stalls. In 1659, however, this practice was abolished, by order of the authorities. Those who were accustomed to set up stands at the cross were enjoined "to keep at their own houssis;" and among other enactments was this one, that the "sour milk mercatt" be removed from the Cross to the Gallowgate Bridge. A resolution fatal to the cross itself was come to this very year. November 22nd, 1659, "the magistratis and counsall haveing receavit warrand and ordours for doune-takeing of the guard-hous was buildit about and upone the Croce, and in regaird the samyne mercat-croce throw the building of the said guard-hous thairupon, was altogether defaced. It is therefor now concludit to remove the samyne with all convenient diligence, and mak it equall with the grund." On the 3rd December following it was ordained that the spot where the cross had stood should be causewayed "in ane most comly and decent maner." It will thus be seen that the cross lived to within a year of the Restoration. Subsequently, public proclamations, &c., were made from the platform of an outside stair, or forestair, in front of the Tolbooth. This also gave way in after years to modern improvements. Our space compels us to pass over many eventful scenes which have made the cross of Glasgow memorable in Scottish history. We shall, however, briefly allude to one or two. Very bitter was the hatred with which the early church of Scotland hated popery. In 1588, the Glasgow Session ordained Sir Bartholomew Simpson, "in whose chamber was yesterday found certain boards and pictures, being the monuments of idolatry, to pass immediately thereafter with them to the cross and set the same on fire." In 1592, the widow of George Robertson was required to burn "'the idolatrous geir found in her house' at the cross, in a fire made at her own expense, and to cast it into the flames 'with her awin hands.' In the following week she confesses her sin against God, and his kirk, in keeping beside her the pictures of the Virgin Mary and the babe Jesus, as well as mass-clouts, mass-books, and priest's bonnets. She pays ten merks to the poor previous to her release from the discipline of the church." When the infamous Claverhouse was routed at the battle of Drumclog, on that memorable Sunday morning, June 1, 1679—the first and last battle ever lost by the bloodthirsty royalist,—he retreated to Glasgow, and taking his stand at the cross, he immediately proceeded to barricade his position. While the royalist soldiers were busily engaged in these defensive preparations, the Covenanting army, in two divisions, led by the redoubtable Balfour of Burley and Hackstoun of Rathillet, made its appearance, and at once began the attack. Although the Covenanters maintained the contest at great disadvantage, they compelled many of the soldiers to fall back before the storm of their whilsting bullets, and to seek shelter in the adjoining closes and behind the stair of the Tolbooth. They were, however, unsuccessful in forcing the position, and at length were obliged to retreat, leaving a number of their dead and wounded in the streets, who were brutally maltreated, and denied burial. Within a year afterwards, the Tolbooth impaled on its spikes one of the mangled limbs of the "valiant laird of Rathillet," after his capture at Arismoss and horrible execution at Edinburgh, his head having been affixed to the Netherbow in the capital, and his quartered body distributed to Glasgow, to Leith, to St. Andrew's, and to Burntisland. The spikes of the Tolbooth were removed only about seventy years ago. In many parts of Scotland, the reader need hardly be reminded, great opposition was manifested to the Union measures of 1707. Nowhere did this opposition reach a higher pitch than at Glasgow, where the citizens, "after burning the Articles of Union at the Cross, came to the bold resolve of undertaking a march to Edinburgh, with the avowed object of dissolving a Parliament that in their opinion was about to make a sale of the country." The Commissioners of the General Assembly of the Church of Scotland had also in strong terms deprecated the union with England. They appointed a fast to be kept on Thursday, the 17th of November, 1706, to implore Divine assistance from the impending calamity; on which occasion the Rev. James Clark, minister of the Tron Church, Glasgow, preached from these words in Ezra viii. 21,—"Then I proclaimed a fast there, at the river of Ahava, that we might afflict ourselves before our God, to seek of him a right way for us, and for our little ones, and for all our substance." After the discourse was finished, the preacher said,—"Wherefore up and be valiant for the city of our God." The people instantly arose, and, along with their clergymen, hurried to the Cross, where they burned the proposed Articles of Union. Would Scotchmen nowadays be so anxious to support the Repeal of the Union, were such a measure likely, as their forefathers were energetic in opposing the union? We trow not.

Dundee, like Glasgow, possesses a market-cross in name only. In the centre of the High-street, or Seagate, a spacious rectangle, 360 ft. long by 100 ft. broad, stood the old cross of the burgh. A ring in the causeway marks the exact spot. The cross was in the form of a neat octagon, having a flight of six steps all round, "very convenient," we are told, "for the country people on Fridays, at the butter, cheese, and egg market." On the same occasions the "fleshers" of the district set up their stalls at the cross, for which privilege they had to pay "causeway-meal" to the authorities. An extraordinary proceeding took place here on the birthday of the elder Pretender, June 10, 1714. The magistrates proceeded to the cross, and after "in a solemn manner" drinking the Pretender's health, "under the stile and title of King James the Eight," one of the bailies "wickedly cursed his Majesty King George, by praying God to damn his blood." For which emphatic outburst of zeal for the Chevalier this worthy bailie, along with two of his brother bailies and the treasurer of the town, were afterwards brought to trial. Their descendants, about the year 1790, went to the opposite extreme. They were so enamoured with the doctrines of the French Revolution, and the teaching of Tom Paine, that it is said they publicly burnt the Bible and planted the tree of Liberty in their streets. The cross stood for the greater part of two centuries. Erected in 1583, it was taken down in 1777. The cross of Kirkcudbright dates a year later than that of Dundee, namely, from the year 1584, and we believe it still occupies its place in front of the old jail or court-house. There is nothing noteworthy about this venerable structure, if we except a high-flown Latin motto on its front, "*Nisi dominus edificaverit, frustra.*" The only other decorative point about it was a pair of jougs or gorgets, which, in spite of their formidable appearance, failed of occasion to "Strike terror in the soul of Richard," Sandy, or Jock. The "Statistical Account of Scotland" furnishes us with one instance of this, and we are indebted to Mr. Robert Chambers's "Picture of Scotland" for another. In 1663 a serious riot took place in the parish, at the introduction of a curate, whose tenets of course were very obnoxious to the great body of the people. Commissioners were appointed to repair to the burgh, and to make the most searching inquiry into the particulars of this contempt of authority. After examining a number of witnesses, they ordered Lord Kirkcudbright; John Carson, late provost; John Ewart, who had been chosen provost, but had refused to accept the office; and several women, to be carried prisoners to Edinburgh. Some of the rioters were imprisoned, and afterwards fined, and several others were exposed at the market-cross, with paper crowns upon their heads, stating the nature of their crime. A few years ago, says Mr. Chambers, writing in 1827, a heartless scoundrel was placed in these jougs, and underwent exposure for twelve hours, amid the execrations of the multitude, for the crime of mutilating animals by cutting off their tails. By order of the sheriff, a cow's-tail was suspended over his head, emblematical of his offence. A curious and interesting cross is to be found in Linlithgow, the birthplace of Mary Queen of Scots. It is not a cross proper, but a cross-well, answering the purposes of a market-cross, since we find the magistrates and burgesses for many generations meeting there once every year, preparatory to making a circuit of the liberties of the burgh, which is termed "Riding the marches," a very ancient custom still observed by other corporations,—as, for example, that of Aberdeen. The present building, erected in 1805, is said to be a *fac-simile* of a former one built in 1620. "It is not deficient in elegance," says the author of the "Picture of Scotland," "but its chief merit consists in the amazing intricacy of the sculpture, and the number of grotesque figures from whose mouths water is made to pour. Around a little gallery near the top half a dozen statues are regularly arranged, all looking outwards. One looks like a modern waiter, having a mutchkin-stoup in one hand, and a

* See pp. 185, 246.
† Stuart's "Views and Notices of Glasgow." 1848.
‡ Idle Tales and Falsehoods—an unenviable reputation surely!

dram glass in the other. Another has the appearance of a herald, a scroll being thrown obliquely across his body, with the words 'God save ye King.' The unicorn of the Scottish arms rears its form on the top. The water is caused to rise to the various spouts around the well, from which it falls into troughs appointed to receive it, by the height of the springs around the town from which it is conveyed." The copiousness of water at Linlithgow is indicated in the rhyme quoted above. It is probable, we think, that there was originally a real cross in Linlithgow, and that this structure was merely the well at the cross. Aberdeen and Dundee at least had wells at the cross in former times: the latter was removed to another part of the town when the cross was taken down, and the Aberdeen one (a curious erection, called the Man o' the Well) was restored and re-erected in the Green some years ago.

Speaking of the Cross Well of Linlithgow, we are naturally led to mention the *Clach-na-Cudden* ("stone of the tubs") of Inverness. This object of antiquarian interest—a large blue lozenge-shaped stone—serves, or rather served, a double purpose. In bygone days the servant-maids of Inverness, in passing from the river, were in the habit of placing their water-pails—deep tubs slung from the shoulders upon a pole—on this stone by way of a temporary rest. Hence the name. But it was also the palladium of the burgh, and proclamations were made from it as from other market-crosses. The stone, which is now set within a circle of smaller stones for its better preservation, was many years ago removed from its ancient site in the middle of the High-street to its present position in front of the Town Hall and Exchange. At Clackmannan a similar stone may be seen—a huge shapeless blue boulder, fractured in three places, and riveted with iron. This relic is the object of as much reverence here as the *Clach-na-Cudden* is at Inverness, "the privileges of the town being supposed to depend in some mysterious way upon its existence." Tradition asserts that King Robert Bruce, when residing at the neighbouring castle, one day accidentally left his gauntlet on this stone, the which his majesty did not discover until he had proceeded some distance on his journey. Despatching one of his knights for the gauntlet, the king was as laconical as Cæsar; he made use of but two words, *clach*, a stone, and *mannan*, a glove; from which incident, quoth tradition, the town and county took their name. It is a pity to spoil the story, but the fact is that the name Clackmanane appears on record nearly a century before the hero of Bannockburn's time. There is also a Cross of Clackmannan standing in the centre of that decayed town. It is a time-worn column, at the top of which are carved the arms of Bruce,—"or, a chief and saltire gules; crest, an arm erect holding the sceptre of Scotland." At one time two crosses of some interest existed in Rutherglen (Lanark), locally celebrated for its sour cakes and irregular marriages, and formerly a place of great note. One of these crosses was a structure of hard stone, 10 ft. high and 3½ ft. broad, ornamented with a variety of figures, the most remarkable being a representation of our Saviour riding upon an ass. It stood on the summit of Cross-hill, and unfortunately fell a sacrifice to the fury of a lawless mob, during the civil wars in Charles I.'s time. The other, evidently the market-cross, consisted of a pedestal of twelve circular steps, and a shaft 14 ft. high and 14 ft. in diameter at the base, tapering to the top. It was pulled down the same year, and for the same reason, as the cross of Dundee. It was deemed an incumbrance to the main street. The following crosses may also be briefly mentioned. In the Kincardineshire burgh of Bervie,—noted for its haddocks, called Bervies,—there is a cross near the town house of considerable antiquity. It is an octagon, of six steps, surmounted by a column 14 ft. high. An old cross stands in the centre of the village of Bowden, Roxburghshire, but the date of its erection is unknown. Another, in the form of an obelisk, in Cranworth, Lanark, upon which are carved the distances from Edinburgh to various places in Clydesdale and Ayrshire. An ancient stone shaft, bearing as a capital a ducal crown, stands in Rosemarkie, Ross-shire; another, of similar description in the market-place of Chanonry, or Fortrose; and a third at no great distance, where, according to tradition, the last witch in Scotland was burned. This unlucky female was said to have been a native of Port Gower, a beautiful fishing village in Sutherlandshire. There is likewise, we believe, a market-cross in Wigton, a rather elegant erection, built of a fine grey granite found in the neighbourhood.

Many of the most interesting of Scottish crosses and "stones" are those of a purely memorial character. The origin and history of some of these in particular are highly romantic, as the crosses of Dornoch, of Crosshall (Berwickshire), and the Soules Cross at Kilmarnock, as also the Heap Cross at Hawick, Queen Blearie's Cross near Paisley, the crosses of Merkland and Kirkconnel, the famous Sweno's stone at Forres, and the celebrated crosses of Ruthwell. These, however, with others, we pass over, our present object being with market-crosses. By telling something of the antiquarian and historical interest which attaches to those structures, and of the fate which has befallen so large a number of them, we had hoped to make out a plea, if not for the restoration of those that are lost, at least for the protection and preservation of those that are still left to us. The case of the cross of Scone, formerly alluded to, is singular and unique. Says Mr. Chambers, "There are many instances of towns losing their market-crosses, but we believe this is the only cross that has lost its town." Of course no one will go the length of wishing that the fates of towns and their crosses had been reversed, but everybody who can find songs as well as "sermons in stones," must nevertheless lament that fate should have dealt so hardly with those emblems of civic dignity, memorials of antiquarian interest, and in many instances, objects of great architectural beauty, market-crosses.*

PROGRESS ABROAD.

Vienna. — Notwithstanding the threatening aspect of the political horizon, active preparations are being made for the erection of the new museum, which will, no doubt, become an additional ornament to the new quarter of the city. The site has been marked out, and the excavations for the foundation are being carried on. The two architects, Messrs. Theophilus Hansen & Heinrich Ferstel, were commissioned to prepare the designs, which have just received the sanction and approbation of the emperor.——A whole century has passed since the Prater at Vienna became a public park. On the 7th of April, 1766, the Emperor Joseph signed the order for throwing it open to the public. The centenary anniversary was celebrated by several clubs and other social institutions of the Austrian capital.

Berlin.—Two more market-halls are to be commenced immediately, one on the square called the Hausvogtei-Platz, and the other on the Dönhofs-platz. It is true that they will by no means suffice for the market traffic of the capital, as in different parts of the city there are now no less than 17 different markets held in the open air, in which stalls are kept by 698 butchers, 334 fish salesmen, 180 poulterers and dealers in game, 255 dealers in flowers and plants, 500 greengrocers, and 5,181 sellers of other articles of food. It is therefore to be expected that the public, both buyers and sellers, will appreciate the advantages of conducting their business sheltered from the vicissitudes of the weather, for the climate of Berlin is proverbially anything but a genial one.——It is understood that the celebrated windmill at Sans Souci, near Potsdam, is at length to be removed. When Frederick the Great built his palace there, a century ago, this mill, which stands close to the grounds, was such an eyesore that he offered the owner any money to part with it, which, however, the miller refused to do. The king's sense of justice and respect for the property of others was very different from the views entertained on the same subject by the present sovereign, and he had the windmill surrounded by a handsome iron railing, and it has ever since remained in possession of the family of its self-willed and disobliging owner. ——The commencement of the National Gallery, which is to be built on the site of the former Packhof or warehouses on the Spree Island, has been hitherto delayed in consequence of a dispute between the Minister for Commerce and Public Works and the Minister for Education on the question of competency. The ground was originally purchased as the site of the new Museum, and thus the revenues derived from the rents of the buildings left standing passed through the accounts of the Museum. It is now decided that the Department of Public Works shall pay 4,000 dollars to the Museum as an indemnification, and the works will commence immediately, under the able direction of Architectural Councillor Erbkamm, from the designs of Professor Strack.

Breslau.—The Minister of the Interior has granted permission for the organisation of a lottery in aid of the funds for the erection of a Picture-gallery in this city. For this purpose 110,000 tickets, at one dollar each, may be sold in any part of the Prussian dominions. The prizes will consist of paintings selected to an equal amount by the ten referees, or courts of arbitration of Vienna, Munich, Düsseldorf, Dresden, Berlin, Weimar, Stuttgart, Königsberg, and Frankfort.——The Architectural Councillor Langhans, of Berlin, has been commissioned to make designs for the Breslau City Theatre, which was destroyed by fire last autumn.

Cologne.—For the more rapid completion of the cathedral the Prussian Government has granted to the committee a concession for a lottery, and held out hopes of renewing it for the next ten years, when the whole is expected to be finished. According to the plan of the lottery, there will be 350,000 tickets and 1,500 prizes, the latter consisting partly of sums of money and partly of paintings by living German artists, for the purchase of which 20,000 dollars are to be devoted. The drawing will take place in the beginning of January, 1867. With the receipts from this lottery, the annual subvention of 50,000 dollars on the part of the Prussian Government, and the subscriptions and donations of the different local sub-committees all over Germany, it is estimated that the two towers will be built up to one uniform height by 1868. The historical *cranes* on the top of the towers, which have for centuries past excited the wonder, though not the admiration, of every purchaser of a case of genuine eau-de-Cologne, will then be removed, to be replaced by steam locomobile cranes. The net proceeds of last year's lottery amounted to 177,000 dollars. Besides the cathedral, several other churches in this city are undergoing repairs and restoration, and are all more or less in an advanced state. The St. Peter's Church is being painted in a decorative style; that of the Minorites, as regards the artistical ornamentation, is nearly complete. St. Mary of the Capitol is being painted and ornamented now that the repairs are finished, and St. Martin's has just been taken in hand.

Munich.—The sculptor Brugger has just completed his gypsum model for the statue of the late architect Klentze, that King Ludwig I. is about to erect, out of his private means, by the side of the statue of Professor Gärtner, on the Gärtner-Platz. The likeness of the model to the features of Klentze is said to be very striking.

Dresden.—The new fountain now in course of erection, at the expense of the municipality, on the Racknitz-Platz, will be, when completed, another great ornament to the Saxon capital. Above the lower basin, which is of white marble in the form of a shell, rises another similar one, but of smaller dimensions, supporting the figure of a water-nymph holding up a small Triton. The group of figures is 8 ft. high, and admirably cast in bronze by G. Brossmann, whilst the whole work is 22 ft. high. It is in the Renaissance style, and executed from the designs of Herr E. Giese, professor at Düsseldorf.

Leipzig.—The rage for suburban residences has become so increased during the last few years, and is so greatly facilitated by easy railway access, that six contiguous villages in the vicinity of the city have applied to the Govern-

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* Our remarks already on this subject have led to a desire for the restoration of the market-cross of Galashiels. In his letter, in the *Builder*, "Xian" informs us that the shaft of the old cross is lying, a discarded object, in the Lord of the Manor's grounds; and our correspondent believes that the relic would be readily gifted for the purpose of re-erection, were application but made for it. A little local effort, and the thing might be done—presuming that the fragment is not too much decayed, and is worth the trouble. In its day, the cross of Galashiels must have witnessed many a funny sight, and listened to many an odd sound, especially on the occasion of the Midsummer fair. That whilom great annual Border gathering was regularly proclaimed from the cross by the baron-bailie, with the following "flourish of trumpets:" —"Oyez, Oyez, Oyez! Forasmuch as in his Majesty's name and authority, given and granted to — Scott, of Gala, esq., and to ——, his baron-bailie depute, to hold a free fair yearly on this 8th day of July; I hereby prohibit and debar from this fair all false weights and false measures, all cutters of purses, Egyptians, and randy beggars; and that none trouble or molest this fair for auld debt or new debt, auld feud or new; and this fair to continue for the space of eight days. God save the King." Again, we say, a little local effort, and the "Braw, braw, lads of Gala Water" might attain this very desirable object.

ment for permission to band themselves together and form a new town. Their united population at present amounts to 17,000; and should the plan be realized, and new streets built with convenient houses, there can be no reasonable doubt that the number of inhabitants will be doubled in a couple of years. The name of the new town has not yet been decided on.

Aix-la-Chapelle.—The exact spot where the mortal remains of the Emperor Charlemagne were buried in the cathedral of this city was never precisely known, but the question has now been set at rest by the recent discovery of a stone in the crypt of All Souls' Chapel, which leaves no doubt of its belonging to the grave of that Emperor. Further explorations have led to the discovery of masonry of the Carolingian period, and it is generally believed that the exact spot of the Emperor's grave is now fully identified.——The ancient picturesque castle of Sonneck, well known to tourists on the Rhine as a beautiful and striking ruin of the feudal period, has been restored under the direction of General von Wussow, and the restoration just completed. It is royal property.

Oldenburg.—The Grand Duke is having his residential palace newly decorated and restored in the modern style. The work is confided to the Bremen architect, Herr Klingenberg.

Bremen.—The Bürgerschaft has acceded to the proposed plan for erecting a special building for that body and the Courts of Law, for which they voted a sum of 280,000 dollars (about 40,000*l.*). The opposition party proposed to rent for this purpose the upper part of the new exchange building, but was over-ruled by an overwhelming majority.

Frankfort.—An association has been formed for building cheap dwellings for the poorer classes, the want of which is much felt. The capital subscribed is 300,000 florins (25,000*l.*), and the period of their incorporation is to last for seventy-seven years.

Jerusalem.—The *Tyroler Stimmen* contains an account of the recent discovery of a subterranean chapel, near the Church of the Holy Sepulchre. It is the one often mentioned by ancient writers as that of Maria Minor, founded during the reign of Charlemagne, and to which was attached a convent for Benedictine nuns, and a residence for female pilgrims. It had often been searched for, but always in vain. The present discovery is entirely due to the energetic researches of Signor Carlo Guarmani, director of the French post-office at Jerusalem. The church contains three aisles, separated by rows of pillars, and terminating in separate apsides. The centre is spanned by a dome, under which are still visible the oratories of the nuns. Though entirely covered by the soil, which has now been carefully removed, the building has suffered no injury to any extent, and is still nearly perfect.

Athens.—In the Theatre of Bacchus, at the foot of the Acropolis, the excavations carried on by the Archæological Society have led to the discovery of several interesting antiquities, amongst which is a stone on which are engraved, at full length, the privileges and concessions enjoyed by the actors engaged to perform in that theatre. They will be published in one of the next numbers of the Journal of the Athens Archæological Society.

EXHIBITION OF THE SOCIETY OF PAINTERS IN WATER COLOURS.

THIS, the sixty-second Exhibition of the Society of Painters in Water Colours, differs but little from a long list of antecedents; scarcely more than in the respective degree of success its older members have attained in re-asserting or not their several claims to undisputed excellence; for new names seem to impart to it no novelty of production, or none of sufficient distinctiveness to vary perceptibly its uniform character, as high as ever, or to affect its aggregate sameness of aspect. Its glory, as of old, subsists in the landscapes; indeed, the supremacy of this department, the wonderful accomplishment of its professors, almost annihilates the restricted efforts of the figure-painters, who so frequently by the power and propriety with which they can give vitality to a head, or the study of single personations, provoke a complaint that such should not be more profitably employed; and in cases where no further evidence is needed of an ability to deal with narrative subject-matter, that it should be allowed to remain dormant, as if purpose were an unnecessary consideration for the artist when practising in this medium, and to utilize means,—not limited enough for excuse,—to some more important end than that of affording mere momentary pleasure, were an object not to be thought about.

Few are gifted like Mr. Burton with the apprehensiveness of female facial beauty, when existing in expression rather than in the physical cause—regularity of features: his study of an Italian woman (147) is impressive for the thoughtfulness, almost melancholy, with which he has elevated to loveliness an imperfect face. To learn the full value of poetry in picture art, and the qualities that constitute it, may be difficult, but to their presence may be attributed all the fascination that arrests the attention for any length of time. In this idealised portrait, there is less than usual of that charm of colour so many preceding examples have possessed, to assist in accounting for it. On this occasion all its interest is consecrated in a suggestiveness of something more than meets the eye.

With far more outward cause for the effect, because there is so much more visibly expressed by consummate imitative and adaptative achievement, Mr. Duncan's epic of sky, sea, and land, with a flock of sheep, "Overtaken by the Tide" (120), must be pronounced as near an approach to perfection in art as this particular appliance of it would admit of; and Mr. Dodgson's "Pastoral" (125), with Mr. George A. Fripp's "View of Streatly, from the Pathway between Cleve Mill and Goring" (36), share in culminating all that is most exquisite in the collection.

Mr. Frederick Taylor is still faithful to his hunting appointments. "Calling Hounds out of Cover" (16) is very like scores of the like; and if it be "A Return from Hawking" (276), or "A Highland Drove" (296), that brings him back, he is always fresh in colour, and quite inimitable in his way. Equally true to himself is Mr. Carl Haag, with his clear, bright Oriental studies. See, for example, "In the Sugar Plantations" (12), and "A Family of Wandering Arabs" (23), consisting of Paterfamilias blowing a merry tune from his pipe, as he conducts across the desert his armful of domestic happiness and modicum of parental anxiety upon a camel's back. The head of "A Copt Lady" (6) is very delicate and beautiful. His principal drawing, "The Ancient Vestibule to the Southern Entrance, beneath the Temple Area, Jerusalem" (149), with an assemblage of Eastern people in very picturesque and richly-coloured costumes, is one of the most important contributions to the exhibition.

Mr. F. Smallfield, than whom none show more improvement amongst the associates, has a very finished performance to testify how far elaboration can make valuable an ordinary episode of every-day fact, "A Girl with Raspberries" (19), with a background of the fruit-canes and hollyhocks, is as unpretentious and agreeable as a similar work, "A Bouquet" (25), by Mr. F. Walker, is the reverse. Without denying the rare appreciation of broad general effects, and sense for colour, so evident in this, there is an objectionable assumption of looseness—rather than freedom—in the manner with which it is wrought, calculated to mislead others besides the artist, though degenerating as it does into positive slovenliness. It will annoy, at least, as many as it delights. It would appear to be comparatively easy to obtain a general approach to truth, if no other intention were allowed to interfere; and in that case photography would become auxiliary, and furnish all the assistance needed; but direct imitation, though sometimes one of its most essential requisites as a means, can never be accepted for the only thing needful in a picture, especially if it happen to be short-sighted, or to overlook that which is best worth the copying in favour of what may be of far less value. There is nothing in this sketchy production to betoken that selection and refinement were at all worth consideration in treating so homely an incident as tying together flowers for a nosegay, just gathered in the garden of a pink-tiled cottage, with nasturtiums, Canterbury bells, sweet-williams, a cordaroyed gardener, a sandy-haired little girl—apparently blind,—and a smaller boy with eccentric legs, for leading points; so the result is as amazing as some of the accidental combinations of bright hues to be seen in a kaleidoscope. Mr. Walker has made some beautiful designs for book illustration that are chiefly remarkable for those very qualities the present emanation stands most in need of.

Mr. J. D. Watson's brilliant and well-drawn study of a Musical Instrument-maker examining a violin, about which there is "Something Wrong" (2), is admirable for its finish, without loss of solidity and force: another, entitled "Book-lore" (207), is as careful and complete though from the student's occupation, it is no so striking, with all its crimson and scarlet fifteenth century draperies, as the animated artisan of Elizabeth's time.

"Le Chant d'Amour" (72), by Mr. E. Burne Jones, offers less opportunity for cavil than some previous works not to be so easily understood for the poetry of its colour condones to some extent its weak drawing, and will gain for him additional admirers by the strange, yet undeniable charm it possesses. Mr. Walter Goodall's Good Nun relating "The History of the Cross" (84) to the children of a Brittany peasant, is a long step in the right direction. Exception may be taken to its extreme prettiness and too clean appearance, but it is a very pleasing and clever drawing.

Of Mr. John Gilbert's Shakspearean illustrations, and still more enunciative expositions of autographic characteristics and resources, it need only be said that the one—being a military pageant—most favourably representing him, represents likewise King Henry V. at "Agincourt" (137), receiving the humbled herald after the battle, who asks permission for the French to sort and bury their dead. The groups are skilfully composed, and the knights, soldiers, horses, arms, and armour have provided the best possible material for making very apparent a proverbial dash and vigour of execution. Not nearly so much at home in comedy as in the chivalric drama—common success seems almost incompatible, —"The Marriage of Katherine and Petruchio" (33), or rather their departure for the honeymoon after it,—is inferior in its conception, and is not one of Mr. Gilbert's best examples.

Mr. F. W. Topham is not seen to the greatest advantage in "The Gipsies' Toilet" (128). Though the size of the figures has made great demands upon his academic acquirements, and been well responded to, the results are scarcely equal to the pains taken for securing them. The fair daughter of a dusky race is charming enough to look upon; but the enlarged scale, whilst increasing the difficulties of delineating the subject, tends to make it insufficient in interest to call for such conspicuous immortality. As a specimen of executive ability, it will, however, have a special value attached to it; but there are not many who could prefer it to one of those dramatic incidents, or an illustration of Irish character, or little domestic episodes, with which Mr. Topham's name is ever associated.

We can but briefly note for examination,—(14) "Llyn-y-Dinas," by C. Davidson; (26) Mont St. Michel," by Collingwood Smith; (46) "Interior of St. Stephen's, Vienna," by S. Read; (126) "Returning from Kirk," by Alfred P. Newton; (156) "In Memoriam," and (271), "A (dear) Child," by E. Lundgren; (167) "Nora," by G. P. Boyce; and (268) "The Valley des Moulins, Amalfi," by Paul J. Naftel.

GENERAL EXHIBITION OF WATER COLOUR DRAWINGS.

EGYPTIAN HALL.

IT is at such times when members of the societies are enjoying their exclusive privileges; when the announcement of the well-known name is the certain presage of the often admirable but too easily to be identified emanation subscribed with it; when the wish for something approaching change,—something to distinguish one year's production from that of another, and picture-galleries from auction-rooms, reaches nearly to a craving,—that attention will be directed to a source that would, could, or should promise relief.

The General Exhibition of Water-colour Drawings, with its one peculiarity,—and what a pleasant distinction it is, that of a mutative appearance in what may, for the time, constitute its attractiveness,—so long as it maintains its present position, will grow in favour proportionately with the degree to which the original intentions of those who promoted the undertaking are adhered to. The only fear is that these may by-and-by be lost sight of, and another "Society" emerge from it, and to its ruin; or, from causes easily foreseen, that it may become one by analogy if not in name.

The unexpected amount of ability displayed this year, as well as last, on the walls of the Dudley Gallery—nearly as astounding as most of the "sleight of hand" performances of another

nature that Wizard Stodare exhibits in its neighbourhood,—encourages a belief that the supply of excellent drawings would always equal the demands of the occasion; though depending as it must upon incidental assistance, the success of future collections must necessarily be as varied as the means acquired to contribute to it, and very much influenced by the confidence earned by those on whom the onerous task of arrangement and management devolves. However, so long as the annual results show such laudable evidence of administrative judgment as the present one does, all expressions of opinion may determine in one of congratulation to the committee and to all who have so ably seconded them. Amongst these Mr. Calderon deserved special acknowledgment, for he has gone out of his way as far as he conveniently could, in producing an oil picture painted in water-colour, or water-colour painted in oil—it matters little which, since the workmanship is eminently characteristic of his forcible style; and if "La Fontaine" (293) is rather dryer than would perhaps have been the case had water been the painter's usual element, the drawing of the drawer—a peasant woman of Arles—though the figure is invested with no particular grace of attitude or natural fascination, is beautiful at least in academic respects; a recommendation that, with brilliant sunlight and agreeable colour to assist it, compensates for whatever amount of mere feminine delicacy may be thought at first sight to be wanting. To say more in its favour, the production is as singular as it is good.

Mr. Lamont, who has lately been elected an associate member of the Parent Society of Painters in Water-colours, has here proved his claim to the enrolment by a conspicuous instance of his accomplishment in the art, that would seem to notify him already an adept. In "Bored to Death" (192), he epitomises the discontent and vexations of a spoilt and petted beauty, who, as wife or only daughter, cannot sympathise with the old gentleman a cruel fate has assigned her for companion; and whilst he finds amusement enough in books, and reads choice extracts to his visitor—an old abbé as uninteresting as himself—the charming victim of circumstances expresses her disapprobation, and indulges in airs of impatience she finds it impossible to restrain. This subject suggests a French origin in more than its incident, for it is French in method as well as matter, indicating an apprehension of the most refined comedy in its relation to actual occurrence with the rare ability of conveying the least demonstrative phases of it with their full meaning, but without vulgar exaggeration.

Another work that will corroborate the supposition that Mr. Lamont will do greater things yet, "Sunlight and Shade" (112), is remarkable chiefly for the centre figure of a young Spanish girl, who needs to be a little taller to be quite as delightful as the colour employed in representing her; the rest is rather weak and commonplace.

Mr. E. W. Russell's "Piscator" (326), or Izaak Walton returning after an angling excursion laden with spoil, is an illustration of one of his own songs, that partly accounts for a very "burning sky" indeed. Taking exception to this ultra-blazing brightness, the composition has capital points in it, and, regarded as a whole, the effect, though pitched some keys too high for harmony, is cleverly sustained.

To Mr. George Thomas's "Sunday Morning (Coburg)" (260); Mr. Raymond Tucker's "Prawn Catchers" (273); Mr. John Richardson's carefully drawn but natural-looking rustic studies; Mr. Arthur H. Marsh's skittle-players, "Now for the King" (227); Mr. Frank Nowlan's little sugar-pilferer "Caught in the act" (351); Mr. J. E. Hodgson's "Monks fishing in the trout Stream near the Monastery" (368), though like Mr. Wynfield's "First Shot" (517), it is rather black and heavy; as well as to Mr. H. S. Marks's "Orpheus" (525), and Mr. John Burr's "Morning and Evening" (642), a brief allusion must serve as an acknowledgment of their several merits.

Some very excellent drawings of Eastern personages, by the late Mrs. Charles Newton, particularly that of "A Jewess of Smyrna" (79), meditating as she walks through a cemetery, are instinctively artistic, and have an interest attached to them apart from the qualities that elevate them, because they must be too few. Miss E. Martin's lady in Venetian costume, alarmed by "A Footstep" (26), whilst surreptitiously employed; "The Tapestry Chamber" (85), haunted by the ghosts of departed damsels, who appear anxious to learn the last fashions of London society, by Miss Adelaide Claxton; "The wounded Dove" (242), by Miss R. Solomon; "The Leisure Hour" (329), by Miss Ellen Gilbert; and a praiseworthy if only partially successful rendering from *La Vita Nuova*, "Dante Aleghieri" (484), by Miss Florence Claxton, provide good evidence that the ladies are well represented.

By far the majority, the numerous landscapes, include many that would reflect great credit in any collection, and show a proficiency very indicative of the extent to which this branch of art-culture prevails. To mention all that deserved commendation would go near to exhaust the catalogue, but we take some that come in rotation as a sample of the rest. Mr. Albert Goodwin's "Aspen Trees in Autumn" (27), one of several vigorous and richly-coloured examples; "The Greyfriars, Edinburgh" (44), by Mr. Harry Johnson; "The Thames, from Hambledon Lock" (104), by Mr. George Mawley; and "A Pine Wood" (284), by the same; "Orchard in Spring Time" (130), by Mr. C. Earle; "Gloaming, Isle of Arran" (163), by Mr. Walter H. Paton, R.S.A.; "A Beech Wood" (171), one of several as conscientious and truthful, by Mr. Arthur Ditchfield; "A Mountain Road at the Trossachs" (184), by Mr. J. J. Bannatyne; "Wood Gathering" (250), by Mr. T. Green; "Under the Willows" (252) by Mr. K. Halswell, R.S.A.; "A Winter's Morning (319), by Mr. Vicat Cole; "Early Snow at Pen-y-Gwryd" (337), by Mr. L. C. Livett; "Abinger Mill Pond, Surrey" (345) and others, by Mr. Frank Walton; and "Sunset near Tintagel, Cornwall" (492), by Mr. C. R. Aston.

Though conventional and pretty, Mr. W. S. Coleman's views on the Thames are acceptable for a charm they have, if partly borrowed; witness "Near Medmenham" (498), and "On the Thames, near Mill End" (651). Miss H. C. Coleman's studies of dead birds and little bits of still life are as exquisite as ever, and bear the closest scrutiny. A clever cattle composition, by Mr. Basil Bradley, entitled, "Evening" (93), and Mr. Beverley's dashing scenic marine subjects are of the items that cannot be overlooked; neither will be the careful work that Mr. Macquoid has bestowed on some continental architectural drawings; for, though unobtrusive compared with similar materials treated entirely differently, for instance, Mr. Arthur Severn's "Notre Dame, Paris" (86), with a gorgeous sunset effect, they have picturesqueness without sacrifice of fidelity.

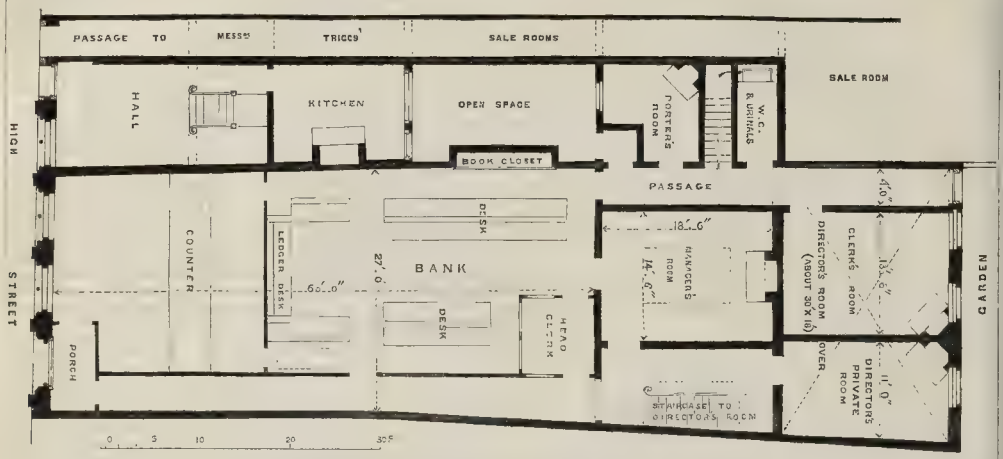
OBSTACLES TO THE PROGRESS OF GOTHIC ARCHITECTURE.

ARCHITECTURAL MUSEUM.

On Wednesday evening, the 25th ult., the second sessional meeting in connexion with the Architectural Museum was held in the theatre of the Geological Museum, Jermyn-street, to hear a lecture on the existing obstacles to the progress of Gothic architecture in England, by Mr. F. S. Powell. Mr. A. J. B. Beresford Hope, M.P., presided.

Mr. Powell commenced by saying that if he were to describe the obstacles to the progress of Gothic architecture in England, in the age from which we have not yet won entire artistic emancipation, he should comprehend in his definition every obstacle which the ignorance of man can create, the perversity of a race can devise, or the ingenuity of obstinacy can oppose. The architects were unteaching, the people were untaught, the workmen neither possessed knowledge nor were willing to receive instruction. But what of architecture in 1865? All argument was summed up in the words "Spirit of the age." Let them in all piety and awe make their obeisance to the rival spirit of ancient age, approach his sacred temple, and do homage to his spiritual majesty. He was thoughtful, reverent, tender, and gentle, cared for men and was worshipped by mankind. But spirit though he was, he had earthly, gross, and carnal properties; and if they had strikes in 1865, were there no cakes and ale in 1365, or amid the architectural purity of 1265? The spirit of the age must bear no blame; but all blame on the spirit moving within each one of us—the spirit of contempt for the past, of presumption, of ignorance professing knowledge, of carelessness, luxury, and ease. And here, some short entreaty to practising architects: strew not our path, he said, with thorns; punish not with penal consequences our love for indigenous architecture. Have sympathy with your kind and adapt your bill and your buildings to the country and the generation. Your native style, in the hand of the truly skilled, is a gentle and kindly mother; in the hand of the peasant and the man of meagre resources, an angular stepmother, severe, stiff, and unbending. From cathedral to coffer; from municipal hall to peasant's home, the old was vigorous yet natural, speaking out the native tongue. The contrast is strange with the terms of the modern revival: chamfers within chamfers, mould within mould; chamfers warring with mould, mould retaliating in ceaseless hostility the antagonism of the flattening chisel. Modern Gothic, in many instances, is no Gothic at all; but a thin caricature and a silly burlesque. Love, ardent and warm, does not of necessity burn towards your heart-breaking, fortune-consuming church, or municipal structure. The masculine outline, the detail content and reposing in comely grace, the grandeur of mass, the delicacy of subordinate elements, each tending to the harmony of the whole. Popular sympathy and mature knowledge would welcome with eagerness those who satisfy a need widely felt, and furnish that which is not the less desired because the want is not expressed in the precise phrases of professional speech. The work of the past was meant to last; perhaps we do not mean ours to last. The system of leaseholds is adverse to permanence; the doctrine of small profits and quick returns is adverse to it; the flighty saying that posterity has done nothing for us is adverse; and ugliness, the inevitable condition of modern society, is adverse. Not all the blame to the architects: our luxurious and gold-cursed age, our modern comforts, our rapid changes, our crinoline—all are to blame. Could you adapt a factory to the true Gothic? If an architect proposed to a manufacturer a Mediæval style for his factory or warehouse, the manufacturer would speedily Mediævalise him off his premises. Other obstacles are new materials, new tiles, new marbles, new metals, new colours. The absence of foreign travel and observation is an obstacle; so are modern pictures, which are mere deceptions, because the scale is usually inaccurate; and photographs which puff people up with the inflation of imaginary knowledge. Workmen are too mechanical, at first apt to an exaggerated perfection of details, but found soon to drop that. As to restorations, the lecturer would rather see churchwarden pulpits, reading-desks, clerks' desks, organs, pews, stoves, and draughts, than a trim new old church with every feature of antiquity for ever eradicated. Next in the funereal procession of obstacles, of resistances not conservative, but revolutionary, march the spectral figures of competitions—a terrible band. Each town bears the fruit of modern competition. Why tell of halls costly but not artistic—pretentious, not structural; of churches with cathedral features reduced to dainty debility, with ambitious mimicry of that which the grandeur of genius conceived, and which nothing but infinite pettiness could degrade? How are English landscapes deformed by institutions for youths of both sexes, boys and girls being duly placed in two wings separated with the fullest regard to arithmetical proportion, and the most entire obedience to the dictates of the purest morality; while between the wings is a central structure, possibly chapel, possibly library, most probably dining-hall, and in midst a marvel of slate, and wood, and iron—all wire and spire—a very cherub perched up aloft proclaiming high in giddy air the virtues of the self-denying committee and the ceaseless industry of the imperishable, perpetual, and, to all good and virtuous men, wholly inevitable and irrepressible secretary. Such are the obstacles, as the lecturer views them, to the progress of Gothic architecture.

The Chairman said he differed from the lecturer on some points. His learned and eloquent friend, after arguing in favour of Gothic, pulled up, and said that after all we could not have Gothic at this day, and he instanced a Manchester manufactory—the owner of which, if any architect proposed to Mediævalise it, would Mediævalise that architect off the face of the earth. What did they mean by Gothic? Gothic was simply one of those slang phrases,—they would pardon him, but the world was led by the nose by slang terms, and "Gothic" was one of them. For example, a gentleman who wished to give the utmost freedom to all calls himself a Conservative; another gentleman, who might be jealous of the due prominence of others in the country, calls himself a Liberal. Conservative and Liberal were slang terms. The word Gothic was such a term, and even his friend Mr. Powell had been



THE HAMPSHIRE BANK, SOUTHAMPTON.—*Plan of Ground Floor.*

led by it to confound Gothic with a past age and old fashion. The word "Gothic" meant either the architecture of the ancient Goths, or it was simply a term of art, or a slang term, which was the same thing, meaning a certain school of architecture in which the articulations of the building came more forcibly before the eyes of men than in the architecture of the Romans. Gothic architecture was the architecture that showed the true articulations of a building, and it was just as suited to a Manchester mill as any other style—even more suited. It suited the aspect of such a building, and it suited the machinery, because machinery was real and showed its object. A mill building, which the owner would acknowledge to exactly suit his pocket and the convenience of the work that goes on in a mill, would be as truly Gothic in style as could be conceived. He had touched on the point in order to show his agreement with the general scope of the lecture, and that the term Gothic meant the practical common-sense architecture of the nineteenth century. He proposed the hearty thanks of those present to Mr. Powell.

RESTORATION OF WESTMINSTER CHAPTER-HOUSE.

ON the vote of 7,000*l.* for the repair of the Chapter-house at Westminster being asked for in the Civil Service estimates, Mr. Beresford Hope said that this was a very moderate vote for the restoration of the most beautiful and venerable ecclesiastical monument in England. It was a building in which that house sat for 300 years. The restoration would be entrusted to an eminent architect. He believed that people of all religious persuasions were desirous that the Chapter-house should be restored.

Mr. Alderman Salamons said that as all religions approved of the proposed restoration, he heartily gave his consent.

Mr. Cowper explained that the building belonged to the Government, and that it had been used for many years as a record office, but was no longer wanted for that purpose, as the new building in Fetter-lane provided for all the wants of a record office. It was the duty of the Government to repair the building, and to restore it to its pristine beauty.

The Chancellor of the Exchequer said he could not express the satisfaction it gave to the Government to witness the favourable reception of this vote by the House. The Government had not felt it to be their duty in any way to enter into the question of what use should be made of this building in future. The architect to whom the task of restoration would be committed was Mr. Scott. He had already, on his own responsibility, made very considerable progress in the restoration of the Chapter-house.

The vote was agreed to.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the meeting, April 25th, the chairman, Mr. Gordon M. Hills, announced that Lord Boston had accepted the office of president for the ensuing year.

After a number of exhibitions had been made, a paper on "Chelsea and Chelsea People," by the Rev. J. Blunt, was read and illustrated by Mr. Henry Hockey Burnell.

Mr. Blunt first discussed the etymology of the name, and pointed to the probability of Chelsea being derived from *cealc*, chalk, and *hyd* or *hythe*, a harbour, and that this hythe was used for landing chalk, and so had given a name to the place. Also, that it was at Chelsea that two important councils were held under Offa, king of Mercia. The histories of its important inhabitants and its mansions were treated at some length, commencing with that of Sir Reginald Bray (fifteenth century), including those of Sir Thomas More and the successive owners of his house; of Danvers House, Essex House, Shrewsbury House, the Bishop of Winchester's Palace, and Chelsea Palace, or Henry VIII.'s Palace, &c., down to the present time or date of the demolition of the buildings. The Rev. John Bowstead, visitor, commented on the derivation of the name of Chelsea, which he thought indicated an island in a marshy district.

EDINBURGH.

THE Buccleuch Church is now in course of being repaired and altered, under the direction of Mr. David MacGibbon, architect. The building was erected about a century ago, and is not only hideously ugly, but defective in construction. It originally consisted of an oblong block, to which a north transept was afterwards added. The present form is to be retained, and a Gothic character given to it, and the interior is to be re-arranged. The east elevation, towards the street, is to be taken down, and reconstructed in the form of a pointed gable, with a cross at the apex, and a three-light window in the centre, flanked by two single-light windows. A projecting porch will afford access to the body of the church.

The Potter-row United Presbyterian church, a building without any architectural pretension, and situated in the back slums of a densely-populated district, has been disposed of to a type-founder, whose premises adjoin it, and a new church is to be erected at Newington, at a cost of 5,000*l.*, from designs by Messrs. Peddie & Kinnear, architects.

THE HAMPSHIRE BANKING COMPANY'S PREMISES, SOUTHAMPTON.

OUR engravings this week are a ground-plan and view of the Hampshire Banking Company's premises, in the High-street of Southampton. The building is on the site of the old bank, and occupies a frontage of 43 ft. 8 in. One of the instructions to the architect was to the effect that the upper or attic story of the orignal building, with the roof, should remain; and this direction has been observed in the actual work. The banking-room, as will be seen by the plan, is 60 ft. by 27 ft., and it is 21 ft. in height. The rooms left standing form, as they did before, the attic story, and are over the front portion of the bank. The back wall of this story is carried on a wrought-iron girder, placed level with the ceiling of the banking-room. The ceiling has moulded ribs and large panels. To give light to the end of the room furthest from the windows, some of the panels are filled in with rough sheet-glass. The light to these is admitted through skylights in the roof of this portion of the plan, where part of the covering is a lead flat. The flat is raised about 6 in. above the surrounding roof, and the sides are filled in with cast-iron gratings for ventilation. The glass panels, too, are placed on ornamental air-gratings, which rest on the ribs of the ceiling. The banking-room is lighted at the front by five windows, two of them belonging to the ground story, and three to the story above. The two lower lights have fixed sashes, and the three upper lights have casements opening inwards; and there are outside Venetian blinds, which, when not required, are drawn up behind the air-gratings, which appear in the view, and are over the middle range of windows. The lower windows are fitted with Bunnet's revolving iron shutters. There is a gallery all round



THE HAMPSHIRE BANK, SOUTHAMPTON.—MR. R. CRITCHLOW, ARCHITECT.

the banking-room, 3 ft. wide, and 10 ft. from the floor. It is used for the deposit of old books, &c., and is approachable by the directors' staircase, and by a private passage from the directors' room. At the end of the banking-room is the manager's room, 18 ft. 6 in. by 14 ft., and 11 ft. in height. It is lighted by a lantern, which has two of the vertical lights hung on pivots. The staircase to the directors' room is approached by a passage 4 ft. wide, divided from the bank-room by mahogany framing 5 ft. 6 in. in height, and forming a private passage to the manager's and directors' rooms. There is a room for the manager's clerk, and there is a private room for the directors; and over these rooms and the passage is the directors' room, or board-room, about 30 ft. by 18 ft., and 14 ft. in height, lighted by three windows which overlook the garden. In connexion with this room is a lavatory. The clerks' lavatory is in the basement. The basement story is divided into fire and burglar proof well-ventilated strong rooms; and it and the banking-room are heated by hot water. The hall and kitchen shown form part of the residence. One aim of the architect in designing the High-street front, and to suit the peculiar circumstances of the case, has been to give as much height as possible to the portion below the enriched string-course, by carrying up the jamb-moulds of the middle tier of windows so as to include the air-gratings. The materials are Bath stone and serpentine. The centre columns of the lower windows and their capitals are of cast iron. A strong iron palisade, not shown in the view, encloses the whole front. All the interior fittings of the bank and the porch are of Spanish mahogany French polished. The plan shows a passage which it was necessary to leave to premises at the back, during a certain period of years. The building was designed and superintended in the execution by Mr. R. Critchlow, of Southampton. Mr. Epps was the architect's clerk of works; Messrs. Bull & Sons were the builders.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of the members of the Institute was held on Monday evening, at the House, in Conduit-street.

The chair was taken by the president, Mr. A. B. Beresford Hope, M.P., who apologised for being somewhat late in his attendance. He assured the meeting, however, that he had been kept away by duty only towards the interests of architecture, as he had been detained in the House of Commons, where a discussion on architecture had taken place, and where he had spoken and voted on behalf of the grant for the restoration of the Chapter House at Westminster Abbey, which, he was happy to say, had been agreed to. The chairman said that this was the occasion on which they offered the right hand of fellowship to, and conferred well-deserved honours upon, those who in future years were destined to sit in judgment on others, and bestow such rewards as they were now receiving. He then proceeded to present a series of prizes, as follow :—

The Silver Medal of the Institute, with Five Guineas.

To Mr. Charles Henman, jun., of Bedford Villas, Croydon, for a set of twelve drawings, two sketch books, and description of Finchdale Priory, Durham. Motto, "Ad honoram."

To Mr. Arthur Baker, of Inkermann-terrace, Kensington, for a set of twelve drawings, sketches, and description of the East End and Ladye Chapel of St. Alban's Abbey, Hertfordshire. Motto, "Alta petens."

Commended.

A set of seven drawings and description of Trinity (or Christ Church) Cathedral, Dublin, by Mr. Noble C. Colclough, of Glenville, Donnybrook, Dublin. Motto, "Honoris virtutis præmium."

The late Sir Francis E. Scott's Prize of Ten Guineas.

To Mr. H. Renault Mangin, of 26, Devonshire-street, Portland-place, W., for a set of twelve drawings for a Design for a Mansion. Motto, "Study, Think, Labour."

The set of twelve drawings of a Design for School Residences—motto, "Serio"—by Mr. E. W. A. Atkins, of Hammond's Cottages, Lea Bridge-road, Clapton, N.E., were commended.

Student's Prize in Books.

To Mr. J. S. Nightingale, of 42, Parliament-street, Westminster.

The Pugin Travelling Fund was presented to Mr. Hubert Austin.

The Chairman said, he had now to proceed to what he must consider the most honourable part of the duty he had to perform, viz. — the duty, as they all knew, of presenting her Majesty's gold medal to that lover of architecture whom the Institute thinks most worthy of that great distinction. He held it to be a great merit that that reward was not bestowed exclusively upon any particular class or group, but was given to persons of various kinds. On the present occasion they were about to give it to one who had long been amongst them —who had occupied the office of secretary—who had read papers to them, and joined in their discussions, and who was ever ready to give them the benefit of the information he possessed upon any subject that might come before them. He, therefore, felt that in presenting this gold medal to Mr. Matthew Digby Wyatt, they were bestowing it on one who was of them, and thoroughly one of them; but at the same time it was gratifying to know that the fame of that gentleman was not circumscribed within the four walls of the Institute. It was hardly necessary for him (Mr. Hope) to particularize the various claims he had upon this society; but he might mention the service he had performed at the India-House, and at the post-office, Calcutta, and the assistance he had rendered in the construction of gigantic bridges in India. He regarded Mr. Wyatt as a most distinguished combination of the literary man with the architectural investigator and practical administrator. He went to Italy, and on his return to this country he conveyed instruction upon various branches of art, and showed that architecture might be successfully combined with the internal decoration of buildings. When the Great Exhibition of 1851 was projected, he was sent on a Government mission to Paris, in order that he might obtain information as to the best mode of carrying out that Exhibition. Whatever questions arose, whatever struggles took place, whether failures or successes resulted, in regard to the Exhibition, yet there was one portion of the undertaking which justified them in applying to Mr. Wyatt the words *sans peur et sans reproche*. He played no unimportant part in the arrangement of that Exhibition, having been the regulating mind that stood beside the engineer, and gave him the benefit of his taste and experience. From that Exhibition sprang the Crystal Palace at Sydenham; and Mr. Wyatt became the chief organizer of an important and attractive mass of architecture. In the year 1862, when the International Exhibition was undertaken, he was made one of the consulting architects by that clever and amiable man who was no longer among them; and in that capacity he contributed largely to the development of a scheme which required a vast amount of labour to carry it to a state of completion. But it was not necessary for him (Mr. Hope) to dwell upon the many services he had rendered to his profession and to the public. Though still young in years, he was old in the amount of labour he had done; and it was hoped that he would husband the large resources he possessed, and that he would continue to exercise that power and energy which he had long and successfully put in practice. He had the pleasure to hand to Mr. Wyatt the Royal Gold Medal for 1865.

Mr. Wyatt, in returning thanks, expressed the great gratitude he felt at receiving so high a mark of distinction, and he was delighted to find that his taste had proved so congenial with that of the chairman. When he commenced his career in life, he laid down certain principles to guide him, and he had endeavoured to pursue uninterruptedly a course which should enable him to increase his own knowledge and convey information to others. His desire from the outset had been to learn to talk, to write, and to draw, and thus to qualify himself for a position in which he could be useful in the particular calling he had chosen. He was most thankful that he appeared to have secured the approbation of those who were fellow-workers with himself; and he was proud to think it was their vote which had bestowed upon him the great honour he had just received. He was glad to have this opportunity of saying that he had often been benefited by the advice and instruction of others, and that to his brother he was indebted for the whole means of acquiring his profession.

Professor Kerr then proceeded to deliver a lecture on the evidence of architects in respect to the obstruction of ancient lights with reference to recent cases in Courts of Equity.

Professor Donaldson suggested that, as it was now ten o'clock, the discussion on the subject of the lecture should be deferred till a future evening. In the mean time he proposed that a vote of thanks should be passed to Professor Kerr for his interesting and valuable paper. This vote having been agreed to by acclamation, the business terminated.

In the course of the evening Mr. Powell, M.P., and Mr. Ackroyd, were admitted as honorary members of the Institute — a position to which they had been previously elected.

CITY CORPORATION GAS BILL.

THE Committee of the House of Commons now sitting have continued to take evidence from consumers and others as to the failure of the Metropolis Gas Act of 1860, and amongst them, Mr. Jeffrey, of the firm of Howell & James, Regent-street and Liverpool; Mr. Maclure, Maclure & Macdonald, lithographers; Mr. Johnson, watchmaker, Clerkenwell; Mr. Slater, Fore-street Warehouse Company; and Mr. Medwin, of Lombard-street and Regent-street, bootmaker, have given valuable evidence as to the bad supply, bad light, and injury done to goods from the presence of sulphur; and Mr. E. Dresser Rogers was examined at length as to the progress of the general discontent amongst gas consumers since 1850; the unfair application of the distributing system, and the manner in which the capital account and dividends were managed also. Messrs. Jebb & Arntz, of Westminster; Messrs. Hughes & Hedley, of London; Clementhorpe, of Manchester; and Mr. Stevenson, of Manchester, gas engineers, were also examined specially upon the question of quality, and the gas-burners used for testing. The following medical officers were examined as to the purity and illuminating power: — Dr. Letheby, City of London; Dr. Gibbon, Marylebone; Dr. Hillier, St. Pancras; Dr. Aldis, St. George's, Hanover-square; and Dr. Iliff, Newington. Mr. Hayward, engineer to the Corporation, also gave evidence as to the quality and cost of public lighting. Mr. Wilkinson, clerk to the Local Board of Walsall, gave very valuable evidence as to the great advantage accruing to consumers of that town, from the gas-lighting and manufacturing being under the control of the local authorities. The greatest anxiety seems to be displayed: the committee-room is crowded all day by gas consumers, directors, or shareholders, and others connected with the gas companies. Sir John Thwaites, and many members of the Board of Works, are regular in their attendance to watch the proceedings. The array of counsel on behalf of the companies is something formidable.

THE TRADES MOVEMENT.

STRIKES, which have hitherto been characteristic of town operatives, have now begun to spread to the rural districts. A little while ago, a strike was threatened amongst the Scottish labourers, and now a strike of the same kind has occurred in England: at the Berkshire village of Peasemore, near Newbury, the whole of the men employed in some of the largest farms have demanded an increase of 1s. per week on their wages of 9s., and failing to get it they have refused to resume work. Many of the men have large families to support, on an average of 1s. 7½d. for each person.

In the building trades the movement is by no means subsiding: on the contrary, it appears to be extending.

London.—The plasterers have had a delegate meeting in Bloomsbury, to consider the resolution of the masters, when a resolution "That we accept the advance proposed by the employers to 8d. per hour as the standard rate of wages of the trade; and we agree that the hours of labour shall be nine per day, from the 9th of November to the 14th of February," was unanimously adopted.

Bristol.—The operative stonemasons have considered the masters' offer of 29s. per week; namely, 5s. per day for the first five days, and 4s. for the broken day of Saturday, and have refused to depart from their demand of 5s. 2d. for the first five days, and 4s. 2d. for Saturday.

Wolverhampton.—To the Court of Arbitration recently formed in this town between the builders and the carpenters and joiners there has now to be added one between the plasterers and builders. Previously their hours of labour, &c., had been governed by a code of rules which remained in force until the 4th of May this year. A meeting has now taken place between a deputation of the masters and a deputation of their plasterers, in the presence of Mr. Rupert Kettle, as umpire, to decide upon a code of rules hereafter to regulate their connexion one with the other; all disputes to be settled by arbitration, and not by strikes. The code of rules that had for some time been in operation between them, was before the arbitrator, and he went through them *seriatim*. The arbitrator then read through the rules enjoining arbitration for the future, and, explaining them, said that in the event of any dispute of general trade application occurring in the year beginning with the 1st of May, when the rules would come into operation, they would be settled by the delegates of the masters and men respectively then present, he (Mr. Kettle) as umpire, having a casting vote. But if the dispute should be of a personal character, then that an attempt to settle it should be first made by one master and one man chosen by the two disputants. By the terms of an old and but little known Act, he had arranged in the rules that an arbitrator's award might be enforced by the magistrates, and the Act referred to required that the enforcement should cost only fourpence. This Act had not been acted upon because it best suited the interests of some employers to proceed under the terms of the Masters and Servants Act. He, however, had the greatest possible objection to the Masters and Servants Act, for in it the treadmill was enforced as a punishment for men who offended under that Act. For business purposes the rules he had gone through would now be the rules by which the relation between the plasterers of Wolverhampton and their employers would be regulated up to May, 1867, unless any written agreement should be come to between any of them, which was not

likely. A vote of thanks from both parties to Mr. Kettle was then passed.

Birmingham.—Several meetings, which have been presided over by Mr. Thomas Lloyd, have been held in connexion with the building trades of this town. The bricklayers and their employers having met, the notice of the operatives claiming an advance of ½d. per hour was read. The other rules were not objected to, but as a condition was imposed by the masters previous to consenting to the increase, the meeting was adjourned until the 24th, to permit the operatives to consider the matter. On that day, after discussion, it was proposed by the masters to pay the increased rate of wages, namely 6½d. per hour, during the summer, on condition that the men left work at two p.m. on Saturdays, thus giving up the dinner-hour; and to pay a further increase of 1-8th of a penny during the winter. The operatives refused to agree to this. The chairman, after this refusal, said he could not vote for the increase of wages. Meetings of the employers and labourers were held on the 13th and 24th ult. The notice of the labourers claiming an advance of ½d. on the present rate of wages (4d. per hour) was read. After a long discussion, during which the chairman made a comparison with the wages paid in other towns in the Midland Counties and the state of the trade, he decided that he could not give his casting-vote for a further advance.

Liverpool.—A meeting of journeymen carpenters and joiners has been held to consider a proposed advance in their wages, and other matters. The hall was crowded. Mr. George E. Leeves occupied the chair. The chairman said that a memorial was agreed to, on the 28th of September last, to their employers, applying for an advance of 6d. per day in their wages, in order to place them more on an equality with other branches of the building trade. The memorialists called attention to the high price of almost all the necessaries of life, and to the fa t that their wages were 5s. per week lower than other branches of the building trade. They suggested that the advance should take place in the first week in May of this year. They had requested an answer by the 20th of April, but the request had not been attended to. A deputation had been sent from the general society. They had that day waited upon several employers, and he was glad to hear they had been favourably received. A tontine had been established, but the committee had deposited their money in a bank which had suspended payment. Mr. Atkins, a delegate from Manchester, complimented the Liverpool employers upon the kind and courteous manner in which they had that day received the deputation. The employers, he had seen, were in favour of an advance of wages, their general expression of opinion being that they believed the joiners ought not to be behind the other branches of the building trade. He might also congratulate the Liverpool men upon obtaining the advance of 3s., for which they asked; he felt convinced they would have no difficulty. The times and everything demanded such an increase. It was moved, "That unless the advance of 6d. per day and acknowledgment of the working rules be given on the last night in April, all joiners not receiving the same cease work until the same be amicably settled." Some amendments more moderate were proposed, without effect, and the motion was adopted with applause.

Saltburn-by-the-Sea.—The joiners and carpenters of this place have given notice that they shall require an advance of 2s. per week, commencing from the 7th instant, and unless their demands be satisfied they will cease work. We understand the masters are divided in their opinions as to what will be the best course to pursue. The operatives are already receiving 28s. to 30s. per week, and have the Saturday half holiday.

Pontefract.—The journeymen joiners and carpenters recently asked the masters for an advance to 4s. per day, and the masters have agreed to the demand; the present time to be 57½ hours per week.

Barnsley.—About three months ago, the operative stonemasons of Barnsley applied to their employers for the hours of labour to be reduced from ten and a half to nine hours a day, on and after the 1st of May. They also requested that they might be allowed half-an-hour in place of twenty minutes to breakfast. The masters have agreed in the main to the proposals of the men. The only point now in dispute is the twenty minutes for breakfast, but it is expected that the differences will be amicably arranged. The masons' labourers have had a meeting, when they agreed to petition for a reduction of their hours of labour; also, that their wages might be increased from 19s. to 20s. a week. Building operations are now going on rapidly in Barnsley.

Doncaster.—The carpenters and joiners are seeking an advance of wages; and the bricklayers, who a short time ago were advanced to 30s. per week, are now engaged in an effort to cease work at one instead of at four o'clock on Saturdays. As regards the operative carpenters and joiners, the masters met to consider certain propositions made to them, viz.:—Firstly, that the employers should be asked for the Saturday half holiday; secondly, for an advance of 2s. per week on the present rate of wages; thirdly, that the current rate of pay be for the first five days 5s. per day, and on Saturdays 3s.; fourthly, that a code of working rules should be drawn up and submitted to the employers; and fifthly, that notice be given for the above resolutions to come immediately into operation.

Middlesborough.—The building trade disputes, having reference to the joiners and bricklayers, still remain *in statu quo*. The masters have offered to pay the men by the hour, and in one branch, the joiners, the men have agreed to this, but the bricklayers say they shall refuse it under any consideration. The ship-building strike may be said to be at an end.

Sunderland.—The journeymen painters are still on strike for the half-holiday all the year round, the masters having promised it only for the summer months. The cabinet-makers have given their masters notice of their intention to cease work, unless an addition of 2s. a week is made to their wages.

South Shields.—The masons and bricklayers have sent in a notice to their employers for the nine-hours movement. They state that after the 4th of June next the hours of labour must be from half-past five in the morning to five o'clock in the evening.

Newcastle-upon-Tyne.—A large and influential meeting of master builders of Newcastle and district has been held. Mr. W. E. Jackson, of Newcastle presided, and there were also present representatives from Durham, Sunderland, South Shields, North Shields, Stockton, Middlesborough, Hartlepool (East and West), Darlington, Killingworth, Walker, Wideopen, and Carlisle, the latter town being represented by Messrs. Charles Armstrong and J. T. Cockburn. The object of the meeting was to consider the present stand which is being made by the operative masons, to obtain a reduction in the hours of labour, from ten to nine hours per day. After several resolutions had been moved and carried, favourable to a combination of the employers, it was resolved, "That a copy of the resolutions here agreed to be printed and forwarded to the secretary of the operative masons at each town here represented." "That each town here represented form a local association, and forthwith join the General Builders' Association, as soon as the necessary arrangements can be completed." "Besides joining the General Association, it is proposed that the towns here represented form themselves into one district association as well, to discuss local interests." The next resolution was one to the effect that the builders of the towns there represented, without omitting an agreement already in force, pay their masons by the hour, and that those towns who had existing agreements with the masons, which precluded this for the time being, should, as soon as existing agreements expired, admit and follow the payment by hour. Several of the masters stated that they could not see their way to vote in support of this resolution, inasmuch as they were bound under an agreement with their men, dated the 1st of March last, and which would continue in force until the 1st of March next. It was subsequently resolved that the resolutions be printed, and copies of them sent to the secretaries of different operative masons' associations in the district, and that on no account would any of those present employ any of the men at present on strike in Newcastle. It was also agreed to form local associations, and also that those local associations should join the General Builders' Association at Birmingham forthwith.

Dumfries.—The master plumbers have met a memorial of the journeymen operatives in a very friendly spirit, having agreed to pay the advance craved in their memorial. The excitement which has existed in trade generally in Dumfries (in common with almost all other towns in Scotland) has happily come to an end. Several friendly conferences have been held betwixt employers and employed, in a spirit of candour and fair dealing on both sides, the result of which is that a thorough understanding has been come to, satisfactory to both parties, and which involves a rise in the wages of the workmen averaging 25 per cent. The request of the men for the shortening of their time to fifty-seven hours per week (thus enabling them to enjoy a half-holiday on Saturday), was at once and unanimously acceded to by all the masters about four months ago. About three weeks ago, the moulders in the two foundries, Maxwelltown, applied to their employers for an increase in their present wages of from 2s. to 3s. per week. Hitherto the men have been paid, some with 23s., and others with 24s., for sixty hours' labour; and what they asked for was a uniform wage of 26s. The employers were not prepared to recognise the principle of an equalization of wages, but endeavoured to compromise the matter by giving another shilling; to this the men refused to agree, and the result is that they have struck work.

New York.—An eight-hours movement has been begun in New York, in which the carpenters and joiners take part. The more thoughtful of the operatives, and the employers generally, are against the movement. The master shipbuilders have resolved to stop work in their yards for six months at least, if the men strike for an eight hours' day and present wages—4 dols. and 50 c. a day, with gold at 127, and living no dearer in paper than it is in London in coin, sirloin cuts of beef, for instance, at 28 and 30 cents a pound in currency. The shipping merchants have consented to sustain the ship-builders, and the feeling of the community is said to be against this eight-hours movement.

ROYAL SURREY COUNTY HOSPITAL.

ON the 27th ult., the Bishop of Winchester celebrated the inaugural ceremony of this institution, prior to its opening for the reception of patients on this Thursday. After this, the Bishop proceeded to uncover the bust of the late Prince Consort, which her Majesty had directed Mr. Theed, the sculptor, to execute, and had graciously presented to the committee of the hospital. It is about two years and nine months since the foundation-stone was laid by Mr. Lewis Loyd, the then High Sheriff of the county, amid feelings of hope, not unmingled, however, with doubt and hesitation. Since then the works have progressed, and the hospital is now completed. The site is on the slope of the chalk range known as the "Hog's-back," between Guildford and Farnham, within five minutes of the Guildford Railway station, and it was presented to the committee by the Earl of Onslow. The building stands due east and west, and faces the south, and is surrounded by grounds. The main wards contain twenty-one beds each; they are lighted by windows both on the north and south sides and at the ends. The committee seem not to have been inimical to glass, for we find that the window space is about the same as in the Vincennes Hospital, Paris, and the Herbert Hospital at East Woolwich. The financial statement set forth that the cost of the building from first to last had been 15,015*l.*, and of furnishing, 2,000*l.*—together, 17,015*l.* The architect was Mr. E. W. Sower, of Guildford; the contractor, Mr. W. Barnes, of Nutfield; the honorary treasurer is Mr. J. R. Shepard; and the honorary secretary, the Rev. C. R. Dallas.

NEW BUILDING FOR THE LONDON UNIVERSITY.

THE civil service estimates this week included a vote of 20,000*l.* to defray the expense of erecting a building for the use of the University of London. In asking for the money, Mr. Cowper explained that the site was on the northern side of the garden of Burlington House, and that the erection of the proposed building in these gardens, which extended over three acres, would not in the slightest degree interfere with the Royal Academy. Nothing had as yet been done as to the architect.

Lord J. Manners said, he thought the Government was called upon to lay before the House some general scheme of the purposes to which Burlington Gardens and House were to be devoted.

Sir C. O'Loghlen regretted that the site o

the university had not been fixed for the Thames Embankment.

Mr. Tite, while being very desirous of doing anything to add to the beauty and completeness of the Thames Embankment, could not see that in this case they could improve upon the central position of Burlington House for the uses of the university. A fine architectural building was not what was required, but a suitable place in which to conduct the examinations of the university. He considered there was ample space for every purpose in Burlington Gardens. He did not think the erection of the building would at all interfere with the Royal Academy.

The Chancellor of the Exchequer said, Government did not wish to crowd buildings together at any point more than was absolutely requisite; but it must be remembered that the cost of buying sites, if large open spaces were to be left about each building, would be enormous. The case of the University of London was urgent in point of time, and he hoped the vote, which only referred to the two frontages, would be agreed to.

Mr. Cowper said, the question had occupied much of his attention and the attention of Mr. Pennethorne. Both fronts would be designed in conjunction between that gentleman and the architect of the Royal Academy; and the details of the inside buildings would be in harmony, but to be determined afterwards.

The vote was agreed to.

NEW DOCK WORKS, SUNDERLAND.

THE bridge across the Junction Entrance, being the first portion of the work in connexion with the new Hendon Dock, was opened on Wednesday, the 25th ult., by the chairman of the commissioners of the River Wear. The bridge, which is of iron, is lifted off its supports by means of a hydraulic press; it works on a water-centre beneath the pivot of the bridge; after being lifted about 2 in. it is swung round by means of handles attached to each wheel-work. The total weight is about 100 tons; its length, 110 ft.; span, 60 ft.; its breadth, 12 ft. 6 in.; depth of outside girders in centre, 5 ft. The bridge, on being swung round, worked admirably.

These dock works, which have progressed favourably since the commencement, two years ago, are expected to be ready for opening throughout on the 1st October next. They are from the designs and under the direction of Mr. Thomas Meik, the commissioners' engineer. Messrs. Sir W. Armstrong & Co., Newcastle, are the contractors for the machinery.

COMPETITIONS.

British Schools, Merthyr Tydvil.—Seventeen designs were received in competition for these schools. The committee have selected those submitted by Mr. Samuel Hancorn, Newport, Mon., and Mr. Thomas, Landore, as the best.

ACCIDENTS.

A SINGULAR accident was reported by Baron Séguier at a meeting of the French Academy a few days ago. The zinc roof of an organ builder's factory was struck by lightning during the storm of March 8th, and the electricity passed down a cast-iron waste-pipe, which was, however, broken near the ground. The current then left the iron pipe and struck a composition gas-pipe, which it instantly melted, at the same time setting fire to the gas which escaped. The flame was fortunately extinguished before any damage was done. M. Régnault said that, even if the pipe had not been broken, the electric force might have struck the lead pipe, since a perfect lightning-conductor must be prolonged until it comes into contact with damp earth. M. Pouillet expressed similar opinions, and pointed out the necessity of placing zinc roofs in connexion with the earth by means of a special conductor. M. Dumas stated that no less than three cases similar to that mentioned by Baron Séguier had occurred during the storm of the 8th of March, and that the municipal council was engaged in investigating the subject in order to provide a remedy for the danger.

An inquest has been held at Newington on the body of John Farrell, a carpenter, aged thirty-five. Deceased was at work on the roof of a warehouse in William-street, when the ladder slipped, and he was thrown first on the poles of the scaffolding, and thence to some iron-spiked railings below, on the top of which he was so firmly fixed that it required several men to remove him. One of the spikes passed through his hand, and others through different parts of his body to the depth of three or four inches. The jury returned a verdict of "Accidental death."——A coroner's inquiry is being held at Carshalton, relative to the deaths of six men by the fall of a railway bridge, near Sutton, over a new line of railway in course of construction for the London and South Coast Company, and ultimately intended to connect Portsmouth with their London terminus by a direct route. It is known as the Mitcham and Sutton line, and, after crossing Mitcham Common, it runs to the west of Carshalton and joins the existing Epsom line, on the London side of the Sutton station. A deep cutting through chalk, about half a mile from the junction, renders a bridge necessary for the public road. The bridge was nearly completed some weeks since, but a doubt of its stability was entertained in consequence of an extensive fracture in the brick-work showing itself, and reports were current that the bridge was condemned, and that several workmen had been discharged from the work for refusing to endanger their lives by working at it. Three labourers were employed with pickaxes in hewing away the chalk from the sides, and three others were scraping the brick-work preparatory to pointing. At this time, without any warning, the whole mass of brick-work was torn asunder at the abutments, and the six men were buried under 100 tons of displaced bricks. The contractor for the line is Mr. Joseph Turbank, of Newport, Monmouth; and the construction of the bridges is underlet to Mr. Henry King, of Lower Norwood.

TRADE LIBEL.

THIS was an action (Bail Court), brought by the plaintiff to recover damages for a libel published by the defendant in a publication called *The Operative Bricklayers' Society Trade Circular and General Reporter*. The defendant pleaded that he had published the article without gross negligence, had made an apology, and he paid 40*s.* into court.

The plaintiff last year was engaged as foreman of the bricklayers at the Surrey Theatre, and he had so succeeded in obtaining the respect and confidence of his fellow-workmen that they subscribed and presented him with a ring. The defendant was the printer and publisher of this paper, which purported to be the representative of the Builders' Society, and in that paper the defendant published the libel in question:—

"Notice.—At the Surrey Theatre the notorious Bilborough is foreman of the bricklayers. Being no scholar, he is compelled to get a man (Howard) to read the plans for him, and he was the instrument of Bilborough. The clerk of the works, being always on the ground, was an eyesore to Bilborough, and it was determined to get the clerk of the works dismissed."

The libel charged the plaintiff with conspiring to get the clerk of the works dismissed. The effect of the libel was that the men at the Surrey Theatre struck work and declined to go to work again unless the plaintiff was dismissed. The contractor for the works found it necessary to remove the plaintiff from those works, and he sent him to other works in the country, about 60 miles from London. In reference to the defendant's plea, it was urged that all this arose from a personal quarrel, and that this publication was not justified as having been published for the public interest.

The Judge summed up. It could hardly be said that the defendant was guilty of malice, because he did not know the parties; but could the jury acquit him of gross negligence, when the foreman of the defendant stated that he inserted everything that came from the secretary of the society?

The jury returned a verdict for the plaintiff—Damages, 10*l.*

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening, the 20th ult., at the House, in Conduit-street.

Mr. R. W. Edis in the chair.

Mr. G. W. Drinkwater, of 47, South Molton-street, was elected a member of the Association.

A report was brought up from the sub-committee of the library containing certain suggestions, and recommending that a small annual subscription should in future be charged to members availing themselves of its advantages.

The Chairman said that the report in question had been submitted by the sub-committee to the general committee of the Association, who had approved it, and that it was now recommended for adoption.

A motion for the adoption of the report was then put and agreed to. [The step is not a wise one.]

A notice of amendment to one of the rules of the Association to be submitted at the next meeting led to a short discussion. The Chairman explained that it was considered for the benefit of the Association that there should in future be two vice-presidents instead of one. If this alteration of their constitution were agreed to, the Association would have it in its power to offer the distinction of vice-president to gentlemen whose acceptance of it would enable them always to have either their president or one of their vice-presidents in the chair at their meetings.

The Chairman announced that the committee were about to place themselves in communication with architects or engineers having the charge of interesting buildings or works in the metropolis or its neighbourhood, with the view of obtaining permission for the members of the Association to visit them on Saturday afternoons, and that it was proposed to resume such visits early in the ensuing month. The Chairman also announced that the water-colour drawing class had been inaugurated; and that the class for voluntary examination had held a preliminary meeting that evening, at which it was resolved to proceed, and that the necessary officers would shortly be chosen.

Mr. Riddett brought up the report of the voluntary examination class stating the number of meetings which had been held, the average attendance, &c., and the circumstance that one of the five successful candidates who had passed the examination of the Royal Institute of British Architects belonged to the class.

Mr. R. O. Harris then read a paper on Mechanics as applied to Architecture, which he illustrated with diagrams on the drawing-board.

It was announced at the conclusion that the next drawing in the class of design would be "a chimney-piece," and that at the meeting following that for general business purposes, Mr. B. Ferrey would read a paper containing suggestions to young architects for facilitating their correspondence with Chartered or Diocesan Church Building Societies, with hints on some practical points.

THE BELFAST ALBERT MEMORIAL CLOCK TOWER.

A CORRESPONDENT objects to our recent notice of this subject; and, in the course of a long letter re-stating past proceedings, says,—

The article I am referring to concludes with what purports to be an extract from a Belfast newspaper, in which it is made to appear that Mr. Barre's design admittedly did not comply with the "conditions of competition," because it is now acknowledged that it will require 1,500*l.* in addition to the 1,800*l.* fixed by the "conditions" to complete it. That article does not justify the purpose the extract from it was designed to serve. The writer of that article referred to the circulation of a calumny, namely, that Mr. Barre's design could not be constructed for 1,800*l.* exclusive of the foundations, and that his friends had subscribed to guarantee the contractors to the extent of 1,500*l.* additional. This statement the writer denounces as devoid of the slightest shadow of truth; but he very legitimately argues that the persons who for base purposes circulated such falsehoods, by so doing unwittingly paid the highest tribute to the committee of selection and to Mr. Barre; for what higher compliment could be paid to the taste and judgment manifested by the committee in selecting Mr. Barre's design, than to allege it was so superior to all others submitted, as to require, in the opinion of those who circulated the story, 1,500*l.*, in addition to the 1,800*l.*, to complete it?

This was arguing on the assumption that the story of the private subscription, and the alleged 1,500*l.* guarantee to the contractors, was true: it was an *argumentum ad hominem*, and was surely fair to expose the blundering inconsistency of those who enviously sought to detract from the merits of Mr. Barre's design; but the extract, as given in your journal is grossly perverted *to affirm as true* what you will perceive it was the main object of the article in the *Banner* to reprobate as calumnious and false.

Sir, in Belfast we are rather a peculiar people, and some of our peculiarities have obtained for us by no means an enviable notoriety. What would you think in England of gentlemen who would retain their seats on a committee especially formed to construct any given work, and nevertheless openly avow their determination to thwart and defeat the work by any means—fair or foul? Yet, sir, such I assure you is the exact case of some gentlemen who still ungraciously retain their seats on the committee entrusted with the construction of the Belfast Albert Memorial!

But this evil, I trust, will speedily be remedied. At a meeting held the other day, it was proposed that such persons should now retire. All their efforts at jobbery have so far been signally defeated, and surely it is full time for them to relieve the committee from the embarrassment of their unsympathising presence, and permit those who possess an honest zeal in the cause to carry out unimpeded a work which will be highly ornamental and useful to our town, and at the same time, as a memorial to the Prince Consort be second to none in the three kingdoms for tastefully combining elegance and simplicity of design with economy of construction.

FIAT JUSTITIA.

ROTHERHAM AND SHEFFIELD.

SIR,—I was glad to observe that you noticed the intended scheme of outfall drainage proposed by the Sheffield worthies, and who, good easy souls, simply content themselves with throwing all their sewage beyond their own district to Brightside; and this concentrated essence of all their sweetness is to be turned into the River Don for the especial delight and benefit of us unhappy people at Rotherham, Doncaster, and those who have the privilege of living below Sheffield, and stray along the mossy banks of the shining river, and inhale the delicious perfume that arises from this meeting of the beautiful waters.

I perceive that the Royal Commission on Rivers has made a first report on the River Thames,

after many months of inquiry, and doubtless deep research into the origin of all the evils attending the fouling of that noble stream; but if some visitation of Providence, which appears looming in the distance, or other means, do not accelerate their movements, we shall be, I am afraid, a long time before we reap the benefit of their largely-acquired knowledge and experience, more particularly if our rivers are to be traced up from their embouchures to their sources; and as much time, doubtless, will elapse before the collective wisdom of the nation will legislate upon the subject; and another generation, with a heavy percentage of victims arising from a maladministration of our sanitary laws, will pass to that bourne whence no traveller returns, before any effectual remedy is applied.

The fouling of our rivers and brooks is an evil of such a monstrous mien, such a blot on the eyes of our boasted legislative wisdom and scientific knowledge, and so little has been done in our large towns to positively and absolutely improve the state of the public health (see Registrar-General's returns, and *Builder*, April 14th, 1866) that I am disposed to wish we had a sanitary Cromwell, who would clear away at one fell swoop these *pseudo* Health Commissions, and Boards of Health, and restore us to that ancient order of things so much boasted of by our forefathers. By their works shall we know them; by the heavy mortality do we know our sentries are sleeping at their posts, and nothing will arouse them, except perhaps the thunder of the *Builder* and enlightened press of the country.

We health-loving Rotherhamites have suffered so much, as is patent to the world, from the maladministration of our sanitary affairs—the dirty interest predominating over all others; a death rate of 31 in the thousand, equal to those murky dens of disease illustrated in your journal, and which speaks trumpet-tongued as to our drainage, our short water supply (notwithstanding an additional 10,000*l.* spent, to be added to the 30,000*l.* already spent), in comparison to our present wants and probable increase of population; our foul polluted atmosphere from smoke, which happily (thanks to Sir Robert Peel) by the new bill may be lessened; our badly paved streets, and worse repaired macadamized roads (awake up, ye shades of Telford and McAdam, and throw a little light on our modern road-makers!); our befouled and bad system of house drainage, and other causes, that I fully expect, if King Cholera should unhappily visit us, which is more than probable, he will find many easy predisposed victims, and bring, like the "Rotherham fever," sad distress, bereavement, and terrible desolation to our happy hearths and homes.

Your sanitary "Commissioner" did the state great service at Sheffield. It is true, it arrayed the dirty small-cottage interest against you, but the seed sowed in that barren soil is fructifying and working an immense deal of good; and probably another visit from your dread self will scatter the wily and determined enemies of health, and happily restore our town to such a state of purity and cleanliness as to be a fit place for residence. B. B.

THE CRUCIFORM TEMPLE, AT CALLERNISH, IN THE ISLAND OF LEWIS.

SIR,—Your interesting papers on the Market Crosses of Scotland, induce me to send you the following account of a pre-historic erection of forty-three standing stones, averaging from 7 ft. to 13 ft. in height, placed nineteen in a circle round a more lofty stone, 16 ft. 3 in. high, the circle having arms extending south, and east, and west, with a long avenue formed northward by a double row of standing stones, which gives the true figure of the cross. Some years ago I was employed by the proprietor in the removal of the peat moss which for ages had accumulated around these stones, to the depth of 5 ft. Nothing was found under the moss, or in the altar chamber, except more greasy-looking moss, and some charred wood, which show that these remains of a forgotten age may have been erected when the island was wooded, it being now bleak, bare, and desolate. As year by year but a stinted growth of vegetation would be added, the lapse of time must have been great since those weird-like stones were set up, for even ages before the formation of moss, the sun, moon, and stars, may have shone upon the adoring worshippers as they performed their mystic rites in these singular relics of the misty past. There are several other circles on the neighbouring high places, one of which is formed by stones 7 ft. to 13 ft. high, and thirteen in number, which must have been the Evil One's.* May not the Freemasonry of the present day retain the ghost of mysticism with which these rude memorials are associated? The huge centre stone has a small altar-built chamber to the east of it, with another opening from it, and a drain flowing eastwards, for what object some aspirations of our Christian worship and notion of burial may yield some clue. As the tourist's season is at hand, a visit to these relics of the year of light (may be) 3000, would afford to many a lad and lass a quiet retreat, in which to tell the old, old tale.

J. K. (Brother, 108).

* These thirteen stones remind us of the thirteen priests (a "devil's dozen") who stand and move round a central "Deoda," or god-possessed high priest, whom they consult, in an incantation still practised by the D'Himals of the Subhimalayas, at the order of the Rajah of Sikkim, for predictions as to the coming harvests.—ED.

IRELAND.

Mariners' Church, Kingstown.—At the east end of this church there is now in course of erection a tower 20 ft. square at base, and spire 185 ft. high to top of vane, a vestry, a staircase to a gallery in one transept, and a porch; and the entire building is undergoing improvement under the hands of Mr. Thomas Turner, architect. The old building was executed in a style of Gothic but little superior to that best known as the "Batty Langley" style, and requires considerable modification to bring it up to the mark of the ecclesiologist of the present day. The old gable bays are being removed, and substituted by stepped gables, with pierced and enriched pinnacles at the kneelers, and enriched finials at the apices; the old tory-top hood-mould terminals to the east window are being removed, and supplemented by enriched strings at the level of the spring of the arches. The spire is square on plan, and is to be carried up with a slight entasis; it will be pierced with foliated circles and relieved with enriched bands at intervals. At the broach are four pierced pinnacles. The tympana of the new doorways will be pierced with foliated circles, and protected by deeply-recessed arched mouldings springing from shafts with carved capitals. The chief part of the work is being executed in Dalkey granite; the carving in Edenderry limestone. The cost is about 3,000*l.* Messrs. Crowe & Sons are the builders.

Union Bank, Dublin.—At one corner of College-green and Church-lane, which leads from College-green to the new and nearly completed St. Andrew's Church, well advanced towards completion, the new Central Office of the Union Banking Company presents a conspicuous feature to the busiest thoroughfare of the city. This site, in front of Trinity College, promises in the course of a few years to present a gratifying indication of the progress of architectural taste, and public appreciation of it, in the Irish metropolis. New and attractive-looking insurance offices and mercantile chambers are taking the place of the dingy shop-fronted offices which heretofore were a disgrace. Of those now in course of completion, next to the New Provincial Bank already noticed, the most important is the New Union Bank. The decorative character of this building belongs to none of the known styles or classes, but may be described as having a classic or Roman basis, treated with a free English eclecticism, characteristic of the present age. And although liberties are taken, such as the introduction of pointed hood-moulds over semicircular opens, which many would have deemed incongruous, the effect is pleasing. The chief entrance is at the angle, and is skilfully planned on a curve, the pediment not presenting that overhanging appearance which commonly forms an objection in situations of the kind. The door is flanked with columns of polished Aberdeen granite, having carved capitals surmounting these; corbels support the pediment, the tympanum of which is to contain a carved device. The building,—which extends 56 ft. 3 in. in College-green, and 55 ft. in Church-lane, and is 66 ft. high to cornice, and 90 ft. to the flat on top of the roof,—consists of three floors, with a basement and an attic; on the ground-floor is the banking-office, 39 ft. 6 in. by 29 ft. 6 in., having a semicircular recess separated from it by an arch springing from Galway and Cork marble columns, with enriched carved caps, at the side within the counters, and a semi-domical panelled ceiling, light being admitted through stained glass in the apsidal roof. This office is lighted also from two sides. The ceiling of the office is 30 ft. high, and is coved and groined, the cove springing from a carved cornice in Caen stone; the dressings inside to the windows and arches are executed in Caen stone, the windows having shafts, and moulded arches inside as well as outside. There are commodious offices, averaging 20 ft. square, for manager, runners, and other officials; and, in addition, chambers for letting, on the ground-floor, in Church-lane, and on the upper floors throughout. The chief chamber, on the first-floor, measures 30 ft. by 18 ft. A portion of the building is so planned as to be suitable as a residence for the manager, should such be thought desirable; for the purpose, a kitchen has been formed in the basement. There are also in the basement book-safes and strong-rooms, with a private stair for access. The roof is of a peculiar form; it is constructed in two stages, with a terrace half-way up, and a flat on the top. It is relieved with dormers, and will have ornamental iron cresting. Over the angle the roof is treated in a manner not quite as satisfactory as the remainder, presenting, as it does, the appearance of a slate truncated spire, having no connexion with the substructure. A handsome block cornice surmounts the main faces of the building, and chimney-stacks, of graceful proportion, surmount the roofs. The principal fronts are well executed in bluish limestone, from the Sheephouse Quarries, Drogheda, with the carving in Portland stone, and to the first-floor polished Aberdeen granite columns, with moulded bases and carved caps. The windows have semicircular arches; the tympana in the arched heads carved in ornamental devices. In the spandrels formed by the arches of the upper floor windows, are circular panels, through the centre of which are run stout iron bars, well secured, and made to slide out so as to serve for hanging future scaffolding, when repairs or examination of gutters, windows, &c., may be necessary. A portion of the building in Church-lane, is possessed of a distinct character: in it are the entrances for clerks, and to several of the chambers intended for letting. The face is constructed with red brick, with blue brick bands and dressings, relieved with limestone strings and cornice. The windows will be glazed with plate-glass, and Bunnett's revolving shutters will be used to the principal windows. The fittings and furniture throughout will be designed in correspondence with the building. The total cost will be 13,000*l.* The architect is Mr. W. G. Murray, with whom is associated Mr. Thomas Drew. Mr. George Moyers is the builder.

ITALIAN NOTES.

AFTER the long expectations and promises reiterated respecting the plans for enlargement of Florence, the great local desideratum now assumes more definite form, and presents itself, under sanction of the authorities, as a determined reality to be brought into completion after the lapse of twenty-five years. No fewer than thirty-nine different projects have been given in, conformably with the invitation made by the magistracy, in September of last year; one of those recently reported on by the third committee, secures an economy of 700,000 francs on the estimates adopted by the municipal council. We have just seen in the Communal Palace, the plan, definitively approved, by the Chevalier Pozzi, the engineer, who receives the high honour of being appointed to found a new Florence, so to say, within the next quarter of a century; not that the inspection to which the public was invited proved very satisfactory, as nothing could be worse than the disposal of the small ill-lighted room where the drawings, coloured on several pieces of glazed linen, lie spread on a table in the midst of space so narrow that one cannot walk round it. But we are assured that Pozzi's project comprises all that has been decided upon and desired, for comfort as well as embellishment; the widening of the narrower streets, busy with traffic; the building of new markets, opening of piazzas, prolongation of the Lung' Arno, and formation of other quays similar, with demolition of many old houses along the river's left bank, where the city is less extensive. These designs range entirely within the limits of the actual walls; and we have yet to wait for

what is resolved upon in the enlargement, long since announced, beyond that circuit. One thing we are glad to report, that the municipal engineer, Signor del Sarto, has orders to present a memoir, with other designs, exhibiting all the points, and all the objects where respect is due to artistic qualities or historic memories; and *à propos* of such interests, we can testify that hitherto not one of the things renewed or things destroyed has caused any injury to the beauty, or interference with the characteristic features of the "Etrurian Athens."

By the end of April is to be finished the third of the immense establishments built by the Florentine *Società Edificatrice*, a numerous company of shareholders, offering cheap habitation in healthy and pleasant quarters to the poor at an average of 70 francs per annum for two unfurnished rooms. The only one of these vast buildings yet tenanted is in the new region of rectilinear streets near the Arno, and not far from the entrance to the Cascine; another, far from complete, is near the northern walls, on the level of hitherto scarce occupied space between the S. Gallo and Pinti gates; and the third, soon to be ready, rises beyond the same line of walls on the flat cultivated ground between the city and the first slopes of the Fiesole mountains: this conspicuous pile, whose inmates will enjoy one of the finest situations in Tuscany, being by the architect, Signor Antonietta of Milan, containing 350 rooms, divided into 104 suites, with four stories above the ground-floor. An improvement of quite another class, which we have to report with pleasure, is the opening to the public of the ancient refectory at the S. Croce convent, long given up by the friars for the purposes of a weavers' workshop, that contains the great fresco of Giotto, the Last Supper, largest, we believe, among all his single pictures, hitherto left so far concealed by the looms filling the interior, that it has been impossible to secure any proper point of view; but fortunately, by the 1st of May, the artisans will have to quit and art-lovers be allowed free access in their place. It was from the fine apostolic heads in that *Cenacolo* that several reliefs round the portals were copied, in free imitation, among the sculptures prepared for the new *façade* of S. Croce. Another long-closed interior to be presently made accessible, is the covered gallery connecting the palace of the Signoria with the Pitti, carried across the river by the Ponte Vecchio, a contrivance of the fears of despotism characteristic of the Medici government, by which this structure was thrown up to unite the grand-ducal residences.

In the great vaulted hall, once serving for councils, in the Pretorio, we now see exposed on trial the cast from Michelangelo's "David," prior to the erection of the bronze proposed for the same place; and, being the sole object in the centre of the stately architectural scene, with a background of dusky walls, the effect of this colossal figure struck us as more impressive than is the original, in marble, before the Palazzo Vecchio. On one, but it is not decided on which, of Florence's piazzas, is to be raised the colossal statue of General Fanti, for which monument a committee *ad hoc* has already collected 70,000 francs; but we do not hear that the sculptor has yet been chosen. The number of memorials to Italian celebrities, now in project or progress, has been caught at as matter for jest by some Florentine papers, with the coining of a new term,—*monumentomania*,—to point the shaft of ridicule at what is, in fact, a very natural, and, indeed, noble manifestation of excited public feeling, of the force of a patriotic sentiment perhaps carried too far in certain exigencies, but essentially generous. From the several Italian cities we hear, indeed, of a surprising number of such undertakings, for the most part of a nature to involve considerable expense. In Florence, the monument to Goldoni (to whom, as yet, no sort of memorial has been raised), for which the statue is ready in the cast, by Cambi, and for the costs of which the Philodramatic Academy promise a series of performances on the stage; also that of Piccolini, for S. Croce, towards which the same dilettanti company pledge themselves for twelve theatrical entertainments. At Arezzo, the monument to the Camalduiese monk, Guido, of the eleventh century, who invented the musical *solfeggio* derived originally from the initial syllables of the hymn for St. John's Day,—

Ut queant laxis resonare fibris, &c.,

and towards the cost of which memorial was given, three weeks ago, an entertainment of music and *tableaux* at the Pergola Theatre, in Florence, besides another of operatic character at Perugia. At Naples, the statue of Tasso is just finished by the Sicilian artist Cali, to be erected, however, at the poet's birthplace, Sorrento. At Pisa, we believe, the monument to Madame Catalani has been recently placed in the Campo Santo; and from that city we hear of the intention, characteristic of the spirit of the time, to strike a medal in reprobative commemoration of the horrors of Barletta, that have excited such a thrill of indignation against the fanatic faction throughout Italy.

The "Questura" of the Italian Parliament has opened a competition for the works in the Cinquecento Hall of the Palazzo Vecchio, with a view to superior accommodation for the Chamber of Deputies there assembling; and, by the 15th of June must be presented all plans got ready, with estimates of costs, determination of time, &c., a premium of 4,000 francs being promised for that approved, irrespectively of the emoluments of the author, should the same be chosen as directing engineer for the works requisite. Besides the provision for things essential,—acoustics, lighting, ventilating, sitting room for 400 deputies, for ministers, secretaries, reporters,—it is required that tribunes should be ready with accommodation severally for sixty diplomatists, sixty senators, eighty members of the National Guard, 150 ladies (with gallantry creditable to the House), 200 of the male public admitted by orders, and as many without such. Hitherto the gallery for gentlemen with orders has been only objectionable on account of its height above the level of those who speak; that for the unprivileged public, about as uncomfortable as could be, and often overwhelmingly crowded.

We hear of the restoration, lately finished, of the façade of S. Michele, Lucca, a fine example of the style whose main centre was at Pisa, in the twelfth century, when that church-front was rebuilt; and, if the accounts reaching us be correct, this last may rank among the praiseworthy examples of Mediæval restoration effected by the Italians within recent years.

COMPENSATION CASES.

Holborn-hill.—Hodge v. *The Corporation of London.*—This case was tried in the Lord Mayor's Court. Mr. Frederick Hodge had been in partnership with Mr. Darton, the well-known bookseller and publisher on Holborn-hill, where the business had been carried on for sixty years. The claim for injury to the business and for the leasehold property was about 9,000*l.* Mr. Lloyd and Mr. Pontifex were for Mr. Hodge; Mr. Hawkins, Q.C., and the Hon. Mr. Thesiger for the corporation. Witnesses were called on the part of Mr. Hodge, who had joined Mr. Darton in 1862, and soon afterwards purchased him out. The City served Mr. Hodge with notice a long time ago, but had not taken the premises, and others which he had procured in the Strand had not been opened. Among the items was one of more than 2,000*l.*, which, it was stated, would have to be incurred on the books and plates by the removal to the Strand. It was alleged that the business would be very materially injured by the removal, and a large sum on that ground was claimed. Mr. Hawkins addressed the jury, and complained that the claim had been greatly exaggerated, adding that 4,000*l.* would be ample compensation. The jury in a short time awarded 5,300*l.*, including 1,500*l.* for the leasehold property.

CHURCH-BUILDING NEWS.

Burgess Hill, Keymer (Sussex).—A new church has been erected for this place, which is almost a Brighton suburb, that has sprung up in the vicinity of the Burgess Hill and the Keymer Junction stations. The work has been accomplished at a cost of 6,000*l.* The edifice has been consecrated. The edifice was originally intended to be cruciform, but the discovery, in taking down the ancient building, of an aisle on the south side, led to an alteration in the plans, and after a long correspondence thereon with the Church Building Society, which ended in a withdrawal of their grant, it was resolved that the forgotten aisle should be reproduced. The nave, which has an oak roof, perfectly plain, is now separated from this aisle by Gothic arches, whilst there is a gallery at the west end. The nave is separated from the chancel by a wall, leaving only a narrow rounded archway, through which the communion table is visible. On one side of this archway is the pulpit, which is low, of carved oak. The chancel itself formed part of the old building, and is the only portion of the church which has not been rebuilt. Its walls, therefore, present a slight exception to the general character of the architecture of the church, which is in the Early Decorative style, the old Norman features having been preserved at the east end. The chancel decorations were from patterns discovered in cleansing the walls from the accumulation of the dust of years and from churchwardens' whitewash. The roof of the chancel has been repainted, from designs prepared by the architect, by Mr. Robertson, of Hurstpierpoint. The east wall and chancel arch are decorated. The chancel pavement is of Minton's tiles. The painted windows were executed by Mr. Hardman, of Birmingham, and are generally illustrations of our Saviour's life on earth. Commencing with the east window in the aisle: this is a representation of the "Annunciation," presented by the Turner family. Next is the "Baptism of the Saviour;" and then the "Adoration of the Magi," presented by Mr. Hugh Saunders, of Keymer and Brighton. Then follows, the "Flight into Egypt." Over the western gallery is a large double window, depicting "Our Lord's Baptism" and "Temptation;" and on the north side of the church another double window, "Our Lord's Agony in the Garden," and the "Saviour in the Judgment Hall," both windows (west and north) presented to Archdeacon Garbett by the parishioners of St. John's Common. On the north side is another double window, the "Condemnation" and the "Crucifixion," given by the Jenner family. Above the chancel are "The Descent from the Cross," "The Ascension," and "The Lord in Glory," all presented by Mrs. E. Clay, of St. Margaret's, Brighton. The exterior of the new edifice is of the usually plain, unpretending architecture of the Sussex churches; but the spire, like the old one, is of double the height often allotted to country churches. The architect was Mr. E. E. Scott, of Brighton. The rebuilding was performed by Messrs. Cheeseman & Co., of Brighton, and the restoration of the ancient chancel was left to Mr. Norman, of St. John's Common. The cost of the building, which will accommodate about 300 persons, has been met by a subscription which raised 1,100*l.*, and about 690*l.*, the result of a rate.

Chelmondiston (Suffolk).—The church of St. Andrew has been reopened after restoration. The edifice has been almost entirely rebuilt; the small portions of the old walls, which have been permitted to remain standing, having been refaced, so as to give uniformity to the whole work. It formerly consisted of a tower, nave, and chancel, and to these have now been added a north aisle, and a north chancel aisle, the roofs of which consist of a continuation of the roofs of the nave and chancel. The lower part of the walls of the tower, which, as well as those of the church itself, are built of flint and cement stone, have been left standing, but all have been refaced, except the north wall. The upper portion of the tower, which was finished with white bricks, has been rebuilt and carried higher, and four belfry windows introduced. The south porch, which is faced with flint, has been restored, and the plaster knocked off the internal walls, which have been repointed. The roof is of plain tiles, and stone crosses have been placed at the gables of the nave and chancel. Great alterations have also been made in the interior. The high boxes of pews have been removed and open benches substituted. There are 400 sittings, being 100 more than heretofore. A gallery which blocked up the tower arch has been removed. In the west wall of the tower is a three-light stone window, which has been substituted for the old window, which had wooden mullions; and at the west end of the north aisle is a two-light window. The aisle, which is quite new, is separated from the nave by arches springing from circular columns, in which the transition style of the church is preserved. Though the whole of the north wall and the greater part of the south were pulled down and rebuilt, the roof was propped up, and the old oak hammer beams, principal rafters, and purlins remain, new common rafters of stained deal having been introduced, and the roof filled up with lath and plaster. A stone chancel arch has taken the place of the old wooden one; it is supported on either side on three columns with caps and bases standing on corbels carved to represent foliage. The nave is separated from the chancel by a plain stone screen, which, increasing in height

as it approaches the south wall, forms the pulpit. The east window is similar to the windows of the nave, a single light lancet window, but it is filled with stained glass, representing a full-length figure of our Saviour. Whilst the work of restoration was going on a two-light stone window was found bricked up in the south wall of the chancel; this has been opened and restored and filled with stained glass, and in each of the lights is represented an angel bearing a scroll, on one of which is, "I am He that liveth and was dead," and on the other, "Behold, I am alive for evermore. Amen;" and a second window in the same wall has also been restored. There is another stained-glass window in the chancel aisle, on which is a figure of St. Andrew. The roof of the chancel is of stained deal, and is new. This part of the church is paved with Minton's encaustic tiles. Under the centre of the nave is a furnace so arranged that a continual stream of cold air passes under the fire, by which means it becomes heated, and is then sent up into the church. The smoke is carried away by a flue which has its exit at one of the corners of the tower. Mr. E. C. Hakewell, of London, was the architect of the restoration, and the builder was Mr. Henry Luff, of Ipswich. The stonework was executed by Mr. Frewer, of Ipswich, and the wood-carving by Mr. Polly, of Coggeshall. The total cost of the restoration amounts to about 1,500*l.*

Fawley (*Wantage*).—The new church at Fawley has been consecrated. The style is Early Mediæval, and the church is built of stone from Bisley Common, near Cirencester, hammer-dressed, with Bath stone facings. It contains nave, aisles, chancel, apse, and vestry. The reredos was made by Mr. Earp, of Lambeth, from a design by Mr. Street, and consists of three compartments, the centre panel containing the Crucifixion, filled in with mosaic. There will be accommodation for about 200. On the north side of the chancel is a small organ, by Mr. Humber, of Kennington. The roof of the church is open timbered, and the roof of the chancel of groined stone. The pillars of the arches are of polished Devonshire marble, with carved Bath stone capitals; the pulpit being also of marble, while the font is of carved stone. The interior is fitted with carved oak benches. The floor is laid with encaustic tiles by Mr. Godwin. The contractors were Messrs. Rogers & Booth, of Gosport, and the architect Mr. G. Street. Mr. Cowley superintended the works, and Mr. Clouting acted as clerk of the works. The cost of the structure was about 3,000*l.*

Weobley (*Herefordshire*). –The parish church has been re-opened after having undergone an extensive restoration. The chief necessities were the reparation and partial renovation of the roofs, and the restoration of the ancient benches, and it was to these operations that the work was mainly directed. The nave roof has been taken down and re-erected in such a manner as to confine the wall pieces to the piers between the windows, where they are supported on carved corbels. The aisle roofs have been renewed in Baltic pine, with the exception of some old oak beams which have been retained. The roofs are now distinct, allowing light to reach the nave through the clerestory windows, and the west front now presents a façade terminated by three gables. The old pews have been replaced by stained deal benches, while a pulpit and lectern have been carved out of oak from the ancient roofs. Two chantry screens at the east ends of the aisles have been repaired and decorated with painting. The pavement of the passages is partially composed of the old slabs (many of which are monumental, and some engraved with crosses), and partly of Lugwardine tiles arranged in geometrical patterns. The large west window has been renewed and slightly shortened from the top, in order to clear it from the timbers of the roof, and a large rose window and two lancets take the place of a modern window which disfigured the chapel of the south aisle. The dark slates which replace the old lead are relieved by ridges of red Broseley tiles. Not to mention every detail, it may be stated that this restoration is completed by the reinstatement of the old churchyard cross. One hundred additional sittings have been obtained, the entire area being sufficient to accommodate at least 500 persons. The sittings are all free. The whole of the work of restoration has been carried out under the superintendence and from the designs of Mr. C. West, architect, by Mr. Bigglestone, builder, of Hereford; and the corbels, &c., were carved by Mr. Forsyth, of Worcester.

Hallow (*Worcestershire*).—At a meeting of the committee appointed to promote the construction of the new church, the plans and specifications produced by Mr. Hopkins, of Worcester, were approved of and unanimously adopted. The site of the new church will be at the entrance to the village from Worcester. The building will be in the Decorated style, including a chancel, with vestry on its north and space for children on its south side, nave with aisles, western tower with spire, and stone porch on south of nave. The nave is to be of four bays, and the woodwork of the roof supported by five stone arches, giving the appearance of groining; and the pointed arches separating the nave from its aisles will rest on circular columns. In each bay of the clerestory is to be a circular traceried light. Flying buttresses will conduct the pressure of the roof arches to the buttresses of the aisle walls, the latter being ornamented with pinnacles. The east window is to be of three lights, with circles in traceried head: the west window will be of greater pretension, consisting of five lights, with wheel in tracery. Two-light windows, with tracery, will be in the aisles. A feature in the structure will be the tower and spire, being respectively 73 ft. and 70 ft., or a total of 143 ft. above the ground; it is a broach spire. About 1,500*l.* are still wanting to complete the whole design. The church will contain 432 sittings.

Machynlleth.— The parish church has been re-opened, after being reseated and otherwise renovated. In 1864, Messrs. Poundley & Walker, of Liverpool, architects, were instructed to survey the church and submit designs for a new chancel and re-arrangement of the pewing, but the funds at the disposal of the committee were insufficient for the execution of the entire scheme proposed. The plans were consequently reduced, with provision for the addition of the chancel at some future date. The works recently executed comprise the erection of a chancel arch, supported upon pillars of local slate with stone caps and bases, having sub-arches opening into the sacrarium, which, when the chancel is completed, will be seated for the choir; the removal of the west gallery and re-pewing of the nave with low open seats of stained deal; the re-plastering of walls and decoration of nave ceiling by stencilling on a faint blue ground. The several aisles and chancel are paved with encaustic tiles, and the entire works have been executed by Mr. James Porteus, of Welshpool, builder, under the superintendence of the architects.

Bangor.—A public meeting, convened by the Dean of Bangor, has been held at Penrhyn Hall, for the purpose of "concerting measures for the restoration and improvement of Bangor Cathedral." A report on the subject from Mr. Gilbert Scott was submitted to the meeting, and resolutions in favour of the object in view were carried.

Rotherham.—An appeal has been issued in favour of the erection of a new church, to be called Christ Church, at Parkgate, near Rotherham. The population of the district is 2,600, and is rapidly increasing. Mr. G. S. Foljambe has given the site for the church, and it is proposed to make it capable of accommodating 500 adults and 150 children. It is estimated to cost 3,000*l.* The seats will be free.

DISSENTING CHURCH-BUILDING NEWS.

Bromsgrove.—The foundation-stone of a new chapel for the Baptist denomination of Bromsgrove has been laid, in the presence of several hundred spectators. The building will be in the Gothic style of the Geometric period, built of red brick with stone dressings. It is to be 57 ft. long by 38 feet wide, exclusive of an apsidal recess. The side walls will be carried up to a height sufficient for the future erection of side galleries, it being at present intended to erect the end gallery only. Internally the roof will be partially open, being ceiled at a level with the collar beam. All the joinery and the carpentry, where exposed, will be wrought, stained, and varnished. Externally the main front will be gabled, with projecting centre, having buttresses, a central doorway, and side windows on ground-floor, and three tracery-headed windows on gallery floor level. The staircase wings form part of the side frontage project, and are gabled, the remainder being divided into bays by buttresses, in which alternately will be double and single light windows. The building is being carried out for about 1,450*l.* by Mr. Richard Thompson, of Kidderminster, builder, from the designs and under the superintendence of Mr. Bidlake, of Wolverhampton, architect.

Pocklington (*Yorkshire*).—A Primitive Methodist new chapel has been opened here. The premises comprise, besides the chapel, a school-room, 24 ft. square inside, and two vestries, with the usual out-offices and conveniences. The plan of the chapel is a parallelogram, 54 ft. by 38 ft., and 26 ft. from the floor to the ceiling, and will seat 472 persons. It is lighted by twenty windows glazed with ground glass. The external walls are faced with white stock bricks and a limited number of red bricks to relieve the principal front, with stone dressings from the Harehill quarries. The buildings are situated on rising ground, about 4 ft. above the street level, and stand back from the street-line 13 ft., with a frontage of 55 ft. inclosed by ornamental iron railings. There are two entrance-doors, approached by stone steps, opening into a vestibule, lighted with circular-headed windows, of coloured and ground glass, from which the body of chapel and gallery stairs are entered. The gallery is lighted by two coronæ, suspended from the ceiling, and is circular at both ends, running round the chapel, and supported by five iron pillars. The ceiling is formed into panels, with plaster mouldings. The principal contractors were Messrs. T. & G. Grant & J. Richardson, of Pocklington, who have executed the work under the superintendence of Mr. J. Wright, of Hull, architect. The cost of the whole will be about 1,200*l.*

Fendrayton (*Cambs*).— The Wesleyan Chapel newly erected in this village has been dedicated. The building, which is in the Gothic style, consists of nave, chancel, organ-chamber, singers' gallery, minister's vestry, class-rooms, &c. The tower runs up equilaterally to a height of about 60 ft., when it slants off to an octagon from which a spire rises to about 100 ft. from the ground level. The roofing throughout is open, the principals being supported on carved stone corbels. The chancel is covered with parti-coloured tiles from Broseley. The principal dimensions of the edifice are as follows:—70 ft. by 32 ft.; chancel, 20 ft. by 11 ft. The sittings, accommodating 350, are open benches, which, with all interior woodwork, are oak stained and varnished. The building is heated with a hot-water apparatus. The walls are built with white bricks, relieved by alternate black and red bands. The windows are stone, filled in with tracery and cathedral glass, with stained glass heads and margins. The roof, which is high pitched, is covered in with Staffordshire blue and red tiles and ornamental cresting. An iron fence encloses the front. The contract for the chapel, &c., has been executed by Messrs. Bunting & Saint, at a cost of about 1,200*l.*, from the designs of Mr. Hutchinson, architect, Huntingdon.

Books Received.

Plain Rules for the Stable. By Professor Gamgee & Son. London; F. Warne & Co., Bedford-street. 1866.

The writers of this little handbook have a reputation which will probably obtain attention for the brief instructions it contains. They fight against the too constant bandaging of legs and giving of mashes. They consider knee-caps unmitigated evils, and protest against keeping feet wet with water, and "stopping." Touching the ventilation of stables, they have no faith in ventilating shafts; but their own suggestions in this direction seem to us rather hazy. They recommend,—

"First. That every stable should be constructed to afford about 1,500 cubic feet of space for each horse.

Second. That in stables with lofts and apartments above them there should be, at a distance of about 6 in. from the roof, sufficient openings, protected by wire gauze or perforated zinc, to ensure free communication between the internal and external air.

Third. In the absence of special openings, the windows may be made available for ventilating purposes by substituting wire gauze or perforated zinc for glass, and precluding the possibility of the apertures being blocked up.

Fourth. In stables without apartments or lofts above, the plan suggested by the commission appointed to report on ventilation of cavalry stables may be adopted, viz.—ventilating by a louvre, 16 in. wide, carried from end to end of the roof, affording about 4 square feet of ventilating outlet for each horse.

Fifth. Swing windows may be provided, 3 ft. 3 in. high by 2 ft. 6 in. wide, but they are not to be depended upon for regular ventilating purposes."

"Roof" in No. 2, we suppose, means *ceiling*: gauze-covered openings in the apartment above the ceiling would be of little use to the stable.

Further, "sufficient openings to ensure free communication between the internal and external air" is very vague,—in fact, gives no instruction. It suggests a very different amount of ventilation to that offered by the louvre spoken of in No. 4.

A Treatise on the Principles and Practice of Levelling. By F. W. SIMMS, C.E. Fifth edition, revised. London: Lockwood & Co. 1866.

MR. SIMMS's book, out of print for some time, is so well known and esteemed, that we need only mention it is now again to be had, and that the new edition includes a paper by Mr. Laws on "Setting Out Railway Curves," and Mr. Trautwine's "Field Practice of Laying Out Circular Curves."

Miscellanea.

THE CO-OPERATIVE MOVEMENT IN FRANCE.—Stimulated by successful efforts in England and Germany, some energetic endeavours are being made in France to establish co-operative societies. Programmes for the foundation of societies with that end in view ("*L'Universelle*" is the title of one), and journals to advocate the principle, *La Mutualité*, *L'Association*, and others, reach us from various quarters.

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.—A general meeting of this society has been held in the Guildhall, Norwich, the Rev. J. Bulwer in the chair. The chairman made some remarks as to the engraving, colouring, and publishing of illustrations of the screens of Norfolk, by a committee of the Association. The Rev. C. R. Manning then read the resolutions of the committee respecting the publication of the screens. They showed that the great expense would not permit them to carry out their first idea of publishing the whole of the Ranworth screen, and perhaps one other in colours. The figure of Salome and her two sons probably would be the one selected for publication in colours. The Rev. J. Gunn read a paper on the discovery of a screen at Suffield, which had been covered up for fifty years. A paper on St. Lawrence's Church was then read by Mr. N. Bolingbroke, and an account of the cathedral bosses was given by Mr. L'Estrange. Mr. Fitch gave some particulars as to a discovery of flint implements at Thetford.

THE METROPOLITAN RAILWAY SCHEMES.—The Earl of Carnarvon, in presenting to the House of Lords certain petitions referring to railway bills affecting the City of London, said their lordships were aware that propositions had been made to submit all the metropolitan railway schemes to one committee, in order to secure something like an organised system, but hitherto that had been found impossible. Many of these railway companies were seeking very extraordinary powers. Lord Redesdale, in reply, said he considered it would be desirable to have certain fixed provisions, as in the case of the Railways Clauses Consolidation Act, in all cases in which the schemes affected the property of individuals, that in some cases it might be desirable that a railway company should be permitted to take a particular portion only of the property through which it passed, providing that it was done by the consent of the owner, and the powers to be exercised might in such case be safely left to the committee. He did not think that there was a great deal to be gained by referring the bills to another select committee. It was not possible to do so this session. The law would not allow the injurious interference with property merely for the purpose of lessening the cost of railways for the benefit of the proprietors of the lines, and he did not think that the various committees to which the Bills had been referred had shown any indisposition to give due weight to the representations of those whose property was to be demolished. With respect to the demolition of houses in London, it was quite plain that the land on which they stood would now become of such value that it would never be covered with buildings suitable to the occupation of the labouring classes. There was no doubt that a very large number of bad and offensive houses had been removed by the railways; and he thought that, although the inconvenience was great at first, ultimate good would result, and the population generally would become adapted to the new state of things.

RATE OF MORTALITY.—According to the weekly return of the Registrar-General, the annual rate of mortality last week was 25 per 1,000 in London, 27 in Edinburgh, and 26 in Dublin; 26 in Bristol, 28 in Birmingham, 38 in Liverpool, 32 in Manchester, 36 in Salford, 28 in Sheffield, 33 in Leeds, 26 in Hull, 29 in Newcastle-upon-Tyne, and 37 in Glasgow.

NEW HYDRAULIC PRESS.—MM. Desgoffe and Olivier, civil engineers, have invented a new hydraulic press which has excited considerable attention. The principle on which it acts is simple. There is no forcing or injecting pump, and instead of a liquid being introduced into the press, already filled, a rope is made to enter, and as it enters it gradually displaces the liquid, causing the plunger to rise. The inventors have given it the name of Sterhydraulic Press. Oil is the liquid with which the chamber is filled, and the rope is made of gut. As these presses are, for the present, only to replace vineyard and oil presses of the olden times, they have as yet only been make up to a force of 50 tons.

THE NATIONAL PORTRAIT GALLERY.—The trustees of the National Portrait Gallery have just issued their annual report. With Sir Francis Grant, the Dean of Westminster has also been elected as trustee. Five portraits have been presented,—those of Bentham, Campbell, Queen Elizabeth, the Princess Charlotte, and the Duke of Kent. The last is modelled in wax. Fifteen portraits have been bought, ranging from Peter Martyr down to Richard Cobden, at prices from eight guineas to 120*l*. The gallery is only open three days a week, but the number of visitors shows a steady increase. In 1859 there were only 5,305; last year, 16,642*l*.

INTERESTING DISCOVERY.—An important archæological discovery has just been made in Egypt at Chalouf, a station some leagues north of Suez, where a monument of Persian origin has long been known to exist. A copy of some cuneiform inscriptions found there having been sent to M. Mariette, that gentleman inferred from certain indications that a portion in hieroglyphics must still remain below the surface of the soil. He accordingly communicated his conjecture to M. de Lesseps, who ordered excavations to be made, which brought to light a translation of the cuneiform writing in Egyptian hieroglyphics. The stone bearing this bilingual inscription, which belongs to the reign of Darius, will shortly be conveyed to the museum of Boulac.

PALESTINE EXPLORATION.—The Palestine Exploration Committee have held a meeting in the Jerusalem Chamber; the Archbishop of York in the chair. According to the *Athenæum*, the results of the preliminary surveys and explorations were considered; and, as it appeared to be the opinion of those present that these results are encouraging, and in some respects valuable, it was resolved to make a new and enlarged appeal to the public for support. Capt. Wilson will arrive in three or four weeks, when a general report will be drawn up, and a public meeting convened. Meantime it is desired that subcommittees should be formed in such towns as Dublin, Edinburgh, Manchester, Liverpool, Oxford, Cambridge, Leamington, Leeds, and Brighton. A working committee was appointed. The head-quarters of the committee will in future be at the Asiatic Society.

AN ARTESIAN VOLCANO.—The Venice journals contain accounts of a singular phenomenon which has just taken place in that city. Works had been for some time past going on in the garden adjoining the St. Angese Church for boring an Artesian well, and a depth of 160 ft. had been reached, when a rumbling noise was heard underground, and almost immediately after a column of water, of the diameter of the well, spouted forth to the height of the neighbouring houses. The liquid was accompanied with smoking masses of slimy matter and ashes, which emitted a suffocating smell of gas. Engineers at once commenced works to make a channel for the water, as the ground had become saturated, and the walls of the churches and houses around were beginning to crack. The latter were in consequence evacuated by their inhabitants. The eruption continued until midnight; but, in the meantime, about 100 tons of sand and other earthy matter had been thrown up. The cause of this occurrence was, no doubt, the expansive force of gas compressed in the strata till it found an issue in the orifice made in boring the well.

A TYPOGRAPHIC TELEGRAPH.—An American paper, the *Telegrapher*, states that it is intended to apply electricity to Alden's type-setting machine, so as to enable a person in Washington to set type by telegraph in the offices of large daily papers in New York.

TUNNEL UNDER OLD ST. PANCRAS CHURCHYARD.—In answer recently to MR. MACEVOY, in the House of Commons, Sir G. Grey said, the Midland Railway Company under their Act of Parliament had undertaken not to cut through the churchyard, but to tunnel 12 ft. below it.

A THEATRICAL GARDEN.—It is said that a remarkable summer theatre is about to be erected in the Champs Elysée. It will be a large iron building, will seat 3,000 spectators, and will be a garden as well as a theatre. The first gallery will be bordered with roses, the second with daisies, and the third with pinks,—which ought surely to have been devoted to "the pinks of fashion," unless indeed that select circle is to be bordered with box. Heartsease to all of them!

SUPPLY OF PORTLAND STONE.—Mr. Holland, of the firm of Stewards & Co., writes,—"I observe in the last week's number of your paper a paragraph quoted from the *Dorset Express*, stating that the demand for Portland stone has become greater than the supply, and that our firm has been unable to execute Government orders for stone we had undertaken. I beg to assure you that there is no truth in the statement; but that, on the contrary, all our orders have been promptly executed, and that we have now a large stock of Portland stone ready for any demand that may arise.

THE LIVERPOOL WATER SUPPLY.—There is already a fear, notwithstanding the abundance of rain, that in summer Liverpool will be again afflicted with a scarcity of water. The quantity stored in the Rivington reservoirs is said to be comparatively small; and although the town is now, and has been for many months, on short allowance, the stock is diminishing. During the last fortnight the community has been supplied with seventy million gallons of water less than in the same period of 1865, and yet within the last fortnight the aggregate quantity in store at Rivington has decreased by more than a million gallons.

PARIS ACADEMY OF FINE ARTS.—At the meeting of the 21st ult., M. Jérichau, of Copenhagen, was elected to fill the vacancy in the section of Sculpture, caused by the death of M. Kiss, whose "Amazon" formed such a prominent feature of the Exhibition of 1851. In the Architectural Section, M. Hess, of Berlin, was elected a correspondent in place of M. Strack, architect to the King of Prussia, who has been raised to the rank of Foreign Associate. M. Strack is a member of the Berlin Academy, and is the architect of several important works; amongst others, of the King of Denmark's Castle at Fredericksborg, and the Electoral Castle at Schwerin.

ARTISTS' BENEVOLENT FUND SOCIETY.—On the 28th ultimo, the 56th anniversary festival, dating from the foundation of this excellent charity, was held at the Freemasons' Tavern. Lord Henry G. Lennox, M.P., presided, and was supported by Sir Walter Stirling, Mr. B. Ferrey, Mr. G. Mair, Mr. Mole, Mr. S. Solly, F.R.S., Dr. Ashton Godwin, Mr. Twining, Mr. Thomas Dighton, Mr. Louis Haghe, Mr. Wyon, and many other gentlemen interested in the success of the Association. The dinner was a very good one. The fund was established as far back as the year 1810, and consists of two separate and distinct branches—an annuity fund and a benevolent fund. The former is raised and wholly supported by the contributions of its members according to a table for ages, the payments to which are graduated for relief in sickness or superannuation, and to this fund 300 artists are subscribers. The benevolent fund is a store drawn together for the relief of the widows and orphans of the members of the annuity fund. Since the formation of the fund upwards of 27,000*l*. have been thus distributed. The financial report showed that the total receipts for the past year amounted to 1,627*l*., while the expenditure fell short of this by 347*l*., which remained as a balance in the hands of the bankers. Lord Henry Lennox appealed ably to his hearers to enable them by increased funds to still further enlarge the sphere of their utility. Various speeches were made, and Mr. Charles John Dimond, who acts as hon. secretary and gives much time to the Institution, announced a very satisfactory list of donations.

NEW MANSION FOR EARL GROSVENOR.—A mansion is being erected for Earl Grosvenor on a portion of the site of Grosvenor-place. No expense, it is said, will be spared in its construction.

THE NEW NATIONAL GALLERY.—In the House of Commons, on Monday evening, Mr. W. Cowper stated that the number of competitors for the new National Gallery had been extended to twelve. The sum of 45,000*l.*, to complete the sum of 50,000*l.*, for the purchase of the site for the enlargement of the National Gallery, has been agreed to.

ROYAL ITALIAN OPERA, COVENT GARDEN.—A more charming performance than the *Marghérita* of Mdlle. Lucca in Gounod's "Faust" has been rarely listened to. In "La Favorita," too, the same excellent *artiste* has been equally successful. The new singer, Madame Maria Vilda, created a considerable sensation in "Norma" on Tuesday last, and promises to be a favourite in England. Mr. Gye is certainly very fortunate in his new ventures this season.

LAND NEAR KINGSTON.—The Norbiton Park Estate, near Kingston, being in Chancery, was sold by order of the court, in May last, for 19,000*l.*, the purchasers being the British Land Company. According to the *City Press*, a few days after the sale had taken place, an increased offer was made, and the biddings were re-opened, the result being that the estate changed owners once more at an advance of 9,000*l.* The Land Company, however, being unwilling to miss their bargain, offered another 1,000*l.*, and a third sale was ordered—without, however, bringing the price up beyond the 29,000*l.* Since then the question has been once more re-opened, and 1,000*l.* more offered. Vice-Chancellor Stuart having decided that finality has not yet been reached, another sale is announced, at a reserve price of 30,000*l.*

BURSTING OF A WATER MAIN IN LIVERPOOL. A main in Water-street burst on Saturday last, and deluged the street and cellars in the neighbourhood. It appears that the 3 ft. main from Kensington is reduced to 2 ft. at the bottom of the London-road, and again to 18 in. just opposite the Town Hall. It was a few feet beyond this latter reduction, in the 18-inch pipe, that the fracture occurred. The whole surface of the street, at the point of the fracture, and for five or six yards down Water-street, was raised at least a foot above its proper level; and, on the pressure of the water from beneath being withdrawn, the centre of the raised surface fell in, and constant additions were received from the sides. As the water receded, it disclosed a cavity several feet in depth, which had been hollowed out by the action of the water. A fire-engine was brought to pump the water out of the cellars; and Mr. Newlands and Mr. Duncan having been sent for, a staff of workmen were got to work to repair the main and the roadway. The main was laid bare at a depth of nearly 5 ft. from the surface, when it appeared that the whole lower surface of one pipe had been blown out for a space of at least 2 ft.

BUXTON.—The ball-room has just been renovated, repaired, and decorated. The Roman ceiling, divided into thirty-five compartments, is now tinted with pale pink, cream colour, light green, drab, and white. The cornice that surrounds the room is now picked out with crimson, whilst the prominent parts, such as medallions, patras, and blocks, are tinted with the same colours as the ceilings. The walls are a light greenish drab; the enrichments and shields picked out with dead white; the columns are white, and the capitals to these and the pilasters etched with gold. The mirrors have been re-silvered and the frames re-gilded, the gas fittings lacquered, and the mahogany doors French polished. The card-room is also newly decorated, and has two additional windows. The staircase and vestibule, ceilings and cornices, are painted in tints of greenish drab, cream colour, and white. The walls are of a greenish drab with a darker shade to the dado, which is formed by a flat ornamental band, worked in colours, relieving the height of naked wall. The woodwork of the staircase and vestibule has been grained in imitation of mahogany. The vestibule floor has been laid with Minton's tiles. The decorations were executed under the superintendence of Mr. Henry Currey, of London, architect to the Duke of Devonshire, by Mr. Thomas Rothwell, of Manchester.

TENDERS

For St. Stephen's Schools, Norwich (in addition to the old materials of two houses). Mr. R. M. Phipson, architect:—

Balls	£1,176 0 0
Hall	1,169 0 0
Atkins	1,151 15 0
Lacey	1,141 10 0
Newsall	1,125 0 0

For benching, &c., the chancel of St. Mary's, Thetford. Mr. R. M. Phipson, architect:—

Sharp	£177 7 6
Tooley	170 0 0
Bishop	160 0 0

For benching the nave of Acle Church, Norfolk:—

Burrell (accepted)	£120 0 0

For alterations of Nos. 17, 18, and 20, London-road, Southwark, for Mr. Macher. Mr. R. Parris, architect. Quantities supplied by Mr. Shrubsole:—

		Deduct for Shop Front.
Mayo	£2,944 10 0	117 0 0
Garrod	2,479 0 0	80 0 0
Brown	2,455 0 0	63 0 0
Dover	2,418 10 0	90 0 0
Sutton	2,375 0 0	50 0 0
Perry	2,365 0 0	50 0 0
Rolfey	2,246 0 0	40 0 0
Godbolt	2,241 0 0	74 7 0
West	2,210 0 0	42 0 0
Day	2,184 0 0	60 0 0
Cheer	2,037 0 0	177 10 0
Nightingale	1,971 15 0	64 18 0
Crabb & Borne	1,880 0 0	74 0 0
Terry	1,876 0 0	72 0 0
Minty & Son	1,861 0 0	70 0 0

For alterations to No. 48, Coleman-street, City, for Mr. Kreihi. Mr. F. G. Widdows, architect:—

Colls & Sons	£976 0 0
Newman & Mann	826 0 0
Browne & Robinson	815 0 0
Child & Son	709 0 0

For alterations and additions to a warehouse, City. Mr. Herbert Ford, architect:—

Rawlins	£1,586 0 0
Henshaw	1,310 0 0
Bostel	1,271 0 0
Calow	1,266 0 0

For the erection of National Schools, Herne, Kent. Mr. William Powell, architect. Quantities supplied:—

Adams (accepted)	£1,141 0 0

For alterations and additions to two warehouses, City. Mr. Herbert Ford, architect.—

Palmer & Son (accepted)	£900 0 0

For building five cottages and offices for Mr. Charles Cartwright, at Charlton, near Hitchin. Mr. J. Shilcock, architect:—

Newton	£352 0 0
Warren & Co.	341 15 0
Jeeves & Co. (accepted)	301 15 0

For the erection of a new infirmary to the Hitchin workhouse for the board of guardians of the Hitchin Union. Mr. J. Shilcock, architect:—

Butterfield	£1,353 15 7
Warren & Son	1,210 0 0

For the erection of a house and shop at Arlesey, Bedfordshire, for Mr. Fredk. Levitt. Mr. J. Shilcock, architect:—

Davies	£497 0 0
Brittain (accepted)	460 10 0

For making roads for the South-Western Villa Residences Company at Worcester Park, Surrey. Mr. John Gines, architect:—

Wren	£830 0 0
Abell & Hancock	769 0 0
Clarke	732 0 0
Moxon & Mutton	690 0 0
Porter	670 0 0
Parker	449 0 0

For the erection of waterside premises, Cox's Wharf, Blackfriars, for Mr. G. Ferguson. Mr. Dunning, architect:—

Thorne	£6,300 0 0
Downes	6,097 0 0
Fish	6,059 0 0
Carter & Sons	5,987 0 0
Piper & Wheeler	5,977 0 0
Hinshaw	5,749 0 0
Brass	5,693 0 0
Sawyer	5,351 0 0
King & Sons	5,295 0 0

For alterations and additions, Scottish Brewery, Old-street, St. Luke's. Mr. James Harrison, architect. Quantities supplied by Mr. A. W. Q. Nicoll:—

Piper & Wheeler	£690 0 0
Sawyer	649 0 0
Hardiman & Sandon	643 0 0
Browne & Robinson	612 0 0

For the construction of sewers and formation of private road 80 ft. wide, including two 12 ft. footpaths, from the Gloucester-road to Earl's-court-road, for the South Kensington, Cromwell-road, Extension. Mr. James Broadbridge, surveyor —

Hill & Keddell	£10,400 0 0
Brewer & Co.	10,060 0 0
Mowlem, Burt, & Freeman	7,978 0 0
Sprake (accepted)	7,779 0 0

For new premises for the London and County Bank, Cambridge. Messrs. Francis, architects:—

Hill & Sons	£8,845 0 0
Thodey & Clayton	8,760 0 0
Dove, Brothers	7,736 0 0
Simpson	7,760 0 0
Myers & Sons (accepted)	7,739 0 0

For Holy Trinity Church, Kilburn, including tower and spire. Messrs. Francis, architects:—

Dove, Brothers	£8,155 0 0
Myers & Sons	8,060 0 0
Simpson	7,817 0 0
King & Sons (accepted)	7,290 0 0

For additions and alterations to the Britannia Public-house, Lever-street, St. Luke's, for Mr. F. Smith. Messrs. Osborn & Russell, architects. Quantities supplied:—

Brown	£770 0 0
Killby	768 0 0
Tully	720 0 0
Sabey	646 0 0

For repairs and alterations, with new shop fronts and plate glass to a corner house, No. 1, Charlotte-street, Portland-place:—

Knapp & Son	£338 0 0
Stephens & Watson	312 0 0
Hyde	198 0 0

TO CORRESPONDENTS.

H.—T. G. J.—J. H.—W. P.—J. W.—S. S.—J. H.—Messrs. F.—G. W. S.—P.—E. B. R.—I. B.—J. S.—H. F.—P. W. C.—W. W.—S. H.—J. A.—J. G.—W. Y.—G. C.—B. C. N.—O. B.—K.—G. G.—E. R.—W. H.—J. S.—S. H.—Mr. P.—H. S. D.—A Working Man.—D. D.—T. N. D.—H. H. Y. L. (full details on the terms of his engagement)—A. R. (view and plan shall be put in hand).—G. E. C. (in type).—W. M. (no).—P. A. P. (shall hear from us).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than THREE o'clock, p.m., *on* THURSDAY.

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

NEWSPAPERS and MAGAZINES.—Messrs. COX & WYMAN, Printers of "THE BUILDER," and other First class Publications, beg to call the attention of Proprietors of New papers and Periodicals to the Unique Facilities their Established Premises for the production of the above class of Work, with regularity and in the best style. Lincoln's Inn Steam Printing Works, 74 75, Great Queen-street, W.C.

KING'S CROSS.—The Midland Railway Company requiring the premises immediately.

MR. LEREW is instructed by Mr. C. Crace, Timber Merchant, to SELL by AUCTION, on the PREMISES, 17, Weston-street, Old Saint Pancras-road, opposite the Great Northern Railway Station, on THURSDAY, MAY 10, at ELEVEN, the extensive well-seasoned STOCK: comprising 20,000 feet wide pine boards, 4 inch thick; in planks and scant, 4,000 feet oak, 3,000 feet beech, 2,000 feet yellow pine, 1,000 feet walnut and sycamore, 2,000 feet mouldings, 4,000 feet panelling, 8 squares yellow and white flooring, 6 squares match lining, a large quantity of dry cut laths, sawn, prown and white pickets, wear, oak battens, pantile laths, slating battens, round walnut tops, a few sticks of yellow timber, timber-carriage, 2 spring carts, truck, 4 timber-jacks, 2 saws, weighing machine, harness, and miscellaneous stock; also, a G-oct. cottage pianoforte, &c.—May be viewed the day prior, and Catalogues had on the Premises; and of the Auctioneer, 2, Cardington-street, Hampstead-road, N.W.

LEYTONSTONE, ESSEX. The Fillebrook Estate, a valuable freehold property, most conveniently and agreeably situated, near to Epping Forest and the village of Leytonstone, and immediately contiguous to the railway station, but only twenty-five minutes' ride of London. The estate comprises about 140 acres of building land, of an undulated character, with early possession, exceedingly well adapted for the erection of detached villa residences, suburban and public institutions, but at present let for agricultural and accommodation purposes, likewise the several excellent modern residences and grounds, known as Gainsborough Lodge, Holly Lodge, Walnut-tree House, and Nos. 1, 2, 7, and 8, Fairmead-road, let at rents amounting to 6l. per annum; also a well secured ground-rent of 37l. 10s. per annum, and other property.

MESSRS. DRIVER & CO. are instructed to SELL by AUCTION, at the GUILDHALL COFFEE-HOUSE, Gresham street, on TUESDAY, MAY 8, the above valuable FREEHOLD PROPERTY. Printed particulars, with plan of the building land, and maps in lots and blocks, to meet the requirements of private purchasers and speculators, may be obtained at the Place of Sale; at the Estate Exchange, Change-alley, Cornhill; at the principal Inns in the neighbourhood; of Messrs. SHOUBRIDGE, Solicitors, 1, Lincoln's Inn-fields, W.C.; and of Messrs. DRIVER & CO. Surveyors, Land Agents, and Auctioneers, 4, Welbeck, London, S.W.

HAMPTON, MIDDLESEX.—Valuable and important Freehold Estate, comprising a first-rate Detached Residence, with ample Garden Grounds, and Meadow Land, and abutting for 10 Acres of highly eligible Building Land.

MESSRS. EDWIN FOX & BOUSFIELD will SELL by AUCTION, at GARRAWAY'S, Change-alley, Cornhill, on WEDNESDAY, MAY 9, in lots, a very valuable FREEHOLD ESTATE, consisting of a capital and substantial detached Family Residence, standing completely within its own ample garden grounds, on a gravelly soil, and from its elevated position commanding fine views over the valley of the Thames, distinguished as Rosehill House, very agreeably situated at Hampton, Middlesex, fronting the high road, and close to the railway station on the Thames Valley Line of the South Western Railway, with direct communication with the City, the Capital Junction, Waterloo, Clapham, and Dover Railway terminus at Battersea; also seven cottages, three coach-houses, with two Paddocks over, containing 10 acres of very desirable Building Land, available for the erection of villa residences, possessing frontages to the high road and other existing roadways of many thousand feet. May be viewed; and particulars, with plans, may be obtained of Mr. THOMAS BRADLEY, Solicitor, 12, Gray's Inn-square; at the Inns of Court Hotel; at GARRAWAY'S; and of Messrs. EDWIN FOX & BOUSFIELD, 21, Graham-street, E.C. corner of Cumming-street.

The Builder.

VOL. XXIV.—No. 1214.

rd. New Buildings, Christ Church College. Worcester College Chapel.

XFORD, happily, is not standing still. Additions are being made to colleges; new masters' houses and other buildings are contemplated; chapels are being decorated; a new hotel has been opened; several good residences have been built, including one for Sir Benjamin Brodie; and the sanitary condition of the city is receiving some attention. When the drainage is as good as, according to all accounts, the water supply now is, much will have been done towards producing salubrity. The water seems good, and the charges for it are moderate. Amongst the most recently-erected buildings is the new pile of residences at Christ Church College, that stands next the Broad Walk, and in which the College, under the dition of their architect, Mr. T. N. Deane, spent about 24,000*l.* Of this we give a and plan, without adding any violent ssions of admiration.* The fronts are y of stone, and they inclose fifty-seven of rooms, which are now all occupied. allotment includes a sitting-room, 18 ft. by ; a bed-room, 18 ft. by 10 ft.; and a closet. eases divide the building at every four sets ooms. Messrs. Simmes, of Oxford, who the contractors, appear to have done their soundly. At some future time it is pro- to run another building at right angles to resent one, and so to form two sides of a angle. Probably, too, before long, further s will be undertaken in the college, such as ining and altering the library; and re- ing the block of buildings between the Hall and the kitchen.

fine apartment, as many of our readers is that great hall, finished by Wolsey in and visited by Henry VIII., Queen Eliza- James, and Charles I. The latter three lays acted in the hall.

haking of these early performances (1636), ony Wood makes an assertion that calls for ment. His statement is so minute and in- ing, that we are tempted to quote the whole ge, though it is only the last assertion with which we have to deal:—

t at night [writes he], after the king, queen, and two h had supped, they saw a comedy acted in Christ h Hall, but such an one it was, that it had more of oralist than poet in it; and though it was well), yet it did not take with the courtiers so well as it ith the togated crew. It was intituled 'Passions ; or, the Settling of the Floating Island,' made by the Orator, and performed by the scholars beyond bation. It was acted on a goodly stage, reaching e upper end of the hall almost to the hearth place, d on it three or four openings on each side thereof, titions between them, much resembling the desks idies in a library, out of which the actors issue The said partitions they could draw in or out, at leasure, upon a sudden, and thrust out new in their according to the nature of the screen, whereon epresented churches, dwelling-houses, palaces, &c., for its variety bred very great admiration. Over delicate painting, resembling the sky, clouds, &c. upper end a great fair shut of two leaves that d and shut without any visible help, within which was set forth the emblem of the whole play, in a very sumptuous manner. Therein was the perfect resemblance of the billows of the sea rolling, and an artificial island, with churches and houses, waving up and down, and floating, as also rocks, trees, and hills. Many other fine pieces of work and landscapes did also appear at sundry openings thereof, and a chair seen to come gliding on the stage without any visible help; all these representations, being the first (as I have been informed) that were used on the English stage, and therefore giving great content. I have, therefore, been the more punctual in describing them, to the end that posterity might know that what is now seen in the play-houses at London belonging to his Majesty and the Duke of York, is originally due to the invention of Oxford scholars." *

A note at the end of the paragraph says "This is true;" but we are disposed to think it is not.

The assertion has been quoted several times, and will continue to be repeated; but, like many other entries of diary writers that have been adopted, the result of half-knowledge, it is mere nonsense. In 1604-5, Inigo Jones prepared the scenery for a masque at Whitehall on Twelfth-night, as recorded by Ben Jonson, who wrote the masque: and in the autumn of the same year Inigo prepared the scenery and devices for three plays, to be presented before the king in the hall of Christ Church, Oxford, and had "for his pains" 50*l.* So that "the invention of Oxford scholars" had really nothing to do with what is now seen in the playhouses.

Every one knows of the portraits in Christ Church: three of the best there, perhaps anywhere, that is to say, those of Welbore Ellis and Sir John Skinner, both by Gainsborough, and Archbishop Markham, by Reynolds, are under glass, and hold their own against the great gathering now on view in South Kensington. The amount of grace, variety, sentiment, and beauty conjoined, discoverable in the pictures of Reynolds, is not to be found in the works of any other portrait-painter. The interior of the Cathedral, which serves in the place of a college chapel at Christ Church, Norman, improved by Wolsey, is at this time in capital order, and a pleasant sight. Poor Gerente's glass there, at the east end, is not very successful.

With Peckwater, attached to Christ Church College, the name of John Leland is connected. Anthony Wood says, "he went beyond the learnedest of his age, and was so noted a grammarian, that this verse was made upon him:—

> "*Ut rosa flos florum,*
> *Sic Leland grammaticorum.*"

We repeat the remark, that we may remind the reader how much better the simile is applied in the Chapter-House at York, where we have on the walls,—

> "*Ut rosa flos florum,*
> *Sic est domus ista domorum.*"

As the rose is the flower of flowers, so is this the house of houses.

The interior of Exeter College Chapel is one of the best of Mr. Scott's works; very complete, very satisfying. Examine it bit by bit, or take it as a whole, the verdict must be "good." Exeter may be pronounced Excellent. The proportions, the mouldings, the carving, and the metal-work will all come in for commendation. The one thing to be regretted is, that the organ, as placed, obscures and destroys the fine bold arcade at the west end. The organ-difficulty is one now often felt by architects. 15,000*l.* have been spent on this chapel, and the college have as good reason to be satisfied with the result as the architect has to rejoice in the opportunity he had to do as he pleased with little thought about cost. The new library there has also points of interest.

The interior of the new chapel at Baliol College, close by, although good, is not so satisfying as that of Exeter. The use of stones of different tints in the arcades and other portions gives a parti-coloured effect that is not pleasing. It destroys the continuity of mouldings that are continuous. When our native alabaster, too, is used, it should be selected with great care. It gives no pleasure to any eye when it is so spotty and stained, and presents such violent contrasts of colour, as to hide all mouldings, patterns, or carving that may be introduced in it. The chapel of Baliol is not the only work which induces this observation. Mr. Scott's reredos in St. George's Chapel, Windsor, occurs to us as another production, amongst half a dozen, greatly deteriorated by this inequality of colour. The architect of Baliol Chapel appears to have a fondness for streakiness. The chimney-stacks of the new building at Merton College, afford a further instance of it. The exterior of this structure generally is, moreover, somewhat mean, as it seemed to us; suggestive rather of almshouses than collegiate buildings. At Baliol, we may mention by the way, a new master's house is about to be built, and Mr. Waterhouse is spoken of as the probable architect.

The chapel of outlying Worcester, formerly a wretched hole, has become, since it was painted, one of the lions of Oxford, and justly so. To eyes accustomed to the Mediæval churches of our country, it is wanting in sacred character. The Raffaellesques at the sides of the windows tend mainly to produce this feeling, and they might advantageously have been treated with more severity. Nevertheless, as an example of Renaissance decoration, studied from the loggie of the Vatican, and from other buildings in Italy, it must be considered very successful, and does great credit to Mr. Burges, by whom the whole was directed. Every inch of wall and ceiling is coloured or gilt; the windows are filled with stained glass; the stalls are of walnut wood, inlaid with box; and the sacrarium is paved with marble mosaic work. The cartoons for the windows, some of them of great beauty, especially those on the north side, were executed by Mr. Henry Holiday, who also painted the figure-subjects; Mr. Smallfield having painted the Raffaellesques. One of the most charming works in the chapel is the alabaster candelabrum-shaped lectern, which was given by the scholars. The band running round it of small figures singing, and the angle-heads of larger size, are exquisitely carved. We must praise Mr. Nicholls, who executed these; Mr. Jaquet, who cut the rest of it; and the architect, who drew it. A picture of the Entombment, at the east end of the chapel, in the place of the predella, is very meritorious. A little alteration would prevent the objection that may now be taken,—that the bearers of the Saviour's body are about to deposit it in a hole in the ground, instead of in the sepulchre, seen to the right. The Provost and Fellows of Worcester have good reason to be satisfied with the result of their very bold experiment.

Whether or not this is wholly the case with those who have the management of the new Museum we cannot say. It is hot in summer; and scarcely endurable, for the opposite reason, in winter; the brickwork, where left visible internally, is not artistic; and the ironwork that seems to carry the roof is not structural. Nevertheless, it has much to interest and please; nothing more so than the varied marble and stone columns of the arcades, and their admirably carved capitals, consisting of groups of plants and animals illustrative of different climates, a few of which we engraved some time ago. These are a never-ending source of pleasure. The statues placed in front of the piers are not wholly successful. The corbels on which they stand do not project sufficiently to allow of the whole thickness of a man, and this may be one reason why the figures look mean. There is scarcely one that dwells on the memory. Some hours may be spent profitably and pleasantly in the Museum, especially if you should get Mr. Rowell to talk to you about the piece of natural magnet there, the remarkable wasps' nest, or the formation of ammonites. How small a proportion, by the way, of those who look at

* See pp. 346, 347.

* From "Anthony Wood's Annals," vol. ii., pages 403, 409.

these largely found "ram's-horn" fossils connect them with a chambered floating shell, like that of the nautilus, or know of the curious hydraulic arrangement by which the creature could sink at pleasure.

We must get back to the hotel. The Randolph, of which we gave a view some time ago, is now open, and can offer good accommodation. It stands with one front opposite the Martyrs' memorial, and the other facing the Taylor and Randolph Galleries, a building which is living down the abuse that was heaped upon it when first completed. The hotel must have cost a large sum of money, and has some comfortable rooms. If, however, its owners would continue to get a good dividend, travellers who go in at twenty minutes past eleven o'clock, and ask for a sandwich before retiring to bed, must not be told that the bar is closed. Such management shows sheer insanity. It would be as well, too, not merely here, but at other of the new hotels, if the manager displayed some little consciousness of the presence of his visitors. It was pleasant in the old times to see your landlord come in at dinner with the first dish; and it is pleasant when you leave your hotel in France or Germany, to have your host or hostess come out, sometimes with a bouquet for the ladies of the party, and always with a genial "thank you." However, we will not be too hard on the Randolphians,—they are new to the work, and there is as yet no school for the new trade of managers.

An ancient hostel in the town, the well-known Angel Inn, formerly the posting-house of Oxford, is this week finally closed. It is stated to have been opened as the first coffee-house in Oxford by one Jacob, a Jew, in 1650, for "such as delighted in noveltie." It belongs to the University, and will now probably give place to some public building.

It was on the 30th of April that we happened to visit Oxford with reference to the building we have illustrated, and, prompted by a strong mind of the party, we determined to ascend Magdalen Tower on May-day morning, and hear the hymn that is always sung on it on that day, at five o'clock. A lovely tower it is, as our readers doubtless know: built between 1492 and 1505, when Wolsey was the college bursar. Almost as soon as the tower was finished, it became the custom to sing on it on this day of the year glees and madrigals, in commemoration of the visit of Henry VII. to the college in 1488.

Touching this practice, a writer in the *Oxford Journal* quotes "a book printed about a hundred years ago," which, after alluding amongst the "Customs of Magdalen College," to the sermon formerly preached in the stone pulpit in the quadrangle on St. John Baptist's day, says,—

"Another remarkable Custom is their having a Concert of Music upon the Top of the Tower every May-day, at 4 o'clock in the Morning, in Commemoration of K. Henry VII, the Founder of the Tower; being at first a Mass of *Requiem*, or Mass sung for the Rest of his Soul—*Requiem aeternam dona Ei Domine*—&c. But now it is a merry Concert of both Vocal and Instrumental Music, consisting of several merry Ketches, and lasting almost 2 Hours, and is concluded with Ringing the Bells. The Clerks and Choristers, with the rest of the Performers, are for their Pains allow'd a Side of Lamb, &c., for their Breakfast."

They say to May, with Milton,—

"Thus we salute thee with our early song,
And welcome thee and wish thee long."

and to hear this, or, rather, to hear the hymn that now takes the place of the "Ketches," we determined. The mad happiness of May-day in antique times is not attempted now, but the echoes of it remain.

The desired and dreaded hour arrives. "Boots" being asked how the day looks, replies, with Dryden, without knowing it,—

"Sullen, methinks, and slow the morning breaks."

And no sooner are we dressed than we find ourselves muttering with another poet:—

——"The wind blows cold
While the morning doth unfold."

No matter. Will is everything, and out and up we go. This month has been called "the romping May," the "queenly May," the "bounteous May," the "gentle May," but this time May came in gloomily, if not weeping. The 150 ft. in height of the tower were tramped, and the singing was listened to and liked. A crowd of more than 150 persons on the top of the tower lessened the sentiment of the occurrence, but when the hymn was finished, the crowd departed, and the bells, "the most tuneable and melodious in all these parts," as Anthony Wood says, pealed forth their melody, the spire vibrating to and fro to an extent that seems scarcely compatible with long-continued soundness: the effect was charming, and the recollection of it will endure. Long may the custom be maintained. It has its purpose. Everything is of value that infuses poetical feeling, and prevents the belief that the present is everything. We are disposed to write more, and tell of our own pleasant day; but space fails. So, to our readers as well as to those who on that grey morning stood with us on the top of Magdalen tower, we will simply say:—

"God bless you all, both great and small,
And send you a joyful May."

THE BRIGHTON RAILWAY COLLISION.

A FATAL collision on the Brighton Railway has just given a terrible sanction to the views which we expressed on the 10th of March as to the dangers of our railway system as at present conducted. The verdict of the jury has exonerated the driver of the train that was overthrown, who appears to have acted with great courage and presence of mind; the driver and guards of the chalk-train that was shunting on to the main line when the passenger-train dashed into it; the signal-man, to whom the safety of the line is entrusted on the pay of 20s. a week; the pointsman who turned the switch; in fact, every one to whom, *à priori*, blame might be thought to attach. If the coroner's inquest be regarded merely as a criminal court of inquiry, there can be little doubt that the verdict was correct; but if it be considered that one main object of dispassionate investigation, in any occurrence of so serious a nature, is the detection of the actual cause of the calamity, with a view to prevent the possibility of its recurrence, the very proper recommendation of the jury, that a more perfect method of signalling should be adopted, goes but part of the way to this end. To arrive at the conclusion that a passenger-train proceeding at full speed, and with signals all in order, may be hurled from the rails by a collision with a line of chalk-trucks slowly backing into its path, without any one being to blame in the matter, is a conclusion little likely to reassure the travelling public. To call such an occurrence an accident, is an abuse of the term by which we designate a calamity which human forethought and care are powerless to prevent.

On most occasions when what is called accident occurs, the cause may, if carefully sought for, be detected in some petty, slovenly, want of care. A horse falls, and a life valued by three kingdoms is abruptly terminated; but the seat of the rider was not that of a cavalier, or the thoughts that were running over the diplomacy of Europe distracted that necessary attention to the pace and the path of the quadruped, in the absence of which no man should trust himself on horseback. A ship founders at sea; but she has put out of port too deeply laden, or with engines that would certainly require repair before the *next* trip. Even the breaking of an axle, or the bursting of a tyre, which may more properly be designated accidents, may be and have been almost entirely prevented by due care,—first, as to the manufacture of the article; and, secondly, by the method introduced by Mr. Brunel on the Great Western Railway, in consequence of the rupture of the tyre of one of the driving wheels, of appointing a special examiner to test every pair of wheels and axles before each train left the terminus. If misfortunes of this nature, which are commonly called accidents, can be thus prevented by due care, however minute be its necessary exercise, it is certainly improper to speak of a disaster of which the occasion, if not the direct cause, is an irregularity of so flagrant a character as a want of punctuality, as a casualty beyond the power of man to avert.

The Brighton line has of late been happily, and therefore, no doubt deservedly, free from accidents. And it must be borne in mind that the difficulties of conducting a traffic over rails that are also used by a distinct and not very friendly company, are very considerable. The manner in which the enormous traffic of the last Easter and Christmas holidays was safely carried over the district was a credit to the hard-driven officers of the company. But the greater the difficulties of the case, the greater the need of inflexible punctuality. A train delayed for ten minutes in starting, whether the object be to serve the convenience of one or two dawdling passengers, or to save the company the expense of a special train, as in the case of a mail arriving too late is enough, under the present circumstances of the traffic of our principal lines, or, at all events may be enough, to derange for the whole day the punctuality not only of the individual train as well as of the succeeding trains of the same company, but to interfere with a system of crossings and junctions affecting the traffic of other lines, and to cause a general disarrangement that cannot work itself out till the late hour when the ordinary passenger-trains have given place to the transit of luggage and heavy traffic.

Delay must arise, if the construction of a railway be fitted for the traffic which it has to carry, either from want of precision in starting, or from want of power in the locomotive plant. Cases do occasionally occur, as from an unusually strong head wind, or a sudden and heavy fall of snow, in which personal blame does not appear to attach to any one, and in which the cause may thus properly be called accidental. But even in such cases as these it is not seldom found that the locomotive power is really deficient—that it is so little in excess of the absolute daily need as to be unable to contend with a slight extra stress or demand on its capabilities. In all cases where the locomotive power is inadequate to the ordinary service of the traffic, or to such extraordinary demands as are sure, from time to time, to occur, disaster becomes probable, and, if traced to that cause should be visited on those who are responsible for the inefficiency of the plant, whether it be a too economical superintendant or a too stingy board. The practical view taken by the sergeant of Peter the Great, that it was quite right that some one should be shot when orders were disobeyed, although he did not think it just that *he* should be the man, should never be lost sight of in cases of this kind. If on any case of mishap, the first question arise—who is to blame? and if public curiosity were unappeasable until this simple question were answered, the very great safety, for such it really is, when the number of accidents is considered in relation to the number of passengers with which we are now conveyed over the railways of the United Kingdom, would become almost absolute security.

The question of adequacy of locomotive power set at rest, and the full danger of disregarding this essential point being allotted to the persons properly responsible in the matter, punctuality in the starting of trains should be secured by simple and stringent orders. Let the gates of the station be closed five minutes before the time fixed for the starting; let the published time be somewhat in advance of the actual train time; let margin be thus secured for the safe and comfortable depositing in the carriages of the most feeble and infirm passenger who arrives at the station before the inexorable minute, and for the largest amount of *fourgons*, bonnet-boxes, parrot-cages, and wraps that can be placed on the porters' trucks within the same limits. Let driver and stoker be waiting, not the whistle or wave of the hand of the station-master, but the arrival of the minute-hand of the station-clock at the proper point, and then let the train move off, untrammelled by any counter-order, with the punctuality of the fast Shrewsbury coaches in the good old times of the road, and we should be less likely to see the placards of the morning papers headed with the announcement in large capitals, "Frightful Railway Accident."

We have before stated, that arrangements such as these, however useful and however necessary they may be, will not avail to secure punctuality and safety unless the construction of railways with reference to junctions and crossings be amended. In the numerous and intricate lines of iron way that run from Dover, from Brighton, from Greenwich, from the Crystal Palace, and from other places into the great unfinished depôt at London Bridge, there seems to be an elaborate and successful attempt to render punctuality, and in consequence safety, impossible. At the other extremity of London a very different system is preparing for inauguration. The passenger who escapes from the bleak, unsheltered, and bewildering platforms and dog-holes of Clapham Junction Station with the retention of sufficient presence of mind to look out of window as he is whirled towards the Thames, is led to the disagreeable reflection that either he, or some one else, has gone mad—very mad. Arches over arches,—lines of railway in three stories, one over the other,—viaducts splitting in two, running to left and right, and reuniting at some distant point, as if twisted in wanton and unmeaning sport, perplex his

ision. If some gigantic spider, that had the ower to spin lines of railway, had taken up its bode in this much-vexed district, and had been nted from side to side by the engineers of the ifferent companies, spinning a fresh line of ailway in each hasty flight, such would, one ould imagine, be the traces it would leave. nd yet, in this mad-looking group of banks, idges, and cuttings, a patient and in- ructed investigation will discover an ade- nate and worthy effort to provide for the affic of the future. Tired, to some extent, of eir long and costly warfare, the Brighton, the outh-Western, and the London, Chatham, and over Railways have at last hit upon the vulgar nd common-place expedient of attempting to ccommodate, instead of to inconvenience, one nother, and of taking the advice of one of the atriarchs of the English railway system as to ie best mode of effecting this object. The aving of some 300,000*l.* in works alone, to say othing of perhaps a far larger amount in law, arliamentary expenses, and mutual damage, is ie least advantage that they will reap from this ourse. For the first time, since the erection of ie Great Western Railway Station at Padding- n, the question of the proper provision for robable traffic has been dealt with by a com- etent mind, unfettered by any difficulties but ose that may strictly be called engineering. he result is, in a word, that the great points to hich we directed attention on a former occasion ave been all duly weighed and properly met. hrough and local traffic will no longer throttle ach other on this district. Mail and express ains from the southern and eastern coasts will rrive unchecked at their proper platforms, while ocal and stopping trains, accommodating the ast suburban traffic of a large and increasing istrict, will creep undisturbed to their own. o train will have to stop because another is ossing, or may be crossing, or ought to be ossing its route, because all crossings on e level of railways over railways are here carefully avoided as those of railways er ordinary roads. If a viaduct splits and twists, is that the up and the down lines may each dealt with as the circumstances of the traffic quire; and in order that an express line may ot be stopped by the crossing of local trains ecause it is easier to build a straight viaduct r two lines of railway than a pair of curved iaducts for the same purpose. In a word, from e great nine-fold bridge, which is intended to nvey its 800 daily trains over the Thames, and hich promises to do so without any of the arming vibration which is caused in the pre- nt bridge by the passage of a locomotive, to e out-districts, where the thick suburban affic ceases, the requirements of the traffic ave been carefully studied and adequately pro- ded for.

How wise, as a mere matter of pecuniary onomy, this proceeding on the part of the mpanies in question has been, time cannot ll to show. Yet more important to the public an example of that thoughtful provision for eir service which obviates the main chances of nger, and will render want of punctuality unlikely as it is inexcusable.

THE EXHIBITION OF THE ROYAL ACADEMY.

WHEN east winds and vacillating thermometers e in dispute with the calendar as to the "*alibi*" young Summer—*alias* old Spring,—and when little faith can be reposed in such barefaced sertions as May is making at present, the oyal Academy Exhibition is a far more trust- orthy witness, asking as the greatest favour for e most searching examination, and quite ready r a rigid investigation as to the value of what nnts forth in its observations about this season. ross-examination might possibly lay bare some ak points of its own, though it could hardly ve the effect of shaking any testimony it gives favour of the aforesaid young Summer, or that uld tell of his whereabouts. Parasols be aised, for they are tokens that the doubt ows daily less (like bonnets); and May, with r mythic accompaniment of flowers, will pro- ply assume some of the normal conditions oper to it, and smile more genially on the fair d the forty.

They well deserve it—the first always; and "forty" very often: for what they have ne this year, is less than usual for themselves, d more that is indicative of a desire to help others; and if there is less to be seen of self-glorification, less consequently of the summer sunshine of art diffused by the incorporate *élite*, there is plenty of evidence of its influence; though the absence of some, and the slight manifestations of other eminent members of the profession are apparent enough to qualify the pleasure experienced at finding the opportunity thus afforded to younger men advantageously used.

The numerous capitally painted pictures, so equal in their claims for notice, partially counterbalance the want there is of any that may be particularised as extraordinary; but with a predominant wish to acknowledge merit of every grade, it would be as stupid as unjust to ignore the value that such acquisitions—as thoughtful applications of matured judgment, distinguished from mere inclination and taste, or scientific skill, that differs so much from "cleverness," in the sense in which that word is so commonly used,—would have, when for the want of some special leaven, there are so few works that rise above the level of the mass. Though to this evenness of quality may be attributed the best of the good opinions the collection is likely to evoke from those who accept it as significant of wide-spread improvement; and at least in one respect it is, that of a mastery over the means urgently demanding a more profitable employment of them.

It may be predicted that the Royal Academy Exhibition will maintain its recognised superiority in taking the lead of all events of the kind. So long as art has a home in Britain, there should be no more reliable proof, in fact, of the real position of national art and artists, than could be offered by these annual occurrences; but if it be taken for granted that the institution includes most of those best able to share the responsibility of maintaining this position, some obligation is imposed upon its members beyond that of occasionally contributing to its exhibitions. With one exception, and it would probably be an exception under any circumstances, the Royal Academicians who are at all conspicuous in emanations that equal antecedents, may be counted on the fingers of one hand, and perhaps with no need for the ingenuity of a Dundreary to make six of them: the great complaint, however, is, not that they are too few, for a concession of their privileges now and then may be useful as well as graceful; to allow graduates opportunities of competitions, but that what they send should so often be of little importance, is to be regretted.

To Mr. Maclise, R.A., the Exhibition is indebted for its centre point of attraction. The original of one of his grand compositions that decorate the Houses of Parliament will help to inform the world of some of his capabilities; and the more certainly so because the Council of the Art-Union of London have purchased it, with the right and intention of engraving it, and distributing it far and wide. This wonderful production ought rather to be considered as depicting H.M.S. *Victory* in action at Trafalgar, with the death of Nelson for its centre incident, than as confined to its chief and most interesting episode; for an extra amount of probability is given to the scene by the stir and confusion inseparable from a conception of what the fact would have presented; and the chief actors in it, as well as the throngs of sailors, marines, and assistants of the wounded, have only their relative prominence that this adherence to probability would properly assign to them. (47) "Here Nelson fell" is the inscription on the quarter-deck of the *Victory*; and in the realization of such associations as the simple announcement is sufficient to awaken in every English mind, all who possess the more tangible and eloquent memorial (and may their names be Legion for the sake of good art) will be apt to add, "And here Maclise rose in telling of his fall." It would be superfluous to say more of this exceptionally fine picture, than that it is worthy of companionship with "The Meeting of Wellington and Blucher at Waterloo," also being engraved for the Art-Union of London; but it may not be supererogatory, modestly to allude to one of the great results of this Society's exertions, one that will secure a universal knowledge and appreciation of these magnificent works.

Sir Edwin Landseer, R.A., has three pictures and a life-sized cartoon, in coloured chalks, of a stag and hound (694), "The Chase," to bear testimony to his industry and inimitable method of drawing and painting. The "Mare and Foal" (22), reposing before an Indian tent, are so like nature, that one is induced to keep at a respectful distance waiting for them to get up and kick perhaps. 109, "Lady Godiva's Prayer," is most remarkable for the anachronisms of architecture and costume, that annihilate any truths the performance really conveys. Nor is it to be compared in executive respects with preceding examples, or with (213) "A Trophy for a Hall," composed of arms, odds and ends, and a couple of astonished dogs, who are inspecting the whole.

Mr. J. Phillip, R.A., revels in the power and ease with which he sets forth Spanish character, and his own characteristic glorious colour. "A Chat round the Brasero" (132) introduces a fat priest, engaged in the enforcement of some argument, that appears to be more amusing than convincing to his female audience; for one of them, as fat as the propounder, rolls with such unrestrained laughter, that apoplexy or spasms, at least, may be apprehended as an inevitable and imminent consequence to a lady of her physique.

Mr. T. Faed, R.A., likewise relies entirely upon force and splendour of colour for the success of his two peasant children watching some barn-door fowl taking "Pot-luck" (235), of which it may be said, as of many another instance where this sole aim—to astound—has been attained, "How wonderful!" but what does it convey beyond the teaching of a camera lucida?

"Give us this Day our Daily Bread" suggests itself as the motive, if not the theme, of innumerable works beyond being that of Mr. J. C. Hook's, R.A., most exquisite picture (239), which will prove the worth of refinement even when dealing with the most unaffected rendering of ordinary truth. Whether it be a fisher crew putting out to sea, or a fisherwife "Baiting for Haddock" (268), or any of the sunburnt complexioned family pursuing their every-day occupations, that furnish the text for dilatation, this painter invests the prosaic matter with all the charm of a poet's description; and saves himself from being charged with sameness only by the perfection with which he thus renders phases of nature, and such as are the least likely to become wearisome.

Mr. E. M. Ward, R.A., has been content to restrict his capability of narrating history, with a graphic power too rare ever to excuse its use, though he has bestowed extra manipulative expense on "Amy Robsart and Leicester at Cumnor Hall" (64), admirably illustrating the situation in Scott's romance, when Amy is inquiring of her betrayer the names and significance of the State jewels with which he is decorated. As an example of Mr. Ward's firm and brilliant painting, the work is very valuable.

Mr. J. C. Horsley, R.A., also excels in the acquired necessities that help to make the artist. In "Going to a Party" (122), the little heroine of Charles I.'s period, so often depicted by him, has put on some new airs with the new dress for the occasion, and a serving-maid—worthy of Metsu—is complacently watching her, as she is admiring the pretty effect of her blue frock.

Mr. W. P. Frith, R.A., has not succeeded so well as usual in clearly representing personations. In "Widow Wadman laying Siege to my Uncle Toby" (73), they are too young, and are not good actors of the parts.

Mr. F. Goodall, R.A., leads to a very different class of subject. It would be difficult to conceive a novel treatment for "Hagar and Ishmael" (6), who have been presented in so many possible and impossible positions that it was wise to adopt the most probable. They are here, wandering in a broad expanse of the wilderness of Beer-sheba; impressively indicating their desolation and homeless condition. This well-studied and well-executed: picture will add leaves to Mr. Goodall's laurels as surely as they were not crown in the desert it is evident they cannot be cut there.

In "Before the Cave of Belarius" (82), the Imogen of Mr. P. F. Poole, R.A., is the most unsatisfactory point of a not very satisfactory entirety. With many passages of fine colour, it fails to awaken half so much admiration as "A Midsummer Night," with a sleeping shepherd-boy being kissed by the moon as lovingly as ever Endymion was.*

GILDERSOME.—A Baptist chapel, just completed here in the Italian style, at a cost of about 2,400*l.*, has been opened for divine service.

* To be continued.

ARCHITECTURE AT THE ROYAL ACADEMY.

THE season of art-shows has now set in. We are invited on all sides to view the progress made by human endeavour since the various exhibitional and academical walls were sparkling with similar fruit last year. That the difference in the quality of the harvest is not very remarkable is, perhaps, after all, more satisfactory than any great deviation from the measure of usual progress would be, for experience teaches that the exertion of any great stride must be made up by a longer period of repose. Far better is it for the interests of art that each succeeding year should be marked by a gradual exaltation of aim and execution, than that we should have to record comet-like appearances followed by seasons of dearth and disaster. With this conviction we turn to the annual display hopefully and appreciatingly. Whereas the walls of the Architectural Exhibition should show us fully the constructive phase of architecture, we look more especially to the Royal Academy to see its pictorial or poetical aspect.

Although the buildings exhibited here represent an expenditure of some millions of money, architecture shares the walls of the south room this year *vis-à-vis* to "Mushrooms," "White-heart Cherries," "Calm Moments," "Totty," "The Dead Pet," "The Ghost Story," "A Head," "The Beatitudes," and other miscellaneous fry, including "A Bit of Colour," "Down Hill," and "A Cool Reception." Thirty-five exhibitors have sent forty-one subjects, only twenty-eight of which strictly illustrate architectural buildings in project or progress; two, designs for stained-glass; two, decorations for ceilings; seven, continental sketches; one, the Academical gold medal prize design; and one a model, for the decorations at St. Paul's Cathedral, exhibited in the sculpture room.

The metropolis takes the lion's share of space. Twenty of the subjects illustrate buildings or projects in London and the suburbs, viz.:—The Restoration of Guildhall, New St. Thomas's Hospital, Dulwich new College, the proposed completion of the Palace at Westminster, Holborn Valley Viaduct, Metropolitan Meat and Poultry Market (Smithfield), the St. Pancras Terminus, Temple-bar Branch of the Union Bank of London, City Terminus Hotel and Station (Cannon-street), front of the Freemasons' Hall, alteration of the Chancel of a West-end Church, and Churches at Highbury, Upper Norwood, and Deptford.

The provinces are most inadequately represented, for out of all the very numerous and extensive works proceeding at this time in our thriving manufacturing cities, and in various parts of the three kingdoms, notices of which occur in our pages, there are representations here only of the churches at Romsey, Hoddesdon, and Leamington; the college at Hurstpierpoint; the chapel at St. John's College, Cambridge; the Imperial Hotel, Southampton; mansions at Ford, Surrey, Scarisbrick, and Bearwood, Berkshire. Space has been found, however, for pictorial illustrations from ancient foreign buildings, and the collection is supplemented by fragments from Seville, Saragoza, Cologne, Lubeck, Marienburg, Nuremburg, and Pisa.

The contributors of these works are Messrs. F. Marrable, W. White, H. Currey, J. Norton, G. E. Street, A., F. C. Cockerell, R. Kerr, G. G. Scott, R.A., E. M. Barry, A., B. Ferrey, C. Gray, J. Clarke, H. Hughes, H. Jones, W. Slater & R. H. Carpenter, C. Barry, J. & J. Belcher, J. D. Wyatt, E. W. Pugin, G. S. Clarke, J. A. Maye, F. Galli, M. D. Wyatt, H. W. Brewer, J. P. Jones, F. C. Penrose, R. P. Spiers, J. Giles, A. M. Ridge, F. W. Porter, E. George, A. O. Connor, and Miss G. Wilkinson.

The "Design for the New St. Thomas's Hospital, about to be erected at Stangate," by Mr. H. Currey (771), illustrated, as others of those exhibited have been, in our pages, is shown in a drawing nearly 9 ft. long, in which the bird's-eye view represents the blocks of buildings fringing the river frontage. "Interior of Guildhall, in the City of London, restored from the Designs of H. Jones" (765), is the view looking to the west end where stand Gog and Magog. The frame has an inscription upon it thus,—"Erected 1411, restored 1865," implying that the new open-timbered roof of 1865 is a *restoration* of that which existed in 1411. Yet there still remains a doubt among our leading archæologists as to the original formation of that part of the structure. "Bearwood, Berkshire, Entrance Front, North" (799), and "Ford, Surrey, Entrance Front (north-east)" (783), both by Professor Kerr, show two country mansions, in the Elizabethan style, where a free use of red brick gives a ruddy tone to the fabrics, and where, as in the case of the drawing of the subject in Surrey, the building is perfectly aglow with warmth, by the pictorial treatment of the sun setting upon it.

We are able here to examine the first and second premiated designs for the St. Pancras hotel and terminus, both of which we missed in reviewing the three designs for the same subject, in the Architectural Exhibition. Mr. G. G. Scott, R.A., exhibits the first prize design, in a large and faintly-tinted and feebly-drawn perspective view, as "The new Midland Railway Terminus and Hotel, about to be erected, with some Modifications, in St. Pancras, London" (780). He might have exhibited a small sketch to show what the "modifications" are to be, for these may seriously affect the grandeur of the *tout ensemble*, and without it the public may be misled on inspecting the design in its present aspect. Mr. Scott does not tackle with the railway shed, by bringing it into the composition of the façade, like Mr. Owen Jones, nor characterise the hotel, but represents both hotel and terminus as one continuous and uniform screen, on a leviathan scale, of tiers upon tiers of apartments, pierced at the base with large arches on either hand, for departure and exit, from the terminus behind. Many of the well-known features of Mr. Scott's designs appear in the composition; his houses in the Broad Sanctuary, Westminster, are repeated here in more than duplicate, the bow windows and stepped gables exactly corresponding. His Gothic design for the Foreign Office is *réchauffé* here, and there are the same miniature arcaded parapets introduced which figure in almost every one of his compositions, domestic or ecclesiastical. We see them in his new chapel, St. John's College, Cambridge, at this exhibition, and we came upon them lately in a drawing of a gallery front to St. Giles's, Camberwell, exhibited at South Kensington, which must have been designed twenty years ago. The proportions of the building, however, are imposing and vast. There are five stories up to the corbelled parapets, and two more in the high-pitched roof. There are about forty windows in each story, and more than 200 windows in the whole front; under pointed arches, as lancets, couplets, and triplets, in tiers respectively of each sort. There are four gables, sixteen chimney shafts, forty dormers in the roofs; a tower (like that at Preston town-hall) at the eastern corner; a portico at the western corner, and continuous iron balconies to the first, second, and third stories. This "Hôtel du Géant" will utterly dwarf and shade the pigmy and antiquated seedy region of houses in the Euston-road, and appear of course all the more distinguished by the contrast.

The "Design chosen second for the London Station and Hotel of the Midland Railway Company," by Mr. G. S. Clarke (789), looks as if Hardwicke Hall had been selected as the theme for the design; and, like it, all the windows are straight-headed, many-mullioned, and many-transomed. Mr. Clarke ignores the railway shed; for nothing is seen of it, nor is there any indication that his building leads to anything, if we except the archways near each end. The façade shows in his pictorial view. The towers which he introduces are very curious indeed, the largest, and it appears a very large and lofty one (that in the foreground), is converted into five distinct towers, after leaving its balconied summit, each of the shape and make of signal-boxes.

Mr. G. E. Street, A., contributes one subject—a perspective view, outlined in brown ink and coloured, of "The Parish Church, Leamington" (776). The building must be entirely new, and a handsome one it is. It does not present, however, the usual characteristics of Mr. Street's style in bands of coloured materials, for only one colour is used in the material employed for the building. The view is taken from the south-east, and represents the tall apsidal east end, and an apsidal sacristy, with a turret contiguous, in the foreground, the latter nestling against the east wall of a fine transept, which has a six-light mullioned window, with Early Geometric tracing. At the southern end, placed over a doorway, a tall crocketed and buttressed *flèche* strides the junction of the transepts with the church, and is coloured to represent ornamental lead-work. There is also a tower at the western end, with a belfry stage, the slate louvres of which are very large, and project much like those in the *beffroi* of the church at Cauffry (Oise). The edifi presents a rather hump-backed appearan in the general view, and its length is detract from by the author adopting the Continent mode of making roofs of nave, transept, a chancel all of one height. Probably an increas grandeur is produced internally by this arrang ment, but in the absence of a view we have means of judging this.

Mr. C. Gray shows a largish pen-and-i drawing of "The Proposed Alteration of t Chancel of a West-end Church" (762), in whi designs for the lectern, pulpit, reredos, a other fittings are prominent and carefu designed.

There are two memorials to departed gre ness close together which cannot fail to attra attention. At 764, Mr. H. Hughes displays small "Drawing of Memorial Window to H.R. the Duke of Kent, now executing by comma of Her Majesty the Queen," but the announc ment does not go farther and tell us whe The structural work of the window is five lights, Perpendicular in portions of t tracery head. The Scriptural pictorial subje are all taken from the parables relating children, the centre light being occupied by illustration of the text, "Suffer little children come unto me." A continuous scroll fixed the stone cill bears the following inscriptio "*Eduardo Duci Cantii, loco quondam commora inter beneficia adempto prius quam agnito pa filia unica, Britt. Reg. Victoria;*" and at 7 Mr. B. Ferrey exhibits a large "View of Rom Abbey Church, showing the proposed Reprod tion of the eastern Chapel as indicated by t foundations, and other Remains recently ex vated; intended as a Memorial to the l Viscount Palmerston, K.G., and to contain recumbent Figure of that Statesman." T chapel has two three-light windows at t eastern end divided by a buttress, and two tw light windows at the sides, the geometric trace of which is made to harmonize well with th inserted in Mediæval times in the eastern e of the church. The style adopted, howev seems out of place with the fine Romanesq character of the rest of the fabric, and t adoption of a very flat roof and gable makes t memorial chapel to have an isolated appearan Mr. C. Barry has a showy large view "Dulwich New College, now in course erection," from his designs and under his sup intendence (767), in which a block of buildin containing the great hall with its lantern on t roof, occupies the centre of the college, a covered corridors right and left connect it spacious wings constructed in the form of t letter E, each having a tower. The buildin are shown to be in red brick with stone or ceme or terra-cotta ornamental cornices, chimne stacks, windows, and facings, and the hipp roofs to be covered with the light ridge-an furrow tile. The design smacks of the Itali style and ornamentation now much in vogue the building in connexion with the Departme of Science and Art at Kensington. Mr. E. Barry, A., submits his designs for the co pletion of the New Palace at Westminster on t removal of the present law-courts, in two shee of plan elevations and sections (768, 775). T project as laid before the Government is enclose Palace-yard, to form subways to t railway station and Thames embankment, groined arcade with statues, and a block buildings for use of parliamentary committe and Royal Commissions, for the accommodati of which, in spite of the immense size of t Palace, "large annual rentals are paid by t Government." The style of the Houses of Pa liament is properly retained in these conte plated additions, but we cannot see the pr priety of adopting it for the railway termin opposite, as the unity of the Palace wou be thus spoilt. The remaining designs a drawings may be dismissed in a few wor "The South-west View of Scarisbrick Hall, t Seat of Lady Scarisbrick, erected partially fr the designs of the late A. Welby Pugin, a completed by his Son" (790), is large, and ch racteristically designed, but fragmentary; queer little Flemish gateway, with apparently drawbridge over a lake, appears oddly in t grounds. "City Terminus Hotel and Railw Station in Cannon-street, London" (795), nearly a *fac-simile* of the Charing-cross Hot though not quite so lofty, and Mr. E. Barry is architect of both. "Proposed Hot Vittoria Emanuele, to be erected at Florence (798), by Mr. S. P. Jones, looks more like "bu ness" than his "Madrid Improvement," in t

Architectural Exhibition. "St. John's College, Hurstpierpoint" (779), by Messrs. W. Slater & R. H. Carpenter, appears to have a right regal chapel, excelling in grandeur of proportion the chapel of Merton College. There seems to be width enough for three rows of stalls on each side of the centre ambulatory, and for a large organ against the side wall. Mr. W. White has, at 769, "A View of St. Saviour's Church, Highbury," drawn by J. H. Metcalf, the plans, section, &c., of which are at the Architectural Exhibition. The edifice is built of moulded red bricks, and roofed with brown tiles, and panelled into quatrefoils and other ornaments with white bricks. In an unnecessarily large and slightly-sketched pen-and-ink perspective view, Mr. J. Norton shows his "Imperial Hotel, Southampton, now erecting at the South-Western Terminus,—the South and West Fronts" (782). The site is prominent, the building standing at the angle of two streets. Mr. Norton has been influenced by the Tuileries: one of his entrances seems to be a counterpart of the centre of the Pavilion d'Horloge there. Mr. H. Jones exhibits his "Design for the Holborn Valley Viaduct across Farringdon-street, &c." (774). He has hit off the dingy aspect of the houses in that locality in his drawing cleverly, for all things in the view are coloured to represent them in a fog. His design, with the sculptured figures and decorations in bronze, is an artistic work. "The Temple-bar Branch, Chancery-lane, of the Union Bank of London" (770), represents Mr. F. W. Porter's design for this imposing double-fronted building, a large and unobtrusively-designed structure, of which we have given illustrations. Mr. F. Marrable, displays his clever "Chancel of St. Peter's Church, Wickham-road, Deptford" (778), in an acutely foreshortened large interior view, in which the ornamental red-brick arches are somewhat too powerfully contrasted with the lighter materials employed.

Mr. J. D. Wyatt is deputy again for Mr. G. G. Scott at this as well as the Architectural Exhibition; but here, instead of outline lithographs, he shows a coloured external view, the subject being "The new Chapel of St. John's College, Cambridge, now in course of erection" (788). The chapel must be very extensive; for, besides tower and transept shown (the dining-hall of the college abuts on the latter), the chancel, or chapel proper, has seven three-light windows between the buttresses on the side, and three two-light in the apsidal end. We can do no more than generalize in describing the "Proposed Decoration to the Ceiling of a Church in the City," by Mr. F. Galli (792), and "Original Study for a Painted Ceiling, executed for Mr. Alexander Collie, Kensington Palace Gardens," by Mr. M. D. Wyatt (793). Both these drawings are hung on the skyline, and cannot be properly examined. The former is shown by a faint and miniature plan, like that published of the famous ceiling of the Sistine Chapel, by Michelangelo, in Rome. In the latter the view of the ceiling includes also the four colonnaded walls of the saloon, and is taken from a central point in the room, with the body reclining on a couch, and the eye looking upwards,—a mode of perspective frequently adopted by the Cinque-cento painters on the ceilings of palaces in Rome. To Mr. R. P. Spiers we must offer congratulations for the credit he does to himself and the profession he represents in the various painstaking water-colour drawings which he exhibits (some of them here, and the greater bulk at the Architectural Exhibition) of ancient buildings abroad. The materials of the buildings depicted, whether of brick, metal, marble, wood, or stone, are most faithfully drawn, and the atmospheric effects are copied on the spot. The well-known chapel of Santa Maria della Spina, Pisa, is perfect in this respect. The Exhibition here, like that in Conduit-street, includes a solitary lady contributor. Miss G. Wilkinson boldly, artistically, and laboriously attacks the "Hall of Ambassadors, Alcazar, Seville" (781), in an elaborate internal view.

Concluding our review, we must again say one word against the scant and unsatisfactory accommodation provided for architecture at the Royal Academy. Will better times come?

SURREY COUNTY HOSPITAL.—The architect of this building, our readers may remember, is Mr. *E. W. Lower*, not "E. W. Sower," as accidentally printed in our last.

EXHIBITION OF NATIONAL PORTRAITS.*

WE continue our general notes, eulogy, and complaints, as to this important collection, irrespectively of Mr. Planché's *first* Pix trial of it by the test of costume and heraldry.† Our next number will be found to contain a second communication from Mr. Planché, on a subject which no one understands better.

Although we have every reason to be thankful, and *are* thankful; there are many noblemen's houses, halls, and manors from which good and comparatively unknown portraits might have been procured by a little friendly coaxing and coaching, and a letter or two of favourable introduction. The still more persuasive signature of the Prince of Wales (to whom Queen Elizabeth's word of denial‡ would never have been given) might have made this Exhibition all but thoroughly and absolutely complete. Had the Duke of Sutherland, for instance, been asked for, and had sent the *Vandyck* to the knees-portrait of the art-collector Howard, Earl of Arundel, we should have had a priceless and unique opportunity of comparing and contrasting the *Warwick Castle* knee-piece in armour of the same nobleman (happily in the Exhibition), and from the hand of Rubens, with his great pupil's treatment of the same fine head at a later period of life. What an instructive lesson it would have been to our living masters in portraiture, Sir Francis Grant, P.R.A., Mr. Knight, Mr. Boxall, and the many "young probationers and candidates" for admission to the schools and the full honours of the "Royal Academy of Arts!"

All who admire Holbein, and have heard of his "Sir Thomas More and Family" (to which we have before referred), will be delighted to see it at Kensington (163), from Mr. Wynn's, at Nostall Priory, near Normanton, in Yorkshire. Waagen gives (vol. iii., pp. 334-6), a very interesting description of this picture, which might be transferred to the catalogue with advantage; a few additions from what Walpole says (ed. Wornum, p. 91) would be read with instruction when standing before the picture. It is on canvas, 11 ft. 6 in. by 8 ft. 3 in. We ourselves purpose touching on it.

The little Mabuse of the three children of Henry VII. — Prince Arthur, Prince Henry (Henry VIII.,), and Margaret (Queen of James IV. of Scotland—is here (58). What an educational treat the Commissioners would have afforded us had they borrowed as well Lord Pembroke's duplicate from Wilton, and Lord Methuen's repetition of it from Corsham.

The collection is properly rich in portraits of Queen Elizabeth, and in subject pictures, such as (219) the Allegory of the Queen, by Lucas de Heere, from Hampton Court, and (256) the famous Hunsdon House Procession, from Mr. Digby's, at Sherborne Castle, in Dorsetshire. We have also (217) the full-length of her, in a fancy dress, from Hampton Court. Sir John Trelawny sends a three-quarter of her (226); the Duke of Devonshire, a full-length (229); Lord Hardwicke, a half-length, when young (252), from Wimpole; Lord Warwick, a three-quarter, from Warwick Castle (257); Lord Salisbury, the rainbow in hand picture, from Hatfield, by Zucchero (267), very fine; Mr. Fountaine, of Narford, contributes a curious portrait of her when princess (271); the Head-Master of Westminster School sends (307) a small picture on panel—not good enough for the Collegiate School of Queen Elizabeth's own foundation; Mr. David Laing, the well-known antiquary, of Edinburgh, exhibits (325) a bust of her, when young, by Mark Garrard; Lord Methuen has lent (348) a too little known portrait of her; Viscount Strangford sends (349) a half-length, "believed to have been presented to Sir Philip Sydney by the Queen herself,"—a niece of Sir Philip's was married to the first Viscount Strangford; Christ Church, Oxford, contributes (350) a three-quarter, on panel, taken late in life; Mr. G. Cholmondeley is the owner of 356—bust-size, and characteristic; the Marquis of Exeter (a Cecil) has lent 359—bust-size; the Earl of Verulam has sent (362) a three-quarter; and the University Library, Cambridge (363), a bust-size portrait. A goodly gathering, requiring more contrast and comparison than we can at present give to it. Most interesting indeed to all who speak "y^e Englysbe tonge" is this Exhibition.

By what artists these Queen Elizabeth portraits were painted the most skilled in art, and men the best read in English art, can only conjecture. The question already excites curiosity and research, and will doubtless lead to the discovery of some new names in Elizabethan art. Hereafter we shall have something new, and yet old, to say thereon.

So many portraits of England's Elizabeth have never before been brought under one roof.

> "Her eye proclaims her of the Briton line,
> Her lion-port, her awe-commanding face
> Attemper'd sweet to virgin-grace."*

And this is the great queen who could dally with Ratcliffe, and Dudley, and Devereux, and dance "high and disposedly" with her dancing Lord Chancellor, Sir Christopher Hatton. Compare these pictures of her with the unique broken coin of her, from the Harley and Strawberry-hill collections, engraved in Walpole's Royal and Noble authors, and now, fortunately, in the British Museum.

We, in common with others, miss sadly the twin full-length Vansomers of the Earl and Countess of Arundel. The whole of the members of the Arundel Society will, we feel assured, share our regret. Did the Duke of Norfolk refuse, or was he asked? The pictures we refer to are well engraved in Dallaway's Walpole.

We could have wished, too, that the *twin* full-length portraits on one canvas of Henry Prince of Wales (son of James I.) and Robert Devereux, Earl of Essex (the Parliamentary general when a boy),—it is a hunting scene,—had been obtained from Wroxton, in Oxfordshire, and hung (for comparison) with the Hampton Court duplicate.

A far-famed lady was persuasively asked her age, and her reply was to the point,—"I know not how old I am to-day, but I know how young I was yesterday." Could not the committee or council of the Exhibition command a portrait of the old Countess of Desmond, who, when a girl, had danced with King Richard III., and remembered well that he was without a theatrical hump upon his shoulders? What a companion it would have made to a similitude of "Old Parr."

Of Vandyck's the collection contains more than we were able to detect in our preliminary Pisgah view of so many suggestive heads.

The collection ends with the poet Dryden, by Kneller, and engraved by Edelinck,—a noble head. It is a proper *temporary* termination to the Kensington gathering; for Dryden began his more than forty years of poetic life by some "Heroic Stanzas on the Death of Oliver Cromwell," (1658), and by his "Astræa Redux, a Poem on the Happy Restoration of his Sacred Majesty Charles II." (1660), and with "1660" the collection closes.

PROGRESS OF THE NATIONAL PRINCE CONSORT MEMORIAL IN HYDE PARK.

IN that portion of Hyde Park which most Londoners can remember as a howling wilderness, scarcely frequented save by such of the Knightsbridge garrison as loved solitude, but which has now changed its dingy desolate character and become a scented and brilliant head-centre of flowers, fashion, and sunshine, there is, veiled by the surrounding trees, a pile of scaffolding. This encloses the brickwork skeleton of the National Prince Consort Memorial. Commenced about two years ago, without any foundation ceremony, some progress has now been made in its erection, which we shall briefly describe.

The national memorial of our great loss has attained about 30 ft. out of its ultimate height (of 170 ft.), though it is by no means finished up to that height. The podium is, however, in its place. There are on the spot number of polished granite columns and bases, all worked and ready for placing in their respective positions. The future progress promises, therefore, to be made at a more rapid rate. In an undertaking of this kind, where so many materials are employed, delays often ensue from the want of one only. This is the case in the present instance. Much more progress would have been effected by this time but for the difficulty of procuring the Irish granite. The Scottish granite and Italian marbles have come at a call, as it were, but this contribution from the green Isle of Erin has been long in appearing.

It will doubtless be remembered that the base

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* See p. 279, *ante*. † See p. 320, *ante*.
‡ On Dean Nowell's name,—see his portrait from Brasenose College, Oxford.

* Gray, "The Bard."

of the steps leading to the monument is to be about 130 ft. square. The foundations for the central mass to be superimposed upon this area were put in 60 ft. square by 17 ft. deep in concrete, in consequence of loose sand being found in the gravelly soil. As the foundations for the steps, or raised platforms forming the base, are not required to be solid, they are in an arrangement to be compared to three heights of flying buttresses, stepping up one above another round the four square sides. Each buttress is 1 ft. 6 in. in width, and 2 ft. 6 in. apart, and they are all tied together by means of connecting arches. The granite steps to be laid on this part of the brick skeleton, if extended in a line, would exceed a mile and a half in length. Following the configuration assigned them, they will consist of 1,200 lengths, each measuring 7 ft. They are of Irish grey granite from Castle Wellan, Newry, forty miles distant from Belfast. The transverse section of the internal framework would remind French antiquaries of *les fourches patibulaires*, with which all *residences seigneuriales* were once supplemented. It presents the appearance of stages of arches, two more elevated than the rest being approached on either side by three tiers stepping up, which form the substratum of the steps. The external piers of the two elevated arches measure 8 ft. 3 in. across; the central pier dividing the two arches is scarcely more than half this width, measuring but 4 ft. 6 in. in diameter; the former is designed to carry the greater weight of the clustered columns at the four angles of the monument, the latter the central statue only. Descending from the podium, the first platform over the brick framework for the steps measures 15 ft. across, and after a slope or flight of steps of 12 ft. 6 in. is a second platform of 7 ft. 8 in., after which another slope of 12 ft. 6 in. brings the eye to the ground, the two flights together rising 14 ft. The bricks for this part of the structure were made at Shepherd's Bush.

The podium, now erected on the brickwork superstructure described, is composed of granite and marble. It consists of three parts. The lower or base mouldings, of Ross of Mull red granite, 3 ft. high, carries a Sicilian marble frieze, now nearly ready for the sculptures, from the hands of Mr. Armstead and Mr. Philips. This Sicilian marble is in forty blocks, each 6 ft. 3 in. high, 2 ft. thick, and varying in width and weight. The smallest blocks weigh 4 tons each; the largest from 7 tons to 8 tons. Two more of them placed in position will complete the portion destined to receive Mr. Armstead's *relievi*. Six more are required to be raised and placed before the portion allotted to Mr. Philips will be ready for his labours. This frieze, which is 6 ft. 3 in. in height, is surmounted by a moulded capping, in Ross of Mull light red granite, 2 ft. high.

The next part of the superstructure consists of the four clustered columns to carry the canopy. The materials for these are on the spot in various stages of progress. The granite columns are the first that have ever been polished in London. The process is performed by machinery erected on the site. Thirty-two of them (all monoliths) measure 12 ft. 6 in. in height, and 2 ft. 6 in. in diameter; and thirty-two others measure 7 ft. 6 in. in height and 2 ft. in diameter. The bases for the clusters of these columns are nearly ready to be set upon the podium. They are made of pink Mull granite, and have nine bases wrought upon them in one block each sixteen tons in weight. The shaped cores of the clusters are of red Mull granite 2 ft. square and 20 ft. high. The principal columns placed centrally on each face of the cores are also of red granite; but the smaller ones at the angles of the cores are wrought of Irish grey granite. Thus each cluster is composed of eight columns and a core. Opinions have been expressed that these clusters will look and prove too weak to sustain the super-structure. Precautions have been taken to bind them together to avert the last-mentioned possibility. Each column is well dovetailed into the granite core the whole height, and cramped. At the junction of the 12 ft. 6 in. with the upper and shorter ones, measuring 7 ft. 6 in., occurs a copper moulded band, 1 foot in thickness. The Darley-dale caps are solid, and weigh thirteen tons each. From these caps will spring the groining and carved Portland stone arches for the canopy. The Mosaic inlayings of Signor Salviati will enrich the gablets.

Much of the material for the pedestal for the bronze figure of the great Prince is now on the spot, such as the pink granite for the sub-plinth, the Correni granite from Captain Gordon's estate in the Highlands, forty miles from Aberdeen, for the base and surbase mouldings, and the Sicilian marble for the heraldic frieze between them. Taking this and other facilities into consideration, it is computed that the structure and its various artistic accessories will be completed in about three years from this time. Mr. Scott, the architect, is happy in having so many gifted co-workers to carry out his design. It is said that Mr. Kelk, as builder, is contributing his share to the work without the ordinary recompense or profit, having at first refused to undertake it, but complying on receiving an indication direct from her Majesty that it was the Royal pleasure he should do so.

The supervision of the work is entrusted to Mr. William Cross. There are three travelling machines employed, viz.—a low hoist to lift 20 ft., another to lift 40 ft., and a third to lift blocks, weighing 15 tons, to a height of 40 ft. These are worked by hand, not steam. It takes a strength of four or five men to lift the 15-ton blocks. Four lightning conductors will be provided.

The sculptors are all busy in their respective studies with their models for the various groups and friezes. They will make their names known in far-off corners of the earth, if their works prove to be worthy of their trust;—Thorneycroft, Foley, Bell, Theed, Weekes, McDowell, Calder Marshall, and Lawler; and their election for this task will be as a sign to posterity that they were not slighted in their generation. We have already named the sculptors of the frieze of the podium. Mr. Farmer is deputed to the stone carving, and Messrs. Skidmore the metal work. The great crowning work, the metalline presentment of the most knightly, most kingly prince, is in the hands of Baron Marochetti. With the exception of the Baron and Signor Salviati, all the artists employed are Britons. Perhaps it is as good an expression as we could devise, of our sense of the value of the international teachings of the Prince Consort, that this introduction of Continental art should form part of the scheme in the national monument. If good wishes can speed and prosper a work, we shall have nothing to regret.

BREADTH OF LIGHT AND SHADOW IN ARCHITECTURE.*

OUR life may be said to be composed of lights and shadows. In studying this subject, therefore, it has appeared to me that it might be permissible to treat it not merely in a dry and technical manner, but with some reference to general principles. Not indeed that the technical part of it is insignificant, for it is a main element in the success, not only of the architect but of the painter and sculptor, that he should make himself master of that branch of his subject which the Italians call *chiaro scuro*, but which with us goes by the simpler name of Light and Shadow; and in the outset I cannot but express an opinion how unfortunate it is that the study of our architects is far too much confined to that of elevations and sections, rather than extended to perspective sketching, and what must be even more useful and truthful—the construction of models in some detail of the structures they are about to erect. The appearance of a building with or without the sun upon it, in the morning or in the evening, is a matter of no slight importance, yet seldom much weighed or thought of. Does its outline come boldly out upon the sky, or is it backed by hills and woods? What is the depth of shadow cast by its mouldings and cornices? What is the setting of its windows—the best, perhaps only, index we have of the strength and thickness of its walls? These are a few, but a few only of the questions which a study of the light and shadow of a building presents to the mind of the architect. The tendency of the revival of architecture in England has been rather towards technical excellence than the improvement of the great principles of design. Nor are the causes of this far to seek. The revival has had its origin more in the individual spirit and energy of private persons, than in any Government influence. The Church, indeed, as in the olden time, has been the main friend and supporter of the art, but here, too, the tendency has been to smallness and prettiness, rather than to size and magnificence: true, indeed, our cathedrals have undergone, to no insignificant degree, restoration and improvement, but it has been in the embellishment of the superstructure rather than in the extent of the foundations. Here, too, it is the unit, rather than the corporate idea, that has had its main influence upon the public mind. The parish church or the nobleman's mansion has been the scene of the architect's most successful labours. Of course, to this rule there are large exceptions. The vitality which has risen from individual energy and individual wealth has spread through every part of the body politic of England, and we have seen with our own eyes the erection of many noble public buildings of which no age or country, not even classic Italy, need have been ashamed; yet I dare affirm that the movement has been inspired from below rather than from above.

This is quite in accordance with the spirit of the age. The taste has spread from the labours of such men as Rickman, and Pugin, and Ruskin, rather than gained inspiration from public patronage, from the Government, or from the Crown. The consequence is, that our efforts, our experiments, are necessarily upon a small scale at first. We are like military officers who have not had much opportunity of moving large bodies of men; whereas, abroad, painters, sculptors, and architects generally, have much assistance from Government, put themselves at the head of a large set of young men, and form a school, whether of painting, or sculpture, or architecture. We in England work in an isolated and therefore comparatively small way. Here and there a well-known architect or sculptor may have pupils; a painter, we may say, hardly ever.

Nor do I feel that this mode of working is altogether wrong. It interposes great difficulties in the way of struggling merit; but, on the other hand, those choice spirits who struggle upwards are probably men of higher genius than those who in the neighbouring country are raised up under the fostering wing of Imperial patronage. We have nothing to be ashamed of in the artists of our day. Finish, indeed, perhaps, bears a disproportional value in the market, and the excellence of detail, whether in architecture or its sister arts, is very highly appreciated, while genius like that of a Blake or of a Martin is little thought of. I mention these topics of the day as one excuse for recalling to your minds a few of what I would call the larger principles of the art,—its theory rather than its practice.

I would, then, ask you what is breadth? It is a word frequently in the mouth of the artist, but, perhaps, not readily present to the mind in any very clear and definite manner. Perhaps we may arrive at a sound notion of its nature by looking at its opposite, which I take to be "spottiness of effect," or "overcrowding of detail." As a general rule, we may say that the earliest styles of Gothic art, the Norman, the transition from Norman to Early English, the later transition from Early English to Decorated, present noble examples of breadth and simplicity of treatment, when compared with the Perpendicular in England, the Flamboyant style in France, and the Renaissance in Italy. It has been observed by a writer on morals, that we do not want a dinner to be "all sweets, or all dessert," or a beautiful dress to be all "flounces and furbelows;" so, too, we do not like a building entirely covered with ornamentation, which justly is compared rather to "filagree-work, or lace-work," than to the realization of that noble idea of structure which makes the framework the basis of all real beauty, just as the bones of an animal are the true foundation of its features and of its form. Not universal ornament, then, but ornament in the right place, in the right degree, and, above all, in the right perfection, are characteristics of breadth. With breadth is necessarily connected severity of style; and I would add this one observation upon the subject, which, I think, is agreeably to a remark of Mr. Burke's, in his essay on "The Sublime and Beautiful." Breadth seems to be necessarily linked with size, and what may be called a certain masculine vigour in the design of a building. Small things are deprived of much grandeur, and its place is then supplied by the secondary attribute of prettiness or elegance. I would instance, as a proof of this, a small apartment as compared with a large; a lady-chapel as compared with a nave; metal-work as compared with stone work; and jewelry as compared with iron-work. The more minute the object, the less need we fear that exquisite finish upon it will be contrary to the rules of taste. The dragon-fly or the humming-bird has colours more brilliant, hues infinitely more

* By Sir Walter C. James, bart. Read at the Architectural Museum.

delicate, than we find in the plumage of the dusky eagle or tawny coat of the lion. Small things can hardly be too pretty: large works can hardly be too simple. If this were kept more in mind, I think much useless expense might be spared. Size in a building in no small measure supplies the place of ornament. There is dignity even in empty wall space. On the other hand, in small chapels, in the tombs of the wealthy, in the reredos, in the font, in the memorial stone, we have good examples where the true principles of simplicity and vigour may with great appropriateness be made to yield the palm to loveliness and grace.

Breadth, then, is always accompanied by grandeur.

> "Those Titanian fabrics
> Which point in Egypt's plains to times that have
> No other record."

are noble examples of this; and as we sail down the stream of time, and advance in knowledge of world architecture, the Doric temple presents to us the noblest example that can be found of "breadth." Ornament, varied and rich, is confined to the pediment, the cornice, and the frieze. Yet, what glories do these disclose. How simple, and yet how perfect, are those forms of heroes and horsemen which came from the inspiration of a Phidias. Sculpture, indeed, always was used as an adjunct of Greek art in the days of its true glory. Not merely the frieze, but the metopes between the triglyphs. The pediment, as before noticed, and the pedestals on the roof, are all useless and quite without intention, unless surmounted with sculpture. We may notice, too, how accurately the principle of ornamenting "structure" is carried out. The ornament being almost always placed upon some essential part of the building, and but seldom superadded, as a mere wanton and useless luxury. The variety of form, too, which characterizes this Doric style is notable. We may first of all observe the form of the building—a parallelogram or oblong. The cornices, the triglyphs, the bases of the columns, the steps leading to the portico, are all square in outline, and notable for the saliency of their right angles. The columns are all circles, and being circular present the finest contrast to the square masses of which the building consists; but the adjuncts of these noble shafts, the flutings, and the capitals present the form of delicate curves. The capital is ovoid. It used to be assumed that these columns were bounded by straight lines. Modern discovery has shown that they have a convex profile,—this in the Parthenon goes to $\frac{1}{110}$ part of the whole height of the column. The absence of this in modern work gives that poverty and rigidity to the style,—in other words, that want of breadth,—which is so frequently matter of just complaint.

We see, then, that although the Doric order is remarkable for its symmetry, its breadth, what may fairly be termed the opposite merit, variety of form, complexity of detail, was never absent from the mind of the Greek artists. Variety, indeed, may be said to be the note of the picturesque, as symmetry is the note of what is purely and simply beautiful. It is in the combination of the two that we have the acme, not only of architectural excellence, but of all art.

Another refinement was to give a slightly-inclined inward slope to the whole building. This, of course, brought out a great notion of support and strength. Each curve was designed upon principles truly mathematical. The care with which the mason-work was built has never been surpassed; and yet all this meritorious detail was not, even in its smallest part, superfluous, because it was bestowed upon a design at once simple, appropriate, and beautiful. The probability is that these splendid temples were not only remarkable for their lovely forms, for the depth and play of light and shadow on the rounded column, and in the deep recess, but that they were brilliant as precious stones, distinguished even at a distance by their sparkling colour. This topic, however, is scarcely within the scope of this lecture. I hasten onwards to notice some few other examples of breadth of treatment, as it is called, of which the pure Doric example may fairly be termed the most natural and perfect form.

Taking a bold leap, as it were, from Pagan styles to Christian art, we perceive an unmistakeable analogy in their progress and development which can hardly escape the notice of any intelligent inquirer. The social state of man as he emerges from barbarism into civilization, develops, at various periods of history, in similar ways. The Christian civilization is unlike the Greek, and it is as superior to it as the character of its great Founder was to that of Socrates. Nevertheless, there are points of likeness, and if the theocratic system of the the kingdom of Israel was intended (as most orthodox divines admit) to prefigure the sacerdotal and sacramental system of the Christian church—if, as lawyers will not be slow to acknowledge, we must look to ancient Rome as the fountain of all systematic laws, and what may be comprehensively called the organization of civil society, to Greece we may confidently turn (as an able statesman has lately told us) as the divinely-appointed source of our knowledge in all matters of taste, literature, poetry, and art. The Indo-Germanic races which descended into Hellas proper, from Thessaly, from Thrace, from Scythia, were but men of like passions and kindred origin with those who, many centuries afterwards, came down from Germany and France into the plains of Lombardy. It is therefore not unnatural, upon general grounds, that we should trace in the early styles of Greek architecture, some faint likeness of the early styles of Christian art, and that, *mutatis mutandis*, we should see in Doric simplicity a prototype of Norman breadth and grandeur, a prototype undoubtedly more perfect in all technical excellences than its Christian successor, but less fertile in ideas, in variety, in all those attributes which distinguish the Church architecture of Mediæval Europe from the Temple architecture of Greece. What the Doric style was to the Egyptian, the Norman style in England was to the Continental styles. This, Mr. Fergusson, in his able handbook, remarks, is well exemplified in the nave of Durham Cathedral, a building differing in every respect from anything on the Continent. He proposes to give to it the name of "Norman" Saxonized, but emphatically denies that it has any claim to the distinctive characteristics of Norman. In both, however, the common attribute is "breadth:" not so much largeness of dimension as largeness of proportion; an unnecessary strength in all the supports; an unnecessary depth in all the mouldings; an almost superhuman vigour in the style; and a superabundance of sculptured ornament, which, however rich it may be, never interferes with the main lines of the building, or the unbroken surfaces which are a necessary constituent of breadth. The beauty and minuteness of the Norman diaper work is a very remarkable thing, in a style where all else is so large and so bold. This nave of Durham, as Mr. Fergusson says, bold, massive, and grand, presents a striking contrast to later examples, such, for instance, as the nave of York Minster, which, though spacious and elegant, and presenting a degree of refinement in every process and every detail, to which Durham cannot pretend, is not nearly so imposing as the rude grandeur displayed by the latter, notwithstanding its far smaller size.

It is not impossible that the analogy I have noticed between the Early Doric and the Norman might be carried further. There is in the Ionic style a character of elegant simplicity which is not alien to the Early English; and in the richness of the Corinthian a great likeness to the Gothic Decorated style. These may be feeble analogies: I will not too much insist upon them; and yet, on the whole, they appear to give a fair view of the various steps by which the human mind rises to the ideal in art. From rude strength we advance to an elegant simplicity, and thence, again, to richness of decoration; after which the course is generally downward; not, as has been before observed, in technic skill, but in all the grander attributes of art. As labour becomes more skilled, we economize our materials; and we therefore find in later periods of development less of originality, less of power, but more minuteness and elegance of finish.

Again, we may, perhaps, find it useful to compare our condition with regard to architecture to that of Imperial Rome, after the long peace which inaugurated the reign of Augustus. To Rome all heathen art tended; from Rome all Christian art originated. Not, indeed, that the Romans were artists. Quite the reverse; but, like a whirlpool in some mighty stream, Rome appropriated to herself, made her own, everything that came within her reach. Etruscan in her origin, she has left more remains of the period when she was governed by kings than of her consular and republican history, of which latter we have not, so far as I am aware, a single monument. But with the conquest of Carthage, the subjection of Greece and Egypt, and an extensive Oriental dominion, artistic wealth began to flow in upon her from all quarters. The consequence was a number of buildings of different and incongruous styles; remarkable rather for size and grandeur than for taste, and a masculine vigour of style. The same thing may be said of our modern capitals. Of the Emperor Augustus it was remarked, that having found Rome a city of brick, he left it a city of marble. The Emperor Napoleon, in like manner, having found Paris a city of streets, narrow, inconvenient, and dirty, has made it a city of palaces, airy, commodious, and clean; but it is a general and true remark, that in doing all this he has not added to its character. It is fine, it is magnificent; but compare its interest with any genuine specimen of old work, and we shall be constrained to confess that magnificence often means monotony, and costliness a sacrifice of individual freedom. In London, matters are little better; though they are better. If Paris, like Rome of old, is delivered to the tender taste of an emperor, London is being gradually given up to the tender mercies of the engineer. In all this we see tendencies towards a state of transition, from old and time-honoured styles, to something new, something better, it may be, than the world has yet seen; but whether worse or better, it will probably be something wholly,—or at least in its main features,—novel. In the decline of imperial Rome, we can hardly suppose that the Romans saw (it is a philosophical remark of Mr. Fergusson's) the result to which the amalgamation of various styles then in vogue was tending, and yet they worked as distinctly to that end as if the spirit of prophecy had guided them to a well-defined conception of the future. And the same thing is going on with the earth upon which we tread, with the language we utter, with the political institutions under which we live. An insensible change, all the more efficient because almost imperceptible, affects us all; and from old forms new forms are being continually evolved. Let it not be thought that although this be an expansion of our subject, it is altogether alien to it. It is at periods when things are changing—when one is forcibly reminded of the saying of the Greek philosopher, that all things are, as it were, in a constant flux,—it is so important to recur to first principles; not to waste our energy upon details alone (though invaluable in their way), but to look to something broad and grand, such as animated the architects of Mediæval Europe or Classic Greece. In this as in most of the problems which guide you in the noble practice of architecture, Nature may be at the least as great a help to you as any building framed by man. Do you want to know how to support a superincumbent weight upon a slender and delicate shaft? Look at the mechanism of the wheat-stalk, in which you will see, in an undeveloped form, every principle which guided Stephenson in the formation of his iron tube across the Menai Strait. Do you want to resist the outward thrust of some continual pressure? Look to the buttresses of the everlasting hills, and there learn that it is in the strength and stability of the foundation—in the thickness of the wall (how often, yet how foolishly neglected now-a-days)—that we can rely for a permanent and really substantial building. The lights and shadows of the landscape as they float across the plain, or betray by their undulating nature the forms of the superficies, are guides to us in showing how different may be the external effect of the same mass at various times, how form changes, how colour changes under the transient influence of light or shadow.

I am the more anxious to make these remarks, because I have lately heard from my friend, Mr. Scott, two admirable lectures on the various buildings open to the study of the young architect, both at home and abroad. He has shown them what advantages may be derived from the study of old churches, old halls, old ornament, wherever found; how the work of those whom we call the "old men," may serve in the solution of many a practical problem. He has well advised this, as the best means of exciting and quickening powers of observation.

I would fain add, while you give full weight to the architects of this or that century, this or that era, do not forget the works of the Great Architect of the Universe. Depend upon it, those old monks who raised such noble minsters hesitated not to see in the animal framework, or the floral decoration, the best possible models, both for permanent structure and appropriate ornament. Among the merits of Mr. Ruskin, a an interesting writer, this must ever be con-

sidered as one of the greatest. He has never looked upon his case as made out because it has been established by thirteenth-century precedent, or any other precedent, but has gone straight to nature for the confirmation of his views. Having observed her laws, and the works of art in which her beauties are skilfully portrayed, with no common genius, he has brought to the study of architecture a mind stored with more than the ordinary amount of information; and, although we may fairly differ from many of his "dogmatic" rules, we must admit him to have shown a spirit in the study of art, both catholic and sincere; catholic in the universality of its grasp, sincere in the truthful working out of any detail with which he may have charged himself. These few remarks, then, come to this,—that, while admiring the skill of modern architects in all matter of detail, it is possible, by the over-study of these latter, to lose sight of that great principle of breadth which, whether we take it in form, or light and shadow, or colour, is a necessary, indeed the first, element in any great work. Secondly, if the principle of breadth have any value, it ought to be specially brought out at a time when prettiness and littleness are rather the characteristics of the day,—when we are more likely to produce Dutch minuteness than Italian magnificence, private luxury rather than public splendour.*

THE THRUST OF GOTHIC ARCHES.

I HAVE read with interest a communication ni the *Builder* of 31st March, on the thrust of Gothic arches, from Mr. Tarn, who simplifies the results of theory in the case of the equilateral arch, in order to get algebraic rules for the thrust and for the thickness of pier, for the use specially of practical men. I observe that in the preliminary processes the cosine of the angle called α (alpha) is assumed to be equal to $\frac{1}{2}$; and that the conclusions are thus limited to the equilateral arch, the commonness of which type of course gives value to such conclusions.

There are, however, and perhaps may always be, many men of much practical ability and experience to whom even the moderate amount of algebra needed to make use of the rules referred to would be distasteful or difficult. It may not be known to such of your readers as come under this description, and yet are not altogether content to be guided in their construction by pure "rule of thumb," that a very simple process will give the thrust of the arch by arithmetic and drawing merely; and this not only for Gothic arches with level surcharge, but for arches of all possible shapes and for every distribution of surcharge. One example will sufficiently show the process; and it will be seen to be such that any one able to draw and to take out the cubic feet of masonry can use it with ease and despatch.

Take a Gothic equilateral arch (fig. 1), of

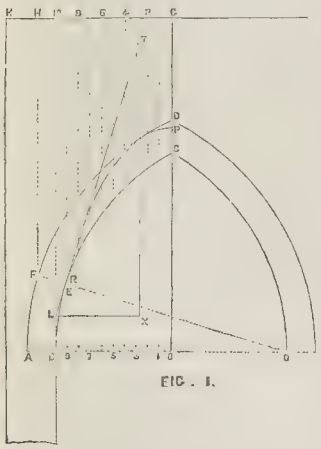


FIG. 1.

40 ft. span, 5 ft. voussoirs, and 20 ft. surcharge. To find the thrust for each foot thickness of wall, in terms of the weight of a cubic foot of masonry.

Divide the half-arch with surcharge into sections of uniform breadth, and take out the cubic contents of each. In fig. 1 the sections are each 2 ft. broad, and the section lines are numbered from 0 to 10, the last coinciding with the front of pier at B. Write the successive

Sections.	Contents.	m.
0	52	52
1	55	159
2	57·6	271·6
3	61·4	390·6
4	65·4	517·4
5	69·6	652·4
6	74·8	796·8
7	81·6	953·2
8	89·6	1124·4
9	101·6	1315·6
Total contents	708·6	
Total of m column		6233·0

cubic contents in a column, numbering each section after its right hand (or upper) section line (from 0 to 9). Then get the numbers in column m by simple addition, thus:—For section 0, m="contents"=52. Add to this the "contents" of 1 and 0, giving 159 for the next number. Add to 159 the "contents" of 2 and 1, and the sum 271·6 is the next number. Add to 271·6 the "contents" of 3 and 2, and this gives 390·6 for the next number; and so on, adding to each "m" in turn the "contents" of the corresponding section and of the section next below. The total (6233) of the numbers in column m multiplied by the half-breadth of the sections (in this case=1), is the moment of the half arch and surcharge in terms of the weight of a cubic foot of masonry, at a leverage of 1 ft.

Now draw the diagram shown in fig. 2 to

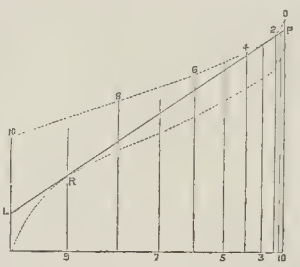


FIG. 2.

the same vertical scale as fig. 1, and any convenient horizontal scale, by taking the section lines (0 to 10) with the heights at which they cut extrados and intrados, and plotting them at distances proportionate to the numbers in column m. Thus the horizonal distance from line 10 to line 9 will be as 1315·6; from 9 to 8 as 1124·4; from 10 to 0 as 6233. The dotted lines show the outlines of extrados and intrados as plotted on this diagram. It only remains to draw the straight line LRP, meeting extrados towards the crown and intrados (at R) towards the springing (but not cutting either line), and to transfer the heights where it crosses the section lines to the corresponding lines in fig. 1, and we get LRP, the theoretical line of pressure, with its "point of rupture," at R. Then divide the total moment of half-arch (6233) by the vertical rise of the line of pressure from L to P (33·3 ft.), and the result $\left(\frac{6233}{33·3}=187\right)$ will be the thrust in terms of a cubic foot of masonry.

It may be remarked that the algebraic process gives the point of rupture E, a little lower than R; and also assumes a line of pressure passing through D, a little higher than P (a line which would partly lie outside extrados). Also, that by the implicit supposition of a balancing action of the surcharge of the joint F E about its inner edge E, it materially reduces the computed thrust. Such action, however, would only be on incipient rupture; for, unless F lifted, all the surcharge to the left of 10 would be a dead weight on the pier. There is reason to believe, indeed, that in a rightly constructed arch the line of pressure adjusts itself with regard to the neutral axes of the voussoirs, rather than to imaginary points of rupture (rupture not being imminent); but the trouble of fixing the true line according to this principle, and the advantage of a ready and commonly accepted method, are inducements to keep to the venerable fiction that all arches are built dry, and on the brink of falling in. All possible lines of pressure would be represented by *straight lines* in diagram 2.

Having the horizontal thrust, it will not be very difficult to find the suitable thickness for the pier.

Suppose the height of pier from its base to the springing at B, to be 40 ft.; from B to L (where line of pressure meets the continuation of inside line of pier) is 6 ft. by the scale, so that height from base to L is 46 ft. Also height from base to top of surcharge is 100·3 ft., and contents of half-arch with surcharge (being the total of "contents" column) = 708·6. Then, with a level surcharge, the rule for thickness of pier will be as follows:—

To square of contents (708·6²), add four times the continued product of thrust (187), height from base to L (46), and height from base to top of surcharge (100·3). Take the square root of this sum, subtract from it the contents (708·6), divide the remainder by height from base to top of surcharge, and the quotient will be the required thickness of pier. Or,

$$\frac{1}{100·3}\left\{\sqrt{708·6^2+4\times187\times46\times100·3}-708·6\right\}$$

$=12·7=$ thickness of pier in feet.

I observe that the algebraic process gives but 11·03 for the thickness, owing to the thrust being taken rather smaller, as already explained.

The amount and direction of the oblique thrust are readily found from the right-angled triangle LXT, in which LX is as the horizontal thrust, and XT as the contents: LT will represent the oblique thrust.

CHARLES E. CONDER.

METROPOLITAN IMPROVEMENTS.

A PARLIAMENTARY committee has, since the commencement of the present session, been investigating the proceedings and projects of that institution which has, for the last ten years, had the principal share in the local government of the metropolis. The first report of the committee has just been published, and contains an interesting retrospect of the subject and a discussion of the ways and means by which future improvements in London may be provided for.

The report gives the following summary of the expenditure which has been and will be incurred for improvements in different parts of the metropolis:—

Thames Embankment north side, with proposed approaches	£1,873,510
Street from Blackfriars to Mansion House	1,206,260
Garrick-street	125,146
Middle-row, Holborn	61,000
Holborn-valley Viadnct	586,000
Widening Park-lane	105,000
Widening High-street, Kensington	88,000
Southwark-street	696,706
Victoria Park approach	43,430
Whitechapel-street	175,000
Finsbury Park	59,567
Southwark Park	59,271
Chelsea Embankment	206,000
Lambeth Embankment	909,000

Making a total of between six and seven millions sterling for past and projected improvements.

The principal sources of revenue are the coal and wine duties. These have produced in the last few years a revenue varying from 162,000*l.* to nearly 200,000*l.* annually. The income has been appropriated to the cost of the Thames Embankment and other metropolitan improvements.

The committee express an opinion "that should the works already referred to another committee be sanctioned by it, the coal and wine duties might beneficially be continued for a further limited period."

Besides the sources of income mentioned the Metropolitan Board now imposes a rate upon the rateable property within its jurisdiction, of more than threepence in the pound for general purposes, in addition to a charge of the same amount for the main drainage; the total rate exceeding sixpence in the pound. The committee insist that, if the local taxation were more nearly equalised in different parts of London, a much greater revenue might be conveniently raised from that source. In Southwark, Whitechapel, and Limehouse, the total burden is from 6s. 9d. to 5s. 5d. in the pound; while in the fashionable regions of St. George's, Hanover-square, Paddington, and Kensington, it is not more than half-a-crown in the pound.

The committee conclude that "one mode of

* To be continued.

providing funds for all local purposes would be found in a nearer approach to the equalisation of local burdens in the metropolis;" and they recommend that in future arrangements of the fiscal resources of the Board of Works, the charge of permanent improvements should be borne partly by the owners and partly by the occupiers of the property assessed.

MONUMENTAL.

The Palmerston Memorial for Southampton.—At a meeting of the committee for carrying out this memorial, Mr. R. S. Pearce announced that the subscriptions already in hand and promised, amounted to nearly 400*l.*, and that letters had been received offering to execute the statue proposed to be erected here to the memory of the late Lord Palmerston, from Mr. Lucas, of Chilworth; Mr. G. Adams, Mr. H. Ross, and Mr. T. Sharp, of London; the two latter of whom sent designs in plaster of the statues they proposed to execute. Mr. Alderman Perkins said that, at the request of the committee, he had seen Mr. Theed, who would execute a statue for 1,000 guineas. Mr. Sharp also attended in person, and explained the general character of his statue, which he proposed to make 7 ft. 6 in. in height, on a pedestal of 8 ft. 6 in., both of Sicilian marble. It was finally resolved to employ Mr. Sharp to execute the statue. The price will be 800*l.* The model is to be exhibited in the shop-window of Mr. Buchan, one of the committee.

The Jonas Webb Statue, Cambridge.—The committee of council for selecting the site for the statue of the late Jonas Webb, the eminent sheep-breeder, recently met Baron Marochetti, and proceeded to the Market Hill, where the subject was discussed, and eventually the spot selected. It will be in a line with the pavement nearly opposite St. Mary's-passage. The statue, which will be upon a pedestal 4½ ft. square, of Penrhyn granite, will occupy the place of one of the stalls. The statue will be about 10 ft. high, and will face the west. It will soon be erected.

ARCHITECTURAL MUSEUM LECTURES.

WESTMINSTER CHAPTER HOUSE.

THE theatre in Jermyn-street was crowded on Wednesday evening last to hear a lecture from Dean Stanley on the Chapter House of Westminster. The address was founded on one delivered at the end of last year when the movement in favour of the restoration was going forward, and of which address we gave the heads at the time. It was listened to with earnest attention and loudly applauded at the close.

The Earl of Powis, who presided, introduced the Dean with some very appropriate and telling remarks.

Lord Overstone at the close moved a vote of thanks to the lecturer, and spoke eloquently and at some length of the value and importance of the Abbey.

Mr. Godwin, in seconding the vote of thanks, expressed an urgent hope, with reference to the works of the Metropolitan District Railway now going on opposite the Abbey, that the utmost precaution would be taken to prevent injury to the building by vibration, and that no vulgar and out-of-place railway station would be allowed to disfigure a site always of great interest and now rapidly becoming one of great beauty.

SANITARY MATTERS.

Asiatic Cholera.—Amongst a crowd of forty German emigrants, who slept in one room, without an open fire-place, in a "hotel" at Liverpool, "Asiatic" cholera has been initiated in this country. In crowded holds of emigrant ships in the Atlantic Ocean, on their way from this country to America, the same plague has also occurred amongst the same class of persons; and at present, both in the harbour of New York and in that of Liverpool, vessels are under quarantine on account of this circumstance. The persons attacked appear to have been in their normal or usual state of health—or, at least, had had no symptoms of cholera—previously to their arrival in this country. And yet it is considered that they must have had the seeds of the disease in them when they quitted Germany; and no doubt they had, if by seeds we mean that unhealthy state of the blood and the system which is begotten by filth and overcrowding amongst a poor and dirty class of people; but if, in any other sense, these Germans or Dutch brought the seeds of virulent cholera with them from their own country, is it not remarkable that our first,—and, indeed, our only intimation that Asiatic cholera has broken out, or exists in a nascent state, in Germany comes to us from Liverpool, from the Atlantic—not the German—Ocean, and from New York?

At an inquest on the body of a child, who died of cholera, and had been one of the forty miserable objects who slept in the "hotel" room at Liverpool, it was stated in evidence that the child was quite well before going to this hotel, where the "seeds" of the disease in the poor little German seem to have found a befitting hot-bed wherein to force them into germination. Is it any wonder that the post-mortem examination showed a prevalence of black, unoxygenated, tarry, poisoned blood, such as is usual in cases of Asiatic cholera?—and more especially if, in cholera seasons, there be a want of oxygenating vigour, as it is said, in the atmosphere, even where there is no overcrowding? How did the virulent cholera originate amongst the Eastern pilgrims last year, but by just such overcrowding—of migrants at least, if not of emigrants—as at Liverpool; only, perhaps, a little worse; and amongst a still more filthily-habited class of persons. Whatever be the cause which sets fire to the train, here is the sort of fuel which burns into virulent cholera; and as very much has been done in past years by sanitary reform in this country to destroy this fuel, we may be sure that amongst English people generally,—predisposed to it as thousands still must be,—the virulent cholera of the present time will not be half so bad as it was on former occasions.

Meantime the Government have very properly put a stop to German emigration through this country, and so indeed have the emigrant shipowners themselves. Other orders have also been issued; and it is to be hoped that cases which have occurred will be comparatively isolated, and not reproductive as cholera once introduced is so apt to be. We fear more for Ireland than for either England or Scotland.

Sanitary State of Kentish Town. — Some alarming disclosures have just been made by the new inspector appointed to make the house-to-house visit in Kentish Town, which have at length convinced the St. Pancras Vestry of the necessity of setting to work to make sanitary improvements in at least that part of their parish. During the fortnight he inspected 185 houses, with 767 rooms, occupied by 1,491 inmates, and 91 of the houses he describes as "filthily dirty," and a large number of them as much out of repair, with open cesspools, closets without water supply, obstructed drains, or drains wanting trapping. Many had an insufficient supply of water, or none for domestic purposes, or the cisterns broken, decayed, or foul, or without covers; the means of ventilation very defective, and the houses overcrowded; the yards and areas dirty and unpaved, having no dust-bin, and with undue accumulations of ashes and refuse. Another inspector, is "occupying his spare time" in inspecting Grafton-street, described as one of the worst streets in Kentish Town. Notices have been served upon the owners or occupiers in 109 of these cases for the abatement of nuisances. The Sanitary Committee, in directing the attention of the vestry to the bad state of the drainage of certain places, state that in Bush's-buildings, Figgure's-buildings, and Little Green-street, there are open cesspools at every house, and they believe that no sewer exists into which the closets can be made properly to empty themselves, and in many of the houses in Mansfield-place and Pleasant-row the same state of things exists. The vestry referred the matter to the Sewers Committee, with a view to the nuisances being remedied.

Manchester.—Mr. Leigh, one of the registrars of Manchester, has forwarded to the Registrar-General a paper on the causes of the vitiation of the atmosphere of that city; wherein he shows how, although it is supplied with an abundance of pure water, the streets admirably paved, sewered, drained (?), and swept, and although the thoroughfares are wide and spacious, the artisan inhabitants well clothed and fed, yet the mortality remains far above any fairly-imagined standard. Mr. Leigh enters very elaborately into the question, and insists that to the smoke which overhangs Manchester like a pall is primarily due the fact that its citizens die in such great numbers. Nevertheless, we believe there are other causes, and especially overcrowding and filth; and, although smoke cannot but be injurious to the lungs which are blackened by it, we must not forget that carbonaceous matter is really a valuable deodorant, if not a disinfectant.

Redruth.—In one of the common lodging-houses at the east end of Redruth, and under the supervision of the local board of health, a deadly form of fever, it is said, has made its appearance. The wife of the occupier was first attacked. Her husband now lies dead; and in the same room, which is a small one, are three beds. In the one lies the son of the deceased; in another, the wife; and in a third, two lodgers, all smitten with the same disease. The rules of the local board are suspended behind the door, but no one has attempted to enforce them. The rooms are filthy. The surgeon has advised no one to enter the house but those directly in attendance upon the dying patients, and considers that the disease has arisen chiefly from a want of ordinary attention to cleanliness, and is in itself highly infectious.

THE TRADES MOVEMENT.

London.—A resolution adopted, but not issued to the masters, by a majority of the delegates of the London carpenters, at a meeting on the 28th ult., not being considered satisfactory either to the great body of the men or the employers, the committee of the movement, at a meeting on Wednesday in last week, withheld the sending in of the resolution to the employers, and called a special delegate meeting for Saturday evening for the consideration of the subject. The Chairman of the committee presided, and explained the circumstances under which the meeting had been called. The true stumbling-block in the resolution of the employers was the distinction drawn as to "most skilled" and "less skilled" workmen, and to the difference made in the working hours of the men working in shops and on out-door jobs in winter. The resolution adopted at the last meeting did not meet the case as it ought to do, and therefore it became necessary for the delegates to reconsider the course they would adopt to secure the 8d. per hour as the standard rate of wages of the trade, and not at the same time to involve the trade in a dispute about the working hours. After a short discussion a resolution was adopted confirming the action of the committee and the following resolution was unanimously passed:—

"That we, the delegates of the joiners, agree to accept the employers' proposition, as contained in their circular, with respect to the advance of wages; that all men now receiving 7¾d. per hour in future receive 8d. per hour, and that this latter sum be considered the standard rate of wages in future, the same as the 7¾d. has been considered during the past year. That we consider the working hours in shops and on jobs should be uniform, but with the object of definitively settling this time question, six of the employers be requested to meet and confer with six of the workmen, in a manner hereafter to be determined upon."

A printed copy was ordered to be sent to each master builder. It was generally understood that the advanced rate of wages would be paid on Saturday.

The Potteries.—The Pottery bricklayers do not seem to be getting on so smoothly with their employers as some branches of the trade are doing at Wolverhampton and Birmingham. They have declined arbitration on a question of rise of pay for which they have struck work, after agreeing to rules, one of which provided for arbitration. They say they have no man among them in whom they can confide to lay their case before the arbitrators, and protect their interests there: they were ready, however, to meet the builders and discuss the question amicably with them. The masters then suggested that the difficulty might be met by the appointment of half a dozen men to represent each side at the reference. This proposition, too, proved abortive. Six of the operatives attended a meeting of the masters, as a deputation, and wanted to go into a discussion, but this the masters declined, as not likely to lead to any satisfactory result, and the men were referred back to their lodge for definite instructions as to arbitration. The deputation waited on the masters about a fortnight ago, and stated that, after full consideration of the matter, the lodge had declined arbitration, and determined to have the advance of 6d. per day, or to cease work on the 1st May. The builders met again, and in the course of discussion it appeared to be the general feeling



A. Sitting-room. B. Bed-room. C. Store-closet. D. W.C.

NEW RESIDENCES, CHRIST CHURCH COLLEGE, OXFORD.—*Plan of Ground Floor.*

of the meeting that it was not desirable to go into the question of wages at all, but that it was of the utmost importance to the well-being of the trade that the provision for arbitration which had been agreed upon by both parties should be adhered to and carried out. They accordingly addressed a communication to the men expressing their regret that the seventh rule, which had been intended to secure the maintenance of kindly feelings between employers and employed, should be attempted to be set aside on the first occasion which had arisen for putting it in practical operation; directing the attention of the operatives to recent instances of the satisfactory way in which arbitration had worked in the building trades of Birmingham and Wolverhampton; and expressing a hope that they would yet be willing to submit the dispute to so fair a mode of settlement. The meeting was then adjourned for the consideration of any reply that might come from the operatives, and of the course to be taken by the masters. This meeting was held as arranged, and the following resolutions were adopted:—

"That this meeting considers the arbitration rule agreed to last year by the bricklayers of this district of such great importance to both employers and employed, that it is determined to use every effort to enforce its application; and to further this end we, the undersigned, hereby pledge ourselves to suspend all bricklaying operations during the time the operatives resist this just and equitable rule."

The resolution was signed by about forty master builders, representing the various potting towns and Newcastle-under-Lyme. The advance, if agreed to, would have raised the wages of the bricklayers to 30s., and those of the labourers to 21s. a week. The painters at Burslem and Tunstall have struck work for a similar reason to that which has led to the turn-out of the bricklayers.

Bristol.—The strike of the operative masons of this city, which has been for some time expected, began on the 1st of May, the real point on which the men have left work being only the matter of a shilling a week; and to endeavour to force the payment of this, about 300 masons have packed up their tools and refused to return to their employment. There are 650 masons belonging to the Bristol Branch of the Operative Masons' Society, but only 300 are on strike; the remainder have continued work at the 29s. a week which the masters have consented to give. At an influential meeting of the Bristol Master Builders' Association, they have unanimously resolved to adhere to their resolution.

Wolverhampton.—The master painters and their men are not quite in harmony, at present, on the question of rules. The masters urge that a code of rules to be permanent and just must be made conjointly by masters and operatives, and not made by one party and offered to or urged on the other; and in regard to other questions, the Secretary of the masters, in a letter to the Secretary of the men, says:—"The offer they made you of the same wages as the operatives agreed to take in the large and important town of Birmingham (where they remind you artisans cannot live so cheaply as they can here, and where, as a rule, higher wages are paid), coupled with an invitation to meet them to make rules, is a sufficient answer to your charge of a curt reply; and with regard to the alleged encroachments of masters, they unhesitatingly assert that their experience of the position of masters and men tells them that the concessions, without a single exception, have been all the other way. Two and a half hours per week and one shilling were conceded in 1861; one hour a week in 1864; and an advance of two shillings a week was given in 1865, and they have proposed to give you an advance this year."

Bromsgrove. — At a meeting of the master builders, it has been unanimously resolved that the demand of the men for 6d. per day rise upon the present rate of wages be acceded to, with this proviso, that the total shall not exceed 4s. per day to skilled artisans; that labourers' wages be 2s. 4d. per day; and that the hours of labour commence at six o'clock a.m. on Mondays, and cease at four o'clock p.m. on Saturdays.

Dewsbury.—A short time ago the operative masons of Dewsbury and the district gave notice to their employers that they desired to shorten the hours of labour in their branch of the building trade, and to leave work at twelve o'clock at noon on Saturdays, instead of at four o'clock, as they do at present. The employers declined to accede to the request, but have proferred to allow the men to leave work at one o'clock. This offer the men have declined, and say that they are determined to strike unless their terms are conceded. The nine hours' movement was conceded by the masters some time ago.

Derby.—The Derby brickmakers have demanded a rise of wages, and their application has been acceded to; but the masters have declined to submit to a dictation that non-society men should be excluded from employment. We understand that this reasonable resolve has been objected to by the men. The following letters have been sent to one of the principal employers in the neighbourhood:

"*Derby April* 30, '66.

Sir,—We Brickmakers of Derby Wish to know of you Whither you will Imploy Sosciety Men or not and I hope you will Be k nd Enough to Sign your hand to this either yes or no."

"*Derby May* 1*st*, '66.

Sir,—We write to Inform you that we have Discust things over and we request you to attend a meeting held at the lord Nelson at half-past ten o'clock tomorow Wensdey May 2d."

Rotherham. — The operative bricklayers of Rotherham have given their employers notice that, on and after the 12th of May, they will cease working at one o'clock on Saturday, instead of four, as at present; and further, that they also require the rate of wages to be increased to 30s. per week. The operative bricklayers are thus following the example of the operative joiners at Rotherham, who are moving for an advance of wages, and also the same reduction of the hours of labour on Saturdays.

Doncaster.—The journeymen carpenters and joiners are moving for a diminution in the hours of labour on Saturday, and an advance of wages of 2s. per week. The employers have agreed to a portion only of the propositions submitted to them.

Sheffield.—The Court of Queen's Bench have heard an appeal by Messrs. Unwin & Rogers, cutlery manufacturers, of Sheffield, from a decision of magistrates, dismissing a complaint of theirs (the second arising out of the same contract) against a workman in their employ, for refusing to perform his contract to work for them. The question raised was, whether when a workman has been once convicted of breaking his contract by refusing to work, and has suffered the punishment for so doing, he can be again convicted for another breach, in a continued or reiterated refusal to work. After the question had been argued, the Court gave judgment for the appellants.

Middlesborough.—The dispute still continues; but during the last few days the action taken by the masters has had the effect of enabling them to resume building operations. Numbers of workmen from other parts are arriving in the town every day, and the turn-outs are said to be anxious to come to terms with the masters. From 50 to 60 strangers have come to the town and been set to work upon the hour system, the joiners being paid 6d., and the bricklayers 6½d. per hour. Turn-outs refuse to adopt the system of payment by the hour, being forbidden by their union. They show a very turbulent disposition.

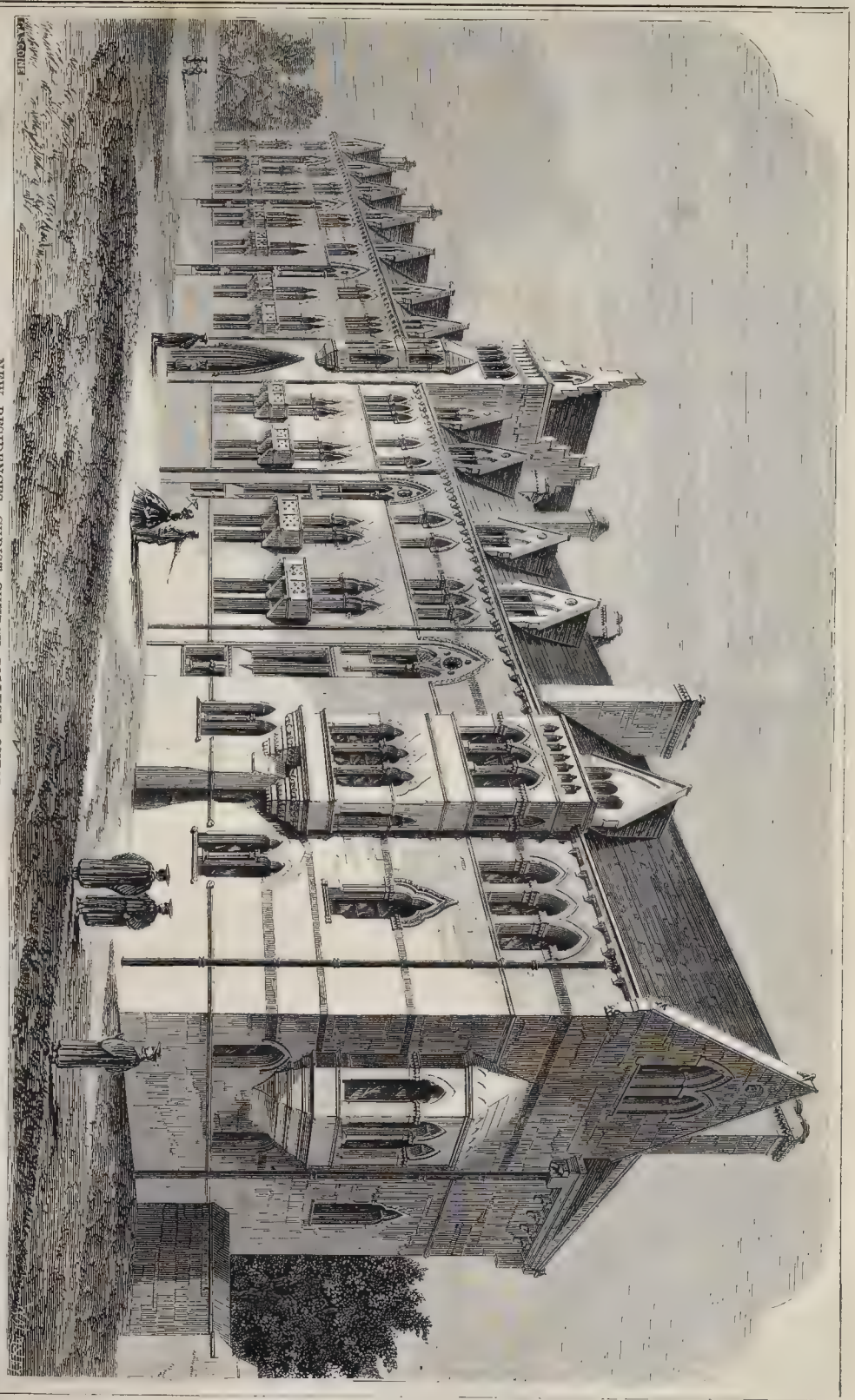
Reigate.—The painters engaged by the different firms in Reigate have struck work, the dispute with the masters being as to paying for the whole day on Saturnay. The usual rate of pay was 4s. 6d. per day, and the painters required 6d. a day more, and still to leave one hour and a half earlier on Saturdays, as heretofore. To this the masters refused to accede, but offered to pay their men at 6d. per hour for the time they were actually at work. Since then, we believe, the masters' terms have been generally accepted.

REPORT ON WORKS EXECUTED BY CITY SEWERS COMMISSION.

THE annual report of Mr. Haywood, the surveyor to the City Sewers Commission, has been printed. From this report it appears that very little new drainage has been done in course of the year, except what has been replaced by railway companies. The wood pavements of Gracechurch-street and Cornhill were renewed, but the iron carriage-way pavement, laid in the Poultry, in 1862, has been replaced by granite. The objections urged against it were, that it caused a most unpleasant jar to those passing over it in vehicles, that it made the horses nervous, that it was painful to the feet of pedestrians, that it was noisy, that with the least rain it was dirty, and that in warm weather effluvia arose from it; and these objections were urged so frequently upon the commissioners that they at last decided to remove it. The composite pavement laid in Lombard-street in 1860 was replaced with wood pavement. The component parts of this pavement (which was the patent of Sir John Scott Lillie) were asphalte, wood, and broken granite; and although it had been down for a period of five years in Lombard-street, it became in an indifferent condition within a year or eighteen months after it was laid, and continued in that condition until it was removed. We regret to notice that, although there are only seven drinking-fountains in the City, none have been added in the course of the past year.

ROAD ROLLING MACHINES.

MR. THOROLD writes, with reference to our paragraph, "On the McAdam Roads in Paris," "I can remember a Rolling Machine, invented by a banker at Shrewsbury, which consisted of three rollers in the width of the part to be rolled, and each roller was placed in advance of the other, so as to attack the rough surface of the new road gradually. What is become of this machine, which was in use about the year 1831, on the Holyhead-road, running through Shrewsbury? Sir John McNeil can doubtless give the information to those who know his whereabouts.



NEW RESIDENCES, CHRIST CHURCH COLLEGE, OXFORD.—MR. T. N. DEANE, ARCHITECT.

See p. 337, *ante*.

THE FLOW OF WATER OVER GROUND.

INSTITUTION OF CIVIL ENGINEERS.

At the meeting held April 24, Mr. John Fowler, president, in the chair, a paper was read on "The Results of a Series of Observations on the Flow of Water off the Ground in the Woodburn District, near Carrickfergus, Ireland," by Mr. Robert Manning.

It was stated that the surface of the ground was chiefly composed of bare mountain pasture and grazing land, the surface rock being almost entirely tabular trap, overlying the chalk, with here and there patches of green sand. Three rain-gauges were placed at the respective elevations of 300 ft., 750 ft., and 900 ft. above the level of the sea; and two stream-gauges were erected, one on the southern branch of the river, which received the drainage of 2,076 acres, and the other on the northern branch, 1,329 acres. The stream-gauges were rectangular notches, with sharp edges, such as were used by Mr. Francis, at Lowell, and the formula for calculating the discharge was that deduced from those well-known experiments. The observations were nearly 800 in number, and were recorded in an appendix. From a summary of the results it appeared that the rainfall for the year was 35·867 in., or nearly 18 per cent. above that at Belfast. For the six months from November to May, the rain was 14·766 in., producing a flow of 14·351 in.; while, from May to November, these quantities were 21·101 in., and 7·357 in. The minimum flow off 1,000 acres occurred in August, and amounted to 11 cubic feet per minute; the maximum in September to 31·80 cubic feet per minute; and the mean monthly flow was at its minimum in July, and was 29 cubic feet per minute.

The particulars of one year's rain having been thus ascertained, it was assumed that the rainfall on the Carrickfergus mountains bore a constant ratio to that at Queen's College, Belfast, where a daily register had been kept for fourteen years, and that it was the greater by 16 per cent. The results then arrived at were, that the maximum rainfall in 1852 was 47·71 in.; the mean for the fourteen years 1851-64 was 38·42 in.; the average of the three dry years 1855-6-7, was 32·76 in.; and the minimum in 1855 was 28·8 in.

The question then remained, How much of this rainfall was available for water supply? Twenty or thirty years ago the evaporation was taken as proportional to the rainfall, and was variously estimated at one-sixth, one-third, and two-thirds of the mean annual rain, according to circumstances. Now the balance of opinion seemed to be, that the amount of evaporation was not proportional to the rainfall; that it was either constant, or within narrow limits, where there was an identity, or similarity, in the physical features of the districts compared; that it varied under different circumstances in this kingdom from 9 in. to 19 in.; and that its amount in any particular case must be left to the experience and judgment of the engineer.

The author calculated that the loss, or the difference between the rainfall and the supply, which was the resultant fact of greatest importance to the engineer, varied in the Woodburn district from 11·79 in. to 15·16 in., the mean annual loss being 13·71 in. The supply ranged from 14·57 in. to 35·37 in., the mean annual supply being 24·71 in. The years of maximum and minimum supply were also the years of maximum and minimum winter rain. In the years 1856 and 1857, in which the rainfall only differed by 0·41 in., the difference in the loss was 3·22 in., arising from the fact of there being a winter rainfall of 15·96 in. in the former, and of 22·03 in. in the latter year.

The particulars were then given of the storage required for all quantities from the mean annual supply down to that of the minimum year, from which it appeared, that to store the whole rain yielded by the Woodburn district, 24·71 in., a reservoir capable of containing, 431 days' supply would be necessary; for the average of the three dry years, 18·28 in., 132 days' would be required; while for the minimum, 14·57 in., 119 days' would be sufficient. Diagrams were added, showing the storage worked out for each month of the fourteen years, and for quantities of 24·72 in., 20 in., and 18 in., and showing the state of the reservoir for a supply of 24 in. for eleven years, and 20 in. for the three dry years. It was remarked that, although the water in store attained its minimum in different years, that minimum invariably occurred in the month of October; and that as regarded the economical supply of water from the district under consideration, it would not be prudent to attempt to store a greater quantity of rain than about 10 per cent. over the average supply of the three dry years, provided the extent of the gathering-grounds could be increased.

The question of water-power was then incidentally alluded to; and it was remarked that in dealing with useless and injurious floods, and in providing a town supply, care should be taken not to induce the destruction, by instalments, of the whole water-power of the country, and injuriously to interfere with the natural *régime* of rivers. The proportion of the mean annual flow of both branches of the Woodburn river, from a rain-basin of 4,750 acres, applicable to the supply of Woodlawn Mills, was then determined, and the calculations and results were given in detail. The tables showed, that of the total flow off the ground, 21·71 in., there was lost on Sundays and by floods 12·22 in., leaving 9·49 in., or nearly 44 per cent., available for the supply of the wheel, which was equivalent to 194 days' full work during the year, or 1·78 times the mean flow of the stream. If the capacity of the wheel was reduced to 1·5 of the flow, it would work for 213 days; if to 1·25 of the flow, for 218 days; and if just equal to the flow, it would work 243 days.

VICTORIA PARK.

On Saturday last an open-air meeting of the inhabitants of the East-end of London was held in the Victoria Park, for the purpose, as stated in the bills, of "taking into consideration the best means for preventing the construction of the works of three of the largest gas companies in the world" in that district, and thereby "save the park from destruction." After several addresses had been delivered, resolutions were passed viewing with alarm the Bills now pending in Parliament for the erection of stupendous gas-works in the immediate neighbourhood of Victoria Park, and determining to present immediately a petition to the House of Commons against the Bills, and another petition to the Queen, praying her Majesty to protect the rights of her poorer subjects, who are not able to protect themselves. In the House of Commons, Lord John Manners brought the subject to the notice of the members, and Mr. Cowper reminded the House that the erection of gas-works within 300 yards of Victoria Park was prohibited by an Act already passed. He was of opinion that no just ground could be shown for apprehending that any inconvenience would be felt by the frequenters of Victoria Park from the existence of gas-works in the neighbourhood, properly superintended and conducted. There were already artificial manure works and others of a most disagreeable and prejudicial character in the vicinity. He should take care in any case to have clauses inserted in the Bills for the protection of the inhabitants, and prohibiting the accumulation of noxious refuse. If the Bills were opposed before the committee a case might be made out which would induce them to prohibit the erection of the works altogether. The Metropolitan Board of Works have resolved to petition Parliament against the Bills as threatening a gigantic nuisance, and to oppose them in committee as they had done in the House of Lords. The Imperial Gas Company's Bill has since been withdrawn. The Chartered Gas Company's will probably be next disposed of, it is to be hoped, in a similar way.

LIVERPOOL ARCHITECTURAL SOCIETY.

The annual meeting of this association was held last week, Mr. Joseph Boult presiding. The report stated that the society consisted of 160 members, classified as follows:—Life and honorary members, 9; professional members, 28; associate members, 96; student members, 27. A list of the papers read during the session was given, and the council recommended the publication in future of the proceedings of the society fortnightly or monthly. Mr. William Stubbs was elected president for the ensuing year; Mr. W. H. Picton and Mr. F. Horner were elected vice-presidents; Mr. Bradley, treasurer; Mr. H. H. Statham, honorary secretary; Mr. Wallace, librarian and curator; and the council were also appointed, as were delegates to the committee of the gallery for invention and science. The retiring president then delivered an address, having special reference to the sanitary condition of the borough. In the course of his remarks he said:—"With respect to the mere density of population, Liverpool, as a whole, must always compare unfavourably with other places of equal size and population, as the bulk of the dwellings here are unbroken by intermixture with the mills, works, and warehouses which abound in Manchester, for example. Even in the way of squares this town is very deficient, the great landowners apparently having grudged every inch of land which was not absolutely essential to the streets requisite for developing their property. Considering how much the noble houses of Cecil, Stanley, and Molyneux have benefited by the energy of the people of Liverpool, it is much to be regretted that they have so cribbed, cabined, and confined the teeming population. But the inhabitants, through the Town Council, have one of the largest landed estates in the borough: hitherto little has been done by them in reducing the density of population; after they have shown the way, perhaps the great landowners will follow. The proposals for this purpose which have recently been brought forward are twofold. One, that the Council should build houses for the working classes, seems to be most objectionable, and fraught with abuses of various kinds; the other, that, as landowners, they should buy up some of the leases and lay out the property afresh, with wider streets and open spaces, which may also be playgrounds, seems worthy of cordial approval and adoption. Nor do I see any abstract objection to the further development of this proposal, namely, that the land should be leased for the erection of houses of a certain value or of approved character; any objection there may be arises from the difficulty of carrying out any public enterprise with perfect integrity."

CASES UNDER METROPOLITAN BUILDING ACT.

YOUNG *v.* HATCH; YOUNG *v.* PIPER.

In these cases, heard at the Justice-room, Mansion House, decisions upon the construction of the 45th section of the "Building Act, 1855," and of great importance to district surveyors, builders, and architects, were given on the 3rd instant by Mr. Alderman Rose, who sat for the Lord Mayor.

The circumstances of the cases were similar, and as follows:—

The defendants are builders, who had been employed in erecting buildings in the City within the limits of the district for which Mr. Young is the district surveyor. And it appears that in the erection of the buildings things were done, or omitted to be done, as was alleged, in contravention of the Building Act. Subsequently to the completion of the buildings, the district surveyor, whose duty it is to see the Act obeyed, gave to the builders notice under the 45th section to comply with the Act within forty-eight hours. The notices not being attended to, the district surveyor took out summonses before the Lord Mayor under the 46th section, and on Thursday, the 3rd instant, these summonses came on for hearing.

In the first of the cases it was proved that the building in question had been finished two years before the notice was given;—in the second, that the building had been finished nearly a year before the notice was given;—in the third, that the building had been finished about two months before the notice was given.

Mr. Philbrick, who appeared as counsel on behalf of the defendants, contended that pursuant to the 45th section of the Act, which provides that "the district surveyor shall give to the builder engaged in erecting the building, or in doing the work, notice," &c, the notices ought to have been given while the buildings were in progress. And he argued that this construction was consistent with good sense; for during the time when the buildings were going on, necessary alterations could be easily and cheaply made, while if it was intended by the Legislature that the notice should be given after completion of a building, a district surveyor might lie by, and then the required alteration, if made, would cause great expense and inconvenience. Moreover, after the builder ceased to be engaged upon the works, he was powerless to obey the notice, and would be liable to an action for trespass at the suit of the owner of the buildings were he to attempt to obey, and be liable to heavy penalties if he did not obey; and the

landlord if he permitted the builder to obey the notice would be liable to actions at the suit of tenants occupying the buildings, and thus endless litigation would arise. Mr. Philbrick referred to the case *Re* Moses, a case in the Guildhall Police Court, decided on the 12th of December, 1857, where the facts were similar to those of the present cases, and where the summons was dismissed.

After fully hearing the arguments on both sides, Mr. Alderman Rose dismissed the summonses, on the ground that the notices were not given while the buildings were in progress.

THE MIDDEN SYSTEM OF MANCHESTER.

MANCHESTER has long been a sanitary puzzle, not to persons at a distance only, but to many of its own inhabitants. The author of the reprinted paper before us,* who is the consulting medical officer of the Chorlton Union Hospital, and a medical lecturer, says on this point,—

"Few places in the empire have greater advantages in point of climate, soil, or facilities for drainage. In no provincial town or city has more money been expended on sanitary improvements. One of these improvements—its water supply—is the envy of all England. Nowhere else have such persevering, systematic, and enlightened efforts been made to spread the knowledge of sanitary science among all classes of the community; and no community, perhaps, has had louder or more abundant warnings from official sources on its sanitary condition, and the probable consequences of permitting it to continue unimproved; yet, in spite of these manifold advantages, Manchester is one of the most unhealthy towns in England, being second to one town only, viz., Liverpool, in the rate at which its inhabitants die. During the last few years its death-rate has been steadily increasing, until recently, in certain portions of it, the deaths have been more numerous than the births. These facts would be very discouraging but for one consideration. The registration returns show that the excess of mortality over that of other large towns is almost entirely due to diseases which experience has shown to be, to a very great extent, preventable; and that, therefore, by the removal of the causes of those diseases, our city may be relieved of the opprobrium which now rests upon it."

An inquiry into those causes forms the subject of this paper, which especially treats of the Manchester "midden" system as the chief cause of all:—

"In the newer and better circumstanced portions of our city [he remarks], in the rear of the houses and cottages, which in front appear so clean and comfortable, arrangements are universally to be found incompatible with perfect health or cleanliness. For much have we to thank our civic rulers; but had the benefits they have conferred upon us been twice as great as they are, they would have neutralized them by their determined retention of this one monster nuisance.

In common with other modern towns, Manchester has long been notorious for its mode of dealing with its night-soil. Descriptions of the Manchester 'middens' have from time to time been given to the world; but they have been only half credited, because contradicted by those entitled by their official position to speak with authority. It would appear as if our rulers, firmly convinced of the excellency of the system, have winked so hard at its evils, that they have come to be totally blind to them. Consequently, when called upon publicly to describe it, they have presented rather a *beau ideal*, formed in their own imaginations, than anything really existing."

The midden system, Mr. Greaves correctly remarks, utterly fails in effecting what is alleged as the main reason for retaining it,—the purification of the local streams. He considers that they might even be less noisome if the whole of the excrement were conveyed into them as produced. Tortuosity and obstructions, however, unfit these streams for the office of sewers.

Even the richness and value of the manure thus collected are a delusion:—

"Its more soluble or volatile ingredients having been washed out by the rain, or dissipated in the air, it has, when the time arrives for its removal, become a comparatively inert residuum, and sells for not more than half of the cost of its conveyance to the depôt. The assertion that it is of small value must, however, be made with one reservation. During the last few months it is said to have been much increased in value. The heat of last summer and autumn caused a greatly diminished consumption of coal, and a smaller quantity of ashes was thrown into the pits. Hence increased richness of the manure. The night-soil men, it is also said, complained during the autumn of the small amount of work they had to do. Fewer demands were made on their services, because the ashpits filled less rapidly than usual. During, therefore, the broiling summer and autumn of 1865 a far larger quantity, than usual, of human ordure lay in contiguity with the houses, destitute to a very great extent of the partial covering given to it by the ashes, and unwashed by the rain. No wonder that the death-rate of the year has been so high, and that the mortality from diarrhœa has doubled, and that from continued fever nearly doubled. . . . . Certainly the places in which fever has been most rife have amply furnished the required condition. The houses have been greatly overcrowded, and there has been want of ventilation both in the houses themselves, and in the courts and narrow streets where they stand. But what has been the effect of the fecal emanations? It has been two-fold. First, they have produced a low tone of health, predisposing to disease. And, secondly, they have deprived the air of the power which, when pure, it has of decomposing and destroying the poisonous effluvia from the bodies of the sick. There is very little danger of the communication of typhus in a spacious, well-ventilated, and not overcrowded apartment, and still less in the open air. In this respect it differs remarkably from small-pox, and some other diseases. In reference to typhoid fever there is almost as little doubt. Few persons now question the production of its poison in those exposed to decomposing organic matter, and its conveyance in the alvine evacuations of the sick is unquestioned. Further, although a few sporadic cases of fever have occurred in various parts of the city, yet an immense proportion of those which have come under my notice, or under that of my professional brethren, have been found in such abodes as I have described."

The enormous death-toll of the City of Manchester, Mr. Greaves is of opinion, will not be materially diminished until the filth, which is now retained almost within the very houses, under circumstances the most favourable to its rapid putrefaction, is, at once as produced, washed away into the sewers, and carried, not into the rivers, but into intercepting drains, leading to one or more main trunks, which shall carry it to a point where it may be harmlessly, if not profitably, disposed of. Let the removal of the sewage be expeditious, let it be effected in a manner as little as possible detrimental to the health or comfort of the people, and then, if, when at a safe distance, the sewage can be made available as manure, let it be so employed. But let the consideration of profit be regarded as far inferior in importance to that of health. Sanitary reformers have been too prone to place the profit first. They have said, "See how much valuable manure you are wasting!" instead of, "See how many human lives you are sacrificing!"

* "Our Sewer Rivers." By George Greaves, M.R.C.S., Manchester Statistical Society.

COMPETITIONS.

THE premium offered for the best design for laying out an estate at West Worthing, Sussex (100*l.*), has been awarded to "Onward," Mr. G. R. Crickmay, of Weymouth. The designs sent in by "Aqua-Marine," Mr. Charles Hayward, London, and by "Festina Lente," Mr. H. H. Burnell, London, were commended.

TENDERS FOR THE HOLBORN VALLEY IMPROVEMENTS.

THE following is a list of the tenders delivered for the Holborn Valley improvements. Mr. W. Haywood, engineer. The quantities were supplied by Mr. D. C. Nicholls:—

Furness	£110,269 0 0
Piper & Wheeler	108,880 0 0
Browne & Robinson ...	107,100 0 0
Trollope & Sons	106,810 0 0
Little	105,900 0 0
Garmon	105,000 0 0
Mowlem & Co.	104,867 0 0
Jackson & Shaw ...	104,269 0 0
Clemence	102,750 0 0
Hill & Keddell (accepted).....	99,837 0 0

METROPOLITAN BOARD OF WORKS.

The Thames Embankment and Main Drainage Works.—Mr. Bazalgette reported at last weekly meeting that in the Embankment (Contract No. 1) between Westminster and Waterloo Bridges the works executed comprise about 3,385 ft. in length of timber, coffer and iron caisson dams, either completed or in various stages of progress. About 1,640 ft. of the low-level sewer, 1,493 ft. of the subway, 2,000 ft. of the small drains and intercepting sewer, and 284 ft. of the flushing sewer are completed, and about 436,200 cubic yards of material, obtained partly from the land and partly from the river, have been filled in behind the walls and the embankment generally. The concrete, brickwork, and masonry of the Westminster steam-boat pier, for a length of 320 ft., and of the river wall adjoining, for a length of 330 ft., have been brought up to a height of 3 ft. 9 in. above Trinity high-water level, and a further length of 396 ft. of the wall to a level of 1 ft. below that level; 108 ft. of the work at York-gate are brought up to a level of 11 ft. 6 in. below Trinity high-water level, and 780 ft. of the river wall and Charing-cross Pier works are constructed to heights varying from 24 ft. 6 in. below to about one foot above that level. The approximate value of the work done, and of the materials and plant upon the ground is 296,699*l.*, of which the sum of 12,111*l.* represents the extent of progress in the past month. Of the total amount the proportionate sum of 194,523*l.* is for works; 56,983*l.* for materials; and 45,193*l.* for plant.

The works of Contract No. 2, between Waterloo Bridge and Temple Gardens, have progressed but slowly in the past month, the value of the work done being 7,357*l.* About 776 ft. of the main line of the low level sewer have been constructed during the last month. This makes a total of about 1¼ miles of sewers completed, and leaves about 964 ft. to be constructed to complete the contract. The approximate value of the whole of the completed works is 215,00*l.*

On Contract No. 1, south side of the river, about 2,110 ft. run. of the dam and 2,280 ft. of the stage piling are completed, in the construction of which 218,914 cubic yards of clay puddle and 135 tons of iron in shoes, bolts, tie-bars, &c., have been used. In addition to this work 10,000 cubic yards of excavation on the foreshore and 2,000 yards of dredging within the dam have been executed, and about 12 rods of brickwork laid for the head walls to the land arches of Westminster Bridge. The approximate value of these works is 33,500*l.*; of which the sum of 5,500*l.* is due to the progress made in the past month.

The total value of the completed work of the Abbey Mills pumping station is 24,480*l.*, of which the sum of 3,989*l.* is due to the past month's progress.

The report was adopted.

In the Commons, Mr. B. Cochrane has given notice that he will move for the appointment of a royal commission to inquire into the constitution of the Metropolitan Board of Works, in connexion with the government of the metropolis.

ST. PAUL'S, DEPTFORD.

AN inhabitant of St. Paul's writes,—One could fancifully imagine that a sanitary board is an aggregation of antagonistic planks. Our poor neglected street, honoured with a noble name,—Hamilton,—is as it was, except, indeed, that its lower end is "with verdure clad," but which, alas! no balmy scents exhales, but somewhat of the same aroma as did the redoubtable Sancho in the Brown mountains, and which elicited from his master (the Knight of the Rueful Visage) the rebuke or remonstrance, "Friend Sancho, thou smellest not of amber." Do, pray, sir, in the cause of Health *versus* Pestilence, give the quiet board a touch of your powerful wand, by finding space for a notice in your influential journal.

PROFESSIONAL ETIQUETTE.

SIR,—I shall be glad to have an opinion on the following point:—

A client employs architect A to prepare for him plans, &c., for a house, for which estimates are obtained, intending that the work shall be carried out under the superintendence of A. Before going further, however, the client takes the plans, &c., to architect B, and asks him to examine and report on them. B keeps the plans for a considerable time, and then returns them with his report.

I should like to know if such a proceeding on the part of B is to be looked upon as a breach of professional etiquette, or not.

I may have an over-strong opinion on the subject, but I should consider myself guilty of an impertinence, to say the least of it, if I attempted to express a formal opinion on another architect's design, under such circumstances. It would appear to me much the same as if a gentleman, after having had a picture painted by commission, should take it to another artist to report on, and bring it back to the man who painted it, requesting him to follow the suggestions contained in the report.

A client may err in such a case from ignorance; but I cannot see any excuse for an architect of standing to so far forget what is due to his professional brethren as to act in the way I refer to. A.

** B ought most certainly to have communicated with A before making any report.

PROVINCIAL NEWS.

Leicester.—The town council have decided that the style of the proposed borough lunatic asylum shall be Elizabethan, and the new building, which will accommodate nearly double the present number of panper lunatics, is to consist of accommodation for ninety-seven males, and the same for females. Each division will be furnished with five day-rooms, as well as separate and associated dormitories. The superintendent's residence, board-rooms, and officers' apartments, for the centre block, and these, with the kitchens, bakery, stores, wash-house and laundry, dining and recreation rooms, and the chapel, are sufficiently capacious to admit of an extension of the other portions of the asylum, so as to accommodate 400 patients at any future time.

Saltaire.—Numerous improvements are being effected in connexion with Saltaire, which is generally held up as a model village. An unsightly block of temporary buildings, on the side of the Saltaire-road, a portion of which was used as a photographic gallery, has been removed and a new structure has been erected in lieu thereof. The site for the erection of a new Wesleyan chapel has been agreed upon, and this building, which will abut upon Saltaire-road, and front towards the Bradford and Keighley turnpike-road, is to be proceeded with immediately. Contracts for the erection of eighty houses have been entered into, the following being the contractors, with the amount of each contract; namely,—masons and bricklayers, Messrs. Moulson & Son, Bradford, 13,000*l.*; carpenters and joiners, Messrs. John Ives & Son, Shipley, 4,813*l.*; plasterer, Duckworth, Bradford, 1,400*l.*; plumber, and glazier, Mr. John Stead, Bradford, 521*l.*; slaters, Messrs. J. & J. Hill, Bradford, 790*l.*; painters, Messrs. Briggs & Mensforth, Bradford, 366*l.* 13*s.*; the aggregate sum being 20,890*l.* 13*s.* Plans for the construction of other buildings are being prepared by Messrs. Lockwood & Mawson, architects.

Bristol.—The large block of building now in

course of erection in Barton-street for Messrs. Derham Brothers, wholesale boot and shoe manufacturers of this city, is approaching completion. The building is 96 ft. high from the floor of the cellars to the apex of the roof, the width being 43 ft. and the length 150 ft. It is constructed upon inverted arches, and the walls on these are 4 ft. thick at the bottom, gradually diminishing in thickness until at the top they are 1 ft. 10 in. Two rows of iron supports or pillars, nine in each row, run right up through the block. The beams resting on these are 12 in. square, the joists being 11 by 3, and the flooring boards 2 in. The pillars on the ground-floor are 8 in. in diameter; they gradually diminish in size towards the top of the building. Bands of iron are placed diagonally underneath the flooring, and between each two boards is a tongue, which serves the double purpose of holding the floors firmly together, and preventing at the same time dirt or water from getting through the ceilings. The basement portion of the building is constructed of Pennant stone, and the upper part of bricks obtained from near Thornbury; and each side of the block is faced with Bath stone dressings. It is seven stories high. All the rooms, from top to bottom, will be heated by means of hot-water pipes, the apparatus for which is to be fitted up by Mr. Harlow, of Stockport. At one end of the building will be erected a lift, which is to be worked by steam power, and used, as in the principal London hotels, for lifting heavy goods from the floor to any of the upper stories. The windows are large, and all the rooms are well lighted, and will be ventilated by means of ventilating shafts in the walls. The contractor is Mr. Hughes, of this city. The clerk of the works is Mr. James Tucker. The number of men employed on the building is 150. Messrs. Popes & Bindon are the architects. The contract price was rather over 6,000*l.*; but by the time the fittings and machinery are erected, the cost will be 9,000*l.*

CHURCH-BUILDING NEWS.

Chobham (*Surrey*).—The ancient parish church of Chobham, Surrey, was re-opened for divine service on the 23rd inst., by the Bishop of Winchester, after various reparations and additions. Before this was effected it was encumbered to an unusual degree with great galleries, both at the west end, south aisle, and also by a huge one cutting across the chancel arch, the chancel itself having been used as a mere vestibule to the gallery. All is now altered; a new north aisle has been added, the high box-like pews removed, and open stained deal benches substituted for them. The church has now increased accommodation for about 150 persons. Some early Transitional work was disclosed by the removal of the galleries, and is now brought into prominence. The necessary works have cost about 1,400*l.* Mr. Ferrey was the architect, and the builder, Mr. Swayne, of Guildford.

New Brompton.—St. Mark's Church here has been consecrated by the Bishop of Rochester. The foundation-stone of the church was laid on the 14th October, 1864, by the lord lieutenant of the county, Viscount Sydney, and the edifice is now completed with the exception of the tower and spire. The structure is geometrical, and comprises a chancel with circular apse, 39 ft. long, 24 ft. wide, and 46 ft. high; a clerestoried nave 85 ft. long, 24 ft. wide, and 54 ft. high, with aisles separated from the nave by arcades of five arches. The vestry is at the end of the north aisle, and the vault containing the heating apparatus is beneath it. The chancel is lighted by three windows of two lights enfoliated with quatrefoiled circles in the heads. The openings between the chancel and chancel aisles are spanned by an arch of two orders springing from corbelled imposts with Devonshire marble shafts and carved capitals. A similar arch divides the chancel proper from the apsidal sanctuary. The chancel aisles are intended for school-children. The roof consists of principals with carved ribs, and the beams with wall pieces brought down over each pier, and supported on stone corbels between which the clerestory windows are coupled. The west end is buttressed, and is pierced with a five-light window with geometrical tracery. The seats are all open and of deal. The floor is paved with Maw's tiles arranged in patterns. At the westernmost end of the south aisle is the tower, the lower stage of which forms the porch. To this tower is to be added an octagonal broached spire, and the total height of tower and spire when completed will be 153 ft. All the doors, windows, and other dressings are of Bath stone. The edifice is constructed chiefly of brick. The contract has been executed by Messrs. Wilkins & Son, of Chatham. The architect was Mr. J. P. St. Aubyn, of London. Mr. Corfield, of Worcester, has had the supervision of the works. The church will accommodate about 800 persons, and all the sittings will be free. The total cost of completing the whole will be about 4,300*l.*

Worcester.—Great progress is now being made in the works at the Cathedral, which the local *Herald* reviews in an article to which we are indebted for the following particulars. The floor of the great north porch (which had been raised by a series of gradations, apparently in modern times, with an odd-looking dwarf wall on each side, the *use* of which has puzzled many, but which were probably thought by the projectors to be ornamental) has now been levelled to the bases of the shafts, and nearly on a line with the floor of the nave. This has increased the apparent height of the porch. It has also been deemed advisable to lower the approaches to the north porch in the College-yard, so that they might run into the porch on a level, or nearly so. The carved enrichments of the exterior of the porch have not been yet completed by the insertion of the statuary in the niches. This is owing to the circumstance that the specimens of sculpture sent from Bristol were by no means "up to the mark," and the work has now been entrusted to Messrs. Hardman, of Birmingham. With regard to the tower, but little apparent progress has been made, yet much has really been done internally and at the base of the tower as a commencement of what will prove to be a heavy work. It will probably be two years from the present time before this beautiful portion of the cathedral will be completed and occupied by the new clock and bells. Messrs. Collins & Cullis, of Tewkesbury, have taken the contract for the cloister restoration. The window spaces will now be filled with Perpendicular work and tracery, in character with the style of the cloisters. The original sills of the windows are remaining, and in the restoration the ancient proportions will be followed; the buttresses externally will terminate in crocketed pinnacles with finials, and the parapet will be embattled. This, and indeed all the restorations carried out, have been in accordance with examples of the old work, or as near thereto as analogy and inference would suggest. It is contemplated to lower the floor of the cloisters for more than a foot below their present level, whereby the original bases of the piers and walls will be uncovered. The stone seat round some portion of the cloister, on which formerly the monks sat, reading or chatting, or poor people, when their feet were washed on Maunday Thursday, will once more be brought to light, besides other interesting features, long since covered with plaster and whitewash. In the west cloister, several old doorways have already been opened, one of which it is supposed communicated by stairs (still seen in the thickness of the wall) with the ancient library in the triforium over the south aisle of the cathedral nave. It is somewhat curious that simultaneously with the discovery of these stairs, it has been just decided to remove the library from Edgar Tower to its ancient abode in this triforium; and the stairs, somewhat widened and altered, will once more serve their former purpose. The scraping of the carved work on the vaulting of the cloister, including figures, foliage, animals, and other things illustrative of sacred history, will be done by Mr. Boulton, of this city. When colour and gilding have been applied, and stained-glass windows inserted, these cloisters will be among the finest in England.

Dewsbury.—Mr. P. Wormald, some time ago, gave a sum of money for the rebuilding and enlarging of the chancel of Birstal parish church. The work has steadily progressed, and is now approaching completion, and an effort is being made to entirely restore the building. At a meeting, with this view, it has been resolved that an active canvass shall be instituted. The cost was estimated by Mr. Crossland, of Leeds, architect, to be 5,390*l.*, exclusive of Mr. Wormald's donation.

Berkeley.—The parish church, after having been closed for repairs during fourteen months, has been re-opened for Divine service. The building has been allowed to fall into an almost ruinous condition, but now has been restored under the direction of Mr. Scott. The many deformities which existed in modern times have been removed, and the restoration is complete. Its main feature is the mural decoration of the fourteenth century, covering the whole of the interior, which had been preserved by successive coats of churchwarden's whitewash, and has been restored by Messrs. Clayton & Bell.

Conisbrough.—The restoration of the parish church, we hear, is likely to be carried out. The estimate for the nave is 1,200*l.*, towards which the Vicar contributes 300*l.*; and already several offers of help have been received from the Archbishop and others, while the Rev. J. F. Woodyeare and Mrs. Woodyeare, of Crookhill, will undertake the restoration of the chancel, at a cost of 500*l.* The contemplated works are the complete renewal of the seats, gaining about 100 sittings, scraping and replastering the walls, relaying the windows, laying new floors, building an organ-chamber, and, if possible, rebuilding the north aisle. Plans will be laid before the parishioners. Several remains of ancient wall-paintings have been discovered, but in a very imperfect condition.

Felling.—Christ Church, Felling, has been consecrated by the Bishop of Durham. The church consists at present of a chancel with an organ chamber on the south side, and a vestry to the north, a nave of five bays with a south aisle and a south porch. It is intended to add a north aisle to the nave as soon as the requirements of the congregation make it necessary. The accommodation now provided is for 453 persons. The style is Early Pointed, some of the features exhibiting a somewhat French character, though the detail is English. The chancel is 33 ft. by 24 ft., with a semicircular east end. The nave is 76 ft. by 25½ ft., and the aisle the same length and 10⅔ ft. wide. The height of the nave is about 56 ft. internally. The chancel is somewhat less. Placed high up in the eastern wall there are five lancet windows fitted with stained glass, the centre light representing "Our Lord," in whose honour the church is dedicated as a king; the other four lights containing each a figure of an evangelist. The chancel has an arched roof of boarding with ribs on it, dividing it into panels, and partly owing to this, it is thought, the church is found to possess good acoustic properties. The chancel arch is lofty, and springs from caps carved with Early English foliage, supported on short shafts of polished marble. The nave is separated from the aisle by five arches. There is a clerestory of five two-light lancet windows on either side of the nave. The west windows, of similar design, but greater length, are fitted with stained glass representing Moses, Noah, David, and Abraham. The walls are unplastered internally, the stone work being brought to an even face and pointed. The seats are low and open. The church is built externally of snecked rubble with ashlar quoins and dressings. The roofs are covered with sea-green Westmoreland slates, and there is a slender spirelet near the west end of the nave containing a bell, and surmounted by a gilded weathercock. Messrs. Austin & Johnson were the architects, and Mr. J. Dryden the inspector of works. The contractors employed were Messrs. N. & R. Reed, masons; Mr. A. Thomson, joiner; Messrs. Danber, slaters; Mr. Watson, plumber; Mr. Wilkinson, plasterer; and Mr. J. Gibson, painter. The fresco work at the east end was done by Messrs. Harland & Fisher, of London; and the stained glass by Messrs. Heaton, Butler, & Bayne, also of London. The marble font was by Mr. R. Beall, and the pulpit and reading-desk by Mr. T. Howard, both of Newcastle.

STAINED GLASS.

Lanercost Priory Church.—A memorial window to the late Earl of Carlisle, has been put up in this church by Mr. Wm. Wailes, of Newcastle-upon-Tyne. The situation is at the west end of the nave, on the left hand of the door in entering; and the subject is, The Angel Gabriel and Daniel the Prophet, having allusion to the scene recorded in the 9th chapter of Daniel. The reason for this subject being selected is that his lordship took a deep interest in the prophetic portion of the Book of Daniel, on which he also wrote a short paraphrase. An illuminated brass tablet from the same establishment is placed by the side of the window, containing the following inscription:—"To the glory of God. In memory of George William Frederick, VIIth Earl of Carlisle, K.G., this window was erected by his tenantry and others, chiefly in Lanercost and adjoining parishes. Born April 18th, 1802; died

December 5th, 1864. Easter, 1866. 'The Lord shall be thine Everlasting Light.'—Isaiah lx. 20;" the last text being from a chapter in which the deceased took a special delight.

Otterburn Church.—The east window of the little church of Otterburn has been filled with painted glass by subscription, in remembrance of the late Miss Davidson, of Leamington Hall, and her sisters, Miss Elizabeth Davidson, and Mrs. Askew, of Pallinsburn. The church was built by them in the year 1857, for the use of their tenantry and the neighbourhood. The window is large, filling the whole of the eastern wall. The pictures in the lower panels represent "The Agony in the Garden," "The Carrying of the Cross," "The Crucifixion," and "The Resurrection." In the tracery above angels are depicted adoring the Lamb. The work was executed by Mr. Wailes, of Newcastle.

St. Mary's, Marlborough.—A stained-glass window has just been erected in the north aisle of this church, by Captain and Mrs. Manders, in memory of their eldest son. The subjects represented are the Ascension, our Lord saving Peter on the Sea of Galilee, Asleep during the Storm, and St. Paul's shipwreck. In the upper lights are portraits, of the boy, who was drowned, and of those who perished with him. The window was provided by Messrs. O'Conor, of London.

St. Benedict's, Cambridge.—The west window, consisting of three lights, has been filled with stained glass. The centre light represents the Ascension, under a canopy, and at the base an angel bearing the inscription, "I go to prepare a place for you." The left side opening represents the Nativity, and that on the right the Baptism, under canopies varying from that in the centre. The window is the gift of Mr. Swan, and was designed by Mr. Constable.

Fawsley Church.—An east window of stained glass has been erected in this church to the memory of the late Sir Charles and Lady Knightley. Messrs. Hardman were the artists. It is a tripartite window, the centre figure being that of our Saviour. In the left-hand compartment is "The Good Samaritan," administering oil and wine to the man who fell among thieves; and in the left-hand compartment is "Dorcas," clothing a poor child. Underneath the Good Samaritan is a portrait of the late Sir Charles, and underneath Dorcas is a portrait of the late Lady Knightley, both figures being in a devotional attitude. Over the figure of Sir Charles is the superscription, in Old English characters—"I know that my Redeemer liveth." Over the figure of Lady Knightley is the superscription—"In my flesh shall I see God."

Miscellaneous. — The *Shrewsbury Chronicle* speaks of inspecting, at the establishment of Messrs. Done & Davies, glass stainers, in Shrewsbury, a series of stained glass, which will be fitted into a large traceried window of three openings, at Wenlock Church, in memory of the late Rev. Mr. Furlong, who was for some time curate of the parish, by whose widow it is presented. The subject is "The Transfiguration," and fills the entire of the three openings, but the figures are so arranged that the stone mullions do not interfere with them or mar the subject. In the upper part of the centre opening is our Saviour lifted up from the earth; on either side are Moses and Elias; and beneath them, on the Mount, are Peter, James, and John, with their faces to the earth, "being sore afraid." The tracery of the window is filled with a choir of angels. The grouping of the figures was suggested by the Rev. W. H. Wayne. The same firm have just completed a small memorial window of mosaic pattern, in the Early English style, for Frodesley Church.

DISSENTING CHURCH-BUILDING NEWS.

Caversham.—A Baptist chapel has been opened here. The site for the building was given by Mr. Talbot, of Caversham, and the adjoining piece of land, which has a frontage of 17 ft. 9 in., and a depth of 135 ft., has been purchased for 110*l.*, so that the chapel can be enlarged. The sum of 1,518*l.* 9*s.* has been realised by donations, and the contract for the whole of the work was accepted by Mr. Barnicoat, of Reading, builder, for 1,410*l.*, but this sum does not include the heating and lighting. The edifice is in the Gothic style, and the architect was Mr. Waterhouse, of London. There are six double windows, three on each side, lancet arched, with diamond squares of lead lights. The pews are open, and are of yellow deal, stained and varnished, with one aisle down the centre. The rostrum is exceedingly plain, and is approached by a staircase on each side. At the back of the rostrum, above the vestry, is an organ-gallery, which is open to the roof. Opposite the rostrum, is a large gallery, which is approached by stone steps from the exterior of the building. At the back of this gallery, and immediately over the entrance door, is a wheel window, with five lights of cathedral glass. The building, which will seat 320, is lighted by two sun-lights. The gasfittings have been supplied by Mr. Hulett, of London. The front elevation is of red brick, pointed with black mortar, with Bath stone dressings, and the sides of the building are strengthened by buttresses. The church will be heated by Messrs. Haden. A large room at the back of the building will be used as a vestry.

Freemantle. — The Wesleyan Methodists of Freemantle have laid the corner-stones of a new chapel, in Park-road. The building is to be erected in the Gothic style of architecture, from a design prepared by Mr. Jurd, architect, and is to be 50 ft. by 32 ft., with an open-framed roof, and side lancet windows. The cost will be about 900*l.*

Castleford.—A new chapel, for the Primitive Methodists, has just been erected at Castleford. The building has been erected from a design by Mr. Herbert Fippard, of York, architect. It is 50 ft. in length, by about 38 ft. in width, and 26 ft. to ceiling; is provided with galleries and a rostrum; and will seat about 600 persons. The plastering was done by Mr. Rawlings, of York; the slating by Mr. Baynes; and the iron columns, iron railing, &c., by Mr. Fryer.

Gorleston.—The foundation stone of a new Wesleyan chapel has been laid at Gorleston. The new chapel is to accommodate 300 persons. Mr. J. T. Bottle, of Yarmouth, is the architect. The cost of the site and chapel will be about 500*l.*

Books Received.

Report to the Improvement Committee of the City Sewers Commission on the Traffic and Improvements in the Public Ways of the City of London. By WILLIAM HAYWOOD, C.E. and F.R.I.B.A., Engineer and Surveyor to the Commission.

IN this elaborate and comprehensive Report Mr. Haywood proposes various important street improvements for the facilitation of the ever-increasing traffic of the City. In his Summary of General Conclusions he says:—

"That within the City itself there is hardly a leading thoroughfare which is equal to the traffic that passes through it; and that many subsidiary streets are inconveniently crowded with their own traffic.

That the only remedies for this state of the City thoroughfares are the formation of new thoroughfares and the widening of those now existing.

That the first great difficulty is the incapacity of London Bridge with its approaches on both sides, and that this can only be remedied by the construction of a new bridge, with good approaches, to the east of London Bridge.

That the second great difficulty is the incapacity of the main thoroughfare running east and west, near to the Bank, and that this can only be remedied by the formation of a new thoroughfare traversing the City north of, yet contiguous to, the Bank.

That general improvement is moreover needed in many of the City thoroughfares, and especially in those in respect of which recommendations are herein made."

The best situation for the new bridge, Mr. Haywood suggests, would be either west of the Tower, by Great Tower Hill, or east of the Tower, between it and the St. Katherine Docks; the east being the preferable site. The approaches on the north, he remarks, may be said to be almost formed. On the south side the approaches must extend to Bermondsey-street; but he recommends a straight line from the junction of the Old and New Kent Roads with Great Dover-street and Bermondsey New-road. It might be a consideration whether a central compartment of the bridge might not open for ship traffic, or whether the sea-going shipping should be limited to St. Katherine's wharf as its upper limit. A tunnel, Mr. Haywood remarks, would be more costly and less convenient than a bridge. He is quite aware of the formidable opposition the carrying out of such a bridge might meet with.

The new East and West Street would run from the western end of Newgate-street, and be carried eastward across King Edward-street and St. Martin's-le-Grand, north of the General Post Office. It would then proceed, bisecting Noble-street, Wood-street, Aldermanbury, Basinghall-street (north of Guildhall), and Coleman-street to Moorgate-street, at which spot it will be 250 yards north of the Bank. Thence across Little Bell-alley and Draper's-buildings to London-Wall, at the end of Blomfield-street, and then, by way of London Wall and Wormwood-street (the northern sides of which streets would become part of the northern side of the new street), up to Bishopsgate-street Within; thence, still proceeding eastwards, it would cross Houndsditch and Petticoat-lane, and proceed to its junction with Whitechapel High-street, near to Commercial-street. Immediately opposite to this termination will commence the new street, projected by the Metropolitan Board of Works, from Whitechapel to the Commercial-road, and the two streets would be a continuation of each other in a straight line. The total length of this new line within the City would be 2,000 yards; beyond the City, 266 yards; making a total length of 2,266 yards. The breadth of the new street would be 70 ft., and the gradients would be excellent, the street being virtually level. Christ's Hospital would be destroyed, and a large quantity of miserable property at the extreme east of the City cut through and opened up.

Amongst minor improvements wisely suggested are various new streets, widening of streets, and lay-byes; and the removal of the railings round St. Paul's Churchyard and widening of the carriage-way on both sides, long since urged by us.

VARIORUM.

BACON'S Map of London, corrected to the present time, includes a large number of new streets and buildings not before shown. All the new railways, and those for which Acts have been obtained, are shown. It is cheap and good. ——A Dictionary of Science, Literature, and Art. Edited by the late W. T. Brande and Rev. William Cox. London: Longmans & Co. This standard work is now nearly brought to a close, having reached, in Part IX., to "Radiant Heat." This part contains an interesting article on Printing and Printing Machines.

Miscellanea.

TABLETS TO THACKERAY AND LEECH IN THE CHARTERHOUSE.—These tablets are now complete. They are of a very simple character, after designs furnished by Mr. F. T. Palgrave, Captain of the School in 1842-3. The design for the passion-flower relief was given by Mr. T. Woolner, the sculptor; the lettering and gilding are by Mr. Sumter. The tiles, which form a border to the tablets, were executed by Messrs. Maw, who gave them for the purpose. The turquoise blue transparent enamel, it is believed, has not been before produced in England. The inscriptions are:—*Gulielmo M. Thackeray, Carthusiani Carthusiano, H. M. P. C. Natus* 1811, *Obiit* 1863. *Alumnus* 1822—27; and a similar one, bearing the name of John Leech, with proper dates.

WINDOW SASHES.—A contrivance has been recently patented by Messrs. Marygold & Fitzjohn, of 60, Shoe-lane, with the view of obviating the inconvenience and danger incidental to window-cleaning. The arrangement admits of the two window-sashes, the upper and the lower, receiving a double motion, one vertical, and the other of rotation about pivots fixed in the sash-frame, right and left, in the horizontal line through its centre. The sash-weights, sash-lines, and pulleys are dispensed with, and the up-and-down motion is obtained by a rack and pinion. The spindles of the pinions are fixed in the side-frames, and the racks are fitted into sliding pieces of deal or mahogany which support the pivots; the whole of this apparatus constituting the "patent window-sash slip." As the pinion gears into the teeth of the racks, and is placed between them, the vertical motion of the sashes is always contrary. If the lower sash be raised, the upper one immediately descends through an equal space, and *vice versâ*,—an arrangement of rather doubtful advantage as regards ventilation; and the weights of the two sashes being very nearly equal, the hand has only to supply the small amount of pressure necessary to overcome friction in the frame. To clean windows constructed on this principle, it is only necessary to swing them upon their pivots, so as to bring the external side of the panes within the room, lowering the upper one, if necessary, to bring it within reach.

MIDDLE-CLASS COLLEGE, TRENT, DERBYSHIRE.—It is intended to found a Middle-Class College, near the Trent Station, on the Midland Railway, and an influential committee has been formed for that purpose: the contemplated expenditure is 20,000*l.* The works are to be commenced forthwith, under the direction of Mr. Frederick Peck.

THE NEW CATTLE MARKET.—At a recent court of the Common Council of London, a report was brought up by Mr. Rudkin, the chairman of the Markets Committee, recommending that the two vacant hotels at the Metropolitan Cattle Market should be converted into improved dwellings for the labouring poor, at the estimated expense of 10,000*l.*, and was agreed to.

INCOME OF THE WORKING CLASSES.—In reference to Mr. Gladstone's estimate of the income of the working classes as being 250,000,000*l.*, against 350,000,000*l.* as the income of the other classes, Mr. R. Dudley Baxter writes to the *Times*, arguing from the statistics of Professor Leone Levi, that that estimate is too high, as it would give each working-class family an average yearly income of 62*l.*, whilst 40*l.* would be much nearer the fact. Mr. Gladstone's estimate gives the proportions of income as five-twelfths for the working classes, and seven-twelfths for all the other classes. Professor Levi's estimate, made before the present reform controversy began, gives the proportions as one-fourth for the former, and three-fourths for the latter.

PORTLAND CEMENT.—An American journalist says,—"Made into a thin solution like whitewash, this cement gives wood-work all the appearance of having been painted and sanded, and may, for aught we know, have as preservative a property. Piles of stone may be set together with common mortar, and then the whole washed over with this cement, making it look like one immense rock of grey sandstone. For temporary use a flour-barrel may have the hoops nailed, so as not to fly apart, and the inside washed with 10 cents-worth of Portland cement, and it will do for a year or more to hold water. Boards nailed together, and washed with it, make good hot-water tanks; and in so many ways is it of use, that we have come to look on it as one of those peculiar things in a garden which it is 'always good to have about.'"

THE THAMES TUNNEL COMPANY. — A special general meeting of the shareholders in this undertaking has been held in order to approve of a Bill for winding up the affairs of the Company, and for its dissolution. The Bill had passed the Commons, and was now before the Lords. The Solicitor read the heads of the Bill, which set forth that the Public Loan Commissioners having received 100,000*l.* from the East London Railway Company, in discharge of the Thames Tunnel debt, the remaining capital of the Company amounted to 172,000*l.* in 3,440 shares of 50*l.* each, fully paid up. In addition to the land sold to the railway, the Company possessed land which the Bill directed to be sold, and the net proceeds divided among the shareholders, together with the instalments to be received from the railway company; the Thames Tunnel Company to be dissolved within ten years from the passing of the Act. A resolution approving of the bill was carried.

GAS.—The Great Central Gas Company have declared a dividend at the rate of 10 per cent. per annum, and talk of a reduction in price from 4*s.* to 3*s.* 6*d.*——The Swansea Gas Light Company have declared a dividend at the rate of 10 per cent. on old shares, and 7½ on new, for the last half year. Leakage of gas has been reduced to less than 10 per cent., and other economical processes effected. The consumption of gas is great and on the increase.——The Half-yearly Report of the Rotherham Gas Light and Coke Company says:—"We continue to have a gradual increase of trade. At our last half-yearly meeting we entered upon a reduced price of gas, and we are glad to say that the increased demand has, to some extent, compensated for that reduction in price, and we are enabled to pay the *maximum* dividends on all our share capital. This fact will encourage us to make a further reduction, which we hope to do very soon." There has been some manifestation of dissatisfaction with the price and quantity of the gas.——The Singapore Gas Company have declared a dividend at the rate of 7½ per cent. per annum on preference capital, and at the rate of 3 per cent. per annum on the original capital.

ACCIDENTS.—A large portion of the wall of an iron merchant's wharf, near Bankside, has fallen in towards the river. The remainder has been secured to prevent further accidents.——The coroner's jury, in the case of six persons having been killed by the fall of a railway bridge at Carshalton, have delivered their verdict, to the effect that the deaths were accidental, owing to the giving way of the bridge.

MANCHESTER ROYAL EXCHANGE.—The Act of Parliament for the erection of the New Royal Exchange obtained the Royal assent some days since, and a meeting of the committee of the Exchange has been held to determine upon future operations. The Act provides for the closing of Ducie-street and Crow-alley, and gives power to obtain possession of any property and interests required for the extension. The committee resolved that every effort be made to expedite the erection of the New Exchange, and determined upon inviting competition for plans by public advertisement. Liberal premiums are to be offered for the best designs, and the competition is to be altogether unlimited.

THE SALISBURY CITY SURVEYORSHIP. — At a recent meeting of the town council it was announced that Mr. Peniston had tendered his resignation of the office of city surveyor, some observations having been made, at a meeting of the Board of Health, as to the desirability of amalgamating the office with that of surveyor to the Local Board, and Mr. Peniston did not wish to stand in the way of such an arrangement. The resignation was accepted, and, pending the appointment of Mr. Peniston's successor, instructions were given to Mr. Botham, the surveyor to the Local Board, to proceed with the most pressing work in hand, including the alterations in front of the Council House. A vote of thanks to Mr. Peniston for his services during the last seven years was passed.

TO PERSONS ABOUT TO BUILD. — Through incautious haste in purchasing a new site, we are beset with small difficulties, or, rather, with great annoyances. Without drainage or lamps; and with no prospect of a better road than I have already described, until non-resident owners can be persuaded to subscribe a share of the expense of improving, yet are we heavily rated for all these necessaries; and, to complete our mortification, the secretary of the building company has just received an offer from Barrel, the great Brewer, for his cabbage-garden, which, in justice to his family, he feels it his duty to accept. Consequently, in a few months, our *vis-à-vis* will be a public-house, ostensibly erected for the convenience of visitors to the Cemetery. Again, we are asking ourselves what course we shall pursue? Will this public confession of our disappointments and distress avail to extricate us from them? To an author meditating an enlarged edition of Hervey's "Meditations on the Tombs," or an essay on Epitaphs, our cottage would be an appropriate retreat; or to a philanthropic individual benevolently desirous of investigating and reforming the habits and customs of the lower classes, Westborough presents a fine field; and we shall be most happy to let or sell on terms advantageous to the purchasers.—*Once a Week.*

THE MEASUREMENT OF TIMBER. — A London firm having addressed an application to the Chancellor of the Exchequer requesting, with reference to the proposed abolition of the duties on wood and timber, that the officers of Customs may be authorised to continue to measure wood goods as heretofore, Mr. Childers has now more fully replied, to the effect that it is not the practice of the officers of the Customs Department to take an account of goods free of duty, either by weighing or measuring the same. In the event, therefore, of the duties on timber and wood goods being repealed by Parliament, the officers of the Customs revenue will, according to the established practice of the department, cease to take any measurement of wood goods, as it would form an exceedingly inconvenient precedent were public officers to be employed in taking accounts simply for the information and guidance of the merchant in his mercantile transactions; an inconvenience which would be rather aggravated than modified by any attempt to levy on the merchant charges for such work. As regards London, the respective dock companies are about to make the necessary arrangements for furnishing the measurements of timber; and the Customs officers will continue to measure timber until the duties thereon are legally repealed by Parliament.

INTERNATIONAL HORTICULTURAL EXHIBITION. The arrangements are progressing favourably, and there is every reason to expect the week will be a success. Notwithstanding advertisements, the undertaking is not so well or so widely known as it should be. The banquet will take place on the 22nd inst.

PARLIAMENTARY COSTS.—Five of the railway companies possessed of London termini are said to have expended within the walls of the palace at Westminster as much money as would suffice to re-create another similar palace, equal in extent and decoration, from the concrete foundation in the river to the highest pinnacle, and equally garnished with gilding, fresco, picture, and painted glass.

THE ATLANTIC CABLE. — Manufacture and stowage go on concurrently, and at the moment one part of the wire is receiving its elementary coating of Chatterton's compound, or perhaps being spun at Birmingham, other portions are being laid down in the *Great Eastern* ready for the final paying out. Tests, both of insulation and continuity are being ceaselessly put by the electricians. Some seventy days are spoken of as the period the *Great Eastern* will be away. She will probably leave Sheerness between the 29th June and 3rd July next; and, according to the *Daily News*, "we may look for messages from America about the beginning of August next."

CAMBERWELL HOUSE LUNATIC ASYLUM.—For some months past extensive works have been going on at an establishment known as Camberwell House Lunatic Asylum, and at an expense of some 8,000*l.* The new building, situated on the north side of the estate, has been erected from designs by Mr. Richard Tress, of London, architect. The style is Italian, and the materials used are chiefly red and white bricks, with stone dressings. The entire frontage is 217 ft. 6 in. in length, the main building being two stories in height, with a wing on either side, and clock tower, 65 ft. high, in the centre. There are 16 large rooms, averaging from 30 ft. to 50 ft. long, and 28 single rooms, 8 ft. by 6 ft. 6 in., the whole of them being lofty, well-ventilated, and properly warmed. The building is divided for males and females, and on either side are bath-rooms and lavatories.

LECTURE ON SUBSTITUTES FOR GUNPOWDER.—At the Royal Institution, Professor Abel has delivered a lecture on this subject. He is of opinion that, notwithstanding the many substitutes hitherto proposed, gunpowder still maintains its posititon as the best of explosive compounds for the various uses to which it is applied. Gun-cotton, however, he remarks, seems to be susceptible of being made to suit all explosive purposes, and it possesses the great advantage of producing no smoke and of leaving no residuum. Another advantage of no less importance is the safety with which it may be manufactured and stored; for it can be wetted and rendered incombustible, and its explosive properties are restored without injury when dried, and it can be kept for years without injury to its properties. Among other applications of which it is susceptible is that of fireworks, which might be exhibited in a room without nuisance. The lecturer concluded the lecture, which was illustrated with numerous experiments, by giving a brilliant pyrotechnic display.

THE SANITARY CONDITION OF HIGHGATE.—In the course of an assault case at Highgate Police Court, which took place at a common lodging-house, it appeared that twelve persons—men, women, and children—lived in one room. Mr. Bodkin, the magistrate, said, as the cholera was approaching, the inspectors of common lodging-houses should visit all such places. No wonder disease prevailed when twelve persons were allowed to sleep in one room. He wished to know whether the police of the district could not visit the houses, and see that the licences were not infringed. The station-sergeant said they had nothing to do with such matters. Common lodging-houses were under the inspection of officers appointed for that purpose. The Bench requested a communication to be made to the proper authorities. It was essential for the public health at the present time, when great apprehensions were entertained that the cholera was approaching, that all due precautions should be adopted; and in common lodging-houses it was necessary that sanitary regulations should be enforced.

THE NATIONAL GALLERY COMPETITION.—The following is a list of the architects who will compete:—Messrs. Banks & Barry, E. M. Barry, Brodrick, G. E. Street, G. G. Scott, Digby Wyatt, Somers Clarke, Owen Jones, F. C. Cockerell, Murray, Penrose, and S. Smirke.

THE OLD HALL OF LLANIDLOES.—This old town-hall is shortly to be knocked down to the highest bidder. It is a curious specimen of early architecture. As it is built upon pillars, it has served the loungers as a shelter from winter's wind and summer's sun.

ROYAL ACADEMY.—At a meeting held on Tuesday evening last, Mr. Wells, Mr. Yeames, Mr. Nicol, and Mr. Pettie, painters; Mr. G. E. Street, architect; and Mr. Joseph Durham, sculptor, were elected Associates of the Royal Academy of Arts.

METROPOLITAN BENEFIT SOCIETIES' ASYLUM.—This institution, in the Ball's Pond-road, is about to be completed by the addition of the east wing, under the direction of Mr. W. P. Griffith, architect. This is the only asylum of its kind in the kingdom for the special benefit of friendly society members, and the finances are in a flourishing state. We understand that the Lord Mayor has consented to lay the foundation-stone on Tuesday, the 10th of July next.

A NEW OBJECTION TO THE NIGHT-SOIL SYSTEM.—The work of the night-soil department in Manchester is at present in suspense, the whole of the men who were employed by the corporation having struck. The drivers of the carts struck first, and then the night-soil men refused to drive the carts. The only man left willing to do so was thereupon dragged about and kicked by several of those on strike, one of whom was taken before the police magistrate, and committed to prison.

LOOK TO YOUR CHANDELIERS.—Mr. Simeon Warner, of 18, Brunswick-square, Brighton, was sitting at dessert with his son, when the chandelier in the centre of the room fell, carrying with it a quantity of the ceiling, part of which fell on Mr. Warner's head, causing concussion of the brain. He lingered a few days and then died. This occurrence should lead to some examination of chandeliers and picture frames, often allowed to remain suspended for years without recollection that chains and cords (to say nothing of beams) decay.

TWENTY YEARS OF LITIGATION.—We some time since called attention to the lengthy litigation which had occurred in the case of "M'Intosh *v.* The Great Western Railway Company," and pointed out that it would probably engross a considerable portion of the time of the Lord Chancellor before the coming long vacation. We are informed by the *Solicitors' Journal* that, after twenty years of contest, it has come to an end by a compromise having been effected between the litigants. Mr. M'Intosh, a descendant of the original plaintiff, has, it is understood, agreed to accept the sum of 120,000*l.*, or thereabouts, in liquidation of the claim made in the suit.

WORKING MEN'S CLUB AND INSTITUTE UNION.—The third social meeting of this union was held in the Lower Hall, Exeter Hall, on Wednesday, the 2nd inst., the chair being occupied by Mr. T. M. Torrens, M.P. The subject for discussion was, "Is it the duty and province of Government and local authorities to assist the industrial classes in providing themselves with better dwellings?" Mr. Paterson, the opener of the discussion, was of opinion that before Government aid was asked the money accumulated in the savings-banks by the working classes should be invested in the building of workmen's dwellings. This plan, he thought, would not only be profitable in a pecuniary point of view, but would meet the great want that has long been felt of proper and healthy accommodation for the working classes. Mr. Locke, M.P., thought that the Bill which he, together with Mr. Torrens and others, was at present supporting in Parliament, fully met the requirements of the case. That Bill provided that on a house, unfit for human habitation, being condemned by a proper appointed authority, it should be pulled down; the owner, if he chose, could build a proper residence on the site; if not, the local authorities would take it into their own hands, and construct such residences as would be suitable for the working classes. The chairman spoke at some length in support of the Bill above mentioned, and against the plan of locating working men at a distance from town and from their work.

THE WORCESTER CATHEDRAL RESTORATIONS.—In lowering the roadway near the north porch of the cathedral, the workmen have cut into the ancient charnel-house, the massive stone vaulting of which they have nearly destroyed. This crypt was in existence in Norman times, if not at a much earlier date; but the stone vaulting is said to have been built in 1224, by Bishop de Blois, who also constructed an elegant chapel over it. The latter, after a great variety of mutations, disappeared towards the end of the seventeenth century. The crypt contained two great stacks of bones and skulls, the entire length of the vault. It is to be regretted that it should have been found necessary to destroy one of the most ancient relics of the cathedral establishment.

THE LONG-TALKED OF SUBMARINE TUNNEL BETWEEN CALAIS AND DOVER.—A Paris correspondent of a contemporary writes:—Decidedly an attempt will be made to construct a tunnel from Calais to Dover. A body of engineers, under the direction of M. Thémé de Gamond, have already arrived at Boulogne. This gentleman has half-convinced the emperor of the practicability of the scheme; and it is by the emperor's order that he is now verifying the plans he presented. The engineer feels certain of success. He says that the bed of the sea between Dover and Calais is rocky, and offers no obstacle to the formation of a tunnel. The Thames Tunnel was a great and difficult work; but here is one excelling ten Thames Tunnels in magnitude.

VAUXHALL BRIDGE COMPANY.—At the ordinary half-yearly meeting of the above company, the secretary read the report, which stated that the receipts for tolls for the last half-year had been 5,984*l.* 4*s.* 8*d.*, or an increase of 783*l.* over the corresponding period of last year. The working expenses had been 1,118*l.* 4*s.* 6*d.* Out of the profits the directors proposed a dividend of 17*s.* per share, free of income-tax, upon 5,600 shares, which was an increase of 3*s.* on the dividend of last half-year. The company now possessed a cash balance of 3,542*l.* 16*s.* 4*d.*, 2,000*l.* in exchequer bills, and a reserve fund of 7,500*l.* The chairman said their surveyor was of opinion that the bridge would be in no way affected by the stronger current on the completion of the Thames Embankment. There was no present probability of the bridge being purchased, either by the Government or the Board of Works.

TENDERS

For the erection of malt offices, for Mr. Geo. Wheeldon, at Derby:—

Fryer	£2,839	0	0
Dusantoy	2,798	0	0
Stoddard	2,696	0	0
Bullock (accepted)	2,659	0	0

For Longmead House, Bishopstoke, Hants, for Mr. Alfred Barton. Mr. G. E. Street, architect. Quantities supplied by Mr. Poland:—

	House, &c.			Stable Buildings.			Oak instead of Deal.		
Nicholson	£10,174	0	0	£3,020	0	0	£310	0	0
Wall & Hook	10,660	0	0	2,860	0	0	150	0	0
Myers & Sons	10,050	0	0	2,830	0	0	480	0	0
Bull & Sons	9,470	0	0	2,800	0	0	490	0	0
Dove, Brothers	9,750	0	0	2,825	0	0	265	0	0
Futcher	9,977	0	0	2,607	0	0	407	0	0
Sawyer	9,185	0	0	2,300	0	0	300	0	0
Rogers & Booth*	8,850	0	0	2,300	0	0	250	0	0

* Accepted.

For alterations to Old Malden Church, Surrey. Mr. T. Graham Jackson, architect:—

Nutt & Comber	£1,470	0	0
Farmer	750	0	0
Hooker	694	0	0
Mason	669	0	0
Maley	550	0	0

For a residence, at Sion-place, Brentford-road, for Mr. C. H. Newman. Mr. James Harrison, architect. Quantities supplied by Mr. S. Shrubsole:—

Saunders	£911	0	0
Easton	870	0	0
Wiles	857	10	0
Reavell & Son	769	0	0
Nightingale	766	15	0
Minty & Son	760	15	6
Gibson, Bros.	745	2	8
Brunsden	715	0	0

For a Lodge to Manor House, Erith, Kent. Mr. Herbert Ford, architect:—

Bloofield	£566	0	0
Gambull	440	0	0
Vickery (accepted)	350	0	0

For the erection of a house, at Notting-hill, for Mr. George Lawrence. Mr. Albert Bridgman, architect:—

Colley	£660	0	0
Snelling	599	0	0
Messrs. Neale	488	10	0
Freeman	395	0	0

For shooting-box, on the estate of Sir Wm. Follett:—

Ward	£2,020	0	0
Deards	1,973	0	0

For new warehouses, Bishop's-court, Old Bailey, for Messrs. Harris & Sanders. Mr. Edward T. Aston, architect. Quantities supplied by Mr. Arthur W. Q. Nicoll.

Kent	£1,785	0	0
Brass	1,700	0	0
Bostel	1,689	0	0
King & Son	1,575	0	0
Green	1,397	0	0
Browne & Robinson	1,339	0	0

For the erection of the Loyal United Friends' new Lecture-hall and Institute, Banner-street, St. Luke's. Mr. James Dudley, architect:—

Fincher & Martin	£4,400	0	0
Rowley	4,130	0	0
Sawyer	3,945	0	0
Seaby	3,900	0	0

For a new brewery at Chertsey, for Messrs. Healy & Co. Mr. Wonnacott, architect. Quantities supplied:—

Moon & Son	£5,875	0	0
Simpson	5,661	0	0
Duke	5,151	0	0
Knight & Sons	5,062	0	0
Goddard & Son	5,050	0	0
Jenkins	5,017	0	0

For new engine-house, at the West Ham Gas Works Mr. E. H. Thorman, engineer:—

Munday	£1,195	0	0
Docwra	1,190	0	0
Hedges	1,080	0	0
Enor	1,080	0	0
Hill & Co.	1,035	0	0
Perry	999	0	0
Rivett (accepted)	973	0	0

For the completion of works at the Royal Society of St. Anne's Asylum. Messrs. Wimble & Taylor, architects:—

Higgs	£1,725	0	0
Ashby	1,721	0	0
Jackson & Shaw	1,710	0	0
Rider	1,700	0	0
Newman & Mann	1,680	0	0
Adamson & Son	1,592	0	0
Hill & Sons	1,475	0	0
Colls & Son	1,468	0	0

For villa residence at Pinner, for Mr. J. L. Graham. Mr. J. Collier, architect. Quantities supplied by Mr. J. S. Lee:—

Chutter	£2,634	0	0
T'Anson	2,579	0	0
Browne & Robinson	2,570	0	0
Perry	2,536	0	0
Childs	2,500	0	0
Colls & Son	2,493	0	0

For pair of residences at Wimbledon, for Mrs. Bond. Mr. G. W. Bartlett, architect. Quantities supplied by Messrs. Hovenden & Heath:—

Newman & Mann	£3,456	0	0
Maeers	3,315	0	0
Conder	3,227	0	0
Piper & Wheeler	3,143	0	0
Wood	2,966	0	0
Colls & Son	2,860	0	0

For residence for Mr. S. Bowley, for the Crystal Palace Company. Mr. R. R. Banks, architect. Quantities supplied by Messrs. Strudwick & Co.:—

Simpson & Son	£5,097	0	0
Piper & Wheeler	4,992	0	0
Downs	4,983	0	0
Perry	4,775	0	0
Patrick & Son	4,620	0	0
Colls & Son	4,576	0	0
Nixon	4,490	0	0
Browne & Robinson	4,285	0	0

Extension of the Metropolitan Benefit Society's Asylum, Ball's Pond.—We are asked by the contractors to give the following. Quantities supplied by Messrs. Rake & Ranwell and Thos. Nixon:—

Nutt & Co.	£4,450	0	0
Nixon	4,093	0	0
Simms & Marten	3,944	0	0
Adamson & Sons	3,890	0	0
Dimsdale*	2,560	0	0

* Quantities not supplied.

SIR,—With reference to tenders for six shops, Kentish-town-road, in yours of the 28th ult., wherein my tender, though the lowest, was not accepted, I beg, in fairness to me, that you will give my explanation the same publicity. A 5*l.* provision for shoring was omitted by me, and my next competitor, 20*l.* above, claimed the job, on the ground of non-compliance with the conditions of the estimate.

W. HYDE.

TO CORRESPONDENTS.

W. T.—Mr. A.—W. P. A. W. Q. N.—M. H. L.—J. D.—B. R.—F. P.—T. W.—J. S.—J. E.—W. & T.—W. B.—C. & Sons.—E. E. S.—R. & N.—W. B.—J. H.—T. S.—B. W.—Dr. W.—G. H. L. (go to an architect by all means).—C. B.—T. T.—P. W. C.—A. B.—C. E.—E. J. S.—O. J.—W. M. M.—G. A. M.—W. H. L.—W. B.—W. G. L.—W. P. R.—F. A. P. T. L. D.—H. & K.—W. H. G. (we have not time to compare).—A Clerk (we have no information as to the advertiser).—A Looker. Gauntlet (we are forced to decline giving opinions in private disputes).—G. E. (advertise, or invite a few personally).—W. B. O. (it depends on circumstances. Take advice). W. L. E. (very doubtful if he could recover. Services seem to have been wholly voluntary).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than THREE *o'clock, p.m., on THURSDAY.*

[ADVERTISEMENTS.]

THE BATH STONE COMPANY, Limited, saving opened new Quarries, are now prepared to upply any of the following STONES, viz., Box, Ground, Corsham Down, Farleigh, and Combe Down.—Prices and terms on application to E. A. TUCKER, Manager, 4, Railway-place, Bath.

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

2, Bancroft-street (corner of Princess street), Manchester, May 12th, 1866

TO ENGINEERS, ARCHITECTS, and CONTRACTORS.—Gentlemen,—I beg leave to inform you that, on the recommendation of numerous friends, engineers, architects, and contractors, I have made arrangements to commence practice shortly, on my own account, the profession of a SURVEYOR and VALUER, which will embrace taking out quantities, measuring buildings, surveying and valuing land, and all work appertaining to the building trade; and, also, that I shall be prepared to advise upon and negotiate the sale and purchase of land and buildings generally. Having had twenty years' practical experience thirteen years and upwards acquired with the late firm of Messrs. Lowndes, Lee & Sons, of Manchester, builders and contractors, and nearly seven years as principal As assistant with Mr Thomas Taylor, surveyor and valuer, and surveyor to the War Department, 24, Brazennose-street, Manchester), and having been engaged in, and had the conduct and management of, every variety of business matters of great magnitude and importance appertaining to the profession of a Surveyor and Valuer, I trust I shall be deemed to possess sufficient competence and ability to execute with skill and efficiency any business which may be entrusted to me. I may also state that I hold the highest testimonials from my present and late employers, and also from many of the leading engineers, architects, and contractors, in Manchester and elsewhere, to whom I can with confidence refer. The resignation by me of my present engagement with Mr Taylor will terminate on the 14th of MAY, when my Offices at the above address, will open for the transaction of business; and I beg to assure you that any business you may favour me with shall receive prompt and careful attention, and that there shall be nothing wanting on my part to merit your patronage and support.—I remain, gentlemen, your most obedient servant, EDWARD N. WORTHINGTON.

CLAPTON-ROAD.—Near St. John's Church, Hackney.—Eligible Freehold Building Land, suitable for the erection of terrace houses of the value 250l. and upwards

MR. J. TAYLOR is instructed to SELL by AUCTION, at the GREAT EASTERN TAVERN, Bishopsgate street Within, on MONDAY, MAY 21, at TWELVE for ONE, 49 lots of very valuable FREEHOLD BUILDING LAND, situate in the Glenarm, Enfield, and Clapton Roads, and Clapton-park Estate. The roads and sewers have all been constructed at the expense of the vendor. Nine-tenths of the purchase-money may remain on mortgage or contract, at 5 per cent. interest, to be paid in nine years by equal quarterly instalments; but the balance may part remain on mortgage or contract, at five per cent. interest, to be paid in nine years by equal quarterly instalments; but the whole or any part of the balance may be paid off at any time without notice. Particulars and conditions of sale may be obtained of the GARDENER, on the Estate; of Mr. ROGERS, Esq. Solicitor, 70, Fenchurch-street; of Messrs. HAMMACK & LAMBERT, Architects and Surveyors, 59, Bishopsgate-street Within; at the Place of Sale; and of the Auctioneer, 70, Fenchurch-street, City.

Freehold Stables, Coach-house, &c. suitable for Omnibus and Cab Proprietors, Livery Stable Keepers, Carmen, and Others.

MR. J. TAYLOR is instructed to SELL by AUCTION, at the LONDON TAVERN, Bishopsgate street Within, on MONDAY, MAY 21, at TWELVE for ONE o'clock, the very extensive range of STABLING, COACH HOUSE, and STABLE YARD, Avenue-road, near Hackney Church. The whole have accommodation for ten horses, and are paved throughout with brick and stone, and fitted up with every convenience. There are also two bed-rooms, one sitting-room, harness-room, corn-room, and large loft. The property is most substantially built, and in excellent repair. The whole comprises an area of about one third of an acre, thus affording ample room for the erection of other large blocks of buildings. Nine-tenths of the purchase-money may remain on mortgage or contract, at five per cent. interest, to be paid in nine years by equal quarterly instalments; but the whole or any part of the balance may be paid off at any time without notice. Particulars and conditions of sale may be obtained of the GARDENER, on the Estate; of Mr. ROGERS, Esq. Solicitor, 70, Fenchurch-street; of Messrs. HAMMACK & LAMBERT, Architects and Surveyors, 59, Bishopsgate-street Within; at the Place of Sale; and of the Auctioneer, 70, Fenchurch-street, City.

SOUTH NORWOOD.—Eligible Freehold Building Land, in White Horse-road, most advantageously situated, within ten minutes' walk of the Norwood Junction Railway station, and one mile and a-half from the Crystal Palace.

MR. J. TAYLOR is instructed to state that the LOTS which were NOT DISPOSED OF at the late Sale of Land on the above-named Estate, WILL BE OFFERED FOR SALE by Private Treaty. Nine-tenths of the purchase-money may remain on mortgage or contract, at five per cent. interest, to be paid in nine years by equal quarterly instalments. Plans of the Lots and particulars, apply to the AUCTIONEER, 70, Fenchurch-street, E.C.

CLAPHAM.—To Contractors, Builders, Iron Brokers, Timber and Firewood Dealers, and Others.—Above 400 lots of very useful building materials, comprising old and new doors, sashes and frames, partitions, mantels and marquetry oaks and ashes, curved headed sashes, handrails, &c. Quarried Yorkstone, old timber, firewood and shavings; stone columns, caps, bases, steps, stairs, landings, lavatory, and paving, two carved stone inscriptions, cast iron balusters, newell; gratings, railings, palisading, and fencing, Register and other stoves, about 100 pieces of corrugated iron roofing, quantity of hot water pipes and sundry iron work, deck house, and miscellaneous effects.

MR. STEVENS will SELL by AUCTION the above upon the PREMISES, the Farm Yard, Crescent Lane, Clapham Common, on TUESDAY, MAY 15th, at ELEVEN for TWELVE o'clock precisely May be viewed, and catalogues at Place of Sale, and of the Auct oneer, Clapham Common, S.

To Builders, House Decorators, and Others.

MESSRS. BARNARD, THOMAS, & CO. are instructed by the Executors of the late Mr. Henry Meisome, of St James's Barton, and 1, Haberdasher-street, Bristol, to DISPOSE of the Valuable BUSINESS which he carried on for many years with very great success, and is now offered for sale in consequence of his decease. The Business includes that of a Contractor, Slater, Plasterer, House Decorator, Dealer in English and Foreign Paper hangings, &c. It is in full work, with extensive orders on hand, to be transferred to the purchaser. For the position of the very first houses in Bristol, its suburbs, the Beach in the counties, and also in South Wales. It is presumed that the Stock and Plant shall be taken at a Valuation, and a good-will given, as may be agreed on All necessary particulars may be obtained on application by letter, in the first instance, addressed to Mr. JOSIAH THOMAS, Surveyor, Nicholas-street, one of the Executors; or to Messrs. BARNARD, THOMAS, & CO. Albion chambers, Bristol.

Dated April 6th, 1866.

UXBRIDGE, MIDDLESEX.—A delightfully situated and compact Freehold Estate, with an excellent Family Residence, Two Entrance Lodges, Bothouses, and all the Outbuildings, known as The Hermitage; a very desirable piece of Building Land adjoining, and a substantially-built Dwelling house, well situated in the High-street, Uxbridge.

MESSRS. BEADEL are instructed to SELL by AUCTION, in the early part of JUNE, with immediate possession, that very eligible ESTATE known as The Hermitage, most pleasantly situate, only a mile and a quarter from Uxbridge to Harefield, and within a few minutes' walk of the town of Uxbridge. The Estate comprises a well arranged family residence, standing in its own grounds, which, being finely timbered, present an extremely picturesque and park-like appearance, commanding exhibitions of extensive and charming views; Harrow, Windsor, and the new mountain of the Crystal Palace, two handsome entrance lodges, tastefully arranged gardens and shrubberies, hothouse, vinery and forcing, coach-house, four-horse stable, land convenient outbuildings; also two pieces of excellent meadow land, adjoining the whole containing ten acres and a half, enclosed in a ring fence, and forming a most desirable residential property; a very eligible piece of freehold meadow land adjoining the above estate, with a considerable frontage, in every respect well adapted for building villa residences, and containing 3a. 0r. 15p.; a substantial dwelling-house, with large garden in the rear, pleasantly situated in the high-street of the town of Uxbridge. There is a branch line of railway from the Great Western terminating at Uxbridge. The town is remarkably healthy, and the neighbouring scenery is scarcely to be equalled in the county. Further particulars may be obtained of Messrs DRUCE, SON, & JACKSON, No. 10, Billiter-square, E.C.; and of Messrs. BEADEL 25, Gresham-street, London, E.C.

POSTPONED UNTIL MAY 23rd.—In Chancery.—The Alexandra Park Company, Limited v. Wood and Others.—New Materials.—To Builders, Contractors, and Others

MR. ROBERT REID will SELL by AUCTION, pursuant to an order made in the above mentioned cause, on the PREMISES, immediately on the new Woodgreen Station on the Great Northern Railway, on WEDNESDAY, MAY 23, at EIGHT for TWELVE o'clock precisely, 500 Squares of PREPARED FLOORING, 10 Window Sashes and Doors, with frames, mouldings, beads, fillets, slate battens, deals, battens, and other useful Building materials, partly converted, iron pipes and guttering, ornamental cast iron railing, weight iron pulleys, roofing straps, sawbenches, mortise locks, hinges, bolts, nails, screws, and other useful ironmongery; 24 tons of new milled lead, partly dressed, new lead piping; 2 patent water-closets, plug basons; several crabs, with falls and tackle; a portable forge, anvils, scaffold-ropes, ladders, and other implements; 30 crates of glass; oils, turpentine, oak stain, paint, and a variety of useful trade materials.—May be viewed the day preceding and morning of sale and catalogues may be obtained of Messrs. BAILEY, SMITH, & BAILEY, Solicitors, 7, Berners-street, Oxford-street, W.; of Mr HENRY JONATHAN RICHES, Solicitor, 12, King's Bench Walk, Temple, E.C.; upon the Premises; and of Mr. ROBERT REID, 48, Great Marlborough street, W.

Fir Timber.—Penalls Warren, Egham

MESSRS. BUCKLAND & SONS have received instructions to SELL by AUCTION, at the RED LION, Staines, next the Railway Station, on THURSDAY, May 17, 1866, at ELEVEN for TWELVE o'clock, about 1100 LARCH and SCOTCH FIRS, lying in the Wood near to Sarum-hill, many of which are large and fit for railway sleepers, telegraph posts, and other useful purposes, and a large quantity of Rails and Stakes may be had at the Swan, Chertsey; the Angel and Crown, Staines; Catherine Wheel, Egham; the Place of Sale; of Mr. BUCKLAND, Surveyor, &c. 88, Cannon-street West; and of Messrs. BUCKLAND & SONS, Auctioneers, Windsor.

Eligible Freehold Building Land, between Walton and Hersham.

JOHN DAWSON & SON have received instructions to SELL by AUCTION (unless previously disposed of by Private Treaty), at the LONDON TAVERN, Bishopsgate street, on TUESDAY, MAY 29, at TWELVE o'clock, a very desirable FREEHOLD PIECE OF LAND, most eligibly situated for Building purposes, and comprising about six acres, within a short distance of the Walton Station, on the south Western Railway For particulars, apply to J. BELL, Esq Solicitor, Kingston, and 21, Abchurch-lane, City; and at JOHN DAWSON & SONS, Land and Auction Offices, Kingston-on-Thames, and Marlborough chambers, 49, Pall-Mall.

WIMBLEDON-PARK, SURREY.—Five Freehold Building Sites, beautifully timbered, in the choicest and most-favoured part of this desirable suburb, containing together nearly seven acres

CHINNOCK, GALSWORTHY, & CHINNOCK will SELL by AUCTION, at the LONDON TAVERN, on WEDNESDAY, MAY 23rd (unless previously disposed of, in whole, by private contract), FIVE eligible FREEHOLD BUILDING SITES, containing together ca. 2r. 25p. situate in the choicest part of this beautiful neighbourhood. The group as a whole, with its unrivalled timber, elevated and protected position, presents an opportunity which may never again occur for securing a site for a mansion unsurpassed in this favourite neighbourhood; it is equally desirable for smaller residences.—Plans may be obtained of Messrs. HARBIN & SMITH, Solicitors, Clement's-inn, Strand; and of Messrs. CHINNOCK & CO. Land Agents and Surveyors, 11, Waterloo-place, Pall-mall.

WIMBLEDON-PARK.—An eligible Plot of Freehold Building Land, front ng the New Park road, at a short distance from Wimbledon Church.

CHINNOCK, GALSWORTHY, & CHINNOCK will SELL by AUCTION, at the LONDON TAVERN, Bishopsgate-street, on WEDNESDAY, MAY 23, at ONE o'clock, a valuable PLOT of FREEHOLD BUILDING LAND, containing 1r. 3p. adjoining the grounds of Jas Murray, Esq., with a frontage of 150 feet to the New Park-road, at a short distance from Wimbledon Church, with views of the lands and the whole of one of the finest scenery in this justly celebrated park, and admirably adapted for the erection of one or two villa residences.—Particulars and conditions of sale may be obtained at the Railway Taverns, Wimbledon and Putney; the London Tavern; and of Messrs. CHINNOCK & CO. Land Agents and Surveyors, No. 11, Waterloo-place, Pall-mall.

EARLEY ESTATE, adjoining Whiteknights Park, and near the town of Reading.—Eligible Freehold Building Land and Accommodation Farm of the greatest promise in this delightful and picturesque locality, with a deep gravelly subsoil, having extensive frontages to good turnpike roads, and well adapted for the erection of villa residences, or families of a superior class, with good pleasure-grounds; or for building villas, which are here in constant demand. The land-tax is redeemed, and the rates very low.

CHINNOCK, GALSWORTHY, & CHINNOCK will SELL by AUCTION, at the GREAT WESTERN HOTEL, Reading, on FRIDAY, MAY 25, at TWO o'clock, in Five Lots, valuable FREEHOLD BUILDING LAND, forming a portion of the Earley Estate, adjoining Whiteknights Park, and advantageously situate nearly to the Town, in its healthy and picturesque neighbourhood, immediately adjoining the thorough Reading, with extensive frontages to the London road and the Wokingham turnpike road, and very eligible for the erection of Villa Residences and Shops, for the convenience of purchasers.—Plans and particulars may be obtained of W. SLOCOMBE, Esq Solicitor, Reading; of CHAS. SMITH, Esq. Architect, Reading; at the Great Western Hotel, Reading; and of Messrs CHINNOCK & CO. Land Agents and Surveyors, 11, Waterloo-place, Pall-mall, London.

COLLINGS'S ART FOLIAGE, royal 4to 7* Plates, with Letter-press and numerous Wood-cuts, price 7s. 6d. when ordered direct from the Author.

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NEW AND ENLARGED EDITION, 1866.

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The Builder.

VOL. XXIV.—No. 1215.

A Gleam across the Storm of the Eleventh of May.



IN that common and easy philosophy of daily life, which, though it may repose to a certain extent on the broad basis of common sense, is certainly not founded on the data of exact science, it is held as a maxim that storms purify the air. In some places, and at some seasons, this certainly appears to be the case. In that bright little sub-Alpine city which has lately ceased to be the metropolis of the new kingdom of Italy, the heat of the sun in the summer often attains a thermometric intensity equal to that of the semi-African climate of Southern Italy. But as the thermometer rises, and the oppressive state of the atmosphere begins to cloud the brain, a dark canopy is seen to form over the Alps, and a violent and refreshing thunderstorm lays under water for some half-hour the clean-swept streets of the tidy little city, and human life and action start into fresh energy. In our own more irregular climate, we have often felt the refreshing effects of a shower. But we are hardly justified in the optimism that would attribute to the benignant action of mature tempests such as that which in the past winter strewed our coasts with wreck, and uprooted our noblest forest trees. We are rather inclined to look at the dull, close, unwholesome sweather which is sometimes the prelude of a storm, as a climatic disturbance quite as unnecessary as the storm itself, and to think that March winds and April showers are most welcome when most gentle.

The storm,—not indeed of wind and rain, but of panic and confusion,—that burst on the city of London on the 10th and 11th of this month, was one almost without precedent in its violence, and perhaps altogether without precedent in the rapidity with which it burst upon our heads. The scene presented by Lombard-street would not have been more confused if a foreign army had landed on our shores. Old men spoke of the panic of 1825, and those whose acquaintance with such events was formed from reading rather than from experience, thought of the South Sea Bubble, and the failure of Law's Bank in Paris, during the regency of the Duke of Orleans. Merchants and bankers met to call on Government to suspend the law which makes the note of the Bank of England, with a certain limitation, an actual deposit note, representing so much bullion stored in the cellars of that establishment, and that makes the well-known paper the *bonâ fide* representative, not of credit, but of cash. Ministers left the House of Commons to deliberate on the urgency of the case; and when at midnight the Chancellor of the Exchequer announced that he had written to authorise the directors of the Bank of England to issue notes at their discretion, the cheers of the House testified to a sense of relief from the fear of still impending calamity.

The panic, sudden and violent as was its crisis, was not unforeseen. In our columns of the 21st of April last, we called attention to the consequences of what have been called of late financial operations. Borrowing may be a great convenience, but like all conveniences it has its limit; and when you borrow of some one who has to borrow of some one else in order to lend to you, that limit is very sharply defined. The limit in question is this, that you must be sure of having your loan returned before you can be called upon to pay that which you have yourself contracted. In other words, you must lend for a shorter time than the time for which you borrow. This is the principle of all sound banking, and a discount business conducted upon this rule is as safe as it is profitable. In the case of the establishments the embarrassments of which have caused the panic, this principle has been reversed. The money of depositors has been taken, subject to return at short notice, and has been invested in speculations, perhaps very good in themselves, and promising a very large return, but absolutely unsaleable on an emergency. Such a mode of conducting business is certain to produce disaster if credit is once shaken, and with just so much alarm as shall stop the daily deposit of loose cash in the ready hands of the financial banker, down comes the whole circle with a crash, and alas! for the Saturday night at many a pay-table.

Without underestimating the loss involved by such a convulsion as that which will be long memorable in our annals, or the suffering which will in consequence be undergone by so many persons entirely innocent of any blame or imprudence in the matter, we yet see room for consolation in some of the effects of the storm. People will learn, perhaps for a generation, at all events for a decade, that great profits mean great risks. Why should English stock, paying 3 per cent., be worth 85 to 90, and Italian stock, paying 5 per cent., be at 50? Does it not mean that in the public opinion the safety of the English stock is just three to one as compared with that of the Italian debt? What is the other side of the 30 per cent. dividend that you have just gaily brought home from the meeting of some "limited" company, to which you have had the good fortune to subscribe? Is it not the fact, which you may learn unexpectedly from the newspaper on your breakfast-table, that you have invested your earnings in an enterprise in which the chances are 10 to 1 that they will be swallowed up. Sound business is not affected, except incidentally, by a convulsion arising from a reversal of the true law of credit even by dealing with that delicate instrument to the amount of millions.

One incident of the panic deserves record, to the honour of all concerned. It is said that when one of those great employers of labour, the suspension of whose large operations is one of the most universally regretted events of the crisis, was first known to be in jeopardy, a brother contractor,—whose name may be readily surmised, for it has become throughout Europe a household word for probity and straightforward conduct, as well as for enterprise and energy,—called on him, accompanied by three other members of the same calling. The first had in his pocket two hundred thousand pounds, the other three one hundred thousand each. The half million was freely placed at the disposal of the tottering firm, on the condition that its use would be sufficient to ensure its stability, and with a frankness and courage as honourable as was the generosity of the offer, was at once declined. If this account be true, and it is stated on no slight authority, it is hard to say to which party it does most credit—to those who, on so noble a scale, did as they would be done by, or to those who could decline assistance to such a gigantic amount, lest it should not be fully adequate to supply the wants of credit arrangements suddenly and violently overthrown. Honour to the builders of England who contain in their ranks men capable of such an offer, and of such a refusal! Amid all the confusion and general selfishness of a financial panic, an incident such as this shines like a glint of sunshine through the storm.

THE AGE AND AUTHENTICITY OF THE NATIONAL PORTRAITS TESTED BY COSTUME AND HERALDRY.*

BEFORE entering the eastern gallery, I have to state that I have been fortunate enough to identify the arms on the left panel or wing of the altar-piece (No. 27), above the figure of the pilgrim supposed to represent Humphrey Plantagenet, Duke of Gloucester, and that a curious question of interest is raised by them. The arms on the dexter side of the shield are those of Sir Robert Tate, Sheriff of London, 21st of Edward IV., 1481, and Mayor 4th Henry VII., 1488; and on the sinister side are the arms of his wife Margaret, daughter of — Wood, of Warwick. Her will is in the Prerogative Office, London, dated 1512. Now, Sir Robert was the son of Thomas Tate, of Calais, merchant of the staple, living 11th Edward IV., 1471, younger brother of Sir John Tate, Sheriff of London, 4th Edward IV., 1465, and Mayor 13th Edward IV., 1473. Besides the impalement of the arms of Wood, the identification is confirmed by the crescent in the arms of Tate, being the difference for a second son.

Sir John and his brother Thomas, of Calais, were the sons of John Tate, of Coventry, living *temp.* Henry V., and both must have been contemporaries of the good Duke Humphrey. Sir Robert Tate, to whom that portion of the altar-piece at all events belonged, and for whom it might have been painted, could hardly have seen the Duke, who was murdered in 1446; but the family might have been under obligations to him, and the picture painted in Calais by a Flemish artist in commemoration of their benefactor. The facts are certainly in favour of the traditionary account of the portrait. The other personage over whom is placed the coat of arms is probably Thomas Tate.

REIGN OF HENRY VII.

On entering the eastern gallery, and commencing with the reign of King Henry VII., we begin to feel ourselves on rather surer ground. It will be no longer necessary for me to speak of every portrait, as I felt compelled to do in the "Plantagenet Series." I shall now only notice such as are interesting from their costume, or are of doubtful character as to time or person.

No. 41 is the portrait of Sir Robert Chester, who was born in 1510, knighted in 1552 by Edward VI., and died in 1574. The portrait is dated 1562, he being then in the fifty-third year of his age. Although his father helped Henry VII. to his throne, I humbly suggest that this portrait of a man born in the reign of Henry VIII., and painted in the reign of Queen Elizabeth is, for the purposes both of art and education, hung a little prematurely, preceding, as he immediately does, No. 42, Thomas Stanley, first Earl of Derby, who died in 1504, six years before Sir Robert Chester was born. But, query, *is* this Sir Thomas Stanley, *the* Lord Stanley who turned the battle of Bosworth Field into a victory for Henry VII.? He certainly never wore the costume he is painted in. Even the cautious compilers of the catalogue have been compelled to observe that the costume is "temp. Henry VIII.;" temp. Philip and Mary would have been nearer the date, I suspect. We have (No. 69) his son, Lord Strange, the George Stanley who so narrowly escaped the vengeance of Richard, and died in the lifetime of his father, 13 Henry VII., A.D. 1498; and (No. 70) his grandson Thomas, second Earl of Derby, in the same style of dress; and there is a very significant hint in the catalogue, "see No. 136," said number being a portrait of "Thomas Radclyffe, Earl of Sussex, K.G.," born 1526, and deceased 1583. There are several other portraits of the time of Mary and Elizabeth that the visitor may compare these three Stanleys with, particularly one said to be of William Paulet, first Marquis of

* See page 320, *ante*.

Winchester, so created by Edward VI., and who died the 10th of March, 1572. With every wish to look in the most favourable light on the ancestors of the noble earl to whom we are indebted for the existence of this very interesting exhibition, I must doubt the true appropriation of the above portraits to the personages designated.

Nos. 43, 51, 57, three portraits of Elizabeth of York, queen of Henry VII. All poor copies I suspect, of some earlier painting, but not to be relied on. No. 51, rather different in its details, and the "white rose" is omitted.

No. 45, John Mowbray, Duke of Norfolk, K.G., killed at Bosworth, 1485. The fact of "the name and circumstance of his death and the doggerel rhyme about Jockey of Norfolk," being inscribed on the picture, flings a suspicion upon it, which would not have been raised by the costume. The writing, however, might have been an addition after his death, and the picture is hung too high for critical inspection.

Nos. 47 and 48, two portraits of Margaret Beaufort, Countess of Richmond and Derby, mother of Henry VII. This illustrious lady is said to be represented in "the dress of a recluse according to the vow she took before her third marriage." I should rather say she was in the habit of a widow, according to her own "Ordinance," issued in the eighth year of her son's reign "for the reformation of apparell for great estates of women in the tyme of mourninge." She wears not the wimple of a nun, but what was called a "barbe," which widows above the rank of baroness were ordered to wear "above the chin." The barbes of persons of lower degree were to be worn "below the throat-goyll," or gullet; that is, the lowest part of the throat. That which is called a diamond-shaped head-dress is the Miniver or three-cornered hood or cap, introduced towards the end of this reign. Stow tells us they were white and three-square, and the peaks fully 3 in. or 4 in. from the head; but in the time he wrote (1631), they were almost forgotten. The name of "miniver cap" arose probably from their having been originally trimmed or faced with that fur when made for persons of distinction. It is, perhaps, worth observing, that in No. 48 (Lord Derby's picture), the countess wears her wedding-ring above the knuckle of the finger; and that in No. 47 (the picture from St. Peter's College, Cambridge), no wedding-ring appears at all.

No. 49, Arthur Prince of Wales, eldest son of Henry VII., died 1502. This portrait has been identified recently by Mr. G. Scharf, it having been previously known as that of Arthur's brother, Henry, afterwards Henry VIII. He wears a family collar of red and white roses, the foundation, probably, of the collar of the Order of the Garter, which is first mentioned just after his decease. In an inventory of his brother Prince Henry's jewels, made in 1504, it is described as a collar of garters of gold, containing twenty-two garters and twenty-three laces, with a George on horseback. It does not appear to have taken its present form of roses *within* garters before the reign of Henry VIII., who reformed the statutes of the order, and altered the dress. Our information upon this and similar points is, however, at present very defective, and one of the valuable results from an exhibition of this description is the data it may furnish us with for further discovery; for example, we have here no authentic portrait of the reign of Henry VII. displaying a collar of the order of the garter, as we shall find it in the reign of Henry VIII.

Nos. 52, 55, 56, 59, 62, all portraits of King Henry VII., and none of them to be relied upon. No. 62, the gift of Lord Frederick Campbell to Christ Church, Oxford, has been distinguished, however, by connoisseurs, and certainly has a more genuine appearance about it. There are none that equal the miniature, on vellum, in the Sutherland Clarendon, which Mrs. Sutherland, the then possessor, kindly permitted me to have copied and engraved for my "History of British Costume," nor is there any peculiar character of dress or ornament in them to call for observation.

No. 54, called "Henry VII. and Ferdinand of Arragon." This erroneous description has been already corrected by the critic of the *Times*, but the absence of any warning in the catalogue causes the public much embarrassment, as I can personally attest. It would be amusing, if it were not so much to be lamented, to listen to the conversation respecting this really interesting picture, and the uncertainty in the minds of the visitors as to which of the two personages is intended to represent Henry VII., the majority being in favour of Ferdinand, as the very remarkable features of the Emperor Charles V. are not to be in any way reconciled with those of the adjoining portraits of the English sovereign. The picture, which is not by Holbein, possesses, however, great merit, and the accessories are most carefully and beautifully delineated. Charles V. wears the collar of the Golden Fleece. His brother Ferdinand, a collar of jewels of the most elaborate description, but not of any particular order that I recognise. Surely Mr. Musgrave, the proprietor of this interesting painting, would not object to the correction of so important an error in a future edition of the catalogue. An authentic portrait of the Emperor Charles V. must be sufficiently valuable.

No. 58, mis-named "Three Children of Henry VII." Mr. G. Scharf has clearly, I think, demonstrated that these are the three children of Christian II., King of Denmark, by his queen Isabella, sister of the Emperor Charles V., viz., John, born 1518; Dorothy, born 1520; and Christina, born 1523. In the latter year, this "Nero of the North" was compelled to abdicate, and landed in England, at Dover, on the 15th of June. He stayed here but twenty-two days, and then proceeded to Flanders, in which country this picture was most probably painted, and not in England, or before that period, as has been suggested, the ages of the children sufficiently proving to the contrary. The queen died at a château, near Ghent, 19th of January, 1526; a fact which Mr. Scharf has not mentioned, but which is important, as Prince John was then in the ninth year of his age, Dorothy in her seventh, and Christina in her fourth year, corresponding perfectly with the appearance of the children; and it will also be observed that they are all in black: painted, it is probable, in that year, while still in mourning, as I conceive, for their mother. John died a youth of fourteen in 1532; Dorothy married Frederick II., Elector Palatine; and Christina was first the wife of Francisco Maria Sforza, Duke of Milan, and after his death, of Francis I., Duke of Lorraine, having refused the hand of Henry VIII. on the ironical plea of possessing "only one head." The catalogue in which this picture is positively stated to represent "*The* three children of the King of Denmark," was compiled in 1542, during the life of Christian, who died in 1559, and all the other descriptions of it, or the copies from it, are as late as the eighteenth century, and do not agree with each other. The one at Hampton Court being inscribed "Henry huit*me*, Roy de la Grande Brétagne, *avec ses deux sœurs*, Marie, épouse Louis XII., Roy de France, ensuite Brandon; Margurite, épouse Jacques IIII., Roy d'Ecosse;" while the copy at Wilton House, dated 1495, makes them the portraits of Arthur Prince of Wales, his brother Henry, and his sister Margaret, and attributes the work to Hans Holbein "ye Father." The original painting in the possession of her Majesty is said to be by Jan Mabuse. I have dwelt rather longer upon this picture, as it affords a striking example of the confusion caused by such confident assertions, and the consequent necessity of the most minute critical inquiry previously to their adoption.

Nos. 61 and 63, James IV. of Scotland, killed at Flodden Field, 1513. Remarkable principally for their dissimilarity. The one attributed to Mytens, and contributed by Sir William Sterling Maxwell, appears to me the most interesting. It is stated to have belonged to Charles I.

I have already noticed No. 69, George Lord Strange, and No. 70, Thomas second Earl of Derby, in conjunction with No. 42, the Stanley of Bosworth Field. They are all three genuine portraits, I have no doubt, and of knights of the Garter, but certainly not of the persons they are attributed to; and the dress in which they are depicted being obviously that which first appears in the reign of Philip and Mary, their position amongst the nobles of Henry VII. is to be regretted. In concluding this notice I must also express my disappointment that no picture of this period, either of man or woman, exhibits the remarkable and almost fantastic fashions prevailing at the accession of Henry VII., and of which such infinite variety is to be found in the illuminated MSS. of that date. We have no warrior in the elegantly-fluted armour so well known to antiquaries; and, with the exception of the portraits of Charles V. and his brother Ferdinand, nothing magnificent in civil costume. The ladies, restricted to three (Margaret Countess of Richmond, Elizabeth of York, and the Queen of James IV. of Scotland), are depicted in fashions of quite the end of the reign of Henry VII. and existing in that of Henry VIII. I recommend the visitor who is curious on this subject to study the fine specimen of tapestry of this period, suspended facing the staircase which he descends on leaving the reign of James for that of Charles I. and the Commonwealth.

REIGN OF HENRY VIII.

It has been truly said that "English historical portraiture proper begins with Henry VIII.;" and until latterly nearly every historical portrait of that period was attributed to the pencil of Holbein. The discovery in 1862 of his will by Mr. Black, formerly of the Record Office, with the probate, showing that he died in 1543 instead of 1554, has reduced, to a great extent, the number of works assigned to him; but with this point, however important, I have nothing to do. I do not profess to criticise painting, or to pronounce on style: my sole object is, by the application of those all but infallible tests, costume and heraldry, to detect egregious misappropriation, and prevent, as far as possible, the injurious effect of erroneous impressions on the minds of the thousands of noncritical visitors for whose information, as well as entertainment, this great collection was beneficently projected.

Of the numerous portraits of Henry VIII., many of which might have been spared, two are specially deserving of notice. No. 134, a cartoon, undoubtedly by Holbein, from the Duke of Devonshire's at Hardwicke, in the noble gallery of which I saw it, at the Derby congress of the British Archæological Association in 1851, and called the special attention of the Society to it. Mr. G. Scharf, in the November of last year, by a letter to the *Athenæum* journal, pointed it out to the public at large. It is obviously the original sketch made for the artist's great mural painting at Whitehall, destroyed in the fire, January 4th, 1697-8, and of which a small copy, made by Van Ramée for King Charles II., is very properly placed next to it in the catalogue (No. 135), and hangs immediately beneath it. The portait of Henry VII. in the background was, of course, not drawn by Holbein from the life, but copied by him from an original bust, upon which most of the portraits of Henry VII. appear also to have been founded. The same may be said of the portrait of Elizabeth of York, not contained in this cartoon, but which formed a portion of the great picture, as may be seen by the copy (No. 135), just mentioned.

The other portrait, still more interesting, of Henry VIII. is contributed by her Majesty (No. 124), representing him when a handsome young man—certainly much under forty—the age suggested in the catalogue, painted according to King Charles's Catalogue by François Janet or Sotto Cleef. The critic of the *Times* suggests Toto de Nunziata, or Bartholomeo (Luca?) Penni. Sotto Cleef it could scarcely be the work of, as he came to England in the reign of Philip and Mary. Penni, we know, painted here in the reign of Henry VIII., and was employed by that monarch. Be it as it may, these two undoubtedly genuine portraits furnish us with the characteristic costume of Englishmen of rank (for there is no insignia of royalty in either), during the reign of Henry VIII., 1509—1549. No. 124, exhibiting the earlier fashion, the square-cut vest first appearing in the previous century, the embroidered shirt, &c.; and No. 134, the later fashion, subsequent to 1536, the date of his marriage with Jane Seymour, and the dress in which we are most accustomed to recognise "Bluff King Hal," just after the strict sumptuary law passed by him in 1533 (24th of his reign), restricting the wearing of certain furs, velvet, satin, damask, and embroidered garments to persons under the rank of knighthood.

Of his numerous wives, we have here three portraits, said to be of Catherine of Aragon, Nos. 74, 78, and 79. The first is that of Lady Rich, the second that of Margaret Roper (as delicately hinted in the catalogue), and the third, perhaps, authentic. Of Anne Boleyn there are four, only one of which (No. 103), is considered by connoisseurs to be entitled to the claim of being even a copy. Sir Montague Cholmondely's contribution (No. 107), exhibiting, however, a remarkable head-dress, by no means inelegant, but which has led to the supposition that the portrait is that of Anne of Hungary; and No. 114, from Lord Denbigh, not possessing the least character of the age as regards either painting or costume. Four of Jane Seymour, all fairly to be relied on, though two are undoubtedly copies. Lady Delawarr's contribution,

No. 125, is probably an original picture; at any rate, as an example of the costume of the time, it is valuable and interesting, the other figures being too small for minute details. One of Anne of Cleves, and one of Katherine Par; both reliable portraits.

No. 83, Queen Mary (of Guise), mother of Mary Queen of Scots. Remarkable for the head-dress; but see No. 106.

No. 100, Sir Anthony Fitzherbert, afterwards Lord Fitzherbert, Judge of the Common Pleas, 1522, died 27th May, 1538. The later date is on the picture, notwithstanding which the long hair, the fashion of beard and moustache, the *broad falling bands*, and the costume altogether, render it impossible for this picture to have been painted earlier than the time of Charles I.

No. 101, Sir Thomas Boleyn, Earl of Wiltshire and Ormonde, K.G. This is a clever portrait, but decidedly never intended to represent Sir Thomas Boleyn. There are two shields of arms on the picture. On the right are the arms of the old Company of Merchant Adventurers, and on the left, the arms of the person represented impaling those of his wife. The family arms of Sir Thos. Boleyn are well known to have been argent a chevron gules, between three bulls' heads, sable; and he afterwards quartered these with the coats of Butler and Rochford. On his garter plate he bears Butler (Ormonde) only, and the coat painted on this picture is perfectly different to any of these. His wife was Elizabeth, daughter of Thomas Howard, Duke of Norfolk, but there are no arms of Howard here. The age of sixty is painted on the picture, which corresponds to the appearance of the personage represented; but we have not the date of Sir Thos. Boleyn's birth, and, therefore, cannot draw any inference from that fact. His father died in 1505, and Sir Thomas in 1538. But it would be wasting time and space to argue from such data, when it must be obvious from the armorial ensigns painted on this picture that the portrait is that of some Master or member of the Company of Merchant Adventurers, and has no claim whatever to be considered a likeness of Sir Thomas Boleyn, K.G. I hope to be able to show whose arms are those on the left of the picture; but they are not to be found in the three principal ordinaries of arms at the Heralds' College, and may be foreign coats. Besides the fact that no insignia of the Order of the Garter is visible in this picture, the costume indicates a period posterior to that of the death of Sir Thomas Boleyn by nearly twenty years. I should like to know upon what authority this portrait has been attributed to the father of Queen Anne Boleyn.

No. 102. Compare this portrait of Henry Howard, Earl of Surrey, lent by her Majesty, with that said to be of the same personage contributed by the Countess De la Warr, No. 121. Surely they never can have been painted from the same individual. But independently of this discrepancy, there can be no doubt of the exceeding value of these two admirable pictures. The one from Hampton Court has been engraved and published in Mr. Shaw's beautiful work before quoted. It represents a gentleman in a scarlet dress of the period, in the peculiar attitude which is never seen after the time of Henry VIII. Lady De la Warr's contribution is remarkable for the beauty of the costume. The design of the embroidery of the dress is of the finest Italian taste of the sixteenth century. That both are grand and genuine specimens of the art of portraiture at that period there can be no doubt, and as examples of costume they are quite invaluable. Beyond this I have no remark to make.

No. 127, Sir Richard Brooke, Chief Baron of the Exchequer, 1526. If, as suggested in the catalogue, he died ("probably") in 1529, I doubt the picture having been painted within fifty years from that date.

Nos. 136—138, Thomas Radcliffe, Earl of Sussex, K.G. These two portraits, one apparently copied from the other, though attributed to different painters, should have been placed amongst those of the reign of Philip and Mary, as the Earl was only born in 1526; and was Mary's ambassador to the Emperor Charles V., and died in the reign of Elizabeth, 9th June, 1583. The costume, which is that of quite the middle of the sixteenth century, is not in harmony here amongst the nobles of the reign of Henry VIII.

No. 137. The same remark applies to this portrait of Frances Sidney, Countess of Sussex, wife of the Earl aforesaid. She died in 1588, and is represented attired in the fashion of that period.

No. 158, Lady Dorothy Devereux, who died in 1566, should for the same reason be removed to the reign of Elizabeth. Her high-crowned black hat and ruff are exceedingly incongruous in this situation.

No. 145. This is probably the most glaring absurdity in the whole exhibition. In No. 105, the visitor has already seen a large painting representing James V. of Scotland and his queen, Mary of Guise. The king in the prime of life, a married man, and dressed in the fashion of his time, rendered popular by the many portraits of Francis I. of France, and Henry VIII., his contemporaries; and here we have him shown us "*as a child*," in the dress of the reign of Elizabeth or James I.! If any James King of Scotland at all, it must be his grandson, James VI. and I. of England, just mentioned. I am at a loss to understand how such a misnomer could have been passed without an observation.

No. 149, Sir Henry Guildford. This fine portrait, lent by her Majesty, exhibits the earliest example in this collection of the collar of the Order of the Garter. The picture is dated 1527. All those I have previously noticed are later by some thirty years, though professing to represent personages of the reign of Henry VIII.*

J. R. PLANCHÉ.

THE ARCHITECTURAL EXHIBITION.

WE resume our notices of the works collected here.† Mr. G. G. Scott, we find, is represented only by deputy, in two minute prints of subjects both "delt. and lithographed" by J. Drayton Wyatt,—"St. Luke's Church, Weaste, near Eccles, Manchester" (85); and "The new Swimming-Bath now in progress of Erection for Brill's Brighton Bath Company (Limited)" (131). In the former the south-west view is placed in the centre of a cusped vesica-shaped outlined margin, and the corners of the sheet are occupied with the plan, north-east exterior, and the interior view, and a sketch of the parsonage, respectively drawn in small circles. As far as can be judged from these very small illustrations, Mr. Scott has a repetition of his favourite semi-circular eastern apse, with lancet arcadings, as introduced in the chapels at Woolwich, Exeter College, and elsewhere; in the latter, the lithograph of which is still more infinitesimal, a large central circular bath is roofed and make like a Gothic arcaded sort of Pantheon, with the arcades in two tiers, the lowermost of which is treated as a circular cloister fringing the bath, with twisted columns dividing the arches. Mr. J. Drayton Wyatt also sets forth Mr. W. H. Crossland, by representing the outline interior view of the carefully-designed new Church of St. Stephen, Copley, Halifax (229), "delt. and lithographed" on a little larger scale than the foregoing; and by the same lithographed process, Mr. Wyatt represents himself in a general ground-plan and view of "St. Andrew's College, Bradfield, near Reading, showing the proposed new Library, Studies, and School-room" (115), wherein the most prominent feature is apparently inspired by the old half-timbered townhalls of Leominster and Hereford. We should dispose of the efforts at novelty in the treatment of our street architecture, as shown by the designs here, briefly. There is too much laboured endeavour to produce sensational and startling effects in most of them; at the same time credit is due to the manner in which the difficulties presented by the advertising mania, circumstances, and confined sites have been overcome by some of the authors. "Houses and Shops, erected for Mr. W. Davis, in the Kennington Park-road" (105), and "House and Shop, Newington-causeway, Surrey, in course of erection, for Mr. J. A. Dunn" (106), both by Mr. Henry Jarvis, are very "shoppy" indeed; "Warehouses and Hotel, now being erected in Turnmill-street, Clerkenwell, from the design and under the superintendence of Lander & Bedells" (172), show a little rise beyond the architecture of that plain and unadorned neighbourhood; "Premises in Bishopsgate-street, being erected from the designs and under the superintendence of T. C. Clarke" (240), though occupying a good corner site, are sadly plain. The bright red brick superstructure rests upon a mass of glass shop-front, without a pillar or pilaster being carried down externally, to show how the superincumbent weight is supported; the glass front, in fact, is treated as a glass case, to enclose and conceal the bressummers and supporting columns, producing a case of "construction concealed." Mr. R. W. Edis shows in his warehouse in Philip-lane, City (162), how a narrow strip of frontage can be treated, by care and taste, with much appropriate architectural effect. He should not rely, however, too much upon the use of light-coloured materials for producing an artistic effect in the City: the whole of his white brick frontage here will become quite black in the course of a winter or two. "Warehouse, No. 5, Queenhithe, City," exhibited by John Turner & Son (200), a building at the corner of a narrow lane and of what appears to be a small "square," is possibly a case where internal planning and construction may be superior to the external architecture, and it is a pity that drawings showing these do not accompany the view to enable us to judge. Messrs. Banks & Barry exhibit their successful "Westminster Chambers, Victoria-street, recently completed for the Mutual Tontine Association" in a large and attractive view (227). The provincial cities are represented in the class of street architecture by a few examples only, and we are surprised at this. Liverpool only sends us "Alexandra Buildings," and Manchester, "Bank Buildings,"—the latter by a metropolitan architect. Sheffield, Newcastle, Leeds, Birmingham, Sunderland, Hull, Bradford, Nottingham, Bristol, and other large towns, as well as Edinburgh, Glasgow, Dublin, Aberdeen, and Dundee, have surely something new to show us, and we shall expect to see them represented here next year.

The pictorial aspect of architecture is represented here by some drawings by Mr. C. E. Giles. They are a series of small views of buildings, minutely and carefully finished, in water colour, mounted and framed with taste. St. Peter's Church and Curate's House, Nordelph, Norfolk, are shown by one internal and two external views (8). In the south-east view, a tall chimney occupies a very conspicuous position on the eastern end, and detracts from the ecclesiastical character of the eastern window of the church. The rectory-houses of Upwell and Welney, Norfolk (11), are neat and appropriate to a comfortable "living;" the Church of St. Michael and Parsonage, Monckton Combe (13); Christ Church, Upwell, Norfolk, exterior and interior view (14); and All Saints' Church, Kingweston, Somerset, interior and exterior view (15, 15A), are all depicted in the same painstaking way, and these views form a handsome series, fit for a drawing-room; but there is some sameness in the character of each of the designs, and Mr. Giles repeats himself too often. In an attractive isometrical view, set in a green landscape (31), Mr. J. M. Hooker contributes his "Design submitted in Competition for proposed new Workhouse, Driffield, Yorkshire." The buildings are designed with a feeling for utility and economy, combined with taste, and the classifications are kept up in the respective isolated blocks of buildings for vagrants and inmates, including the detached dining-hall, chapel, and hospitals, with the respective yards and wards: the main building for the inmates might have been three or four stories high instead of two, to economise space and expense, the able-bodied of course occupying the upper stories. Mr. G. R. Blount presents his isometrical view of St. Dominic's Church and Priory, Haverstock-hill (146). This exhibitor has a *penchant* for Geometric Decorated, and his designs and drawings have characteristics of their own. Observe any of the Roman Catholic conventual establishments erected in the metropolis, in Kentish rag, with Bath stone dressings, where all the windows are single cusped, mullioned, and transomed lancets, and where many gables and dormers are introduced, and you will recognise the work of Mr. Blount. Observe similar buildings represented in a stiff, hard, outlined manner at the Exhibition, and the same author will be recognised too. In the particular illustration before us, we have a church and imposing priory buildings, planted down in a district of commonplace villas, shown in the view for contrast. A church, with two western towers, is planned with the usual ecclesiastical arrangements, excepting that the space between the two towers formed into an open arcaded outer porch, is here called the Galilee. A cloister is formed, and bounded, on the north, by a block of buildings containing the guest- or dining-room, with dormitories over; on the west, by missioners' and instruction rooms; on the east, by the chapter and communicants' room, vestry, and sacristy; and on the south, by the church. A separate block of buildings to the north of the guest-

* To be continued. † See p. 318, *ante*.

room severally encloses apartments and offices devoted to lecture-room, refectory, meat refectory, bath, lay brothers' room, procurator, porter, wash-house, laundry, larder (too close to the laundry), stores, carpenter's shop, tradesmen, and the poor. The western or street façade of the church, and the priory buildings, are studied with a view to presenting a favourable aspect from without. A tower, with short spire, shown in the view on the east side of the cloister, does not appear upon the plan. Mr. J. P. Seddon exhibits two subjects only,—an elevation of his design for Llandaff Cathedral font (166), introducing sculpture in the cusped arcaded upper rim, and marble and serpentine shafts in the clustered columns of the pedestal; and his "Design for a Fountain, proposed to be executed in Ransome's patent Stone for Australia" (167), where the artificial material to be employed will be tested by the minute details. At 165 Mr. S. S. Teulon displays, in very unsatisfactory small pen-and-ink etchings, perspective sketches of four new churches erected from his designs,—St. Thomas's Church and Parsonage, Agar Town, London; Church of the Holy Trinity, Hastings; the Parish Church of Hanworth, Middlesex; and the Church of St. Paul, Greenwich. The drawings are too small, and lack clearness of outline and breadth of shadows; there is sufficient originality of treatment, however, in all the designs observable to make us desire to see them more intelligibly expressed.

There are two handsome designs exhibited for the Albert Memorial, Belfast,—"Design for the Prince Consort Memorial Clock Tower," by Mr. John Johnson (41), and "Design for Albert Memorial," by W. H. Jewitt (67). The Italian campanile has formed the theme in both designs. Mr. Buckridge and Mr. Johnson (Austen & Johnson) both carry us back to the Middle Ages, by their adaptations (almost servile) of early Gothic buildings in the "Isle de France." One would expect to meet the "Buildings for the Sisterhood of the Holy Trinity, Oxford," by Mr. Buckridge (40), in some quaint nook of a quiet ancient French town, where the whole external character of the buildings, adapted to an undulating street site, is excessively ecclesiastical, the chapel, with its high-pitch roof and *flèche* or bell-turret spirelet striding thereon, being properly prominently expressed. Mr. Buckridge illustrates his views in faint and feeble pen-and-ink outline. Mr. Johnson is not, however, quite so servile or so faithful in the imitation of his favourite style; he is falling back, too, in the vigour of his representations, for what could be harder or more stiffly outlined and incorrectly shadowed than his south-west pen-and-ink view of St. Stephen's Church, Newcastle-on-Tyne (82), or weaker than his interior view in pencil outline of the same building (76)? The latter must have been drawn by a pupil. Mr. Johnson repeats, in his "Richmond Grammar School showing proposed Additions" (46), the same flat ungainly-looking buttresses represented in the church at Newcastle, which are not carried to the ground, but start from a string-course half way up the height, cutting the buildings awkwardly in two. This exhibitor should be congratulated for contributing, however, to the general excellence of this year's exhibition, for he is the only member who exhibits from the busy head-quarters of the Northern Architectural Association at Newcastle-upon-Tyne. Mr. Pritchett, another active north-country architect, comes out strongly with illustrations of six subjects, mostly ecclesiastical. Nos. 63 and 174 are respectively north-west view and interior view of "Design submitted in competition for proposed Church at Hunslet Moor, Leeds;" 47 is a "North-east View of a Church in course of Erection at Saltburn-by-the-Sea;" 48 and 174 are the south-west and interior views of the "Wesley Chapel and Schools now in course of Erection at Halifax" (these should have been hung together, not in separate rooms); and at 93, the beautiful east end of the collegiate church of St. Cuthbert, Darlington, recently restored by him, is taken and spoilt by the aid of a bad photograph. If architects will exhibit their buildings by photographs, these should be well done, especially when they represent restorations of important ancient buildings. Mr. William White sets an instructive example by exhibiting some well-figured and well-fingered working elevations, sections, and plans, instead of showy perspective views, of a building erecting from his designs—the "New District Church of St. Saviour, Aberdeen Park, Highbury Grove, Islington, now in course of erection (with omission of the vaulting) at the sole Cost of the Proprietor of the Estate, the Rev. W. D. Morrice, Prebendary, Sarum" (51A). The design and details are carefully studied, but we wonder at the motive that induced him to introduce a tower at the junction of nave and transept in an edifice a little more than 100 feet long. In so small a church the tower piers obstruct the view or prove weak. In the same manner, by working sections, elevations, and plan, the same author shows his new church of SS. Philip and James, at Merrifield, in the parish of Antony-in-East, Cornwall, on the estate of Mr. W. H. Pole Carew (17, 18, 19). A "proposed tower" is the most important feature. Mr. Rowland Plumbe contributes his interior and exterior views of "Proposed Congregational Mission Church, North Bow. Accommodation for 500 persons: Cost, 1,700*l.*" (6, 7). This is certainly a cheap church. Mr. T. H. Watson sends sketches made on the spot as Travelling Student of the Royal Academy in Ferrara, Florence, Treves (2, 3, 4): they are careful and clever illustrations of ancient buildings. Equally instructive are the sketches of "Karnak," of "Circular Temple at Balbec," and of "Abydos, Upper Egypt" (187), sent by the Rev. J. L. Petit. The skies cannot be natural, for they are all alike in the three subjects. In a "Design for a Town Church. Interior showing Chancel" (89), Mr. W. H. Jewitt shows what we may call 'prentice work; the composition is a dreamy mixture of the styles of Street, Butterfield, and Scott. In 193 Mr. C. C. Robins does not economize space, for his "Competition Design for laying out the Thornton Heath Estate, Croydon," shows the villas arranged in a straggling manner; whereas Mr. J. M. Hooker, in his "View showing proposed Arrangement of Houses on 10 acres of Land at Brighton" (126), makes the most of the ground by a clever disposition of crescents, rows, detached and semi-detached villas. In both these drawings varied designs for the buildings are shown, as well as the method of laying them out on the ground. In two very small photographs of etchings, Mr. Robert Speechley shows his "Views of Design for proposed Museum, in the Province of Canterbury, New Zealand" (147). The building is too important to be judged of or criticised from the small illustrations shown. The Royal Arcade, Brighton (frequently illustrated), is depicted here by Mr. John Ellis by a "Section, Exterior, and Interior of a Shop-front" (248). It is not clear whether the decorations employed are superficial in colours or constructive materials. The painstaking "Design for a District Church" (239), by Mr. G. R. Green, is clearly intended for a town, and not for the country. It is placed in the centre of an iron-railed "square." Mr. Green has much to acquire yet. Mr. G. Goldie rather copies work from Viollet-le-Duc in his Romanesque "New Cathedral about to be erected for the Roman Catholic Bishop of Elphin, at Sligo, Ireland" (186). The view is faintly, though boldly, drawn, and represents the western front in full, with the southern side foreshortened. Mr. Arthur Ashpitel exhibits "Tomb of the late Mr. Borthwick, M.P., and Margaret, his Wife, about to be erected in the Brompton Cemetery. The Principle of the Design is based on those of the Memorials at the Early Christians, found in the Catacombs at Rome" (198). This is a sarcophagus, with bright red pilasters, and a coped cover. Mr. E. C. Robins says that the decorations—rather elaborate with gold texts and chapters—in the eastern recess of St. Paul's Chapel, Kentish Town, were "executed by Messrs. Green & King, of Baker-street, upon Keene's Cement, *within twenty-four hours of its being laid.*" They look as bright as blue and red and gold can make them in the drawing (210), but, as to their ultimate result, the architect may one day feel the force of the saying,—"More haste less speed."

Mr. Cuthbert Brodrick's photographs from seven drawings of the Custom House, Bombay (73), show that he has favoured the native architecture, for his design is in the minaret, pagoda, ball-and-spike cupola, horse-shoe-arched Hindostanee style. Mr. C. J. Phipps shows unsatisfactory "Photographs from Buildings in Bath erected in 1865" (80), and contributes the cost of them,—one of these, the interior of hall of a villa on Lansdown, might have been omitted, it is so dark; Mr. T. Lockwood, his design for the Town-hall, Chester (67), not the accepted one; Messrs. Hadfield & Son, their St. Hilda's Catholic Church, Whitby (21); School and Chapel, Elsecar (44); Cemetery Cross at Glossop (72; the end view only of the Orphanage, Rochampton (257), in a fine photograph; and a photograph of a clever bow-window to a villa in Victoria Park, Sheffield (258); and Mr. Welby Pugin, the Boys' and Girls' extensive and expensive Orphanages at Hellingley and Bletchingley, built for the Duchess of Leeds (232, 236).

Let us mention among the eccentricities of the Exhibition a fiery-coloured "Drawing of a Land Steam Fire-engine," by J. W. E. Hall (199); a "Grotesque Design for a Door Panel (Old Mother Shipton)," by F. Wilson (212); "The Cathedral Church, Pavia," by E. L. Fryer, from an antiquated print; "The South Porch of Lincoln Cathedral," by C. B. Moore (52A), (all amateurs), and we close our review of an encouraging and not uninstructive display.

EXHIBITION OF THE ROYAL ACADEMY.*

It may occur to some who visit the Exhibition of the Royal Academy this year that the founts at which artists take their metaphorical draughts of inspiration are getting very dry; or that what there is for them to drink there is too unpleasantly hard for them to invite frequent recourse to it for reinvigoration; so that they occasionally slake their intellectual thirst with a home-brew made from the memory and old recipes.

Is Mr. S. A. Hart, R.A., satirical? or does he mean his fine study "The Throes of Composition" (36) to serve as an apology—to request the public's merciful consideration for such sufferings as genius undergoes when selecting and arranging the teeming mighty thoughts, promising to burst the brain that labours to give birth to them, if left without the restraint of the strong hands that in due course will bring them forth? Mr. Hart's pictures this year are amongst his best.

Mr. Armitage is almost alone in his adherence to the exalted and severe in the practice of his art; and his two contributions are very conspicuous,—though the more agreeable example is not favourably placed—not only by reason of the scarcity in these times of such productions, but by the grace with which he has rendered an episode in the life of the Saviour. 503, "The Parents of Christ seeking Him" during the time of His disappearance that preceded their finding the child Jesus in the Temple, are here supposed to have stopped to make inquiries of those who are met at a fountain. The other illustrates with forcible expressiveness "The Remorse of Judas" (10), who is offering to return the money he had received for the betrayal. Both these examples with the diverse qualities that make them meritorious, sustain Mr. Armitage's reputation in the highest class of the profession.

Mr. G. F. Watts has but a single figure to recall his great capabilities, "Thetis" (23), very exquisite as a chastened and elegant treatment of the nude.

Mr. P. H. Calderon, A., asserts his claim to the possession of all the accomplishments that are requisite to the perfect success of the spectacular department in any drama he may choose to mount; but "the play's the thing," after all; and it is disappointing, to say the least of it, to see such good actors as Mr. Calderon's able management might make of them, in procession as an escort to "Her Most High, Noble, and Puissant Grace" (24), simply to show that his aristocratic ladies in their splendid fifteenth-century habiliments can look as if they lived in that time, and that for executive power, he, as a painter, would have adorned any. 369, "On the Banks, Clain, near Poitiers," with a group of washerwomen cheerily at work, pursuing their vocation, proves him a master of out-door effect and a clever delineator of landscape.

Mr. F. Leighton, A., also arranges, on a grander scale, in processional order, a number of those ideals that have been wont to realize for him all the typic charms in what he accepts for loveliness in woman, and to win accord from many. Theocritus has suggested the present subject, in an allusion to a similar ceremony of a "Syracusan Bride leading Wild Beasts in Procession to the Temple of Diana" (292), but speaks more definitely of the beasts than the beauties who are consequently more obliged to the artist for making so much of them. Priestesses and bevies of maidens, some wreathing flowers, others carrying in their arms the cubs of tamed animals, accompany the bride, who is leading a lioness, wearing a garland of roses. The groups are admirably composed, though a recurrence of the same features detracts from variety in the position of the heads; and the figures of the

* See p. 339, *ante*.

spectators, who are in front of the marble platform, appear too small to be proportionate with those of the spectacle they are beholding; but with all the exceptions that may be taken to it, the work is an accessory to exemplify the particular excellencies Mr. Leighton is already famous for.

Mr. M. Stone, as an author of romance, has unfortunately provided himself with rather bare material: considering how well calculated his resources have made him of expounding any amount of it, the trite incident of "Stealing the Keys" (246) is hardly enough to dilate upon to the extent he does. A Cavalier's daughter very nicely portrayed, making efforts to secure his escape from his Puritan enemies, is not a novel conception; but on a smaller scale it would still have been thought worth the relating when told so well.

The writer of fiction enjoys one great advantage denied to the painter of it; for the latter there can be no such freedom from the responsibilities of dates and circumstances as the delightful and indefinite era, "Once upon a time," offers for his more fortunate brother; nor has he any equivalent to that emphatic phrase, "more easily imagined than described," to resort to, for expressing himself and satisfying those he addresses; but, on the other hand, he has such assistants in the representations of localities and costume as may enable him to identify any event he may select, with the period that happens to be the most frequently associated with its occurrence, to help him tell his story.

Mr. J. Pettie rests under some such obligations for making clearer than he does alone that the patient old goody in a blue cloak and custody is undergoing "An Arrest for Witchcraft" (179), for there is little else to distinguish the scene from an ordinary exercise of police regulations of the present day, besides the announcement in the catalogue, and the costume and properties that indicate the James I. era, when such persecution was most rife. The picture is admirably painted, however, and shows a similar appreciation of refined and qualified colour with Mr. Orchardson's even more forcible expression of it. Vitality in the action of the figures that are cleverly individualised by well-studied heads, though all appear influenced by consent in the execration of one who looks less like a witch than many of her assailants, is one of the elements that are comprised in its merit; but the composition is rather singularly managed from the crowd so closely occupying one portion of the canvas, leaving a vacant space that asks for better stage dressing than the two walking gentlemen can manage to provide for it, for they are rather out of place, with little apparent excuse for their introduction to such society.

There is less to suggest side-scenes, flats, and footlights in Mr. W. F. Yeames's perspective view of a real performance. He appears of the very few who attach great importance to the choice of matter that should evoke the best method of treatment, in contradistinction to relying upon technical merits alone. 314, "Queen Elizabeth receiving the French Ambassador after the news of the Massacre of St. Bartholomew;" an incident of the many that celebrate her reign,—equally well worth recording, as certain to afford opportunities for producing effective pictures; and, as in this case, far more likely to be remembered years hence in connexion with the painter's name, than any mere power of using the brush could make a superior exhibition of skill with no such foundation. History is discursive and romantic enough to furnish a basis for any sort of narrative it may be thought desirable to deal with: a bank with every variety of Stock for the artist to make such investments in, — very speculative ones sometimes, — as his faith in the security and his means will justify; a fair amount of interest is safe to be returned for judicious outlay, since the establishment is one of the least likely to be exhausted, and its liabilities are very limited indeed just now, judging from the few who draw upon it. Mr. Yeames depicts Queen Elizabeth seated in solemn state, in the midst of her court, arrayed, with her, in the deepest mourning, as she is awaiting the approach of the gaily bedizened Frenchmen; who, embarrassed at the lugubrious aspect of affairs, hesitate before traversing the wide distance that separates them from the rest of the assembly; and to which, leading up to the whole extent of the spacious apartment, an immense length of black carpeting gives an awful emphasis, as it thoroughly suggests the awkwardness of so silent and gradual a march up to the distant Royal presence. The idea of silence is so cleverly conveyed that the spectator would fancy he had but to wait and hear that chief ambassador's shoes creak, or the crinkling of his white satin doublet, as he stands bowing as well as his astonishment will allow him.

Mr. D. W. Wynfield has not succeeded in accounting for the traditional fascinations of Anne Boleyn. Perhaps they are better left to pen-and-ink expression than pencil, and come under the category of those aforesaid things "more easily imagined than described." The fair to-be-beheaded one receiving the attentions of Lord Percy (547), when she was maid of honour to Catherine of Aragon, has not added another flatterer to her list this time.

574, "A Jew's Daughter accused of Witchcraft," by Mr. J. E. Hodgson, has its subject made apparent, though the Middle Ages are the epoch assigned to it; but it is the more easily comprehended from some dramatic expressiveness, and more particularly from the introduction of evidence to sustain the accusation—in an attenuated child for whose decline the supposed sorceress is protesting she is not answerable. There is not much originality either in the conception or treatment of this work; and although remarkable with many others, by others, for clever executive ability, it is less attractive than in former applications of its use by the same painter.

The same may be said of Mr. H. S. Marks, whose quaint humour and conscientious finish are not displayed to the full extent of their worth in the two instances of their employment exhibited here. 393, "My Lady's Page in Disgrace" and the stocks, sitting in sullen indifference to a lecture the major-domo is reciting for his special edification, is too slight in its purpose to deserve so considerable an amount of attention its manipulative completeness betokens it must have cost; and 505, "The Notary," in his office and official capacity, engaged by clients, only divides the honours with the well-arranged and precisely-painted interior he inhabits.

ANGLO-INDIAN ENGINEERING.

THERE is one operation connected with engineering in India which was commenced when that vast territory was best known as the place all the rich old uncles came from, and is not yet completed in these days when that Sinbadian region is looked to by the rising generation as an untilled field affording scope for the best energies of the young and able. This long protracted operation will form the basis of many others,—it is the great trigonometrical survey of India extending at the present time from Cape Comorin to Thibet, and from the meridian of Calcutta to that of Cashmere. Captain Lambton, who had previously served in America, on the conclusion of the war with Tippoo Saib, proposed a geographical survey of part of the peninsula, which, recommended by the Duke of Wellington to Government, was ultimately developed into the scheme now so far accomplished. It was strongly opposed by the exponents of a system of survey made on an astronomical basis; as well as frequently interrupted by disturbances in the country, and the jealousy of the native princes, who were often puzzled by the instruments, flags, and other signals; but under a succession of officers, in a period of time extending over sixty years, the tract mentioned out of the 1¼ million of square miles to be surveyed has been accurately completed. Travelling in the desert carrying heavy loads over sand-hills, which present themselves interminably one after another, and into which the feet sink ankle-deep at every step, appears to be less formidable as an undertaking than other necessary proceedings, such as the crossing of rivers and placing stations on lofty eminences never before trodden by mortal man. An Indian surveyor's bridge over a foaming torrent often consists of two trees laid across and supported on corbels composed of branches; in some cases, bawsers only are used, which are formed by twisting twigs of silver birch, on which the surveyor is dragged across, lashed to a running tackle and loaded with the delicate instruments upon which the accuracy of his observations depend. Some of the mountain stations are 18,000 ft. above sea level. Jungles and marshes form further varieties of difficulties that present themselves, to be surpassed by the ingenuity and enterprise of these pioneers; and bodies of armed horsemen appearing suddenly on the field and jealously watching the operations, add fresh piquancy to the scheme.

Whilst this long task has been gradually approaching completion, India has made quicker strides in other engineering directions. Perhaps the most fruitful among these is the establishment of four civil engineering colleges. These are situated in Roorkee, Calcutta, Madras, and Poona. Of these, the Thomason civil engineering college, Roorkee, is the oldest and most concerns our present purpose. For in connexion with it is a printing-press office, whence are issued a series of quarterly professional papers, under the auspices of Major J. C. Medley, R.E., the principal of the college.* These papers give us, as far as they go, graphic pictures of Anglo-Indian progress. They are very creditably illustrated by photographs,—positively sultry in their suggestiveness of intense heat and glare,—as well as by engravings and lithographs. The first quarterly number of the third volume is the last production of the press. This gives a luminously clear photograph of the Tonse Bridge, and lithographs showing an elevation of abutment and one pier, a general plan of one half-span and the staging used in the erection of the girders. A paper on the water supply of Fort William, by Captain S. T. Trevor, R.E., garrison engineer, Calcutta, is illustrated with a plan showing distributing mains, details of filter, and a second plan showing distributing reservoir and force-pipe. This is followed by notes on *stresses on lattice girders*, by Mr. J. Hart, C.E., executive engineer, Dharwar, with numerous diagrams and tables. The Allahabad central prison, to accommodate 3,200 prisoners, is next shown in lithographs, with a specification setting forth that convict labour is to be employed wherever practicable in its construction, and that the foundations of all walls must be of concrete rammed in layers, the flooring of barracks of earth with a 6-in. substratum of kunkur or pounded bricks, the cases of the blowers used for ventilation and the main air-flues of pucka masonry, and all the woodwork of good sál or sein, and other local necessities. A report by Major Briggs on the Assam Trunk-road, illustrated by a large map of the province, tells us that this proposed route will be about 355 miles in length (about the distance between London and Berwick-upon-Tweed), through tracts of swamps, grass, and forest; and that it will require 361 millions of cubic feet of earthwork, twenty-one wrought-iron lattice bridges of from two to five bays of 60 ft. each, and fifty-eight similar bridges of single spans varying from 20 to 60 ft., 270 masonry culverts, twenty-eight temporary bungalows for shelter of the overseers, and about eighty-five millions of superficial feet of jungle clearing. This project, now in course of execution, is to be supplemented by a road from Gowhatty to Sylhet, cutting through it at right angles, reminding us of the vast operations of the Roman legions. Following this we have a description of the "Comptage Ambulant;" and Lieutenant J. H. Dyas, Director of Canals in Punjab, gives some valuable particulars of experiments made in the interest of the Baree Doab Canal, which presented some unusual features. These, with some remarks on modes of levelling, and an instalment of a comprehensive history of the great trigonometrical survey, which will form an important contribution to the series, complete the number, and give us a vivid impression of the extent of recent public works.

The portly volume, made up of last year's contributions, very considerably extends and intensifies this impression. It contains forty-two "professional papers," and thirty-three illustrations, two of the latter being photographs of the Thomason College, and the Sealdah railway station. Major Medley, who is also the author of three additional papers on brickwork in India, Indian barracks, and the Ganges canal controversy, leads off the volume with an account of the four colleges. About 700 individuals have been qualified for the public service in the Thomason College, at Roorkee. At the date of the publication of the major's information, it contained 114 students, of whom six were officers, ten civilians, thirty-six soldiers, and sixty-two natives. The instruction of the latter is carried on in the vernacular, several works being issued by the college press for the especial use of natives; and after a stay of two years,

* "Professional Papers on Indian Engineering," vol. ii. 1865-66. Edited by Major J. C. Medley, R.E., Assoc. Inst. C.E.; Principal Thomason, C.E., College, Roorkee. Roorkee: Printed and published at the Thomason College Press. Calcutta: Thacker, Spink, & Co. Bombay: Thacker, Vining, & Co. Madras: Gantz, Brothers. London: Smith, Elder, & Co.

they pass out as sub-overseers and sub-surveyors. The architect of this college was Captain Price, now chief engineer at Hyderabad. It is of a classical design, having columniated centre and wings, the former being surmounted by a dome. It contains various class and lecture rooms, a library, a drawing-hall, museums of geology, natural produce, and a model, besides the press we have mentioned, where printing, binding, and lithography are executed; a wood-engraving department, a depôt for surveying and mathematical instruments, and a meteorological observatory. Officers and soldiers are not admitted, and there is no vernacular department. Major Medley remarks, that the general results have not been so satisfactory as at his college, the majority of the students, Bengalees, being more fitted for sedentary pursuits than for the active life of a practical engineer. The Madras College is carried on in a building that was once the palace of the Nawab of the Carnatic. This establishment turns out an average of forty students annually, out of a total of 103. The engineering school at Poona, at first intended only for the training of native and European subordinates, but assisted by the gift of a lakh of rupees from the late Sir Jamsetjee Jejeebhoy, about to expand itself into a college, promises to compete with them all in usefulness. The first principal is to be the architect of the new building, Captain St. Clair Wilkins, who at the Poona conference, held in August, 1864, showed that he had so far qualified himself for his post by studying the specialities of native character. He then gave, as the result of his observations, his conviction that "the native mind is eminently practical." Major Medley combats this conclusion by averring that the natives who flock to the Government colleges to be trained into sub-overseers, are not the sons of mascns, carpenters, blacksmiths, or the working classes, but the sons of bunyahs and others, of sedentary pursuits; while he admits that the native working classes have not as yet appreciated the benefits of education. Captain Wilkins proposes a *special* training for students, deeming it expedient that they should be compelled to confine themselves to a line of study calculated to make them either builders, surveyors, draughtsmen, or estimators, but not all four at once. Major Medley confutes this proposal, with the assertion, that however desirable special training may be in England, a general training is to be preferred in a country where a man is called upon to undertake the conduct of works of various descriptions.

This volume further affords us two examples of that unwise proceeding, the building of churches by engineers. As may be guessed, they are devoid of everything expressive of sentiment, feeling, traditions, or of pictorial association of idea; although it must be stated fairly that these two instances are beyond the average of what such structures have been when treated from a similar collateral point of view. The first, St. Mary Magdalen's Church, Meean Meer, Punjab, was designed and built by the late Captain J. N. Sharp, Bengal Engineers, in the *Early English style*, the outside of finely plastered mortar, containing a small admixture of soorkhee, so as to be of a fine reddish tinge, lined in imitation of stone joints, and the inside walls being plastered with mortar made from marble out of the city, from old buildings, also jointed in imitation of stone.

The Early English sentiment has suffered somewhat in its transplantation by military hands. The second design is that of Attock Church, Punjab, built by Mr. W. B. Harington, executive engineer, Peshawur. It is accompanied by a specification, setting forth in the briefest terms that the church is to consist of a nave (61 ft. by 22 ft.), with north transept (21 ft. by 12 ft.), side aisles, a chancel (16 ft. by 14 ft.), and a tower (10 ft. by 10 ft.) rising to a height of 74 ft. The tower, placed on the east of the transept at the angle formed by it with the nave, is balanced by a porch in a similar position on the opposite side, — an unusual arrangement, unlikely to have occurred to a direct professor of the noble art and science of architecture. The ground floor of the tower is appropriated as a vestry; and Mr. Harington suggests that the upper floor of it can be used as an organ-loft, as it can be approached by steps and staircase on the north face of it without intrusion into the lower apartment. Despite these unecclesiastical arrangements, there are provisions for building the structure more in accordance with usage. The walls are indicated as masonry, the interior only being plastered, though the columns of the nave and arch-mouldings are of brick. The roofs are covered with tiles or shingles, except that of the tower, which has a timber framework sheeted with zinc, with a standard at each angle. The punkahs here are deep full fringes, weighted with lead, attached to ornamental bars of sissoo, suspended from the iron tiles of the roof trusses. The cost of the building was estimated at 16,096 rupees. Captain Sharpe's design cost about 90,000 rupees. It accommodated about three times as many persons, that of Mr. Harington being calculated for 250 sittings.

The construction of the Alquada Lighthouse by Lieut.-colonel Alex. Fraser, R.E., although apparently as far removed from the tenor of his usual occupations, is open to no such objections. Here utility, as shown in stability and efficiency, is the chief requisite, and no study of centuries of art and field is required. It is now ten years since Colonel Fraser was appointed by the Court of Directors of the East-India Company to make the necessary surveys, report, and estimate of the proposed work; and it was not until April, 1865, that the light was exhibited for the first time. The preliminary arrangements involved a survey of the Alquada reef, which consists of two ridges of rock about a quarter of a mile apart, with a channel between them from 2 to 3½ fathoms deep, in the centre of which rises a small detached rock, only visible at low water. This is situated in the direct course of vessels sailing from Calcutta to the Irawaddy, southward of Cape Negrais. Colonel Fraser also proceeded to England to inspect existing lighthouses, and finally fixed upon the Skerryvore, on the west coast of Scotland, as a model for his guidance, as its position was most analogous to that of the Alquada reef. While adopting the leading features of Mr. Alan Stevenson's design, Colonel Fraser contended that if he should be able to make the necessary alterations in the interior to suit it for the dwelling-place of people of a different race in a different climate, and construct it successfully with the unskilled labour at his command, he should still be entitled to considerable credit. When we ascertain that the nearest spot from which he could procure any materials was the island of Callagouk, distant 210 miles from the reef, and that the work was done by common "Classies," picked up at Calcutta, assisted by the crew of the steamer *Nemesis*, and that the foundations were constantly filling with water at the least sea, we must ungrudgingly concede this. The establishment organised upon the uninhabited island of Callagouk, a dense jungle, for the quarrying of the necessary granite, proved so difficult of management, that it was eventually deemed expedient to bring part of the stone from Singapore. The mutiny caused further delay. The weather proved unfavourable for the two seasons. But course by course the mighty stones, varying from half a ton to 3½ tons in weight, were got into position, by means of lewises; and by the fifth season the stonework was completed up to the parapet. Upwards of 4,000 tons of granite in these large blocks were dressed, shipped, conveyed to the reef, and disembarked in a daily contest with the elements. Men, materials, provisions, shelter, and water had all to be provided from great distances, calling into action no little amount of forethought, contrivance, resource, and perseverance. A Government order, quoted in the paper relating to this arduous undertaking, commending the zeal and judgment of Colonel Fraser, says,—"It is seldom that it falls to the lot of any individual, in India especially, to carry through from beginning to end a work of such magnitude, and extending over so long a period. The work itself is unique, certainly in the East; and whether regard be had to the cost, execution, or rate of progress, may challenge comparison with its somewhat smaller prototype, the Skerryvore, on the coast of Scotland." The total cost of this work was about 100,000*l.*, or 10 lakhs of rupees. Major Medley indicates that an account of the work will be published by Government. A woodcut, showing tower and reef, is the product of the wood-engraving department at the Thomason College.

For railway news we have an extract from the specification for the works on the E. I. Railway branch line from Allahabad to Jubbulpore, 228 miles, now being executed by Messrs. Waring & Hunt, communicated by Mr. H. P. Le Mesurier, chief engineer; a description of the Sealdah railway station, designed and constructed by Mr. Walter Granville, C.E., a building "in an Italian style of Oriental architecture," covered by three light wrought-iron roofs, each 615 ft. long, and possessing platforms more than 1,000 ft. in length, and 27 ft. in width; a slight description of the Punjab Railway Institute, formed by the chief engineer (Mr. J. Harrison) and the late Mr. R. W. Stevens, as a place of rational amusement and instruction for the numerous European *employés* on the company's works at Nowlukha, Lahore, containing a reading-room (30 ft. by 21 ft.), with small book-room and khansamah's room attached, surrounded by a verandah 8 ft. wide, and a commodious swimming-bath, 44 ft. by 27 ft., with a depth of 10 ft. of water, provided with two small dwelling-rooms; a reprint of an important pamphlet on roads and railways in India, by Sir William Denison, K.C.B.; and a description of the line and works of the said railway, by John Brunton, abridged from the minutes of proceedings of the Institution of Civil Engineers. The selection of papers printed is noticeably made as much with a view to the enlightenment of Indian residents on European progress, as informing Europeans of Anglo-Indian transactions. Thus we find some French wrinkles made of much account; besides a lengthy memorandum concerning the Cavour Canal. It having occurred to the chief engineer of irrigation works, North-west Provinces, that much valuable information might be brought to bear upon the proposed remodelling of the Ganges canal by reference to the works in progress in Piedmont, he suggested to the Government that it would be advisable to procure a copy of the Cavour canal project, with plans, &c. The London directors of the Italian Irrigation Company promptly furnished ample details of the scheme as set out by the Cavalière Carlo Noé, inspecting engineer of the crown canals, which are here reproduced. An article on *Les Annales des Ponts et Chaussées*, entitled "*Expériences sur la Dilation des Maçonneries*," par M. Bounceau, is also laid under contribution. Certain fissures appearing in the masonry of extensive works at Havre, which could not possibly be attributed to settlements, the French engineers were obliged to come to the conclusion that they were occasioned by contraction caused by decrease of temperature. In order to test this hypothesis, a series of experiments was made, the order and nature of which are fully described, which resulted in the formation of a table of co-efficients of the expansion or contraction of materials employed in masonry, also given. Mr. A. Hughes, roughly summing up the results of the experiments, says gypsum expands most and marble least; *béton* expands more than brickwork, or three times and a half, when the bricks are laid as stretchers, and three times greater when the bricks are laid as headers. The experiments were made on various substances at hand,—Portland cement, tempered and allowed to set under water; mortar of Portland cement, containing two parts of silicious sand to one of cement; brickwork, set in the above mortar, all the bricks being laid stretchers; the same brickwork laid as headers; *béton*, composed of mortar as above, and round silicious pebbles; limestone, from Ranville quarry; limestone from Maladiere à Caen; granite; marble; gypsum. Others made on bars of masonry were conducted under water, the temperature of which was raised from 50° to 203° Fah. We quote one mode of proceeding. "The bar of masonry (some 6 ft. or 7 ft. in length) rested on rollers at the bottom of a tank, and butted at each extremity against the lower end of a vertical lever or rod. This lever was connected with a horizontal axle, supported at each extremity: above and to the axle a telescope was fixed. The two supports were separated from the walls of the furnace, and the axles, as well as the telescopes, were wrapped in cotton wool, so as to guard against the effects of radiated heat. A telescope having been placed at each extremity, when the block expanded each telescope became deflected, describing an arc on a scale placed at a distance of about 100 mètres (328·08 ft.): this gave a very appreciable length of arc for a very small elongation in the bar of masonry."

Canals are sparsely treated of in two papers on a project for the Sutlej Canal, by Captain J. Crofton, R.E., and in a suggestion for canal falls, by Lieut.-Colonel Fife, R.E.

Bridges of several descriptions are illustrated. Archdeacon Pratt describes railway suspension bridges; Lieut.-Colonel Taylor the Barra Bridge, originally intended to be a strut-and-strain timber erection, but reconsidered on a further acquaintance with the eccentricities of the Barra, which carried off the pile-engine and assistant-engineer in charge, in the middle of a night, eventually stranding engine and engineer some six miles down the impetuous stream; Mr.

S. Hart gives details and diagrams of Dharwar bridges; and Lieut.-Colonel A. Cowper, R.E., some useful remarks on military bridges. The last-mentioned writer having been instructed by Sir William Mansfield to compare the merits of the English and Austrian system of pontooning, as represented by Blanchard and Byrago, proceeds to describe them both minutely, and then to draw up a table showing their relative points. He shows that the Austrian system fulfils 96 per cent. of the qualities requisite in a good bridge system, while the English only fulfils 69. The requisites of an efficient bridge train are mobility and speed. Lieut.-Colonel Cowper mentions as the essential elements of a bridge system,—First, easy adaptability to the beds and banks of all sorts of rivers; secondly, stability and firmness during the passage of large bodies of men, horses, and artillery; thirdly, strength and durability as an article of equipment; fourthly, capability to transmit the covering force, and at need, the army itself, when the obstacle is too considerable to be bridged over; and fifthly, mobility to follow the movements of an army in the field, and portability for transport by men at those places where wagons cannot be taken; and then brings forward a system fulfilling those conditions to a perfect extent, into which, however, we need not now follow him.

Major F. de Bude, R.A., contributes a paper on the possibility of ventilating and cooling barracks and jails by means easily available in India and at small expense,—a most desirable field of inquiry. He has discovered no new plan, however, simply confining himself to an adaptation of that used by Messrs. Chambers, of Edinburgh. While in cold countries the air in rooms is warmer than the air without, the case is exactly reversed in hot climates. In India, the external atmosphere is so much hotter than the hottest and most vitiated air inside a room that Major de Bude confidently asserts the latter could not escape even if outlets were left for it in or near the roof. He describes the only ventilation adopted in India (not reckoning the stirring of the air by means of punkahs as any) to be that which is effected by thermantidotes (or revolving wheels with fans) introduced in walls and doors. The external atmosphere sucked in at the axles by the revolution of the wheel is blown into the room through the mouth of the thermantidote after being cooled by passing through wet tatties. All doors and windows being carefully closed to exclude insects as well as heat and dust, it follows that the air displaced by the entrance of the blast made by the thermantidote must find an exit through chinks below doors and near the bottom of the room; consequently the really vitiated air near the ceiling is not disturbed by this method. After describing Dr. Reid's plan as carried out at Westminster, he suggests for barracks the use of a furnace to exhaust air from the rooms, also the possibility that a Persian wheel worked by a couple of bullocks could be made to turn a thermantidote wheel with sufficient rapidity to effect the same object. Hollow bamboos or light tin pipes suspended from the roof complete the scheme. Or, "in buildings to be constructed hereafter, instead of metal or bamboo tubes, let a pipe of masonry run along the top of the walls with openings into the rooms; the pipe being the width of the wall strengthened by arches where it would have to bear the weight of the beams, the section across the pipe having an area of 6 in. by 6 in. The expense, after the first start, would be that of working the thermantidote, or of keeping the furnace alight at one end, and of filling the trough (pierced with holes for water to drip through on to the tattie) at the other." Major Medley estimates the quantity of foul air to be withdrawn from a barrack at 2,000 ft. per minute. In his own paper on barracks, he provides for ventilation by suggesting hollow floors partly sunk below the ground level for the sake of coolness, as in native forts, but yet having a basement story, in the centre of which thermantidotes or fans could be placed so as to force up through perforations in the floor a continuous current of air. The vitiated air he proposes to get rid of through a perforated cornice at the springings or through the domed roof, a process he would aid of necessity with the ventilating furnaces described by Major de Bude. To the suggestions prepared by the Barrack and Hospital Commission in England, Major Medley does not attach much importance, deeming that they were written with the climate of Bengal in view rather than that of Upper India. The Commissioners, it will be remembered, recommended Dr. Arnott's ventilating air-pump as the best solution of the difficulty, and providing efficient ventilation at a low cost.

As long as transport remains as difficult and expensive as it now is in India, builders will have to rely upon bricks rather than stone in most localities. Hence it is a matter of importance that the best modes and materials for making these, and the best manner of using them, should be well considered. To this end the principal of the Thomason College has conducted some experiments with a view to make coloured bricks; but, so far as he relates, had succeeded only in making black ones. He hoped, however, by comparing English raw materials with native earths, to be eventually more successful. Native bricks are soon made, but they are uncouth in shape, and not uniform in size or thickness. Their dusky manufacturers "excavate a few cubic yards of surface mould from the nearest piece of waste land, and, after wetting and turning it over for a few minutes with their hoes, transfer the mud, pebbles, grass, roots, and all, lump by lump, to a double wooden mould, put it in, strike off with their hands the superfluous clay, then raise the mould, leaving two parallelopipeds of semi-fluid mud adhering to the ground; each moulder completing a daily task of about 2,000. These soon dry in the sun, and are ready on the following day to turn over, and in a few days to be burned, either in rude kilns or clamps." Bricks made in European methods harden so rapidly in this climate that they can be lifted off the floors and stacked on the third day, and placed in the kiln or clamp at the end of a week. The rays of the sun are nearly as hot as the contents of the kiln; there is no occasion, therefore, to keep the kilns closed for any length of time. They are generally opened the day after the stacking is completed, the embers raked out, and the air freely admitted; but five days elapse before the bricks cool down.

The rivers appear the most formidable antagonists the Anglo-Indian engineer is called upon to cope with. The velocity of the waters at certain seasons, the quantity of silt they carry with them and deposit in inconvenient places, floods with their deposits and droughts, are difficulties of daily occurrence. The Mahanuddy's waters annually endanger a population of 35,000 people at Cattock. Captain F. D. Brown, assistant engineer, contributes an account of the works undertaken to prevent the recurrence of this annual threat. Mr. Sibley made observations on the Jumna which show that at its average floods this river rises 40 ft. above low water; but that it occasionally rises to a height of 50 ft. above this level. In 1861 it ran at this height for twelve days, at a rate of eight miles an hour. Its force may be to some extent realized by Mr. Sibley's calculation that the discharge per second must have reached the enormous amount of nearly of 1¼ million cubic feet. Lieut.-col. Tremenhere has made the Indus his peculiar care, ascertaining the relative amount of silt in the summer and in the winter; the amount of solid matter at different depths; the velocity of its waters. What with filtering, drying, weighing, passing much of his time in a boat anchored at point after point in the river, fishing for water from different depths in curious bottles, the gallant colonel must have reaped peculiar experiences. The results respecting the proportions of silt are curious: "In water taken on the 23rd November, at 9 ft. from the surface, there was more silt than in water taken within a couple of minutes at the same spot from a depth of 11 ft., and more in water taken on the 24th November from a depth of 8 ft., than from a depth of 12 ft." It is a subject fraught with much interest to reflect upon the difference between the modes of the two movements of the Japhetic race in their reversed strides across the terrestrial globe. In old times the faces of its most enterprising tribes were turned westwards with no appliances. They scaled mountains without roads, crossed rivers without bridges, cultivated countries without inplements, and hunted wild beasts without rifles, gradually extending over tract after tract. Now, after centuries of civilization and accumulations, our bravest and best turn their faces easterwards towards the old Asiatic home, armed with every appliance, informed of millions of facts garnered up in the experience of ages. Is the difference in the results effected commensurate with our great advantages over the early pioneers? Are we sure we do not waste our best opportunities on inadequate objects? Are we doing all we possibly can to temper the climate? It is allowed that cultivation and drainage materially lessen intensity of cold; can nothing be devised to lessen intensity of heat? Taking it for granted that evaporation, as supplied by the wet tatties, is of some avail in houses, should not irrigation be looked to and pursued as the best hope of Hindostan, and every effort strained in that direction? In the enormous volumes of water, bursting all bounds, turning the rivers into straits, nature seems to have furnished the only requisite not in the power of man to provide. The Indus sometimes rises nearly 100 ft. above its usual level. Too much water in one place is a misfortune. The surplus intercepted and conveyed in other directions would be a blessing. Occasionally rumours break upon the ear, of Government irrigation schemes. Let us hope this generation will not pass away before we see the chief cities of Hindostan rivalling Holland in the number of their canals, and the burning plains intersected with waters. What has been done can again be done.

Details of the building of police-courts, clock-towers, oil-mills, out-posts, the rates of work in Bengal, Hyderabad, the North-West Provinces, and the Punjab, form further features in the mass of information Major Medley has got together. There is also a good indication of the rate of speed at which public improvements are carried on in two papers on the construction of the tunnel now in course of progress under the Indus at Attock. We have said that the waters of the Indus rise sometimes nearly 100 ft. They have done so frequently within remembrance. But at Attock there is nothing to prevent them rising to a height of 150 ft. as the channel there narrows. In making designs for a bridge over the river at this point, Colonel Crommelin elevated it 96 ft. above the low-water level. But this was deemed insufficient, for as Lieut.-col. Robertson remarks in his proposal to substitute a tunnel for it, "this only gives 4 ft. clear of a known flood, only twenty years back, while the land-arches would be all closed, even with a flood such as that of 1841: the next flood may be 120 ft., and what becomes of the bridge? These floods bring down trees, stacks of corn and fodder, huts, cattle, &c.; so that even a clear space of 10 ft. between the river level at the lowest point of the trussed railing or crown of arches would not save the bridge from being carried away." The tunnel scheme was submitted by Colonel Robertson in 1859. It was commenced in March, 1860. In 1861 it was being carried on, "most vigorously" with the "greatest spirit," reported the Lieutenant-Governor of the Punjab, by a party of *gallant Muzbee miners, aided by six European miners.* With this force we cannot be surprised that it is only now "partly executed." If this be the usual rate of progress, it will certainly be some time before we effect any appreciable result in our Asiatic possessions. Even the simple art of road-making is magnified into a difficulty, by Asiatic circumstances. Writes Colonel Cowper,—"There are numerous differences of opinion on the subject: one executive engineer reverses the system pursued by his predecessor; almost all proceed empirically without any fixed rules, and thence results a diversity of practice, of which much must be wrong, and cause a considerable loss of money." These professional papers will, doubtless, be of great service, both in bringing vividly to thousands of minds points that require thoughtful consideration, and in causing happy suggestions; for, to apply a homely saying to a distant clime, there is no one who can tell the world so well where the shoe pinches as he who wears it.

BREADTH OF LIGHT AND SHADOW IN ARCHITECTURE.*

I WISH now to say a few words on art principles in general, and specially with regard to architecture. Art we presume to be under most of its aspects an imitation of nature. Now, nature proceeds by fixed laws. What, then, are these? Uniformity of plan is the first great rule, or, as the poet beautifully says, order is Heaven's first law. Sir Isaac Newton, in the "Principia," in a remarkable passage quoted by Professor Owen in his book on the "Nature of Limbs," remarks on what we may call the bilateral symmetry of nature. Two eyes, two ears, two hands, two feet; each side of the body of animals corresponding exactly to the other. Such is the plan;

* By Sir Walter James, bart. See p. 342, *ante*.

and if we pursue our inquiry into vegetal nature, each flower, each leaf when bisected, cut into equal parts, produces two parts essentially the same and both perfect. Again, we have in the various segments of animals an analogous uniformity. Thus we see the limb is in all its features the same, whether it be an arm or a leg, and botanists tell us that a flower is but a highly developed leaf. Now, to carry this law into the arts, we see that symmetry or what may be called uniformity of plan is the first great law. If we bisect a Doric column, or a Doric temple, each side or each part exactly answers to the other; and, in common language, the phrase that a thing is "lopsided," or "all on one side," is but another form of expressing our sense of its ugliness—an ugliness arising from imperfection because the parts do not correspond.

God's handwriting is seen upon the surface of nature: if we want a test of what is true and beautiful in art, we must ask ourselves, is the handwriting the same? This, I think, is the best and only sufficient test of the beautiful. What, then, are the characters? This uniformity or symmetry of plan is the first. But underlying this principle, not opposed but rather in subtle and exquisite harmony with it, is the law of infinite variety, an adaptation of means to ends as marvellous and beautiful as its correlative law of symmetry. Buffon, the great French naturalist, has well remarked, "It is only by comparing we can judge, and our knowledge turns entirely on the relations that things bear to those that resemble them, and to those that differ from them," and he adds, by way of illustration, "if there were no animals, the physical nature and structure of man would be far more incomprehensible than it is." May we not in like manner say that if we had had no nature we could have had no art; and that without going to nature it is impossible to understand the true principles of structure. What, then, is this law of perpetual and never ending variation? I will put it in a twofold light. 1st. The adaptation of means to ends, or what may be called creative ingenuity. 2nd. The principles of variety and contrast, as being, *per se*, an element of beauty in the physical world, and, therefore, essential to the beauty of any work of art.

On the first topic, the adaptation of means to ends, and the skill with which each part is made to play its due proportion or share in the wondrous whole, I know of no better illustration than the skeletons of animals. It is here that the most interesting and beautiful evidences of adaptation to ends, as well as unity of plan, have been discovered.

No study could, I am persuaded, be more useful to the architect, as well as to the artist. The principle of the arch may be said to be the leading idea of the bony framework. Our skulls are arches; our feet are arches; our bodies form arches—for what are the ribs and concomitant vertebræ but an arch? The whole spinal marrow, as it descends from the brain to the pelvis, is enclosed in a strong, compact arch, to which the spines of the back act as a powerful keystone. But if the principle of the arch is to be found in the body of every animal, we may discover likewise that of the column, or vertical support. No superfluous material is here wasted by the great Creator. The limb of the elephant is well proportioned to sustain the enormous weight of his unwieldy yet majestic frame; while that of the camel or giraffe is slender, elegant, and bony, just in proportion to the superincumbent mass that presses upon it. Look, too, at the feet of the camel and the elephant. The foot of the elephant, like the instep of the human being, is arched in its structure, calculated to support weight. The foot of the camel is not arched at all, but flatly, horizontally, spread out, with soft, large cushions at its sides, to prevent the animal sinking into the sand of the desert. But Nature is as thrifty an architect in the choice of her materials as in the forms in which she disposes them. I select the following passages from a work of Owen:—"The bones of fishes are spongy in the interior; and where ossification takes place it is restricted to the surface of the primary gristly mould. The bones of the turtles and sloths are solid; but in the active land quadrupeds the shaft of the long bones of the limbs is hollow, the first-formed osseous substance being absorbed as new bone is being deposited from without. The strength and lightness of the limb-bones are thus increased, after the well-known principle of Galileo, exhibited by means of a straw picked up from his prison-floor, to answer a charge of Atheism brought against him by the Inquisition. The bones of birds, especially those of powerful flight, are remarkable for their lightness. The osseous tissue is, in fact, more compact than in other animals; but its quantity in any given bone is much less, the most admirable economy being traceable throughout the structure of the bird in the advantageous arrangement of the weighty materials." Then, after illustrating this by showing how heated air permeates the bones of the bird, he concludes,—"The bones of birds are filled with rarefied air. Their extremities present a light, open net-work, slender columns, shooting across from wall to wall, these little columns being likewise hollow."

Every book that is written on Natural History gives us something of the same kind. Now I hear, as it were, the word "Question, question," mentally uttered by my auditors, as if such arguments were foreign to my lecture. I must excuse myself by saying that, as Nature does everything with a clear and definite purpose, or final cause, the architect ought to do the same; and that the vegetable world as well as the animal kingdom offer most excellent subjects for the study of the young architect,—subjects hardly secondary, if at all so, to the study of the works of man, the temples of Greece, or the Mediæval cathedral.

The principle of the hollow column, which I alluded to in the earlier part of my lecture, though well known to the engineer, has seldom been brought into use by the architect. Mr. Butterfield, indeed, has used it in the Church of St. Alban, where the decorative columns are of hollow pottery, not unlike draining tiles. The effect is pleasing. I observe, too, that Mr. Barry has used the same contrivance for ornamenting the corners of some schools in Holborn, and has adapted these hollow tiles to convey water from the roofs of the buildings. But it is when we come to the higher region of the air (like the bird) that we may naturally expect to see bird-structure, if I may coin a word, imitated. What is the spire itself but a hollow tube? and it is in the building of spires that hollow tubes, as I conceive, might very effectually be introduced, as being good examples of a combination of lightness with strength, and enabling us to get what we as English builders are very defective in. I mean altitude of proportion. This quality is necessary to grandeur, particularly in the Gothic style, and in edifices dedicated to the glory of God.

It is then in that variation which admits of the special adaptation of each form to the purpose for which it was designed, that we see the wisdom of nature, or, in other words, the wisdom of God. Why should not the same law guide us in our buildings? Pugin has well defined architectural propriety to be that the external and internal appearance of an edifice should be illustrative of, and in accordance with, the purpose for which it was designed. The animal, the tree, or the flower, each has its own character. So should the building designed for God's glory, the collegiate establishment, the town-hall, the mansion, or the cottage. I need not point out how contrary to this wholesome principle is the idea of having a church like a Greek temple with a Doric colonnade, a collegiate establishment like a large hotel, a town-hall like a theatre, a gentleman's house like a barrack, or little better, a Gothic abbey, or an entrance-lodge, decorated with an Egyptian Sphinx. There is a place in Nature for everything, and everything should be in its place.

Nor is this rule less applicable to small than to great things. It gives true simplicity and breadth of character, and cuts off useless ornamentation. It is allied to the equally important principle that ornament should never be introduced for its own sake, or as we may express it, for "mere show-off," but should be confined to the decoration of construction. We never see anything in nature overcrowded. Everything is subservient to some purpose, and beauty is superadded. How different is this from the faulty decoration of the upholsterer, who determines to do the thing in the Gothic, the Greek, the Italian style, or in what may be called a skilful medley of the worst features of all these, the upholsterer's style: crockets and finials project from every corner; here the claw of a beast, there the beak of a griffin; here a sideboard supported by a mahogany eagle, there a serpent twisting gracefully round the table's leg. Where, I ask, are simplicity and breadth in these things? Truly did Mr. Pugin remark that a gentleman could hardly walk through a drawing-room fitted up in this style without danger either to the furniture or to his own clothes.

Mr. Pugin remarks, "Notwithstanding the palpable impracticability of adapting the Greek temples to our climate, habits, and religion, we see post-office, theatre, church, bath, reading-room, hotel, Methodist chapel, and turnpike-gate, all present the eternal sameness of a Greek temple outraged in all its proportions."

A few words may be added on variety, not merely considered with a view to the various purposes for which buildings are designed, but as in itself a principle of beauty and a main source of the picturesque. Inequality of forms and quantities is necessary to make up an agreeable building or picture. It has, I think, been remarked with great truth, that the effect of the opposition of lines and the force of contrast is more noticeable in a work of art than in nature; for in the former the various objects strike upon the retina at once, in the latter they are dispersed over the landscape. A defect may be observed in a photograph, which would not strike the most delicate or critical eye in nature. To show what I mean I have taken the trouble to draw out, as a diagram, the hand of a man and the hand of a monkey. Teleologically, that is, with the view of studying the purpose for which each is framed, they are equally well adapted; but in point of variety of form, observe, I beg, in the human hand, with what delicacy and variety the length of fingers is gradated; how much more subtle the difference is in the size of the finger joints, and how this infinite variety of size contributes to beauty. The same may be said of the graceful and swelling curves which bound the outline of the form of man.

I will, just for example's sake, give another illustration, from the floral kingdom,—a rose and a convolvulus. The forms are equally lovely, yet both dissimilar; and if we examine the parts with care, we find no two leaves, no two petals, no two parts of any description like their fellows. The flowing curves of the floral kingdom may be a study more congenial to the painter or the sculptor than to the architect, who deals, in general, with stiff and unyielding materials. In the midst, however, of these lovely curves, within the calyx, and often round the corona of the flower, there are exquisitely symmetrical forms,—hexagons, pentagons, octagons,—every conceivable geometrical form which, in the composition, for instance, of decorated windows, would be most serviceable to the architect. From their illuminated manuscripts, from their being great farmers, &c., we may well believe that the monks of the Middle Ages not only studied botany, but adapted it to their building purposes; and if we may trust the analogies of language, one beautiful feature in our Gothic cathedrals is the fruit of this research. I allude to the rose window.

I exhibit as an illustration of the same principle two houses of the commonest street type: No. 1, entirely unornamented; the second such as seen in a better kind of street, with at least a show of taste upon it. Why is one superior to the other? Both are equally symmetrical; but in No. 2, superadded to the symmetry, there is a show of variety,—of variety in the forms, and variety in the quantities. I should be glad if any one could point out any other difference to account for the extremely different effect of the two designs upon the eye. The next example I exhibit is from Welford Church, Berkshire. These elevations are taken from a print, and are both somewhat modified. In No. 1, the height of the tower and spire exactly coincides; in No. 2 it is different. Referring, in the next place, to the segments of the tower, we find them in No. 1 precisely equal; in No. 2, quite unequal. The uneducated, even, would, I imagine, see that No. 1 is superior in all respects to No. 2. Nor can I assign any reason for this superiority, unless it be the application of that law of variety which, as I apprehend, arises originally from the necessity of resorting to various means for various ends, as the teeth of the carnivora are for one purpose, those of the rodentia for another; but which becomes, secondarily, a principle or law of beauty, independently of any purpose which the Author of nature may have had in view. I exhibit a drawing of an arch in Canterbury precincts. The point here is the exquisite manner in which vegetation accommodates itself to buildings. Architects are hardly sufficiently alive to this point. A grass lawn, such as England, and England alone, can boast, is the most beautiful platform from which any building can spring.

Trees, shrubs, and ivy—even dangerous ivy—have their beauty, and are valuable adjuncts to architecture.

I would now, before concluding, call your attention to the diagram above my head, in which I have ventured to propound my general views on the subject of the arts and architecture particularly. You will observe, it is divided into three heads—form, height, and shadow and colour; or we may call them outline, substance, and colour, for light and shadow are the means of giving rounded form.

Under the head of "Form," you will observe that I have taken the Doric temple as the example of symmetry, and the Gothic cathedral as that of variety in form. They are perhaps as good as any we might chance to hit upon. I would observe, however, that the symmetry of the Doric column is diversified by an almost infinite variety, and that the variety of the Gothic minster is modified by a large share of symmetry. Perhaps it would be fair to assert, that in Gothic art the principle of exact correspondence of parts is changed for that of a general balance between "the two sides, so to say, of the picture." This is well exemplified by the position of the central tower in Canterbury and other cathedrals. To the east we always have the most interesting part of the building. Here, owing to its sacredness, the largest amount of decoration is always to be found, both externally and internally. Deep shadows throw out the surrounding chapels, and where terminated in a "chevet," this portion of the edifice is generally full of interest. To balance this mass of decoration, we have the great length and quiet stateliness of the nave; yet even these fail to give their due share of importance to the western parts of the building, for the typical completeness of which two western towers are an absolute necessity. I offer my humble adhesion to Mr. Fergusson's view, who calls Lichfield, with its central and two western spires, though small in size, a thoroughly artistic group. Canterbury, of which I exhibit a lithograph only moderately well done, is a good deal too long.

If we recognise in any measure the truth of the principles developed in this lecture, we shall in some degree, at least, understand why we are greater and yet less, less and yet greater, than our ancestors. As has been most eloquently remarked by the Dean of Westminster, "We cannot dispense with the *mighty* past, even when we have shot far beyond it." Those who follow cannot be as those who went before. Mediæval days, with their exalted faith, their noble chivalry, their rude violence, have gone, and cannot return; yet they have left a legacy of enduring value. Their castles, cathedrals, and abbeys come down to our days, and preach to us in stones, the best of sermons. Truly it may be said of those grand old monks that they laboured, and we have entered into their labours. The comparison instituted by the eloquent writer alluded to, between Elijah and Elisha, is not inapposite. The rude vigour of primitive times gave way in the latter to winning arts and healing arts, and gentle words of social and peaceful intercourse." The stream no longer bounds from rock to rock, but flows on in tame fields,—in a channel, if less ruggedly beautiful, wider, and perhaps more beneficent. It is the same with regard to the arts. Our great works are few. Be it so; but do not these very great and magnificent buildings of former ages tell another tale, viz., of labour unremunerated; of large populations pressed down by serfdom; of education little spread; of one order, and one order alone, that of the clergy, absorbing in itself, not merely all that was spiritually good and great, but even all that comes under the term of temporal prosperity? Let us hope, then, that the work of architecture, if carried on by men of inferior genius to those who decorated the Parthenon, or raised to the skies our noble minsters, may be practised in a spirit certainly of wider usefulness, and with aims not less beneficent.

THE TRADES MOVEMENT.

London.—A crowded meeting of delegates from the London carpenters and joiners was held on the 16th, at Bloomsbury, for the purpose of receiving reports from the delegates as to how far the various building firms have acted upon the resolution of the associated employers to pay the advance to 8d. per hour to the men on Saturday last. It appeared that most of the leading firms in the trade had carried out the resolution and paid the advance; which, however, other firms had refused on various grounds. The delegate from Perry's stated that the men had suspended work since Monday last until they could obtain a definite reply from the employer. After some discussion it was decided to deal with Perry's firm first, and the following resolution was adopted unanimously:—

"That the men in the employ of Mr. Perry be requested to wait upon that gentleman to-morrow morning with a list of those firms who have given the advance, and in the event of Mr. Perry still refusing to pay the 8d. per hour, this meeting empowers the men at once to leave his employ, and pledges itself to support them in so doing."

It was also resolved that the men in the other firms who had refused the advance should at once make application to the employer for it, and report the result.

Maidstone.— The carpenters and joiners are on strike, as well as the bricklayers, for a rise of wages. The movement originated in a demand of an advance of 6d. a day, to which the builders agreed, if the hour system were adopted. This system the men agreed to adopt if 6½d. an hour were given. The masters refused, and the men struck work.

Poole. — The carpenters and joiners have struck for 24s. per week, instead of 21s. as hitherto. The masters unanimously resolved that no advance of wages be agreed to. Some of the men have returned to their work, and others have left for neighbouring towns.

Bath.—The masons have had a rise of 3s. per week conceded to them by their employers without a strike.

Wolverhampton.—The operative painters, 61 of whom are members of the Manchester union, have turned out on strike for a rise in their wages of 2s., viz. from 26s. to 28s., and certain other advantages. Endeavours are being made to induce them to submit the matter to arbitration.

Birmingham.—The bricklayers have refused to abide by the decision of the umpire elected conjointly by themselves and the masters, and have struck work. This does not look well for the hope of settling all disputes by arbitration. It is when the umpire decides against either workmen or masters that the sincerity of their adhesion to the principle must be tested. The bricklayers, however, say they did not consent to leave all disputes to arbitration. Nevertheless, in the case in question, the men gave notice of a demand for a rise of wages of one farthing an hour. The masters agreed to this proposal on condition that the men should work till two o'clock on Saturdays. This was objected to; and the dispute was referred to arbitration. Both masters and men agreed to this, and both sent representatives to the meetings, and both accepted Mr. Lloyd as umpire. After hearing the case stated on both sides, Mr. Lloyd gave his decision that no sufficient reason had been presented for the proposed increase, which decision left the old rules unaltered for the current year. If Mr. Lloyd had voted in favour of the men, the masters would most probably have accepted his ruling, and given the proposed advance. It is to be regretted that the men have not done so.

Liverpool. — The strike of the house carpenters and joiners is virtually at an end, the men's demands having been agreed to. The London and North-Western *employés* at the Liverpool goods station have asked and obtained an advance of wages. The sailors, sea-cooks, and stewards of Liverpool are agitating for a rise in wages; and the girls employed in picking waste cotton have struck for a rise of 2s. a week, and obtained it, after walking in procession to a sort of "women's rights" demonstration on the flags of the Exchange, which no doubt frightened the great cotton merchants within into an unconditional surrender.

Preston.—The stonemasons, flaggers, slaters, and joiners here are on strike—the first wanting a reduction in the hours of labour, the second and third an alteration in their rules, and the fourth more money. The masters have entered into a union to stand out against the demands of the workmen.

Bradford. — Several hundred iron-moulders have struck work here for an advance of wages. They have recently received 30s. per week, and they seek an addition of 2s. per week. Two or three firms have yielded, and their men have returned to work. The majority of the masters, however, decline to give the advance. Other branches of the iron trade indicate signs of uneasiness, other workmen having given formal notice for an advance during the present month. The stonemasons in this district received an advance of 3s. per week on the 1st of May, making their wages 30s. per week for nine hours' work per day. They had given their masters six months' notice of their desire for an advance.

Carlisle.—The Carlisle Builders' Association have passed the following resolutions:—

"That this association do agree to a revision of the trade regulations and rates of wages, by delegates appointed in equal numbers from the masters and masons of Carlisle, with a disinterested person to act as chairman and umpire.

That this association is at all times willing to receive and consider any proposal from the operative masons of Carlisle with a view to the settlement of the strike."

A copy of these two resolutions was given to delegates of the masons at their request, to lay before their lodges. The painters have consented to accept the hour system of payment, if terms can be agreed upon. The masters offer 5d. an hour, but the men want 6d., and so the matter rests. The joiners are still out, with no immediate prospect of a settlement of the dispute.

Galashiels.—A great majority of the masons have struck work in consequence of the masters reducing their wages one halfpenny per hour. The building trade has been unusually brisk this spring. The plumbers have obtained a rise of 2s. per week, making their wages 23s.

Paisley.—The sawyers and woodturners have resolved to petition their employers for an advance of ten per cent. on the present rate of wages.

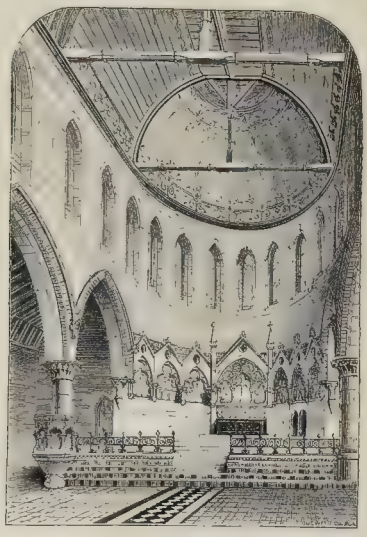
Limerick. — The tailors here have struck against the women, because the masters employ them to sew the lighter kind of garments! And this in the "land of chivalry" too! Moreover, they say they won't go back to work again until all the poor women are discharged.

ST. SAVIOUR'S CHURCH, HOXTON.

ON Monday week, the Archbishop of Armagh, acting for the Bishop of London, consecrated the new Church of St. Saviour, Hyde-place, Rosemary Branch Bridge, Hoxton. The church is from the designs of Mr. James Brooks, best known as the architect of St. Michael and All Angels, Shoreditch. It is built of brick, with stone bands, &c., in the First Pointed style of Gothic architecture, and of rather a continental cast. Placed among tolerably lofty houses, it vindicates its own height, and is in this respect quite of the best type of the town church. The general ground-plan is a parallelogram, of about 98 ft. by 66 ft., divided into nave and aisles,—the nave terminating in a semicircular apse, the north aisle being shortened by the length of the vestry, and the south ending in an organ chapel. Five pointed arches separate the aisles from the nave, four bays belonging to the nave proper, and the fifth, which is more contracted both in height and width, belonging to the *quasi*-chancel. Proper chancel there is none, for the shortness of the site from west to east is such, that to give dignity to the building, the architect has been compelled to make the whole roof of uniform height. The false-chancel is formed by raising into a dais the last few feet of the nave, to the height of some 35 in. in its extremest elevation, and by a ceiling over, with planed boards, the rafters of the half-conical roof of the apse. The effect of this arrangement in a building which rises about 75 ft. inside from the pavement to the apex of the roof is exceedingly fine. The architect is to be congratulated on the acoustic properties of the building. With a full or scanty congregation, during singing or preaching, the church is remarkably good for sound; and though the laws of applied acoustics be obscure, we may hazard a conjecture that the wall of the apse, solid in its lower part for some 30 ft., till it reaches the clerestory lights, which run round the apse as well as the nave, and then the concave smooth surface of the sanctuary, are not without effect in producing this. The clerestory and roof are effective features of the interior. The clerestory has thirteen lancet windows in the apse, and is continued along the nave in three similar lancets on each side, alternating with four pairs of small lancets, surmounted by a circle, each pair under one interior arch. This arrangement, while it lessens the weight of wall upon the nave piers, also by giving a sort of splay to the windows adds to the light of the whole. The light, being derived almost exclusively from the clerestory of apse and nave (another town church feature), falls with a most pleasing softness upon the congregation below—



Exterior.



Interior View, looking East.

ST. SAVIOUR'S CHURCH, HOXTON.—Mr. James Brooks, Architect.

an effect which is further heightened by two shades of delicate green which tint the glass. The roof is of very high pitch, and of a width at its base of about 30 ft. The rafters, which rise at very frequent intervals each from the wall-plate to the ridge without any purlins, have a very marked effect. In the western gable is a wheel window, consisting of twelve circles enclosing four irregular figures of a circular character; beneath which are two very fine windows of two lights each. This west end seen from the altar-steps is very imposing, as there is a blank wall of brick, necessitated by the external abutment of a building upon it, of some 40 ft. high, and above this and rising to 60 or 70 ft. are the wheel and other windows just mentioned. The blank space thus left affords a splendid opportunity for a wall-painting of the Last Judgment or other subject being introduced upon a panel of the width of the entire nave. The reredos is an arcade of seven arches of Bath stone round the apse, contrasting agreeably with the red brick of the walls. A white marble cross with background of inlaid marble of greenish colour occupies the central panel; and it is contemplated filling the remaining panels with mosaics illustrating the life of the Saviour. The communion-table is a handsome piece of cabinet-work: it is built as a *bonâ fide* table with panels of various kinds of wood, and crosses of teak inlaid in the top, and illustrates what may be done in good architectural taste in contradistinction to the spurious principle of constructing an altar with massive wooden pillars and capitals and arches to support what, after all, is only a slab of wood of a few pounds weight. The choir-stalls are formed partly of old oak taken from the recently rehabilitated chapel of Worcester College, Oxford. Three small stained glass windows by Messrs. Clayton & Bell are placed in the south aisle. There is no font at present, owing to straitened means. Externally the apse and high-pitched roof with its boldly-defined eaves and gutters resting on brick corbel-tables, and the spirelet rising like a sanctus-bell turret and covered with lead and copper, are the most striking features of the building. Great praise is due to the builders, Messrs. Longmire & Burge, whose work appears to be very conscientiously executed. The contract was let for 5,800*l.*; and the expenses of every kind will, we understand, be covered by about 7,000*l.* After the liberal subscriptions of Mr. P. Cazenove, the Bishop of London's Fund, and other societies and gentlemen, about 450*l.* are still deficient. The incumbent, the Rev. J. T. Jeffcock, will be glad to receive donations to the building-fund, or towards the additional decorations required.

THE GERMAN GYMNASTIC SOCIETY, ST. PANCRAS ROAD.

It is the aim of the German Gymnastic Society, established in the Old St. Pancras-road, King's-cross, to afford its members an opportunity for bodily exercise, not only for the sake of healthful recreation, but with a view to render them fit to serve their fellow-men and their country, in all cases where bodily strength, endurance, and skill are called for. A Gymnasium Company have built a hall used by the society, and the interest upon the shares of the company is limited to 5 per cent. Neither the company nor the society has been established with a view to profit, and all the members of the council, as well as the leaders of squads, render their services gratuitously. The first movements for the introduction of gymnastic exercises, in Germany, appear to have been made in the latter half of the last century. The man who had done most in popularising gymnastics was Ludwig Jahn. In 1811 he opened a public gymnasium at Berlin, which was visited by many thousands, boys and men. The whole of the latter enlisted in the army during the war of liberation, and many of the most able fell on the field of battle. On the restoration of peace, the Governments took up gymnastics. It was proposed to introduce them into the schools and the army, but not much was done. A time of re-action set in, gymnastic societies were treated as political bodies, persecuted, and suppressed. The promoters of the movement, however, kept steadily at work, and there are at the present time in that country about 1,800 societies, with close upon 200,000 members.

The German system of gymnastics has been introduced into other countries. A German Gymnastic Society was established in London in 1861 by 170 Germans who subscribed to a foundation fund. All classes are represented, but the mercantile class preponderates. Their hall, of which we give a view, has been built by Messrs. Piper & Wheeler, from the designs of Mr. Ed. Grüning, architect. The apparatus has been manufactured by Messrs. Snoxell, from designs supplied to them. The fittings are as yet far from complete. When all is done about 30 squads of 10 men each will be able to practise at a time. A structure at the end of the hall, not shown, is intended for escalading exercises.

The dimensions of the hall are:—length, 120 ft.; width, 80 ft.; height to the top beam 57, ft. The club-room is 60 ft. by 35 ft. There is also a reading-room. The Society's library contains now 90 works on bodily exercises, and 300 others; 500 volumes are expected shortly from Mr. Brockhaus, of Leipsig.

It is proposed to ornament the hall with busts of celebrated Germans and others, who have worked in the cause of human progress. Jahn's bust, by Mr. Grass, has been completed, and so have busts of Spiess and Gutsmuths, by Mr. Novra. A large clock was presented by Mr. Murray, of the Royal Exchange. Another English member, Mr. Hasluck, intends presenting a clock for the club-room.

The land is held on lease for 94 years at a rent of 42*l.* The building cost about 6,000*l.* exclusive of fittings and apparatus. All the money required, over 10,000*l.*, has been raised. The number of members is about 1,100, the majority being English.

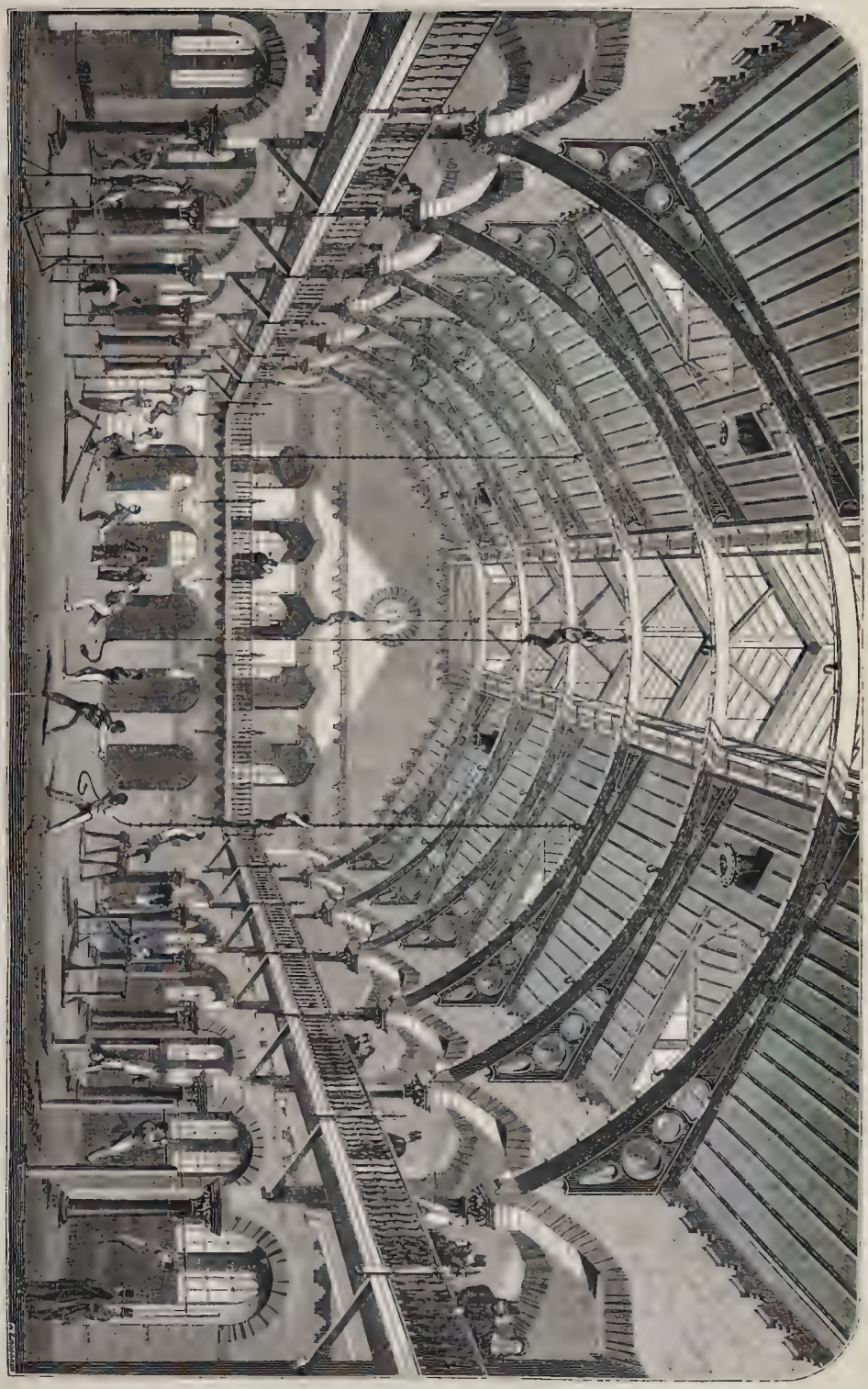
The foundation-stone was laid on the 14th of May, 1864: the hall was opened for use on the 28th of January, 1865. The entrance and other parts are still incomplete.

The president in his last report shows some results of practice worth noting:—

"Our men," he says, "are tested every six months with a view to their distribution into squads. We test the flexors of the arms by requiring them to rise and sink whilst hanging on the rack (horizontal bar); and the extensors by sinking and rising in the rest between the parallel bars. A comparison of the results of two testings affords satisfactory proof of the progress in strength made by our members, though many of them are very irregular in their attendance. The results are as follows:

Rising and Sinking at the Rack.—Beginners rose 0 to 6 times, or on an average 2·4 times, when tested first. They rose 1 to 16 times, or on an average 7·2 times, when tested again after the lapse of six months. Increase of strength, 192 per cent. Our more advanced men rose at first 7 to 11 times, or on an average 10·9 times; after the lapse of six months they rose 8 to 16 times, or 10·6 times on an average. Increase of strength, 28 per cent.

Sinking and Rising at the Bars.—Beginners did it 0 to 6 times (average 3·4) when tested first; 2 to 17 times (average 9·4) when tested the second time. Increase, 169



THE GERMAN GYMNASIUM, ST. PANCRAS ROAD, LONDON.—Mr. E. Gruning, Architect.

per cent. More advanced men did it 7 to 11 times (average 9·1) when tested first, and 7 to 18 times (average 12·6) when tested the second time. Increase, 37 per cent.

High Leap.—At the first test the men cleared 47 in. on an average, at the second 55 in. Increase 17 per cent."

A desire for the opportunity for gymnastic exercises appears happily to be spreading in England just now. A gymnasium has been established in Whitehaven. Arrangements are being made for opening one in Reading. In Liverpool is to be found one of the most perfect yet established, the cost of which has been about 14,000*l*. In Manchester they are only waiting to see the result of the movement in Liverpool.

The following observations by a contributor are in place here:—

Living close to a great thoroughfare in a northern district of London, we have often noticed with pain and surprise the large number of wayfarers who are "deformed—unfinished," and either crippled by weakness, want of care in infancy, or by following unhealthy trades. Many have one or two club feet; others are bent in the limbs, on one side: there are stiff limbs, which do not act so well as the artificial ones of clever makers. Many are deformed and stiffened by attacks of rheumatism, and others by paralytic and nervous causes. The bandy legs and rickety state of very young children might be, to a great extent, prevented, by attention to proper air, food, and clothing supply; and in other ways, much of the evil referred to might be lessened by surgical attention to children when in their younger years. Notwithstanding there are facilities afforded for the cure of those imperfections, not only in the Children's Hospital, in Great Ormond-street, but in other of the metropolitan hospitals, where often a simple and not very dangerous operation, with a little care, will prevent the early close of life or the passing of one in a lame and crippled state; still, the opportunity is neglected, and in course of time the deformity is still further confirmed by the sufferers being put to some sedentary employment. This is a matter which requires more thought than has been generally devoted to the subject; and we believe, that if it were better known how easy it is to get assistance of the very best description, at St. Bartholomew's and other hospitals, and also the use of splints and apparatus of different kinds, that but a tithe of the lame would be seen in the streets of our large towns. A considerable number of the cases of deformity which are far too frequently met with arise from accidents, but some are brought upon youths who are sent, at the ages of from thirteen to fourteen and fifteen years, to trades which, in course of time, to a greater or less extent, make the limbs lose their fair and right proportions, and, in addition to discomfort, cause much damage to health. In Sheffield, Birmingham, and some other towns, where many persons are employed in the grinding, polishing, and finishing of tools, a trade which requires both men and women to stand or sit for many hours together in one particular attitude, the muscles get set in a form similar to that which the workpeople stand or sit in when labouring at the bench.

In Clerkenwell a considerable amount of this kind of deformity may be noticed, particularly amongst those who are employed in some branches of the gold and silver-smith and jewelry trades. There may be seen lads, of seventeen or eighteen years of age, who work at the polishing of gold and silver ornaments, whose limbs have become like the Sheffield grinders, of unnatural and unhealthy forms, and this kind of deformity comes more quickly than many suppose, and extends to various employments. The long-established letter-carrier or deliverer of newspapers gets a form of arm and shoulder which is still to be noticed when he has nothing to carry or deliver. By his particular gait, any one can distinguish a tailor or a shoemaker, in the street; and clever detective and other skilled officers of police can, by certain indications, guess whether or not a man is telling the truth respecting his past pursuits. It is a great pity that crippling of this kind should be allowed, for there can be no doubt that facilities for gymnastic exercises, used properly, and in sufficiently early time, would, to a great extent, counteract the effect of most sedentary trades. Gymnasiums, which could be easily accessible in both winter and summer, at a small cost, would be of the greatest service.

A FIGHT AGAINST GOTHIC.

MR. SCOTT'S DESIGNS FOR THE GLASGOW UNIVERSITY BUILDINGS.

At a meeting of the Glasgow Architectural Society, held on Monday, the 7th inst., Mr. Alex. Thomson, architect, read a paper entitled "An Inquiry as to the Appropriateness of the Gothic Style for the proposed Buildings for the University of Glasgow, with some Remarks upon Mr. Scott's Plans," mainly prompted, it is right to say, by a feeling that the Glasgow architects had been slighted by not being asked to send in designs. We give part of Mr. Thomson's argument as against the revived use of the Gothic style of architecture:—

The Gothic revivalists are fond of catching hold of people by their prejudices. They say that theirs is the national style, and this assertion has come to be admitted almost generally. Yet nobody seems to understand exactly what it means. It certainly had not a national origin; and, although it was practised in this country for some centuries, and assumed national and local peculiarities, the same may be claimed for the Classic styles. But they tell us that it suits the national taste. Now this argument, if it is worth anything at all, might be advanced after it had been proved that Gothic is the best style, otherwise it is no compliment to the nation. We are next told that it is the Christian style, and, strange to say, this most impudent assertion has also been accepted as sound doctrine, even by earnest and intelligent Protestants; whereas it ought only to have force with those who believe that Christian truth attained its purest and almost spiritual development at the period when this style of architecture constituted its corporeal frame. The claims put forth in favour of this style are so multifarious, and the practice of its disciples so conflicting, that it is difficult to get hold of the essential points,—like some of the lower forms of animal existence to which nature has not supplied either the power of defence or the means of escape, but, in lieu of these, has so distributed their vitality, that, when their heads are chopped off, they do not seem to miss them; and as for hearts, they have none. Ever and anon we are called on to admire the constructive skill displayed by our ancient builders. The principle of the arch in its various applications, and the means employed to control the law of gravity in its different directions, are expatiated on as altogether marvellous. Now, all this is consistent with fact, and yet the whole is founded upon an egregious error. Can anything be more absurd than to rear a fabric with the very agents of destruction? Every stone in an arch is a wedge, and every stone upon it is a hammer, slowly, it may be, but surely, driving those wedges home. All the parts in Gothic architecture seem to aspire at standing upon end. Great height and extreme inequality of height, with high-pitched roofs, are its most striking characteristics. The result of all this is, that the inequality of height produces inequality of subsidence in the walls and foundations. The high roof, presenting a great extent of surface to the wind, communicates a vibratory motion to the walls. These roofs are either vaulted with stone, or constructed of timber; but in neither case do they contain within themselves any provision against their natural tendency to thrust out the walls. This is met by the altogether external opposing power of buttresses, at an enormous cost of material; for a modern engineer would, for the same purpose, make a pound of wire go as far as a ton of stone. But perhaps this violent conflict of forces may account in some measure for the favour which the style has obtained with a fighting people like ourselves. Then there are no projecting cornices to protect the walls from rain. In the older buildings there is not even any contrivance for conducting the water from the roofs to the ground; it is merely spouted from the gargoyles in concentrated streams, which the wind blows into the walls. It follows that the water, penetrating the stone and finding its way into the joints, is expanded by the irresistible power of frost. There is not a hair's breadth of motion produced by any or all of these agencies but is inevitably taken advantage of by the ever-vigilant hammer-and-wedge principle of construction. The walls are split by the arches, or thrown off the perpendicular by the thrust of the roofs; and, even should the lofty spire fail to attract a demolishing thunderbolt, sooner or later, in spite of all the opposing power of standing and flying buttresses and counterposing pinnacles, the whole thing finds its way back to the ground from whence it sprang. There can be no doubt of the fact that the introduction of the arch into architecture has strewed Europe with ruins; whilst in Egypt and Greece, except where deliberately injured or destroyed, we have lintelled structures which have stood the test of thousands of years without showing an open joint or any other symptom of decay further than natural disintegration. The simple unsophisticated stone lintel contains every element of strength which is to be found in the most ingeniously contrived girder; so that Stonehenge is really more scientifically constructed than York Minster. There are many more fallacies in connexion with this subject which might be easily exposed, but I go on to consider the artistic merits of the style. In order to the proper understanding of its peculiar characteristics it may be of service to inquire into the principles exhibited in other styles of architecture and in the appearances of nature. There are two classes of objects in nature which, while merging into each other at the middle, are very distinct at the extremes, and which for want of more definite terms may be designated as forms and effects. The first includes the whole animal kingdom and a portion of the vegetable, such as leaves, flowers, and the like. The second includes trees, rocks, hills, clouds, and landscape in general, and there is more or less beauty in all. In the first class we have certain typical forms of which all other forms are varieties. By means of a mental faculty common to us all we have no difficulty in discriminating between inferior and superior forms, and according as we cultivate this faculty we are enabled to determine which are the most perfect. These again suggest the ideal, that is, the highest order of beauty which the imagination can conceive. The distinctive characteristics of the higher class of animal forms are that each is symmetrical as a whole, and that all its parts are symmetrical, and that all its parts bear some precise proportion to each other and to the whole. The second class of objects embrace irregular forms, such as trees, rocks, and hills, or combinations of these with effects of colour and light and shade. These constitute what is termed the picturesque, but although this class is in itself a source of much pure delight, it is manifestly inferior, in so far as it wants the ideal quality, while the first contains both. The greater comprehends the less. The higher classes of animals, from the perfect mechanism of their structure, are capable of the most diverse and graceful motions; and their members, though few, may be disposed in an almost endless variety of combinations. This is the case even with single individuals, but much more so in groups. Some people imagine that the rules of architecture are arbitrary, that they have been invented by certain pedantic people in olden times, and that it becomes men of an independent turn of mind to set them at nought; but the fact is, that the laws which govern the universe, whether æsthetical or physical, are the same which govern architecture. We do not contrive rules—we discover laws. There is such a thing as architectural truth. One man may make an endeavour to embody an idea in form; and another, recognising his intention, may take it up and disencumber it so far of extraneous matter. A third may purify it still further, and so on from generation to generation, until, purged of every particle of useless material, and adjusted in all its portions, it becomes for all time a typical form—a perfectly realised idea. In like manner, certain combinations of forms and lines are felt to be harmonious by all who have sufficiently cultivated their minds in this branch of art, and any alteration of those forms or those combinations is regarded as a departure from the truth. These are characteristic of the ideal styles of architecture, as we see them gradually developed in the noble series beginning with the dawn of the human intellect, and diffused over distant parts of the world,—in Central America, India, Syria, Egypt, and reaching its climax on the Acropolis of Athens, in conjunction with, and as one of the most splendid and most enduring exponents of that race which raised human attainment in almost every department to a degree of excellence which has been the envy and admiration of all succeeding ages. Although the lineage of Gothic architecture may be traced through various stages back to the Greek, yet it is of all styles the most opposite to Greek architecture; and the most opposite of all is the English-Gothic, which, as it was practised in the fourteenth century, had lost nearly every

trace of classic tradition. After the extinction of the Roman power in the north of Europe, civilisation and learning sank to a very low ebb; but by-and-by affairs became more settled—tribes were grouped together into powerful kingdoms, and energies which had hitherto been almost exclusively devoted to the sports of the field and to warfare, now sought and found other channels; the influence of the Church began to be felt, and places of worship came into demand. There was not much art visible in the remains of Roman architecture in these later times, but, such as it was, it served as a starting-point, and, partly aided by a few notions imported from the East, these "awful fathers of mankind" took to shaping their thoughts in timber and stone in the best way they could. They were by no means hampered with knowledge, as we are; their shelves were not groaning under the weight of books about everything as ours do; but they had the powers of imagination in great vigour, and they could not choose but receive impressions from the scenes amid which they moved. The material for making silk purses was evidently awanting here, and so the product was, as might have been expected, somewhat rough and homespun. The Gothic, in its earlier forms, seems to embody the spirit of the woods—not the outward semblance, as some say, but the habit and the character. Everything seems to grow; a kind of forest life pervades the old grey piles—buttresses terminating in unambitious pinnacles, which look as if the principle of growth had only paused for a time; sturdy mullions, gnawed by the tooth of time, but still vigorous, spreading out or interlocking their branching limbs to bear up the superincumbent arch, but without the least appearance of effort, as if habit had made the labour light. If we pass the deeply-recessed doorway, with its alternate shafts and mouldings, and enter the interior, we see the same unrestrained freedom about all its parts, the same look of staid animation, as if it had taken a long while to grow, but might grow a long while yet. Still, forest-like, it reminds us of stately trunks and over-arching branches—of sunny glades and gloomy recesses. The light streaming through the stained glass is suggestive of leaves and flowers, while the gloom is associated with lurking terrors of wolves and hob-goblins. The eye falls here and there upon strange, root-like combinations of crooked limbs, presenting a preponderance of knees and elbows, with grotesque faces distorted with pain or grinning with hideous laughter. The style is essentially romantic and picturesque—rather pleasing than instructive, rather interesting than excellent. While it is allied more to the landscape than to the figure department of art, it lacks the perfect freedom of the landscape; stone and lime are not so pliable as colour on the canvas. On the other hand, it lacks the highest qualities which are to be found in figure-painting or in sculpture. The principle of design is not that which we see in the superior orders of the animal kingdom, where every limb and feature is not only symmetrical in its own form and proportions, but stands also in harmonious relation to every other part and to the whole. The ideal element is nearly or altogether absent; in the minor features there is no attempt to ascertain and fix the true symmetrical proportions of any typical form, but instead of this the tendency is to run into numerous imperfect varieties. Nor is there any very decided approach to fixed harmonies in composition; as the forms may be longer or shorter, broader or narrower, so the masses and spaces may be greater or less without appearing to be inconsistent. The principle of design is somewhat akin to that which is observed in trees and such like forms, but limited in its application by the demands of utility, and the nature of the materials employed; it does not seem to stand upon the earth, but to spring out of it. We have the effect of trunks and branches in the mullions and traceries of windows, and in the piers and vault ribs of the interior. In good Gothic the detail multiplies as it ascends, and one part seems to grow out of another. It resembles the lower forms of nature also in seeking for diversity rather than in aiming at unity. This principle can be carried out only by the sacrifice of the higher manifestations of truth and beauty: in order to conceal the crudeness of one form others are brought in to distract the attention, and by way of compensation for harmonious combination the element of variety is introduced. In some cases every bay or compartment has something peculiar in its treatment, which demands our notice on its own account. It will also be observed that these old builders did not feel themselves under any obligation to make similar things exactly alike. The individual workmen seem to have been allowed considerable latitude, and introduced more or less slight variations into features which we would expect to find the same, such as occasionally making buttresses of unequal height and projection, chamfering some and leaving others square, placing openings a little off the centre line of the spaces in which they occur, breaking the continuity of lines, and doing many other capricious things which, although in all probability mere accidents, do at the same time serve to interest us, partly because we are puzzled to account for them, but also, whether intended or not, they serve to give intricacy to the design. Moreover, the eye, taking in several objects nearly alike but yet not the same, and the various figures overlapping, mixing, and uniting in one on the field of perception, give a softness of outline which they would not otherwise have. Then, there is the element of irregularity of plan and outline; towers, spires, and pinnacles break the general mass upwards; porches and other accessories lead the line downwards to unite it with the ground. Some of these adjuncts project considerably from the general plan, and serve the purpose of foreground masses to the rest. By all these contrivances and accidents an impression of multitudinousness and incomprehensibility is conveyed to the mind. Our own cathedral was completely deprived of this effect by the removal of the western tower and the consistory-house, and from the unusually small projection of the transept, the view from the south is now extremely tame as compared to what it was formerly, and the apparent size of the edifice very much curtailed. But Gothic architecture does not express greatness; it is only grand where it is actually of large dimensions. Small Gothic buildings are not impressive unless begrimed with dirt, or in a dangerous state of dilapidation. Indeed, these last-mentioned qualities have a great deal to do with the romantic interest which we associate with old Gothic structures. The effect of breadth produced by blackness, and the softening influences of decay, cover many of the defects inherent in the style. Suppose Alloway Kirk to have been put into a tidy state of repair, and painted in fresh stone colour, Tam O'Shanter and his grey mare Meg would have passed it without a thought of ghaists or witches. So would it be with any moderately-sized Gothic erection. An illustration of what I have stated may be seen in the portions of Glasgow Cathedral which have been restored; for although the new stone was carefully blackened to the tone of the old, no means were used to soften the angles, and so the whole of the west front is most painfully hard and forbidding, and appears in very striking contrast to the scarred and weather-worn aspect of the old work. But while the forms and combinations hitherto used in Gothic architecture belong to an inferior order, it is evident from the nature of the style that they must ever remain so. This will readily be seen when it is considered that the shape of the openings constitutes the main object in the system, to the total subjection of the solid parts. These openings consist of certain geometrical perforations in the walls, intricate and curious enough in their various combinations, but utterly incapable of the delicate refinements with which solid forms may be treated. The patterns of the windows being either strong black or white, according as they are looked at from without or within, any attempt to modify the solid parts would at once be detected. They are, therefore, mere parallel spaces of wall between the windows, or as tracery, mere lines of uniform breadth separating the different shapes from each other. Then the extreme definiteness of these shapes, and the strong black or white in which they appear, calls for equally strong mouldings to correspond, also necessarily composed of the more common geometric forms—ropes and fillets brought out in striking relief by deep ruts emulating the blackness of the windows. There is an inveterate tendency in detail of this indifferent sort to become redundant, for, as I have already stated, the readiest way of distracting the attention from the defects of one crude form is to place two or three cruder forms beside it. If we compare a Gothic flank with a colonnade, it will be observed that there is a most essential difference between the two things in the principles upon which they are designed. In the Gothic the element of height is chiefly developed or suggested; every particular bay is framed off from its neighbour by buttresses, and requires to be examined by itself. The articulation of its parts leads the eye upwards over the parapet to survey a desert of slates or some other mean kind of roofing, and down again to the earth. The perceptive faculty thus gathers a number of separate impressions as it goes from bay to bay, the mixture of which leaves an undefined and more or less confused general impression on the mind, the effort to unravel and arrange which is to many people a pleasing exercise of the imagination. But the element of height is confined within the moderate limits of practical construction and usefulness, so that the Gothic is altogether unsuitable for buildings of great extent, because when it assumes the horizontal form its different parts cease to have any apparent relationship to each other, and become more like a little town than a great building. In a colonnade or façade, the element of length is developed or suggested, and it will be readily perceived that there is no single building or combination of buildings, however great in extent, to which this element does not apply, and which with proper treatment would not be enhanced in dignity in proportion as it is prolonged. I may refer to the magnificent architectural compositions of the late John Martin in illustration of this. A comprehensible number of columns are arranged in a compartment, then a feature projecting outwards and upwards is introduced; the columns are continued through and beyond it to the next feature of the same kind; these are repeated as often as they can be comprehended, and a feature still larger is brought in, to be repeated at greater intervals; and so on almost indefinitely; the columns are connected by their stylobates below and their entablatures above; while the other features are united by terraces,—the whole producing an effect of surpassing grandeur. All who have studied works of art must have been struck by the mysterious power of the horizontal element in carrying the mind away into space, and into speculations upon infinity. The pictures of Turner and of Roberts afford frequent examples of this. The expanding effect which is thus produced upon the mind cannot be overrated. Perhaps there is no more decisive test of the general inferiority and want of refinement in Gothic architecture than the character of the painting and sculpture which has grown out of it. There is not a scrap or fragment of either of these arts, produced before the revival of classic art, that would for a moment be tolerated in a gallery where painting and sculpture were being exhibited for their artistic merits; and not only so, but the very nature of the style excludes alike beauty of form, delicacy of manipulation, and repose in composition,—the soft effect of flesh, the almost imperceptible dimplings of surface, and the perfectly free and harmonious combinations of all sorts of delicately-curved lines which are inseparable from good sculpture or painting, are altogether out of place amidst the sharply-defined geometrical shapes, the strongly-contrasted lights and shadows, the harsh, vulgar, reedy forms, and the inveterate perpendicularity of Gothic architecture. Every genuine style of architecture has carried its sculpture and painting along with it, not as sister arts, as we are in the habit of calling them, but as proper component elements essential to the completeness of every important monumental edifice. In the Egyptian architecture and in the sculpture we see the same look of repose—the same indifference to the passing events of the world's history—an expression of quiet waiting till all the bustle is over—till time shall be no more—when they shall enter upon a new and never-ending existence with the revived forms of that race whose genius called them into being, and whose civilization seems to us more like the close of the antediluvian period, when men lived a thousand years, and could afford time to do things well, rather than the beginning of the present paltry system of hurry-scurry, sham, and subterfuge. In modern Italian architecture we see a similarly intimate relationship to its sculpture; its loose composition, its gross mouldings, and its barrel-bulged columns, are fitly associated with corpulent cherubs, with festoons of such rounded and blown-out forms as apples and pears, and with tangled and weedy spandrils. The Greek is the only style of architecture which harmonizes with the highest style of sculpture and painting. The Theseus, the Illissus, the head of the Horse of Night, and the unrivalled frieze with the metopes which form the principal part of the Elgin Marbles, all belonged to the Parthenon. And the head of Jupiter, and that torso so much admired by

Michelangelo, might have also belonged to it; and yet no one can say that the architecture is in the least degree inferior to these noblest of works. But suppose them placed upon a building of any other style whatever, either they or the architecture would be lost sight of, as the one cannot combine with the other. This may be observed in the painted windows of our Cathedral, where the pictorial subjects are composed with all the skill of the German school of art. The same freedom which is usually observed in good historical pictures is adopted in the disposition of forms and colours, without any regard to the direction of the architectural currents; and from the fact that the walls are in shadow, and the light in general much subdued, the windows have the best of the strife, and the venerable cathedral has modestly retired from the field. The incongruity produced by the combination of artistic groups of sculpture with Gothic architecture is very markedly illustrated in Mr. Scott's design for the Albert National Memorial, and even the groups of figures introduced for effect into the large perspective drawing of the principal front of the new buildings for our University appear to belong to a style of art totally different from that of the architectural part of the subject. But perhaps one of the most shameless of all the claims advanced in favour of the use of Gothic architecture is its flexibility; that it is not tied down by rules, but admits of the greatest latitude; and this promiscuousness is dignified by the name of freedom. This is the argument which has been employed by loose characters in all ages to excuse their conduct. They prefer the laxity and regardlessness of publicans and sinners, to the prudent, cautious self-control which regulates the conduct of the wise and the good. I have gone somewhat more fully into the merits of the old Gothic than I at first intended; it is necessary, nevertheless, to turn for a little to modern Gothic, and inquire into its condition and prospects. The circumstances amidst which the old Gothic came into existence, and the system upon which it was carried on, were altogether different from ours. Although there must have been in all cases some directing mind and some general plan, it has not been established that there was any class of men devoted to the study of architecture as a separate profession. A great deal seems to have been left to the workmen, and to this fact we may trace many of the characteristics of the style. The minds of these men were not disciplined and refined by education; the literature of art, if there was any, must have been very scant; and it is evident that their knowledge was not very precise. They had "little Latin and less Greek" to look to, and so they had to express their thoughts and purposes in the best way they could. If we take our stand upon the Acropolis of Athens, from whence has come nearly all that we know of art in all its branches, we may see and comprehend the whole process of architectural development from beginning to end. From that eminence we look down into the obscurity of the Dark Ages, and see a noble struggle going on; we notice with intense interest the strength, the agility, and the earnestness with which these men climb towards the light, and most heartily award to them the highest meed of praise; but just in proportion as we admire the genuine Goth and the degree of progress to which he attained, so do we regret the retrograde movement which has been going on for the last thirty or forty years. It is not necessary to trace the history of this movement. It has been called the Mediæval revival; but with about as much truth as if we were to say that the Portland-cement models of Professor Owen at Sydenham are the commencement of a pre-Adamic revival. The spirit and the circumstances which produced Gothic art have passed away, and can never be revived. Men cannot divest themselves of civilization and knowledge even if they would. Ruskin says that good Gothic must have something wolfish in it. This is not the character of modern Gothic. We have no wolfish turns to serve, and therefore it is perfectly tame and subdued in its nature and aspect. We miss in it the rude vigorous life, the spontaneity, the artlessness, the wild revelry of invention, the heedlessness of rules, the interesting accidents, the sober colour, the softness of dilapidation, and the terrible bulging and splitting of the walls—these qualities are quite inimitable, and inadmissible by modern society, and in our orderly ways of planning, measuring, and estimating. Your Gothic architect nevertheless affects it as much as possible. He cannot be bothered with correct drawing; indeed, it does not suit him. He cannot himself tolerate, far less dare he venture before the public with a design in architectural lines merely. He feels, without knowing it, the poverty of his style, and in order to conceal this from himself and others, he draws his design for a new building in the clever dashing manner which he has acquired in making up his stock-in-trade by sketching amongst the grim and mouldering remains of the Middle Ages. His lines are neither straight, continuous, nor of equal thickness, but jerked, intermittent, and blotchy. He adds to the architectural lines those of the masonry, and, by a mode of hatching the individual blocks with a pen, produced by an alternate up-and-down and side-to-side motion of the hand, he gives a good imitation of canted stones in an advanced state of decay. The windows and other recesses are shaded in the same manner with a towsy blackness resembling matted tufts of coarse hair. He writes the titles on his plans in unintelligible old English characters, and his work seems a perfect realization of his own dreams and those of his ecclesiological patrons, and eagerly the order is given for the building to be proceeded with; but it rises from the ground trim, straight, and clean shaven; for although he has done his best to maintain the deception by rough-dressing the stones, and leaving the needful lime out of the joints, still, after every trick has been tried, the result is disappointment, and by-and-by the thing is pronounced to be another failure; in a year or two dirty streaks resembling shadows appear where shadows are not wanted, and to people of tidy habits this is quite abominable. Those who love the effect of dilapidation in old buildings detest it in the new, and soluble silicate or vulgar paint is resorted to to prevent the softening influences of disintegration and discoloration, which gives the building a still more hard and determined expression than it presented at the beginning. In this way important buildings are begun and finished, and fabulous sums of money spent in costly materials and mere workmen's wages, under the delusion that a great work is being accomplished. But when we have comprehended the plot, and marked the leading peculiarities in the detail, the interest fades away like that produced by the last popular novel; and the reason is obvious—ingenuity of arrangement, variety of detail, costly material, and the labour of mere workmen, do not constitute art—do not produce that kind of beauty which "is a joy for ever." Notwithstanding the general favour which has been bestowed upon this movement, and the splendid opportunities which have been afforded to it, we look in vain for any building of enduring interest in the style. While the Roman revival, beginning with Inigo Jones, and followed by Christopher Wren, Vanbrugh, Gibb, Chambers, and others, has given us many worthy structures, and the Greek revival has given us the Edinburgh High School and St. George's Hall, Liverpool—unquestionably the two finest buildings in the kingdom—there is not a modern Gothic building of more than ten years' standing that any one cares a straw about. The New Palace of Westminster compares very disadvantageously with Somerset House; and Donaldson's Hospital, Edinburgh, of which great things were expected, fails to excite even a passing remark; while the High School, the fragments of the National Monument, Dugald Stewart's Monument, the Surgeons' Hall, and the Institution on the Mound, continue to illuminate their respective localities with the light of truth and beauty, giving to our Northern Metropolis an air of refinement which no other city in the kingdom possesses. It is worthy of remark, that on the Continent, where art is more generally appreciated than with us, the Gothic movement has failed to establish itself in the favour of the public; and although it has prevailed now for many years in this country, and its promoters are generally pretty well read up in its details, yet it has made no real progress, and never can. If, on the one hand, it is made more picturesque, it becomes grotesque; if, on the other, it is made more orderly, it comes into competition with the Greek, against which it has not the shadow of a chance. Modern Gothic was introduced mainly by the aid of literary men, and written into fashion. We have seen all the phases and periods of it follow each other in rapid succession, ever changing, but never advancing; and it is evident that this cannot last much longer. In making architecture a fashion, it ceases to be an art; and like all other fashions which have come in, it will in due course go out, and be as much despised as it was formerly esteemed. I have thus endeavoured to point out the peculiarities of Gothic architecture. I have admitted its merits, and the interest which, for various reasons, attaches to it. And I have also shown that it is not associated with learning in any way; that it is not national; that the Christianity which it expresses was not of the purest type; that it is founded upon erroneous principles of construction; that it was the product of uneducated men, and that it does not teach us the higher principles of architectural art; that it is inconsistent with the best examples of sculpture and painting. And I hold that, for these reasons, it is most unfit to express the character and purposes of the University—an institution the object of which is to instil into the youthful mind a knowledge of the principles and laws by which all things exist and are governed—where the greatest and best examples of human attainments are exhibited and explained, and where habits of mental discipline and refinement are expected to be formed.

[After an elaborate criticism of Mr. Scott's designs for the University buildings, the lecturer concluded thus:—]

Some people who are naturally of a mild and amiable turn, and others who lack the power to discriminate, seek to quash discussion upon these subjects, and assuming an air of wise moderation, tell us that there are beauties in all styles. Now, it does not require any great effort of mental power to arrive at this very plain truth. Indeed, I suppose that the most vehement upholder of any particular style will readily admit that there is more or less beauty in every other style; but this is no reason why he should bury the hatchet, and fraternize with his opponents: the subject in dispute is as to which style is the best. We are bound by an imperative law of our nature, not merely to distinguish truth from error, but to aspire to the apprehension of the highest forms of truth, and realize them in practice. We are told that, if we take a broad view of things, we shall see beauties in all styles; but if, after having done so, we look more narrowly into things, we shall see further that there is a great difference in the amount and degree of beauty exhibited in different styles,—and just in proportion to our knowledge and sincerity, will we firmly maintain and zealously propagate the opinions which may be forced upon us by conviction. It would be difficult to conceive of any case in which a judicious decision as to the proper style was more urgently called for than in the present. The importance of having the mind stored with correct images cannot be too much insisted upon. It lies at the foundation of our ability to understand language. The impressions formed in youth stick to us through life, and those whose business it is to sow and plant in the fresh soil of young hearts, are under a heavy responsibility as to the quality of the fruit which may be gathered in mature years.

I know that it is in vain to fight with fashion. Crinoline has withstood with equal determination the attacks of reason and of ridicule, and I do not expect that my arguments will be productive of any good results in the present instance, and certainly it is not my wish that they should do any harm to the interests of the University. The Professors believe that these plans, if carried out, will form a new era in the architecture of Scotland. I have a hope, founded upon the good sense of my countrymen, that this anticipation may be fulfilled,—that men's minds may be opened to the absurdity of being bound by any considerations apart from those of truth,—that they will discard all sentimental revivals and look to their architects for a style which shall not only satisfy the wants of the present age, but create new and higher desires,—a style that shall tax the resources of the skilled workman, and sympathize with the highest attainments of the artist; and if the demand be steadily persisted in, it will sooner or later be complied with. When we look at the endless variety of forms and proportions which beauty assumes in the works of nature,—when we consider the attainments of the present generation of men in the various fields of discovery,—it is evident that our want of progress in architecture can neither be attributable to the exhaustion of the field, nor of our power to work it. The fact is, that we have been for the most part trying to adapt the old garments of our predecessors to our new wants, or we have been looking for fragments of ore amongst the débris of the old workings, and as the heaps have been often and

again turned over, the finds are very small and occur but seldom. But if we take up the lamp of reason, and boldly enter the mine, resolved to search diligently and to persevere courageously, we shall not fail to strike again the vein of truth, and with the many advantages which we possess over all the old workers, we ought to show a correspondingly abundant yield. The races of men which have developed architectural styles hitherto, have laboured within comparatively restricted spheres. But the zeal of modern delineators and photographers has enabled us to gather together examples of the achievements of all who have gone before us; so that we may sit by our firesides and quietly analyze them, marking their constituent elements, watching the gradual expansion of principles, and tracing the relation of different styles and varieties to each other. We have also the productions of the pencil and the chisel brought under our notice in the same convenient form. And, beyond these, we have the wide world of nature spread out before us. What a glorious prospect opens to our view,—and how is the vision to be realized. We have hitherto looked at the outsides of things,—we have collected and brought together their cold hard forms, unmitigated and unchanged, into mere incoherent juxtaposition; and no wonder that the result has been unsatisfactory. But if ever success is to be attained, we must look upon all that has been accomplished in art, and all that we see in nature, as so much raw material. We must throw our knowledge into the crucible to be transmuted by thought into new forms. Even the best of the old or existing forms are unfit for use until they are thus born again into a new life. He who made us after His own image endowed us with a creative faculty, and our using or abusing of that talent cannot be matter of indifference to Him. The pagan Phidias placed his wonderful frieze of the Parthenon at the top of the wall of the cella, almost concealed from view by the columns and entablature of the peristyle, and the back of the Ilissus, which Canova and Flaxman pronounced to be one of the greatest marvels of the sculptor's art, was turned towards the tympanum, never to be seen by man from the time that the figure was set up there under the eye of the artist, until it was taken down again under the eye of Lord Elgin. And it may be asked, "why this waste?"—The answer is that Phidias believed that the gods knew all things. And when we exhibit the like faith, the like success will follow. I know the difficulties which bar the way to excellence in this branch of art, and that if we would secure a needful share of the husks which the swine do eat, we must submit to have our brightest visions blurred and disfigured. But if we qualify ourselves with proper care, and endeavour humbly and faithfully to fulfil our mission, by the help of a sympathetic client now and then, we may be permitted to do some little towards the inauguration of a better state of things.

THE WATER SUPPLY OF PARIS.

INSTITUTION OF CIVIL ENGINEERS.

ON May 8, Mr. John Fowler, President, in the chair; the paper read was "On the Water Supply of the City of Paris," by Mr. G. R. Burnell.

This communication was principally confined to the methods adopted for securing the quantity of water required, and for its distribution and delivery; and was founded upon information obtained from M. Belgrand, the engineer-in-chief, as well as from numerous official documents.

It appeared that when this subject was first seriously entertained by the municipality of the enlarged city, in the year 1860, the population of Paris amounted to upwards of 1,600,000, and the quantity of water available from various sources was only 32,563,028 gallons per day, or rather more than 20 gallons per head per diem; but a large portion of this was used for municipal purposes, and nearly the whole of it was objectionable in quality. A careful study of the Paris basin, with a view to ascertain its capacity for furnishing a water supply, as dependent upon the geological conditions of the district and upon its meteorology, that had been carried on since the year 1844, showed that the basin of the Seine was formed of a part of the granite eruption of the Morvan, succeeded by the Jurassic deposits, without the intervention of the old and new red sandstones, or any trace of the carboniferous formation; the Jurassic deposits being in their turn followed by the cretaceous formations, and the whole being covered with the tertiary strata around Paris itself. It was remarked that French engineers and chemists attached great importance to the presence of the bi-carbonate of lime in water for drinking purposes; and that they held that a proportion of that salt, about sufficient to produce 16° of Dr. Clark's scale of hardness, was positively beneficial. Accordingly, in selecting the source, M. Belgrand gave the preference to the waters that filtered through the calcareous formations that outcropped around the granite. The waters of the Dhuis and of the Surmellin were brought to Paris, from the plains of Champagne, by an aqueduct, along which they flowed by gravitation, reaching the city at a somewhat higher level than had been calculated upon. The authorities had also purchased the right to take a considerable quantity of water from the River Marne, at St. Maur, above its junction with the Seine; while the waters of the Somme Soude had been at present passed over, and were left for the future extension of the works.

The springs of the Dhuis had yielded, in the driest season of the last twenty-one years, 6,698,400 gallons per day, and those of the Surmellin from 450,000 to 670,000 gallons per day. It was, however, believed that, by a series of operations connected with the drainage of the head lands surrounding these springs, the quantity from both these sources might be increased to 9,000,000 gallons per day, even during periods of prolonged drought. These streams after being united were led to Paris, in an aqueduct of masonry, that was never less than 4 ft. 6 in. high, and was at times increased to 5 ft. It was carried on arches in those positions where the depressions of the valleys did not exceed 33 ft., and where greater, a cast-iron syphon, 3 ft. 4 in. or 3 ft. 8 in. internal diameter, was substituted. The section of the aqueduct was in general ovoidal, but in places the sides had a curvilinear batter, according to the nature of the strata traversed. Its inclination was as a rule $\frac{1}{2000}$, but that of the syphons was $\frac{5.5}{1.0000}$, in order to accelerate the discharge through them. It was calculated to deliver 9,810,476 gallons per day, when running to within 1 foot of the crown of the arch, into the reservoirs lately built at Menilmontant, at a height of 301 feet above the level of the Seine. The materials employed in the execution of the masonry were "pierre meulière" set in the cement of Vassy; the whole of the interior and of the outside of the arches being "rendered," to avoid interference with the flow from the roughness of the surface, and to prevent the infiltration of the land waters.

The quantity of water obtained from the river Marne, at St. Maur, was about 9,000,000 gallons per day, when all the water-wheels were at work. This was pumped into a second story of the reservoir of Menilmontant, at a height of 287 ft. 7 in. above the Seine. This water was tolerably pure and limpid, but it was rather hard, containing a considerable proportion of bicarbonate of lime, in conjunction with a sensible quantity of the carbonate of magnesia.

From the several sources which had been described, it was believed that a supply of 15 million gallons per day would be obtained in the course of this year, or, together with the existing supply, a total of upwards of 47 million gallons per day for a population of 1,667,841.

On the left bank of the Seine there had recently been purchased a series of springs rising from the chalk formation at Armentières, in the valley of the Vanne, and their volume would be increased by the springs of Chigy, St. Philbert, Malhortie, Theil, Noe, &c. These waters would be led to Paris by an aqueduct, 104 miles in length, and it was calculated that the quantity that would be so delivered would be equal to 22,328,000 gallons per day. When all the works for improving the water-supply were completed, including the supply derived from the Marne, the Canal de l'Ourc and its increase, the artesian wells about to be sunk in various parts of the city, &c., it was estimated that there would be a gross total of 105,388,160 gallons per day, a quantity more than ample for a much larger population than that of Paris was likely to become. But it must be borne in mind that the waters of the Canal de l'Ourc would still constitute more than one-half the whole quantity, and as this canal was navigable, it was exposed to various sources of impurity. In future two sets of pipes were to be established; one to supply spring-water from the Dhuis, the Marne, and the Vanne, the other to supply the waters of the Ourc and the Seine for the service of the street washing, for the monumental fountains, and for other purposes of the municipality. The water now taken from the Seine was distributed with all the impurities it might contract during either seasons of flood or of drought. An inconsiderable quantity was filtered, in the interior of the town, at the "fontaines marchandes," but the revenue derived from this was equal to about one-seventh of the total sum received for the sale of water in the course of last year.

Fourteen reservoirs were at present in use, of which four were reserved for the waters of the Ourc, nine for those of the Seine, and one for those of the aqueduct of Arceuil. Of these the last and two which now distributed the waters of the Seine were to be abandoned on the completion of the new works. The reservoirs at Menilmontant, and at the telegraph of Belleville, lately constructed, were intended to receive the waters of the Dhuis and of the Marne; and they were calculated to contain together, in the two stories of arches of which they were composed, about 29½ million gallons. The cubical contents of the existing reservoirs, without including that of the Basin de la Vilette, at the extremity of the Canal de l'Ourc, amounted to nearly 23 million gallons. A description was then given of the reservoirs of Passy and of Menilmontant; and with regard to the former it was remarked, that all the skill and attention of the French engineers had been employed in vain, in the attempt to prevent the action of atmospheric causes upon the masonry, which had given serious grounds for uneasiness, owing to the contraction and expansion of the masonry. It might be that the perfection of the setting of the cement upon the masonry had something to do with this effect, for it could not yield, like an elastic substance, such as mortar of the proper quality of hydraulic lime. In the construction of the reservoir at Menilmontant, the surface of the excavation in the gypseous marls, which were hard when originally cut, but which yielded under the influence of the atmosphere, had been "rendered" with a coating of plaster of Paris 1½ in. or 2 in. in thickness. This had been found to be an efficient temporary protection from disintegration, under the effects of rain and of frosts.

The appliances for securing the effectual distribution of the water brought into Paris, and the quantities required for the different services, were then detailed; and it was stated that the authorities undertook to deliver, when all the works were completed, gratuitously to the citizens a total quantity of 54,000,000 gallons per day. The execution of the works required for the distribution of the water to private houses and factories has been undertaken by a company, under an agreement with the town, for fifty years, during which time it was to collect the water-rates; and at the expiration of that period the whole of the estate was to become the property of the city. The profit arising from the execution of these works, at a fixed schedule of prices, and a sum agreed upon as a remuneration for the risk and trouble undertaken by the company, were the first charges upon the revenue, and the excess beyond these amounts was shared in the proportion of 75 per cent. to the town and 25 per cent. to the company. In this way it had been estimated, by M. Belgrand, that during the year 1863 17,000,000 gallons of water had been delivered. The receipts for the private supply in 1864 amounted to 3,822,760 francs, from 23,074 subscribers, a number which, it was calculated, would be increased by 2,000 in twelve months. Considering that there were upwards of 50,000 houses in Paris, this might be cited as a proof, if such were wanting, of the bad effects that must always attend the gratuitous supply of water upon the habits of daily life of the citizens. It might be added, that the price charged to the water-carriers at the filtering fountains was 9d. for 230 gallons, and this quantity was retailed for 4s. This increase in the price was one of the principal reasons brought forward to justify the great outlay incurred in leading to Paris the spring water from the Dhuis and the Vanne.

In conclusion, the author thought, upon a review of all the conditions of the Paris water supply, that it must be regarded as a commercial failure; for while the town paid 2,060,000 francs for salaries and repairs, it derived only 4,750,000 francs from every source of revenue, including interest and sinking-fund. It might, however, fairly admit of doubt, whether the system had been a failure, if considered as a

means of meeting the wants of the inhabitants, who were themselves too poor to pay the rates that would be required to defray the expense of conducting the water to their houses. But the system was believed to be wrong, inasmuch as it entailed upon the city a heavy burthen for the water supply, which no one had a direct interest in checking, because it was paid for out of the town dues, instead of being made a separate charge upon the funds of the city.

RAILWAY MATTERS.

THE question of noise from trains passing along the metropolitan railway bridges crossing streets, which has been so much complained of, was raised in a conversation lately between Mr. Scholefield, the chairman of one of the House of Commons railway committees, and Mr. Hawkshaw. Mr. Hawkshaw gave it as his opinion that this excessive noise was mainly due to the construction of these bridges entirely of iron. He stated that this construction was insisted on by all the parochial authorities, but that if these bodies would allow the bridges to be made of brick or stone, as formerly, the noise caused by passing trains would be very little, and, indeed, with proper precautions, might be almost entirely obviated.

The increasing traffic through Crewe station having rendered it necessary that more extensive accommodation, both for passengers and goods, should be provided, the London and North-Western Railway Company are erecting a new station. The building operations were commenced in May, 1865, Mr. Parnell, of Rugby, being the contractor. The buildings will be on the south side of the Nantwich-road bridge, and the access for passengers will be on both sides by means of stone steps; one near the Crewe Arms Hotel, and the other on the opposite side of the bridge. The total length, including the platform, will be about 300 yards, and the length of the buildings about 70 yards. It is built on the same plan as the present station. There is every requisite convenience provided.

At Stokebridge, Ipswich, a new goods station has been opened. The new station, extending to Stokebridge, fills up the space between the Commercial-road and the river, with a net-work of lines for making up trains. Next Commercial-road is a large goods shed some 70 yards long by 12 or 13 yards wide, and on the side next the river goods are received, whilst they are delivered on that next the road; there is also a spacious grain shed. Down the centre of the station-yard runs a road-way paved with iron pavement, and from the lines on either side of this trucks deliver into carts and waggons. At the Stokebridge entrance to the station are two new weigh-bridges. The offices, divided into a receipt, a delivery, and a general office, are placed between the goods and the grain sheds.

ACCIDENTS.

THE Phœnix Gas Company are having built for them, on their premises at Vauxhall, a new retort-house, of considerable size. The walls of this building enclose a space of about 300 ft. in length by about 80 ft. in breadth, and, having been raised to the required height, some 60 ft., the skeleton of the roof, composed entirely of iron, was placed upon and tied into the brick-work. The men engaged on the building went off to dinner, and a few minutes after, the chairman and directors of the company, with some of the principal officers, arrived to inspect the work. They had just completed their survey, and had passed out of the building, but were still within a few yards of it, when, with a terrific crash, the roof gave way, falling inwards, and carrying with it huge masses of brickwork from the walls on either side. In five minutes the men would have returned from dinner, and two or three minutes after some thirty or forty of them would have been at work within the buried area, and it is hardly possible that any of them could have escaped instant destruction.

The water-main in Dale-street, Liverpool, has again burst, at the junction with North John-street. The roadway was torn up for some distance, and Water-street flooded; but, fortunately, the large body of water was carried away without causing any serious damage.

A large building in Sunderland, formerly a patent ropery, and three stories in height, having recently been sold, was being converted in the lower story into an ale-and-porter store, the upper part being occupied by a joiner and cabinet-maker. In the north gable, about 50 ft. in height, an iron girder had been let in to carry the two upper stories, the ends resting on rubble walls 2 ft. and more in thickness. To obtain cellars, it was found necessary to underset the wall, and some men had excavated to 6 ft. in depth, when suddenly the whole of the gable gave way, and fell, a great portion of the roof accompanying it, and burying in the ruins the men employed. One man has been got out alive, and a second was found dead. No one else is missing.

Two inquests have been held in cases of accidents caused by cranes. A labourer, employed at the Commercial Foundry, Hulme, fell off a travelling crane, and was mortally hurt. It is supposed that the handle, while in motion, slipped from the deceased's hand and threw him off the crane. In falling he pitched heavily on the back of his head, and died the same night. A similar accident occurred on the same day to a labourer of Failsworth, in the employ of the Railway Steam-Plant Company, at Newton Heath. The deceased and three other men were occupied in lowering a steam-hammer anvil block, weighing 5½ tons, into a bed prepared to receive it. Suddenly the "bent" handles flew out of the grasp of the men, the ponderous weight of the block, it is thought, being too much for the men's strength, and in their revolutions the deceased was violently hurled from the traveller and fatally injured. He died the same night. The jury returned a verdict of "Accidental death" in each case; but in the latter they recommended that in future more care should be taken in employing proper handles for the cranes, the "bent" handles not being considered safe.

An accident with a fly-wheel took place on Monday week at the Rolling-mills of the well-known engineering establishment of Messrs. Cockerill, at Seraing. It was fortunately unattended with any fatal consequences; but, from its rare nature, it deserves a passing mention. We may premise that in large rolling-mills it is usual to attach a second fly-wheel to the engine, called in Staffordshire a "counter fly," which runs at a very high velocity. The object of this "counter-fly" is to prevent the stoppage of the machinery, which would otherwise occur, when all the rolls are brought into action at once. The force stored up by the extra fly-wheel is sufficient to meet the sudden demand made upon the driving power. It happens occasionally, but happily very rarely, that a "counter-fly" bursts, and generally with very disastrous consequences. This is what happened at Messrs. Cockerill's factory, when a fly-wheel of an engine of 120 horse-power broke into fragments. After having cut through an immense beam of oak, plated with iron, and broken down a wall, some of the pieces were projected to a distance of 500 ft. The engineer was found nearly suffocated by the steam from the pipes which had been destroyed by the wheel in its flight.

EDINBURGH.

University Club.—The alumni of the various universities resident in Edinburgh formed themselves into a club about two years ago, and a club-house is now in course of erection for their accommodation in Princes-street. The masonry of the structure is now completed, and the internal fitting-up is to be rapidly proceeded with. The building has a frontage of 60 ft., and is united by a corridor with a building of like breadth in the rear. In the front part are situated the morning-room, library, dining-room, &c., with bed-rooms above; and the back part is occupied by billiard-rooms, smoking-rooms, baths, &c. The façade is of four stories, exclusive of the area, and the style adopted by the architects (Messrs. Peddie & Kinnear) is Italian. The chief feature of the elevation is an oriel window, having the appearance of a portion of a circular temple. It is of two stages, of five lights each, divided by fluted Corinthian columns, the entablature of the first tier being decorated with the Greek fret. On the street front it is flanked by the doorway to the east and a window to the west, each having richly decorated cornices and architraves. Above these are two windows with decorated pediments, supported by trusses. On the second-floor there is a range of five windows, with cornices more plainly treated, and the frieze is pierced by a range of square windows divided by panels, and the whole is surmounted by a bold cornice, with lions' heads under hoods, which rise slightly above the upper member of the cornice. The evident aim and object of the architects has been to produce a work displaying classical refinement and harmony, and in this they have been fairly successful. It is a building that would not have seemed out of place in ancient Athens, had modern club life been in operation there; but is it a work appropriate and in keeping in "Modern Athens," in "the grey metropolis of the north?" In the clear and sunny atmosphere of Greece or Italy the detail (which is almost effeminate in delicacy of treatment) would be brought into strong relief, but here it is lost under our cold and cloudy sky, and rain and soot will soon clog it up entirely. An opinion has often been promulgated that the architect should so design his building as to make it express the purpose and use to which it is to be applied. The task would often be a difficult one, and in this case it may be thought so. The next building but one to the east of the club is by the same architects. It consists of a shop on the ground floor, with three stories above, occupied as chambers. The elevation is decorated with medallions of Scottish worthies (Scott, Watt, &c.). What is the meaning of such being placed there? Merely a freak and fancy of the moment? Had the club-house been similarly adorned with portraits of the celebrities of the Universities (the Stewarts, Playfairs, Hamiltons, &c.), would there not have been appropriateness and good sense in the arrangement? Would it not have given life and spirit and meaning, which Greek frets and such like can never convey here in this nineteenth century?

WESTMINSTER.

WITH reference to an observation reported in our last number, touching the railway works now going on in front of the abbey, and the fear lest a station should be placed there, we are told by one who ought to know, that the station of the line now in course of construction (that of the Metropolitan District Railway), is to be in Canon-row. To this there can be no objection, but it is to be hoped that it will not be allowed to obliterate the name "Canon-row,"—which, whether it be derived from the channel of the Thames, that formed the north-eastern boundary of Thorney Island, or from the canons of St. Stephen's, is one of the most interesting historical reminiscences of the neighbourhood.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening (the 4th inst.), at the House in Conduit-street.

The chair was occupied by the President, Mr. R. W. Edis.

Mr. T. Roger Smith called attention to two of the rules of the Association which he thought required amendment. The 4th rule described who should be the office-bearers of the Association, and provided for a president, vice-president, two secretaries, &c. The Association had assumed considerable dimensions since its rules were originally drawn up, and now it was considered desirable by several members that a further opportunity should be afforded of appointing to an office those who might be deserving of it. Hitherto it had been the practice to appoint a vice-president with a view to his becoming hereafter president, but he did not think it was desirable that the practice should grow into a rule, or that the Association should be in any way pledged to promote the vice-president to the principal chair. Heretofore the means at the disposal of the Association for recognising eminent or onerous services were restricted, and, in his opinion, it would be desirable, by amending the fourth rule, to give the Association the means of bestowing more honour where more work was done. He proposed, therefore, that the number of vice-presidents should be increased to two. In this respect they would but be following the precedent of other Art-societies, including the Royal Institute of British Architects, which found it desirable to have several vice-presidents. Another recommendation in favour of appointing two vice-presidents instead of one was, that in the absence of the president the chair might always be taken by one of the vice-presidents.

The motion, which was seconded by Mr. Lewes, was carried without discussion, and the rule was amended accordingly.

It was further resolved, by twenty-seven to eight, after considerable discussion, to revoke the rule that the office of president could not be held by the same person for two consecutive years.

The meeting then proceeded to consider the report of the Architectural Alliance, and eventually a resolution was passed, to the effect that in the opinion of the Association the proposal for making the quantities part of the contract was deserving of serious consideration, but that, as a matter of fact, it was not a usual course in London practice.

Mr. J. D. Mathews called attention to a misconception which had arisen from the wording of the report of the sub-committee on the Library, brought up at the last meeting. The sub-committee, although recommending a subscription, did not mean an annual payment in the usual sense of a subscription, but a payment from members in the light of a donation.

THE QUEEN'S HOTEL, ABERYSTWYTH.

THIS large undertaking, which is the property of the Hafod Hotel Company, was publicly opened on the 1st of May.

The building is an oblong block of 150 ft. frontage towards the sea, with an average depth of 85 ft. It is five stories in height, and is constructed to make up 104 beds. The materials used in the building are the local blue slate stone with dressing and quoins of Grinshill freestone of a creamy white tint, whilst the cornices are of a white moulded brick; the columns and other ornaments of terra-cotta of similar colour, to relieve the dark appearance of the local stone. The walls are surmounted by tall slate-covered roofs, one of which rises high above the rest as a tower, and, being finished with an ornamental iron creating, presents a large platform from which a fine landscape can be viewed.

The architects of the building were Mr. Charles F. Hayward and Mr. H. D. Davis, both of London. Mr. G. Lumley has acted throughout as clerk of the works, and under his superintendence, unaided by the employment of a special contractor, the whole has been executed.

The terra-cotta work has been supplied by Mr. Blashfield, of Stamford.

LIVERPOOL.

Expenditure under the Liverpool Sanitary Acts.—The accounts for 1865 have just been issued. The ordinary receipts for paving, sewer, and general rates, less amount set apart for sinking fund, was 151,281*l.* 2s. 8d.; a loan of 10,000*l.* made the total receipts 161,281*l.* 2s. 8d., and the expenses of scavenging, paving, sewering, watering, salaries, &c., came to 121,024*l.* 6s. 4d., and the extraordinary expenditure to 31,918*l.* 6s. for new works, and court and alley improvements, making the total net expenditure 152,942*l.* 12s. 4d.

The Liverpool Waterworks.—The accounts of the Liverpool waterworks have just been issued for the year ending 31st of December last. The ordinary receipts amounted to 115,820*l.*, of which water rents produced 50,785*l.*, the rate on property 47,423*l.*, and the water supplied to shipping 8,920*l.* The expenditure was on a similarly large scale. The amount paid for interest during the year was 86,170*l.*; the various local pumping stations entailed an outlay of 6,969*l.*; general repairs cost 5,078*l.*, the treasurer's department 4,927*l.*, the engineer's department 3,655*l.*, rates and taxes 2,015*l.*, and Rivington ordinary account 5,685*l.* The Rivington construction account for the year, including the outlay on a duplicate pipe line, was 43,060*l.*; the extension of pipes cost 14,188*l.*, and various other items bring up the total under the head of extraordinary expenditure to 63,000*l.* The ordinary expenditure exceeded the ordinary receipts by 7,303*l.*

Improvement of Working Men's Dwellings in Liverpool.—The corporation have taken an important step towards remedying the evils of over-crowding. They have resolved "to acquire land, or devote land now forming part of the corporate estate, for the erection of labourers' dwellings, at suitable spots; and that such land be sold on chief rent for the erection of such dwellings, according to plans approved of by the council;" and to "purchase the fee-simple of five pieces of land, belonging to Mr. Alderman Houghton, in the vicinity of St. Martin's Church, comprising 22,550 square yards, with a view to the erection thereon of labourers' dwellings, at 18s. per yard." At a meeting of the Dock Board, also, their works committee have since recommended that negotiations should be opened with the corporation "for the sale to that body of 31,751 yards of land, on the south side of the canal locks," to be devoted to the same purpose. It is understood that the proposition meets with the unanimous approval of the Board.

The Germans at Liverpool. — The local authorities are much perplexed as to what should be done in regard to the German emigrants who are still flocking into Liverpool. Some hundreds have been in the streets at one time without any provision for lodgings having been made for them, and the workhouse authorities say that it is only those destitute from want of money, which they are not, who have any title to accommodation in the workhouse. The local Board of Health have been considering whether it be possible to stop the influx, but they cannot see their way to such a result. The subject of accommodation for the emigrants has been referred to the emigrant sub-committee, and steps are to be taken to ascertain what can be done to compel the foreign agents by whom they are forwarded to make provision for them on their arrival.

WREXHAM.

THIS town, situated as it is nearly in the centre of a mineral district, is a thriving place. Within the last ten years its importance has increased three or four fold compared with what it was before. Public works in the neighbourhood and in the town, with new houses, new shops, have quite changed the character of the place to a commercial thriving place of business, and it is only yet in its infancy as to what it will be when the minerals in the neighbourhood are developed. Public sewers have been made within the last three years, at a cost of about 8,000*l.*; public slaughter-houses, at a cost of 2,000*l.*; and since the public sewers have been made, about 800 houses have been drained. Waterworks, by a private company, are now in course of construction, at a cost of about 10,000*l.*, and everything seems to be on the move. During the past five years, when Mr. Hugh Davies was the borough and local surveyor, much was done to forward sanitary improvement. A new brewery for Alderman Peter Walker is now in course of building by Mr. Joseph Kirkham, of Liverpool, at a cost, with stables and other appurtenances, of upwards of 12,000*l.*, Mr. Davies being the architect. A malt-kiln for Mr. Jones, brewer, is about to be erected, at a cost of about 2,000*l.*

SERIOUS EXPLOSION OF GAS AND LOSS OF LIFE.

AN explosion of gas took place early on Wednesday morning at the private residence of Mr. Gambart (well known in connexion with art), Avenue-road, St. John's-wood. For some days past preparations had been going forward at the house for a fancy-dress ball, which would have taken place on Thursday evening. Some temporary refreshment-rooms and a supper saloon were being constructed, and gas was conducted from the mains in the house to these apartments. On Tuesday evening the preparations were nearly completed. Mrs. Gambart expressed her great anxiety to the workmen that the gas might be perfectly safe, and she was assured that every precaution had been taken, and all the arrangements were perfect. On Wednesday morning early a strong smell of gas was felt by the servants; nevertheless, a few minutes before eight, a charwoman employed to assist the servants went into the kitchen, and struck a lucifer to light the kitchen-fire, when a fearful explosion took place, involving the destruction of a picture saloon in the rear of the house, property in pictures and articles of *vertu* to the value —we are told—of many thousands of pounds, the loss of a life (that of the charwoman), and injury to three other persons. The family and visitors, who fortunately occupied the front part of the house, escaped in their night-dresses comparatively unhurt. While pictures by Rosa Bonheur, Stanfield, and others, were utterly destroyed, a copy of Frith's "Derby Day" and it is a coincidence that the accident occurred on the Derby Day, remained unscathed. The escape of gas is attributed to the couplings between the main and the temporary supply being imperfect.

THE HOUSES OF EMINENT PERSONS.

THE Council of the Society of Arts, some little time ago, appointed a committee to consider how the Society might promote the erection of memorials of persons eminent in arts, manufactures, and commerce. The committee, at their first meeting, on the 7th inst., recommended that experiments with various descriptions of tablets should be made, and that designs be obtained for that purpose; that on these tablets should be inscribed concise information relative to the individual, or the fact commemorated by the tablet.

The desirability of setting up such memorials was urged and reiterated by us very long ago. More recently (volume for 1864, pp. 485 and 537), we gave lists of houses that deserved to be so marked, and invited the Society of Arts to take up the subject.* It is with much satisfaction, therefore, that we note the steps that are being taken to carry out the proposal.

The committee further recommend, as we have done, that the tablets should not be limited to persons eminent in arts, manufactures, and commerce, but should include places and persons connected with historical events, "such, for instance, as the site of the residence of Lady Abingdon (where Abingdon-street now stands), who was known as the writer of the letter to Lord Monteagle in reference to the Gunpowder Plot; also the spot where Caxton worked his first press in Westminster; and the like."

THE FUNGI OF GREAT BRITAIN.

AMONGST the recent additions to the Food Department in the South Kensington Museum, are thirty large drawings (of a series at present incomplete), by Mr. W. G. Smith, of the principal edible and poisonous fungi of Britain. Although similar drawings to a smaller scale are found in some of the Continental museums, this is the first time any reliable drawings from nature, with the necessary sections, have been made for educational purposes for any museum in this country. A reference to the portraits of these equivocal productions will show what weird and curious aspects some of these plants, so common in our pastures and woodlands, present,—so valuable when understood as additions to the table, and so dangerous when the poisonous species are by accident substituted for the esculent.

We trust this series of drawings will tend to prevent repetition of the cases of poisoning we constantly read of every autumn. The real *seeds* (or spores) of various species also exhibited, call to mind the mysterious brown powder poison of the gipsies, called "drei," confessedly extracted from fungi, and of which we heard so much a few years ago with no final result.

AN HISTORICAL TREE.

THE acacia, or, more correctly speaking, the false acacia, or locust-tree (*Robinia pseud-acacia*), was first introduced into Europe by Vespasian Robin, arborist to Louis XIII., in the year 1635. The original tree, brought by Robin from North America, and planted in the *Jardin des Plantes*, is still in existence, and is now putting forth a few leaves. In 1815 it began to show symptoms of decay, but the branches being lopped, the trunk shot out with redoubled vigour. Mr. Loudon visited this veteran in 1835, and it was then 35 ft. high, but in its prime it was nearly twice this height. It has now dwindled down, and its worm-eaten and wrinkled trunk is carefully supported by iron bands, so as to prolong its existence as much as possible. The appearance of the leaves is looked forward to with much interest and anxiety by the visitors to the garden, as it is feared that every year may be its last.

* See in same volume pp. 515, 533, 588, 603, &c.

PRIZES AWARDED BY THE ARCHITECTURAL INSTITUTE OF SCOTLAND.

FOR the best Geometrical Drawing, being an elevation of any existing example of Grecian or Palladian Architecture,—to be competed for by apprentices, of not more than three years' standing, of any Scottish architect.

Four drawings were submitted for examination. The committee considered that the drawings of James Darling, apprentice to Mr. W. M. Gorrie, architect, Edinburgh, and John Ord, apprentice to Mr. D. MacGibbon, architect, Edinburgh, were equal in point of merit, and awarded a book to each.

For the best Original Design—Subject, Design for a Suburban Residence in the Italian Style of the Sixteenth Century; cost not to exceed 5,000*l.*,—to be competed for by apprentices to any Scottish architect.

Three sets of drawings were submitted. The council awarded a book to G. F. Wilson, apprentice to Mr. Leadbetter, architect, Edinburgh, his design being, in their opinion, the best submitted.

An Extra Prize of £5 5s. was offered by Mr. William Miller, late Secretary to the Institute, for the best series of not less than five drawings of Scottish Buildings, suitable for publication in the Illustrated Transactions of the Institute.

Two sets of drawings were submitted for consideration. The council were of opinion that the drawings of W. H. Syme, in the office of Mr. D. Brice, architect, George-street, Edinburgh, were the most meritorious, and highly deserving of commendation. The council unanimously resolved to publish Mr. Syme's drawings in the Illustrated Transactions of the Institute for next year.

DEMOLITION OF FORTIFICATIONS.

THE removal of the fortification at Antwerp has been for some time in active progress, part of the space obtained being intended for the erection of some buildings connected with the sewerage. The fortifications at Charleroi are also to be destroyed, so as to admit of the extension of the coal mines. According to the old regulations, no workings were allowed to approach within a certain radius of the fort, the demolition of which will permit of the getting of a large quantity of coal. A petition was presented to the Emperor of the French, some months ago, by the committee of an association for improving the dwellings of the working classes at Amiens, showing that a valuable site might be obtained for the society's operations by the removal of the citadel. On the 15th ult. a deputation from the Association was honoured by an interview with his Majesty, who promised to become a patron, and also to give the question of the demolition of the citadel his favourable consideration. We fear that these events cannot be regarded as concessions to the arts of peace, or as forerunners of the time when the spear shall be beaten into the pruning-hook and the sword into the ploughshare. They have rather the appearance of an acknowledgment of the uselessness of fortifications constructed to resist the artillery of the last century against our modern Armstrongs and Whitworths.

THE THREATENED TUNNEL THROUGH OLD ST. PANCRAS CHURCHYARD.

A FEW days ago, Sir George Grey, in answer to an inquiry in Parliament, stated, in reference to the London approaches of the Midland Railway, "that it was not intended to cut through Old St. Pancras Churchyard, but to tunnel 12 ft. below it." Now, I can hardly consider that this will be a satisfactory avoidance of it, particularly with the threatened cholera hovering about; and I hope that what I am about to state may induce your using the very powerful influence of the *Builder* to prevent this proceeding, as I have had some experience of the condition of that churchyard.

In the years 1847-48, when in partnership with Mr. Gough, we were professionally engaged in enlarging and nearly rebuilding Old St. Pancras Church. To effect the enlargement of the church to twice its original size, a piece of the burial-ground was taken, and a part of the ground formerly used for burials was excavated. These excavations were carried down below the level of the ground disturbed, and when that surface was reached, which was at an average depth of between 8 ft. and 9 ft., the clay was so saturated with decomposition as to be horribly fœtid, so that, when I returned to my office, after standing a short time in the excavation, I was glad to have my boots cleaned, to get rid of the smell of the small particles of clay that adhered to them. The ordinary excavators who undertook the work deserted it, being made sick, although frequently given spirits by the contractors to prevent nausea, and their place was supplied by some seasoned gravediggers, who were collected for that purpose.

The trenches for the foundations of the walls, particularly the tower, which went down about 10 ft., was, if left without bailing, filled with a dark-coloured, filthy, stinking water, that ran through from the surrounding ground, which was for a depth of from 8 ft. to 12 ft. a mass of coffins, with a crust of about 3 ft. of earth covering them, and packed upon each other with hardly any intervening ground. Two of the coffins which were removed from the excavation for the church had, from the plates upon them, been seventy years in the ground; and such is the slow progress of decomposition of a body soaking in clay water, that when by an accident the bodies were exposed, they were seen to be nearly perfect in figure, and looked like sodden dark brown leather. These bodies and all the human remains were carefully collected and buried in one or another of the large excavations which were then in use in the other parts of the graveyard; and it is to these general pits that I more particularly refer. The ordinary mode of burial in vogue at that time, particularly for the poor, was to excavate a large and very deep pit to place coffin upon coffin, with a slight layer of clay between, just to hide the coffin below, and not to cease doing so until the last coffin was within about 3 ft., or even less, of the surface of the ground, and these pits were so close together as only to leave something like a foot to separate them from the adjoining pit.

Now, I am certain that at a depth of only 12 ft. from the surface (in this case an uncertain one) these pits will be cut into; and as the water was only kept down in them while they were open by constantly bailing the interstices between the coffins, and being full of water, you may imagine the pleasant dropping which will take place through the very pervious arching which forms the roofs of most tunnels, when this reservoir of decomposition overlies the top of it.

I cannot help thinking that, with a little management, this churchyard might be avoided; and even if it cannot, that an open cutting, with retaining walls, would be better; all objectionable things might be more easily met and provided against in the light of day than by tunnelling through it. I hope that you may consider that the carrying out these railway works in the way mentioned by Sir George Grey is as objectionable as it appears to me to be, and that the horrible distillation of putrescence, which I anticipate through the roof of the tunnel, may, by your influence, be prevented, to the great advantage of all future travellers by this route.

R. L. ROUMIEU.

FLITCH GIRDERS.

SIR,—Will any of your scientific correspondents kindly state the proper formula or mode of calculating the strength of a flitch girder? Do the timber cheeks count for anything in resistance to superincumbent weight, or do they simply resist the twist to which the thin metal flitch would be liable?

F. W.

BELFAST ALBERT MEMORIAL.

SIR,—I am the third competitor who has, as yet, in vain asserted a claim to the first prize, but I hope soon to have my case sufficiently matured to bring it before the Irish Courts.

To the charges contained in my letter which appeared in the *Dublin Builder*, not long since, no answer has been given either by Mr. Barre or the Committee. An inquiry was instituted, but no report was returned. Only the gentlemen who made the charges attended; the builder and others implicated in the nefarious acts not appearing in answer to the summons of the "Committee of Inquiry."

MORTIMER H. LINKLATER.

"METROPOLITAN BENEFIT SOCIETIES' ASYLUM."

SIR,—Your courtesy and kindness on all occasions to endeavour to please everybody have, in this week's *Builder*, done the above institution, myself, and the successful builder a great injustice. The facts of the case are these:—An advertisement is placed in the *Builder* for tenders, the drawings and specifications to be seen at my office, and in the specification are these words,—"Each builder is requested to take out and depend upon his own quantities; neither the committee nor their architect supply or recognise any quantities."

Notwithstanding this, Messrs. Rake, Ranwell, & Nixon, of Portsmouth, apply to take out quantities for some builders. Being a public competition, I could not object, so long as they did not provide the quantities for all; because, if I intended quantities to be supplied, I should have appointed my own surveyor. The above gentlemen, after occupying my office four days, leave their card, without permission, on the table, with the following inscribed on the back,—"The quantities have been prepared by us, and may be had on application, free of charge, unless successful."

In your *Builder* of April 28th, you kindly insert the result of the competition, sent by me, viz., quantities not supplied and the accepted tender; but in this week's *Builder* you admit a garbled list of tenders, containing the highest and lowest, omitting one-half the contractors, and insert the names of parties as if they were employed to take out the quantities. The builder feels hurt on account of the great contrast inaccurately exhibited.

W. P. GRIFFITH.

*** The additional list complained of was inserted, as we stated at the time, at the request of the persons who tendered. With all respect for our esteemed correspondent, we cannot admit that we have thus done any injustice to the institution, himself, or the successful builder. The "contrast" exists, however it may be shown.

BUILDERS' CHARGE FOR TENDERS.

AT the Thirsk County Court, before Mr. Serjeant Dowling, Mr. Fawcett, a builder, at Thirsk, claimed 3*l.* 4*s.* 9*d.* against Mr. A. C. Bamlet, manufacturer of reaping machines. In December, 1865, an advertisement was inserted in the local papers, asking for tenders for an extension of Mr. Bamlet's reaper works. Tenders were sent to Mr. W. A. Bourne, the architect, plaintiff's being the lowest. None of them, however, were accepted, all being considered too high. Subsequently the works were executed by workmen employed by the defendant, who also found his own materials, and the brickwork was executed at a considerably less cost than any of the tenders.

Plaintiff now sought to recover 1½ per cent. on 216*l.*, the amount of his tender for brickwork, and relied on the fact that the words, "The lowest or any other tender will not necessarily be accepted," were not in the advertisement. He also produced a copy of the *Builder*, May 27th, 1865, where a somewhat similar case is reported as tried at the Shoreditch County Court, before Mr. Charles Coleman,—"Parsons *v.* Aston,"—in which case the builder obtained a verdict for part of his claim.

In this case, however, the learned Serjeant said, there was no contract, and therefore plaintiff could not recover. He had every respect for the deputy-judge, Mr. Coleman, but he should not have decided that case as he did. It was monstrous to suppose that because builders or any other tradesmen chose to send in tenders when mooted, to perform works or supply goods, they were to be paid for their tenders when the works were not performed or the goods supplied.

Judgment for the defendant, for whom Mr. Richardson appeared.

CHARGE FOR BUILDERS' ESTIMATES.

AT the Secondaries' Court, before Mr. Potter and a Common Jury, last week, was tried the case of Fish *v.* Brooks, it being an issue sent down from the Court of Common Pleas to determine whether the plaintiff, a builder, was entitled to claim his expenses for making a certain estimate at the request of the defendants.

Mr. Holl appeared for the plaintiff, Mr. Hance representing the defendants.

Mr. Holl, in opening the plaintiff's case, said that his client claimed 13*l.* 13*s.*, his expenses for making an estimate of the cost of repairing Sir Henry Leake's mansion in Essex. Plaintiff had been asked to make a specification, and he did so; but, as he was not employed to do the work, he considered that he was entitled to charge for the estimate. Some correspondence had passed between the parties, and plaintiff finally determined to enforce his claim in acourt of law.

Mr. Fish said: I am a builder, of Cambridge Wharf, Pimlico, and in August, 1864, I was required by defendants, who are house agents and surveyors, to give an estimate of the cost of the repairs of Sir Henry Leake's mansion in Essex. At the first or second interview with Mr. Shallow (defendant's partner), I was told that some repairs were necessary at a mansion in Essex. Mr. Shallow asked me to go down and make an estimate, and upon my saying that I must be paid my expenses, he replied "Certainly. It is my intention that you shall do the work, and perhaps that question will not arise." I had a rough specification handed to me, and I went down with my clerk. I afterwards wrote a letter to defendants embodying my report. I made a specification upon a second visit, when Mr. Shallow went with me, Sir Henry Leake being present. I tendered for the work. I applied to defendants for payment for making the estimate.

Cross-examined: I knew that defendants were house agents and surveyors. I was introduced to them for this work. I spoke to Sir Henry Leake upon my second visit upon the subject of the repairs.

Mr. Hance, upon looking over the estimate, said that both that and the specification had been addressed by the plaintiff to Sir Henry Leake. The learned counsel remarked that the plaintiff had agreed to pay defendants 80*l.* commission if he got the work.

Plaintiff said this was not so. This was the history of the commission question. Plaintiff wished to send in the estimate to defendants, but they said that he was not to do so, but was to include their commission in his estimate, and to send it direct to Sir Henry Leake, or they would

be only able to get their fees as surveyors. Defendants never said that plaintiff was not to be paid his expenses for making the estimate.

Mr. Hance then called Mr. Shallow, one of the defendants, who said that surveyors were not liable for such work as that now claimed for. Sir Henry Leake employed some one to do the work, and that person was a stranger to the witness.

Cross-examined: We should have been paid our commission by the plaintiff, and had no claim upon Sir Henry Leake.

Re-examined: We should have had no supervision of the work had plaintiff's tender been accepted.

Mr. Brooks said that he pointed out to the plaintiff that he most assuredly would not be able to charge Sir Henry Leake 10*l.* 10s. for making the estimate and 3*l.* 3s. for his daily expenses. Three or four builders had estimated the cost of the works, and, if each of them were to charge 10*l.* 10s., it would cost the owner of the mansion a pretty sum.

Mr. Hance then contended that defendants were not liable, as they were only agents; but even as agents they had no authority to bind Sir Henry Leake.

Mr. Holl contended that the defendants had the greatest possible interest in employing a builder to go down and make an estimate, as they were to receive 10 per cent. commission if he obtained the contract.

The learned Secondary, in summing up to the jury, said that upon a certain letter there could be no doubt defendants were liable, and the question was, had plaintiff agreed to withdraw that letter. Plaintiff had to go into the country to do the work, and it appeared to be to the defendants' interest to get a builder to obtain the contract. On the other hand, defendants had urged that it would be most unreasonable to come upon them for the money. It was for the jury to say whether they thought that plaintiff had agreed to waive all claim against the defendants for the cost of making this estimate.

The jury, after a short deliberation, gave a verdict for the defendants.

Books Received.

The Modern Gymnast: being Practical Instructions on the Horizontal Bar, Vaulting Horse, &c. By CHARLES SPENCER. F. Warne & Co., Bedford-street, Covent Garden. 1866.

FOR those who cannot attend such a gymnasium as we have illustrated in our present number, here is a little book which will enable them on their own apparatus to get up the various exercises in the best manner. By means of 120 illustrations it sets forth *advanced* gymnastics in a very practical manner.

Miscellanea.

INDUSTRIAL EXHIBITION AT STOCKHOLM.—The Lords of the Committee of Council on Education have received a communication from her Majesty's Secretary of State for Foreign Affairs, announcing the opening of an Industrial Exhibition at Stockholm on the 15th of June next, showing the progress in art and industry in Sweden, Norway, Denmark, and Finland; and requesting that the proposed Exhibition may be announced in England.

"THE ROCKY MOUNTAINS."—In 1858, the United States' Government commissioned General Landor to survey this hitherto unvisited region, and discover, if possible, a route across the continent to California. Among the persons who were attached to the party was Mr. Albert Bierstadt, an American citizen, born in Dusseldorf, and where he afterwards studied, and enjoyed the advantage of the teaching of Leutze, Lessing, and others. Mr. Bierstadt has painted a remarkably fine landscape of a pass amidst the Rocky Mountains, and it is now on view at Mr. McLean's. It possesses several high qualities, including the quality of pleasing.

INSTITUTION OF ENGINEERS OF SCOTLAND.—The annual general meeting of this Institution was held at Glasgow on the 25th ult. The following medals awarded for papers read during sessions 1863-64 and 1864-65, were presented:—

The Marine Engineering Medal, to Mr. James R. Napier, for his paper "On the Incrustation of Marine Boilers." Session 1863-64.

The Railway Engineering Medal, to Mr. John Downie, for his paper "On Renewing the Substructures of Railway Bridges and Viaducts, without stopping the Traffic." Session 1863-64.

The Institution Medal, to Mr. James M. Gale, C.E., for his paper "On the Glasgow Water-works." Session 1863-64.

The Institution Medal, to Mr. Alex. C. Kirk, for his paper "On a Machine for producing Cold by the Expansion of Air." Session 1864-65.

The amount of subscriptions last year, from 132 members, associates and graduates, was 191*l.*; and of arrears from 79, 126*l.* The balance in favour of the Institution in the Union Bank was 356*l.*; besides which the Institution has railway shares to the value of 363*l.*; and a prize medal fund amounting to 366*l.*

NEW STREET AT PUTNEY.—The Conservative Land Society has planned, with other improvements in this salubrious neighbourhood, a new street, which is named, with the sanction of the Metropolitan Board of Works, "Disraeli Road." The design is being carried out by Mr. Eppy, architect; and Mr. Robert Greig is the builder.

THE IMPROVEMENT OF PARIS.—One of the most populous quarters of Paris, is that of Saint-Victor, in which 150 houses, containing more than 15,000 persons, are required for projected improvements. To settle the conflicting claims as to the indemnities to be given, two juries have been at work from the 9th April to the 7th inst. The demands made were 25,451,639fr., the offers of the city 9,359,920fr., and the allowances of the juries 13,905,700fr.

ETON RAQUET COURTS.—The Committee have arrived at a final decision as to the site for these courts. They will be erected back to back upon a narrow strip of land, which runs parallel with the Rev. Mr. Joynes's football field, adjoining the road leading to South Meadow, by the side of the Mathematical School. The committee will arrange the details. The cost of the courts will be about 1,500*l.*, of which nearly 500*l.* have been subscribed.

WIMBLEDON COMMON AND PUTNEY HEATH.—A report of the proceedings at a meeting of the inhabitants of Wimbledon, Wandsworth, Putney, and Roehampton, held on the 14th of March last, has been printed by Causton, of Eastcheap. At this meeting it was resolved to afford support to the Commons Preservation Society, especially with a view of preserving Wimbledon Common, and a committee of the neighbourhood was appointed for that purpose.

A "SILVER TESTIMONIAL."—Miss Isa Craig having yielded her position of Assistant-Secretary of the Social Science Association to practise social science in a new capacity,—to study practically, in fact, the Law of Marriage,—a number of the members subscribed and have presented to her a silver tea-service and salver as a wedding present. The inscription on the salver is: "To ISA CRAIG, from her grateful and attached friends of the National Social Science Association, 17th May, 1866."

THE NEW VEGETABLE.—At the Crystal Palace Flower Show on Saturday last, Mr. Bull exhibited his new "Indian Radish" (*Raphanus caudatus*), of which we have all heard so much lately. It is a straggling plant about 2 ft. high, with white cruciferous flowers, greatly resembling the common charlock of our corn-fields, the slender drooping pods—the only esculent portion—being in the largest specimens about 18 inches long, of a russet green colour; they are said to attain a length of 3 ft. or 4 ft., and to grow 6 inches in twenty-four hours. Though in full fruit, the plants were said to be very young, and to thrive well in the open country. The tropical part of the Palace was chosen for their display.

METROPOLITAN SANITARY ASSOCIATION.—The first meeting of a series projected in the several districts of the metropolis in connexion with the Metropolitan Sanitary Association, having in view the diffusion of information on sanitary topics, the practical discussion of matters bearing upon the public health, and the banding together of those who, as vestrymen and guardians, or otherwise, perform functions of public usefulness, was held on Tuesday night in the vestry-hall of St. George's-in-the-East, under the presidency of the rector of the parish. The subject specially announced for consideration was the "dwellings of the poor," and the room was well filled by persons of every rank in society who were interested in it and its cognate topics. A brief address by the chairman was followed by a lecture on air, water, ventilation, drainage, &c., by Dr. Lankester, F.R.S. The meeting was addressed in turn by Mr. Godwin, F.R.S.; Mr. J. T. Dexter; the Rev. G. H. M'Gill, M.A., incumbent of Christ Church; Mr. Hodgson Pratt, late chief commissioner of Education in Bengal; Mr. Benjamin Shaw, M.A.; Mr. W. H. Robinson, Dr. Hardwicke, and Mr. Martin Ware, jun., barrister, as well as by two working men in the body of the room. The character of the dwellings inhabited by large masses of the people, and the efficiency of several of the more prominent agencies in operation to provide new and improved residences for the working classes, were earnestly discussed, and several of the speakers were heartily applauded when dealing with those questions.

PEOPLE'S PARK, BOLTON, LANCASHIRE.—The new park and recreation-grounds will be opened with ceremony on Whit-Thursday. The Earl of Bradford will deliver an inaugural address.

MONUMENT TO KING LEOPOLD.—The Belgian Chamber of Representatives have unanimously voted the sum of 1,000,000 of francs, which is to be increased by public subscriptions, for the purpose of erecting a memorial to the late king. It is not yet decided what form the monument is to take.

A RECORD OF ANCIENT RYE.—A singular discovery has been made at Rye. While workmen were excavating for a drain near the Udimore crossing, in the suburbs of the town, they came upon the deck of a vessel, made of English oak, and of larger construction than is usual at that port in the present day. This appears to confirm the tradition that the town was at one period nearly surrounded by the sea.

NEW PARK AT HALIFAX.—Skircoat Moor is to be converted into a park and recreation-ground under the superintendence of the corporation. In the Halifax Improvement Act, 1865, the corporation has power to treat with Captain Savile for the manorial rights of the moor, about 55 acres; but the captain has handsomely given up his manorial claims under the circumstances, and in consequence the town-council have decided to so far honour Captain Savile, by calling the grounds the "Savile Park."

INTERNATIONAL HORTICULTURAL EXHIBITION. Anxious that the committee should be enabled to carry out this undertaking in a manner creditable to the country, we repeat the intimation that the show will take place on Tuesday next. The entries, we understand, are wonderfully numerous, and afford every prospect of an extraordinary display. The *conversazione* will be held on Wednesday evening, the previous evening being devoted to the banquet. At the Botanical Congress to be held on Wednesday morning, M. Candolle, whose reputation is European, will preside, and deliver a popular address.

THE DAMAGE DONE TO THE CLANMACNOISE REMAINS IN 1864.—This case has not yet been decided: indeed, the presumed malefactor has only now been committed for trial by the Parsonstown Petty Sessions, at the instance of the rector of the parish of Clanmacnoise. Meantime he has all along been at large, and bail was to be taken for his appearance for trial at the next assizes. His name is John Glennon, and he is said to hold a respectable position in King's county. He brings witnesses to prove that he did not do the damage to the interesting old ruins.

MARKET ACCOMMODATION FOR STALYBRIDGE.—From a report made by Mr. Amos Lee, the surveyor for Stalybridge, read at the quarterly meeting of the Town Council, it appears that the market for the town is to be on the plantation-ground between Church-street and Dean-street, in a line with the railings of Trinity Church. The front towards Melbourne-street will be 107 ft., and the whole area 1,593 square yards. The buildings will be of brick, with stone strings and mouldings. At the apex of the centre roof there will be a clock tower 64 ft. high from the market floor. There will be 28 shops in the interior. The bridge which will cross the river to the market will be designed to carry a rolling load of 40 tons, and it will be 51 ft. in length between the abutments. The estimated total cost is 8,969*l.* 4s. 8d., of which 4,500*l.* is for the erection of the market, and 1,179*l.* for the bridge.

THE RESTORATION OF CHICHESTER CATHEDRAL A large and influential meeting has been held in the Town-hall, Brighton, to receive a report from the executive committee appointed to superintend the work of restoring the spire of Chichester Cathedral. The Earl of Chichester presided. The Duke of Richmond read the report, which stated that since February, 1865, when the last appeal for subscriptions was made in Brighton, the tower had been completed, and the spire itself was raised 60 feet. It was anticipated that before the next anniversary of the Queen's coronation the capstone of the whole would be elevated to its place. Only 5,000*l.* were now required to complete the work externally and internally. The meeting was afterwards addressed by the Bishops of Oxford and Chichester, the Dukes of Richmond and Devonshire, and others; and resolutions were passed adopting the report and pledging the meeting to renewed exertions.

Ladies' Sanitary Association.—This Association will hold a *conversazione* in the Hanover-square Rooms, on (this) Friday evening, May the 18th. Lord Ebury will preside, and Miss Clara Balfour will read the report.

A Floating Dock for the West Indies.—It would seem that Lord Clarence Paget, when introducing the Navy Estimates, was more in earnest than was suspected at the time, in offering a passage to Bermuda to those who might feel inclined to trust themselves in an iron floating dock across the Atlantic, as the Lords of the Admiralty have concluded a contract with Messrs. Campbell, Johnson, & Co. for the construction of a dock, which is to be built in this country and then towed out to its destination.

National Gallery Enlargement Bill.—On the motion for the second reading of this bill, the Hon. Mr. Cowper, in reply to questions, said the judges would not make their award in respect to the competition for the design for the new buildings until the 15th of October. They had not yet been nominated. The Royal Academy had been told they must leave their present quarters. If there was an autumn sitting of the House the designs would be submitted to them. There was no truth in any report that the space at Burlington House had been contracted. The bill was then read a second time, and ordered to be referred to a select committee.

The Amalgamated Society of Engineers, etc.—The fifteenth annual report of this Society for the past year has been issued. The preliminary remarks of the general secretary, Mr. W. Allan, show that the Society is still making steady progress. The accumulated fund now amounts to 115,357*l.*, there having been added to it during the past year no less than 28,500*l.* Ten new branches, and 3,583 new members, have been added during the same period. One of the new branches is in Queensland, and another at Croix, in France. There are now 30,978 members. The expenditure for the year amounted to 49,172*l.*, of which 39,728*l.* were for the five chief benefits connected with the Institution, namely, donations to unemployed members, sick, superannuation, accident, and funeral expenses.

Brilliant Marbled Papers.—In the factories where albumenized photographic paper is made a considerable quantity of paper is spoiled in the process, and it is then of but very little use. In Paris and Berlin this paper has always been washed as free as possible from the albumen, and then worked up into envelopes. Dr. Jacobson has found a new use for this paper; he proposes to stain it with aniline colours and to employ it for labels, covers of boxes, and general decorative purposes. By being splashed with concentrated alcoholic solutions of the various aniline colours, the waste of these coloured papers, according to the *Reader*, is now converted into marbled paper, of a much more beautiful appearance than what is produced by the old process, from the green-gold lustre which the films of these substances possess. The papers obtained by this method retain the gloss, the bright "satin" surface of the albumenized material, and are almost as brilliant by transmitted as by reflected light. They are said to be well adapted for shades, transparencies, paper lamps, and other means of decorative illumination.

Alarming Statement as to Nitro-Glycerine or Glenoine Oil.—Recent explosions have drawn attention to the dangerous character of this production. At the Mersey Dock Board lately, a communication was read from the town council on the subject, and it was stated that this oil is forwarded from Germany to Hamburg, thence to Hull, and thence by railway to Liverpool. A small quantity was sufficient to shatter a block of iron of 30 tons, and it might have caused the utmost destruction at Liverpool. Mr. Forward stated that the trade was so lucrative that the most fraudulent means were adopted in forwarding these oils. He personally knew an instance in which seventy cases of glenoine oil had been shipped at London, a sufficient quantity (had it exploded) to have shaken the metropolis to its centre, and destroyed an immense amount of property. It was suggested that in the bill now before Parliament, empowering the board to fine where goods of this kind are insufficiently described, a clause making such an act criminal should be inserted. The subject was ultimately referred to the Parliamentary committee.

TENDERS

For Branch Establishment for the London and County Bank at Woolwich. Messrs. Church & Rickwood, architects. Quantities supplied:—

Kirk	£4,994 0 0
Simpson	4,950 0 0
Tongue	4,850 0 0
Mann	4,545 0 0
Johnson	4,460 0 0
Lonergan	4,365 0 0
Hill & Sons (accepted)	4,285 0 0

For erecting in March Cemetery, Isle of Ely, two chapels, with tower and spire; also an entrance-lodge. Mr. G. W. Stephenson, architect:—

Brown	£1,550 0 0
Fast	1,465 0 0
Bennett	1,310 0 0
Pattinson	1,232 0 0
Bennett	1,230 0 0
Broadhurst (accepted)	1,217 0 0
For the Lodge.	
Fast	£319 0 0
Pattinson	310 0 0
Bennett (Lynn)	294 0 0
Bennett	280 0 0
Broadhurst (accepted)	246 0 0

For the erection of a villa at Ealing for Mr. Tyndale. Mr. J. B. Garling, architect. Quantities by Mr. T. Hill:—

King & Sons	£2,940 0 0
Piper & Wheeler	2,750 0 0
I'Anson	2,686 0 0
Mansfield	2,664 0 0
Nixon	2,649 0 0

For the erection of a warehouse, Bishop's-court, Old Bailey, for Messrs. Harris & Saunders. Mr. T. Aston, architect:—

Kent	£1,785 0 0
Brass	1,700 0 0
Bostel	1,689 0 0
King & Sons	1,675 0 0
Green	1,397 0 0
Browne & Robinson	1,339 0 0

For the erection of warehouse in Bury-street, for Mr. Simmons. Mr. N. S. Joseph, architect:—

Newman & Mann	£1,232 0 0
Browne & Robinson	1,189 0 0
King & Sons	1,175 0 0

For St. George's Church, Tufnell Park, Holloway. Mr. George Truefitt, architect. Quantities supplied by Mr. J. Warburton Stent:—

	Faced with Kentish Rag.	Faced with Malms.
Mansbridge	£5,300 0 0	£5,100 0 0
Myers	4,698 0 0	4,479 0 0
Sawyer	4,477 0 0	4,419 0 0
Dove, Brothers	4,255 0 0	4,240 0 0
Carter & Sons	3,980 0 0	3,860 0 0

These tenders are exclusive of the bricks which will be provided by the committee.

For schools for the parishes of Blakemere and Preston-on-Wye, Herefordshire. Mr. George Truefitt, architect:—

Prichard (accepted)	£462 0 0

Accepted for taking down and rebuilding Salem Chapel, Thirsk. The old fittings and material to be re-used. Mr. W. A. Brown, Architect:—

Bricklayer's, Mason's, and Plasterer's Work.	
Jackson	£230 0 0
Carpenter's Work.	
Wild	175 0 0
Slater's Work.	
Baynes	29 15 0
Plumber's Work.	
Best	37 10 0
Painter's Work.	
Pattison	15 15 0
Smith and Founder's Work.	
Nicholson	46 5 0

For a new Catholic Church in Thirsk. Mr. W. A. Browne, architect:—

Weatherly	£1,725 0 0
Fawcett	1,365 0 0
Wild	1,349 0 0
Wright & Son	1,312 0 0

Accepted for a residence at Ripon, for Mr. B. P. Ascough:—

Bricklayer's and Plasterer's Work.	
Orton	£314 0 0
Carpenter's Work.	
Johnson	261 17 0
Mason's Work.	
Barwick	46 18 6
Slater's Work.	
Kellet	44 10 0
Plumber's and Glazier's Work.	
Daniel	92 4 0
Painter's Work.	
Burton	18 0 0

For new shop front, cabinet bar-fittings, and alterations at the Lord Nelson Tavern, Manchester-road, Millwall, for Mr. R. Bradshaw. Messrs. Bird & Walters, architects. Quantities supplied:—

Sheffield	£1,207 0 0
Kilby	1,097 0 0
Henshaw	1,057 0 0
Brown	980 0 0
Ebbs & Sons	975 0 0

For proposed alterations and additions at Sussex House, Slough, Bucks. Mr. Wm. Sim, architect:—

	Design A.	Design B.
Snowball	£900 0 0	£973 0 0
Liddiard	899 0 0	969 13 4
Hards	799 10 0	850 18 0

For farm-house and outbuildings at Heath and Reach, Leighton Buzzard, for Mr. Charles Claridge. Mr. Frederick Gotto, architect:—

Chappell	£619 0 0
Edwards	622 0 0
Holdstock	572 0 0
Groom	547 10 0
Miles (accepted)	487 0 0

For St. Michael's Church, Hull. Mr. R. J. Withers, architect:—

Dove, Brothers	£9,400 0 0
Huddleston	9,150 0 0
Simpson & Malone	8,914 9 0

For a mansion at Hill Bark, near Birkenhead, Cheshire. Mr. Grayson, architect:—

Nicholson & Ayre	£14,686 0 0
Campbell	14,134 0 0
Dove, Brothers	13,350 0 0
Haigh & Co.	13,040 0 0
Burroughs & Son	12,543 0 0
Urmser	12,426 0 0

For a pair of residences, Wandsworth-lane, Upper Tooting, Surrey, for Mr. Herbert Taylor. Messrs. Wimble & Taylor, architects. Quantities supplied:—

Deacon	£3,485 0 0
Nixon	3,404 0 0
Thompson	3,270 0 0
Lathey, Brothers (accepted)	3,248 0 0
Kilby	3,115 0 0

For the erection of Jews' Synagogue, Walworth-road. Mr. H. H. Collins, architect:—

Myers & Sons	£5,974 0 0
Coles & Sons	5,940 0 0
Hart	5,797 0 0
Newman & Mann	5,728 0 0
King & Sons	5,654 0 0
Ennor	5,648 0 0
Jackson & Shaw	5,568 0 0
Williss	5,480 0 0
Chuter	5,125 0 0
Hill & Keddell	5,121 0 0

For decorative work at the new Synagogue, Great St. Helen's. Mr. N. S. Joseph, architect:—

Clark & Mannooch	£814 0 0
Newman & Mann	799 0 0
King & Sons	774 0 0
Heeps	684 0 0
Cohen (accepted)	680 0 0

For building a tavern and four shops in Blackwall-lane, East Greenwich, for Mr. J. Walters. Mr. H. J. Leachester, architect:—

	Cost of cellars built £300 0 0	
	Tavern.	Shops.
Walker	£1,950 0 0	£980 0 0
Lester	1,930 0 0	—
Thompson	1,768 0 0	1,000 0 0
Searle	1,720 0 0	985 0 0

For St. Wilfred's new Girls' and Infants' Schools, Hulme, Manchester. Mr. Herbert E. Tijou, architect:—

Harrison & Shaw (accepted)	£1,110 0 0

For the erection of Lea House, Blockley, Manchester. Mr. Herbert E. Tijou, architect:—

Thompson (accepted)	£1,310 0 0

For building eight houses in the Lancaster-road, Notting-hill, for Mr. Sims. Mr. G. Stanham, architect. Quantities supplied:—

Broad, Brothers	£8,295 0 0
Newman & Mann	8,273 0 0
Cowland	7,990 0 0
Adamson and Son	7,938 0 0
Neale & Co.	7,200 0 0

For rebuilding Rye House, Peckham. Mr. J. Bramwell, architect. Quantities supplied:—

Nicholson	£2,310 0 0
Newman & Mann	2,235 0 0
Lathey, Brothers	2,188 0 0
Thompson	2,060 0 0
Wells	1,983 0 0
Marsland & Sons	1,932 0 0

For repairs and alterations to Riverdale House, Strand-on-the-Green, Chiswick, for Mr. L. R. Stewart. Messrs. Wimble & Taylor, architects:—

Calla & Son	£620 0 0
Adamson & Sons	608 0 0

For three pairs of residences to be built in the Lea Bridge-road for Mr. W. Bowden, at per pair. Mr. Thos. J. Hill, architect:—

Rivett	£1,883 0 0
Reed	1,875 0 0
Patman, Brothers	1,769 0 0
Gent	1,496 0 0

For five shops at Battersea for Mr. Edward Hember. Mr. H. McCalla, architect. Quantities supplied by Mr. Shrubsole:—

Myers & Sons	£3,273 0 0
Cass & Keast	2,912 0 0
Godbolt	2,688 0 0
Williams	2,653 0 0
Heath	2,600 0 0
Wilson	2,498 0 0
Poole	2,200 0 0
Minty & Son	1,973 0 0

For an assembly-room to be built on the Birkbeck Estate, Holloway, for Mr. Saint Maine. Mr. T. E. Knightley, architect. Quantities supplied by Mr. Shrubsole:—

Mayo	£1,458 0 0
Carter & Sons	1,389 0 0
Williams	1,388 0 0
Cresseli	1,285 0 0
West	1,188 0 0
Godbolt	1,134 0 0
Terry	1,111 0 0

In list of tenders for lodge to Manor House, Erith, Kent, for Bloofield £566, read £366.

The Builder.

VOL. XXIV.—No. 1216.

Metropolitan Workhouse Infirmaries.

HERE is an item in social economy that nearly everybody looks at in the wrong light, or from an improper point of view. This is the poor-rate. Instead of regarding this levy as the two pence which in old times, the days of small population and scarce travelling, we should voluntarily have left with b host of the inn to whom we had entrusted e care of him who had fallen among thieves, been otherwise unfortunate, we look upon as an inconvenient exaction. This should be, to begin with. Then, having some- at grudgingly taken the Samaritan two nce from our purses, and received the col- tor's receipt for it, we never think of it ain. Neither should this be. We should member to say to the modern represent- ve of the host of the inn between Jeru- em and Jericho, "Whatsoever thou spendest re, I will repay thee." In other words, we uld take the fact into consideration that more e and supervision than this small payment plies will be required of us. Although the ty is uniformly shirked, every ratepayer has a te in the election of guardians, and it is his or r duty to elect men whom he or she can con- entiously depute to perform his Samaritan sponsibilities. We do not for a second advo- te reckless expenditure or unthrifty prodigality giving. We simply declare and point out, as arly and forcibly as we may, that the great h by the parched and sterile hill-side to which many weary and wounded have to resort— e workhouse—should be maintained with ery discipline, appliance, precaution, and dis- sition possible, to obtain the best results. It not sufficient for us to provide a small instal- ent of the means to purchase "wine and oil:" e must see that these reviving and healing ents are properly administered to the neces- ous, and that the dead are not buried alive, e sick left untended, infants scalded to death, id the two pence otherwise appropriated.

Workhouse infirmaries are so out of sight, and nsequently so out of mind, that they are not timated at anything like their due conse- ence. We talk of the "magnificent charities," e voluntarily supported hospitals of London, as ough they were exclusively the great fountains healing for the sick poor. In reality, for ery bed made up in these useful institutions, ere are two made up in the metropolitan orkhouse infirmaries, besides two others, laking four in all, for the weary and worn out ayfarers classed as "infirm." For the 3,738 ade up in the eighteen London hospitals, there e upwards of 14,000 made up in the wards of ie London workhouses set apart for the sick hd infirm, 7,463 of which are for the helplessly ck, and 7,000 and more for the hopelessly sick, old age, labelled "infirm." This is one fact not generally known." Another is, that out f thirty-six metropolitan workhouse infirmaries ere is not one that is furnished with the same ids towards the recovery of the sick as are ossessed by the voluntarily supported hospitals.

Within the last few months a tour of inspection of thirty-six workhouses has been made at the instance of the Editor of the *Lancet*, by a trio of medical men, and all have been found short of the accommodation and contrivances common to well-appointed hospitals, and several to be destitute of any save the most inefficient approximation to such organised systems. The Reports of these Commissioners have been collected, and now form a little book, which we strongly recommend for wide and serious consideration.*

Within the last few months, as our readers know, an association has been formed for improving the metropolitan infirmaries. It is urged that this department in workhouses is now managed on principles far behind those that are recognised as indispensable in effecting speedy restoration to health, and that a wise reform is urgently needed. When we add to this the statement that many of the patients in workhouse infirmaries are individuals who have, when in health, helped to furnish the necessary income of the house, no one will deny that it is imperative that decent accommodation should be provided for those who, in stress of weather, are obliged to put into this inhospitable port. The fact that there are black sheep in every large flock, should not weigh anything with us. That our accommodation should be enjoyed by a proportion of noisy casuals, or by a few really unworthy characters, should not make us shut our eyes to the fact that the large proportion of those resorting to our workhouses are people as worthy of our consideration as the certain man who had been stripped and beaten by thieves.

Of the inmates of a workhouse the sick and infirm require the first aid. We must see that there is a detached hospital provided for them, where they can be kept quiet and be well and properly attended. In many houses the sick and infirm are now placed in rooms mixed up with those occupied by people in full health, where all the noises incidental to their different occupations are going on. In small country workhouses, indeed, the raving maniacs and idiots have no other accommodation provided for them than that enjoyed by all the sick in the community. A case brought before the notice of a Board of Guardians in the north a short time since is an example of the evils of scarcity of accommodation. A patient was carried to the hospital ward as sick who became in a few days a maniac. The county lunatic asylum was too full to receive him, and even if there had been room for him it was doubtful whether he could have been removed with impunity, owing to his prostrate condition. But, weak as he was, he kept the other occupants of the room and wards in constant terror (on the occasion of his first symptom of madness throwing his dinner-knife across the ward with so much force as to stick it into the window-shutter), a frame of mind not conducive to their recovery or comfort: this an apartment for sick who become lunatics would have prevented. Idiots, too, with their fearful and revolting infirmities, lolling about among invalids or "infirms," are surely in their wrong place. Like maniacs, they require separate accommodation. Workhouse infirmaries, therefore, to be reasonably sufficient for their requirements, should be isolated from the main house, contain distinct wards for infectious cases, adequate accommodation for those who become unexpectedly insane, and for the idiotic; besides proper lying-in wards, infirm wards, and those for the ordinarily sick, as well as detached dead-houses. All these should be dry, drained, well ventilated, and so ordered as to yield the largest amount of convenience to those occupying them, and to those ministering in them. The head nurses' apartments should be central. The kitchens for the cooking of the hospital diet should form part of the hospital arrangements; the W.C.s should be so placed and constructed as to prevent the possibility of the air in the wards being poisoned by them. Hot and cold water should be laid on to each floor; and pipes to convey dirty water away, properly trapped, should be provided with an abundance that would leave no excuse or temptation for the hoarding up of slops as hidden treasures. There should be baths on every floor, and there should be isolated wash-houses, laundries, and drying and airing grounds; and, above all, cheerful wards and airing grounds for the convalescents. That troublesome enemy to healthy as well as sick persons—damp—in walls and from roofs, should be specially guarded against. Children with their infantile ailments should not be placed in the same wards with the bedridden infirm, as is not unfrequently the case, and two sick persons should not occupy one bed. The hospital accommodation provided by the State, and maintained out of the poor-rate, should be at least as good as that furnished by private charity. Some people might deem it desirable that it should be better.

Some of the leading members of the medical profession suggest that the superior arrangements called for might be centralized with economy: that in place of the thirty-nine bad hospitals, half-a-dozen good ones would be an improvement. The president of the College of Physicians, the president of the General Medical Council, with Drs. Clark, Jenner, and Sieveking, Messrs. Fergusson and Paget, having been requested to state the principles upon which the treatment of the sick poor in workhouse infirmaries should be organized, have signed a memorandum, including this suggestion. They lay down as the first requisite that the sick should be separated from the healthy, in a building specially devised, and constructed on a good site for the purpose; secondly, they urge that not less space than affords 1,000, and for some cases 1,200 or 1,500 cubic feet of air, should be allowed for each patient; thirdly, that the nursing should be conducted by a paid staff, instead of the paupers being left to nurse one another, as is the case in most instances; and that their attendants should be provided at the rate of three for every fifty patients; these being a day nurse, a night nurse, and an assistant. They suggest, also, that the present medical attendance might be advantageously improved, both as to quantity and conditions under which it is undertaken, 250 patients being as many as they would consign to one resident medical officer, who, moreover, should be released from the often-imposed necessity of making up and pounding the drugs he prescribes. Lastly, they plead for day-rooms as well as night-rooms, as absolute necessities for the convalescent, the chronically sick, the aged and infirm, as well as for a due classification to be observed in the housing of the epileptic, idiotic, and acutely sick. We cannot but endorse these suggestions, and would likewise supplement them in the manner we have just mentioned, although we would advise that discretion should be used, lest an excess of accommodation should be provided beyond what is required in certain localities, under these principles. It should never be forgotten that the experience of the working of workhouse infirmaries is, that for many weeks together the wards may be comparatively empty, and at other times inconveniently full. We would also advise branch establishments in the country for children. The best-managed is always the cheapest in the end, just as the best cloth lasts the longest. Try to manage with an inefficient staff of attendants, an insufficient dietary, or inadequate accommodation, and a train of evils arises that ultimately ends in a larger expenditure than would have been involved had a more far-seeing eye been at the helm.

* "The *Lancet* Sanitary Commission for Investigating the State of the Infirmaries of Workhouses. Reports of Commissioners on Metropolitan Infirmaries.' London: The *Lancet* Office, 423, Strand.

At present 800 or 900 patients sometimes fall to the lot of one "workhouse doctor," about seventy of whom are lunatics, several among these being raving mad from the effects of intemperate lives. The only classification attempted in most instances is that of the sexes, irrespective of the nature of the diseases with which they are afflicted. In Marylebone Workhouse there are about a thousand sick and infirm. These are placed under the charge of a medical officer, who receives a salary of 950*l.* to take the entire management of them, providing a resident assistant, dispenser, and all drugs. To show the absence of anything like method in the computations of the value of medical services we need but mention the salaries of the medical officers in a few other parishes. The medical attendant of the Kensington Infirmary of the Westminster parish receives 160*l.*; the Lambeth medical officer receives 300*l.*; and the Bethnal-green doctor, with an average of 600 beds, has but 160*l.* per annum for his services. These are by no means the extreme variations. The guardians of the Rotherhithe Union poor award their medical officer 35*l.* per annum. A difference of opinion of still more importance prevails as to the extent of fresh air necessary for the consumption of individuals. It seems to be implanted in every guardian's mind, that there is a wide gulf separating the requirements of a pauper from a peer in this respect. The report of Dr. Percy upon the ventilation of the House of Lords shows that although the members of the senate are provided with fresh air in proportions that have generally exceeded the quantity deemed by the highest authorities to be amply sufficient, they are still complaining. Dr. Reid deemed 10 cubic ft. per minute sufficient, although he sometimes provided 60 ft. per minute, from a conviction that it was impossible to have too large a supply. Other authorities assign 2,000 cubic ft. to each man per hour, or 33 ft. per minute, as the least quantity that can be safely deemed sufficient. Contrast this supply with the stagnant physic-and-disease-laden air doled out to paupers in the 300 cubic feet of space assigned to each in some workhouses. Contrast the quantity of gallons of clean water assigned per head to individuals in all water-supply schemes with the fact of seventeen children being washed in one pail, and *several* in the same water, and dried with sheets, as at Bethnal-green. Air, light, and water, being absolute necessaries of life, should not be stinted as though they were Oriental luxuries conveyed to these shores at great cost. We might at least facilitate the use of what has been so lavishly provided in the great scheme of creation.

There is, however, so much to reform in the management of workhouse infirmaries that, in dwelling upon items of more glaring flagrancy, we are omitting mention of accessories of not less importance. Foremost among these come diet and proper nursing. Imagine the misery in scores of wards where sick people are locked up every night, without any bells to summon aid from any quarter. Think of the sun rising and looking upon hundreds and hundreds of sick persons thus penned and deserted. Think of thousands of weary, wailing, writhing invalids, lying on lumpy flock beds, harassed by rushes of "boarders" coming in to take their meals, or by the constantly recurring "thud" of carpet-beating or crack of stone-breaking, carried on in their hearing, or by the spectacle of some greater sufferer, confined in a straight waistcoat, raving mad, or held down in some fearful epileptic fit. Surely improvement in these matters can be easily made. Who is to answer for another sight the sun rises daily upon,—rooms and rooms full of old, toothless, dim-sighted, bald-headed people, all dressed exactly alike, all toned down to the same pale complexion of sallow melancholy, with nothing to read, nothing to look at, staring vacantly, or waiting longingly for meals composed in great part of food they can neither masticate nor digest. The sick wards require certain contrivances such as bed-rests, bed-pulls, arm-chairs, macintosh sheets, air-cushions and mattresses, hot-water warmers in various forms, to suit their required application, besides an ample supply of clean linen, including small cloths to put over the bed-clothes at meal times, and little muslin squares to place over the faces or heads of bedridden and helpless paupers to protect them from flies. But, first of all, we must provide proper housing for the unfortunate seekers of these aids to recovery. We say, as Nehemiah said to the Jews, "Let us build, that we may be no more a reproach."

FIRE EXTINGUISHERS AND FIRE-PROOF BUILDINGS.*

It is rather a curious fact that while water is our great but not very satisfactory dependence in the extinction of fires, combustible gases are being produced by the decomposition of water on red-hot carbonaceous matters. Is it not really because water is so decomposed and thus productive of combustible gases, that it so often fails to extinguish fires? If so, this must especially be the case when the quantity of water is limited. Where immense streams are poured rapidly upon the burning masses whence the flames emanate, the very steam thus generated must powerfully tend to extinguish the fire; but where smaller quantities are more slowly poured on, the burning material may only be increased by the decomposition of the water and the instant firing of the combustible gases thus evolved from the red-hot carbon; the process sustaining the red heat, the flame, and the spread of the conflagration. One powerful steam fire-engine, with an abundant supply of water, must thus be far more useful than the same water supply, and the same power, applied less rapidly through a number of fire-engines worked by hand. If the power and the supply be not sufficient to deluge the fire centre suddenly, therefore, it would seem to be better not to use them at all.

Water is not the only agent which has been used as a fire extinguisher, however, as every one knows; and water itself has been otherwise applied than by the ordinary fire engines. Attempts have been made at various times to increase the efficiency of water when used in extinguishing fire, by mixing or dissolving some chemical substance or other with it; but however well such a proceeding may have turned out when tried on a small scale as an experiment, it would be both costly and inadmissible in practice.

The idea of extinguishing fires "chemically" seems to have gained strength of late years, for from time to time accounts are found of some contrivance for using "ammonia," "carbonic acid gas," &c., or else patents obtained for their application, or that of some peculiar combination of "chemicals." There can be no doubt that in theory the extinguishing of fire by some such arrangement or mode of treatment is perfectly correct, and that experiments in the laboratory of the chemist give most satisfactory results; but practice at a real fire soon dissipates the ideas of those who have devoted their time and money to introducing it. Mr. Young, in treating of the subject, records that:—

"In 1734, a M. Fuches, a German physician, invented balls composed of certain ingredients, which when thrown into a fire burst with violence, and instantly quenched the fire.

In 1761, one Zachary Greyl employed a process of a similar character, using alum, sal ammoniac, and other saline matters mixed with water.

During this same year a Dr. Godfrey erected a house at Marylebone, and got up a public exhibition to show off these ingredients, which he did with great success. He used gunpowder as the means of exploding and scattering the material amongst the flames and burning matter, and effectually extinguished them.

In 1792, numerous public experiments were made in Stockholm by a M. Von Aken, using a composition of sulphate of iron, sulphate of alumina, red oxide of iron, and clay, in which he is stated, with the assistance of two men and forty measures of this preparation, to have subdued an artificial fire that would have required twenty men and 1,500 of the same measures of simple water. In the same year M. Nil Mosheim made many public exhibitions in order to prove that combustible materials might be made perfectly incombustible; and Mr. W. Knox, of Gottenburg also directed his attention to this purpose.

* * * *

In 1782, numerous London architects formed an association for the purpose of investigating the causes of the numerous fires, amongst whom were Bonomi, Carr, Dance, Jupp, Revett, Soane, &c., and they came to the conclusion that good party walls were the best means of confining fires to one house, and that therefore other practicable and not expensive means might be devised by which a fire might be confined to one room in a house.

In 1797, Sir Samuel Bentham proposed placing tanks on tops of buildings, connected with pipes laid all over the premises to be protected, and throughout the various floors, with provisions at various points for the attachment of hose and branch pipes; so that in case of a fire breaking out, the pressure in the tank would furnish an immediate and powerful jet at whatever point it might be needed. This plan is largely adopted at the present day.

In 1812, Sir William Congreve obtained a patent for improvements affording security against fire, which consisted in arranging water-pipes in buildings, so that, by turning a cock, all or any portion of the building will be deluged with water.

The late Captain Manby was so struck with the want of means for readily attacking fires at the moment of discovery, from the number of instances he had witnessed, that in 1816 he invented a portable apparatus to be carried in hand carts, each of which was to carry six of his machines. . . . . On turning back a stop-cock, condensed air reacted on water, and cast it to a height proportioned to the degree of condensation.

In the early part of the year 1818 he tried several experiments, in London, with his apparatus, which were perfectly successful; and he received high commendations from those who had seen them used. The apparatus, and the proposals for establishing a fire system with them, were brought under the notice of the insurance offices, but with as successful a result as attended the offer of Mr. Braithwaite's steam fire-engine,—probably for the same reasons.

There can be no doubt that the arrangement proposed by Captain Manby is a practical one, and one calculated to be of great utility and advantage to those adopting it. It possesses the great advantage of *being always ready charged for use*. . . . . There is no doubt but that, by properly arranging the mode in which the undertaking should be carried out, these machines would be found to be *the real fire annihilators*, and become patronised accordingly.

This plan has been lately revived by some Frenchman, who proposes in addition the employment of ammonia or some material mixed with water.

In 1823, a Mr. R. W. Dickinson proposed to use salt in the water thrown by the engines for extinguishing fires, and suggested that a reservoir of brine might be kept ready at the waterworks!

In the fourth volume of the *Builder*, 1846, it is said in Meyler's Bath paper that 'it is the opinion of an eminent professor that one pound of pearlash mixed with a gallon of water (being previously dissolved in hot water before being mixed with the cold) and thrown upon a fire, will instantly extinguish it, if of ever so combustible a nature. Water-carts containing this mixture have for a considerable time past been employed at Liverpool to accompany the fire brigade when ordered out; also at Plymouth and Devonport.'

According to Dr. Clanny, 'five ounces of muriate of ammonia, in one gallon of water, will instantly extinguish a large fire.' This is quoted by Mr. Wyatt Papworth in his 'Notes on Spontaneous Combustion,' published in 1855.

* * * *

Among the numerous contrivances of late years for the extinguishing of fires, which have from time to time appeared before the public, was one known as Philip's Patent Fire Annihilator, which made some noise in the world at the period of its introduction.

This is a portable machine for the immediate production of steam, and carbonic and other gases; which, being directed upon the burning matter, are designed to check the progress of the flames more speedily than the usual application of water. . . . This machine is said to have given satisfactory results in experiments, and on some other occasions, where the circumstances have been favourable to its employment. It is a curious fact that on one or two occasions the places in which it was manufactured caught fire, where it is worthy of note that none of the machines were fit for use, and the engines were called to extinguish it; but, in spite of all its assumed advantages, it has fallen into disuse, and little or nothing is now heard of it."

The prevention of fires by a better mode of constructing buildings, we have often dwelt on as extremely desirable. Houses, as we have said, are really built as if, like the housemaid's morning structure in the parlour grate, they were designed to burn. Lathed partitions are quite as apt contrivances for "burning up" as any crossed sticks or other fire-wood. Flooring joists are not seldom actually thrust under hearths and into chimneys, as if to make sure of a fire train to the wooden floor. But fire-proof construction is not so very clear and practicable an idea as many may imagine. Iron and brick are not so fire-proof as they seem to be. When the combustible contents of some one compartment of a "fire-proof" warehouse take fire, the iron pillars get red heated and soften and twist about, bringing down the brickwork on the fire-proof floors above, and opening up a way for the "devouring element" to extend its ravages; and fires will thus sometimes do more damage in a building of fire-proof construction than in a well-built warehouse without any such pretensions.*

In fact, although the construction of buildings entirely fireproof and uninflammable has long been a favourite idea, and one on which no small amount of thought and money has been expended, unfortunately the results are anything but satisfactory. So far as practice and experience have hitherto taught us, no safety from the destructive ravages of fire has been or

* Fires, Fire-engines, and Fire Brigades; with a History of Manual and Steam Fire-engines; and Remarks on Fire-proof Buildings, &c. By C. F. T. Young, C.E. London: Lockwood & Co. 1866.

* The following paragraph, in regard to a recent fire, may here be quoted from a contemporary, as a case in point.—"Another dock-warehouse for storing jute has been destroyed in London. The premises in question were constructed of *fire-proof* materials, and erected, on the site of a block of buildings destroyed by fire, at Poplar, some short time since. The conflagration was discovered at noon on Friday week, and within a few minutes a strong force of the fire-brigade was present. The inflammable nature of the stores resisted all attempt to subdue the flames, and soon the swollen jute forced down the walls, and the iron roof crashed inwards. Fortunately, the floating and steam land-engines were able to play with advantage on the burning premises, nearly 2½ tons of water being thrown per minute on the building, and in the course of a few hours the flames were subdued." Jute, we suspect, like oily rags, must be liable to what is called "spontaneous combustion." We may here remark, in reference to fires, that we had occasion, not long ago, to record the burning of a water-works building at the west end of London. As we write we observe that a fire-brigade station, engine and all, have just been destroyed by fire at Poplar! The fire-brigade station stood next door to the police station!

can be obtained by the use of the most uninflammable materials for building purposes, unless some other modes of employing them be adopted than those hitherto used. Most of the tremendous and disastrous conflagrations of late years have either originated in or extended to these so-called "fire-proof" structures; and as in these the most valuable goods and materials have been stored, on account of the assumed security afforded thereby, the losses have been correspondingly heavy.

In most of the large London fires which have occurred of late years in these "fireproof" buildings, it has generally been found that, when once the fire has got hold, it is a waste of power to attempt to save the premises in which the fire broke out, and the exertions of the men have consequently been found to be better employed in preventing the fire from spreading to the adjoining premises.

When fire in these buildings, even those the most scientifically and expensively constructed, is once allowed to "get out of hand," as it may be termed, their destruction and that of their contents is inevitable. The stones crack and crumble with the intense heat; the iron beams push or pull everything down; the brick arches fall to pieces; concrete is nowhere: thus, in practice, it is found that in a very short period, unless the most lavish supply of water and powerful and efficient means of throwing it on the burning materials are quickly and readily available at the earliest moment, the whole mass becomes a huge undistinguishable heap of burning and smoking ruins.

These "fireproof" buildings, as at present constructed, are invariably found, in case of catching fire, to "hold" the fire, and by this means render their total destruction, and that of their contents, a dead certainty; and they are to all intents and purposes most effective "blast furnaces," whenever they, or rather their contents, unfortunately become ignited, the result being, as before described, the complete demolition of the structure and the entire destruction of the contents.

The desirability and importance of fireproof construction, especially from a commercial point of view, cannot for a moment be denied; but a great desideratum, also in the usual parlance, "from a commercial point of view," is that it should be "cheap," whilst, practically, it should, in addition, be thoroughly efficient and easily applicable to buildings of all kinds.

Mr. Young's suggestions on this subject may be worth abstracting.

In constructing warehouses, he remarks, the floors might be divided by strong partition walls into numerous rooms, closed by double iron doors; and the floors constructed in such a manner that the flooding of any one room should not damage the contents of another; then an outlet might be arranged so that a certain height of water would cause it to act of itself, and permit its escape, thus preventing its accumulation to an inconvenient extent. Each floor should have water laid on, and cocks and short lengths of hose attached to each at convenient parts of each room; and the invention of Mr. Stewart Harrison would no doubt be found of great utility when applied to these pipes. It would be desirable to provide an independent means of access to each room or division on every floor, in addition to those communicating from one to the other, by which access could be gained to each room without passing through another. The doors between each room or division might be so arranged as to show in the head office, or that of the watchman, whether they were closed or open.

It has been proposed to leave openings in the roofs of such buildings, which could be opened to let out the heated air and smoke in the event of the building or any part of its contents catching fire. Such suggestions are entirely opposed to the principles which have been found so frequently to diminish the destructive effects of fires, and so assiduously practised and enforced by the late Mr. Braidwood, namely, the prevention of the access of air or the creation of a current or draught in a building or room which has become ignited; and a little reflection on the subject can hardly fail to show their absurdity.

If it were possible so to construct a building that, on the breaking out of a fire, it could be so hermetically closed to the atmospheric air that its entrance could be prevented, there is no doubt that the fire would go out of itself, inasmuch as the air required to support combustion would be quickly expended, and, from the product not allowing fire to exist in it, the extinction would be a positive certainty. Although this be an impossibility under the present system, there is no reason why as close an approximation as possible to the principle alluded to should not be tried for; for even if it did not act so perfectly as to completely extinguish the fire, still the absence of draughts and of the rapid access of fresh air would keep the fire in hand sufficiently long to enable efficient means to be taken for extinguishing it.

The Metropolitan Building Act, as it now stands, is far from meeting the requirements necessary for obtaining and placing buildings of the character now desirable, so as to be free from liability to take fire, or to do the minimum of mischief when they do ignite.

In Paris, the floors, ceilings, partitions, staircases, &c., have all the hollow places filled in with a concrete formed of rubble stone, and plaster of Paris, by which means each portion of the building is made soundproof, and the spreading of fire prevented. The importance of making all the parts of a building usually left hollow, air-tight, so as to prevent the formation of a current of air to feed the fire, if unfortunately a house should become ignited, is too self-evident to need lengthened comment; and the constant instances of its efficiency, wherever it has been tried, must be taken as a satisfactory proof of its importance.

Our readers may remember that the late Mr. Hosking, in his excellent work, "A Guide to the Proper Regulation of Buildings in Towns," gives a full description of the plan followed in Paris in forming partitions, floors, &c.; recommends it for adoption here; and remarks that floors are constructed in Nottingham in a similar manner, where the houses are said never to be burnt, and are free from damp and vermin. He also makes some excellent remarks on the use of iron in building-construction, and the dangers resulting from its injudicious application.

Of late years many plans have been patented or brought forward, either for making buildings fireproof or diminishing their liability to catch fire, each more or less adapted to the purpose; but as a rule it will be found that few of them are generally employed.

Of the volume under notice comments on the construction of buildings with reference to the prevention of fire, and the means of its extinction when in progress, form only a small section. The work contains a great deal of valuable information, illustrated by engravings, as to fire-engines; and it also treats of foreign fire systems, fire brigades, and so on. It may be called a useful compendium on all branches of the exciting subject of fire.

THE TRADES MOVEMENT AND THE MONEY MARKET.

WE have a word of advice to offer to our friends the operative builders. It is not a sermon, but an appeal to their intelligence. The word intelligence, indeed, has two very different meanings. It signifies something to be acquired, and something by which that which is acquired is put to use. It signifies news, prompt and accurate information as to the course of events; and it also signifies the sharp mother-wit by which that information is turned to the best account. It means knowledge, then, and it also means sagacity. We appeal to both.

Our columns of late have been full of reports of the trades movement. In London, and in the provinces, from Poole to Paisley, from Maidstone to Carlisle, from Scotland and from Ireland, as well as from Lancashire, come tidings of the same complexion. There is a general call for a rise in wages, an advance in the price of labour. In one place the men are on strike, in another they have come to terms with the masters, in another negotiations are in progress; here it is a halfpenny more an hour that is demanded; there it is sixpence a day; in another place it is three shillings a week. The intelligence from each centre of the great labour market is of the same character. Everywhere higher wages are being given, or, at all events, are being asked for.

It is to be expected that the operative workmen are fully aware of this fact. From their special organs in the press, from the working of their own organization, from private intercourse and correspondence, there is little room to doubt that they are pretty fully in possession of intelligence that so closely concerns them. We wish them to put this information side by side with other news equally public, equally certain, equally important, in the long run, to themselves, and then to act with intelligence on a view of the whole case.

At the same time that these advices from all parts of the country point to the conclusion that labour is increasingly in demand, and that workmen have only to hold together, to be patient and resolute, in order to raise and to fix its price, events of a very different character have occurred and are likely yet to occur. It is possible that the operative may not in the first instance see any close connexion between the failure of a great discount establishment in London, and the amount of cash available for his employer's pay-table on Saturday night. It is possible that some of those unquiet spirits whose element is mischief, and who are never so happy as when engaged in setting class against class, may even rejoice at the discomfiture of the money-dealer or the money-owner, as if it were a gain to the man who has only the strength or the skill of his arm on which to depend. A greater mistake it is impossible to make. In a complicated social system like our own, no portion or class of society can suffer, without, sooner or later, all the rest having to suffer with it. And the sooner or later generally means, that the less rapid and apparent is the sympathy, the more profound and lasting are its effects.

Now England has just enjoyed some nine years of great prosperity. As the wealth and activity of the country is made up of the wealth and activity of individuals, so does the great annual national balance sheet, the budget, as it is called, show with great truth the general state of the nation. We find then that our prosperity has been advancing with rapid and steady pace. Taxes to a large amount have been reduced or abolished, and yet the national income is some million and a half more than the national expenditure. Our imports have increased; that is to say, we have spent more money on the comforts and luxuries of life, or we have found a cheaper mode of procuring its necessaries. Our exports have increased; that is to say, we have received more money from our foreign customers. Our income-tax has increased; that is to say, that the steady annual income of the middle and higher classes has augmented. In spite of the terrible blow of the cotton famine, in spite of rag famine, and rinderpest, and other abatements of the general welfare, we have had a period of unprecedented, and, we may hope, not undeserved good fortune.

Together with this increase of activity, and in no small measure contributing to it, has been the influx of gold. A certain quantity of gold is required for the currency of the country; a further quantity is demanded for purposes of art and of luxury. For many years the supply of gold, considered as a mineral to be obtained in certain localities by a fixed or tolerably regular amount of labour, had been very steady, and might be regarded as about equivalent to the annual demand for all purposes to which the metal was applied; but, during the last quarter of a century, the supply of gold has largely increased. The Russian mines, which were almost unknown in 1830, yielded in 1846 above four millions sterling per annum. California and Australia have produced large and constant supplies; so that not only have the increased demands of the time, such as the substitution of a gold for a silver currency in France, and, to a great extent, in Italy, been fully met, but the proportion between the supply of gold and the supply of other commodities has been altered. This alteration has shown itself in the inevitable result,—a result which no effort or combination of capitalists on the one hand, or operatives on the other, can materially affect,—a gradual change in the price of labour, and of all commodities as paid for in money,—that is, as measured by the market value of gold.

There have thus been at work two distinct and powerful causes affecting the rate of daily wages. One is the increased prosperity of the country, which has created a more steady demand for labour of all kinds, and thus has raised its price on the great principle of supply and demand. The other is the increased quantity of gold in the country, which has lowered the purchasing value of money, so that a pound will now no more purchase the same amount of labour that it would in 1848, than it will purchase the same weight of butcher's meat. The first cause tends to make the workman better off, as compared with those who employ him;

the second cause tends to raise his nominal wages, leaving him neither better nor worse off by the change.

Another consequence has attended the prosperity of the last nine years. People have become in a greater hurry than ever to be rich. And thus we have witnessed the rapid growth of numerous enterprises and speculations which held out the prospect of large profits. Not content with risking what they had, individuals, and trading companies have risked very much that they had not, but which they hoped to be able to borrow. A very large amount of money has been raised, that is to say borrowed, at a high rate of interest, to be sunk in expenditure that can only, if at all, become profitable at the end of two, three, or more years. It is as if a farmer thought, and we will say thought correctly, that by laying out five hundred pounds in draining he would increase the profits of his farm by from fifty to a hundred a year. So he borrows a hundred pounds, and spends it in tiles, and borrows a second hundred, and commences to lay them. But when he tries to borrow the remainder, he cannot find a lender. He is saddled with ten or twelve pounds a year, as interest on what he has borrowed. His incomplete works are no advantage to him, and he is so far the worse off for his well-meant effort, because he cannot command the means of completion.

So is it with many of our great enterprises. Then what follows? The company, or the contractor, are ready to run any risk, or to submit to any loss, rather than undergo the certain and total loss of the stoppage of the enterprise. Thus Lord Redesdale told the House of Lords the other day of a large firm who had raised the money necessary to carry on the works of a certain railway they had in hand, first by selling the 40*l.* shares for 21*l.* each, and then by selling the 10*l.* shares for 27*l.* 10*s.* each. Now, it is clear that no business, legitimate or illegitimate, can stand such sacrifices as these, and whether the loss fall on the contractor, or on the shareholders, it must ultimately tell on the workman.

It tells on the workman in this way. We have seen that there are two real, inflexible causes tending to raise his wages. Now, to these has been added a third cause, and that has been false, unreal, and delusive. It has been the extra demand for labour, caused by the simultaneous prosecution of so many enterprises, which cannot be carried on uninterruptedly. Already there is a great difference in the aspect of the public works of the metropolis. Employers who can pay look a-head, and that they may continue to pay, they reduce, as far as possible, their hands. Employers who cannot pay, will have to turn their men adrift. Between the actual collapse of those employers who have relied on a system of credit that has come to a sudden termination, and the additional prudence enforced on those who are engaged in regular, ordinary, remunerative business, there can be little doubt that a large number of workmen are likely shortly to be discharged.

It is, therefore, a matter of ordinary sagacity and true intelligence for the operatives to see that their demands in no case overstep the limits of equity. A halfpenny an hour, or two or three shillings a week, may seem little to the workman; but it makes a difference of from 6 to 18 per cent. to his employer. A difference of this amount is not only enough to determine who shall have a contract, but it is enough to determine whether a contract shall be let or shall be deferred,—whether works in progress shall be carried on or shall be suspended. The workman is probably, if he look fairly at the matter, better able than his employer to judge whether the rise he demands in wages is equitable or not—for how much he counts his own increased expenses, and for how much he reckons on the inability of his employer to supply his place. The master, on the other hand, is the only judge as to how he will meet his pay-table,—as to how much he has to pay for the use of the money needed to pay his workmen in the intervals of receiving payment from his own employers. He alone can tell whether he could best go on at increased prices, or put his hand into his pocket, and wait for that fall of prices which always succeeds an unfounded rise. It is not the case of Mr. A.'s carpenters or Mr. B.'s plumbers that is at stake: it is the far greater question of the real value of labour, as compared with the value of money, that has to be solved—a question that no amount of combination, on the part of masters on the one hand, or of men on the other, can permanently and materially affect, but a question in which any undue demands, most especially at this moment, on the part of those whose daily pay forms the chief item of the builder's expenditure, will exercise a marked, a rapid, and a disastrous influence.

THE HEALTH OF SOUTHAMPTON.

Recent experience teaches us that our seaport towns run the greatest risk of infection from the threatened cholera epidemic. Southampton last autumn, and Bristol, Hull, and Liverpool this spring, have each been exposed to this risk; and it is specially reassuring to find that only in Southampton did it spread to the natural inhabitants of these towns. Last autumn when this disease was very prevalent in many parts of the Mediterranean, Southampton, as our principal port for passenger and other traffic with that portion of the Continent, suffered from its importation; fortunately, however, the number of fatal cases although sufficient to awaken public attention to our danger, was comparatively small. Hull and Liverpool have, still more recently, been exposed to risk by the crowds of ill-fed and uncleanly German emigrants, who land at the former port from Rotterdam, where cholera has been known to be more or less prevalent during the winter, and traverse Yorkshire to re-embark at Liverpool, for America. Hull has been since the beginning of the year, except London, the healthiest large town in England, and thus has less reason to fear the risk of infection. With Liverpool, however, it is different: in this town, from the condition of a large portion of its population, the mortality has always been in excess of that in any other large town; but during the whole of last quarter the annual death-rate was 46 per 1,000, and the prevalence of typhus and other zymotic diseases suggested most alarming ideas of the ravages which cholera would commit in so unhealthy a town. It almost appeared as if to introduce cholera into Liverpool would have been like dropping a spark into a barrel of gunpowder; it is, therefore, most consoling to find that this has not actually occurred, and in spite of the great danger of the experiment, up to the present time the disease has been almost entirely confined to the German emigrants, and has not appeared in a single instance among the natural inhabitants of the town.

From the outbreak of cholera in Southampton last autumn, the health of that town became a subject of some public interest, which has not been lessened by the evident risk which all our ports run from the introduction of the disease from the Continent during the present year. It may, therefore, be useful both to ascertain the sanitary condition of the town at the time of the outbreak, and whether the efforts to which the town authorities were stimulated by the warning, appear to have been attended with success. The borough of Southampton, the municipal and parliamentary boundaries of which are co-extensive, contained at the census of 1851, a population of 35,305 persons; by 1861 these had increase to 46,960, and, assuming that the same rate of increase has continued from 1861, to the present time, as prevailed between 1851 and 1861, the population at the middle of the present year will be 54,531. During the ten years 1851-60, the average annual death-rate in the borough was 24·4 per 1,000. In the three years 1861-2-3 the town was remarkably healthy, the rate being respectively 19·7, 20·0, and 19·8. In 1864, however, it increased to 23·6, and in 1865 further increased to 24·9. It is now so thoroughly understood that the class of diseases called zymotic, which are of an epidemic character, are so much under the control of sanitary regulation, as almost to be called preventible, that in an excessive mortality a preponderance of these diseases is almost always found. In Southampton, in 1864, 39 deaths were referred to typhus, 35 to measles, 20 to scarlatina, 14 to whooping cough, and 13 to small-pox. Diarrhœa, principally infantile, was also fatal in the autumn in 64 cases, while one was certified as choleraic diarrhœa. As above stated, the mortality of last year again exceeded that of 1864, and we find the numbers referred to the above-mentioned diseases greatly increased. The deaths from scarlatina, of which a very fatal epidemic prevailed in the town during the latter part of the year, rose from 20 in 1864 to 172; typhus to 52; whooping-cough to 34; and small-pox to 29. Considering the general prevalence of diarrhœa in all town populations last autumn, the number referred to this disease did not show so large an increase, having only risen from 64 to 79. Cholera was returned as fatal in 21 cases; a large proportion of these, however, were doubtless only choleraic diarrhœa. It should be understood that the numbers given above only refer to that portion of the borough contained in the registration district of Southampton, and do not include the tithing of Portswood, which, in 1861, contained 3,546 persons, this part of the borough being situated in another registration district, which prevents the numbers from *each disease* being given for the whole borough. The increase in the mortality of the town is, however, sufficiently explained by the figures which are obtainable for the *district* of Southampton. The great fatality of scarlatina in the town during last autumn and winter, is alone sufficient to prove that its sanitary condition was but too favourable for the reception of an epidemic. The town authorities were quickly alive to the necessity for reform; a medical officer to the town was appointed, and although time is necessary materially to reduce the death-rate of a town, it would appear that the measures which have been adopted are even now beginning to bear fruit. During the first quarter of this year, which, in spite of an unusually mild winter, was unfavourable to the health of most of our large towns, the epidemic of scarlatina had scarcely subsided in Southampton, and twenty-eight deaths were again referred to this disease. These, in addition to the natural increase of the deaths from diseases of the respiratory organs, raised the mortality for the quarter again above the average, to 27·9 per 1,000. Since the beginning of April, however, there has been a marked improvement in the weekly returns of mortality; scarlatina, as an epidemic, has entirely disappeared, and in the seven weeks ending 19th inst., the annual rate of mortality in the borough fell to 23·4 per 1,000 of the estimated population. We hear from time to time of the activity of the new medical officer in abating all nuisances, and preventing over-crowding in lodging-houses, which, especially in seaport towns, is one of the most dangerous abuses; he appears, moreover, to be fully alive to the importance of lime-wash, not only as a disinfectant, but as a preventive from infection. If the authorities of all our large towns would ordain a more liberal use of whitewash each spring in all the more crowded districts, almost as much benefit to health would result as from far more pretentious sanitary measures. There is one point to which we would wish to call the attention of the new medical officer of Southampton, if it has not already engaged his notice: it is to the thirteen deaths which were in 1864 referred to small-pox, and to the twenty-nine last year. Unfortunately, the registrars of deaths neglected to state in nearly all these cases whether the deceased had been vaccinated; but it is found to be fair to assume that in the large majority of instances, where this is not stated, vaccination has not been resorted to. Not a single instance is mentioned of death from small-pox in Southampton last year after vaccination: it would therefore appear that at the present time the use of this preventive precaution is much neglected in Southampton. We shall watch with much interest the future periodical returns of the health of this town, and of other seaports; for although Liverpool has up to the present time, under most unfavourable sanitary conditions, escaped the infection which has been introduced, healthy towns have every reason to expect, with still greater confidence, an immunity from the dreaded disease, should it come, and a vast saving of life and energy in ordinary times.

THE AGE AND AUTHENTICITY OF THE NATIONAL PORTRAITS TESTED BY COSTUME AND HERALDRY.*

REIGNS OF EDWARD VI. AND PHILIP AND MARY.

I shall take these two reigns together, as in all they but comprise eleven years, and the costume in which a change commences with the first, undergoes little variation before the termination of the second. That change I would call the visitor's attention to as it is a remarkable one, and he will find it justifies the observations I have made on several portraits exhibited as of the time of Henry VII. and Henry VIII. In the male as well

* See pp. 320, 357, *ante*.

in the female costume it is characterised by the ss being worn as high as possible in the neck, ery small frill or ruff subsequently appearing ve the collar of the doublet or jacket, and xing the line of the jaw-bone. The hat of the gn of Henry VIII. disappears, and a small worn on the side of the head with a jewelled nd and a small single drooping feather or tuft feathers takes its place with the men, while the three-cornered Miniver cap* is substi-ed by the ladies' the head-dress which is pularly known as the Mary Queen of Scots ; the centre of the three points being de-ssed upon the forehead in lieu of standing up d forming an acute angle, as it is seen in the rtraits of Catharine of Aragon and other ladies the reign of Henry VIII.

The skirts or bases as they were called of the ublets are no longer full and plaited, but quite in, and the trunk hose so associated with the es of Elizabeth and James first make their pearance. The principal features of the male tume here pointed out will be observed in the ng King Edward himself, No. 172; Philip of Spain, husband of Queen Mary, No. 209; lliam Powlett, first Marquis of Winchester, . 203; Sir Nicholas Carew, No. 162; Thomas dcliffe, Earl of Sussex, No. 136; and the three rtraits of the Stanleys already commented upon. ose of the female in the various portraits of ary, both as princess and queen, and her sister izabeth. There is no portrait of any other ly, gentle or simple, of the reign of Edward VI. at I can point to for illustration.

Before proceeding with the reign of that vereign, however, I must protest against the hibition of Nos. 161 and 162 in any of the mpartments assigned to that of Henry VIII. e first, representing Sir John Thynne, is dated 66, and his age at that period stated to be 51. t though born, therefore, in the reign of nry VIII., his costume is of the period of izabeth, corresponding with the date upon e picture, and with other portraits we shall me to in that reign; and the presence of this lder of Longleat and brother-in-law of Sir omas Gresham in the fashion of 1566 is eatly prejudicial to the education of the blic in such matters. The second, asserted to present Sir Nicholas Carew, K.G., "Executed a charge of treason, 3 Mar., 1538," is "dated 49, age 35," and the visitor is desired to "see te of death," which renders it impossible Sir cholas could have been painted from the life 1549. Besides if 35 in that year he must ve been born in 1514, and consequently, ac-rding to the catalogue, in the household of nry VIII. when he was only four years old,—her too juvenile for even a page, and master the horse at fifteen! Wherever the error y be in these irreconcileable dates, the tume is certainly not earlier than 1549, and e rest we leave to the public; correcting, how-er, one error which has escaped the editor ain in the new edition of the catalogue. Sir cholas Carew was made Knight of the Garter the 23rd of April, 1536, and not in 1521, en, if born in 1514, he would have been but ven.

The five portraits of Edward VI., Nos. 176, 5, 177, 180, and 172, taken in the order I have re placed them, exhibit the gradual change in e fashion of the male attire of England (say m 1543 to 1553) which I have just alluded to; l we are, therefore, startled at the sight of . Danby Seymour's picture (No. 168) repre-ating Edward Seymour, Duke of Somerset, "the otector," in the full costume of the reign of Eliza-th, as worn some thirty years, at least later than e date of the duke's execution, A.D. 1552. Of the ner portrait of this great personage I can m no opinion; but the verses on it lamenting fate, of course painted after his death, are favour of its being a genuine picture, however or as a work of art.

The large picture of King Edward VI. pre-ating Charters (No. 192), long attributed to lbein, who died nine years before the event k place, is either a bad copy of an earlier inting, or has been painted over till all the iginal work has disappeared. Surely in the ords of Bridewell Hospital there might be nd some information respecting this picture. its present state it is quite unworthy of exhi-ion in this collection.

No. 186. This fine portrait of Sir Antonio ore, by himself, should be removed some two or three bays further down. He is in the costume of the time of Elizabeth.

The portraits of Princess Mary, and her sister Elizabeth, are to be seen in the picture of "Henry VIII. and his Family" (No. 170), but their names have been transposed. This ought to be altered, as at present they mislead the visitor completely. Another portrait of Mary, while princess, is contributed by the Marquis of Exeter; but it is dated at the back 1554, which would be after she had ascended the throne, and I have some doubt as to its being a portrait of Mary. Of her sister Elizabeth there are, besides the small full-length in No. 170, two other portraits, taken before her accession, No. 247, when at the age of sixteen, and No. 271, apparently about two or three and twenty. These two deeply interesting and beautiful pictures are hung sadly out of their chronological order. The first, her Majesty's contribution from Hampton Court, representing Elizabeth in the year 1549, should of course have been placed in the reign of her brother Edward; and the second,—the most curious portrait of this celebrated woman ever seen,—in that of her sister, Queen Mary. I therefore notice them in their proper position. No. 247, attributed to Holbein, was certainly not painted by him, as it is now proved that he died in 1543, six years before the date assigned to this portrait, and when Elizabeth was only ten years old. For the same reason he could not have painted No. 170, in which Elizabeth is portrayed in a similar costume at about the same age: her head-dress exhibits a fashion which intervened between the three-peaked Miniver cap and the Mary Queen of Scots'. The hood or coif takes the form of the head, and is worn far back upon it, like the ladies' bonnets of the present day, the front being richly jewelled or otherwise ornamented. It was not of long duration, and therefore valuable to the student of costume, as indicative of a certain date,—not earlier than 1540-47, not later than 1550-58. No. 271, a wonderful painting by Sir Antonio More, is more remarkable for the life-like expression of the face, and the admirable skill with which all the accessories are treated, than for the costume, rich and characteristic though it be. There is no hood; the hair is merely dressed with jewels, and that peculiarity is to be observed during her reign. There is only one portrait that I am aware of,—a small miniature supposed to have been executed about the period of her accession,—in which she is represented wearing anything like a cap, hood, or coif, although several varieties of such a head-dress were worn by others.

We have now reached the reign of Mary's three years of bigotry and bloodshed, happily unparalleled in the annals of this country. There are four portraits of her as Queen, Nos. 196, 199, 205, and 212, all presenting good examples of the female costume of that period. The cap flattened, and slightly depressed in the centre. The wide-sleeved gown, trimmed with fur, or the closer-fitting coat, with what old Stubbes calls welts or wings on the shoulders, resembling the male jerkin. See No. 209, representing her husband, Philip II. of Spain. Of the two portraits of Sir Edward Grimston, comptroller of Calais, 1552, but one (No. 210) should hang in this compartment. It is dated 1548, and his age is said to be fifty. This would place his birth in 1498, and we are told that he died at the age of ninety-eight, which would be in the year 1596. Now, in the other portrait (No. 194), also lent by the Earl of Verulam, we see Sir Edward as a very old man, and the picture is dated 1590, at which time he would be ninety-two; yet the age is therewith given him of sixty-one, a mistake probably for ninety-one. But, at all events, this portrait which comes first in the collection, should be placed amongst the Elizabethan portraits. The high black hat would not then startle us by its appearance at this period. The same remark might apply to No. 207, William Powlett, first Marquis of Winchester, who died in 1572-3, aged ninety-seven, if we are to look upon Mr. Webb's fine portrait (No. 203), as representing the same nobleman, in the reign of Edward VI.; but this difficulty occurs to us. Sir William Powlett was born, we are told, in 1475, and not made Knight of the Garter till 1541, when he would be sixty-six. Now, the portrait is that of a man in the prime of manhood, certainly not more than forty. Even say forty-five, it would be much too young for Sir William Powlett, in a costume of the reign of Edward VI., and the appearance of the George, suspended by a gold chain, marks him as a Knight of the Garter some twenty years earlier in life than is recorded. It is a very pretty puzzle, and will probably remain one.

Of No. 198, the so-called Lady Eleanor Brandon, I shall speak hereafter, and pass with pleasure from this poorly-illustrated period to the reign of Queen Elizabeth.

* In speaking of the Miniver or three-cornered cap, in r last notice, I inadvertently wrote Stowe in lieu of we, his continuator, 1615—1631. The caps had then n out of fashion upwards of fifty years.

LORD REDESDALE AND RAILWAYS.

A FEW years ago, in perambulating the then outskirts of London, it was no unusual thing to find, in localities now centres of thriving suburban districts, a row of unsightly carcasses. Roofless, unglazed, ruinous-looking masses of bricks and mortar would stand, sometimes for years, proclaiming their dismal tale of materials unpaid for and too credulous mortgagees denuded of their cash. If, when such spectacles were more abundant than now, some influential legislator had succeeded in passing an Act of Parliament, binding every intending builder, before laying a brick, to deposit in Chancery eight per cent. of the estimated cost of the row of houses which he proposed to build; to prove before Sir J. Thwaites and a committee of the Board of Works that new houses were urgently required in the neighbourhood, and that he, the builder, was either in actual possession of the required capital, or had made absolute arrangements with responsible parties for the advance of it, what would now have been the condition of the regions round about Victoria Park, of Dalston, Holloway, and Bayswater, of Camberwell, Peckham, South Lambeth, and a dozen other such districts? Would Cubitt, even with the Marquis of Westminster at his back, have reared Belgravia? or would the market gardens of Brompton and South Kensington have produced a crop of mansions? Can any one surmise what, under such restrictions, would now have been the rental of a ten-roomed house of modest pretensions, or what would have been the general condition of London, either as regards mansions for the rich or dwellings for the poor?

The increase of railways is perhaps not altogether so urgent a necessity in the country as the increase of houses is in London, yet; in numberless rural districts, the increase of railway accommodation is felt to be a requirement of no small importance; and Lord Redesdale has raised the question, or rather, has enunciated the conclusion, that the supply of this want must be impeded, because, among the projectors and directors of railways, as among London builders, here and there a rash or unscrupulous speculator rears a memento, to warn us that the most fertile fields of enterprise may be overworked, or may incidentally nourish some little tufts of pestilent herbage.

In commercial legislation, it has been found most conducive to the general prosperity that freedom of action should prevail; laws being enacted for the punishment of dishonesty, and the public being left to guard themselves, by their own sense and discretion, against rash and hazardous speculations. If that principle be good in trading and monetary associations, which are subject to many unforeseen causes of fluctuation or failure, it must be still more appropriate to the case of railways, because with respect to them, the prospects of a more or less remunerative result are founded upon facts and requirements which are susceptible of demonstration; the elements of success rarely fluctuating, but generally tending to a steady increase.

That jobbers sometimes get up railway projects for the purpose of securing the ground and making the best bargain they can with existing companies (whatever may have once been the case), is at present rather a public benefit than otherwise. Railway companies have attained a sufficiently good understanding not to bid against each other for such lines; and when an Act, so obtained, is taken up, no larger sum is paid for it than it would have cost the company to obtain it from Parliament through their own solicitor and engineer (whose charges for such work some companies would do well to investigate a little more strictly). As regards the public, the result is that the district has the benefit of a railway some years sooner than it would, if the matter had been left in the hands of the great company; and the probability is that it may be a better line too, because the jobber, depending in a great measure for success upon local evidence and local petitions, is obliged to study local requirements.

The pecuniary embarrassments, leading to a greatly-increased nominal capital, of which Lord

Redesdale adduces instances, may, in a great measure, be traced to the fact that the facilities afforded for launching, trading, and financial companies are so great, that such companies absorb nearly all the capital open to speculative investment; new railway projects, however sound, being left to the support of parties locally interested, and those parties, although anxious for the railway, are often desirous of reserving their money for effecting those improvements in their property or business, which the railway will render practicable. Projects by which the general prosperity of the country would be permanently increased, thus languish for want of public support; and it is now proposed further to impede their progress by giving another turn to the screw, which already presses the drag too tightly on their wheels.

An example may illustrate the probable effect of Lord Redesdale's proposed alterations. A short line of railway, now under consideration for next session, would intersect a tract of land, several miles in length and breadth, the average rental of which is now about 10s. per acre, but which is capable of being so improved as to be worth 25s. or 30s. per acre, and of yielding a proportionate increase of beef and mutton towards the food of the millions, railway accommodation being the first step required towards that improvement. There is also a little town, the market, trade, and manufactories of which would be benefited. There are also some portions of the line where, no material benefit being conferred on the district traversed, no effective support could be expected. The landowners of the improvable district are able and willing to give the undertaking substantial support; the little town would do something; and a great railway company, gaining increased facilities for a portion of their through-traffic, would subscribe a portion of the capital, and would enter into an agreement to work the line. Under the existing standing orders, there would be no difficulty in obtaining an Act; and a contractor, locally connected with the district, would make the line upon easy terms as regards cash advances, and on a scale of prices no higher than the usual estimate of engineers for similar work.

Even if this line should only pay 2 or 3 per cent., every party concerned would be benefited. The landowning subscribers would be amply remunerated by the increased value of their land; the townsmen would be recompensed by the increase of trade, and the improved value of their little town properties; and the railway company, through their working agreement, and a small saving upon their through-traffic, would be no losers by their investment. Now, is it a right or beneficial thing that the Government of the country should step in and prevent an operation of this kind? For reasons which will readily suggest themselves to parties conversant with practical details, it would be impossible to get up a genuine subscription contract for this or any similar undertaking; and the effect of the proposed new standing order would be to prevent many honest and useful projects seeing the light; and to throw, more than ever before, the business of railway projection into the hands of bold and unscrupulous men, who will find or bore a hole through any Act or standing order which Parliament can concoct. W. N.

THE INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS.

THE weather on Tuesday last was all that could be wished for, and the appearance presented within the enormous tent provided for the show was beautiful in the extreme. So far as we know, so large an area, 3½ acres, covered with such flowers as are there, was never seen before. Some idea of its extent may be gathered from the lament of a well-known horticulturist from Hammersmith, that he can scarcely find his name in the garden, though he sent twenty wagon-loads of plants and trees. Messrs. Veitch alone have about 10,000*l.* worth of plants, and we are told that 30,000*l.* would not procure a collection of orchids similar to that now on view in a section of the enclosure properly prepared for them. The heating of this portion of the display has been provided gratuitously by Mr. Ormson, who, by means of an ingeniously-constructed boiler, economizes fuel to a very important extent, and with a few pounds of coal professes to be able to keep up to the required temperature the 400,000 cubic feet which are enclosed within the tent. The length of pipe to be heated is 3,200 feet, and the quantity of water 1,760 gallons.

Wonders have been done with the ground, the greatest praise in this respect being due to Mr. J. Gibson, one of the Executive Committee, who made the plan; and to Mr. Eyles, who carried it out. Turfed banks to receive the plants, winding well-gravelled paths, mounds, rock-work ferneries, and mossy pools, lily fringed, have been produced in an incredibly short space of time. We shall not attempt any description of the appearance presented: the finest view is gained from the raised mound above the lake; and here on Tuesday, when the Prince and Princess, beaming with good-nature, were perambulating the grounds with their Royal relatives, convoyed by Sir Wentworth Dilke, who has worked the undertaking from the commencement, the sight presented was one not easily forgotten.

To correct misstatements elsewhere, let us say while speaking of the mound, that the Rhododendrons in the valley of it are contributed by Messrs. Jackman & Son, of Woking, and those on the other side by Messrs. Henry Lane & Son, of Great Berkhamstead.

Amongst the foreign contributors, must be specially mentioned Mr. John Linden, of the Royal Gardens in Brussels. Other Continental competitors, who have done much to enhance the general attractiveness of the Exhibition, are M. Verschaffelt, M. Verdier, M. Alfred Bleu, Messrs. Jamain & Durand, M. Loise, Messrs. Thibaut & Keteleer, and M. C. Pfersdorff, of Paris; Madame Legrelle d'Hanis, of Berchem, East Flanders; M. A. Koster, of Boskoop, a village near Leyden; M. Van Hulle and M. Isidore Capeinick, of Ghent; M. F. A. Haage, of Erfurt; and Mr. H. Knight, head gardener at the Château de Ponchartrain, in the Department of Seine et Oise.

In the general collection, Mr. Linden had the first prize for "six new plants, in or out of flower, introduced into Europe by the exhibitor, and not found in commerce." These were the *Anthurium Regale* (a leaf of exquisite form); *Cyanophyllum spectabile* and *Maranta Lindeni*, from Peru; *Bignonia ornata*, from Rio Negro; and *Dichorisandra musaica*, from Maynas. For the "three new plants shown for the first time in flower," the first prize was awarded to Messrs. Veitch. The prize for "twelve new plants of any description, in or out of flower," was also gained by the Messrs. Veitch, who sent in specimens from New Caledonia, Australia, Madagascar, Banks Island, the New Hebrides, and Japan. The "six new plants," included in the first prize to Mr. Bull, were *Urospatha spectabile*, *Bertolonia margaritacea*, *Eranthemum argyroneurum* (a leaf full of veins), *Samyda nobilis*, and *Dieffenbachia eburnum*. The *Lilium Auratum*, the first bulb of which, in this country, cost Messrs. Veitch 1,200 guineas, and Mr. Linden's exquisitely delicate white flower, wrapped in wool, the *Psychotrya Nivosa* attract universal admiration. For the fifty exotic orchids of any kind in flower, Robert Warner, esq., of Broomfield, Chelmsford, is the first prizeholder; for the twenty exotic orchids, A. Turner, esq., of Leicester; for the ten exotic orchids, H. H. Gibbs, esq., of Regent's Park; for six exotic orchids, J. Brand, esq., of Balham. For one exotic orchid in flower first prizes are held by Mr. Linden, for an unnamed specimen; by R. Barnett, esq., of Blackheath, for *Phalænopsis Luddemanniæ*, from Manilla. The ten variegated orchids, for which Mr. B. S. Williams, of Holloway, gained a first prize, have amongst them some very lovely kinds of *anœctochilus*. R. Barclay, Esq., of Highgate, has the honours "for the largest and finest palm" and the "largest and finest pandanad;" and M. Amb. Verschaffelt, of Ghent, has a first prize for zamias. For the "finest tree fern" the honour is bestowed on Mr. Thomas Williams, of the Crystal Palace, for the magnificent *Cyathea medullaris*. Messrs. Waterer & Godfrey are first-prizemen for rhododendrons in flower, as is also Mr. John Standish, of Ascot. The first prizes for the magnificent azaleas, which make this exhibition memorable, are held by W. R. G. Farmer, Esq., of Cheam; Mr. Charles Turner, of Slough; E. J. Coleman, Esq., of Slough; Messrs. Lane, of Great Berkhamstead; the Earl of Lovelace, East Horsley Towers, Surrey; Messrs. Dobson, of Isleworth. In roses, amongst the first prizes given, A. G. Puller, esq., of Youngsbury, near Ware, is one recipient.

At the banquet in Guildhall on Tuesday night the Lord Mayor presided very efficiently. The civic chair has seldom held a better speaker. Especially happy was he in replying to the toast ably proposed by Sir Wentworth Dilke, "the Lord Mayor and the Corporation of London."

"Different men," said the Lord Mayor, "according to their different humours, have formed various plans for bringing the whole human race under one head. A tyrant prayed that all mankind might have one neck, that he might strangle it. A gallant bard grieved that 'fair womankind could not reserve their smiles for him alone;' and I, by an inverse process of reasoning, would give my place to-night could I be blessed with a thousand warm and varied tongues wherewith to bid you, 'from heart to very heart,' one and all a sincere and earnest welcome. The gentlemen who honour us with their presence here to-night have invited us to view the most interesting, the most marvellous, and the most wonderful exhibition the world has ever seen. I think I may call it the queen of exhibitions. On the lingering threshold of art, science, and industry, an institution has arisen, a society has been formed, to show the power of art without art, the power of nature cared for by human nature. The right honourable gentleman has told us that Lord Bacon says:—'The Almighty Father first planted a garden.' A garden is, and has been, the foundation of religion—of poetry—of all that is brightest and holiest amongst men. What is there on earth that so much contributes to our delight, to our enjoyment, as a garden? A garden is health, a garden is wealth, a garden is happiness. What is more refreshing, more delightful, than the sweet fruits of earth? What is more fragrant than the breath of flowers? It has been said that Nature, so fair and bounteous in herself, needs not the hand of man to train and cultivate her; but Nature in every shape requires cultivation. The luscious peach, the clustering vine, the fragrant myrrh, the rose divine, abundantly illustrate the truth of this. In this age of great competitive and cosmopolitan industry, our neighbours are doing with their flowers what we do with our sons—urge them to take honours at home, and send them to gain laurels abroad. On the part of this municipality, I beg to assure you that we hold out to you, one and all, the right hand of fellowship,—that we recognise the great merits of art, of science, and of literature, and we look upon this Exhibition as one of the happy and peaceful triumphs of our time. May it flourish, not only for the present, and for our sakes; but may it flourish for the future."

It was pleasant to see the un-English enthusiasm and friendliness with which the countrymen of Professor Kock, of Berlin, rushed up to shake hands with him after his speech, in which he proposed the health of the "Executive Committee," replied to by Sir Daniel Cooper. Nor were they much less demonstrative to Mr. Charles Dilke, when in graceful terms, and with flowery metaphor, as in duty bound, he drank to the ladies. Admiral Sir B. Middleton, Viscount Powerscourt, Professor de Candolle (distinguished son of a distinguished father), the Right Hon. Nisbet Hamilton and Dr. Hogg also spoke.

The address with which Professor de Candolle opened the Botanical Congress in the Raffaelle Gallery, in the South Kensington Museum, on Wednesday morning, contained several valuable suggestions. He said, for example:—

"I should like, were it possible, to have a greenhouse placed in some large horticultural establishment or botanic garden, under the direction of some ingenious and accurate physiologist, and adapted to experiments on vegetable physiology; and this is, within a little, my idea of such a construction:—

The building should be sheltered from all external variations of temperature; to effect which, I imagine, it should be in a great measure below the level of the ground. I would have it built of thick brickwork, in the form of a vault. The upper convexity, which would arise above the ground, should have two openings—one exposed to the south, the other to the north—in order to receive the direct rays of the sun or diffused light. These apertures should each be closed by two very transparent glass windows, hermetically fixed. Besides which, there should be, on the outside, means of excluding the light, in order to obtain complete darkness, and to diminish the influence of the variations of temperature when light was not required. By sinking it in the ground, by the thickness of its walls, and by the covering of its exterior surfaces with straw, mats, &c., the same fixed degree of temperature could be obtained as in a cellar. The vaulted building should have an underground communication with a chamber containing the heating and the electrical apparatus. The entrance into the experimental hothouse should be through a passage closed by a series of successive doors. The temperature should be regulated by metallic conductors, heated or cooled at a distance. Engineers have already devised means by which the temperature of a room, acting on a valve, regulates the entry or exit of a certain amount of air, so that the heat regulates itself. Use could be made of such an apparatus when necessary."

Obviously, with a hot-house thus constructed, the growth of plants could be followed from their germination to the ripening of their seeds, under the influence of a temperature and an amount of light perfectly definite in intensity. It could then be ascertained how heat acts during the successive phases from sowing to germination, from germination to flowering, and from this on to the ripening of the seed. For different species various curves could be constructed to express the action of heat on each function, and of which there are already some in illustration of the most simple phenomena, such as germination, the growth of stems, and the

course of the sap in the interior of certain cells. The action of light on vegetation has given rise to the most ingenious experiments. The best ascertained facts are, the importance of sunlight for the development of the green colouring matter, the decomposition of carbonic acid gas by the foliage, and certain phenomena relating to the direction or position of stems and leaves. There remains much yet to learn upon the effect of diffused light, the combination of time and light, and the relative importance of light and heat. A building such as is proposed would allow of light being passed through coloured glasses or coloured solutions, and so prove the effect of the different visible or invisible rays which enter into the composition of sunlight.

Various important papers were read, and the sitting was continued on Thursday morning. We have space only to add that the *conversasione* held on Wednesday evening was very numerously attended, and passed off agreeably. The show, some of our readers may be glad to hear, will remain open until Thursday next. If they omit to see it they will lose the joy of a thing of beauty.

NOTES IN MEXICO.*

IN continuation of my remarks on the Imperial Mexican Railway I must observe, that what is more objectionable than even the bad character of the permanent way is the total absence of drainage in a country like Mexico, subject to such heavy rainfalls and such deluges of rain, which usually fall in greater abundance on the margin of the tropics, extending over a period frequently of six months in the year, viz., from June to December, that little or no provision is made for its passage away.

The cuttings having no system of drainage, the heavy rains find exit how or as they can; they wash away the loose friable material composing the upper surface of the roadway, and must at times, I am sure, sweep and carry away even the sleepers and rails themselves.

The culverts are many of them too small, particularly those recently put in under the direction of the French engineers; and instances have occurred where the weight of the accumulated waters after heavy rains has carried away the embankments themselves for the want of proper vent for the passage of flood water; and it is to be hoped that the same short-sighted policy will not prevail on the line under construction, as I do not think all in authority are alive to the importance of the subject in such countries, and to the absolute necessity of making ample and due provision for the passage of flood-water.†

The absolute rainfall of Mexico has never, I believe, been accurately taken, and it would be an interesting subject for scientific inquiry; but the quantity, I understand, has been approximately calculated, and amounts to about 140 in. per annum.

The bridges on the line are generally constructed of timber, and of the system known as the "trestle" principle, which is peculiar to the United States Railways; but happily little used in Great Britain, from the circumstance of their being so liable to take fire, and from the apparent want of strength and durability there is about them.

The trestles form the piers, and there is a beam under each line of rails, from trestle to trestle, over which the traffic passes, and there is no parapet at all, which gives them a strange and unsafe appearance. The works on these fifty-three miles of railway open to traffic are of the worst possible character, being little or no advance on the original tramway of this country. The upper works require a total reconstruction; the half-and-half measures that have recently been adopted by the present contractors, who are working the line, will not redound to the credit of any party concerned, or aid to replenish the coffers of the company for the expenses incurred. The station accommodation is very rough and commonplace, apparently of a temporary character: it requires suitable and substantial erections, capable of meeting the growing wants of the traffic.

The engines and rolling stock are not all first-class; the engines are the ordinary four-wheeled ones, with large hideous bell-shaped funnels; the second and third class carriages are rough, and of the rudest description; but the first-class carriages are, I think, superior to those in use in this country, inasmuch as they are not divided into compartments, and there are two rows of seats arranged transversely, on each side of the carriages, with a passage down the centre, and a doorway and small platform, to faciliate the entrance at each end. The seats are arranged to hold two persons, and they are made to turn or revolve, so that four persons may sit face to face, or otherwise, if they think proper.

This arrangement of carriages, I think, suggests an idea for improvement in the design and construction of our passenger carriages, as a proper and necessary communication would be at once established between passengers and guards, as the latter could pass through the whole length of a train at the wish of passengers, or for the purpose of examining or collecting tickets.

I think the present cell-like carriages are a disgrace to our railway companies and to the spirit of the age. Why should an Englishman, if he desire to travel, be locked up like a malefactor, or like sheep in a pen; and why should companies require, on any ground or pretext whatever, to place their countrymen in such an objectionable and disagreeable dilemma? The lock-up system would not be tolerated a day in the United States. The open and undivided carriage system works well there, and I have yet to learn that it is not applicable to our system of railways; they can be made as elegant and luxurious as possible, even to gratify the most fastidious and self-indulgent taste.

It is evident a change in the arrangement of railway carriages is imperatively required, to avoid such awful and scandalous occurrences as have recently been made public.

The country through which this line of railway passes, from Vera Cruz to Paso del Macho, is very flat and uninteresting; but little land is cultivated, and it is mostly covered with long, wiry, yellow-looking grass, with here and there stunted brushwood, clumps of trees, and small woods, over which unenclosed land cattle stray and graze wild and unmolested; it is slightly undulating, with a gradual rise from the sea westward, and exceedingly favourable for a line of railway.

In a cutting not far from Solidad, Mr. Lyons, the American engineer who projected the line of railway from Vera Cruz to Orizaba, was brutally shot by a party of guerillas, the horror and pest of that unhappy country. I suppose their object was, as they considered, to punish his audacity and presumption in bringing foreigners into the country, and preparing an easy and practicable way for their quick entrance and exit. Mexicans are exceedingly jealous of foreigners; as a rule, if they permit them to enter the country, they invariably rob or murder them as they leave, and it is supposed that many of the upper and middle class are connected with these guerilla bands, as they are invariably well mounted, and no sorrow or sympathy is expressed by any class for the horrid atrocities committed; and they all appear to be leagued together in one unbroken compact, to drive the foreigner from the soil.

At Pulga, a small Indian village on the line of railway, a simple cross is erected, as a memorial, to commemorate the gallant achievement of a small detachment of the French army, forty in number, defeating and putting to a complete route a force of 200 Mexicans. I mention this to illustrate the gallantry and bravery of the French army, and to show the sterling metal of which the army of that distinguished nation is composed.

At Solidad, also, was signed that celebrated treaty, during the negotiation of which the French troops were allowed to quit the "Tierra Caliente" and ascend to the more healthy region of the "Tierra Templada," and thus on to Orizaba, under the pretext of the unhealthy character of the former territory, and the devastation and havoc sickness was making in their ranks; but which really was a *ruse*, a strategy of war, so that they could pass unmolested and unscathed through the narrow and dangerous Chéquihuite passes, and under the impregnable heights that commanded those passes which were very strongly fortified. The stratagem succeeded, as the French army maintained their ground at Orizaba, and never returned.

At the time of my passing, ornamental guns of large calibre were lying by the side of the "Camino real" in commanding positions, unlimbered and mute, unstained with villainous saltpetre or crimson life's blood: on the heights, I understand, that command the passes, military works of an extensive and impregnable character were established, designed by a native of Germany, but a naturalized Mexican, that would doubtless have given the French some trouble to force them, if they had not totally destroyed their small army.

At the terminus of the line of railway opened is situated Paso del Macho, or "Pass of the Mules," an Indian-built place, erected to accommodate the natives employed on the works. These houses are formed of rough timbers, tied together. The sides are closed in with small poles, set side by side and close together, and the whole are tied together with the fibre of parasitical plants. The roofs are thatched with the long tough grass of the country, and the floors are on the bare earth. Several Indian wigwams are dotted about on the outskirts of the place, and I observed it was the curious custom that, when they vacated a wigwam, they invariably set fire to and destroyed it, so that no one else should occupy it.

Just before the completion of the railway and since the opening several timber-built stores were erected, and even hotels to accommodate the traveller; the former are tolerably well supplied with the necessaries of life, the latter equally so, but are not remarkable for cleanliness, though very remarkable for their peculiar cuisine, the dishes being plentifully seasoned and flavoured with garlic, and for their last course "fricole."

At Paso del Macho, yellow fever is a frequent visitor, and while I was there we buried the French Commandante and the doctor, two men much esteemed by resident Europeans.

Having briefly described the line of railway as executed, I will shortly show the course of the new line, and describe the works proposed.

The new line commences at Paso del Macho, and passes through the Chéquihuite mountains, covered with dense forests; the works are light, with sharp curves, and ruling gradient 1 in 40. The line winds round and about the base of the mountains, along the sides of steep precipices, and over deep ravines; it passes over the Rio Chéquihuite and the Rio Atoyac with bridges of great magnitude and altitude: thence to Cordova the line is tolerably direct and easy of execution, ruling gradient for considerable distance 1 in 40, with a bridge over the Rio Seco (dry river) 100 ft. span, and it crosses the Prairie of Cordova about one and a half mile's distance to the south of the city. The geological formation of the Chéquihuite mountains is a whitish limestone, a very good building material, and minerals also exist to a considerable extent: I understand a silver mine has recently been discovered there. The forests here abound with noble and gigantic timber, perfectly straight,—oak, ash, pine, &c.; and vegetation generally appears very rank and luxuriant, and being a perpetual evergreen, an endless spring as it were, the beautiful creeping and parasitical plants, entwine, interlace, and tie the whole mass together in one endless network of graceful festoons, and these are lighted up and embellished with a great variety of fine showy blossoms, the whole forming a series of imaginary and lovely harbours, bowers, and alcoves. These wondrous wildlings of nature astonish and excite the admiration of the passing traveller, and seem almost to realize to the senses the glowing beauties of a fairy land.

In these almost impenetrable forests, jaguars, wolves (the Coyote), and other wild animals abound, and serpents of the most deadly and poisonous character (the corral and others), as if Providence had planted these enemies of man to guard her precious treasures, and not to allow his rude and ruthless hand to mar these her choicest works.

On this division of the line, about 10 miles west of Cordova, is situated the notorious "Sal si puedes,"—in English, "Get out if you can,"—near the line of railway. The "Camino Real" at this part passes through some miles of dense forest. The subsoil of the roadway is clay, and it is not metalled in many places. During the rainy season it is quite impassable. The large trains of mules, asses, wagons, carts, &c., tread and work up the surface into a state of floating bog, and, in some places, deep holes of soft, adhesive clay. It is in this part where most of the robberies and murders are committed, more particularly during the rainy season. There is a regular organized band of guerillas, and their spies at the hotels of Vera Cruz, Paso del Macho, Orizaba, and Mexico, keep them well acquainted with the movements of all persons travelling and likely to have money, and but few escape rob-

* See p. 281, *ante*.

† See Report on Bahia and San Francisco Railway (*Times*, 11th April, 1866).

bery or murder if they resist. It is the foreigner to whom they direct their special attention, as they have a great objection to his leaving the country with any of the precious metal, which they think is their exclusive right. The gallant French have done good service by nightly *razzias* in force, in endeavouring to exterminate these robbers. It is a difficult matter to eradicate the predatory and bad habits of a people by brave military exploits; it is only to be done by the effectual occupation of the whole country with an efficient military force, the present forces being totally inadequate.

At Potrero, also, about 7 miles east of Cordova, is situated the estate and "hacienda" of Senor Don Escandon, one of the richest men in Mexico. The estate occupies about 15,000 acres, but it is principally covered with forest, containing most magnificent timber. Here also is situated the successful coffee plantation of Senor Fink, who is said to realize 3,000*l.* a year in the cultivation of about 80 acres of land, the whole clear profit. There are "haciendos" to every estate, some of considerable extent; and also chapels, with resident priests; but since many of the estates have been thrown out of cultivation in consequence of the unsettled state of the country, or only partially cultivated in small allotments by the Indians, the drone has made his exit, as well as the honey-bee,—the chapels exist, but the priests are *non est*.

Haciendas are usually built in the form of a square or parallelogram, the building proper covering the outer area of the square, leaving an inner open space, so that the valuable horses, cattle, plant, &c., of an estate can be snugly housed within the four walls of a hacienda. They have frequently an arcade or gallery in front and along the sides, and there is a gateway through the building to enter the inner square, and sometimes an open square in front, as at Potrero, where they indulge in games, bull-fights, fireworks, &c.

The principal apartments are usually in the front of the building, the chambers at the sides, and the servants' apartments, stables, &c. at the back. There is an open corridor, supported on pillars and roofed over on the inner side, so as to afford a covered passage round the inner side of the building.

I happened to be present, by special invitation, to witness one of the Mexican bull-fights, and the sports were continued over two days. The openings leading to the square were fenced off, and we had twenty mounted banderilleros, and ten matadors. The points of the bulls' horns were sawn off, so that they could not inflict much injury. One bull was introduced at a time into the square, in which were the banderilleros and matadors, each one provided with a showy-coloured "serape," or mantle, which they used to tease and exaserate, or throw over the bull's head when he made a charge. The ladies prepared the "bannerol" for the heads of the "picos," or lances, and handed them to the banderilleros. The great effort, and to show skill in horsemanship, is to charge and stick the "pico" into the back of the bull's neck. Many did so successfully, and fortunately came off unscathed; on the other hand, some riders, not so skilful as the others, met with rough usage, and got unhorsed. When the bull, fatigued, retired into a corner, they would "lasso" him and draw him out, and he would then rush at his enemies with great fury, and, to wind up the performance, they would "lasso" his head and legs and throw him on the back, and they would then draw him in triumph round the square. The matadors on foot did good service, but some of them got rather rough usage. I was much pleased with the novelty of the entertainment, which was divested of a great deal of the barbarity of the Spanish bull-fight, and we wound up the sports of the day with a magnificent display of fireworks, for which the Mexicans are celebrated.

At this point it may be interesting to give you a description of the city of Cordova, a very anciently-built place, designed or remodelled by the ancient conquerors of Mexico, since the days of Cortez.

Cordova contains about 6,000 inhabitants, and is pleasantly situated in the midst of an extensive plain, surrounded by a series of high and mountainous lands; it is about 3,000 ft. above the level of the sea, and is surrounded by extensive coffee and other plantations; bananas, oranges, lemons, limes, &c., grow in great abundance; and it is rather hid from view as you approach it,—nothing to be seen except the bright glittering domes and campaniles of the cathedral and churches peering through and embosomed in the trees.

The streets of Cordova are well and regularly laid out, about 40 ft. wide, running nearly east and west, and north and south, with a large plaza in the centre; but many of the streets are not built upon (as it was laid out originally for a very large city), and are merely and literally green lanes, an agreeable promenade, lighted up with wreaths of roses, jasmines, convolvulus, and other beautiful tropical flowers.

Around the plaza are situated the cathedral, the prefecture, French officers' quarters, hospital, treasury, and post-office (the best houses in the place), and several good stores; these have generally arcades in front, and they form an agreeable walk in the cool shade of evening, also serve to protect you from the glare of the midday sun, or equally objectionable tropical rains.

The most important and imposing structure of the place is the cathedral; it is a large building of the type approximating to the Byzantine or Moresque style of architecture: the plan is quadrangular, and is divided into nave and two aisles; there are entrances on the north, south, and west sides, and two lofty campaniles on each side of the west entrance.

The roof of the cathedral is supported on lofty massive square fluted pillars, with plain capitals, and consists of a groined arch thrown over from pillar to wall and from wall to pillar, and the east end is surmounted with a dome, covered on the exterior with ornamental glazed porcelain tiles. The other part of the roof is finished off with plaster. There are arched openings between the pillars, to form a communication between the nave and aisles.

The walls of the cathedral are built of the small rubble masonry peculiar to the country, plastered over, inside and out, with very little architectural ornament, and where it exists it is formed of plaster.

Near the east end of the nave is the "alto altar," raised on a dais above the level of the floor of the cathedral, and you ascend to it by steps, and the dais is surrounded by ornamental bronze railing. The erection which covers the altar is octagonal in shape, and elevated on lofty fluted Corinthian columns, with pediments above the entablature, and surmounted by a dome, on the apex of which is the figure of our Saviour. The whole of the "alto altar" is highly and elaborately ornamented, the prevailing colours being white, green, and gold, and around it are sundry figures, silver candlesticks, and candles, that are lighted up at high feast-days and religious festivals.

On each side of the aisles are small chapels in recesses, dedicated to the Virgin Mary and the saints, each of them has an altar, and they are filled with figures emblematical of the Saviour, frescoes of his career, paintings, images, silver candlesticks, &c., and other paraphernalia considered essential and important by the Catholic in his worship. These chapels are separated from the aisles by ornamental bronze railing and gates. There are no seats for worshippers in any part of the cathedral.

At the back of the "alto altar" is the "capilla guardia," for relics. In this are figures of the Saviour, the Virgin Mary, in elegant attire, in glass cases, surrounded by other images and figures, frescoes, and ornaments, both gold and silver.

At the north entrance is a rudely carved font, in which the worshippers dip their fingers and cross their foreheads when they enter the cathedral; and there is another and similar font used for christening children.

At the south side of the nave is a pulpit, fixed upon corbels, from one of the pillars, and there is a throne, covered with crimson velvet, within the area of the enclosure surrounding the "alto altar."

There are three curious and quaintly carved confessional chairs in each of the aisles, and, at the times of my visits, they were usually occupied by priests listening through the holes in the sides of the chairs to the confessions of the devotees; and, on one occasion, a poor Indian was prostrate on the floor evidently in intense agony, while an Indian woman was kneeling by his side, with candles lighted and placed upon the floor on their broad ends, and beautiful flowers were strewed around. There is also a spacious apartment called the "Sacristy," which contains a further collection of the paraphernalia of Catholic worshippers, and in which, I presume, is discharged the private business of the church, as in our vestries at home. The floor of the cathedral is covered with red quarry tiles, each about 1 ft. square, very soft, and made probably in the neighbourhood.

In the campanile are fixed the bells, which they ring in a very original way. Ropes are fastened, in some cases, to the ends of the clappers, and they swing them about from side to side of the bell, and others they strike with a long pole; and, although the bells are composed of very fine metal, some, they say containing a large proportion of silver, this absurd practice, as may be supposed, produces a very discordant and unpleasant jingle, positively annoying and disgusting to listen to, so different from those of our own country, whose beautifully-arranged and melodious peals are music and delight to the ear, particularly when softened and toned down by distance, in many of our lovely and picturesque country places.

At each of my visits to this cathedral, I generally found women and children at prayers and in the confessional, but seldom saw any males, except Indians. The priests exercise an extraordinary influence over the females and Indians; they crowd the streets, and come to the fronts of the houses with uncovered heads and bended knees when they hear the bell announcing the appearance of the "Host" going to visit the sick; or, on their feast days, when gorgeous and imposing processions are formed, images bedizened with gold, silver, and velvet, and the priests, "the observed of all observers," under canopies, and the procession in its rear is adorned by the presence of nearly all the females of the place, many very elegantly dressed, carrying long lighted wax tapers, walking on each side of the street.

But the political and other influence of the priest has been considerably checked by Juarez and the present Emperor, in seizing and disposing of much of the property vested in the priests for the public benefit. As I hear, vast quantities of this wealth have been improperly obtained, and justice called aloud for their deprivation, if not restitution to the proper owners.

There are four or five other religious houses and convents, and ruins of others in the city and suburbs, but they are mostly occupied as barracks by the French troops, and these buildings are being literally destroyed piecemeal, as all the timber they contain is being used for firewood.

The Prefecture is an unpretentious building, being only one story or floor, with an arcade in front, approached by six steps: there are some two-storied houses of considerable extent, and of a style peculiar to the country, in the Plaza and in a few of the principal streets; but the principal part of the houses have only one story or floor, usually raised some height above the level of the streets.

The houses of Cordova are built upon one general plan; the shape of the plot is usually a square or parallelogram: the outer part of the area is covered with the building, leaving an open area in the middle, and around the inner sides of the building an arcade is formed on pillars and arches, so as to form a covered way. The front of the building, which is generally occupied by the principal apartments, has a central gateway, so that you pass through from the street into the open inner area, or the arcade, to the respective apartments; in the front, are the drawing and dining rooms; the sides are occupied as sleeping apartments, and the end as servants' rooms, stables, &c.

The open area is principally used as an ornamental garden, filled with bright showy flowers, and sometimes fountains are introduced in the centre, so that with these tasteful adjuncts, a well-designed Mexican residence has an aspect of comfort and even elegance about it.

It is in consequence of earthquakes that the houses are only built of one floor; the walls are only 2 ft. thick, and, strange to say, built of small rubble stone, with large stones introduced, and sometimes tiles here and there, for bond; the mortar must be remarkably good, as it holds the walls so well together, notwithstanding the frequent shakings and vibrations of earthquakes. The roofs are usually collar-beamed, and covered with close boarding and semicircular red tiles, laid double, one below with the concave side uppermost, the other above, with the convex side at top, and overlapping one another.

B. B., C.E.

LAND IN THE CITY.—The ground-rent of the Mansion-house has just been bought by the corporation at thirty-three years' purchase.

FIRS AND PINES.*

ONE of the greatest wants of the architectural student at the present time is a good classified collection of the woods of timber trees. It is very difficult in England to become acquainted with the aspects of timber when ready for building purposes, so as to refer the wood correctly to the tree that produces it. In the British Museum, for instance, there is a vast collection of polished woods exhibited, but without any arrangement whatever; the majority unnamed, or, if named, only in the most unsatisfactory manner; the woods of the timber trees of the British Islands not even being brought together to enable the student to recognise their colour and veining by sight. Other educational museums throughout the country, as far as our knowledge of them goes, are in a still worse plight. Nor is it alone necessary that the student of architecture should be acquainted with the appearance of timber when ready for use. He should, without doubt, know something of the trees that furnish it, their countries, habits, aspects, diseases, and parasites. The terms pine, fir, red deal, spruce, larch, &c., are familiar enough to all; but how many can recognise the woods when they see them? and how very few, indeed, can point out the trees themselves as they grow? The timber merchants, moreover, cannot be depended upon, for they do not know the specific names of the trees that produce the woods they sell; and that architects are not acquainted with woods is fully proved by the discussions regarding the timber of the Westminster Hall and other roofs, said in some books to be one species of oak, in another a second species, and in a third chestnut. In the new edition of the "Grammar of Ornament," for instance, in a description of the sacred tree of the Assyrians and Assyrian ornament, the *fir-cones* are referred to as—"*pine-apples!*"

The *Coniferæ* (or *Pinaceæ*), as our author chooses to call this large order of plants, are found in every quarter of the globe, but chiefly abound in the Northern hemisphere. Three species only are indigenous to Britain,—the Scotch fir (*Pinus sylvestris*), the common juniper, and the yew. The first is named indiscriminately Scotch pine, common pine, fir, Scotch fir, Norway pine, Baltic and Riga pine, &c., all being the same species of tree (*Pinus sylvestris*), indigenous in the Scotch Highlands. The same timber tree abounds in Central Europe and Northern Asia, and in the mountains of Southern Europe. The difficulty of recognising the pines and firs is very much increased by the large numbers of foreign species grown in our plantations, including true pines, spruce firs, cypresses, cedars, and larches. The work under consideration gives popular and botanical descriptions of an immense number of species, sub-species, and varieties of coniferæ capable of cultivation in this country, with notes regarding their value for building purposes. A book of this sort cannot fail to be exceedingly useful, although there is very little in it that appeals either to the architect or builder. The introduction, embracing the cultivation of pines, &c., is, without doubt, the most instructive part of the work; but the section of paramount interest to the building trades,—viz., the diseases and enemies of the tree, vegetable and insect, are passed over in a very unsatisfactory manner; in fact, without any *direct* reference whatever to them. By this we mean there is not one scientific name given, the common name even of one insect (out of three or four), viz.—the "pine-weavil" (*sic*), being incorrect in spelling. The book, in many respects, reminds itself without the bounds of close criticism as the author constantly protests against "species-mongers," "theoretical botanists," "pedantic systematists," "hair-brained speculators," "literary pedants," "hair-splitting doctors," and "wise *savans*, who know much about stinks and peas, but little if anything about firs and pines." Without being deterred by these epithets, or the chance of being classed with the "literary pedants," we have no hesitation in saying that, whilst the best and the really valuable part of the book is the portion that treats of the cultivation of these trees, and the descriptions of the species and varieties, the least valuable part is the remarks on the classification. The author tells us at "the present time their [the species-mongers'], classification is chaos, and their nomenclature cant," and forthwith himself makes sweeping alterations in the nomenclature and arrangement of previous authors, beginning with the name of the natural order itself, and ending with the alteration of the name of the well-known *Wellingtonia gigantea* into *Gigantabies Wellingtoniana*, "because it is not only more euphonical [!], but more in keeping with that oft-despised virtue, common sense, and more consonant with my ideas of the great and good, or the true and beautiful." At page 20, he tells us,—"The origin of species is a nice theme for theorisers; and many are the nice theories which this theme has originated;" and at page 12, we have his own "nice theory" of the origin of species: when speaking of the wood-beetle, he says they "are, I think, *engendered, produced, and exist by* pine or fir bark," &c.; and speaking of the parasitic fungi, he says they "are a *phenomenon*, which was, is, and shall be coeval with matter;" and they are "the lowest order of vegetable life, simple or compound, copulate [!] or spontaneous [!] they may be." We imagine the above quotations rather trench upon the ground of the "hair-brained speculators," for they are very far removed from fact. In these days no one but the beginner in science ventures to assert that any living form, however minute or anomalous, can be spontaneously produced, or be "engendered" by anything but its true parents, of which it is always a counterpart; the parasites of the coniferæ are, however, well known to science by *name* and nature, some being attached to the living tree, others to the dead; some to the cones, and the cones only; others specially to the leaves, and no other part.

To arboriculturists, or to any one wishing to become well acquainted with descriptions of conifers and their numerous varieties, from all parts of the world, we can recommend this book, wherein the accounts of the aspects, habits, and value of these trees appear to be written with considerable accuracy, from personal observation of the growth of the trees *in this country*.

* Pinaceæ; being a Handbook of the Firs and Pines. By Senilis. London: Hatchard & Co., 187, Piccadilly.

NEW THEATRE, SOUTH SHIELDS.

ON Monday night last, the new theatre, which has been erected in South Shields by a joint-stock company, was successfully opened to the public. Some time since designs were invited for it, and that of Mr. C. Phipps, it may be remembered, was selected for the plan and internal arrangements, and that of Mr. T. M. Clemence for the elevation in King-street. The works have been carried out under their joint superintendence.

The height of the front is about 52 ft. The style of architecture is Italian, in three stories. In the centre of the lower one is the porch, which forms the principal entrance to the theatre, and which projects about 2½ ft. from the line of the rest of the building. On either side of the porch is a shop. Immediately above the porch rises a portico of coupled Corinthian columns, surmounted by a cornice and pediment. At each angle of the building is a Corinthian pilaster, and the whole building is surmounted with a moulded cornice and parapet. The ground covered by the building is 120 ft. in depth from King-street to Union-alley, by a width in front of 45 ft., and at back 65 ft. The entrances to pit and boxes are in King-street, while those to the gallery and stage are in Union-alley, all arranged with wide passages and staircases. Altogether accommodation is provided for 1,560 persons, distributed in the following proportions:—Pit, 20 rows of seats, 500 persons; boxes, 7 rows of seats, 230 persons; private boxes, 30; and gallery, 19 rows of seats, 800 persons. The stage is 3½ ft. above the level of the pit next the orchestra, while all the floors have a great inclination; and the boxes, or dress circle, and the gallery, instead of being of the usual horse-shoe form, make a semicircle of 28 ft., opening before the axis of its diameter by curves of contrary flexure, to a width of 34 ft. at the first column of the proscenium. The ceiling is circular, 34 ft. in diameter, with a slight rise towards the centre, which is 37 ft. from the floor. In the centre of the ceiling, and about 18 in. below it, is a large sunlight, manufactured by Messrs. Strode & Co., of London, immediately above which is the ventilating shaft, which is 6 ft. in diameter, and constructed of iron. There are subsidiary ventilating flues running from the galleries and boxes into this main shaft, so that ample provision has been made for the effective ventilation of the building.

The work of decorating the theatre in accordance with the architect's plan was entrusted to Messrs. Green & King, London. The main portion of the ceiling is divided by radiating and concentric bands, into a series of panels. Immediately surrounding the sunlight and ventilating flue is a border, and beyond this are eight large light blue panels, bounded by borders, and containing, at their bases, cleverly-designed grotesques, in red and white. Alternating with these large panels are an equal number of long and narrow ones, enriched with painted arabesques on a light gold-coloured ground. Beyond these again is another border, between which and the circumference of the dome is a white band, composed of a series of compartments, formed by a continuation of the radiating lines which define the principal panels. These outer ones consequently become alternately oblong and nearly square. The former contain each a pair of dragons, painted, in brilliant colouring, on a gold-coloured ground, and bearing a shield, on which are emblazoned the arms of the town. Immediately surrounding the dome is a flat soffit, some 18 in. in width, which is decorated with gold-coloured stars on a rich azure blue. The cornice is enriched with various stencilled ornaments, which carry down the colours of the ceiling gradually towards the other parts of the house. The box fronts decoration consists chiefly of a band of arabesque ornament, nearly the entire width of the front itself. The Corinthian columns at the sides of the proscenium are coloured a delicate buff, with white capitals and bases, and the entablature, proscenium, and other parts are ornamented with various devices to harmonise with the more important decorations. The curtains, valances, and resters of the boxes are of red damask, while the same colour, in much deeper, more sombre tone, is used for the bases of the columns and sides of the orchestra, pit, &c.

The stage has been constructed by Mr. Tasker, the clerk of works. Its width at the proscenium opening is 25 ft., but beyond that it opens out to a width of 54 ft. between the walls. The depth from the float is 30 ft. It has a descent towards the auditory of half an inch to the foot, and is fitted with all the latest improvements for the working of theatrical business; amongst others, the floor is so constructed that it can be wholly removed for spectacular or mechanical effects. Behind the stage, the inner penetralia of the theatre, are the green-room, manager's room, and ten dressing-rooms for the accommodation of the company, with wardrobe, all of which are fitted up in a most complete style. Beneath the stage are some other rooms, and a sink 20 ft. deep, into which a scene, if necessary, can be lowered. The proscenium opening is formed by an arched brick wall, which is carried up to the roof, and, completely divides the building, so as to lessen the danger of a fire spreading, for the prompt suppression of which, a 3-in main and 50 ft. of hose are provided on the stage. The general contractor for the work was Mr. John Scott, North Shields, with the following sub-contractors:—Mr. G. Reay, carpenter and joiner, of North Shields; T. Rudd, gasfitter and plumber, South Shields; Mr. Rowe, carver; the dress-circle seats have been executed by Messrs. Carnaby, of South Shields; and the regulating apparatus and leather hose for the stage by Messrs. Jones & Son, of Bow-street. The cost, with the purchase of the ground, has been little short of 8,000*l*.

THE OPENING OF THE NEW MARKET-HALL, DERBY.

ON the 29th inst. this new hall will be opened by the performance of the Messiah of Handel. The hall is 220 ft. long, and 110 ft. wide, and is covered by a semicircular wrought-iron roof, in one span of 86 ft. 6 in., and two small side roofs of 12 ft. span, the wrought-iron principal ribs being carried by twenty-two ornamental cast-iron columns, 22 ft. high, the height from the ground-floor to the centre of the roof being 64 ft. The roof is covered with slates, glass, and lead. The exterior of the building is not much seen. The estimated cost of the market-hall complete, with fittings, will be near upon 20,000*l*. The original design of the building, with the exception of the side shops, galleries, staircases, and internal arrangements and fittings, was prepared by Mr. T. C. Thorburn, formerly borough surveyor of Derby; but owing to Mr. Thorburn's appointment to the Birkenhead surveyorship soon after the commencement of the building, the general



PLAN SHOWING SITE FOR THE PROPOSED COURTS OF LAW, LONDON.

management and superintendence of the works devolved upon his successor, Mr. George Thompson, of Derby, and the committee found it desirable to alter the original design in many particulars during the progress of the works. The shops, galleries, staircases, and the whole of the internal fittings were designed by Mr. Thompson, the borough surveyor, and have been carried out under his superintendence. Messrs. Ordish & Le Feuvre, of Westminster, were the consulting engineers for the roof, and Mr. Lucas acted as clerk of works for the ironwork. The decoration of the hall has been carried out by Mr. Cantrill, of Derby, in accordance with the instructions of Mr. Owen Jones. Mr. Haywood, of Derby, was the contractor for the ironwork in the roof; Mr. Swingler for the ironwork in the shops, galleries, and internal fittings; and Mr. Humphreys, of Derby, for the whole of the brick, stone, wood, plumber's and glazier's work; the gas-fittings were provided by Mr. Abercombie, of London.

THE INTENDED LAW COURTS.

To answer the inquiry of more than one correspondent, we have engraved a plan showing the site on which the new law courts, or Palace of Justice, will stand. The portion left white in the plan is already secured under Act of Parliament, and it is proposed further to purchase the surrounding parts, which we have "dotted" in the plan. One of the long sides of the site is in the Strand, stretching from St. Clement's Church to Fleet-street, and the other is in Carey-street. We may repeat that a new bridge is to be provided on the site of Temple Bar, and one from Lincoln's-inn, over Carey-street. The level of these bridges is not to be higher than the level of the courts. In addition to these bridges, there is to be a tunnel or subway in the Strand, on the site of Temple Bar, to connect the Temple and the new courts; and another tunnel, for foot passengers and trucks, under Chancery-lane into the Roll's Estate.

Another endeavour has been made in the House of Commons to open the competition for designs to all comers, or, failing that, to increase the number of competing architects to twenty-four, but it was unsuccessful. Nor are we disposed to regret that this was the case. A selection of twelve architects has been made, under certain conditions, and they are now getting to work. Again to make changes and to induce a feeling of uncertainty is not desirable.

In the course of the last discussion in the House, Mr. W. Cowper said they would choose two professional men, having a knowledge of architecture, to make a report for the guidance of the committee on those points with respect to which special professional training could alone make men competent to decide. That was the course hitherto followed in regard to the erection of Government offices, and he thought it most likely to lead to a satisfactory conclusion. On this point we shall have much to say before the 15th of December next, on which day the designs are to be sent in.

VESTRY HALL, ST. MARY'S, NEWINGTON.

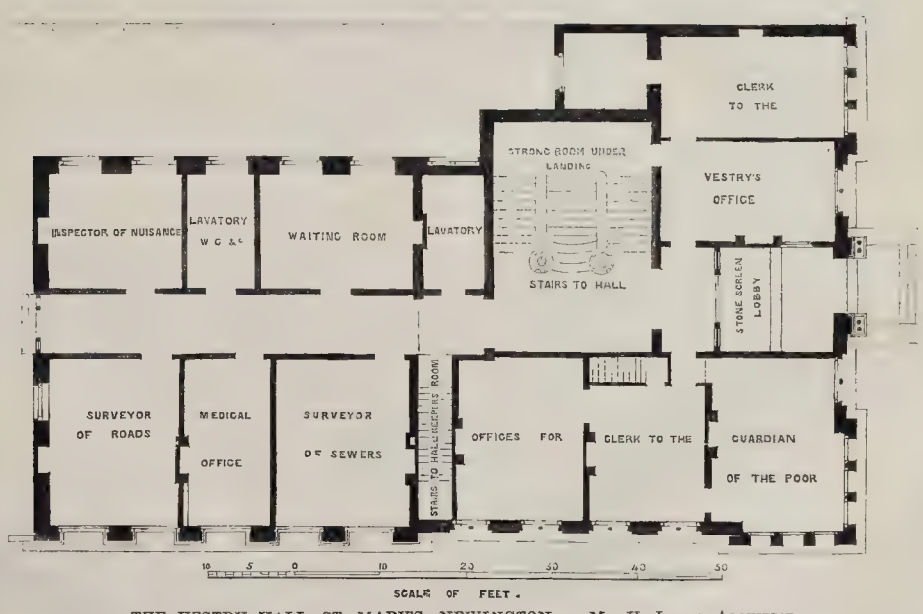
THIS building, not long ago completed, is situated on the estate belonging to the Fishmongers' Company, and has a frontage of 110 ft., in a new street, and 90 ft. in the Walworth-road. The fronts are faced with red bricks; the dressings are of Portland stone; the shafts of the columns are of polished red granite; the roofs are covered with green Westmoreland and grey slates, laid in patterns, with cut edges. The railing round the building is of wrought iron, as are also the gates at the entrance. The walls of the entrance lobby are of red brick, and the screen, in which are hung swing-doors of oak, is of stone.

On the basement-floor are rooms for the hall-keeper, coal-cellars, and strong rooms, for the preservation of the parish deeds, &c. The ground-floor is appropriated to offices for the clerk to the vestry, the clerk to the guardians, and the officers of the vestry, as shown on plan. At the bottom of the principal staircase are two gas standards of wrought iron, standing on stone pedestals; the wainscot handrail is spaces supported by twisted iron standards, the between which are filled in with perforated iron plates.

On the first-floor are situated the hall, two committee-rooms, 30 ft. by 20 ft., and 20 ft. by 19 ft. respectively; and an ante-room, 12 ft. by 19 ft. The hall for meetings is 40 ft. by 42 ft.; in the centre of the ceiling is a deeply-recessed panel, at the summit of which is a sunlight of eighty-three burners.

Accommodation is provided in the hall for vestrymen, on oak seats, semicircular on plan, and covered with morocco leather, which, together with the chairman's desk and seats, and reporters' table, were made by Messrs. Dawe & Son, of Islington, from the designs of the architect. Under an arcade, at one end of the hall, is a gallery for the accommodation of visitors. This partly rests on stained deal corbels, and partly extends over a vestibule at the entrance to the hall. The chimney-pieces throughout are of Caen stone. The contract for the building was taken by Messrs. Piper & Wheeler, and the cost will be about 10,000*l.*, including furniture. The architect is Mr. H. Jarvis.





THE VESTRY HALL, ST. MARY'S, NEWINGTON.—MR. H. JARVIS, ARCHITECT.

HIGH ART IN LOW COUNTRIES.*

THIS title, as you will perceive, will at once give me a double limitation of my subject, for all *art* is not *high*, and all *countries* are not *low*. We shall find the limitation convenient and the subject so limited will be suitable. For what we want to do—what is desired by the promoters of this Exhibition—is, I suppose, to raise the character of local art as high as possible in a country, which, though not morally nor socially, yet geographically, would be technically described as low. On this title then *High Art in Low Countries*, I respectfully request you to allow a portion of your thoughts to rest for a few minutes, while with the other portion you accompany me in a preliminary discussion of the meaning, and of some of the principles, of *Art*.

Now there is one preliminary question which stares us in the face. What do we mean by Art? And though this is a simple question, I am not sure that it is the easier to answer on that account: in fact, it is not unfrequently just the simple preliminary questions which are least likely to meet with satisfactory answers. Ask many persons who use the terms to define what they mean by a *Whig*, or a *Tory*, or a *right-angled triangle*, or a *respectable man*, or a *genteel female*, and you will probably find it difficult to get a clear answer; and you may be reminded of the wisdom of a certain leader of the House of Commons, who, having endeavoured in vain to obtain a definition of the duties of an Archdeacon, and being compelled to make a speech which involved the knowledge of those duties, began by saying that the duties were so well known that he would not take up the time of the House in explaining what they were. What then, I say, do we mean by *Art?*

In the first place, with regard to the word: it is, of course, the same as the Latin *Ars*, *artis*, and as the French *Art*. This fact is not very interesting; but there is, I think, some interest connected with the etymology of the word, if we trace it a little further. The dictionaries tell us that the Latin *ars* is the same word as the Greek *Arete*, and this Greek word which signifies any kind of *ability* or *skill*, but originally denoted more especially *warlike* ability or skill, *courage, valour*, is probably connected with *Arês*, the Greek god of war, the Mars of Latin mythology;—a connexion which I notice, because certainly *art*, as we understand the word now, *art* as the word is used in such a phrase as "the Wisbech Industrial and Art Exhibition," would have chosen any god or goddess in Olympus as its patron in preference to *Ares* or Mars, the fierce god of war; and if a name which originally described the power of an Achilles or an Ajax can now be used with most emphatic propriety to describe the power of those who beautify the Houses of God, and adorn our houses, then we may perhaps see in the change of meaning something of that change which is described by the prophet when he speaks of men "beating their swords into ploughshares and their spears into pruning-hooks" and "learning war no more." Again, the dictionaries tell us that *aretê* is probably connected with *arrên*, a *male*, as the Latin *virtus* is connected with *vir*, a *man*; *virtus* signifying originally *valour, courage*, those qualities which were considered to be the chief glory of *men*; but virtue is now no longer any special property of *men*. I should think it quite a sufficient claim for men that they should be put on an equal footing with their fair sisters; more than their half of the virtue which exists in the world, I am certain they have not got. And so also if *art* originally implied anything of masculine skill, manly valour, warlike craft unsuitable for women, we may congratulate ourselves that it is so no longer, and that art in the sense in which we are dealing with it to-day belongs to men and women alike.

Let us, then, leave the word and come to the thing. Art may be regarded in the first instance as meaning skill in general; but we treat it as meaning skill of a particular kind. And I think that we may prorerly define what we mean by saying that *art is that kind of skill which is employed in clothing the useful with the beautiful*. Let us consider this definition.

Many things are useful without being beautiful. There is no beauty worth speaking of in a gasworks-chimney, or in a newspaper, or in a railway-carriage; yet all these things, and thousands more which might be mentioned, are singularly useful. It is not every useful article perhaps which admits of a covering of beauty; in some things the intensity of usefulness seems to make beauty unnecessary, or perhaps to make the attempt to add it ridiculous; their usefulness, in fact, is beauty, and with that they must be contented. Nevertheless it is surprising how very few (comparatively speaking) are the cases in which superadded beauty is impossible, and, therefore, art unnecessary. In fact, the instinct of art would seem to be almost coeval with the instinct of supplying the prime necessities of human life: amongst the earliest remains of human handiwork which recent discoveries have brought to light are rude carvings upon pieces of bone, which no doubt were regarded by the connoisseurs of the time as marvels of imitative skill. Men were compelled by their necessities first to make tools, but they soon began to ornament those tools; and I suppose there is not a savage nation on the face of the earth, in which utility is everything, and art nothing: on the other hand, art appears to belong to man's simplest nature; and it is only in a very advanced state of society that men think it a mark of superior sense and judgment to glorify utility at the expense of beauty.

Nor is it to be wondered at that man's nature should be thus constituted, seeing that God made man, and that the principle of clothing the useful with the beautiful, which I have spoken of as the foundation of art, is just the principle upon which (speaking generally) we may say that God's works are constructed. Look at the human figure, the human face, the human hand, the leg, the foot. Every portion is useful; but not only so,—every part is beautiful, and the beauty and the utility are married together. We may speak of the eye as an optical instrument; but when we speak of the bright eyes of our fair sisters, we think of something very different from optical instruments: and the mouth is a very utilitarian organ, and has very commonplace work to do; but there is hardly anything more beautiful and more expressive than the human mouth, and we are not thinking of mere utility when we speak of ruby lips. So of other parts of the face, and of the body; organs which appear to be hopelessly utilitarian, like the stomach and the heart, are packed away in closets; and the human frame as presented to the eye,—especially if not spoilt by barbarous costume,—is a perfect specimen of the useful clothed with the beautiful; in other words, it is a perfect type of that which, in human works, we describe as *art*.

The useful and the beautiful, then, are combined in a work of art; and let me observe that the degree in which each of these two constituents will predominate varies very much in different cases. In some the use is almost everything, and the beauty superadded is trifling; as, for instance, when two kinds of bricks are used in building a house, so as just to break the dull uniformity of the walls; in others the utility has almost vanished to make room for mere beauty, as in the case of pictures. But, as a general rule, art does not seek mere beauty, but follows the example of nature, in which use and beauty go together, and utility is often an absolute condition of beauty; yet even in nature we sometimes find the beautiful almost as supreme as in the case of a picture: thus we have the gorgeous colours of the morning or evening sky, and on a smaller scale we have the butterfly and the humming-bird.

Hitherto I have been speaking of art as though it addressed itself entirely to the eye; and, in fact, the kind of art to which this Exhibition chiefly directs our attention is that which belongs to the sense of sight. But it ought to be observed, if only for the sake of justice, that the eye has not a monopoly of the pleasures of art. Art acts upon the mind like almost all other things, through the senses; but there are only two of the senses which appear to be capable of being associated with art properly so called: the sense of *taste*, for example, might claim, as its peculiar field, the *art* of cookery; but we must not in an application of the term admit cookery to the dignity of *art:* and the sense of *smell* might claim that *art* which is hereditary in the family of *Jean Maria Farina*, of Cologne, but neither must the composition of perfumes be admitted to the dignity of *art: feeling*, though a very useful, is so very humble and commonplace a sense, that it will probably hardly put in a claim; no, the two senses which are dignified beyond the rest as being the vehicles to the mind of the beautiful, and consequently the organs of art, are *hearing* and *seeing*. Hearing may well compete with seeing in the dignity of its art-function: music may challenge painting and sculpture, and claim equality of dignity: frequently the two join in partnership, as, for instance, in the choral worship of a beautiful cathedral; indeed, one may say, that the *entente cordiale* between these two senses is complete, so that sometimes they interchange names with each other: thus when I see a letter from a friend, I say that I am glad to hear from him; and when a person explains to me, by word of mouth, some difficulty, I say, "Ah, now I see what you mean."

It is no discourtesy, therefore, to those branches of art which have the ear for their organ, that we do not consider them to-day. We are dealing with art chiefly or almost exclusively as it belongs to the eye, and in so dealing with it I think we may adopt the definition which I have given already, that it is the clothing of the useful with the beautiful. The question, therefore, which it would seem to me should be prominent in the minds of those artists whose efforts we chiefly desire to stimulate by Industrial and Art Exhibitions, is this,—How shall I make my work beautiful? How shall I produce that which is in good taste? And this question, like many others, is very briefly asked, but cannot be very briefly answered. Something, however, may be said which may be of use, and, with your permission, I will devote a few sentences to the subject.

I would observe that there are three great elements of beauty which ought to claim the attention of all art-workmen, and which comprise almost the whole of their artistic stock-in-trade. The three great elements to which I refer, are Form, Proportion, and Colour.

The importance of *form* is illustrated by the fact that with the Latins *forma* was actually equivalent to *beauty:* and so thoroughly does form imply beauty, that if the form be good it is almost impossible to destroy the beauty. Take an instance. No position is more trying than that occupied by St. Paul's Cathedral in the midst of London smoke: there it stands from year to year with the accumulations of the atmospheric filth of perhaps the filthiest atmosphere in the world; and if the dome depended upon the colour of its material for its beauty, alas! for the dome; but its beauty is its form, and as its outline catches your eye, lighted up by such daylight as the city of London enjoys, you cannot help saying that it is one of the finest buildings in the world.

The education of the eye to the delicate perception of form, and the education of the hand to the production of form, are, I conceive, amongst the prime requisites of art-education; and it is a kind of education which is the more important because the tendencies of modern times are in some respects unfavourable: there is such a tendency to manufacture things on a large scale, to use the rule and compass rather than the eye, to meet the demand of the times by the production of articles cheap and nasty, that there is danger of men being frightened away from sound principles of honest art by the dread of being starved in the process of carrying out the principles. Let me illustrate the importance of form by reference to something which I remember hearing from Professor Willis. Professor Willis invented an ingenious instrument, which he called a *Cymograph*, an instrument for obtaining correct drawings of the mouldings of Gothic architecture: it is not very easy to do this, as any one will perceive who remembers how deeply under-cut and hollowed out many of these mouldings are; however, Professor Willis invented the cymograph, and he did so because he had long been struck by the contrast of effect between ancient work and modern work which professed to be merely an imitation of the old. Now, when the two came to be fairly laid side by side upon paper, by help of the cymograph, what was the difference between them? Just this, that in the case of the ancient work the lines of the mouldings were drawn by the artist with a free hand; whereas, in the modern, every curve was a circle struck with a compass. The ancient architect, in fact, went by the rule of *brains*, and the modern by the rule of *thumb;* and I well remember the perplexity caused by this distinction to a very clever and competent man, who for a time superintended the recent restoration of the Ely lantern. Mr. Scott had asked him to make working drawings of the old stone-work outside the lantern, and the good man attempted to do so according to modern rules of art; but to his dismay he could find no

* An Address, by the Very Rev. the Dean of Ely, delivered at the opening of the Wisbech Industrial and Fine Art Exhibition.

centres from which to strike his circles, and every modern rule of stonework was ruthlessly set at defiance. If you had asked the great architect of the lantern, "With what do you draw the designs of your stonework?" he might have answered, like the artist in Dr. John Brown's Essay, who being asked, "With what do you mix your colours?" replied, "Wi' brains, sir."

So much for form; proportion is equally important. Indeed, it may be said that proportion is an element of form, that form depends very much upon proportion. Still proportion deserves separate consideration, and I should be very glad to give it such consideration as my poor ability might enable me, if it were not that I felt the necessity of studying proportion also in my address, and hastening to conclude this portion of it, and proceeding to that which is more particularly implied by its title.

For the same reason I must pass with a rapidity which much grieves me, over the subject of *colour*. I must remark, however, that, in this department, there is a great deal to be done, and great encouragement to Englishmen to endeavour to do it. There is a great deal to be done, because, until lately, colour was in many departments of art almost forgotten, especially in architecture. We seemed some years ago to regard as an axiom that we should have no colour except those of wood and of stone. Now we are beginning to wake to our mistake; and the danger is, lest in the zeal of our returning consciousness, we should rush with brush in hand and commit some tremendous blunders. It is for fear of committing such a blunder that the lantern of Ely Cathedral is now left in its unfinished condition. It was thought better to look at the woodwork in its cold, crude, patched condition, and to consider how it should be treated, rather than paint the whole in a hurry, and repent of the result at leisure. But there is, as I have said, great encouragement to Englishmen to work at the colour department of art. Englishmen have not, I think, as a nation, good eyes for form and proportion. Certainly, we do not in general draw so accurately as our French and German neighbours; but we do hold a high position as colourists; and in any international exhibition of pictures, perhaps, nothing will strike you more than the excellence of the colouring of works of the English school. Let me dismiss this part of the subject by saying that colour seems to me to be in a very special and peculiar way a gift of God. Form and proportion, you may say, are God's gifts, inasmuch as God gives us the power of appreciating the beauty which arises from them, and sets us examples of such beauty in His works; but the beauty of form and proportion is, after all, connected with geometrical necessity, and, therefore, can only in part be connected with divine benevolence. Not so colour. Colour, and therefore all the beauty and pleasure arising from it, is the result of a distinct creative act, which (as far as we can perceive) need not have been performed.

"God said, 'Let there be light,' and there was light;" but, when God created light, He created colour too. The beams of light were not simple, inseparable undulations, capable of discharging the useful office of conveying messages to the eye; but the white wave was made capable of splashing into numberless colours; and the great discovery which Newton made, not much more than a century ago, was in reality the discovery of a primeval act of God's providence, of which men had perceived, for thousands of years, the pleasant and refreshing consequences, though they were in ignorance of the method of God's operation.

I have now spent as much time as I can afford upon the general question of art, and I pass on to the more direct discussion of the subject which I have chosen particularly for this address and which I have shadowed forth in the epigrammatic title *High Art in Low Countries*.

I do not know whether the notion is generally prevalent, but I confess that to me it seems very natural, that districts such as this in which Wisbech is situated should be unfavourable to the flourishing of art and the birth and growth of art genius. Far be it from me to say anything disrespectful concerning the Isle of Ely, but its best friends will not deny that it is flat, that it is deficient in picturesque features, and that there is not much in it to stir the imagination, or drive men to write poetry in celebration of its natural beauties. The wild land of mountains, waterfalls, woods, and rivers, seems to be, as Sir Walter Scott phrases it, the "true nurse of the poetic child;" in the midst of ditches and sluices the poetic child is likely to be smothered in infancy; and hence I think there is a tendency to imagine that the child of art is likely to fare as badly in our fen country or in Marshland as the child of poetry. But in truth any such imagination would be unfounded, and would be contrary to experience. That this is so I intend to prove for your comfort more at length presently, but before I do so I would first make two remarks.

In the first place, it seems to me that the very absence of natural beauty in a flat country is likely to force the minds of the inhabitants in the direction of art. The possession of everything upon which the eye can delight to rest all ready made (as it were) by the hand of nature, may have the effect of checking the appetite for art, whereas the famine of natural beauty may compel a search for artificial food. Certain it is that the earliest works of art are to be found in the prosaic valley of the Nile, and in the flat country of Mesopotamia, and I think that every one must feel that the existence of beautiful churches, such as we find throughout Lincolnshire and the Marshland district of Norfolk, is a boon which in a more interesting country we should not appreciate nearly so highly.

But, in the second place, I think it should be borne in mind that a flat country is not without its advantages even in respect of beautiful objects upon which the eye can rest with pleasure, and by which the artist's eye can be educated. The effects of sunrise and sunset, and generally all beauties depending upon the atmosphere, are seen nowhere better than in a district such as this: every one must have been struck occasionally with the grand cloud pictures which may be seen in a country having a wide horizon,—eccentric forms, Alpine snowy ranges, weasels and whales, and every variety of hue: no lesson in colours can be better, and with such favourable lights it does not require much to make a picture: a twist in a river with a windmill, or a cottage, an old barge, a peasant, and a dog, will probably furnish the subject of a charming work of art.

Perhaps I may add in speaking of flat countries, that they have in past times had an advantage over others in this respect, that they have got rich more quickly. Districts lying level with the sea, and intersected by natural highways in the form of rivers, with a rich soil ready for tillage, have generally been the earliest homes of commercial wealth, and wealth is necessary for the encouragement of art; "money" is said to "make the mare to go," and it makes the artist's brains and fingers to go too: artists of all kinds object to hunger, and unless there be men who are rich enough to be patrons of art, art is likely to wane.

To be sure, you may sometimes find a man art-mad, like the famous French potter Palissy, who broke up his chairs, tables, bedsteads, everything, to keep up the fire in his furnace till his experimental pieces of pottery were sufficiently baked, and who got into scrapes with his wife in consequence, which would have appalled a less stout-hearted man; and even Palissy, by the way, would not have been able to achieve what he did had he not met with influential patrons in the royal family of France. Money does not necessarily beget art: it may breed mere vulgarity and extravagance. Still there must be wealth to enable people to patronise art, and there must be education to teach people to appreciate it, and those countries which rise early to opulence are likely to be found amongst the early nurses of art.

And these considerations lead me to speak upon the remarkable growth of art in times gone by in those countries, which we claim, *par excellence*, as the Low Countries—the *Pays Bas*—or *Netherlands*. If any one wishes to know how high art can soar in low countries, he should observe what art has done in Belgium and Holland: we people of the fens have, as I shall show you presently, some very special grounds of consolation concerning art here in this Isle of Ely; but if we are not contented with what we can find here at home we may easily run over the sea and find in a country very like our own consolation enough to comfort the most weak-hearted. Will you kindly accompany me to Belgium and Holland for a very short trip, and as the G.E.R. Company has made everything so snug and comfortable by way of Harwich and Antwerp, will you consent to adopt that route?*

* To be continued.

THE CESTUS OF AGLAIA.

SIR,—There is nothing, in these days at least, like a thorough good mystery, whether in words or doings. A mystery always rouses attention when nothing else will. If Sir I. Newton were to rise from the dead to-morrow, in full vigour of faculty, and give the world of science and art a new idea of creation, in *plain* and comprehendable words, I doubt whether the advanced scholars of our day would give him credit for anything; but let ever so small a mortal say his little say about almost nothing, mysteriously and darkly, and unintelligibly enough, and the "advanced" are all alive and curious about it and *him*, and go on asking with eagerness, who is he, and what is the new wonder? I think I am right here: I hope I am. A new art idea is now dawning mysteriously,—will you allow me—you never battling a new thing, however good—to welcome it.

Not many months ago, a friend who knows all about art and its mysteries, said casually to me in course of talk, "I believe we have now, in this present year of grace, as able *painters* as ever lived, but they never paint as good pictures as were once painted, *i.e.*, as Giotto, Raffaelle, and the rest once painted." I was *not* surprised at this remark, for it is a very common one, but I could not help asking myself, why do not our painters do as well and as nobly as they of past days, with all our science, and art, and scholarship? You will allow this to be a most momentous inquiry, and worth a little time and speculation to come at the truth of.

It somewhat curiously happens that no less advanced a person than Mr. Ruskin, the author of the "Cestus of Aglaia," in the columns of the *Art-Journal*, was asked but lately by a friend precisely this self-same question, and has, with a wonderful array of scholastic talk, endeavoured, and is now earnestly endeavouring, though unfortunately without assistance, to answer it. He says,—"I believe that we have men now among us who might have been noble painters, but are not; men whose doings are as wonderful in skill, as inexhaustible in fancy, as the work of the really great painters, and yet these doings of theirs are not great." Mr. Ruskin thus answers this tremendous art-question and puzzle; it actually rings in his ear, he says, and draws on his hand. "The works of our present race of painters are not great, for they are not, in the broad, human, and *ethical* sense, GOOD!"

Sir, Mr. Ruskin takes a good deal of printer's ink to say all this. I must be short, but must in the way merely of prefatory matter ask you to bear in mind that Mr. Ruskin has now been for fully a whole human generation of thirty or forty years asking himself, and trying to answer, this very question, in very many goodly volumes; and that now, at the end of all, volumes and time, he is as new to the work as though it had never entered his head or eye before. May I, with him, try to solve it? What is the question in simple and intelligible English?—This. Why are all the oil pictures now exhibiting in Trafalgar-square, under the patronage of the Royal Academy of Arts, a mere transient art-show, evidencing nothing but the power of the artists who painted them to do something if they could or would? That is the question. Why are the painters not Giottos and Raffaelles and Leonardos? Mr. Ruskin, as you see, has settled it in a few words, not over-flattering: absence of "*ethical goodness*" is the cause of failure in both painters and paintings. Forty years of talk, and under the title, and, doubtless, with the help of the Cestus of Aglaia, and with our eyes open and in the centre of London and surrounded by accumulations of help, this, and this only!

We are never without some sort of help even in case of total wreck; for, says an oracle from the extreme north, "Up and be doing, and say your say whatever it is at every chance." Sir, with your leave, I will take this good advice, and say at once and without the smallest reserve, that, so far from Mr. Ruskin's uncharitable charge against our painters, and, we may suppose, against sculptors and architects, being correct, that ethical short-coming is the cause of their failures, I will confidently assert that the cause is the very opposite and reverse. It is quite possible to be too good. There is such a thing as maudling and simpering goodness, ethical twaddle, and shere nonsense. My own belief is that never at any time was the artistic fraternity so good and correct as it now is, and that never did artists as a body of successful men try so hardly to be ethically and

respectably *good*, and to bring into being ethically good paintings and drawings. Pray look, sir, at the R. A. collection: it is a series of good efforts and small sermonizings and preachings to the public—the wicked public; and to outsiders who are not admitted to this select art gathering, the cheapest woodcuts are all preachings and extreme goodness, for where is there to be found a clever woodcut representation of a piratical murder on the high seas where there is not be found in the extreme background some good young man who is sure, as the tale will tell you, to come forward in a minute or two and stop the sport and prevent the threatened murder. Mr. Ruskin is all wrong: the pistols are never loaded with anything worse than loose powder. Our modern artists cannot stand shot and steel: they are far too ethically good and correct; and their works are in consequence not a little like themselves. There is nothing in them either to hurt or to gratify: they are "ethical" imaginings.

But what I want, sir, more particularly to call your attention to, and to which Mr. Ruskin's remarks have given significance, is the hitherto, I believe, unnoticed fact of the influence which, in my opinion, has been brought to bear on our painters by the comprehensive fact of all other phases of art having passed into the domain of *art manufacture*. We have, in reality, now-a-days, no *art* whatever: it is all art manufacture, and mere matter of business. It is the trade part of it all which the well-dressed and respectable and ethical artist has to do with; the art part of it is all left to subordinates and uninterested servants. This atmosphere of nothingness and quackery has, as it seems to me, reacted on the painters without their being aware of it, and converted them, so to phrase it, each one into a sort of individual painting manufacturer; not in groups, as in architecture and sculpture, but individually into picture manufacturers. Let any one, in proof of this, notice attentively any of these paintings, and he will speedily discover that goodness, and respectability, and cleanliness, and order are the prevailing characteristics; in other words, they have been all of them painted *indoors*, in comfortable rooms, from *recollection*, or from *photographs*, away from the objects represented, and *for* genteel spectators and purchasers, and for people easily and quickly offended at nature—moving nature. I say, then, in defiance of Mr. Ruskin, that all these pictures are respectable and *ethically good*, and in no way calculated to alarm the most delicately sensitive. They are not only *not great*, as he justly says, but the very road to greatness is lost sight of; the painters have taken a wrong turning; and certainly Mr. Ruskin has not succeeded in putting any of them in the way of the right road, even after a whole generation of talk and preaching. *A little talk with the devil is what our painters now stand in need of*; and the coming face to face with nature herself, not through their imaginations, but *eyesight*. Nothing is so easy as to imitate, says Mr. Ruskin to the assembled architects on a late occasion; how, may we ask therefore, is it that we have not such a thing throughout this picture-show as a *pebble* well drawn and coloured, or a *leaf*, or so much as a *dead flower*, or a *square inch* of human flesh and blood as good, at least, as Reynolds's; or to come still lower down, a *table-cloth* equal to one by an old Dutchman? Traitorous to the royalty of nature have the whole Dutch race been, says Mr. Ruskin; how is it then that they have beaten us now and always so hollowly? The poor, simple Hollander painted the cloth before him, and stood by it all the time, *the cloth being worth the pains*. And perhaps, another good reason, manufactured his own colours. Real genuine work is the Dutch *bonâ-fide* art handwriting, as true, though of a different kind, as the wall painting of "formless" Egypt! A very wonderful phase of art, so true that our great newspaper authority has missed it. Art facts again wanted.

I cannot see, myself, how art and painting can go much lower than they now are. I do not mean want of power in the artists, but in the resultant work. When the tide is at the lowest it must soon begin to rise, it cannot rest there. We are now arrived at such a state of simpering ethical goodness, and imaginative purity, and horror of Mr. Carlyle's "*natural man*" and "*pure nature*," that there is really nothing left but the mere empty "imaginative faculty;" we are seated truly on immaterial, spiritual thrones, gazing on vacancy, or "illustrative books of reference!" Is it not, sir, time to dismount, grow practical, open our eyes and look about us, not on the books, but on things themselves? It is time to have done with all this ethical imaginativeness.

We hear from its President that the Royal Academy is to be reformed, that there are to be forty Academicians, an *unlimited* number of associates, as there ought to be, and I hope an equally unlimited number of *life* students. The future strength of the Academy must lie in the students, and I never yet have spoken to a member of the Academy who did not at least, after a time, admit this, and who did not contend that the Royal Academy had all along said so, and had seldom or never met in council without the "student element" forming a feature in the official talk. Thus far the tide being out there is ground.

Suppose, therefore, the Royal Academy would condescend (and if it will not, some entirely new Art Society) to declare Aglaia a myth, and the imaginative faculty a mere vacancy, till Nature puts something there; that beans are beans and nothing else, and very hard indeed to draw and paint; and that all the gods of antiquity, together or separate, cannot help towards the drawing a withered leaf; and that of the two, live dolls are really much better, bad as they are, than dead and mythical ones. Suppose that the Royal Academy would own to and boldly take to the solemn earthy fact that nature is nature and must be looked at boldly, first with eyes unspectacled, before there is or can be any possibility of enchanting the imaginative faculty. Suppose, sir, to abandon hard words for a moment, the Royal Academy were to say to their painter-students, "A bean is a bean, and well worth your drawing and painting, no enchanter being by, much better worth copying than any antique copy of one; and when so drawn and painted, the said painting will be recognised by us, the Academicians, as your own, and not another's, who may perhaps have bought it, necessity compelling the sale; and that to do and bring about all this we recognise the existence of actual live beans for the first time in our existence, now 100 years, and offer them to you to simply copy." You laugh at this obvious idea, but be it remembered that from the first hour of the Academy's existence it has never officially recognised the value or even existence of any one thing living; nothing but unclothed man, cramped into a posture which nothing but "*setting*" and pay by the hour could force or keep any one in. Leaves, flowers, trees, and the whole world of animated animal nature, it has never, as a school, even looked at. A *moving* figure no Royal Academy student ever saw. We want a reformed Royal Academy, both in numbers, foundational principles, practice, and ethics, the fair human ethics of taking human nature as it is, and the not expecting too much "goodness."

Would not some such change as this in the Academy system, or a new society founded on such principle, as *the positive rejection of the imaginative in art and the working on fact*, inaugurate a new coming era in art-action and result? I have no manner of doubt in my own mind that Mr. Ruskin's "Aglaia" was at one time, a long time ago, a *real* living personage, and no doll, mythical or otherwise; and am quite sure that the very best existing art-copy of her is that which has the closest resemblance to some past or present *living* Aglaia. My idea of the cestus, and I have thought a good deal about it, is that it was merely a simple waist-band, not for ornament, but use. I think it tied in the dress she wore. I have come to this conclusion through my entire rejection of the "Anthropomorphic" element in Greek art. At the British Museum you may see a cestus. Would that the Academy had this, and would show it their students, and compel them to draw it, paint it, and carve it; for if so, how much practical good would follow, for what then would the mythical and mysterious "Cestus of Aglaia" be?—Printer's ink!

If the Royal Academy ever does come to reform itself and its system, or if any new art society, founded on nature and justice, be possible in this art-hindering and art-manufacturing generation, I think it must—I am quite sure it ought to—be on Goethe's "earthy" and material principles, and on the distinct admission that the mind of man is, *per se*, a vacancy, and is to be filled, not by internal imaginings, but through the *senses* letting in external and self-glorified nature, *i. e.*, nature glorious and beautiful in itself,—man being able to think of nothing that is not either a remembered natural form, or a combination of natural forms. If an imaginative objector here say, away with such materialism, I would ask, how is it that no past limner of even angelic forms has ever yet, even for a moment, hinted at anything lovelier than the *face of a child*, and that no man has as yet either drawn or painted perfectly even that? The highest effort of human artistic power on this earth consists, and always must consist, in the simple catching and transfixing of this perpetually and momentarily changeable and living expression and beauty. As Goethe's earth spirit has it, "we *see* nothing but the living visible garment of deity;" or as the Lord Rector Carlyle says, "Man, though an unutterable mystery, is, after all, but a *visible* forked straddling animal," and as such must he be limned.

C. BRUCE ALLEN.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE concluding meeting of the present session of this Association has been held in the George-street Rooms. Mr. W. D. Robertson, the president, was in the chair. The secretary read the annual report of the council, in which they recommended that in future the meetings of the Association should be held fortnightly instead of monthly, as heretofore. The treasurer gave in his annual statement, from which it appeared that the funds were in a very favourable state, and that a considerable sum could be devoted to increasing the library. The next business was the election of the new office-bearers, when the following gentlemen were unanimously elected:—President, Mr. W. Beattie; vice-president, Mr. W. D. Robertson; secretary, Mr. W. B. D. Dick; treasurer, Mr. W. A. Miller. The retiring president, Mr. W. D. Robertson, delivered his valedictory address, in which he briefly reviewed the events of the past year, and congratulated the Association upon the many valuable papers which had been read before it, and which would appear in its Transactions. Mr. Robertson also touched upon the progress of architecture generally, and impressed upon the members the importance of combined and steady effort, if progress is to be made. The arrangements for the annual excursion, to be held in June, were submitted to the meeting and approved of.

THE LADIES' SANITARY ASSOCIATION.

As we are very desirous of promoting the objects and the welfare of this active and important association of sanitary pioneers, let us again take a slight glimpse of what they have already done, so as to show what they are capable of still further doing, and how well they merit public and substantial support. In the first place we may premise that the Committee commenced work on the 1st of October, 1857. Since that date they have issued eight reports, and 442 members only have joined the Association in eight years, twenty of these having been life members, who subscribed from 10*l.* to 200*l.* each. Two hundred and ninety-five members are now on the list, twenty-eight of whom have joined within the last nine months.

The average yearly receipts are only 360*l.* With this small sum the Committee have issued fifty tracts, of which nearly a million copies have been published and circulated. Many of these have been translated into several languages, and the Committee are constantly requested to permit their further translation. Through their distribution, efforts have been made to form sanitary associations in France, Germany, Prussia, Holland, Naples, Hungary, New York, and Hobart Town. They have been carried into America, Australia, India, China, and Africa. They are welcomed in hospitals, working men's clubs, lending libraries, Dorcas societies, mothers' meetings, and schools. They are distributed by the clergy of all denominations, Scripture-readers, City missionaries, Sisters of Mercy, Bible-women, and sanitary missionaries. The sale of sanitary tracts last year was nearly doubled.

About 14,000 sanitary reports—4,000 of tract, entitled "Dress and its Cost,"—1,000 papers on "Overwork,"—and 2,500 of the paper entitled "The Dance of Death,"—have been published and circulated gratuitously by the Committee.

A free library of sanitary books has been formed, and the books have been constantly lent for the last six years.

Thirty-one courses, or 233 lectures, have been given on chemistry, physiology, and public health, seventeen of the courses free to the working classes, who have collected in crowds to hear them.

Many lectures besides these have been given in connexion with gymnastic classes, and in various schools for the poor.

Sanitary meetings have been held all over England by a member of the Committee, Mrs. William Fison, inviting discussion and proposing sanitary work.

The Committee have sent out during the last five seasons 1,358 parties of the poorest children in London, from the Ragged Schools, &c., into the parks, for fresh air and healthful recreation.

Branch associations alike active, have been formed in Aberdeen, Bath, Brighton, Reading, Oxford, Dublin, Glasgow, Paisley, Leeds, Greenock, Bristol; and others are forming in Inverness, Huntley, Forres, Edinburgh, Dundee, Cardiff, Birmingham, and Birkenhead. They distribute tracts, give lectures, send out park parties, preach sanitary sermons on Sunday evenings, establish day nurseries, have their depots for pails, brooms, brushes, whitewash, syringes, disinfecting fluid, &c. They cleanse the houses, visit the sick, have mothers' meetings, cooking classes for girls, physiology classes for boys, hold their flower shows, and give flannels to the poor.

Funds are urgently required to carry on the work. The Committee closed their financial year with only 18*l.* in hand.

This season the lectures have been stopped. Next season the park parties must be stopped, unless this appeal is responded to.

The Secretary is E. S. Griffiths, and the Office, 14A, Princes-street, Cavendish-square, London.

NITRO-GLYCERINE.

NITRO-GLYCERINE explosions appear to be attracting attention all over the world. An accident of this kind, which took place at Sydney in March last, has led to the appointment of a committee by the Legislative Assembly to investigate the subject. In America, Congress has proposed to make the manufacture and sale of nitro-glycerine a penal offence, and our own Government intends to introduce a Bill on the subject immediately after the recess. Several theories have been started to account for the explosions. It has been suggested that nitro-glycerine is liable to spontaneous decomposition, and consequent explosions. They have also been explained on the supposition that the vessels containing the oil have been packed in sawdust, and that the fluid having leaked has caused fermentation in the sawdust, and a consequent rise in the temperature sufficient to explode the compound. The inventor states it does not explode under a temperature of 320°, but this has been denied. Nitro-glycerine is not by any means a new compound, having been discovered by Sobrero in 1847. The discovery remained dormant, however, until 1863, when a patent was taken out by Nobel, a Swedish engineer, for some improvements in the manufacture, or rather in the mode of application of the compound. In the same year companies were formed in Christiana and Stockholm to work the patent. It became an article of commerce at the beginning of last year, since which time enormous quantities have been manufactured. It is produced by the action of a mixture of strong nitric and sulphuric acids on glycerine at a low temperature. Chemically speaking, it is a substitution compound of glycerine, in which two equivalents of hydrogen are displaced by an equal number of equivalents of peroxide of nitrogen. It is poisonous, and, according to a German authority, a tenth of a grain is sufficient to kill a dog. If a single drop be placed on the tongue, it produces severe head-ache, which lasts for many hours. The explosive force is stated to be ten times that of an equal weight of gunpowder. Several defenders of nitro-glycerine have come forward; but, as they appear to be more or less interested in the trade, their evidence is to be received with a certain amount of caution.

The recent accidents call for immediate legislative interference; but it is to be hoped that any permanent legislation will be based upon some independent investigations into the nature of the compound. It must be borne in mind that nitro-glycerine is a new substance, and that workmen and others are comparatively unfamiliar with its use. It appears to be of great value in mining operations, and it would be unfortunate if the regulations as to its manufacture and carriage are made so strict as to be altogether prohibitory. Mr. Railton, who read a paper on the subject before the Chemical Society in 1855, states that its properties have not received much attention from scientific men, probably on account of the danger incurred. With proper precautions, however, much of the risk of such experiments may be removed.

COMPETITIONS.

The Doncaster Markets.—The town council in committee have inspected the plans sent in by various architects for the re-arrangement and extension of the markets of this borough. The drawings were numerous, and, in order to facilitate inspection, were hung in the saloon, under the supervision of Mr. Anelay, the borough surveyor. The premium for the best design is 100*l.*, and for the second, 50*l.*

Doncaster Corn Exchange and Market.—Eleven designs were received in competition by the Town Council, who have awarded the first premium to Mr. W. Watkins, of Lincoln, and the second to Mr. T. C. Scrby, of London.

WHAT IS "A STREET"?

AT the Middlesex (May) Sessions, Guildhall, Westminster, Joshua Sellars, beershop keeper, and James Linzell, builder, were indicted by the Tottenham Local Board of Health (established 1850) for encroaching beyond the line of houses in Orchard-place, Tottenham. Mr. Tayler and Mr. Collins appeared for the Board of Health, and Mr. Metcalfe and Mr. M. Williams were counsel for the defendants. The section of the Act of Parliament under which the proceedings were instituted was the 28th of the 24th and 25th of Victoria, cap. 61. It was proved that the consent of the Board, rendered necessary by the statute, had been refused. All the preliminary facts were admitted, and the only questions for the jury to determine were whether Orchard-place was a street, and, if so, whether the defendants had built the house in question beyond the line of frontage. It appeared that the so-called "street" consisted of only a few cottages, was not a thoroughfare, and was surrounded by brickfields. The jury found that the place was not a street, and a verdict of not guilty was accordingly recorded.

MANCHESTER CENTRAL RAILWAY STATION AND GREAT RAILWAY HOTEL.

A SPECIAL meeting of the proprietors of the Manchester, Sheffield, and Lincolnshire Railway was held at Manchester, on Friday, the 11th inst., to consider various bills promoted by the company. In the course of the meeting, the chairman, Mr. Watkin, M.P., reviewed *seriatim* the different bills applied for. Respecting the important question of a great central railway-station in Manchester, and the opposition shown by the Manchester corporation, Mr. Watkin said,—

"He had hoped the company would have been allowed to bring before Parliament so great a public improvement, without having to meet with what he could not but stigmatise as a most vexatious and unexpected opposition from the corporation of Manchester. It so happened that the corporation had of late years got too much into the habit of changing their minds. At first they gave the directors reason to suppose that they would approve the construction of this work; but a very short time ago they decided by a large majority that it was not for the good of Manchester—for that seemed to be the logic of the proposition—to have the station, and with it the convenience and accommodation of the travelling portion of Manchester citizens improved. It was not for the directors to criticise the motives which might have led the council to adopt this course. They knew that the corporation had changed their minds on former occasions. They did so with regard to the post-office; and, unfortunately, Manchester had a post-office now which was neither an ornament to the city nor sufficient to meet the business wants of those who used it. It was well known, too, that the council changed their minds with respect to the town-hall, but fortunately for the city in this instance they had changed back again, and now would probably at last have a new town-hall that would be worthy of it. It was quite possible, also, that after a large amount of money belonging to the citizens had been spent, and the company had been put to very serious trouble and annoyance, the council would change their minds again in regard to the central station proposed by this company."

On the subject of a first-class hotel, in connexion with the proposed central station, Mr. Watkin thought a city like Manchester was clearly a place where railway hotel accommodation of the kind proposed should be provided; and there could be no doubt of the success of such a speculation. If, as had been proved at the Charing-cross Hotel, the company could make a profit of 13 per cent., and at the same time administer to the convenience of travellers, there was no reason that he could see why this profit should not be put into the pockets of the shareholders. He saw no objection, therefore, to their erecting at some future time, in concert with the other associated companies, a handsome, or, he would say, a magnificent, hotel in connexion with this railway in Manchester.

The meeting was adjourned to the 25th instant, when it is proposed to take into consideration the Manchester Central Station scheme.

Whilst this subject is before us, we take the opportunity of expressing the hope that the question of railway-station accommodation may be entertained by the community of Manchester, a city of merchant princes, with the enlarged and liberal spirit which the subject demands. Let the citizens of Manchester bear in mind, that whatever is now decided upon and carried out will be required to meet the demands of a largely and rapidly increasing system. It is probable that at the present time the space necessary can be procured for the purpose on far more advantageous terms than at any future period, and an undue spirit of niggardliness in the arrangements now may result in a greatly-increased expenditure at a future time, should it prove necessary to procure an additional space when land shall have become enhanced in value. Fears seem to be entertained that the opposing interests of the numerous rival railway proprietaries, and the restrictions of the city corporation, may prevent the carrying out of any scheme for station accommodation commensurate with the requirements of the case; but we have sufficient faith in the practical common sense of Lancashire men to believe that they will deal with the question in a proper spirit. We shall watch the proceedings with interest.

STOCKPORT.

THE proposed new high-level bridge and roadway over the Underbank have at last been commenced in earnest. The old buildings are being cleared away, and preparations for the new structure have begun. The new bridge will consist of six arches, the central one over the Underbank-street being of cast iron with perforated parapets and a sufficiency of ornament to prevent its being (as many bridges over public streets are) an eyesore and offensive to good taste. The other arches are of brick, with stone parapets.

This high-level bridge connects two important parts of the borough, and will be a great public convenience, leading, as it does, direct from the railway station to the market-place and town-hall, &c.

Mr. Brierley, of Blackburn, is the engineer; Mr. Pierce, of Stockport, the contractor. The cost will be about 6,000*l.*

THE TRADES MOVEMENT.

Bristol.—At present there appears but little prospect of an immediate arrangement of the dispute between the operative masons of this city and their employers. The men are in receipt of half their usual wages from the trade society. Many have left the city to seek employment in other districts since the strike commenced.

Birmingham.—A meeting of master builders has been held in the committee-room of the Town-hall, Mr. Joseph Hardwicke in the chair. It having been stated that two cases of intimidation had been discovered in reference to the bricklayers' dispute, it was resolved that all persons guilty of intimidation should be prosecuted to the utmost extent. With regard to the masons, it was resolved, "That the secretary be instructed to inform the operative masons of Birmingham that the master builders are recommended by the committee of the General Builders' Association to withdraw from the position they have occupied with reference to the present dispute. The masters, therefore, are prepared to take on masons under the old rules,

and pay them 33s. per week in the summer, and 30s. in the winter." After this resolution the masons' strike is virtually at an end. In reference to the dispute with the bricklayers, nothing was done in the way of settlement.

Leeds.—The dispute between the master brickmakers and their men has been settled, on the understanding that the cubical contents of the moulds shall be 150 in., but that the length, breadth, and thickness shall be left to the decision of the master and his men; and that if at any time any alteration shall be required, six months' notice shall be given previous to its taking place.

Rotherham.—The masters have acceded to the requests made by the operative joiners and carpenters in Rotherham and district, for an increase of wages and a reduction of the hours of labour. The men will now be permitted to cease work at one o'clock on Saturday, instead of four, as hitherto. The pay, from the first Saturday in June, will be 28s. per week, in lieu of 26s., as heretofore. The advance of 2s., we are informed, merely equalizes the Rotherham operative joiners' wages with the wages paid in many towns in the kingdom.

Cockermouth.—The stonemasons employed by Mr. Henry Graves, of Cockermouth, have struck work, for an advance of wages from 4s. 6d. to 5s. a day, or else a half-holiday on Saturday, neither of which concessions the master would grant.

Galashiels.—The masons' strike still continues; but a few men have gone back to work on the old terms. The great majority, however, have left the town to seek work elsewhere. The strike has greatly paralysed building operations for a season. The masons' strike has ended, the few men left in the town having resumed work on the masters' terms, viz. at 6d. per hour.

Crieff.—The employers who refused to grant the demand of 6d. per day and a half-holiday on Saturday, made by the journeymen joiners, have yielded, and the men have returned to their work. The wages now paid are 20s. per week of fifty-seven hours.

GRAVESTONES.

The Rev. Richard Gee says:—"The tower of Helpstone church, near Stamford, a curious octagonal tower of, I believe, Edward III.'s time, has recently been taken down, being in a dangerous state, and rebuilt after the ancient model by Mr. Browning, and it was found during the work that the old tower was largely composed of gravestones of an earlier date. I have photographs of the most interesting of the stones discovered, which would form excellent models for imitation in preference to the paving-stones set endways, which now disfigure so many of our churchyards. I may add that at Folksworth, in Huntingdonshire, a fine ancient head-stone still marks a grave in that churchyard."

THE ALEXANDRA MEMORIAL HOMES AT MARGATE.

The memorial stone of these Almshouses was laid at Margate on Thursday, the 17th inst., by Mrs. J. Taddy Friend, of Northdown House. The mayor, aldermen, and councillors, the principal clergy and magistrates of the neighbourhood, the donors (among whom stand pre-eminent Mr. Wm. Barker and Mr. F. W. Cobb, who have respectively subscribed 1,250*l.* and 1,100*l.* to the funds of the charity), and the directors of the various local public companies, were present on the occasion. The stone bears the following inscription:—

"The Margate Alexandra Memorial Homes, supported by voluntary contributions. Patrons their R.H.H. the Prince and Princess of Wales. Erected to commemorate the safe arrival off Margate of H.R.H. the Princess Alexandra on her way from Denmark to London, and her gracious reception of the mayor and corporation on board the royal yacht on the 6th day of March, 1863. This memorial stone was laid the 17th day of May, 1866, by Mrs. J. T. Friend.—G. Y. Hunter, Mayor."

The elevation of the almshouses is somewhat in the Italian style, but the interior accommodation is designed on a very limited scale. The site is south of the town of Margate. Messrs. Hayward & Reeve, whose plan and tender were adopted by the committee of management, are the contractors for the buildings. Mr. Lane Scar is the surveyor in charge of the works. The drawings were by Mr. Oldfield.

ORDERS IN WRITING FOR EXTRAS.

A correspondent writes,—"A case has been decided during the last week by an arbitrator (a barrister), in which the plaintiffs, Longmire & Burge, builders, sought to recover a sum of money for extra works on a house at Wimbledon, which was resisted by Alderman Gabriel, the defendant, on the ground of a written order not having been given. The arbitrator engaged as assessor the services of Mr. William Gritten, surveyor, who measured the work and valued it at 990*l.*, which, though less than their claim, the plaintiffs would have abided by; but, on the point of law, the referee has found for the defendant. It seems a great hardship that hard-working men should have to expend their money on the property of another in this way, and after incurring large costs to recover the amount, should find that they have to lose everything." We know nothing of the circumstances, and print the statement merely as a warning to builders.

ACOUSTIC POTTERY.

In continuation of the notes that have from time to time appeared in the *Builder* on this subject, more especially in reference to a plan and description of pottery found in two of the Norwich churches, which appeared in your volume for 1863, p. 893, it will, perhaps, be worth while to note the fact, that the same thing has been this week again found in a third church (All Saints), in this city (Norwich), upon the removal of the wood flooring under the old benching in the chancel.

This being a small church, there were only sixteen jars in all; those on the north and south sides being 4 ft. 6 in. apart, from centre to centre, the outer ones being built into the main rubble walls of the church, and they undoubtedly were laid there whilst it was being erected. These walls appear to be of early Perpendicular date. The drain or sunken chamber, to which the mouths of the pots faced, was 2 ft. 4 in. wide by 15 in. deep, and, as at St. Peter's, Mancroft, was rough-cast in the inside, and had no other covering than the wood flooring. The jars are 7 in. deep and 7¼ in. in the widest part of the swell, without handles, and are glazed on the inside. I have managed to secure one perfect. All the others were more or less broken by the workmen before I knew of the discovery. Whether they were at all intended for acoustic purposes is, perhaps, doubtful.

R. Makilwaine Phipson.

DEPTFORD.

Sir,—To use a simile, the antagonistic planks (say sleepers) of our sanitary Board, have now shown evidence of vivification. A gang of men are at work at the upper end of our (Ducal) Hamilton-street, and have broken ground. Oh! happy day: the unoffending denizens thereof may felicitate themselves that there is now a chance of escape from the greedy maw of unsparing pestilence. You, Sir, must be the proximate cause of a consummation so devoutly hoped for. To you one might apply the words of an antiphon of the old church,—"Prospere, procede, et regna,"—may it be fulfilled.

An Inhabitant of St. Paul's, Deptford.

CHURCH-BUILDING NEWS.

Somerby (Leicestershire).—The Church of All Saints has undergone restoration. The unsightly brick arcade on the south side has been removed, and stone columns, with carved capitals and moulded arches, substituted for it. The clerestory windows are new, the only remains of the old ones being a small portion of the jambs. Such also was the case with the window in the south aisle, which had been patched up with brickwork. These have all been restored. The west window, which occupies the most prominent position in the church, was also a nondescript affair, and has been replaced by a three-light window, with tracery. This window has been filled with stained glass, in memory of the late Mr. J. D. Barnard; the subject, "The Good Samaritan," which has been rendered by Messrs. Heaton, Butler, & Bayne. The roofs of north and south aisles are new; the south porch has been restored; and the whole of the exterior has been drained. The tower and spire have both been repaired. In the interior the old pewing has been cleared out, together with the gallery, which blocked up the tower arch, and new deal benches have replaced the old square pews. The pulpit is of stone, with alabaster columns and carved panels. The reading-desk and lectern are of oak. The church is warmed by stoves, invented by Mr. Porritt, of Bolton. The doors are new, and of grained oak. The aisles are paved with black and red quarries, laid in patterns. The chancel still remains to be done. The works generally have been executed by Messrs. Johnson & Russell, of Leicester. The carving is by Mr. Wale, of Leicester. Mr. R. W. Johnson is the architect. The outlay has been about 1,200*l.*

Lyndon (Rutland).—The church here has been lately opened, after being restored and slightly enlarged. The chancel had been much modernized, and had a low-pitched roof of deal covered with blue slates. This has been replaced by a high-pitched roof covered with Collyweston slates, and having internally a wagon-ceiling of oak boarding. A new east window has been inserted, and an organ-room, part of which serves as a vestry, has been built on the north side, opening into the chancel by an arch of which the inner order is cusped and has the spandrels filled in with verd antique marble. The north aisle of the nave has been widened by taking down the north wall and rebuilding it farther out. The square openings (some of them fitted with wooden sashes) which formerly lighted the aisles have been replaced by new stone traceried windows. These are glazed with lead quarries, and the leadwork is arranged in geometrical patterns. The west window has been glazed with stained glass from the works of Messrs. Powell. The nave arcades were in so dangerous a state that it was considered necessary to rebuild them. They were carefully taken down, and the stones marked and put up again each in its original position. At the same time, the stonework of the clerestory windows was carefully examined, and sufficient marks of the tracery that had once filled them were found to warrant its restoration, which was accordingly effected. The old roofs of the nave and aisles were completely decayed, and in a very dangerous condition. They have been replaced by new roofs of English oak of the same form as the old, covered with new lead. The whole of the church has been seated with low open seats of wainscot oak. The floors in the body of the church are laid with plain black and red tiles in simple patterns. In the chancel pavements encaustic tiles and slabs of Languedoc and Irish marbles have been introduced. The reredos is of alabaster, and is divided by bands of inlaying into three compartments. The whole has been executed from the designs of Mr. T. G. Jackson, of Devereux Court, Temple. The contractors were Messrs. Halliday & Cave for the fabric; Mr. W. Farmer for the pulpit, reredos, marble work, and carving; Mr. Godwin, of Hereford, for the tiles. The total expense was about 1,500*l.*

Ashill (Norfolk).—The church of Ashill has been restored. Between forty and fifty years ago, a new roof was put to the nave, in the tie-beam and king and queen post style. It has been cased with oak mouldings, and tracery and carved spandrels inserted in all the framed principals. The south aisle has an entirely new oak roof, covered with lead. The benching throughout is of oak, the ends, with their poppyheads, being copied from a few old ones still remaining in the church. They are not fixed to the floor in the usual way, but are moveable. The passages are laid with Minton's red and black tiles. The chancel screen has been restored, the old part being retained, and a new oak screen of somewhat similar character has been fixed on the tower arch. This arch was, until now, blocked up, and the opening of it into the church has added to the effect of the interior, the west window being brought into view. The principal portion of the woodwork has been executed by Mr. Frost, of Watton; the pulpit, desk, and screens by Mr. Cornish, of North Walsham; and the stonework by Mr. Gose, of Shipdam. The entire cost, about 1,500*l.*, is defrayed by the rector, the Rev. B. Edwards; and the whole of the works have been designed and executed under the superintendence of Mr. R. M. Phipson, of Norwich, architect.

Hythe.—The restorations in the Hythe church, which has been re-opened, comprise the repair of the outside roof, which is newly tiled, with new troughing and drains, rendering it waterproof. Internally the walls have been cleaned, and the large pews have been substituted by open deal benches capable of giving sixty additional sittings. The altar was restored by Mr. Josiah Parish, of Colchester. The restoration was

carried out under the superintendence of Mr. W. A. Moy, of London, architect. The total cost of the work is between 600*l.* and 700*l.*, most of which has been subscribed. It is next contemplated to restore the tower.

Wheathampstead.—The church here has been re-opened after restoration and decoration. Amongst the discoveries which were made in course of the restoration, was that of an east window in the north transept,—in later times the chapel of the Garrard family, of Lamer Park, but which was once the chantry of the Bostock family, to which John of Wheathampstead belonged. This window had been blocked up to make room for a monument to one of the Garrards. From the tracery and some portions of stained glass which were found, data were obtained for its restoration. The church before its restoration was in a state of grievous decay, and its ancient beauty was hidden by huge patches of plaster and brickwork, which covered the external walls. The pews were high, and there were loose forms on a damp brick floor for free seats. The windows were partly or wholly blocked up, and the church was altogether in a most unsatisfactory condition. The decayed stonework and window tracery have been cleaned, the roofs raised to their ancient pitch, and the spire to its former proportions, and needful restorations made in the interior of the church, including the renewing and re-arranging of the sittings. Mr. Edward Browning, of Stamford, was the architect employed; and Messrs. Thody & Clayton, of London, the builders. The sittings are all of oak, and of the modern sort, with the exception of those in the north transept, where the old Elizabethan oak pews have been allowed to remain. There are no fixed sittings under the tower in front of the pulpit. The floor is paved with encaustic tiles. The east window is filled with stained glass, representing the chief events of our Saviour's life. The decorations have been executed by Mr. C. J. Lea, of Lutterworth. The chancel-roof, which is entirely new, and has been put up at the expense of the rector, is panelled, with moulded ribs and carved bosses at the intersections, and rises from a carved and moulded cornice. The whole is further enriched by colours and gilding. The cornice is in horizontal bands of colour, relieved with rose and lily ornaments. On the upright panels above this is a foliated pattern in chocolate, white outlined on a blue ground. The panels above are line diapered, the upper parts being more elaborate in design and warmer in colour. The three rows of panels forming the top of the roof are filled with geometrical ornament, coloured and gilded. The wall on each side of the altar is painted with the iris and sunflower, in alternate panels, with top and bottom borders. The decorations of the organ are principally stencilled. The roof of the nave is entirely new, and consists of arched ribs springing from corbels of stone, on which are carved Scriptural subjects in relief. The equilateral pitch of the original roof has been restored. The roofs of the transepts are also new. The cost of the restoration amounts to between 3,000*l.* and 4,000*l.* The organ was built by Mr. Walker, of London.

Finchingfield.—The small church of Finchingfield has been re-opened, after undergoing a renovation internally. All the old pews in the chancel, as well as in the body of the church, have been removed, and the whole re-seated with open benches, stained and varnished. A number of illuminated Scripture texts adorn the walls. The restoration was carried on under the superintendence of Mr. Henry Stock, of London, architect. The total cost of the work amounts to about 1,200*l.*

Little Bardfield, Braintree.—The parish church has been re-opened. The rector, the Rev. R. H. White, has built, under the superintendence of Mr. G. F. Bodley, of London, a south aisle to the chancel. The chancel is stalled in oak, and is separated from the nave by an oak screen; the pavement is encaustic tiles; the glass in the east window, by Messrs. Clayton & Bell, is memorial—of three lights, the centre containing the Crucifixion; the side lights, St. Mary the Virgin and St. John. The reredos, in alabaster, is also a memorial. In a single-light window in the new aisle is a figure of St. Katherine, by Messrs. Clayton & Bell, a gift from the children of the parish; the design was taken from a small picture enamelled on copper which was lately dug up in the churchyard, and supposed to be of about the fifteenth century. From the chancel roof is suspended a corona in brass, bearing twelve lights.

Broadoak (Symondsbury).—The church here has been consecrated. The edifice is situated near the highway from Bridport to Marshwood. It is in the Early English style, and was designed by Mr. Talbot Bury, of London. Mr. Richard Cornick, of Bridport, was the contractor for the works; Mr. W. Gibbs, of Bradpole, did the building; and Mr. W. K. Brown, of Bridport, executed the plumbing and glazing and the wood-work. The church consists of a nave and chancel. The whole exterior walls are built of red sandstone quarried at Stoke Knapp, save that the quoins and dressings of the windows are of stone from Ham-hill. The roof is an open one, with arch braces, resting on Ham-hill stone corbels, and it is covered with slates. At the west end there is a bell-turret, surmounted by a decorated cross. The chancel arch is composed of Ham-hill stone, with plain piers, and the roof of the chancel consists of open timbers stained and varnished. Running round the interior is a wooden cornice. The east window has three lancet lights, painted and given by Mrs. Rawlinson, the subjects of which are, in the middle, "Christ Blessing Little Children," and on either side St. Peter and St. Paul, the window being completed with a mosaic pattern interspersed with Christian emblems. There is a single lancet light on each side of the chancel, in which the figures represented are St. Matthew and St. Mark. The west window is a couplet, with circular opening in the head, and the most prominent figures in it are Our Saviour as the Good Shepherd and Moses; and in the gable above it there is a trefoil in a triangular opening, in which are represented St. Luke and St. John. The whole of these painted windows have been done by Mrs. Rawlinson, and presented by that lady. The four lancet lights on each side are filled with tinted cathedral glass.

Castletown (Stafford).—A new church, erected in Castletown, Stafford, has been consecrated by the Bishop of Lichfield. The edifice, with a parsonage-house, has been built at the sole expense of Mr. James Tyrer, a Liverpool merchant, who resides at a short distance from Stafford. The church is capable of accommodating upwards of 500 people, and the cost of its erection, together with the parsonage-house, exceeds 5,000*l.*

Miscellanea.

ANOTHER RESERVOIR AT HALIFAX.—The corporation has decided to add another reservoir to the water supply. It is to be formed at Mixenden, will have a capacity of 50,000,000 gallons, and the estimated cost is about 13,000*l.*

STEEL FOR SAFES.—W. K. Marvin, New York, claims as a new metal or alloy, a composition consisting of chromium, cast-iron, and wrought-iron compounded; for the construction of safe-boxes, vaults, doors, and other burglar-proof structures, by casting the same of the metal described.

BUSTS OF AMERICAN INVENTORS.—The United States Commissioner of Patents has invited individuals throughout the country to send to the Patent Office busts of authors and inventors, and of all men who were celebrated for mechanical skill and ingenuity. The Commissioner promises to assign appropriate positions in the Museum, but he has only room for two hundred busts. The somewhat similar collection at the Patent Office Museum at South Kensington, commenced some years ago by Mr. Woodcroft, contains about 250 portraits, busts, and medallions of celebrated inventors and discoverers.

THE BISHOP OF CHICHESTER'S PASTORAL STAFF.—In commemoration of the Bishop of Chichester having reached on the 14th inst. his 80th year, the clergy of his diocese have presented him with a pastoral staff, as a token of their regard and esteem for him. It was designed by Mr. R. Herbert Carpenter, and executed by Messrs. J. Hardman & Co., of Birmingham. The staff itself is of ivory, and the head, bands, and foot are of silver gilt, and jewelled. The stem of the curved portion of the head rests on a series of mouldings, which form a base to it. These are supported on twelve small twisted columns of silver gilt, with foliated capitals: between each of them are inlays of malachite and lapis lazuli. The head is also otherwise elaborately ornamented with pearls, garnets, enamels, gold filagree work, &c. The cost of the whole is about 110*l.*

GREAT FIRE IN MANCHESTER.—The extensive pile of warehouses belonging to the London and North Western and Great Western Railway Companies, which occupy the wide area bounded by Liverpool-road, Lower Byrom-street, Charles-Street, and Water-street, have been destroyed by fire. The site was originally the terminus of the old Manchester and Liverpool Railway, but for some years it has been exclusively devoted to the purposes of a goods station. Warehouses 1 and 2 were completely destroyed, floor after floor falling in. The loss is put down at 300,000*l.* The origin of the fire is at present a complete mystery. During its progress a wall fell in, burying a fireman, who lies in a precarious state at the infirmary.

PATENT COMBINATION SYSTEM FOR UTILIZING SEWAGE AND SEWAGE MATTER.—The main points of this system are described to be "a combination of modes in action in different and distinct instances, with important additions by the patentee. It commends itself in these respects:—it is profitable, is no nuisance to the neighbourhood, and streams are not contaminated by the overflow. The first result is attained by a double-tank arrangement. The undissolved matter is at once secured; that held in greater solution is retained in a brick-tank, being kept back by the gravity of much of the particles, and the stopping of the lighter and finer by the gravel-filter round the top of the tank. The upward filter then clears it of everything insoluble. . . . Any objectionable smell in the process can be overcome by the use of Macdougall's disinfecting powder. When the system of town drainage is more complete, the procuring of this manure elsewhere than at the sewerage works being out of the question, will render it especially sought for. This system also deals profitably with the sweepings and rubbish of towns."

CITY OF LONDON TRAFFIC REGULATION.—The select committee to whom the London (City) Traffic Regulation Bill was referred, and who were instructed "to inquire into the best means of regulating the traffic of the metropolis," agreed to the following special report:—"Your committee are of opinion that any legislation which may be necessary for the further regulation of the public traffic within the City of London would be inefficacious and incomplete, unless corresponding regulations were in force in a much larger portion of the metropolis; and that such regulations should be submitted for the approval of the Secretary of State, by the Commissioners of Police for their respective districts. Entertaining these views, your committee think that it is not desirable to proceed with the Bill referred to them, which is limited to the regulation of the traffic within the City of London; your committee therefore recommend that a general measure to correct the present defects in the law, and to give additional powers to regulate traffic in every portion of the metropolis, should be brought forward by the Government." In their report the select committee say they have agreed to report the Bill without amendment.

NEW IRON-PRESERVING AGENT.—Dr. Henry Edward Francis de Briou, a Parisian physician, who for many years has resided in England, has discovered and patented a process for preparing from india-rubber what we may designate an *enamel paint*, which is absolutely proof against the action of the atmosphere, as well as against the power of all liquids (including the most potent acids) to affect iron. This enamel paint possesses all the remarkable qualities of india-rubber, without combining with them any other substance or element that is calculated in the slightest degree to counteract their thoroughly efficient operation. The preparation is applied cold and in a liquid state, and in consistency and general appearance it resembles such common oil-paint as is ordinarily used for iron-work. It may be applied with ease; but of course it is necessary that the process of application should be conducted with such care as will insure a complete covering of the surfaces to be protected. This covering may be so thin that its presence cannot be detected; while it leaves the protected surfaces in all their original sharply-defined freshness. It hardens also at once, and immediately forms a smooth and lustrous enamel-like covering, air-proof, damp-proof, water-proof, and acid-proof. Thus protected the iron is safe. Rust cannot accumulate upon the surface of this enamel-paint, nor corrode beneath it.—*Art-Journal.*

DUNDEE.—The north and south walls of a three-story building in Barrack-street have fallen to the ground. In the upper story, which was principally formed of wood, three persons were working, and these were buried in the ruins. One was killed by the pressure of a beam which fell upon him. The two others were badly injured. The building was old, and stood on sandy soil. The excavation of the ground on the north side of it, for the erection of a new building, is supposed to have caused its fall.

VENTILATING STOVES.—With reference to our communication from Mr. Boothroyd on the ventilation of buildings, Mr. William Corbitt, of Rotherham, sends us a printed description of his "patent economical ventilating stove," which has been in use for the last ten years, and, as he thinks, meets the requirements pointed out in Mr. Boothroyd's description. The account of it requires illustration by engravings; but we may state that fresh air enters behind the hearth-stone, and, after being warmed, issues out into the room through a perforated moulding round the front of the stove. "Being of a higher temperature than the room (continues the description), and consequently lighter, it at once takes an upward course towards the ceiling; and, becoming mixed with the vitiated and cooler air of the apartment, gradually descends towards the floor and along to the fire, and passes out of the room, thus maintaining a constant change of air, and preventing an accumulation of carbonic acid gas from the lights, respiration, &c. The air required for combustion being supplied to the room by means of the valves, and at an elevated temperature, draughts are prevented from doors and windows, and cold currents along the floor. The stove does not emit any unpleasant smell, owing to the back of the fire being formed of fire-brick, in addition to which no air can pass from the fire into the air-chambers. The valve can be easily opened or closed by a lever placed at the side of the fire, thus giving perfect control over the ventilator. This arrangement is available for ventilation in summer."

OVERCROWDING AND ITS REMEDY.—A meeting has been held at the residence of the Marquis Townshend, to consider the evils arising from the great overcrowding of the dwellings of the working classes, and the means proposed to remedy them by the "Operatives' House-Building Company." There were present,—the Marquis Townshend in the chair; Lord Berners; Mr. Whalley, M.P.; Mr. Otway, M.P.; Mr. Thomas Twining (of Twickenham); various clergymen and officers of health in the metropolis; Mr. H. Roberts, hon. architect to the "Labourers' Friend Society;" and many other gentlemen interested in this important subject. Letters were read from the Marquis of Salisbury, Lord Eustace Cecil, Mr. John Stuart Mill, and others, expressing sympathy with the object of the meeting. Mr. W. H. Robinson, the secretary, said that the company had been formed by gentlemen who believed that any plan which left the present dwellings standing would be imperfect; therefore they propose to demolish those miserable houses in London which were now the haunts of disease and crime, and to build good and wholesome dwellings for working men in their place. A site had already been secured for first operations in that most degraded street known as Old Pye-street, Westminster. The directors felt confidence in recommending the scheme as a perfectly sound and fairly remunerative investment, having the additional recommendation of removing a great public evil, and effecting a large amount of good at the same time. The company proposed to dispose of their buildings upon lease to working men or otherwise, and to use the capital over and over again in fresh buildings. It is proposed to raise the capital partly in shares of 10*l*., under the usual conditions as to calls, &c., and partly in shares of like amount, to be paid by weekly instalments, so as to suit working men. In reply to the questions of the several medical gentlemen present, Mr. Samuel Sharp, architect, explained the sanitary arrangements of the buildings proposed to be erected for the company, which appeared to meet with general approval. The Rev. Robert Thompson, of Edinburgh, explained the system of building in flats adopted in the cities of Scotland, and expressed his belief that some plan of the same kind would be highly advantageous to the working people of the metropolis. The offices of the company are at No. 10, John-street, Adelphi.

CIVIL ENGINEERS' CONVERSAZIONE.—The *conversazione* of the President of the Institution of Civil Engineers will take place on Tuesday evening next.

MEMORIAL OF JOHN BUNYAN, AT BEDFORD.—The chief stone of this memorial has been laid. It is to consist of a commodious schoolroom, for which, with a few extras, 2,500*l*. were required. A considerable sum towards the desired object has been realized. The schoolroom will be connected with Bunyan meeting, and is to be 60 ft. long by 35 ft. wide, and there will be six small class-rooms attached to it. The architect is Mr. Usher, of Bedford.

A MAN ROASTED ALIVE.—The Local Board at Scarborough are forming a new drain in Castle-road, and the works are watched during the night by a man whose duty is to warn passengers of danger, and to attend to a brazier-fire, used as a signal. The man thus employed was spoken to at a little after twelve o'clock one night, and it is supposed he was at that time partially intoxicated. Shortly before two o'clock a puncheon in which the watcher sat was found to be burning. The cask, the straw, and the man were all blazing, the cask being nearly consumed, and the man so far burnt away as to be past identifying.

OPENING OF THE MUSEUM OF SCIENCE AND ART AT EDINBURGH.—This new building was opened on Saturday last by His Royal Highness Prince Alfred, in presence of a large and enthusiastic assemblage. The opportunity was taken by the magistrates and council to present his Royal Highness with the freedom of the city, and the Senatus Academicus of the University made arrangements to confer upon him the honorary degree of LL.D. The new Museum communicates with the University by a bridge thrown over West College-street. A view of the building will be found in one of our previous volumes.

RAILWAY MATTERS.—The traffic on the London and Greenwich Railway between Greenwich and Deptford has been interrupted for several hours in consequence of the bridge which crosses the Deptford Canal having caught fire; a heap of straw lying close to the bridge at either side of the canal becoming ignited by a spark,—not from an engine, but, strange to say, from one of the boats. The running of all trains to Greenwich was suspended, but, with the aid of the engines, the fire was quickly extinguished, after which an examination of the bridge was made, when it was found to be uninjured. A portion of the woodwork was slightly charred; but the bridge itself was still secure. Traffic was accordingly resumed.

OSBORNE HOUSE.—By the Queen's commands various works and alterations are now being carried out at Osborne. Amongst these is the paving of the garden walks and upper and lower terraces, by Armani & Co., of London, with their patent metallic lava, made to take the appearance of gravel. The paving is laid down in a hot state, in thickness about three inches, and consists of two coats of Seyssel asphalte, having the surface of a bright yellow colour, mixed with fine sea pebbles. This gives a good uniform surface, retains an agreeable colour, and prevents the growth of weeds. The same description of paving was laid by Armani & Co. many years ago, round the fountains at Osborne, under the directions of the late Prince Consort.

TENDERS

For warehouse in Ogle-street, for Mr. Short. Mr. Bull, architect. Quantities supplied:—

Foster	£718	0	0
Saunders	612	0	0
Roper	590	0	0
Mashman	575	0	0
Hookham	571	0	0
Hyde	560	0	0

For house and shops in Union-street, for Mr. Weston. Mr. Bull, architect. Quantities supplied:—

Foster	£901	0	0
Hookham	821	0	0
Saunders	760	0	0
Marshman	726	0	0
Roper	716	0	0
Hyde	698	0	0

For a pair of semi-detached villas at Addiscombe. Mr. James Tolley, architect:—

Richards (accepted)	£1,330	0	0

For repairs, &c., to Kilburn House, Kilburn. Mr. James Tolley, architect:—

Richards	£440	0	0
Williams & Son	391	0	0
John Williams	265	0	0

For house and shops in Union-street, for Mr. Tygat Mr. Bull, architect. Quantities supplied:—

Foster	£1,480	0	0
Hookham	1,254	0	0
Mashman	1,215	0	0
Roper	1,202	0	0
Saunders	1,199	0	0
Hyde	1,170	0	0

For a house in Highbury New Park, for Mr. Edwar Smith. Mr. C. Hambridge, architect. Quantities sup plied by Mr. Dennison:—

Myers & Sons	£3,233	0	0
Higgs	3,119	0	0
Piper & Wheeler	2,900	0	0
Bishop	2,838	0	0
Hill & Keddell	2,710	0	0
Webb & Sons	2,691	0	0
Browne & Robinson	2,589	0	0

For new warehouse in Henry-street, Dublin, exclusi of plate glass, revolving shutters, and fixtures, for Messr Evans, Hazleton, Scott, & Co. Mr. William Fogerty architect. Quantities supplied by Mr. E. P. Gribbon:—

Bolton	£6,560	0	0
Hall & Son	6,120	0	0
Kerr	5,750	0	0
Millard	5,600	0	0
Ryan & Son	5,000	0	0
Williams	5,000	0	0
Moyers	4,985	0	0
Scanlan	4,775	0	0
Meade	4,650	0	0
Nolan (accepted)	4,596	0	0

For building the Knaphill Wesleyan Chapel, Wokin Messrs. Pocock & Co., architects:—

Minty & Son	£674	15	0
Nightingale	579	0	0
Harris	489	0	0
Mason	439	0	0

For rebuilding of the *Hackney Gazette* Office. Mr. Lovegrove, architect:—

Gander	£755	16	0
Gray & Son	619	15	0
Nightingale	554	0	0
High	550	0	0
Crabb & Vaughan	493	0	0
Darkin	435	0	0

For the erection of a Congregational church at Ol Ford. Mr. Rowland Plumbe, architect. Quantitie supplied:—

Eanor	£3,264	0	0
Browne & Robinson	3,225	0	0
Perry	3,213	0	0
Myers & Sons	3,175	0	0
Carter & Sons	3,136	0	0
Webb & Sons	3,083	0	0
Nixon	3,044	0	0

For repairs and alterations to a house in Montagu square, for Mr. S. A. Hart. Mr. H. H. Collins, arch tect:—

Newman & Mann	£2,110	0	0
Westacott	2,030	0	0
King & Sons	1,928	0	0
Clarke & Mannooch	1,647	0	0

For two houses and shops, for Mr. Thurgood, in Unio street. Mr. Bletchley, architect. Quantities not su plied:—

Mashman	£1,345	0	0
Roper	1,335	0	0
Hyde	1,288	0	0

For house and shop in Ogle-street. Mr. Tarring, arch tect:—

Foxley	£781	0	0
Cock	780	0	0
Scott	697	0	0
Richards	678	0	0
Hyde	644	0	0

For warehouse in Ogle-street, Marylebone, for M Morgan. Mr. E. Bull, architect. Quantities supplied:—

Foster	£1,311	0	0
Roper	1,262	0	0
Mashman	1,264	0	0
Saunders	1,255	0	0
Hyde	1,244	0	0
Hookham	1,150	0	0

For alterations at St. Chad's, Cheetham, Manchester Mr. Herbert E. Tijou, architect:—

Brady (accepted)	£199	0	0

For building villa at Sutton Common, for Mr. Dowto Mr. R. Gover, architect:—

Cooper	£870	0	0
Nightingale	745	0	0
Crabb & Vaughan	670	0	0
Hall	648	0	0
Wilbraham	564	0	0

TO CORRESPONDENTS.

W. P. G.—T. W.—Mr. S.—R. W. C.—A. M.—J. Y.—W. F.—C. M. R. K.—J. D.—M. H. L.—E. W. T.—R. P.—C. Y.—B. C. N.—J. B. W. R. W.—W. B. J.—H. C.—Mr. H.—T. C. S.—D. K. & Sons.—H. —J. T.—J McI.—V. & D.—H. B.—H. H.—F. Y.—W. F. F. (the is a book giving such information. Better, however, find some pe son to give him a little instruction in the evenings).—Nemo (course it is).—Fitch Beane (replies next week).

We are compelled to decline pointing out books and givi addresses.

All statements of facts, lists of tenders, &c., must be accompanied b the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read public meetings, rests, of course, with the authors.

Erratum.—In the communication on "The Thrust Gothic Arches," in p. 344, last column, the formul should have been printed thus:—

$$\text{“}\frac{1}{100\cdot3}\left\{\sqrt{708\cdot6^2+4\times187\times46\times100\cdot3}-708\cdot6\right\}\text{”}$$

the sign of square root *not* including the term "−708·6."

C. E. C.

[ADVERTISEMENTS.]

THE BATH STONE COMPANY, Limited, having opened new Quarries, are now prepared to apply any of the following STONES, viz., Box, Ground, Corsham Down, Farleigh, and Combe Down.—Prices and terms on application to E. A. TUCKER, Manager, 4, Railway-place, Bath.

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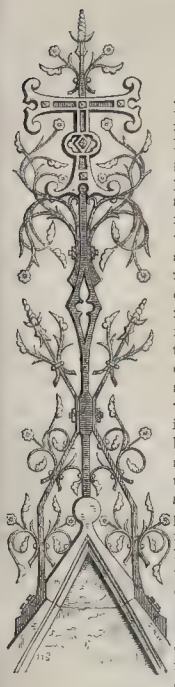
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The Builder.

VOL. XXIV.—No. 1217.



Preventing the Pollution of Rivers.

THE Report of the Commission appointed in May, 1865, to investigate the subject of the pollution of rivers, deserves much attention, not so much from the value of the conclusions arrived at by the Commissioners, as from that of the evidence laid before them, and published in the second volume of the Report. The history of this Commission presents a curious, and, we would hope, a singular instance of Government being at odds with itself. While the attention of the Commissioners was very properly directed, in the first instance, to the basin of the Thames, the Government, without waiting for their report, or referring to the evidence already collected by their means, prepared a Bill of its own for dealing with that very subject of the conservancy of the Thames into the investigation of which the Commission was very fully and minutely entering. The Bill framed by the Government was thus altogether independent of the labours of the Commission, and having been hastily brought before the House of Commons, together with the report, on which it was *not* based, has been handed over to a select committee. The Government appear thus to have ignored the services of a Commission of their own appointment, and there seems no escape from the dilemma that either the appointment of the Commission was a gratuitous waste of public money, or the Bill of the Government involved a gratuitous waste of public time.

In the study of some of the evidence laid before the Commissioners, and by them brought before the public, there will be found, however, no reason to regret that a subject of such great national importance has been thus carefully investigated. The inquiry embraces many distinct heads, and presents a striking example of the manner in which the operations of nature are connected with the requirements of civilization, and how both may be affected by new or experimental legislation. The connexion that exists between the turning into the Thames of the sewage of Oxford, and the change effected in the paper trade by the "rag famine," would not strike a person who was altogether unfamiliar with the subject. The function of millers of all kinds, as the active and necessary conservators of our river beds and banks, is not one that common opinion has been wont to attribute to that class of men; nor should we have expected, from hearing of the first object of the inquiry, to find laid before the Commission such valuable principles with reference to the protection of springs, and the relative effect of surface and deep draining upon navigation as well as upon agriculture, as those which are to be found in the lucid evidence of Professor Phillips.

In regarding the question of the pollution of the water of the Thames, which all the witnesses describe as unusually clear and bright, and fit for domestic use, the commissioners have laid before the public a geological map of the basin of the river, and have proceeded to inquire into the course of its liquid contents from their origin in the rain-fall of the nine counties partly drained by its channel till they are finally delivered into the sea. The nature of the springs that supply all river-water is clearly pointed out to be, not some mysterious and inexhaustible subterraneous supply, but rain-fall and dew-fall only. Considering any portion of the earth's surface which forms the basin of a river district to consist of successive geological layers of a pervious and impervious nature, the evidence points out how subsoils of the former description, or free soils, act as sponges, absorbing the water falling or running upon them, which gradually gravitates through their porous structure until it is arrested by the underlying argillaceous and nonporous bed. Over the lowest lips or outcrops of such clay beds the water in due time makes its escape, such outlets constituting natural springs, the quantity and regularity of the flow of which will depend immediately on the extent and character of the stratum thus drained, but primarily and absolutely on the actual rain-fall that makes its way into such stratum.

The pervious strata differ of course very much in the manner in which they store and transmit the water which they absorb, as well as in the chemical character of that which they emit. In some sandy beds the water fills every interstice, and the sand, though not actually floating, is found to run like and with the water if a well be sunk beneath its level.

In the chalk, the water moves in a manner that is not, perhaps, perfectly understood. Passage may be given by the layers of flints that occur in the upper division of the great chalk bed; but all chalk when newly dug is full of water, and there seems reason to believe that a constant movement of fluid is taking place through the mass of the chalk itself, in which friction plays a very considerable part in regulating the flow. Thus, wells sunk in a chalk soil are deeper and deeper as they approach the outcrop or natural springs, which, in some instances familiar to the English geologist, deliver their contents beneath the waters of the sea. The floor of the chalk basin is formed by the gault, and the outcrop of the various beds of eocene clays, known as plastic and London clays, arrests the flow of water from the great cretaceous district that stretches from the Wash and the northern coast of Norfolk in a south-easterly direction. The drainage of this district, south-west of the watershed near Luton and Dunstable, is carried by the Colne and its tributaries into the Thames, near Staines, and a natural source of the metropolitan supply of water is thus indicated. From Dunstable a line of watershed extends to the north-east, passing about half-way between Bishop's Stortford and Cambridge, and the contents of this portion of the basin, the eastern limit of which turns to the south and passes near Chipping Ongar, find their way to the Thames by the courses of the Lee and the Rodding, thus augmenting the volume of the river below London with a supply that might be fairly rendered subservient to the requirements of the metropolis.

The main source of the Thames proper may be taken to be the rainfall on the great oolite between Malmesbury and Buckingham. The outcrop of the Oxford clay arrests the flow of the water that percolates through the oolite, and the Churn, the Coln, the Windrush, the Evenlode, the Cherwell, and other smaller confluents, taking their courses through this impervious stratum, form the body of the river as it passes to the south of Oxford. The Ock and the Thame draw their waters from the coralline rag (which on the Commissioners' map is adorned with a superfluous R), where the escape of its percolation is arrested by the Kimmeridge clay, although the latter river passes through that retentive bed, and falls into the Thames itself over the gault at Dorchester. Thus the main sources of the supply of the river are the pure springs from the calcareous strata of the oolite, the coral rag, and the chalk, and the iron that is found in the lower green sand and in the marlstone tinges but in very small proportion the pure bright waters of the main stream.

The extent to which the water of a river so eminently fitted by nature for the supply of the wants of a great city has been polluted by the practice of making use of its channel as a common sewer may be estimated by the fact stated by Mr. Towle, an alderman of the City of Oxford, and the owner of three mills, two of which he also works, that the Weirs Mill was nearly destroyed by the sewage from the City of Oxford, and that it was no longer possible to make white paper there, in consequence of the state of the water. From seven to nine years ago the paper became so blotched that bleach was thrown away upon it, and none but brown paper is now made at this mill. The evidence of Sir Benjamin Brodie bears with great force on the same point. The fish of the Cherwell, which within the memory of man were very abundant, are now nearly extinct; and the cray fish, which will not live in impure water, were formerly numerous, and are now gone. Sir Benjamin further pointed out the important fact that no chemical analysis can prove the salubrity of water, and that it is only by the costly experiment of the effects of a supply of water on human health and life that this can be ascertained. The quantity of organic matter actually suspended may be small, and yet, from the nature of its origin, it may have a highly poisonous effect; so that the throwing of any sewage into a river is unjustifiable.

The system of drainage adopted for agricultural purposes is shown to have a decided effect on the water of a river, both as regards quality and available quantity. The more regular and even the water-flow, the more fully is it available for all economic purposes, whether for navigation, for motive power in driving mills, for irrigation, or for domestic use. Open draining, which carries the rain-fall off the surface of the country as rapidly as possible, greatly wastes the water-supply, and increases floods, which, in many cases, are now found to come down from twelve to twenty-four hours earlier, or closer to the fall of rain that produced them, than was the case but a few years ago. Deep draining has the opposite effect. Clay soils are converted by deep draining into something of the free soil nature, the water takes long to penetrate the numerous cavities that become formed above the level of the drains, and the flow thus becomes retarded and equalized, at the same time that the water itself is filtered by a process which imitates the procedure of Nature herself in the pervious soils. Thus, open draining brings down rapidly a flush of dirty water, hastens and increases river floods, and renders the stream turbid by the abstraction of those lighter particles the retention of which would fertilize the soil. The river is injured, the water is wasted, and the land is impoverished at the same time. Deep draining economises the water, preserves the purity of the stream, and increases the fertility of the land, both by the comminution of the sub-soil, which it is constantly and steadily effecting, and by the retention of those elements of fertilization, organic and inorganic, which it is constantly filtering from the watershed.

The pernicious effects on the river of abuse

of the facilities which it affords for the service of man, is rapidly resented and indicated by its proper denizens—the fish. Whether we regard these creatures as the object of sport, affording the means of relaxation, and of the pursuit of health to those who chiefly need such pastime, from inability to engage in the more violent pursuits of the chase, or as a not unimportant element in the economical supply of a wholesome article of human diet, we shall feel the importance of preserving a stock which is now so rapidly disappearing from our waters. But the value of fish, whether as an object of sport or as an article of consumption, is but small in comparison to the importance of their function as indicators of the purity of the waters they inhabit, in which they may be said to act as the pilots of human health. The size, abundance, and flavour of fish are better tests of the salubrity of the streams which they inhabit, than the utmost resources of chemistry can furnish: they are less costly, and not less instructive than the tables of mortality, the reports of hospitals, or the evidence of scientific men. The soles and the shrimps of the Medway, caught at so few miles apart from those of the Thames, are so different in their colour and flavour from those of the latter river that, if specimens had been sent, not from confluent and neighbouring rivers, but from distant parts of the world, they would most likely have been considered specifically distinct. But when fish not only deteriorate in quality, and diminish in quantity, but actually disappear, it comes to the same thing as the legible inscription on the waters from which they have departed, of the word—POISON!

MEMORIALS AND STATUES.

PEABODY AND COBDEN.

THE intention of testifying in the form of a "public statue" the gratitude of the citizens and the public to Mr. Peabody for his unparalleled munificence in the gift of 250,000*l.* for the benefit of the industrious poor of London, is one that we are unable to view without some apprehension. The reasons for this feeling will be clear to those who have read much of what has appeared in our volumes, on the subject of commemorative sculpture and public monuments. We, Londoners, have become the most statue-erecting metropolitans in the world; and the majority of our efforts are ludicrous or contemptible, or are productive of impressions the opposite of those that we desire to leave upon the observer. Our public statues contribute no appreciable fine-art character to our streets: they rather assist towards the repulsive dirty appearance and the pervading ugliness. We have sculptors who are competent to model and to carve or cast a statue: yet when the statue is erected, the result is almost invariably unsatisfactory. And we are not improving. There is nothing in London better than the statue at Charing Cross: there has been no statue, non-equestrian, since the statue of the Duke of Bedford, in Russell-square, to equal that work of Sir Richard Westmacott; and since the works of Chantrey, there has been little variation from the decline which came down to the latest ugliness of Trafalgar-square. It is time that some authority were looked to for perception of the principles which should belong to the production of commemorative or monumental statues in public places, and were induced to interpose itself for the public protection against eye-sores that the indulgence of a desire which is in itself praiseworthy has inflicted upon the residents in this metropolis, and against the bad reputation that results, for the British people, in matters of art, from the very mistakes that we are adverting to.

The contemporary monument of Mr. Peabody has not, that we know of, been designed; and the work eventually produced may possibly be found to be, in its character of art, accordant with the intentions of those who offer the testimonial, and calculated to add to the effect of the street or place where it is erected. But, we repeat, we apprehend the contrary of this; and the Peabody Memorial is not the only work that is projected for the occupation of a prominent position in London, and that we feel just now anxious about. A statue of Richard Cobden is to be erected in the triangle of the High-street, Camden Town, near Mornington-crescent; and from what we are able to see of the first steps towards the completed memorial, we cannot help fearing that the result will not be what it should be. There is a model of the work in the sculpture-room of the Royal Academy Exhibition; and from the catalogue we learn that the statue is to be in marble. Now, whether or not bronze as generally treated be satisfactory, there is no question that marble is the most unsuitable of all materials for a statue exposed to London rain and soot. Reference has been often made to the ordinary appearance of the statue of the Queen in the Royal Exchange; and we might suggest to our friends of St. Pancras and Camden Town, that they should take a short walk to Bryanston-square, to see what is the state of the marble there, of the drinking-fountain which we some time since gave an illustration of.

Leaving out of consideration, however, the material of the Cobden statue, the design of the entire memorial does not promise well. From what appears on the ground, of the arrangement of the site and space for the work, we have much reason to fear that the result will be another repetition of that sort of blundering in the requisite of effect, the *emplacement*, which has so much to do with failures already made. Need we repeat here, that unless there be a good platform-base of pavement, and a well-designed pedestal, as also accessories such as posts and chains, and candelabra, harmonious with the statue, and all grouping in a combined architectonic and monumental effect which starts from the spreading and stable base, and culminates in the principal object, the figure, and in the physiognomy of the man, the best modelling and statuary-work in the figure will be insufficient to make the production one of a character to justify its position.

The model now put forth as that of the Cobden statue as it is to be, is very different from the model that was submitted in the first instance. This latter was not inaccurately described as a burlesque on the man it professed to represent. A photograph of that design, now before us, gives the idea of a dancing figure, through the appearance of the legs, which are stuck together,—and through the awkward arrangement of a fold in the trowsers. The moulded pedestal, which has the angles chamfered off, rests on a broad square plinth that is splayed at the top, and is chamfered at the angles of the splayed portion to fit with the pedestal proper. The result is a commonplace effect in the base; whilst the pedestal itself, in spite of some additions at the sides, representing corn and other fruits of the earth, appears like a piece of joiner's work.

The committee had models by other artists before them. Amongst the number was a design in every respect superior, whether to that described, or to that which the committee seem to have selected. A well-modelled and firmly standing figure, that might be spoken of in words once applied to a figure in the cartoon of St. Paul preaching at Athens, as "thinking from head to foot," stands upon a pedestal that is at least not common-place. The latter has a diminished dado with slightly chamfered angles, (the chamfers might have been dispensed with advantageously,) and a cornice, in the hollow of which are palm-leaves gracefully disposed, so as to give the character of a capital; and the surbase has an ornamented torus moulding, and on each side a raised panel, vermiculated. This design was by Messrs. Bursill & Underwood, the former being the actual modeller of the statue. The likeness is good. The model in the Academy Exhibition, which, like the design first mentioned, is by Messrs. W. & G. Wills, is a considerable improvement upon their first effort. It resembles Messrs. Bursill & Underwood's design sufficiently to suggest the idea of its having been in some slight degree indebted to it. The pedestal, however, is as it originally was; and though the legs of the figure are separated, the accessory support is seen between the legs, or attached to them, in a very unsightly manner.

Of course, no amount of that sort of skill which may be called the architect's especially,—that which deals with the site, the placing of the monument on the ground, the accessories, and the details of the pedestal, and with the general grouping,—will go to supply any want of sculpturesque treatment of the figure, or absence of a likeness of the man. The statue ought to be principal in the composition. But it should not be all. The limitation of the artist's effort to the statue, or the apparent incapacity of himself or his employers to see that effect will not be as desired unless attention be given to something beyond the figure, is perhaps more than anything else the cause of the slight gratification that we derive from such public statues as there are in London. It is only necessary to compare any later equestrian statue in London, with that of Charles I., and the later works of the other kind with the statue of the Duke of Bedford, to come to right impressions on the subject.

So much for some of the principles of composition. The question of materials is not so easily settled. But it is at all events clear that marble should not be employed. In short, if statues are to be erected in the open air at all, in London, the material must be metal of some description. But even bronze, in London, becomes unlike any variety of that alloy: it neither preserves the original colour of one of the kinds; nor does it acquire the fine green *patina* seen in such bronze-sculpture as there is in the open air in Paris. The effects of the renovating process that was applied to some of the statues, about two years ago, as the statues of George III. and George IV., are fast giving place to the previous dead, and in truth repulsive, appearance. It may be that the best description of bronze has not yet been used in England; and we continue to desire that experiments should be made with reference to the discovery of the right composition of the alloy. Had there not been something wrong in the casting, we should not have seen the statue of George III., as till lately it always appeared in damp weather,—that is to say, as though it had been dabbed in twenty places with a broad brush of whitewash.

What there can be no difficulty about, however, to a competent sculptor, is the treatment of bronze as metal. In lieu of the general treatment as stone or marble, let the sculptor endeavour to produce a figure such as could not be executed in stone. Let him select an attitude to which the material may be especially suited; and let him welcome elaboration of detail in dress and trappings, rather than seek the massive folds of drapery; which seem more suited to the material and colour of marble, than of bronze. He will thus observe that sound principle which dictates recognition of the particular vehicle in use,—subordination to restrictions in one case,—utilization of capabilities in the opposite case; and he will thus allow the possibility at least, of perception and appreciation of any other art-qualities that the statue may possess. A comparison of the works even by Chantrey, which there are out-of-doors in London, with the statue of Charles I., or with most of the casts of works in bronze that there are in the Crystal Palace, will show a certain inferiority in one respect, which is not compensated for by the excellence of the modelling in the figures and drapery. The expedient of the senatorial robes or warrior's cloak, defensible or proper in the case of marble, is rather the reverse where the material is bronze. The treatment should be free of lumpiness; and if it be possible for a bridle, tassel, or sword, to be seen relieved against the background of sky or buildings, and for the deadness of surfaces to be diminished by ornamentation, as embroidery, the effect will be the better. Indeed, already, there is apparently a recognition of this, as even in the generally inelegant statue of Havelock. But the recognition is required for the figure itself, whilst not through the provision of things that can be blown about by the wind, like the feathers of the hat of the Duke of Wellington in the statue at Hyde Park Corner. The reasons which there are for the sort of treatment recommended, tell equally against the representation of the modern frock or dress coat, scarcely relieved from the natural form. Be it conceded that our costume is ugly; but so is the dress in many statues and portrait-pictures that are nevertheless pleasing as works of art, whilst they fulfil one of the objects of commemoration and portraiture, the presentation of the man as he was. The artist of middling ability will find the ugly modern costume too much for him; he of paramount skill will be able to adopt it, and make his work a work of art in spite of it.

The upshot is that our English practice of the art of sculpture applied in public memorials, has much yet to acquire. It has as much to recognise of common sense, as to acquire of art: it has to appreciate the difference between the case of a statue for a gallery or a niche, and that of one for an open space out-of-doors; it has to bring into alliance with it, architecture and the laying-out of ground,—and in some cases even landscape gardening; it has to observe similar principles as to the use of materials, to those which are observed in decorative and industrial art; and it has to harmonize portraiture with the production of what is pleasing and monu-

mental. A testimonial to Mr. Peabody in the form of a commemorative monument, would not be a useless work; and the realization of the object should not find placed in competition with it the erection even of more Peabody buildings. It is perfectly true, what has been said of the commemorative *monument*, that one attribute of it must be its uselessness in the ordinary sense of what is useful and the reverse. But there is a usefulness in pointing a moral, in commemorating what may be an example, and in registering visibly our gratitude. Such aims, in the case of the Peabody Testimonial, or the Cobden Monument, will not be attained unless better principles be allowed to rule in the art-work than those which have prevailed of late in works such as those which may be almost said to abound in our streets and squares; but which in too many cases contribute to them no element of pleasing effect.

ITALIAN ART HISTORY.*

WE have now before us the third volume of the labours of the latest historians of Italian art. Commencing with the life and works of Luca Signorelli, and ending with those of Andrea del Sarto, it thus illumines the schools of Arezzo, Sienna, and Perugia; and thirty-three illustrations render the minutely graphic and technical descriptions of the various masterpieces still more intelligible. The two former volumes, it will be remembered, were dedicated to the late president of the Royal Academy: this is inscribed to A. H. Layard, D.C.L., M.P.

When a man has lived his life and is dead, and we look back on all he achieved, and examine his work, its manner, and its meaning, we are apt to build up the supposition that from the first he must have had a certain aim in view, and been acted upon, in his endeavours to reach that end, by circumstances as influences which either advanced or retarded his progress. Having once settled the bias of a life, we dovetail all its incidents into so many accessions of force and weight. Messrs. Crowe & Cavalcaselle set the days and work of Luca Signorelli before us much in this way. Born of artist blood, he might have exhibited the exquisite sweetness and feeling of Raffaelle, if more than usual study of anatomy in early days had not weighted his genius with a tendency to depict the nude, powerfully as to bone and muscle, but of the earth, earthily. Thus laden with a desire to reproduce the objects then studied in the graveyards openly, his work was too truthful to give pleasure to every eye, just as truth, unsoftened by tact, explain his biographers, frequently and justly offends in daily intercourse, for natural objects require selection when dealt with by art. Nevertheless, Signorelli's work holds a high place in men's esteem now, as it did in the days when the pigments he used were still moist. A picture, recently discovered at Florence, and now belonging to the Marquis Corsi, answers in so many respects to what we may call his possibilities, that it has been uncontestedly attributed to him. It is illustrated in the volume by a line engraving, taken from a photograph of a careful drawing. Six figures, arranged pyramidically, form a group, of which Pan is the centre. Pan is seated, with flowing hair, his pipes resting on his knee, listening to the strains of a muscular Olympus. Two shepherds, a nymph, and a youth lying at the foot of Pan, all nude, complete the foreground. In the distance are two more nymphs, and fragments of classic buildings. Signorelli's taste for bone and muscle would have, perhaps, dictated the choice of Pagan subjects more frequently, could he have reasonably hoped to find purchasers. But the church being the great patron of art, his pencil, like that of his compeers, was obliged to follow the dictates of the time. His commissions were principally for altar-pieces and church standards. The work, however, which most indicates the contemporary estimate of his powers is his fresco in the Sixtine chapel. This, our authors agree, is worthy of its place. They decree Signorelli, in this effort, second to Ghirlandaio in the law of balance as well as in propriety and objectiveness, but beyond him in liveliness and action; beyond, too, Botticelli in grandeur and dignity; a forerunner, in fact, of Michelangelo in power of conception and energy of execution. It was one of the honours conferred upon him by his generation to be called upon to finish the frescoes of Fra Angelico, in the chapel of S. Brizio, Orvieto. After waiting nine years for Perugino, the counsel of the cathedral contracted with Signorelli, first for the ceilings and windows, and finally for the rest of the decorations, awarding him 780 ducats for his work, besides free quarters, two beds, a certain quantity of wine and oil, and the necessary ultramarine. According to Signorelli's prescience, at the Fulminati, here depicted, mankind will be destroyed in tights, and womankind in tight sleeves, but flowing skirts. All his babes are nude. Summing up the result of his life, it would seem that he did not teach so much as he influenced or awoke in the breasts of others a determination to follow the same path to a more elevated goal.

The pathway opened by the genius of Signorelli, widened and ennobled by Michelangelo, was likewise trodden by minor painters, who availed themselves very materially of his aid in indicating a trackway that would lead to a new style. Among these was the friar Don Bartolommeo della Gatta. This artist first distinguished himself in the missal department of art; but being created abbot of a small fraternity, the walls of whose dwelling were bare, he turned his attention to frescoes, so that he might enrich them. When this task was finished he took commissions for altar-pieces, fulfilling one of the first conditions of monachism, labour, and so added materially to the funds of the abbey. These were executed while his mind was still in the trammels of the miniaturist, with repose, delicacy, and grace, with but slight relief from shadows; but a journey to Rome, where he came under the influence of Signorelli, effected a revolution in his mannerism; and without exhibiting much accession of power, his style ever afterwards was vehement and ambitious of representing motion.

In art, as in other departments of human existence, there have been men who have found scores of hands held out to help them on, and who have pre-eminently enjoyed the good-will of their fellows without having much real claim for it; while, on the other hand, there have been others more gifted with genius and exalted with aspirations, who have been quite neglected. Probably, could we stand face to face with such opposite examples of human fortunes, we should find that the popular favourite possessed some social quality to which he was indebted for his success. Such a one must have been Lorenzo de Pietro, the Siennese goldsmith, who was well employed as an architect, a sculptor, and a painter. His surname of Vecchietta, in reference to his constant choice of worn-out frames and wan faces as subjects, indicates that it was not the freshness or beauty of his conception that gained him his numerous commissions. Our authors speak of his frescoes as deficient of both aërial and linear perspective, as flat in tone, of poor composition, with lean, withered, ill-proportioned figures of unselect shape, exhibiting fantastic action with grimacing heads, having triangular-shaped eyes and profile noses on three-quarter faces, as at once vulgar, trivial, and unnatural. Yet so high did he stand in local favour that the supreme Government petitioned Messer Goro Loli Piccolomini to recommend him to Pope Pius II. as the most suitable person to superintend the rebuilding of the Papal lodge at Sienna. He was commissioned to paint frescoes for the public palace; to carve statues for the Loggia della Meranzia; to make models of fortresses for Sartiano, Orbetello, Montacuto, and Talamone. Merit is not always the groundwork of good fortune. Ever and anon our authors pause in the sequence of their scores of biographies to generalize and criticize. They pause, too, to collate one man's works with another, and, seizing points of resemblance, trace them to common influences that affected them alike. It is in these critical digressions and generalizations that the technical value of their labour is most apparent. Thus, glancing over the field occupied by Siennese art, they point out that the centre of its expanse in the fourteenth century was Sienna; but, by a subsequent introduction of Florentine blood with the Umbrian stock, the point of radiation was displaced. They trace a line from Gubbio over the Apennine to S. Severino and Damerino, recrossing the hills to Foligno and Guldo, forming a spiral which centres in Perugia. On this line of route developed the Umbrian school upon the old Siennese basis, taking as its standard of perfection brilliant contrast of colour, profusion and delicacy of ornament, minute design, and what our authors designate as "a tender fusion of flesh tints." The scientific innovations of the Florentines, perspective, and rules relating to light and shade, the Umbrians ignored. Sketching the life and work of all the masters of this school, our authors proceed to ink in a delineation of the rise of that of Perugia. From the latter there darts a curious *umbra*. It would almost seem as if the story of the man who sold his shadow were true, for amongst the productions of the Perugian school we find those of a shadow who is scarcely credited as having had a corporeal existence. We allude to Andrea Alovigi, always spoken of as L'Ingegno. Messrs. Crowe & Cavalcaselle incline to strip him of much of the work attributed to him, and to place it to the credit of Fiorenzo di Lorenzo instead. Some dozen paintings they thus assign to the last-mentioned master, whilst one in particular, a fresco, sawed from the wall of the Gualtieri family chapel in the Cappella S. Brizio of the cathedral of Orvieto, which has been successively ascribed to Raffaelle, Signorelli, and Ingegno, they give to Eusebio. They seem to think that the name of L'Ingegno has served as a sort of appellation for a certain class of pictures without much foundation in fact.

As all vegetation turns towards the sun, so do all painters in all time appear to have turned towards Rome as the centre from which their existence emanated, and upon which their development was nurtured. Manhood attained, away they started for Rome, no matter whence or when. Perugino, one of the chief ornaments of the school of Perugia, tarried by the way at Florence; but a small cloud of discouragement, no bigger than a man's hand, was sufficient motive power to place him again *en route* for Rome, where he was soon to be seen busy in the Sistine Chapel. Here he followed the practice, afterwards continued by Pinturicchio, of laying in the flesh with pale grey-green, and stippling lights and shadows over all, retouching the surface when dry with rough hatchings. Perugino stands out from the artists of his day as being the only one, who did not undertake architectural commissions. This is the more remarkable as he was more than ordinarily profuse in the use of architectural perspective as backgrounds. In one of his paintings he introduced two figures who were probably architects, as one holds a set square, and the other a pair of compasses. The narrative of the life of this artist is given at great length, and a careful catalogue made of his works.

Whereas eighty pages are devoted to Perugino, forty suffice to use up all the materials to be found illustrative of the life and works of his partner Bernardino Pinturicchio. This artist is considered a genuine representative of Perugian art, as it was carried on in the ateliers of Bonfigli and Fiorenzo di Lorenzo, having turned aside from the attractions and difficulties of oil medium and remained true to the old Umbrian system of tempera. Pinturecchio, although he did not live to be sixty years of age, fulfilled one of the aspirations common to thousands of men; he built himself a house intending to end his days in it. In 1500 we find him visiting the Court of Cæsar, Duke of Valentino, and asking leave to sink a cistern in his house at Perugia. There is an order from the Duke, preserved in the Connestabile Alfani archive, stating "that he has again taken to his service Bernardino Pinturicchio of Perosa, whom he always loved because of his talents and gifts," and generally indicating an appreciation that led to the offer of more work than he could well execute. One of his commissions was to paint the walls and ceiling of the Piccolomini chapel and library in the Duomo of Sienna, which is interesting as being one of the first in which Raffaelle probably assisted him. His patron, Cardinal Francesco Piccolomini, stipulated, unwitting of the surpassing interest that would be attached to every stroke of Raffaelle's pencil, that the cartoons and their transfer were to be done by Pinturicchio, and all the heads likewise finished with his own hand. For this the Cardinal would give him 200 ducats, at Venice, for the purchase of gold and colours; 100 ducats, at Perugia, for the transport of baggage and hire of assistants; 50 ducats on the completion of each compartment; and a further payment at the conclusion of his task. Besides this he was to have a house to live in, corn, wine, and oil; and wood for scaffolding, lime, and sand. Among the assistants and

* "A New History of Painting in Italy, from the Second to the Sixteenth Century. Drawn up from fresh Materials and recent Researches in the Archives of Italy; as well as from personal inspection of the Works of Art scattered throughout Europe." By J. A. Crowe & G. B. Cavalcaselle. Vol. iii. London: John Murray, Albemarle-street. 1866.

apprentices he took with him to execute this important commission was, it is believed, Raffaelle. The evidence and probabilities concerning this fact are gone into at great length, and will be read with interest by admirers of Sanzio.

The materials for a life of Lo Spagna are very limited, but as much has been made of them, perhaps, as could be expected. With birthplace unknown, he first appears on the scene in 1507, as a master at Todi. His works are accredited as concentrations of the mannerisms of Raffaelle, Perugino, and Pinturecchio. Raffaellesque grace and freshness are combined with the power and finish of the last-mentioned painters. There are very few examples of this master in this kingdom. Less important followers of Perugino follow in the wake of Lo Spagna, whose works are duly catalogued. Then we are shown the Florentines at the close of the fifteenth century, Lorenzo di Credi, Raffaellino del Garbo, and Piero di Cosimo. The life of Fra Bartolommeo della Porta, with those of his assistants, Fra Paolina and others, follow. The biographies of Francia Bigio, Sogliani, Ridolfo Ghirlandaio, and his uncles, and friend Granacci, precede the concluding and copious notice of Andrea del Sarto.

Many a patron of art will wince over the ruthlessness with which Messrs. Crowe & Cavalcaselle strip picture after picture of its reputation. Congratulating themselves on the possession of examples of certain masters, it will of course not be pleasant to find this fact disputed, and paintings rejoicing in first-class reputations, assigned to inferior painters. Truth, however, is the object in view. Thus a Virgin in the collection of the Duke of Sutherland, Stafford House, is "not by Del Sarto, to whom it is assigned." Another Virgin, seated with the child on her lap, patting his chin, in the Baring collection, assigned to the same artist, is "below A. Del Sarto's powers, pleasing, and probably by Puligo, injured and restored." At Hamilton Palace, in the state drawing-room, there is a half-length life-sized Magdalen "not by Del Sarto, but more truly a slovenly thing by Bacchiacca." At Dalkeith Palace, there is a dispute of the Trinity actually inscribed, "And. Sar. Flo. Fac.," which is but "a diligent copy, perhaps by Allori, of Andrea's picture at the Pitti, and of his signature." At Alnwick Castle, a Virgin and Child attributed to Del Sarto, is a replica of that in the Baring collection. Of five works supposed to be from the atelier of this artist, in the possession of the Marquis of Westminster, four are charmed away. A Virgin and Child under a conical dais, attributed to Fra Bartolommeo della Porta, also in the Grosvenor gallery, is allowed only to be arranged after the method of that master with a mixture of that of Mariotto, but to be the work of, "say, Michele di Ridolfo." Lord Lansdowne's Perugino is condemned as a feeble production of one of the artist's followers. Thus picking their way over piles of shattered reputations, our historians bring their able narrative down to the threshold of that circle which was illuminated by Leonardo da Vinci, Raffaelle, and Michelangelo. An art library is incomplete without these excellent books.

THE AGE AND AUTHENTICITY OF THE NATIONAL PORTRAITS TESTED BY COSTUME AND HERALDRY.*

THE REIGN OF QUEEN ELIZABETH.

Of this great sovereign and detestable woman, here are no less than sixteen portraits as Queen, dating from her accession, in 1558, to her miserable death in 1603, the most agreeable, though not the most faithful, considering she was then nearly 60, being the well-known one by Zucchero, kindly contributed by the Marquis of Salisbury (No. 267). They exhibit her in all kinds of habits,—fancy dress, private dress, royal attire, and allegorical costume: in all sorts of wigs; "haires," as they were called, jewelled, plumed, and crowned: in all manner of ruffs, *shadowes*, and stand-up collars; and in the later portraits, encased in the preposterously long stomacher and ungraceful fardingal. They may all be, to a certain degree, relied upon, with the exception of No. 226, of which presently; and No. 257, a pretty baby-faced girl, crowned and sceptered. Of her victim, Mary Queen of Scots, there are thirteen supposed representations, differing widely each from the other, except where obviously copied from another. We have sufficient evidence to satisfy ourselves as to the likeness of Elizabeth, but with respect to Mary Stuart, I know of no portrait that can be relied on, and might assist us to distinguish such as are genuine. No. 305, sent by the Marquis of Salisbury, and painted by Nicholas Hilliard, "dated 1578, age 36, year of her captivity, 10," would have great claims on our confidence but for the circumstance that there hang near it, Mr. Keith Stuart Mackenzie's contribution (No. 314), dated two years later, and known as the Brahan portrait, and the picture lent by the Scottish Corporation (No. 319), said to be the work of F. Zucchero, of which No. 305 appears to be a copy, while No. 314 represents the same figure as regards dress and attitude, only turned the other way.

Of the three I acknowledge my preference leans to the portrait attributed to Zucchero, the expression of the face conveying to my mind not only the character of Mary, but a conviction of its having been painted from the life, which I do not feel in contemplating the others. They are all supposed to be copied from, or founded on, a picture painted at Sheffield, when Mary was a prisoner there in 1578, by a painter named Oudry, unknown to fame, but whose name, "P. Oudry," is painted on a chair in the original picture; but I am, perhaps, travelling out of my road in this direction, as there is nothing in the costume or accessories of these portraits to call for remark from me. Not so, however, in another portrait exhibited as Mary Queen of Scots, by Mr. F. Vernon Wentworth (No. 310), "dated 1563, age 24," and signed H. E. The dates which we are told in the catalogue to compare, would hardly bear out the assertion, as Mary born in 1542 would be only twenty-one in 1563; but we must now compare costume, and request the visitor to return to No. 198, "Lady Eleanor Brandon," who died in 1547, and whose portrait is nevertheless dated 1565, only two years later than this so-called Mary Queen of Scots. The dress is all but identical, and corresponds to the period marked on the pictures, viz., 1563-1565. Notwithstanding the arms of Clifford Earl of Cumberland, of whom she was the first wife, being painted on the right of the picture, impaled with those of Brandon, and surmounted by an earl's coronet, it is certain that this cannot be the portrait of Eleanor Brandon, daughter of Charles Brandon Duke of Suffolk, and niece of Henry VIII., who died in 1547. Nor could Lucas de Heere, to whom the picture is attributed, have painted Eleanor Brandon, as he was born in 1534, and would, therefore, have been only thirteen at the date of her death. The arms must have been painted subsequently to the portrait under some mistake, by no means an uncommon occurrence. It is equally evident to me, that No. 310 does not represent Mary Queen of Scots. The sinister side of an escutcheon of arms is visible on the right of this picture, and displays, amongst others, the quarterings of Montacute and Monthermer, Bohun and Holland, Earl of Kent, which could not have been borne by Mary. The dexter side of the shield, which would display the arms of the husband, are unfortunately either hidden by the frame or obliterated; at all events, they are not to be seen by the visitor, and I can therefore come to no conclusion. The fact, I believe undoubted, of the allegorical picture (No. 219) having been painted by Lucas de Heere in 1569 (the date on the panel), and in which Queen Elizabeth is depicted in a costume precisely resembling that which we observe in Nos. 198 and 310, is in favour of the truth of their dates, 1565 and 1563, and of Lucas de Heere having been the painter of the former as stated, and, perhaps, of the other, to whom no painter's name is affixed. It also enables us to fix pretty nearly the period when those high-shouldered "coats" were in vogue, say between 1560 and 1570; and, therefore, throws some suspicion upon the portrait of Queen Mary, No. 212, the face of which has evidently been tampered with. The fashion may, however, have arisen as early as the last year of her reign, 1558, it was certainly general very shortly afterwards; but that picture also is attributed to Lucas de Heere, who is believed not to have come over to England previous to the accession of Elizabeth, and the subject deserves deeper investigation.

No. 226, called Queen Elizabeth, is certainly a misnomer. At the time the costume in which this personage is represented was introduced, Elizabeth was an old, ugly woman. We have here a good-looking lady, bearing no resemblance to Elizabeth, apparently under thirty.

No. 241, Robert Dudley, Earl of Liecester and Page. Compare this portrait with Nos. 251, 261, and 262. It is difficult to imagine, making every allowance for difference of age, that these four portraits can represent the same person. This celebrated favourite died at the age of 56, and Nos. 251 and 261 represent him corpulent and very white-headed and bearded. They must have been painted quite in the last years of his life, and he must then have been looking older than he really was, if the date of his birth is to be relied on.

No. 302, Ambrose Dudley, Earl of Warwick, brother of the above. If this be really a portrait of Ambrose Dudley, we might almost imagine that he had sat for that of Thomas Stanley, first Earl of Derby, No. 42; Thomas Ratcliffe, Earl of Sussex, No. 136; and also for that of the gentleman who figures as Henry de Beaufort, third Duke of Somerset (No. 386), of whom hereafter. I do not deny its being Dudley, I have no reason to dispute that assertion; but merely direct the visitor's attention to the two portraits above mentioned, which are certainly not those of the persons they are attributed to.

Nos. 274, 275, Sir Philip Sidney. The first charming, and no doubt an admirable likeness, as we may judge from his portrait when a boy (No. 301); but is it possible that we see him again in the curly-pated, unintellectual warrior (No. 275), contributed by the Marquis of Lothian. There is an inscription on it recording his death; and the painting is said to be by Zucchero. There is nothing that comes within my province to justify my expressing anything beyond the surprise with which I find this picture regarded by the public generally. Not so, however, No. 300, also called Sir Philip Sidney. A fine full-length of some gentleman of the next reign, whose arms in the window on the right of the picture will, I hope, enable me to identify him.

No. 316, called, "Mary Queen of Scots, with her Son, James VI.," is more likely to be Anne of Denmark, wife of the said James, with her son Henry, Prince of Wales. At all events, it has no pretensions to the name it bears, and it is a pity so genuine a painting of its age should be deprived of the interest which may really attach to it.

No. 326, Henry Stuart, Earl of Darnley. This unfortunate husband of Mary Queen of Scots, who was murdered on the 9th of February, 1567, at the age of twenty-one, is here stated to be portrayed "as a boy," in a costume of the time of Charles I.! See also No. 370, William Cavendish, "as a boy," signed "Johnson, Pinx. 1631." No doubt, a correct date; but what business has either of these valuable portraits in the space allotted to the age of Queen Elizabeth? Still more absurd is the exhibition of No. 386, already alluded to. Henry de Beaufort, third Duke of Somerset, K.G., a valiant leader in the wars of the Roses, was beheaded in 1163, after the battle of Hexham, and we have here a Knight of the Garter wearing the collar of his order and George appendant, as first worn in the reign of Henry VIII., in a costume certainly as late as Philip and Mary, and resembling, as I have already remarked, the portraits of the so-called Earls of Derby and Sussex, and that of Ambrose Dudley, Earl of Warwick, so closely, both in face and habit, that they might all be supposed to represent the same individual.* Now, according to the rule laid down by "the hanging committee" of this Exhibition, this noble Lancastrian soldier, temp. Henry VI., should have been placed in the eastern corridor, with the wonderful Earl of Warwick, his great contemporary, who is there to be seen in spite of his Elizabethan hose and doublet.

It is with some reluctance I pass in silence the several so-called portraits of Shakspeare, but so much has been written on the subject, and, with the exception of "the Chandos Picture," so little evidence produced to substantiate claims or assertions, that in the present dearth of all positive information I shrink from entering into the controversy. The Earl Fitzwilliam is said to possess a copy of "the Chandos Picture," made by Sir Godfrey Kneller for Dryden. I wish it could have been suspended here by the side of the reputed original. The comparison

* See pp. 320, 357, 380, *ante*.

* I take the opportunity of noticing here that Ratcliffe was not made Lord Chamberlain till the year 1572; and, therefore, the white staff in the picture, which would mark that period at the earliest, if really the Earl of Sussex, cannot be reconciled with the costume, which is of the reign of Mary.

would have been most interesting, and might probably have established the authenticity of the portrait so liberally presented to the nation by the late Earl of Ellesmere beyond the possibility of dispute. J. R. PLANCHÉ.

HIGH ART IN LOW COUNTRIES.*

As we steam up the Scheldt everything looks inartistic enough: mud-banks, the country as flat and uninteresting as our own; but as soon as we land at Antwerp, or rather for some time before landing, we find a pledge of high art in the beautiful spire of the great church of Notre Dame. This is a wonderful piece of construction, and is enough by itself to make Antwerp worth a visit; very lofty, 360 ft. high, but much more remarkable for its structure than for its height; it is light as lacework, being in fact scarcely a stone building in the proper sense of the word, but rather composed of pieces of stone clamped together with metal. The Emperor Charles V. is reputed to have said that it ought to be kept in a case. In my own humble opinion, it is the most beautiful spire in the world; and I may add here by way of parenthesis that an additional stimulant to art is to be found in flat countries in the incitement which seems to be given to the erection of lofty buildings; when men have no mountains near them to dwarf their puny efforts, it is worth while to try how much of beauty can be gained for a building by the element of height.

The spire of Notre Dame at Antwerp is, however, merely the most conspicuous specimen of the art treasures of the old town. Even in the way of Church art it merely stands at the head of a long list. I must pass over this long list to remind you that at Antwerp you meet with the masterpieces of Rubens, and with specimens of others of the most remarkable of Flemish painters. There is, perhaps, hardly any gallery in Europe of the size which contains more treasures and less rubbish than that at Antwerp, and, after all, it does not contain what is regarded by many as Rubens's masterpiece the "Descent from the Cross," which hangs in the great church.

The mention of Rubens, the king of Flemish painters, and one of the great painters of the world, makes it necessary for me to make a few remarks upon the Flemish school and its connexion with the history of art. I am speaking to you of "*High Art in Low Countries*," and nothing is more remarkable than the contributions to the art of painting which have been made by both Belgium and Holland. Belgium did, in fact, invent the great art of oil painting for itself. It is true that the Flemish artists were not the first to use oil in the tempering of colours,—Giotto and the early Italian masters were considerably in advance; but there seems to be no doubt that the brothers Hubert and John Van Eyck not only invented independently for themselves the method of oil painting before the end of the fourteenth century, but that the excellence of their method was such as to gain European celebrity, and to induce an Italian artist to journey into the Low Countries for the purpose of learning it. Moreover, the excellence of the method and the genius of the inventors speak for themselves in existing works. It will be sufficient to mention only which is perhaps their masterpiece. I refer to the picture, or rather series of pictures, known as the "Adoration of the Lamb:" part of the work is in the church of St. Bavon at Ghent, part is in the Museum at Berlin. I have seen both, and certainly it is impossible to overstate the admiration which an examination of the work inspires: some of those to whom I am speaking have probably seen this great picture; for others it must suffice to remark that here we have a work in oil by the very inventors of the art, looking now, after nearly five centuries, as bright as when it came from the easel, and that of the crowd of saints represented as admiring the Lamb, containing several hundreds of faces, each finished with the beauty and perfection of a most elaborate miniature.

Who shall say that Low Countries are not good cradles for High Art? But the two Van Eycks were the beginning and by no means the end of the Flemish school. Of those who immediately followed them, there are just two whom I will mention. The first, Hans Hemling, or Memling, for he seems to bear both names, and of whose brush there is a wonderful specimen in the Hospital of St. John at Bruges; it consists of a large chest or reliquary, adorned with a representation of the legend of S. Ursula and her 11,000 virgins who were martyred at Cologne and whose supposed bones you may still see there. The finish and preservation of this work are wonderful; and they tell you at the hospital that offers have been made to the governors of a silver chest of the same size for that which they possess in painted wood. The offer would be a poor one even on the poor ground of money value; for undoubtedly the visitors of Hans Hemling's work very soon contribute more silver than would be required to make the chest: and herein I may observe is to be seen an example of the royal prerogative of art, which can turn a few shillings' worth of wood and paint into a work absolutely more precious than silver or even than gold.

The other early Flemish painter whom I wish to mention is Quintin Matsys, and I do so not so much for the excellence of his paintings, though that is very great, as because he was by trade a blacksmith. Yes, blacksmith and painter! nothing can check the career of genius, and a very skilful blacksmith he was, as any one may satisfy himself by examining a wrought-iron canopy which protects a pump close to the great church at Antwerp. The story is that Quintin Matsys was in love with a young lady whose father objected to give his daughter to a blacksmith; so, for the sake of his lady-love, Quintin Matsys gave up iron and took to paint.

These men whom I have mentioned belong to the infancy of the art, and their works have the stiffness and formality inseparable from the circumstances under which they were produced. Rubens, with his master, Otto Venius, and his pupil, Vandyck, represent the Flemish school in its full manhood and perfection. A marvellous manhood it was! I feel myself incompetent to criticize it, and I know thoroughly well the small value which belongs to my opinion, but I confess that the genius of Rubens impresses me as much as that of almost any painter whose works I have seen: you must not judge him by anything which we have of his in England: so far as I know there are but two places in which you can see him in his glory, namely, Antwerp and Munich: and when you do see him in his glory, the freedom of his drawing and the magic of his colouring make you doubt which of the two is the more admirable: woe to the unhappy painter whose works hang near those of Rubens.

If we went no further on our tour I think we might say, Well done, Low Countries! But the Low Countries have done much more. There is no country in which art has been applied to the architecture of towns more earnestly and more successfully than Belgium. We English people are wonderfully thick-headed with regard to street architecture: we have not half-a-dozen towns which are tolerable, and of our modern towns the intolerableness is generally unspeakable: only think of London and the large sums that are spent there on new streets and public improvements, and the small result obtained hitherto. However, it is not my business to abuse London, nor have I time to do so; my business just now is to call your attention to the picturesque character of the Flemish towns, and, above all, the town-halls which the people built in those towns when they were the centres of manufacturing industry, and when the inhabitants had plenty of money,—for there was a time when the people had plenty of money, namely, when Ghent was the Manchester of trade, and when the English Government was obliged to go to the capitalists of Antwerp to borrow cash. It is satisfactory to see that our wealthy towns are now making efforts in the same direction; Liverpool some years ago built St. George's Hall, for courts of justice and other public purposes; and Manchester has just produced a really remarkable building for the accommodation of her lawyers, being probably the most successful modern application to civil purposes of the architecture of the Middle Ages. The great misfortune, I may remark by the way, of England, and especially of England's great towns, in this department of art, is her smoky atmosphere. When Flanders built her Hôtel-de-Ville she had plenty of money and a clear atmosphere: we have the money, but we lack the atmosphere; and what chance is there of first-rate ideas entering the brain of an architect when they are all to end in smoke?

There is one other branch of art which must strike every one in travelling through Belgium, and that is the wood-carving. I the rather mention this because we have imported a large quantity of wood-carvings from Louvain for Ely Cathedral; and any one who has seen Ely Cathedral (as I trust almost all of you have) will remember how much the effect of the stalls in the choir has been improved by the introduction of carved panels, exhibiting subjects from the Old and New Testaments. The principal opening for carving in a Flemish church seems to have been the pulpit; and some of the works in this department of sacred art are certainly wonderful. A pulpit, for instance, shall represent the Garden of Eden, and then you will have the preacher surrounded with beautiful animals, peacocks, birds of paradise, squirrels, &c., with Adam and Eve, perhaps, as large as life. It may be doubted whether some of these pulpits do not represent carving gone mad; but certainly the details are very beautiful, and it would be difficult to go to sleep during a sermon preached from such an exciting platform.

So much, then, for Flemish art. In the superficial sketch which I have given, I have wished to impress upon you this conviction, that Belgium was one of the early nurses of art in Europe, and that it is impossible for any one to pass through the country, even in these railway days, without perceiving that this is true; and the result, so far as we in the present day are concerned, is this, that here is a country, as uninteresting by nature as the Isle of Ely, or any other country of the kind, rendered positively delightful by the application of human skill to the highest departments of art; and, before I leave the Low Countries, I must ask you to observe that the same thing is true, though with variations, of the other great division of the Netherlands, namely Holland. Did you ever go to Holland? If not, I am sorry for you. A visit to Holland of a few days supplies a man with recollections for the whole of his life. Of all the funny places I have ever seen, Holland is the funniest. It is the only country in which I have felt disposed to rub my eyes and pinch myself, in order to ascertain whether I was not in a dream. However, my business is not to speak to you of Holland's eccentricity, but of Holland's art; and undoubtedly its school of painting will bear comparison with any in the world. The most remarkable man in this branch of art was Rembrandt; and his case is the more worth noticing because there was apparently nothing in the circumstances of his birth to make him an artist. He rose from the ranks, so to speak; it was genius which would come out. He was the son of a miller; and this, by the way, in Holland, is not a very exceptional thing, for it is a land of mills. Between Saardam and Woermerveer, in North Holland, there are about 4 miles of mills, all planted by the side of the road as regularly as apple-trees by the side of a garden walk, so that one would say that there was a good chance for any Dutchman of having been born in a mill. However, Rembrandt was so born; and it has been suggested (I think very cleverly) that his peculiar style of painting, his method of lighting up his picture from one intense centre of illumination, may have been unconsciously suggested by the interior of his father's mill, where he played as a child. Certainly it occurred to me when I was once in a Dutch oil-mill, watching the process by which two worthy Dutch millers were extracting oil from linseed, and when I noticed the dark interior, with the bright light streaming in through the open door, that there was a ready-made "Rembrandt."

However this may be, Rembrandt was a prince of painters and a glory of the Low Countries. Perhaps the most remarkable triumph of his art,—and I refer to it because it is a wonderful triumph of art in general,—is his picture, which you may see at the Hague, of a certain Professor Tulk, lecturing on anatomy. Only conceive the trial of a painter's powers, who is commissioned to commemorate a famous anatomist by a picture subscribed for by his admiring pupils, and who undertakes to paint not merely a head and shoulders which in the course of two hundred years may stand for anybody, but the actual man demonstracing upon the dead human subject with his pupils around him! You may say the picture must be disgusting; but this is just what the picture is not: such is the power of art used by genius that even so strange and unpromising a subject as the interior of a school of anatomy can be made a picture upon which the eye delights to rest.

At the Hague you may also see Paul Potter's bull—such a bull! no rinderpest about *him*: a fine wholesome young fellow, who seems only

* By the Very Rev. the Dean of Ely. See p. 388, *ante*.

to regret that the conventionalities of picture life prevent him from walking straight out of the canvas, and treating you to a good loud bellow. To me I confess this world-famous bull is not so striking as another picture by Paul Potter, representing a bear-hunt: this is the most living animal picture I ever saw.

Then there is a marvellous picture at Amsterdam by Van der Helst, sometimes described as the miracle of the Dutch school. It represents the City guard of Amsterdam celebrating the treaty of Munster: the picture has no great interest now, except as a remarkable group of portraits; here are about five-and-twenty persons life-size grouped together on one canvas, and each a portrait such as would make the fortune of an artist in London, while the action of each man is easy and natural, and the finish of the whole quite perfect.

These great pictures which I have mentioned are merely prominent specimens of a school. Painting has grown in the soil of Holland just as truly as her tulips and hyacinths: the school has not soared to the poetic height of the Spanish and Italian, nor even of the German and Flemish; but it has done great things, and in imitative representative art, I need hardly say, it will challenge comparison with the whole world. My purpose, however, is not to institute an exact comparison between the Dutch and other schools of painting, but only to point out to you how thoroughly high art has flourished in, and has morally elevated, a country which physically is hopelessly low; and how it is true of Holland, as of Belgium, that a country naturally uninteresting has been endowed with charms of the highest order by the gifts of genius and the happy victories of art.

We must not linger, however, any longer in foreign countries. Time warns me that I must hasten to bring this address to a conclusion; but I must not do so without giving a moral, or, what I should call in a sermon, a practical application. Let us come home then to our own country, and let me remind you that although we cannot boast here an old school of painting, we may fairly say that in one department of art, and that a high one, namely architecture, we had in olden days, a school in the Isle of Ely, of which the Isle may be proud. Ely Cathedral represents, as every one will allow, Mediæval architecture in the perfection of its beauty; but it may not have occurred to every one who has admired the beauties of Ely Cathedral to think, or rather some may not have had the opportunity of knowing, that the principal Mediæval glories of Ely, perhaps the whole, were home-grown. I do not know the names of the architects of all the great works, but the architect of the most remarkable portion, the central octagon and lantern, was undoubtedly a monk of the convent, Alan de Walsingham. I suppose from his name that he was not born in the Isle, but came from Walsingham, in Norfolk, a place in those days much more famous than now. He would probably have come from his native village as a boy to Ely, and would never have gone much beyond the bounds of the convent, except to see those farms of which he had the care as sacrist. But he was a man of genius, and circumstances favoured the development of his genius, though in a singular way: first he showed his love of art by making himself a goldsmith, and then he indulged the same love by turning architect. Many opportunities he found for the exercise of this art; in fact, the good old monk seems to have been constantly building one thing or another: he designed the Lady Chapel, he built that exquisite little gem which we call Prior Crawden's Chapel, and several other buildings of less note; but the grand opportunity for exhibiting his full powers occurred when the old central Norman tower fell in 1320. "It is an ill wind that blows nobody any good;" and though the fall of the tower nearly frightened the monks out of their wits and emptied their pockets, it was (as we say) the "making" of Alan de Walsingham. Never was there a better opening, and Alan perceived it: he did not send to London for Mr. Scott, as we, his degenerate successors, do, when we need any alterations or improvements, but he set to work himself: he determined that he would have no more heavy towers, threatening to come down and keeping up a reign of terror, but he would recast the whole structure of the cathedral; and so he introduced that beautiful octagon which has been ever since one of the chief features of the building, and which may be reckoned amongst the prime results of Mediæval architectural skill.

Here, then, we have close at home another specimen of high art in low countries: art, let me observe, none the worse for being consecrated to the service and worship of God: indeed, it is true as a matter of history, and perhaps we might have expected it to be so, that the religious feeling has been more successful than any other in promoting the progress of art: Bezaleel, the son of Uri, and Aholiab, the son of Ahisamach, of whom we read that God "filled" them "with wisdom of heart, to work all manner of work, of the engraver, and of the cunning workman, and of the embroiderer, in blue and in purple, in scarlet and in fine linen, and of the weaver, even of them that do any work, and of those that devise cunning work;"—Bezaleel and Aholiab were, I say, but the earliest specimens of a race of men who, under the old covenant and under the new, in the days of Moses and Solomon, and King Edward III. and Queen Victoria, have consecrated their artistic genius to the service of God. Here, no doubt, if a man have the power to realize it, is a spring of action which excites the bravest efforts and leads to the most transcendent results. You see the most complete illustration both of the power and of the success of the principle in the case of that most admirable painter the monk of Fiesole, whom it has become the custom to style *Fra Angelico*: of him we read that he would never paint for gain; but that if petition were made to him for a picture for any sacred purpose, he would ask permission of his superior, and then give himself to the work.

We have no artist monks in Ely in these days, but the ceiling of the nave of the cathedral may be taken as evidence, not only that there is still high art in the low countries, but that the spirit which guided the brush of Fra. Angelico in Italy, more than 400 years ago, is alive in England at the present time. It is really a cheering fact with regard to art in our own country, that a work like that of the ceiling of Ely Cathedral should have been begun and completed by amateur hands. Most of you are probably aware that the painting was conceived and half-executed by the late Mr. Styleman le Strange, and that when death cut short his labours sadly and suddenly, the work was taken up and completed by Mr. Gambier Parry. I have no time to describe this beautiful work, nor is it necessary; any one who can come to Wisbech to hear this address, can easily go to Ely to see this painting; and I am sure that those who do see it,—I may add, those who see the many other works of sacred art which are to be found in Ely Cathedral,—will conclude that some how or other, although we have no Alan de Walsingham amongst us, high art does still find its way into the low countries of our Isle.

Long may this continue to be so! and may this industrial and art exhibition help to foster the love of art, and the knowledge of art, and the study of art amongst us. Depend upon it, art is truly a gift of God; as Bacon, in the language of his latest and best editor, "declared with all the weight of his authority and of his eloquence, that the true end of knowledge is the glory of God, and the relief of man's estate," so also we may say that art has been given for the same great purposes, that it is intended to promote human happiness, and that it is used for its highest purpose when it is made to tend to God's glory.

All men are not artists, nor capable of appreciating art in its highest forms, but all men are benefited, more or less, by the progress of art; just as all men are not poets, and yet poetry softens the manners and polishes the mind, and makes this world more habitable even for the most prosaic. You cannot tie up the benefits of art to a few,—it is a gift to humanity, and extends in its influence and its blessings as widely as the human race extends; it may be abused to evil purposes, to mere luxury and effeminacy, just as other good gifts of God may be abused; but there is no reason why it should be. It is not to be compared, in point of value, with those other gifts which affect the absolute necessities of the body, or the still more absolute necessities of the soul; but putting aside these sovereign gifts of God, there is none for which we should give greater and more continual thanks than for art, in all its multiform ramifications. We may see in it one of the most conspicuous proofs of God's goodness, because we find in it the evidence that He has given us this world, not only as a place to live in, but as a place in which the eye and the ear, and the whole mind may ever find abundance of beauty, and unfailing springs of delight.

THE DANGERS OF THE STREETS.

OUR suggestion as to the erection of a footway bridge to cross over one of the main arterial lines of metropolitan traffic, has been to some extent anticipated, and that, too, by the very railway company to which we pointed as being in a position to carry it out. The London, Chatham, and Dover Railway Company have provided a footway crossing over Ludgate-hill, by an addition to the width of the girder-viaduct now in course of erection. Access will be given by stairs at the side, and within a few weeks this important accommodation will be open to the public.

The experiment thus to be made will possess great interest, although it will by no means offer the same amount of accommodation as the more comprehensive plan which we indicated in our recent number. No assistance will be given to the east and west passengers who wish to avoid the tedious and dangerous crossing of Farringdon-street. A means of crossing in safety over the City and West-end traffic will, indeed, be thus provided; and we would not underrate the convenience which this enterprising company thus offers to the public. But passengers going north and south will be the less likely to avail themselves of the new accommodation, because of the slight detour that will be necessary in order to avail themselves of it. For a footway bridge to be fully serviceable it must be in the actual line of traffic. The passengers who will go out of their way, if only by a few yards, in order to go over a bridge, will be comparatively few. Thus of the two, or rather four, great streams of foot traffic, the east and west, and the north and south, and *vice versâ*, not one will be directly and obviously accommodated by the Ludgate Viaduct footway, which will be principally used by those east and west passengers who have occasion to cross from one side to the other of Ludgate-hill, and by those passengers to and from the London Chatham and Dover station, for whose service it was no doubt originally designed.

We understand, however, that this important subject will meet with due consideration. The chief obstacle to the erection of such a bridge as we originally proposed is the consideration of expense, as it is thought that it will be necessary to demolish the four corner houses in order to provide proper access for the passengers. A tunnel or crossing under the level of the present roadway would, in itself, be a less formidable undertaking, as a dip of 8 ft. or 9 ft. would give sufficient headway, and no land or houses would have to be purchased; but these subways, as far as our present experience of their construction goes, are close, damp, dirty, and disagreeable. And a still more formidable objection is to be found in the interference with the drainage, and with the pipes for the supply of gas and of water, that would be involved by the construction of subways. On the other hand, a headway of 17 ft. or even 18 ft. would be required for a bridge over the existing roads. A wagon laden with hops will measure 17 ft. in height from the ground. The piles of empty crates and baskets that are sometimes to be met with *en route* must be of equal or even greater height, and opposition would no doubt be vigorously made by the carriers and wagon-owners to any accommodation of the other portions of the public that would interfere with their own convenience in this respect. It is true that the Ludgate-hill viaduct has a less lofty headway, and there could be no valid objection to a footway bridge crossing the Ludgate line of traffic at the minimum height already fixed; but the broad line of Farringdon-street, which is now the most important to bridge, would no doubt claim a full headway of 18 ft., and due provision for this height, without contraction of the present roadway, would involve considerable expense. Such expense, however, would at the utmost be but trifling in comparison with the large sums that are already expended, and that will hereafter have to be expended, to provide for locomotive traffic; and as soon as the public, or as those who provide for the accommodation of the public, are fully alive to the importance of making due provision for the safety and comfort of foot passengers, no less than for the fair and uninterrupted speed of carriage passengers, the experiment of a complete and fourfold footway bridge will be made on a more satisfactory scale than the present partial accommodation; for which, limited as it is, the public have great reason to thank the London, Chatham, and Dover Railway Company.

HORTICULTURE AND BOTANY AT THE LATE CONGRESS.

Now that the Horticultural and Botanical Congress, after a brilliant and unprecedented success, is fairly brought to a satisfactory close, it may be well here to record a few thoughts and reminiscences regarding the magnificent display of flowers there made, and the two scientific meetings of botanists held at the South Kensington Museum, during the last ten days. Plants and flowers assist so largely in all architectural ornament, whether carved or painted, that all architects and artists *must* be interested in a display like the one just now so honourably brought to an end. The Exhibition was full of objects appealing direct to the artist; here certainly were to be seen the harmony and contrast of colour *complete*, and the perfection of form, graceful or rugged. To go through a list of the plants possessing special claims to artistic beauty would occupy too much space here; they might be arranged, however, in several classes, many possessing regular or geometric beauty of outline, as the lilies, heaths, &c.; others irregular or eccentric beauty, as the orchids; some depending altogether on the classic smoothness and gracefulness of their lines, as the palms and ferns; whilst a fourth, as in many of the pines, hollies, &c., rested their claims entirely on their equally beautiful, though more irregular curves and acuter lines, vieing in beauty with any other objects in the building. The colouring of the leaves and flowers would, too, admit of a similar artificial arrangement, some arresting the attention by the sudden contrast displayed by deep purple or almost black markings on the faintest yellow petal, or the perfectly white spots or reticulations on a deep green or intensely brown leaf. Whilst some contrasts were bold and sudden, other arrangements of colour were equally soft and delicate, the various shades of purple and yellow, and orange and blue, being perfect studies of harmony and beauty. Amongst the plants with coloured leaves no other could compete with the *Caladiums*, possessing large arrow-head-shaped leaves coloured with carmine and green, and frequently spotted or marbled with white; after these came the leaves of the *Begonias*, irregular in shape, crumpled and hairy in surface, and marbled, blotted, and variegated in colour, with bronze-browns, greens, and whites, in the most harmonious manner. For brilliancy of colour, every one must have noticed, displayed near the orchids, the flower of the arum-like plant, *Anthurium Scherzrianum*, flame-like and twisted in outline (a single flower in each instance crowning the stalk), and scarlet-vermillion in colour, but so intense, brilliant, and prismatic in hue, that the vermillion of art looked like a clod of earth beside it. Amongst smaller flowers possessing the highest beauty and harmony of the most brilliant colours we specially noticed some cut flowers of tulips, roses, and pansies, each separate flower being a study in itself, but altogether unapproached and unapproachable by any art. The horticulturists, British and foreign, no doubt, did their very best to bring together their newest and most beautiful flowers: the various groups of azaleas, roses, lilies, and orchids, in certain parts of the Exhibition formed such a perfect blaze of colour, that the fortunate beholder must ever remember the sight. It may be asked, what were the little quaint and curious things under bell-glasses filled with vapour? the single tiny leaves displayed in small flower-pots, or the bits of moss and fern in various parts of the Exhibition? Many of these objects, rare and singular in themselves, different from what they appear to be, and misunderstood by many, are of greater interest to the *botanist* than to the *horticulturist*. Without staying to reply here we may remark how widely different are the meanings of these two words.

For many years past England has been pre-eminent for its great and unparallelled success in the practice of horticulture, far distancing foreign competitors in the production of flowers, fruit, and vegetables; but as regards botany the case is different, for this country has long been under the imputation of producing very few sound and original botanists. The chasm between horticulture and botany is unfortunately very great, the former dealing with plants as cultivated in greenhouses and gardens, stimulated artificially to an unusual and often unnatural or monstrous growth, whilst the latter deals nearly exclusively with plants in a normal and natural condition, or as found wild, and especially with the structure, physiology, morphology, nature, and affinities of plants. Next to producing a plant comprised of brilliant flowers alone with no leaves, or a tree with fruit preponderating in a similar manner, one of the greatest delights of the horticulturist is in the production of abnormal varieties, or by peculiar treatment giving a plant an attack of vegetable measles, or of sending it into a permanent botanical fit: in the first instance, it acquires variegated foliage (so fashionable now); and in the second, the leaves or fronds become unnaturally contorted, twisted, and lacerated. To make these growths permanent is an object of high ambition with nurserymen; in the late Exhibition there was an abundance of examples of both. In a state of nature *all* flowers are single, and in this condition only is it possible to comprehend their structure (and we might almost say beauty); but who does not know that the professional plant-grower uses every effort to produce plants with double flowers? In this condition the essential organs for the reproduction of the plant are metamorphosed into coloured petals, and the flower, when the doubling is perfect, is invariably barren. All these efforts of horticulturists are opposed to the direct study of botany; hence it is we have so many plant-growers who are no botanists, and botanists who care nothing whatever for the practice of horticulture. One of the lecturers at the Congress (himself a curator of a garden) previously to making known a discovery of his, of treating orchids with hot water instead of cold, which had had the greatest success, candidly confessed that gardeners obtained their knowledge of the treatment of plants generally by hard-earned experience, and not by acquired scientific knowledge of the nature of the plants themselves. On the termination of the description, a gentleman, well acquainted with Brazilian forests, remarked that, in the *habitats* of orchids in Brazil, the raindrops were always *uniformly hot*; thus showing the lecturer had only artificially applied the *natural* treatment, of which he was previously ignorant.

The lectures delivered at the two meetings of the Congress were given by various botanists, British and foreign, in their own language, and comprised facts regarding the practice of horticulture, as well as the reading of papers embracing the geographical distribution and uses of plants and morphological and structural botany, discussions following each paper.

The Congress will long be remembered as a happy and instructive holiday by all who took part in it: many there recognised their old friends of "long ago," after separation for many years by miles of land and sea; and many were the personal acquaintances made there for the first time, by horticulturists and botanists who only knew each other previously by name and reputation. Long may good feeling and friendly scientific emulation last between country and country to draw men nearer together by such pleasant bonds.

THE ARRANGEMENT OF THE INTERNATIONAL FLOWER SHOW.

WE are asked to go a little more into detail than we have yet done as to the persons to whom praise is due for the successful manner in which the grounds for the show at South Kensington, and the show itself, were laid out. We are so well satisfied with the result that we willingly comply. The design, as we have already mentioned, was furnished by Mr. Gibson; the laying out was the joint work of Mr. Gibson, his son Mr. John Gibson, jun., and Mr. Eyles, who each rendered important services.

The arrangement of the plants was the work of another committee, consisting of Mr. Gibson, Mr. Eyles, Dr. Hogg, and Mr. Thomas Moore, who also acted as Secretary.

NOTES FROM ITALY.

Now that prospective war is the absorbing interest of this nation, and the patriotic enthusiasm characteristic of the Italian race under such excitement is carrying along every thought and aim in its resistless current, there is cause to fear that subjects such as have hitherto supplied our Italian Notes will for a long interval be wanting, or at the utmost but few and far between. It is therefore with more serious and rather sad satisfaction that we now call to mind things recently undertaken or determined on in the sphere from which it is inevitable that all public support and expenditure must be withdrawn if the tremendous drama that seems in preparation should again be enacted on the northern plains of Italy, and for the second time within seven years. The renewed competition for the façade of the Florence Duomo, the continued restorations on that of the Orvieto, and completing works for the Arezzo cathedral, are little likely to progress if the voice reminding of them be overwhelmed by the trumpet of battle. Yet the monuments in project to the illustrious dead are not as yet, at least, forgotten; for that to Manna, whose place will be in the library of the Naples University, the report states the collection hitherto of 1,978 francs; and those of Goldoni and Niccolini are not disregarded in Florence. The Bolognese Institute, now styled "Central Academy of Fine Arts in Emilia," has lately announced its adopted system of triennial exhibitions, with competitions for pensions and prizes, the former to be given by the three Royal Academies of Bologna, Modena, and Parma; the latter by Government: the pensions to the amount per annum of 2,000 francs to painters and sculptors, 1,400 francs to architects; the prizes to be, severally, 800 francs for the best works in historic painting and statuary; 500 francs in architecture; 400 francs in genre-painting; 300 francs in decorative design (*ornato*); 300 francs in engraving, as well on copper as on wood; and the several pensions are to be for three years, the claim of deserts to receive them established in examinations of twelve days, during which the candidate must draw or model from the nude in various postures, or prepare architectural designs, first a trabeation, then a complete edifice, of character either prescribed or *ad libitum*.

A well-known artist, Signor Morelli, has written from Naples to Professor Villari (the able author of "Life and Times of Savonarola"), with a very good suggestion by way of means for securing a worthy representation of Italy at the Paris Exhibition; that deputations of artists should be formed in all the cities regarded as artistic centres, with the charge of visiting all the studios in those localities, and from each reporting to a provincial committee, *ad hoc*, whatever they have found meritorious, whatever makes good any title to admission in the ranks, upon which testimony the committees may act in making final selection. The Florentine Academy has the method of opening some small rooms for the benefit of artists who may wish to exhibit a few works at a time during a given number of days or weeks, as the directest manner of introducing themselves to the public. Within the last fortnight we have had one of these displays, consisting of but six pictures, all entitled to notice. Five landscapes, by Signor Cortesi, struck us as unmistakably announcing soul and talent in their truthful and poetic presentment of fascinating Italian scenes. Among those the realities of which remain for ever stamped in the memory once familiar with them—the Roman Campagna with an aqueduct ruin, the forest between Albano and Castel Gandolfo, the Tuscan Maremma, and together with which is seen a large picture by Signor Baradino, a young Genoese artist of high promise, the subject (quite new for such treatment), the "Death of Pope Boniface VIII.," presented with a power and pathos that rivet attention, and attain the difficult triumph of exciting deep interest in a composition where literally nothing save death is brought before us; for except the halberds of the guards, thrust through the barred door to force entrance, we see no movement of a human actor on the canvas, save in the convulsed form of the aged pontiff just fallen lifeless upon his chair, under the mortal stroke brought on, as we at once perceive, by severe mental agitation, by the impression of the outrages suffered from the French faction, and of the unfeeling conduct of his cardinals, who had kept the octogenarian high priest in durance within his own palace. An expiring taper beside the crucifix and missal, as other accessories alike, are well introduced to contribute towards telling the tale of death preceded by a brief struggle, in the midst of pious studies, that accounts for the scroll thrown on the floor, the ruffled dress and disordered furniture; the countenance of the old man (not, indeed, a portrait, but much finer than is the head of Boniface in Giotto's fresco at the Lateran), con-

veying this idea as to his last moments without any trait that revolts. It is the now approved version of the story of this Pope's death that the artist has followed, for it was, at last, after erroneous report had long prevailed, made clear by ocular testimony, that he did *not* inflict violence on himself in frenzy, nor gnaw his hands before the paroxysm had passed, when, on occasion of the works for the new St. Peter's, the sarcophagus of Boniface VIII. had to be opened, and there did several witnesses behold his almost intact remains with no mark of external violence, and with hands noticeable for their delicate formation, quite free from injury.

To turn to the sculptors. The ministry has sanctioned, on the advice of a committee, the placing of Fedi's magnificent group, "Pyrrhus about to sacrifice Polyxena," in the Loggia now known by its right name "dell' Orcagna," instead of by the hybrid "dei Lanzi;" and it is one new project to transfer certain colossal statues by Michelangelo and others, to the great vaulted hall in the "Pretorio," where the "David" of the former is to appear in bronze. Dupré, generally allowed the first rank at Florence, has finished a semi-colossal figure of the Saviour, to stand over an altar, the aspect of which is benignly majestic; the attitude, with arms extended as if to receive a suppliant, appropriate. A "Pieta," or the Mother embracing the dead Christ, also among his late works, for a chapel at Siena, seems to us violent in action and rather theatrical: but this artist is often happiest in sacred subjects; and in that walk attention is now claimed by the works of his daughter—a statue of "Leah gathering Flowers" (from Dante), a relief of the "Madonna receiving the Soul of a Child presented by a Guardian Angel," compositions that show a talent guided by pure and pious feeling. Mr. Powers has, among his later productions, "Eve after the Fall," gazing upwards, with earnest, sad, but still hopeful expression, *not* that of remorse or moral bewilderment. In this studio we see the sixth reproduction in marble of the much-admired "Greek Slave," which the artist desires to keep; his truly exquisite bust of Proserpine, loveliest amongst his ideals, he told us was now being prepared in different copies, raising to the almost unprecedented number of one hundred the orders given for it.

A life-size statue of Everett, just cast from the clay, is, like other of Mr. Powers's portraits of contemporary statesmen, quite unpretending, and apparently a close likeness, with scrupulous correctness to the costume of the day, a point in which this artist has his principal and unswerving practice laid down for himself. It is a true pleasure to promote, in whatever way, the reputation of those whose merits are only beginning to be known beyond private circles; and we are anxious to express our admiration for the works of a fellow-countryman, Mr. Conelly, the son of an Anglican clergyman, resident in Florence, and still a very young man, but with great energy, and, we are glad to find, plenty of work on his hands. He shows capacity and taste both in portrait and ideal busts; but in a lately-finished group of three figures, below life-size, has, we think, far exceeded all former efforts,—the subject, the "Return of Peace," and the reference American, to which country it is to be sent for the gentleman purchasing this finely-conceived work,—Peace being here received to the embrace of the grateful land, personified as a beautiful young woman, whilst War, or, rather Rebellion, a fierce athletic, lies lifeless and naked at the feet of the two females. If we are not much mistaken, Mr. Conelly may look forward to the higher prizes of his art career.

Another English company has interposed to share with Messrs. Creswell the works for enlarging Florence, but only, we understand, in one street line which has been formally ceded. We should add to our notes upon local art, that a new school of design was opened last month, in this city, with evening classes, for youths above the age of fourteen. The Society for Encouragement of Fine Art still keeps its exhibition (reported upon by us) open to the public, on Sundays, gratuitously, and there we see, as natural at this juncture in public affairs, special attention paid to Ademollo's large picture of the "Battle of S. Martino."

The committee at Milan charged with getting up the ever-picturesque annual festival of the *statuto*, or Italian constitution, on the first Sunday in June, has deducted 10,000 francs from the proposed outlay, for the benefit of the military who may need charitable aid in the expected war. At Naples have been voted by the municipal council pensions of 2,000 francs to every soldier of that city who may take a flag from the enemy; and more communes than we can here report by name have followed this example, promising pensions or premiums to those who may bear like trophies from the field, or win the decoration for military merit, or become disabled for life by wounds. In this country all public movements and celebrations seem by invariable instinct to assume a form either beautiful or picturesque; and the popular demonstrations in Florence, of course in the war-invoking sense, had strikingly this character to the eye; as to their *moral*, also—so purely the expression of a generous, if too impatient feeling, that scarce could the most morose anti-democrat have been put out of temper by them.

THE EVIDENCE OF ARCHITECTS CONCERNING THE OBSTRUCTION OF ANCIENT LIGHTS.

AT the Royal Institute of British Architects, on the 30th ult., Professor Kerr addressed the members on this subject, and with especial reference to his published plan for determining the amount of window lights by measuring sky surface. He said, it must be admitted, at starting, that perhaps there was nothing which could more truly be called the enemy of the architect, the stern opponent of building improvement, especially in the metropolis. For example, one of those who were listening to him might be engaged in erecting, say in the City of London, some valuable building,—not merely valuable as a work of art—he would not ask the law to trouble itself with that question,—but, in the most simple utilitarian sense, valuable as an improvement of property; he had cleared an extensive and costly site, swept away a mass of inferior, unwholesome, and almost useless buildings, and his purpose now was to create in their stead something which should be worthy of the cost of this demolition, worthy of the advancing intelligence of the age, worthy of the enterprise of England, worthy of all the science that building could command. All unconscious of offence, he proposed to utilize his ground to the utmost; to cover every available part, to elevate his building boldly to meet the demands of spaciousness, healthfulness, cheerfulness, stately aspect, and commercial benefit both to the individual proprietor and to the community at large. Suddenly he would receive an intimation that there existed some little window, in some shabby neighbouring tenement, of which he had taken no account, but which, in the eye of the law, possessed a certain control of his proposed great building,—a control, when it came to develop itself, of singularly reckless, uncompromising, selfish strictness. In vain he might plead that he was only building on his own ground, that a considerable distance intervened between his operations and the exacting window, that actually a street intervened, or the property of a third party, or what not; the owner of the window had only to apply to the Court of Chancery, and the great building was absolutely prohibited from raising its head towards the free sky beyond a certain ancient height, or stretching itself on its own bed beyond a certain ancient limit. Drawn, as this picture obviously was, altogether from the architect's point of view, it might be safely affirmed that anything more oppressive than all this, anything more outrageous to the common sense of the uninitiated, it was scarcely possible to conceive.

Nevertheless, such was the law; and knowing, as he did, how strongly some high architectural authorities present might be expected to advocate its alteration; and cordially sympathising, as he himself did, with the feelings which actuated such advocacy; and being fully aware, as he was, that even Lord Chancellors did not hesitate to deplore the effect of the decisions they were pronouncing, and to suggest that the time had possibly come for the legislature to interfere (both Lord Westbury and Lord Cranworth),—yet, as one who had very attentively considered the bearings of the question on purely practical ground, he was sorry to say he had come to the definite conclusion that no material alteration in the law, in respect of principle, would be found possible. To illustrate this, he would suppose, for example, that that meeting, composed of an unusually large number of practical architects, had assembled for the purpose of devising a new law of lighting for a new London. He might suggest, as a not unlikely result, that they would, perhaps almost unanimously, agree to ordain that every proprietor should derive his light from his own ground and the public way, so that no one should have any possible claim of the kind upon his neighbour's ground. Very well; but how would even this help the matter? In a year or two estates of necessity began to be divided; the property which had been duly planned to be wholly lighted from its own ground was sold in two or three lots; the mutual dependence of these portions upon each other in respect of easements could not possibly be ignored or superseded; and there, at one step, had they plunged into all the complications of the law of ancient lights as it stood. In fact, it was the legal policy, for want of a better, to accept in theory such an origin as this, or its equivalent, for the foundation of the principle,—to consent to believe, in short, wherever the complications in question were found to exist, that they must have arisen, not by accident or inadvertency, but by consent and bargain, in some such way as this; and thus it was that the lawyers arrived, *à priori*, at the rule in force, viz., that the lighting which obtained access to a window over a neighbour's property was entitled to protection for ever, by the absolute prohibition of any creation on that property which should obstruct the lighting of the window.

Three conditions, however, were to be kept in view:—First, the lighting must have been enjoyed from time out of mind (of which, by the Act of William IV., twenty years was now to be accepted); secondly, the damage must be serious; not imaginary or theoretical, but practical, as a matter of inconvenience, or, in the language of the law, a material or substantial deprivation; and, thirdly, the lighting to be protected was not the total or gross amount actually possessed, but the net amount which had been made use of,—the *necessary* lighting in the particular case.

Now, accepting, as they must, with however bad a grace, the law as it stood, it became plain that although the lawyers must control its application, some one else must supply them with the *facts*. There were two ways in which this could be accomplished; first, by direct evidence; secondly, by indirect evidence, the opinions or calculations of scientific experts. That brought upon the field of debate the architect, or, as he was called in such matters, the surveyor.

Direct evidence, although theoretically the best of all, was practically a thing of the greatest uncertainty here; so much so that he would almost be inclined to pronounce it to be in no possible instance worthy of reliance. It generally took the form of affidavits made by the plaintiff and his servants, to the effect that they plainly perceived by their eyesight the injury in question. And, without imputing perjury to worthy persons of the kind, or any more grave error than the natural bias of humanity towards one's own side when one gets into Chancery, he would mention one or two illustrations of direct evidence within his own experience. He had known the occupant of a house so strongly impressed with his sense of injury by reason of his neighbour's intention to rebuild his house of greater height than formerly, that before the new wall had even reached the height of the old, he had caused the gas to be lighted at noon in his rooms and passages, and made oath that it was impossible any longer to transact business by the light of day. In fact, this was a common thing; he remembered one occasion on which he was obliged to advise on behalf of a landlord's suit that the tenant's evidence of this kind in a separate suit should be utterly disowned, for the mere sake of the respectability of the case. Again, he had known a working shoemaker, complaining of an open gangway which had been put across the back-yard next door, make oath, although it was demonstrable that the abstracted lighting was not more than three per cent., that he was no longer able to see to make his shoes, even close at the window and bright weather. Affidavits as to the lighting of gas half an hour or so earlier than formerly were common; and the solemnity with which eminent lawyers would expatiate upon such frivolous testimony was incredible. If it were possible to suggest anything more absurd than what he had quoted, he might state that that day he had been engaged in a case in which the plaintiff declared on oath that, having been accustomed to breed canaries in a certain dark corner of his room, no sooner had his neighbour some 50 ft. off raised a certain

wall quite inconsiderably, than the canaries struck for light,—promptly refused any longer to replenish the earth. There was only one way in which, as he thought, experiment might be reasonably offered by way of direct evidence of injury to lighting. Let a temporary erection first be put up to correspond with the old state of things, and let a second erection, probably a screen of tarpaulins, be contrived to represent the new; let expert judges of lighting, choosing the precise hour of the day applicable to the case (if such were possible), and the precise atmospheric conditions, probably the early evening of a dull day, station themselves in the room supposed to be injured, and carefully watch; then let the tarpaulins be suddenly lowered and the effect observed. But even this course, however specious in theory, would in his opinion seldom if ever be of any practical avail; for when it was considered how multifarious were the accidental circumstances by which the ultimate judgment might be affected—from the passing change of a cloud to the winking of the observer's eye,—he might safely assert that even in this elaborate form, the direct testimony of the sense would be as unreliable as ever. There was, therefore, left to them but one alternative—to accept the indirect testimony of experts, the professional opinions of architects.

Speaking to an assembly of scientific men, he would next venture without apology to suggest that if scientific opinion were worth anything it ought to be capable of test by proof. Looking at the general tenor of surveyors' evidence in light cases as shown by scores of affidavits which could be referred to, it was but too plain that it very seldom indeed went farther than the simple dogmatic assertion of an empirical opinion. Mr. A. has been in practice thirty years; and from his experience pronounces the alleged injury to the plaintiff's light to be very material. Mr. B. has been in practice forty years, and pronounces the injury to be absolutely nil. Mr. C., of fifty years' experience, cautiously affirms that a certain amount of damage must be admitted, but that it cannot, in his judgment, be designated as substantial damage. Mr. D., boasting of only twenty years' experience, makes up for the deficiency of age by decision of character, and declares his conviction to be that, instead of being injured, the plaintiff will be largely benefited. Surely, it was not too much to say that such evidence as this was quite unworthy of the profession of architects. What, then, could be devised as a means of proof?

When such evidence as he had alluded to happened occasionally to enter into argument, there was one principle upon which everybody appeared to agree, namely, that the obstruction of sky-surface was an obstruction of light. Reducing this to a definite proposition, it must ultimately take this form,—that the light in question being *diffused light* (not direct sunlight—any more than moonlight—but the dull lighting of a clouded sky, not taken at noon when light was at its best, but at the decline of the day, when there would be just enough and none to spare), the sky might be considered as equivalent to a vast reflector, every point of which yielded its equal share of lighting to the window in question; in other words, that the window was placed in the centre and focus of a half hemisphere of sky-surface as the source of its lighting. He believed that all experiment and reasoning, whether of theoretical or practical men, would invariably confirm this view of the case as one which was to all intents and purposes sound and reliable. What, then, followed? Obviously this suggestion,—why not attempt to measure window light by measuring sky-surface?

The lecturer then proceeded to illustrate, by the help of diagrams, the minutiæ of his published calculations; whereby he considered he had succeeded in mapping out in regular divisions the half hemisphere of sky pertaining to any window, and in attaching to each division its precise comparative lighting value. To this we have already alluded in noticing Mr. Kerr's book. The diagram which resulted thus represented the half hemisphere of reflecting sky-surface, on what might be called Mercator's projection, equally divided horizontally from the front to each side, and vertically from horizon to zenith; and it seemed plain enough that if any case of lighting were drawn in a sort of perspective upon this diagram, showing the old state of obstruction in contrast with the new, no more was needed to reduce the inquiry to a simple comparison of figures. If the former extent of exposed sky-surface, for instance, stood at the value of one hundred measures, and the proposed future extent at fifty, the diminution threatened was equal to exactly one-half of the old lighting, and this might be taken as proved.

Another form for the diagram would be based on the ordinary circular system of geographical maps, the horizon being represented as a semicircle and the zenith as its centre, with what might be called parallels of latitude and longitude in the usual way; the figures representing the value of the several sections remaining as in the former diagram.

The way in which to represent upon either of these diagrams the circumstances of a case in hand was simple enough. Taking a block plan of the premises and drawing a semicircle in front of the centre of the window in question, divided to correspond with the diagram, the position laterally of any required point became determined by drawing a line on the plan to that point from the centre of the window, and marking where it cut the semicircle. The position of anything vertically could be ascertained in a similar manner by means of a corresponding sectional drawing, on which, in every case, the distance of the object in question from the window being laid down and its height set up from a datum level, a line drawn through the resulting point to the centre of the window would give the vertical projection. The circumstance that horizontal straight lines came to be developed in an elliptical form would create no difficulty after a little practice; and, of course, in the circular projection it would be found that all vertical lines came to radiate towards the zenith,—which also would be easy enough to deal with.

But it was now to be observed that up to that point they had only arrived at the means of ascertaining the *comparative* abstraction of lighting power; and that would be of no service unless the relation of the size of the window to the size of the room, and of both to the amount of lighting power possessed, could be introduced into the calculation. In a word, it became necessary to look about for a standard of requisite lighting:—that which the law desired to protect was only the *necessary* lighting, and they must agree somehow upon a minimum of necessity. Here there was more difficulty in appearance than in reality. For his own part he had taken the following means:—he looked about for a class of rooms which most persons might be expected to accept as being just sufficiently lighted and no more; and he considered he found such a class of rooms in the dining-rooms of the ordinary London streets, in Belgravia, Marylebone, and Bloomsbury. It would be a matter of opinion of course; but, he thought, these rooms might be taken as a fair standard,—leaning, if at all, towards the side of the defendant, as ought to be the case. Now, what were the conditions of lighting here? They were matter of mere measurement; and he made them out to take this form,—1 foot of width of window to 50 superficial feet of floor, with the opposite houses cutting off the sky at an angle of forty-five degrees all along the front. The window was, of course, supposed to be of the usual height, and the room of usual form; and any exceptional case would be subject to exceptional treatment. Thus a room 20 ft. by 20 ft. would have two windows 4 ft. wide, with the houses over the way equal in height to the width of the street. Taking, therefore, the figured diagram of the sky, which they had before arrived at, and laying down thereon the horizontal line of forty-five degrees just referred to (it would be an elliptical line), the amount of exposed sky-surface left above it would prove to be 68 measures. Therefore, the rule would now take this shape,—1 ft. of window width to 50 ft. of floor at 68 measures of sky-surface, would be the minimum of necessary lighting. When the proportion of window width to the floor was larger, the lighting required would be less; when the window was smaller, the lighting required would be more; and the calculation of this would be the application of the standard; but it must be manifest that, if this rule could be accepted, it supplied all that was wanted to enable the architect to turn his diagram to account: he had now ascertained, not merely the proportion of diminution, but the bearing of this upon the legal limit of necessity.

The lecturer then proceeded to make some interesting running remarks upon recent cases.

At the meeting held on Monday evening last the consideration of the subject was resumed, Professor Donaldson opening the discussion with a paper in which various judicial opinions and decisions were brought together. Mr. A. Ashpitel, Mr. Jennings, Mr. W. White, Mr. Bell, Mr. Morris, Mr. Newton, and others followed, Professor Kerr winding up the debate. We shall return to the subject in our next.

CHURCH BELLS.

CARDINAL WOLSEY's Great Bell, at Sherborne, having been recast within the last six months, Mr. Thomas Walesby writes to us as follows:—The tower of the abbey church of St. Mary, Sherborne, contains a peal of eight bells, in the key of B flat; the tenor or largest of which weighs 46 cwt. 23 lb. This bell was presented to the church by Cardinal Wolsey, who imported it from Tournay, and who was, at one time, rector of Limington, near Ilchester. In 1670 it was recast by Thomas Purdue,—not "Purday" nor "Purdey," as stated elsewhere. I regret to learn that no record is preserved of the original legend on the bell, but the following inscription was placed upon it:—

"This bell was new cast by me, Thomas Purdue,
October the 20th, 1670.
Gustavus Horne, Walter Pride, churchwardens.
By Wolsey's gift I measure time for all;
To mirth, to griefe, to Church I serve to call."

I have said that the bell was re-cast by Thomas Purdue; and I now state, upon the best authority,—a fact interesting to campanologists, and it is presumed never before published,—that he lived at Closworth, Somerset, where he died on the 1st of September, 1711, aged ninety years, and where he was buried on the 7th of the same month. The following is a copy of the epitaph inscribed on his tomb, which is formed of Hamhill stone, and on the east end of which a large bell is carved:—

"Here lies
The Bell Founder,
Honest and true,
Till ye Resurrection,
Named Purdue."

There is an orchard near the parsonage-house called Bell Orchard, where it is reported he had a foundry. For this information I am indebted to the present Rector of Closworth, the Rev. Edward Bower. And here I would remark that Thomas Purdue was doubtless a member of the family of Purdues,—William and Roger,—of Salisbury, whose bells are classed among the finest that were made during the years 1613—1666.

But to return to the bells at the Abbey Church of Sherborne. It appears that, up to 1858, six was the number of bells forming the peal in the tower, which contained also a sanctus-bell and a fire-bell, and these are still retained. The sanctus-bell bears the subjoined inscription:—

"Ave Maria, ora pro nobis."

And on the fire-bell are the quaint words:—

"LORD, quench this furious flame:
Arise! run! help! put out the same."

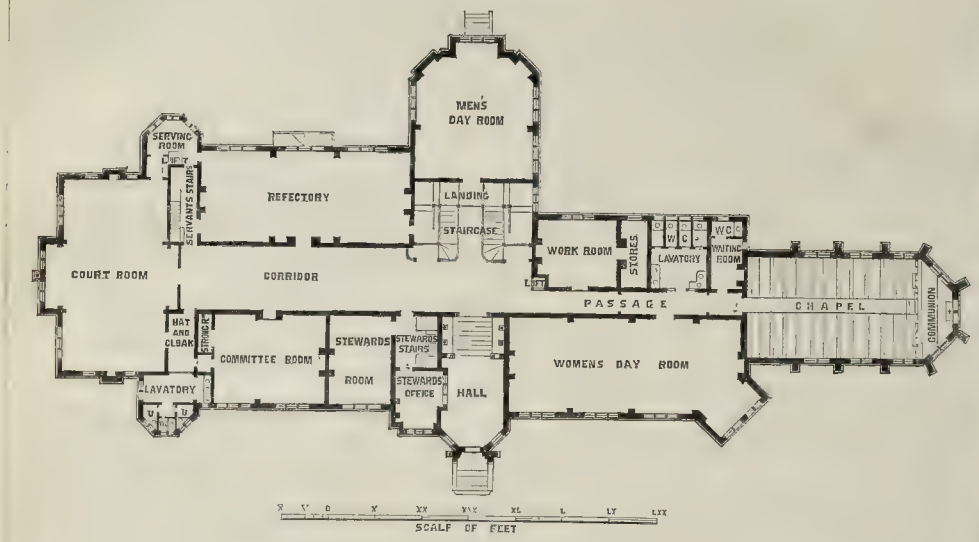
In this year, when the church was under restoration by the munificence of Mr. G. D. Wingfield Digby, of Sherborne Castle, Messrs. Mears, of Whitechapel, recast the fourth bell,—now called the sixth,—and rehung the entire peal of six; to which they added two new bells, being the first and second of the present peal of eight. "These two new bells were given to the church by public subscription, as an acknowledgment of Mr. Digby's noble work."

During the same year (1858), according to a little work issued by the Rev. Edward Harston, Vicar of Sherborne, the Wolsey bell was unfortunately cracked, and, subsequently, it hung silent in the tower for nearly seven years. At length, however, it was recast by Messrs. Warner, of Cripplegate, and sent back to Sherborne on the 27th of December, 1865. The old inscription of 1670 has been retained on the bell, to which the following is added:—

"Recast 1865. Edward Harston, vicar;
James Hoddinott, Francis Stokes, churchwardens."

In conclusion it may be mentioned that, on Tuesday, January 2, 1866, a special service was performed in the Abbey Church, when the dedication of the bell by the Lord Bishop of the diocese took place.

SOUTH KENSINGTON MUSEUM.—The visitors during Whitsun week (free), were 30,496; at the National Portrait Exhibition, by payment, 4,227; total, 34,723.



THE FRENCH "HOSPICE," VICTORIA PARK.—*Plan*

THE NEW FRENCH "HOSPICE," VICTORIA PARK, SOUTH HACKNEY.

THE hospice for poor French Protestants and their descendants residing in Great Britain owes its origin to the great emigration which took place from France immediately after the revocation of the Edict of Nantes in the year 1686. The persecution of the French Protestants which had been continually increasing during the reign of Louis XIV., became through the Dragonades so intolerable when all restraint was withdrawn by the revocation of that Act, which until then gave them some protection, that a general exodus took place wherever the emigrants could evade the guards posted to prevent their leaving, and the principal places of refuge were Holland, Switzerland, America, and more particularly England, where large contributions were collected for their support. As the nucleus for the formation of a permanent refuge for those whose poverty was joined with age, or who, from an inability to follow any remunerative employment, were prevented from getting their own living, M. Gastigny, who, on leaving France had obtained an appointment from William III., left by his will, in the year 1708, 1,000*l.* towards founding an hospital, and this sum was added to by the principal families of the refugees, Philippe Hervart, Baron d'Huningue giving 4,000*l.*, and the Duchesse de la Force a nearly equally large sum, and others who had succeeded in carrying away some part of their fortunes. These after forming themselves into a committee obtained an act of incorporation from George I., and a sufficient sum was collected to purchase of the Ironmongers' Company and the City of London, a large piece of land, containing about four acres and a half, near Old-street, St. Luke's, then situated in the fields, and for a long time the building there erected was the only one between Old-street and Islington. The roadway that led up to this building was afterwards extended, and became Bath-street, taking its name from the bathing-place called Peerless Pool in that immediate neighbourhood.

The original building in Bath-street, which was placed on the south side of the purchased land, was built in the shape of the letter H, containing a centre and two wings, and accommodated 230 inmates, besides the chaplain, stewards, surgeon, and servants. It is sad to find that a great portion of one of the wings was devoted to those who had become insane from the sufferings that they had gone through. This hospice being founded, became the head quarters for receiving subscriptions, and affording temporary as well as permanent assistance to those seeking an asylum in England, and the books of the hospital contain the names of above 6,000 families who were so relieved. Among the refugees it obtained the name of La Providence.

In the course of time, some of the principal refugee families became extinct, or, by intermarriages, absorbed into the population of England; arriving at the second or third generation, they felt less interest in the support of the institution, and many of those formerly poor, obtaining lucrative employment, the subscriptions and donations at the commencement of the present century gradually became less, so it was found prudent considerably to reduce the establishment, and all but one wing was pulled down, and the number of the inmates reduced to sixty persons. The greater part of the ground was let on building leases, and the greatest economy was exercised. It was fortunate that the directors acted thus prudently, for immediately after the peace of 1815, the greatest distress ensued (in consequence of foreign competition), among the silk-weavers of Spitalfields, Norwich, and Coventry, most of whom were descendants of the French refugees, and the resources of this charity were very severely taxed in endeavouring to assist them.

By careful management the funds of the hospital having improved, and the old building being deficient in most of the conveniences of modern times, the then directors thought that they might fairly anticipate the great increase in the annual income which was just approaching by the falling in of the leases granted at the commencement of the present century, and they resolved to rebuild the hospital in some other position, which would be more healthy; and having the opportunity of purchasing 3¼ acres of land, in the immediate vicinity of Victoria Park, near South Hackney church, which had been part of the garden and ground of an old large house, they did so, and upon it have erected the present building. The subsoil of this site is a sandy gravel of great depth, which has been made perfectly dry by judicious drainage.

The building, of which we now present illustrations, is about 200 ft. in length, the central part being nearly 90 ft. deep, and the other parts 60 ft. It is constructed in dark variegated brickwork and stone. The roofs are crested with ironwork, and roofed with purple, blue, and green slating in patterns. All the passages, corridors, staircases, &c., are fireproof, and the building is heated with hot water, in addition to the open fireplaces. The basement, which is only slightly sunk below the garden level, contains the usual kitchen offices, with receiving rooms for provisions, lifts, &c. The ground-floor is shown in the plan; and the first floor contains the sleeping apartment of the inmates. In most cases there are only four beds in each room, one for each person; these rooms are 20 ft. long, 14 ft. wide, and 11·6 ft. high, with a large central ventilator, 2 ft. square, in the centre of the ceilings, constructed with a shaft containing plates of finely-perforated zinc, upon the principle of a respirator, and each room has a fireplace with one of Bailey's patent lump stoves. The central tower above the ground-floor contains the steward's and servants' apartments. The establishment has a number of baths, lavatories, with hot and cold water, water-closets, lifts, and all the modern requirements and conveniences. The central corridor goes the whole height of the building, and the whole of the staircases, passages, hall, and corridors are in variegated brickwork, with carved stone corbels and strings paved with Maw's tiles.

The chapel, which is at the east end of the building, will contain about 120 persons, and has an open timber roof and stained-glass windows. The lecture pulpit and altar fittings are in oak. The court-room, which is at the west end of the building, contains some good portraits, among others those of Lord Ligonier, the Marquis de Ruvigny, and M. de Gastigny. The ground around the building is being laid out as an ornamental garden; and the trees and shrubs which were upon the land will give it a finished effect which would otherwise not have been obtained for some years. It now contains sixty inmates, who are perfectly provided for.

The entire cost of the building, land, fittings, furniture, &c., will be about 20,000*l.*, including the enclosure walls, which are of an ornamental character, and a picturesque lodge, with wrought-iron gates at the entrance. The style of the building is that of the French châteaux of the age of Francis I., and it has a varied outline: the whole forms an ornamental feature of Victoria Park. It is not far from Miss Burdett Coutts's fountain. The building was erected from the designs and under the superintendence of Mr. R. L. Roumieu, who is one of the directors of the charity. The contractors were Messrs. Longmire & Burge.



THE FRENCH "HOSPICE," VICTORIA PARK, SOUTH HACKNEY.—MR. E. L. ROUMIEU, ARCHITECT.

HINTS ON SOME PRACTICAL POINTS.

AT the last meeting of the Architectural Association, Mr. B. Ferrey read a paper entitled "Suggestions to Young Architects for facilitating their correspondence with Chartered or Diocesan Church-Building Societies, and Hints on some Practical Points." He commenced by detailing the steps which should be taken in order to obtain assistance from the various societies established with the view of assisting in the building of new churches or enlargement of existing fabrics, and explained the nature of the rules and conditions under which such aid was to be obtained. Glancing, then, to the works themselves, he deprecated the tendency exhibited in some directions to run up churches with the meretricious aid of the iron-founder. He was in favour of a sensible and severe form, adapted to the site and the aspect, and for exemplars he recommended the student of architecture to visit Normandy and see what had been done there in the way of parish churches. Solidity of construction ought to be kept in view as much as possible, for without it it was impossible to obtain that impressive effect which ought to be the first characteristic of a building dedicated to the worship of God. It was, he thought, a reproach to an age in which thousands upon thousands of pounds could be readily obtained for any utilitarian object, that raising money for the building of churches should be a matter of so much difficulty. It was, in fact, a national reproach that architects should so often be asked to prepare designs for "cheap churches." It was, however, due to the committee of the Church-Building Society to state that they were anxious in all instances to obtain fabrics of a church-like character; the first consideration being accommodation for the services of the church, and for the worshippers, leaving the tower and ornamental details to be completed out of funds to be provided hereafter. It was to their credit, also, that they were anxious to preserve old work as much as possible, and not to pull down or change any features of a building which marked the period of art to which it belonged.* Many fine old parish churches had been pulled down in consequence of the ignorance of the professional adviser. A notable instance of such destruction had lately occurred in the county of Middlesex, where a fine old parish church, of great architectural beauty, which might have been restored with the best effect, and preserved for centuries to come, had been immolated to the ignorance of the persons who had the direction of the matter. Many hideous-looking churches and chapels had also been "put up" by local builders, no architect having been employed to give designs or superintend the construction. Some practical information of great value might be gathered upon these points by the study of the paper printed by the Royal Institute of British Architects in reference to them, and he recommended all young architects to take the advice there given. Referring next to the manner in which the walls and roofs of churches should be constructed, Mr. Ferrey pointed out the necessity of choosing the most eligible site, so as to avoid land-springs in the foundations, and to get as much protection as possible from the south-west wind, which, when accompanied by continuous rain, would soak almost any wall exposed to their combined influence. In making foundations in clay soils, he recommended the free use of concrete rather than very deep foundations. He would advise, to insure solidity and provide against damp, to lay down a platform or bed of concrete, which experience had shown to be the best precaution. The circumstance that in so many old parish churches the south-west walls were found to be plastered, arose from the circumstance that a driving rain of many hours' duration would generally find its way through, no matter of what materials the walls might be constructed. In order to prevent this, he recommended an inner lining of brick or ashlar, with an interstice between, which would be found to keep the interior face of the wall dry in any weather. The roofing of churches was also a point deserving the utmost care. Panelled roofs were the best, not only for the comfort of the worshippers, but also for the conveyance of sound; but, in cases where it might be necessary to have open roofs, he recommended that attention should be paid to ventilation, and sufficient draught secured to prevent the accumulation of moisture upon the beams. This moisture often fell in drops upon the pews, and, independently of the inconvenience, did much damage to the woodwork of the church. Another subject which he brought under notice as deserving the attention of the architect was the manner of laying encaustic tiles now so generally used in ecclesiastical structures. Great care should be taken in preparing the surface before laying the tiles, so as to prevent the use of unslacked lime. Many instances had occurred in which the tiles were broken and the flooring destroyed by the expansion of particles of unslacked lime. With regard to bells, now that steel bells were coming so much into use, owing to their cheapness when compared with those constructed of ordinary bell-metal, he recommended that in no case should the supports of the bells be made to rest upon any portion of the tower in which they were hung, as the vibration was destructive of the masonry. The caging of timber or machinery upon which the bells rested should be altogether independent of the tower. The neglect of this precaution often did immense injury to this portion of the building. Moreover, it was well known to those who had paid attention to the matter, that the tone of a peal of bells was far better when the machinery by which they were supported was altogether unconnected with the solid masonry of the building. With reference to the new system, Mr. Ferrey commented upon the evils of unendowed or proprietary churches, which, he said, necessarily led to the total exclusion of the poor, because the income of the incumbent and the expenses incidental to maintaining the services of the church had to come out of whatever funds were obtained from the letting of the seats. Architects had, he thought, reason to deprecate the pew system, with all its abominations. Mr. Ferrey concluded his paper with some practical hints on the building of parsonage-houses, explaining the equitable nature of the arrangements for assistance made by the Commissioners of Queen Anne's bounty. No sum greater than three years' value of a living or benefice was advanced; but the payment was extended over thirty years, and became a charge upon the property, which no change of occupier could affect. By this means the occupier for the time being was in no case bound to contribute a share to the burden beyond that for which he obtained full value.

In the course of a short discussion that followed,

The Chairman observed that he quite agreed with Mr. Ferrey in recommending young architects to study the small churches in Normandy, which were fine specimens of what parish churches ought to be. In England, unfortunately, those fabrics were for the most part so many sealed books, as it was impossible to get into them without the formality of making appointments and so forth; whereas in Normandy, and, indeed, in all parts of the Continent, there was the greatest desire to show the churches and other public buildings for the sake of art only.

* The Society or the Society's advisers sometimes throw very unnecessary difficulties in the way.

A FIRE DAMP INDICATOR.

AT the Society of Arts, recently, Mr. Jabez Hogg, F.L.S., read a paper on "The Perils of Mining and Means for Preventing them," his chief purpose being to bring under notice a Fire-damp Indicator by Mr. G. F. Ansell, of the Royal Mint.

After reviewing the subject of mining "accidents," and showing the necessity still for means of preventing them, he proceeded to speak of Mr. Ansell's Indicator, whereby, said Mr. Hogg, he is able to detect the smallest appreciable quantity of fire-damp in a mine. As in the case of the safety-lamp, Ansell's fire-damp indicator is the practical application of a natural law, that of diffusion. Mr. Ansell practically applies this law to the detection of fire-damp; and since his indicator enables him to ascertain the exact percentage of this or other deleterious gases, the application is of the very highest importance and value, not only for coal and metal mines, but wherever subterranean works of any kind have to be carried on, for it as readily indicates the presence of the deadly choke-damp if in a poisonous amount. It is also capable of being made equally useful for the detection of coal-gas in houses and large buildings, as theatres, railway tunnels, and the proposed subways in our streets; or in the holds of ships, where foul air or fire-damp often collects.

Mr. Ansell applies the principle of the diffusion of gases to produce sufficient force to release a detent, and set an alarum in action. An inflated india-rubber ball, prevented from expanding laterally, or a bent tube of mercury, enlarged at one end, and closed with a porous cover, is all the apparatus that is needed for the purpose. If the ball or tube be exposed to any kind of gas, that gas will pass through the porous structure; and mixing with the air confined in the ball, or under the porous cover, will increase its bulk. Thus the ball will receive a vertical expansion, and may be used to set the detent of an alarum apparatus in action; or mercury, being forced up the open limb of a bent tube, may be used as an indicator, or an electrical conductor, to convey a telegraphic signal to the mouth of a pit, or the manager's office, or any other convenient place.

Mr. Short, of the firm of Marratt & Short, of King William-street, has, under Mr. Ansell's direction, succeeded in producing a convenient and cheap adaptation of this invention, which consists of a tube with a porous tile, an alarm-bell, and a small permanent galvanic battery, inclosed in a case. The action of this little instrument is so rapid, that the alarm is given in less than five seconds from the time of an irruption of gas. The apparatus also possesses the advantage of portability; the miner is enabled to move it with him to any part of the workings. The instrument is intended to give warning alone; but if it be desired for the information of viewers, inspectors, owners, and others, to ascertain the amount per cent. of either fire-damp or choke-damp present in the air of mines, Mr. Ansell varies the form of his apparatus, the most convenient for the purpose being that of a small aneroid barometer for the waistcoat pocket.

SANITARY CONDITION OF SHEFFIELD AND ROTHERHAM.

YOUR article headed "Sheffield and Rotherham," in the *Builder*, of May 5th, has been extensively copied into the local papers, and has had the desired effect in stirring up the powerful and vigilant interest of the press in the righteous cause, and with their aid we may probably arouse such a feeling of indignation in this country against the violators of those principles that should govern the laws of health, the obstructors of our sanitary acts, who seek office only to act as the drag on the car of sanitary reform, and to pervert, as they imagine, the laws passed for the general good to their own selfish purposes, as shall induce them to pause in their reckless and dangerous course.

A "leader" has appeared in the local *Telegraph*, strongly advocating proper sanitary measures to be taken without delay, which of course means extensive and comprehensive ones, embracing the whole powers of our sanitary laws, the Health and other Acts bearing in any way on the health of towns.

Since the publication of the article in question, the corporation has met, and decided to concentrate their drainage, and discharge it into the river Don, on the margin of their boundary, as stated previously; and this step is taken after the due warning of the *Builder*, that it is a false and fatal move in sanitary engineering, decidedly calculated to propagate and spread disease through the district which the river traverses, and thereby rendering it a curse instead of a blessing to the country, and diametrically opposed to the spirit of Parliament, as conveyed in their prayer to the Queen, that she would appoint a commission to inquire into the crying grievances attending the fouling of our once useful and beautiful river; and as if wantonly to add to the difficulties of that commission, the enlightened Sheffielders of the nineteenth century heap Ossa on Pelion, merely to save a little local difficulty, trouble, and expense.

It seriously behoves those who are injuriously affected by these rash measures, to take steps to stay their progress, and this may be done by "injunction" or otherwise, as in the case of Croydon, and many other places; or surely by an appeal made direct to the Secretary of State, who would stay present action, as was done in the case of the Sheffield reservoir, when from another cause life was placed in jeopardy.

At a time when cholera is lurking about our coast, and probably, before many days elapse, will be traversing its imperceptible and insidious course up our river, as is its wonted mode, it appears to me to be an act fraught with the greatest possible danger,—a public calamity,—thus to

add to the dirtiness, foulness, and pollution of our river; in fact, to make it a perfect *fac-simile* of the dismal and dread "Acheron," and to seem, as it were, to invite, conduct, and spread that most dreadful and fatal disease, one that baffles the skill of our most experienced medical men, into the midst of our dense, industrious, and thriving population.

We incur considerable expense in carrying into effect our quarantine laws to prevent cholera and other infectious diseases from reaching our shores; but, when once there, we permit and tacitly sanction our once noble rivers to be made the medium of conveying arterially this dread disease into our midst; in fact, we cunningly, and even skilfully, prepare them as channels to convey, in the most subtle and perfect way, this pest to humanity, and then wildly lament over the bereavement and desolation produced by our own acts and folly.

Rotherham, I regret to say, is not in a position to take any such step as suggested, because she herself has a dark blot on her escutcheon. Her hands are fouled with pollution, her deeds are equally dirty and reprehensible. All her concentrated *sweetness*,—or, if you will, her nastiness,—which escapes from her petty pot pipes, line the banks of this once fair meandering river Don. It lodges its slimy black filth on the mossy margin, defiling the sweetest flowers and marring the beauties of the fair face of nature. Its bubbles are of a dusky hue, and emit not the most odoriferous perfumes; and, to crown all its varied *attractions*, piscatorial life is totally extinct, and, therefore, its water must have a blighting effect on animal life resorting to it. Is this state of things desirable in these days of rinderpest?

Doncaster must be a *blest* place to have this *fair* and *silvery* stream gracefully winding and curvetting so close to its outskirts, condensed and intensified as its waters are with the foul and filthy exuberance of Rotherham and Sheffield, to have, in fact, the *additional* advantage of situation on the banks of this open outfall sewer. The water, so heavily surcharged with fertilizing matter, may be of benefit to the meadows on its margin when floods carry it over the surface; but this advantage would be more than counterbalanced if it should prove the means of introducing a devastating disease into the place, carrying consternation into their cherished sanctuaries, and sweeping away their household idols, their hearts' treasures and future hopes.

As men are seldom considered prophets in their own country, it may be consolatory to know there are other Richmonds in the field: a medical man has been calling attention, through the local press, to the impure state of the water supplied to the good and simple souls of Rotherham. He alludes to the improper connexion with the old and impure source of supply which has been a long time sensibly affected by foul drainage or other matter, and that it is high time prompt steps were taken to stop this prolific source of disease.

Again, the subject of over-crowding has seasonably occupied attention: two men have been fined, in one instance, for crowding eleven persons into a house when there was only room for seven; and in the other, eleven persons when there was only room for six: these are not common lodging-houses but ordinary cottages, and I have no doubt that this over-crowding system extensively prevails, and should be promptly inquired into and suppressed. These circumstances the Sheffield paper says, "show a necessity for sanitary reform in Rotherham."

I fear but few towns sufficiently and periodically attend to the thorough cleansing and purifying of those parts of their district which are fever-producing haunts, prolific sources of disease; it was my custom, when I held the onerous office of head of a sanitary department in a large city, not to leave the duties to be discharged exclusively by an assistant or an inspector of nuisances, but to undertake the whole of those duties myself twice a year—spring and autumn. I adopted the system of house-to-house visitation: no foul locality was unvisited nor plague-spot left untouched; and thus, by a thorough plan of inspection, cleansing, and purification, the health of the city was preserved in a good state, and epidemic diseases that flourished in less favoured localities found no abiding shelter there.

I think if such a general system were adopted now in all our towns, our filthy places thoroughly cleansed and purified, and the dirty habits of the people more closely watched, corrected, and improved, cholera would meet with little countenance and support; its sources of attraction and propagation would be swept away, and its probable visitation would find us so well prepared that it would pass us by as the idle wind which we regard not, and leave not a wrack behind.

Now is the time for action, a day lost at this eventful season could never be made good; it is not sufficient for us to be making our preparations for defence when the enemy is threatening at our gates, but our ramparts must be all perfected and well manned, and our guns ready shotted to repel the dread attack and invasion of this dire and deadly enemy to man. B. B.

PARIS.

AT the corner of the "Fontaine des Innocents," in a portion of the south pavilion of the Halles Centrales, an oyster market, or *parc aux huitres*, is to be installed very shortly, and will occupy the very spot where the ancient "pilori" stood. Pignaniol de la Fortune informs us, writing in the thirteenth century, that there was a permanent scaffold also erected there; in the year 1478 it was still in existence, as testified by a carpenter's bill for repairs, preserved in the Paris archives. It informs us that thirty-five livres were paid for having renewed the scaffold and the block (*coupe-tête*) of the pilori, for they were quite rotten from extreme age and usage. The unfortunate Duc de Nemours, Jacques d'Armagnac, was beheaded there: when, on the fatal morning he was led thither, he was conducted to the chambers of the "halle aux poissons," which was spread with "sarge de pers" and perfumed with two horse-loads of juniper brushwood burned. Such was the polite refinement of those times.

The "piliers des Halles," or piers of the ancient arcade, have been just demolished; they were a portion of a large series of arches which, under the reign of François I. and Henry II., surrounded the Halles nearly throughout. Seven or eight streets lead to this place, and under the arches were shops, stalls, benches, all so crowded with clothes, furniture, and knick-nacks that it was impossible to get on through them. It is said that, for clothes, there were enough to equip an entire regiment; and that nobles, commoners, artists, and men of letters, were wont to hire clothes for gala evenings, the stock of apparel being of the richest and most varied character.

These piers,

> "They that could tell so old a tale
> Of pilori and penance,"—

which we visited a few days ago, are about 5 ft. square. We remarked as an object of art a *bas-relief* representing children dancing to the sound of a flute. It is said to be the work of Pierre and François Lheureux. There was another *bas-relief* with five or six men overthrowing, or trying to do so, a column, the meaning of which we cannot tell. Also we are informed that there existed in one of the adjoining houses a puzzle staircase, with double flights of stairs, so arranged that parties ascending could not meet, nor see, nor converse with those descending. The ancient inn, bearing the sign of *La Truie qui file*, before whose portals the servants, apprentices, and porters of the Halles played a thousand mad pranks at the *mi-carême*, is now of the past.

We have mentioned in our pages that the tower in which Jean sans Peur was confined, and which lies in the way of the prolongation of the Rue des Ours, is to be preserved. It is the property of M. Lechatelier, engineer-in-chief to the Crédit Mobilier, and is to be surrounded by a square similar to that of the Tour St. Jacques.

The restoration of Notre Dame Cathedral is just finished, and reflects great honour on M. Viollet-le-Duc, who has acquitted himself with wonderful skill of the difficult and complicated task allotted to him. The fourteen lateral chapels have been newly adorned with frescoes. Some critics have complained of the monotony of these, and that there are too many of them in the same style; yet, the composition is good, the drawings are very well executed, and the colours well chosen, brilliant and pleasing. We cannot say as much for the new stained glass windows, which are far inferior to the old rosaces.

The works of the Exhibition building are progressing rapidly; a whole forest of columns stand upon their pedestals, and the roofs are being braced up at the same time. All the earthworks of the park are completed, except the carting of vegetable mould. At the river-side a quay is being formed, from which lines of railway are to be laid in tunnel, to the centre of the building and its various departments. If there be war it will have the effect of putting off the Exhibition for another year, but it will not prevent the contractors from completing the building within the stipulated time.

The new Campanile of the Hôtel de Ville is nearly completed; it is being coated with lead. What reason there was for building a new one no one can tell, as all the old belfry required was strengthening and repairing it, having been more in keeping with the style of the main edifice, and its outline against the sky more in harmony with that of the roof and chimneys.

At the New Opera the works proceed regularly but slowly; the principal façade is up to the full height, and the sixteen columns, in eight couples, between the windows, are in place. The eastern front is the most advanced, the carvings of most of the attic story having been completed.

RE BELFAST ALBERT MEMORIAL.

WE have another protest by a competitor against mal-treatment in this affair; and another action in the Irish Courts against those responsible has been ordered by him to be raised. The competitor referred to is Mr. Thomas C. Sorby, who complains that he cannot get repossession of his design; and the Secretary, he says, will give no information in the matter. There are transactions advertised every day in which, under various pretences, property more or less valuable gets into unworthy hands without a *quid pro quo*, and cannot be got out of them again. It is to be hoped that those responsible in advertising the Belfast Albert Memorial competition will forthwith rid themselves of the possibility of any such suspicion attaching to them. It is full time they did so; and it is to be regretted that so revered a name as that of Prince Albert should have been mixed up with or made use of in such a transaction.

AN ANECDOTE OF HILTON.

WITH reference to a picture by Hilton in the exhibition now open at Wisbech, Canon Hopkins, at the inaugural meeting, said it was a portrait of an old lady of the name of Robertson, who died in that town. Mrs. Robertson was the wife of the manager of the theatre, and they went about the country from Lynn to Wisbech, Peterborough, and other places, with a provincial company of *artistes*. In the company there was a man of the name of Hilton, who painted and repaired the scenes. He had a boy who showed some capacity as an artist. He was a low-country boy, and when he was about twelve or thirteen his father said he would apprentice him to a shoemaker. The boy wept bitterly, and entreated his father not to do so, and he went to Mrs. Robertson, his friend, to ask her to intercede with his father, and she did so. "Well," said the father, "I am willing to indulge him in anything that is reasonable, but I do not wish him to become a vagabond as I have been myself. I wish to train him up to an honest living." Mrs. Robertson promised to do something for the boy, and ultimately the design was not carried out. Lessons in drawing were given to the lad, who, partly by the assistance of Mrs. Robertson and partly that of other friends, became an artist, went to London, and rose to be a Royal Academician. When he had attained to distinction, he visited his benefactress, and as a mark of gratitude wished to paint her portrait. That portrait was the picture in the collection, and represented Mrs. Robertson in the character of "Beatrice" removing her mask.

ANOTHER ROSETTA STONE.

THE Imperial Academy of Sciences at Vienna has received the following important communication from Dr. Reinisch and Dr. E. Robert Rösler, two gentlemen now travelling in Egypt. It gives fuller particulars of a discovery already briefly noticed in the papers:—"In the course of our wanderings in the eastern part of the Delta and the Isthmus, in company with Messrs. Lepsius and Weidenbach, we reached *Sane* (the site of the celebrated Tunis, and the scene of the archi-

tectural activity of Rameses II.) on the 15th April. During our various explorations in this place, we discovered a stone, more than half buried in the ground, revealing a Greek inscription, which we forthwith caused to be dug out. What a pleasant surprise? The stone contained an inscription in two languages, and is perhaps the most important discovery since the year 1799, when the celebated "Stone of Rosetta" was found, which gave the key for deciphering the ancient Egyptian hieroglyphics. The present stone was incised in the time of the third Ptolemy, Euergetes I., 258 B.C., and contains thirty-seven hieroglyphical and seventy-six Greek lines. Its size is 2 mètres 22 cent., by 78 cent. (equal to 7 ft. 3 in. by 2 ft. 6 in. English). Messrs. Lepsius and Weidenbach took a careful tracing on paper of both inscriptions, whilst we made partial copies; but so impressed were we with the importance of this discovery, that we again returned to Sane on the 20th April. We remained two days, made fresh and very careful copies and another tracing, besides having the stone photographed three times. We hope to forward to the Imperial Academy an exact copy of these inscriptions by next mail, when we shall probably have succeeded in clearly deciphering the meaning of both."

STRIKES AND ARBITRATIONS.*

AN account of one of the first really successful attempts to introduce the principle of arbitration into trade disputes, written by the umpire under whose presidency this principle has been at least so far established in practice, cannot but be regarded as an important publication, well meriting the careful perusal and consideration both of employers and employed. Mr. Kettle may have special qualifications for the office of umpire, which it may not be practicable on all occasions to obtain elsewhere. He is the judge of the Worcester district of County Courts, and has taken the chief part in securing the adaptation of equity practice in County Courts, the brief Act for which he himself drew up and afterwards framed the rules of practice. He is evidently well up in the subject upon which he writes, and has the additional advantage of being a practised writer for the press, having at one time been editor of the *Globe* newspaper. No doubt, however, very capable and fitting umpires might be elsewhere met with, who could carry out the principle of arbitration with equal success, where both parties were sincere and in earnest as to their desire to abide by the awards; and in the qualifications of Mr. Kettle we have an indication of the sort of man who ought to be selected. No better umpires, doubtless, need be looked for than judges in Equity, though, no doubt, the number of these throughout the country is limited, and the limits will be still further restricted by the circumstance that only some of them will be available as umpires. There are many good judges in Equity unfledged, however, in society at large, and we do not anticipate much difficulty on this score.

Mr. Kettle is of opinion that,—

"Without disparaging Courts of Conciliation or Tribunals of Commerce, if it is found that ordinary arbitration will accomplish all that can be effected by such novel institutions, such arbitration appears a more familiar, a more simple, and, so to speak, a more English mode of settling trade disputes."

He gives the following account of the way in which the principle of arbitration was introduced at Wolverhampton:—

"In the spring of last year there was a strike impending in the building trades of that town. The mayor called a public meeting of those trades, to devise, if possible, some means of preventing the strike. A meeting was accordingly held, at which one branch of the building trade—the carpenters and joiners—appointed six delegates to confer with six delegates of the masters, and endeavour to arrange their differences, the masters appointing six delegates on their part. This was on the 14th of March. On the 21st of March the twelve delegates met, and they then saw the propriety of choosing a chairman, who should have a casting vote, before they entered upon any other business. This was done by each party using a list of six names; and means were taken to determine by chance whether the masters' or the men's list should have priority of consideration. As the first name on both lists happened to be the same, a chairman was easily chosen. Nothing more was done at the meeting, except agreeing upon the mode of communicating with the chairman. Upon accepting his office, the chairman requested both sides to furnish him with their own drafts of any list of prices and trade rules they proposed to contend for, and such trustworthy information upon the subject of prices and rules as could be obtained from other localities.

On the 30th of March the twelve delegates met. The business was conducted like that of an ordinary committee, the chairman being the future umpire. Those rules upon which both parties agreed were first read and adopted. Those about which there was any difference of opinion were then separately discussed. The discussion was conducted with the most perfect freedom on both sides, the umpire assisting by keeping the speaker to the immediate point in contention, and taking care that he himself and every delegate understood precisely what each speaker intended to convey. For this purpose the umpire occasionally asked for explanation, and assisted the speakers, when necessary, to define their meaning with accuracy. The umpire also, from time to time, referred to any well-settled economic laws bearing directly upon the question, and applied them whilst the subject was under consideration. Each of the contested rules was, after full discussion, agreed to without a division, except in one instance, the division upon which resulted in a majority against the proposition, so that the chairman was not even once called upon to act as umpire, by giving a casting vote. A minute of each rule was made as it was passed, and at the end of the meeting the minutes were read over and approved. An adjournment was then made to the next day, and in the mean time the chairman framed the formal rules from the minutes. At the adjourned meeting three copies of these rules were signed by the respective delegates and by the umpire, one copy for each party, and one for the umpire. Printed copies were forthwith posted in every workshop, and accepted by the several masters and workmen, as the terms of the contract of each with the other respectively. Thus the first essential in the trade arbitration was completed."

The subject of the pamphlet is methodically arranged, and clearly treated of. Appended the author gives "a fair example of a complete code of trade rules," applicable to the building trade, and, indeed, adopted at Wolverhampton as the rules for regulating the carpenters and joiners' branch.

* "Strikes and Arbitrations; with the Procedure and Forms successfully adopted in the Building Trade at Wolverhampton; written at the request of the Working Men's Club." By Robert Kettle, President. London: Simpkin, Marshall, & Co.

EUROPEAN PERPLEXITY.

THE Kaizer, Prussiana, and the Czar,
Would hold their Polish prize;
The Pope would keep the Roman hills
A den of rogues and spies.

Emmanuel claims Venetia fair,
And swears—"'tis only mine;"
The German scarce knows what he wants,
But fears to lose the Rhine.

The Turk looks on, and smokes his pipe,
Like one that loves his ease;
And waits till Allah shall arise,
To drench a swarm of bees.

Napoleon's righteous soul is vex'd,
Like Lot's on Sodom's plains;
But if he reap what others sow,
It will reward his pains.

John Bull has sown his turnip-fields,
And these he hopes to reap;
Who comes to pull them, wanting leave,
Had better been asleep.

J. RITCHIE.

VENTILATION: THE VOMITORIUM.

DURING the last dozen years I have been indebted to your politeness for the occasional insertion in the pages of the *Builder* of various suggestions relating to the accomplishment of that most difficult enterprise, the thorough ventilation of dwelling-houses. A most important element in the carrying out of any such scheme is the management of artificial heat, and you have, at different times, given a full and perspicuous account of my efforts to produce smokeless fires by the combustion (in earthenware burners, which retained the heat) of ordinary coal gas, and other elastic fluids having an affinity for oxygen. Hydrogen gas, separated according to the (now abandoned) process of Monsieur Gillard, being introduced into these burners, produced, when ignited, a very intense incandescence. The expense of Gillard's method caused its abandonment; but if a more economic plan could be devised for the decomposition of water and the collection of the hydrogen, that element would become an indestructible fuel, applicable to all purposes. The argillaceous burners become reservoirs of caloric, and may be heated to any degree of concentration, as is well illustrated in the reducing furnace, named after Dr. Hofmann, but which is merely an application of my invention, "the atmopyre." In acknowledgment of this fact, I have by me a very handsome letter from that accomplished chemist.

The products of combustion from ignited gases must be got rid of just as imperatively as the smoke of ordinary fires, and my endeavours to meet this exigency led to the conception of the *vomitorium*, which is now undergoing its trial in the hands of several builders, and the results of whose experiments will appear, in due time, in your pages. I have no doubt that the success which is crowning the proceedings of these gentlemen will establish the principle advocated, and lead to its universal adoption. Its application on a very large scale, and with various modifications, to the conventual buildings in the City-road, called "the Palmerston Homes," will supply conclusive proofs to the most sceptical inquirer.

The extrusion of smoke is in this way, I hope, for the future, effectually provided for under every variety of circumstances; but the admission of air into inhabited apartments still remains a disputed problem, and my plan, as explained before the Royal Institute of Architects, and named the *Atmode*, or "air-way," meets with numerous objections. Amongst others, your scientific correspondent, Mr. C. W. Dymond, C.E., of Southport, sees many difficulties. This chamber is open on all sides to the atmosphere: the air being admitted through a perforated ornamental frieze (placed on the face of both aspects of the building), perflates freely the entire interspace. Its further admission into the inhabited apartment is effected through a voluminous opening in the ceiling, and its passage can be minutely regulated by a variously perforated diaphragm; and thus the wave of air may be perfectly controlled as regards both quantity and velocity.

In all novelties of construction there are æsthetic difficulties to be encountered; but the subjugation of these comes within the proper province of the architect, and his success in this respect is the measure of his merit. The practical impediments are indeed worthy of every consideration, and the chief of these appears to be the difficulty of keeping this "intersolar chamber" free from accumulated dust. As I have made the ventilating diaphragm or hatch movable, like a window-sash, by means of pulleys, the *atmode* can be entered and swept; but this proceeding implies a special and periodical duty beyond the ordinary domestic routine of occupation, and is thus far objectionable. In advancing this idea, my object was not the production of a perfect plan, which should need no modification, but to rivet attention on the necessity of an *express provision* for the introduction of air into habitations. This necessity being once acknowledged, suitable means would soon present themselves; for instance, the ornamented fascia or frieze on the exterior of the building could be made to communicate with the cornice in the interior of each room, and a sufficient avenue for air secured.

Returning to the *vomitorium*, the principle of which is now fully demonstrated by experiment, I may be permitted to say, that I designed it to supersede, in new buildings, the ordinary chimney-stacks; to be, in fact, a brick-and-mortar arcade (into which the flues should enter with slightly projecting mouths), having open extremities, and several apertures on each side. In existing houses, its uses may be applied by removing the chimney-pots, and substituting for them a zinc vomitorium constructed according to the description contained in Mr. Callow's letter to the *Builder*. Allow me, in conclusion, to state that I have no pecuniary interest whatever in the success of this invention. I have given it as much publicity as I can, in order that the patentation of any of its features may be made impossible, and Mr. Callow has no wish to monopolize its application. Our hope is no more than to make its properties so well known, that we may trust its career with confidence to the spontaneous tide of events.

D. V. EDWARDS, M.D.

FLITCH GIRDERS.

THE answer to the question put by "F. W." in the *Builder*, of the 19th ult., p. 374, depends very much on the relative thickness of iron and wood flitches, of which the girder is composed. If the iron is very much stronger than the wood the latter will afford but slight assistance in supporting the superincumbent weight; and its chief business will be to prevent the twisting of the iron plate. But when the iron plate is only used for the purpose of stiffening the wood, the strength of both must be taken into account; and the problem to be solved is, what ought to be the relative thickness of the iron and wood in order that the full resistance of both may be brought into play? Since the deflexion of the iron and wood will be the same when subjected to a load, and the resistance to deflexion of wrought iron is twenty times greater than of fir having the

same length, breadth, and depth, we must make the fir twenty times as thick as the iron in order that the resistance to deflexion (which varies as the breadth) may be uniform throughout the composite beam. Thus, if the iron plate is ¼ in. thick the wood ought to be 5 in., or a piece 2½ in. thick bolted on each side. And if the iron is ½ in. thick, the fir flitches should be each 5 in. thick; and so on.

We have now to find the strength of the beam in which the iron and wood have the above proportions; and as the resistance to deflexion in each material will be the same, we may deal with them as two separate beams, and calculate the strength of each by the ordinary formulæ; the sum of the two values thus found will be the strength of the composite beam.

If W is the *limit of safety* in the iron plate (that is, the utmost weight it will bear in the middle without the elasticity being injured) in pounds avoirdupois, b, d, and l, its breadth, depth, and length, all in inches; W′, b', d, and l, the same for the fir beam;

$$\text{Then } W = 21000\,\frac{bd^2}{l}$$

$$\text{And } W' = 1400\,\frac{b'd^2}{l}$$

W + W′ is the total weight which may be laid on the middle of the beam without injuring its elasticity, if $b' = 20\,b$. Or if we put S for the strength of the composite beam, t its full thickness (= $b + b'$), then

$$S = W + W' = 1400\,(b' + 15\,b)\,\frac{d^2}{l}$$

$$= 2333\,\frac{td^2}{l}$$

About one-half of this value of S may be taken as the permanent load, to be laid on the beam. If the weight is uniformly distributed over the whole length of the beam, it will bear twice as much as when all the load is at the middle.

E. WYNDHAM TARN.

WITH regard to your correspondent's inquiry regarding "Flitch Beams," we may mention that there is such a formula as he requires to be found in "Hurst's Architectural Handbook." We, however, think that this can only be looked upon as approximate, generally giving rather too high a breaking weight. We think that the amount of resistance to flexure due to either of the two elements of wood and iron depends so much upon their proportions to each other and upon the construction of the beam, that, probably, no general formula could be altogether relied upon to give the breaking weight of any proposed girder of this construction. Mr. Fairbairn, in Appendix No. IV. of his "Application of Iron to Building Purposes," gives the results of some experiments on these beams. He also says that the beam probably depends more upon the pieces of timber "than upon any strength likely to be obtained from the centre plate, which, in such a position and in such a form, could not be considered as a beam."

VAUGHAN & DEACON.

THE DICTIONARY OF ARCHITECTURE.

SIR,—Permit me to invite attention to the advertisement in your columns, announcing that the "Dictionary of Architecture" can now be obtained complete to the present time.

The committee of the Architectural Publication Society have, at very considerable cost, reprinted the publications for those years, the stock of which had been exhausted, and new subscribers can now ensure a complete copy of all the publications of the Society since 1852.

The number of copies in hand is but limited, and this, coupled with the guarantee of the committee that they will not allow the sale of copies at less than the subscription price, will effectually protect subscribers from any depreciation of value.

Notwithstanding the acknowledged merit and value of the work, the list of subscribers is not so well filled as it should be; and as I am confident that this arises from want of sufficient information, I shall be most happy to reply to any inquiries which intending subscribers may address to me, and to arrange with those who desire it for the *gradual* payment of those subscriptions which have accrued for past years. ARTHUR CATES, Hon. Sec.

BURLINGTON HOUSE.

MR. EDITOR,—A remarkable letter appears in the *Times* of to-day, May 30th, respecting Burlington House, in which is quoted a resolution of the council of the Royal Institute of British Architects, deprecating "that a building of such architectural merit should be wantonly interfered with, or needlessly destroyed." Why should the council assume to themselves a judgment on the matter, instead of taking the sense of the members generally at the ordinary general meeting of the members, which was held immediately after the meeting of the council? And how lame and impotent the conclusion, which applies equally to a barber's shop as to a palace, which, however humble, should not be *wantonly* interfered with nor *needlessly* destroyed. It is to be hoped the question will be taken up at the next ordinary meeting, on Monday next.

M. I. B. A.

ORDERS IN WRITING FOR EXTRAS.

IN reference to a paragraph in last week's issue, we have received a letter from Mr. Frederick White, builder, Dunstable, Beds. According to his statement, the builder, under an architect at Stamford, was engaged to make extensive alterations to the residence of Earl Brownlow, at Studham, Hertfordshire, the contract amounting to some 4,000*l*. During the absence of the architect it appears Earl Brownlow ordered of the builder, through the clerk of the works, partly verbally and partly in writing, extensive extra works, with the request that they should be proceeded with immediately, in fact at a few hours' notice. After *six* months had elapsed, instead of *three*, after completion of the work, the architect, clerk of works, and builder went through the work, and the former pronounced it to be satisfactory and just, the work being charged for according to the schedule, and amounting to 870*l*. After some little delay the architect, it seems, awarded the sum of 660*l*. only for the extra works, making a deduction of 310*l*. "honestly and justly due" to the builder, of which, from the nature of the work, he was "positively out of pocket, the sum being expended on the house of Earl Brownlow." The builder considers he is virtually powerless, *as he has not the orders in writing*.

COMPENSATION CASES.

The New Law Courts.—In a compensation case, "Norton *v.* The Commissioners of Public Works," at the old Insolvent Debtors' Court, before Mr. H. Scott Turner, High Bailiff of Westminster, and a special jury, some evidence was given as to the value of an old house, No. 6, Little Searle's-place, or Shire-lane, required for the New Law Courts. It was a wretched-looking place, let out to weekly tenants of the labouring classes, and showed that they needed better habitations. The house was rented at 32*l*. a-year, and the tenant realised about 30*s*. a week. Two surveyors, Mr. Farmer and Mr. Kirkland, estimated the present net value at 56*l*. a year. It was a well-built old house; and the present occupier said a good old house was better than the new houses now built. There was a demand for such property to let out in weekly holdings. Mr. Lloyd and Mr. Horace Lloyd appeared for the claimant; Mr. Hawkins, Q.C. (Mr. Mahon with him), described the property as most wretched, and declared that he had been afraid to venture on the premises. It was some time before he reached the outside, not liking to be seen to enter Shire-lane. No witnesses were called for the Commissioners. The High Bailiff said the claim was 1,540*l*., and they had seen the property. The jury awarded 700*l*.

METROPOLITAN MANAGEMENT.

MR. B. COCHRANE, according to notice, lately moved in the House of Commons that a humble address be presented to her Majesty, praying her to issue a Royal Commission to inquire into the constitution of the Metropolitan Board of Works, the Office of Public Works, and the Office of Woods and Forests, with the object of seeing whether some means may not be devised by which the improvements of the metropolis may be carried out in a more comprehensive and economical manner, and with greater unity of purpose. In 1855, he remarked, Sir B. Hall (now Lord Llanover) brought in his admirable bill constituting the present Board of Works. The gentlemen constituting that Board had done their best for the improvement of the metropolis, and in the difficulties under which they were placed had done admirably. There were then 250 local Acts and 300 bodies managing the metropolis, with 10,500 paid functionaries; and for every 100*l*. spent in improvements 150*l*. were spent in salaries, dinners, and so on. Sir B. Hall's Act conferred very great benefits, but even at the present time the work was not properly done. By clause 117 of the local Act the parishes were to undertake the sweeping of streets; and by the 118th clause sweepers appointed by the parishes were to keep the crossings clean. Clause 120 required that all dirt was to be taken away at certain periods of the day, and if these duties were neglected heavy fines were to be imposed. But they forgot to say who was to impose the fine, and he believed the Metropolitan Board had very little control over the parishes in these matters. Then, again, at present the metropolis was divided into so many districts, sub-districts, and boards of health and sewers, and so on, that the result was most unsatisfactory, and there was an absolute necessity for some definite organisation. The committee on the Metropolitan Local Management Acts was still sitting, and he hoped they might be able to devise some mode by which greater control might be exercised over the vestries. At all events, in the interests of economy, and he would even say of the morality of the people, the present state of things should not be allowed to continue. Centralisation was not a popular word, but with the rapidly increasing population of the metropolis, which in the next forty years might amount to 5,000,000 or 6,000,000, it was necessary that some principle of centralization should be accepted.

The hon. member was interrupted by a motion that the House be counted, and there being only 36 members present,

The house adjourned.

CHRIST'S CHURCH, CANNES, SOUTH OF FRANCE.

THIS little church, built in the Decorated period, was erected in 1855. It consisted of a nave and chancel only. It is now being considerably enlarged. The corner-stone for this addition was laid on the 8th of May, by the Right Hon. Lord Brougham, in the presence of the Marquis of Abercorn and family, Earl Mount Edgcumbe, Lady Bradford, and many others. The addition comprises transepts, an extra bay to the nave, and a new chancel, with organ, and private chapel on either side.

The chapel will be divided from the transepts and chancel by enriched walnut-wood screens. The transept roof rises some 10 ft. above that of the nave, at the intersections of which is a handsome flèche, 70 ft. high, covered with ornamental zinc and slate work. The transepts are lighted by two large rose windows. These windows, as well as those in the chancel, will be in stained glass, manufactured by Messrs. Powell of London. The other work is being carried out by native workmen, under the superintendence of Messrs. Smith & Son, the architects by whom the church was originally built.

THE TRADES MOVEMENT.

Maidstone.—At a meeting of the builders recently, it was agreed that the offer of the operative bricklayers' and carpenters and joiners' societies to resume work at 6½d. per hour, be accepted; that the option of paying men on the piece should be retained; and that the men who had worked during the strike should not be interfered with.

South Wales.—The masons of Newport, who have been out on strike for the past few weeks, have resumed work, the masters having agreed to their demands,—6d. per day additional, and two hours and a half per week less, or 27*s*. per week for fifty-seven hours and a half's work instead of 24*s*. per week for sixty hours' work as heretofore.

The Clyde.—What threatens to be the commencement of a severe struggle between capital and labour in the engineering and shipbuilding trades in this neighbourhood has been decided upon. In order to put an end to the frequent demands upon them, the master engineers and shipbuilders on the Clyde have decided on a thorough lock-out, which was to take effect on the 28th. It is to be hoped that negotiation will yet prevent this frightful calamity from settling on the district.

MANCHESTER ARCHITECTURAL ASSOCIATION.

FONTS.

AN ordinary general meeting was held on Wednesday evening, May 16; the President, Mr. L. Booth, in the chair.

After the transaction of business, Dr. Cla read a paper, entitled, "Architectural, Archæological, and Historical Notes on Baptismal Fonts." The first part embraced the history from the reign of Edward the Confessor to the present, denying that any Saxon fonts existed, but admitting the earliest Norman to be during the Saxon reigns of Edward and Harold, stating also the font at Islip to be of much later date than asserted. The paper then went into early baptism and its requirements as regards font, their position, material, inscriptions, accompaniments, superstitions, baptismal registers, queries on baptism, destruction and desecration of font, &c., affording a wide field of inquiry, and full of interest. The second part took an architectural

view, in which the author showed a strong bias in favour of the designers of the first or Norman type, as being great originators, and, at the time, favoured with a fine field of wild and interesting imagery, which they exhausted so thoroughly that after types could not compete successfully with it. The intermediate types and their transitions,—viz., Early English and Decorative,—the author was not disposed to admire, though he admitted some in each were very beautiful. Of the Perpendicular he thought much more favourably, and considered the Norman and the Perpendicular as the only types steering perfectly free from each other, whilst the others were mere phases and transitions from each other.

The paper concluded with an attack on many modern fonts, of so wretched and miserable a character that they deserved general condemnation; and instanced those of Barnes, Putney, and many others in and near the metropolis, as well as elsewhere.

At an ordinary meeting, held May 2, the president, Mr. Booth, and the hon. secretary, Mr. Darbyshire, were appointed to co-operate with the Central Committee in London for the representation of English architecture at the Paris Exhibition, 1867. Mr. Redford, Mr. Blackwell, and Mr. Darbyshire were elected delegates to the forthcoming meeting of the Architectural Alliance.

PROVINCIAL NEWS.

Cirencester.—The dilapidated state of the various widows' houses was made known through the *Wilts Standard*, nearly a year ago, and subscriptions invited. Earl Bathurst undertook to repair the two sets of houses in Lewis-lane and Querns-lane, and to improve them—new roofing, putting ceilings to the bedrooms, lowering and altering the gardens, and other improvements, adding to the comfort and salubrity of the dwellings, at a cost of 360*l.* A few gentlemen also subscribed, in various proportions, to repair and improve the houses in the Pane. The additions made were,—ceiling the bedrooms, replacing the stone floors by wooden, commodious grates below and in the bedrooms, new windows and frames, washhouse, &c., at a cost of about 110*l.*

Macclesfield.—The new police-office for the transaction of county business, built on the site of the old office in King Edward-street, has been opened for business. The contract has been executed by Mr. Blackshaw, of this town, builder. A court-room has been provided; also a retiring-room for the justices; waiting-rooms for the witnesses; an office, house, stabling, and other conveniences for the superintendent; as well as accommodation for a resident constable. There are six cells, capable of accommodating two prisoners in each. These cells are heated with hot water. There is a separate entrance for the justices, the solicitors, witnesses, and all persons having business at the court, whilst the public will be admitted at another entrance, and have a greater space allotted to them within the building.

Manchester.—Considerable additions are now being made to the Roman Catholic Institute, in Grosvenor-square. The alterations include the erection of a dining-hall, 50 ft. long, a covered playground, new class-rooms, a library, refectory, chapel, and seventeen dormitories. The contract for the whole of the works has been undertaken by Mr. Finigan, who is carrying out the works, from the designs of Mr. Christopher A. Malone, of Manchester, architect.

Rochford.—The new corn exchange here has been opened. A company was formed for the purpose of erecting the new building, and 1,000*l.* having been raised by shares, the services of Mr. Chancellor, of Chelmsford, architect, were secured, and from his designs the building has been erected. The internal dimensions are 42 ft. by 42 ft. The front facing the square, adjoining the new bank of Messrs. Sparrow & Co., consists of a centre doorway, with a large semi-circular-headed window on either side, the arches supported by stone pilasters with carved capitals. The front is faced with yellow bricks, relieved by bands and arches of white brick and stone. The interior walls are faced with yellow and white bricks, relieved by bands and arches. The roof is constructed of iron, and carries a lantern, which is continued the whole length of the building, and gives both light and ventilation. The total cost of the building has been about 850*l.*, and the work has been executed by Messrs. Carter & Garrad, of Rochford.

Ledbury.—The ancient market-hall here has been allowed to fall into decay, but a restoration is going on under the direction of Mr. Chick, clerk of the works to Hereford Cathedral.

Bristol.—The improvement committee of this city have determined to widen that part of Wine-street between the pump and Union-street, and one of the business premises erected in the new line of street is just completed. The buildings are divided into two parts, the portion next Wine-street is fitted up as a residence, that behind in five floors for business purposes. The Wine-street elevation, designed to show its constructional character, is in four tiers, the lower being the shop. This is divided into three arched openings supported by brass and rouge griotti marble shafts, with wrought-iron foliated capitals; above is the window cornice, which, with the arches, are of stone, and are highly decorated and inlaid. The next tier consists of a four-light window divided by stone shafts and carved capitals. The prevailing colours are vermillion, draped with gold and blue. Springing from the shafts are stone arches, enriched with lapis lazuli bosses, and surmounting the whole is a large relieving arch, the tympanum being inlaid with scroll ornament. The third tier is divided into two pairs of windows, with chamfered, decorated, and inlaid mullions. Each pair are surmounted with relieved arches, and the tympans are filled with lapis lazuli panels sunk and decorated with gold and colours. The fourth tier consists of four windows, divided by highly decorated shafts and carved capitals, the prevailing colours of which are green and gold. Springing from the shafts are stone and brick semicircular arches and pointed labels. The front is terminated with a moulded dentil stone cornice and a geometrical course of inlay. The materials used in the main construction are Bath stone and bricks, and the base of the decorations are the primitive colours. Mr. Henry Masters, architect, designed the building, and Mr. Thomas Hobbs acted as clerk of works. The following artists and tradesmen were engaged upon the works:—Decorator; Mr. John Buggins, of Oxford and Bristol. Carvers; Messrs. Margetson, of Bristol; and Porter, of Bath. General Contractor; Mr. Henry Ashley. The marble was supplied by Mr. Tyley, of Canons' Marsh; the metal work by Mr. Brawn, of Birmingham; the slate work by Messrs. Hartnell & Temple; and the tiles by Messrs. Minton, of Stoke-upon-Trent.

Hartlepool.—The new Mechanics' Institute here has been inaugurated. The new building is erected at the top of Middlegate-street, in a line with the church of St. Hilda. It has an area of 100 ft. by 50 ft., and the architects were Messrs. Pritchett & Sons, of Darlington. The outside walls are of red brick, with fire-brick facings. The total cost of the building will be about 1,800*l.* The committee, to enhance the attractions of the institute, in addition to a commodious reading-room and library, lecture-room and class-rooms, purpose opening a club-room, in which will be provided facilities for engaging in conversation, drafts, chess, billiards, and other in-door recreation. Arrangements are also in progress to set apart a room for the junior members of the institute. There are various works of importance at present being energetically brought to completion in Hartlepool,—the erection of a new borough-hall and public offices, police-station, and new covered-in markets; a new theatre, also, was recently erected.

FROM SCOTLAND.

Grangemouth.—The supply of water for the port has been of the very worst description, being almost entirely drawn from a canal, which is often in the most filthy condition. Lord Zetland has determined to lay pipes from the canal at a point nearly two miles above the port, where the water is much superior to that in the vicinity. In order to increase its purity, the water flows through a large filter erected near the canal, and thence into wells in convenient parts of the town. The works will cost his lordship close on 600*l.*——The new Established Church has been opened for public worship. Mr. Black, of Falkirk, furnished the design. The architecture of the building is Early English. A square tower, 60 ft. in height, flanked by buttresses and surmounted by four spirelets, is over the entrance. Inside the ceiling is indented in squares and ornamented. The cost of the building will be about 1,200*l.*

Lockerbie.—The want of a public hall has long been felt in this town, and concerts, soirées, lectures, and other meetings of a secular nature have been confined to the assembly-rooms connected with the principal hotels. This want, however, is now supplied by the Easton institute. Mr. George Easton, of Chester, bequeathed several thousand pounds for the purpose of erecting this institute. The site is at the north end of the town. The large hall is 52 ft. long by 28 ft. wide. Besides the hall, there are on the ground-floor two rooms on the north-west side, for the use of the keeper, and a lobby, 25 ft. in length by 8 ft. in width, intervenes between these rooms and the hall. On the upper floor there are two good-sized rooms, one of which will be used as a library, and the other as a reading-room. The cost of the building will exceed 1,000*l.*

The Ordnance Survey of Scotland.—The Topographical Department of the War Office has issued a report of the progress of the Ordnance Survey and Topographical Depôt to 31st Dec. last. The following is a portion of the report which refers to Scotland:—

The following counties have been surveyed, viz.:—Ayr, Bute, Berwick, Clackmannan, Dumbarton, Dumfries, Edinburgh, Fife, Forfar, Haddington, Kincardine, Kinross, Kirkcudbright, Lanark, Linlithgow, Peebles, Perth, Renfrew, Roxburgh, Selkirk, Stirling, Wigtown, and Isle of Lewis; and the survey is now in progress in Aberdeenshire, Argyleshire, Banffshire, Elginshire, and Inverness-shire.

The plans of parishes on the 1-2500 scale have been published for the counties of Ayr, Berwick, Clackmannan, Dumbarton, Dumfries, Forfar, Lanark, Linlithgow, Peebles, Renfrew, Roxburgh, Selkirk, and Stirling; and the publication is now in progress for Buteshire, Aberdeenshire, Kincardineshire, and Perthshire (nearly complete).

The 6-in. maps have been published of the following counties, viz.:—Ayr, Berwick, Dumbarton, Dumfries, Edinburgh, Forfar, Fife, Haddington, Kinross, Kirkcudbright, Lanark, Linlithgow, Peebles, Renfrew, Roxburgh, Selkirk, Wigtown, Stirling, and the Isle of Lewis; and the maps of Perthshire, Clackmannanshire, and Kincardineshire are in progress of engraving.

Towns.—The state of the survey as regards the large towns in Scotland is as follows:—Published on 1-500 or 10-ft. scale.—Airdrie, Annan, Arbroath, Berwick, Brechin, Coatbridge, Dundee, Falkirk, Galashiels, Girvan, Glasgow, Greenock, Hamilton, Hawick, Irvine, Jedburgh, Kelso, Kilmarnock, Kirriemuir, Lanark, Maybole, Paisley, Peebles, Perth, Port-Glasgow, Rutherglen, Stonehaven, Strathaven, Stirling. Engraved and published on 5-ft. scale.—Ayr, Cupar, Dalkeith, Dumfries, Dunfermline, Edinburgh, Haddington, Kirkcaldy, Kirkcudbright, Linlithgow, Musselburgh, St. Andrew's, Stranraer, Wigtown. Surveyed and drawn on 1-500 scale, but not yet published.—Alexandria and Bonhill, Alloa, Campbeltown, Dumbarton, Forfar, Kirkintilloch, Montrose, Rothesay.

FROM IRELAND.

Dublin.—The Dublin Exhibition Palace and Winter Garden Company (Limited), Earlsfort-terrace, has issued its prospectus. It is the intention of the directors that the palace and gardens shall present a constant source of attraction and recreation. They will embrace an extensive promenade under glass, adorned with flowers and shrubs; a bazaar for sale of goods of all descriptions; large and varied gardens and pleasure-grounds out of doors, which it is the intention of the directors to make as attractive as possible; an archery and croquet ground; extensive dining and refreshment rooms; picture galleries; reading and writing rooms; and attractions of various kinds, such as panoramas and other entertainments similar to those produced at the Polytechnic Institution of London. Musical performances will constitute a prominent feature in the daily routine of attractions. The directors desire to form a band of their own, after the model of that at the Crystal Palace, Sydenham. The price of annual tickets will be a guinea; children half a guinea.——A contract has just been entered into for the erection of a central police court for Dublin, on a site immediately at the rear of the law courts. Mr. Meade has been declared the contractor, at 8,500*l.*

Bantry.—A new Wesleyan chapel has been opened here. The edifice consists of a porch, nave, and chancel, of the Early English style of architecture, with open roof, lighted on the north and south sides by light pointed windows, and having a tracery window in the western gable. The building is erected with hammered brown stone, having Bath stone dressings, mullions, and buttresses. The architect was Mr. Lee, of Skibbereen; and the builder, Mr. J. Murphy, of Bantry.

Rathkeale, Co. Limerick.—Tenders have been invited for a new Roman Catholic church here, according to plans and specifications by Mr. J. J. M'Carthy, architect; and for a new national bank-house, at the same place:—plan and specification by Mr. W. F. Caldbeck, architect.

Blacksod Bay, Co. Mayo.—A coast-guard station is about to be erected here, to accommodate one chief officer, one chief boatman, and four boatmen:—plans, &c., by the architect to the Commissioners of Public Works.

CHURCH-BUILDING NEWS.

Aldford.—The new church of St. John, Aldford, has been consecrated by the Bishop of Chester. The edifice, which is in the early Gothic style, is built on the site of the old church. The plan consists of nave, north and south aisles, chancel, baptistery under tower at the west end, Lord Westminster's chapel on the north, and vestry on the south side of the chancel. The organ is placed at the west end of the church. The nave, aisles, chancel, baptistery, &c., are laid with Maw's encaustic tiles; the chancel has marble introduced in the pavement. The seats, interior fittings, and roofs are of oak. The pulpit and font are of Derbyshire marble, with shafts and inlaid work of various marbles. The church has been erected at the sole expense of the Marquess of Westminster, and provides accommodation for 450 persons, including children. Mr. John Douglas, of Chester, was the architect; Mr. J. Roberts, of Chester, the general contractor.

Chester.—The foundation-stone of All Saints' Church, Hoole, has been laid. The amount received and promised having reached 2,500*l.*, the committee advertised for plans, and ultimately accepted that of Mr. Daukes, of London, who estimated the cost of the erection at 4,600*l.*, including the spire. Tenders were afterwards sent in, and that of Mr. Hughes, Aldford, was determined upon, his contract being 3,235*l.*, without the spire. The edifice will stand in a field nearly opposite Newton-lane, on the Hoole-road. It will be built of the red sandstone of the district, and will consist of a nave, chancel, and north aisle, with organ-chamber at the east end, the nave being separated from the aisle by a row of pointed arches, the foundations for a tower, with spire, being put in at the south-west angle of the building. The chief entrance will be from the Hoole-road, through a north porch. The style is Transitional. The church, as at present arranged, will accommodate when finished, 600 persons; but the plan admits of a south aisle being added when found to be necessary.

Corsham, Wilts.—The new district church of St. Philip, at Corsham-side, has been formally opened for Divine Service. It is built in the Early Decorated style, and consists of a single aisle, chancel, and vestry. The chancel is elevated two steps above the aisle, and contains seats for the residents of the neighbourhood. The remaining sittings are free, and will accommodate about 300 persons. Mr. Hakewill, of London, is the architect, and Mr. James Bromley, of Corsham, the builder.

Llanmadock, Gower.—The new church of Llanmadock has been opened. It has been built on the site of the old one, which had fallen into a very dilapidated condition. The restoration has been effected at a cost of about 500*l.* The design, which is Gothic, was furnished by Mr. Pritchard, of Llandaff. The roof is of red pine, and the pulpit of pitch pine, inlaid with walnut. The woodwork was executed by Messrs. Henry and George Rosser, of Reynoldstone; and the freestone work by Mr. Rees Roderick, of Port Talbot. The floor is of red and black flooring tiles, laid down diamond shape.

Blackpool.—Christ Church, Blackpool, has been opened for divine service. The foundation-stone of the church was laid by Mr. W. W. Scholefield, J.P., on the 22nd of July last. The cost of the edifice was 3,450*l.* The architect was Mr. J. Medland Taylor, of Manchester; and the builders were Messrs. Knowles & Braithwaite. It contains sittings for about 1,050 persons, and the design is an early and simple type of Decorated Gothic.

Selby.—The foundation-stone of a new church has been laid here. The architects are Messrs. Newstead & Low; and the contractors Messrs. Knowles & Braithwaite.

Ockendon.—The church of South Ockendon has been re-opened. The present church has been enlarged from the original by the addition of a south aisle and vestry, placed on the south side of the chancel. A considerable portion of the exterior walls of the church, and the whole of the chancel, on account of the foundations being bad, had to be taken down; but the new walls are built in the same position and the windows restored, as in the old. The tower showed signs of having been formerly much higher, and therefore has been raised 18 ft., covered with lead, and finished by means of an embattled parapet. A turret stair, leading to the bell-ringers' gallery, has been added in the south side of the tower; another turret, on the south-east side of the nave, formerly used as means of access to the wood loft and roofs, has also been repaired and raised. The new exterior walls are of brick, faced with broken flints, set in mortar. The window-jambs, copings, &c., are of Box stone. In the interior Corsham stone has been used. The roofs are all open timber, restored as nearly as possible according to the old; that of the north aisle is covered with lead; and that of the chapel, having been restored in 1863, was not disturbed. The church is seated to hold 400 persons, with open seats. The whole of the work, except the masons', has been carried out by Mr. Hammond, of Great Warley, under the direction of a clerk of works, from designs, &c., by Mr. Richard Armstrong, of Paddington. The cost of the church, exclusive of the chancel, has been 2,173*l.* 6*s.* 3*d.*

Stanton-by-Bridge.—The ancient parish church at Stanton-by-Bridge, having undergone a restoration, has been re-opened. The church, in its old state, was whitewashed, and had flat ceilings, high pews, &c. New roofs have been put into the nave and chancel; the walls have been scraped, and open sittings replace the old pews. A stone bell-turret takes the place of a wooden erection. Some stained glass has been put into the windows.

Salisbury.—The works connected with the restoration of the church of St. Edmund in this city are making progress, although a considerable deficiency still exists in the sum required to meet the present contract. The foundation stone of the new chancel has been laid. At a meeting of the resoration committee, it was intimated that a sum of 100*l.* had been offered through the rector, on the condition that it was met by some other sums of the same amount; and with a hint that such an offer might be repeated next year. Five members of the committee present at once undertook to make themselves jointly responsible for one such sum of 100*l.*, in addition to their former subscriptions.

Wednesbury.—The parish church of St. John has been re-opened for divine service, after having been closed for a month for the purpose of carrying out a plan of restoration under the superintendence of Messrs. Loxton, Brothers, architects. The church has been painted and coloured throughout, the timbers in the roof varnished, and the seats stained. The reredos, chancel floor, and pavement within the altar rails have been laid with encaustic tiles, from designs by Mr. W. Godwin, of Hereford. The organ has been renovated under the direction of its builder, Mr. J. W. Walker, of London. The cost of the alterations, including a new window, is estimated at 600*l.*

DISSENTING CHURCH-BUILDING NEWS.

Bedford.—Howard Chapel has been re-opened. The high and narrow pews have been replaced by open benches, with ends wrought and moulded, and with backs and seats inclining. The old gallery fronts, which were very deep, and of old oak, have been reduced in height, and the panels fitted with open iron-work, of a design corresponding with other features in the building. The flat portion of the ceiling (which is deeply coved from the side walls), is divided into panels of octagons and squares by moulded timbers, and the intersection of the cove with the side walls is decorated with a coloured ribbon running round the building. The organ, which formerly occupied a position in the front gallery, has been removed to a gallery prepared for it and the choir at the back of the pulpit. The old lead lights have been supplanted by windows composed of moulded zinc and tinted Sienna cathedral glass: each window has a patent louvre ventilator. The aisles and entrance lobby are laid with Peake's tiles in octagons and squares. The chapel is heated with Perkins's patent high-pressure hot-water apparatus, and lighted with six star pendants from the ceiling, and brackets beneath the galleries. The alterations have been carried out by Messrs. Winn & Foster, builders, from designs and under the superintendence of Mr. Usher, architect.

Leamington.—The old theatre in Clemens-street has been opened as a place for the celebration of Divine worship. Some few months ago it was purchased by the Rev. John Sibree, of Coventry, for the sum of 500*l.*, and about 300*l.* have since been expended in cleaning, painting, and altering portions of the building, so as to make it suitable for the purpose to which it is now devoted. The alterations comprise the erection of a new clock-tower, the removal of the old orchestra and the upper boxes; four new six-light windows have been inserted in the sides of the building, and an organ and reading-desk placed upon the stage. The interior of the building is but slightly altered. The stalls, pit, dress circle, and gallery remain as before, except that they have been renovated. The name of this new place of worship is "The Free Congregational Church."

Stockport.—A new Congregational church has been opened at Stockport. It is a Gothic structure in Wellington-road South. The edifice is capable of holding 700 persons; and it is fitted up with all necessary heating, lighting, and ventilating apparatus. It was designed by Messrs. Speakman & Charlesworth, of Manchester, after the church of St. Paul, Southport; and the contract was undertaken by Messrs. Cochrane & Co., Manchester. The total cost has been a little over 5,000*l.*

Clifton.—There is a report, says the *Bristol Times*, that it is possible two or three Independent congregations, including that for so long a time meeting in Bridge-street, mean to join in building one place of worship at Clifton upon a grand scale, so as to make an edifice that, for size and architecture, might almost be called an Independent Cathedral.

SCHOOL-BUILDING NEWS.

West Bromwich. — The chief stone of new Church of England Schools has been laid at West Bromwich, in connexion with St. Peter's Church, New Town. The schools will be erected at a cost of about 1,500*l.*, from designs by Mr. S. Smith, of Stourbridge, architect, the builder being Mr. G. Haffman, of Tipton. The schools will be two stories high, and will accommodate in all 300 boys and girls, and are about 82 ft. in length by 18 ft. in width. The class-rooms are 18 ft. in length by 13 ft. in width. Towards the total cost about 1,200*l.* have been already subscribed.

Harrogate.—St. Peter's Church of England Schools, Central Harrogate, have been opened. The building stands on the corner site, at the junction of Chapel-street and St. Peter's-place. The accommodation provided consists of a school-room 66 ft. by 29 ft. for boys and girls, and a class-room behind, 16 ft. by 15 ft., and with room for about 200 children in all, of both sexes. Separate porches at either extremity of the building, cloak-rooms, and large exercising yards for each sex, are provided. The school room is 21 ft. high, and has an open timbered roof, stained and varnished. From the centre of the roof an ornamented ventilating turret rises to a height of upwards of 50 ft. Adjoining the school building, and connected with it by a covered arcade, is the mistress's house. The separate buildings form a design in Gothic of the Early Decorated period. The works have been executed chiefly by Harrogate tradesmen, viz. Messrs. Josh. Stephenson, mason; H. Horner, joiner; J. Cass, painter; J. H. Place, plumber; Jas. Heavyside, slater; and R. Fortune & Son, plasterers. The work has been designed and carried out under the direction of Messrs. Lockwood & Mawson, of Bradford and London, the architects.

Prestwich.—The foundation stone of a new school-building, in connexion with the Wesleyan chapel in Rooden-lane, Prestwich, has been laid. The building adjoins, and, in its Gothic style of architecture, is intended to harmonise with, the chapel; and it will accommodate about 2[illegible] children. The basement floor will be arranged as a play-ground, and the upper room will be a spacious one, with an open-timbered roof. The architects are Messrs. Clegg & Knowles, of Manchester, and the contractor, Mr. Mark Foggat. The cost of the building will be 790*l.*

Hunslet (Leeds).—The foundation-stone of new schools in connexion with the Zion Primitive Methodist Chapel, Waterloo-road and Jack-lane, Hunslet, has been laid. The builder is Mr. Thomas Bullough.

Rawtenstall.—A Roman Catholic school has just been erected here, at a cost of about 50[illegible]. The works have been executed by Mr. Finigan, from the designs of Mr. C. A. Malone, of Manchester, architect.

Plaistow.—The chief stone of the new school in connexion with the congregational church, Plaistow, has been laid by the Rev. John Clowen, the late minister of the place. A handsome silver trowel, with a suitable inscription engraved on it, was presented to him on the oc[illegible]

on by the contractors. It being a very wet fternoon, the large and influential assembly re-aired to the chapel, which was festooned with vergreens, and hung round with appropriate iottoes, banners, and flags, reflecting great redit on the taste and artistic ability of the adies who superintended the decorations. Here he Rev. Mr. Curwen, in the course of some re-narks, explained that, by the liberality of riends, they had been enabled to build their resent schools and the handsome church they ow filled, but such had been their progress and uccess that their present schools were far too nall, and hence they proposed to build others, t a cost of 2,500*l.*: of this they had 1,400*l.* in and. The architect is Mr. Edward N. Clifton; he contractors are Messrs. Simms & Marten. he building is to accommodate 500 children.

Books Received.

ur Social Bees. Second Series. By ANDREW WYNTER, M.D. London: Hardwicke. 1866. R. WYNTER'S sketches are both pleasant and nstructive, with the least possible demand upon he thinking faculties. In his light gossiping ay he here treats of a multiplicity of subjects f popular interest, such as "London Omni-nses," the "Water-supply of London," "Buried istory," "How to Buy your own House or and," the "Thames Embankment," "Our once t Friend" (Mr. Banting), "My First Deal in lorseflesh," "Dipsomania, or Thirst," "Mad-ess," "Our Great Iron-Workers," "Machine ool Makers," the "School of Cookery," "Old lo'," "Longevity," "False Hair — Where it omes from," "Precious Stones," and various ther subjects. They make a very agreeable book.

ables for the Purchasing of Estates, Renewing of Leases, &c. &c. By WILLIAM INWOOD, Architect. Eighteenth edition, with Additions by M. Fedor Thoman. London: Lockwood & Co. 1866.

NWOOD'S TABLES are so widely known and used or their intended purpose, that we need simply ention the publication of a new edition. We ust add, however, that it contains a con-iderable amount of new matter, including fresh ables for life annuities, a table for determining he income-tax, and the Government tables for anting annuities and life assurances for small mounts under various conditions.

VARIORUM.

Two pamphlets, very useful not only to lawyers nt to many connected with railways, have been repared by Mr. W. Norris, and published by ing, 34, Parliament-street, Westminster. The ne is titled, "The Railway Bill Remembrancer f Dates and Agenda, being a concise Statement f what is to be done under the Superintendence f the Solicitor, from drawing the *Gazette* Notice o going before the Referees;" and contains full nstructions to Reference Clerks, with Forms of chedules, &c., in accordance with the Standing rders of 1866. The other is titled "Parliament-ry Costs: Analysis and Particulars of a Solicitor's ill of Costs in respect to obtaining a Railway ct."——"A Useful Wages-table for the Master, echanic, Labourer, and Boy," by Warren & odgson (W. Strange, London), shows at a lance workmen's wages, from one penny, rising farthing up to a shilling, per hour, up to sixty ours. Fifty-two skeleton pages are also given or entering the time of a number of men daily. ——The Ninth Edition has been published of V. Templeton's "Operative Mechanic's Work-hop Companion, and the Scientific Gentleman's ractical Assistant" (Lockwood & Co.). It is a ery useful little book.——We welcome the re-ublication of the elder Disraeli's "Curiosities f Literature," in sixpenny parts, by Routledge Sons.——At the same moment comes from rederick Warne & Co. a well-printed edition f Mr. B. Disraeli's capital novel, "The Young uke," for a shilling! The writer of the new reface should have eschewed politics.——'The Right to Fly.' By Nadar. With preface y George Sand. London: Cassell, Petter, & o. Though a foolish piece of rant, the object f this *brochure* is to advocate the right thing n air-travelling as long ago urged in these olumns,—namely, that it must be effected by ower and not by levity.——In *London Society* Ir. Mark Lemon continues his "Up and Down he London Streets," treating, in the current umber, of Fleet-street.

Miscellanea.

CHURCH EXTENSION, PENGE.—In the hope of increasing the receipts, we mention that an amateur concert will be given in the New School-rooms at Penge, near Sydenham, under the direction of the Rev. O. J. Vignoles, in aid of the Church Extension, on the evening of Tuesday, the 5th of June. Dwellers in the neighbourhood should aid.

ARCHITECTURAL PUBLICATION SOCIETY.—The annual general meeting of the subscribers was held at the House in Conduit-street on the afternoon of Monday last, when the report of the committee and the accounts of receipt and expenditure were received, and the committee and officers were elected for the ensuing year. We shall give a report of the proceedings in our next.

GREAT FIRE AT OTTERY.—Upwards of a hundred and fifty houses have been burnt down at Ottery, a village about twelve miles from Exeter. The houses were mostly thatched, and the fire originated with four children who were locked up for misbehaviour in the public school, where a fire was left at their disposal, and was made use of by them in lighting pieces of paper and sending them up the chimney.

IMPORTS OF COPPER.—The quantity of copper ore imported into the United Kingdom in 1865 was 82,562 tons, as compared with 67,286 tons in 1864, and 80,693 tons in 1863. The imports of copper regulus in 1865 were 39,686 tons, against 26,018 tons in 1864, and 21,406 tons in 1863. The imports of unwrought and partly-wrought copper last year amounted to 434,340 cwt., as compared with 498,780 cwt. in 1864, 243,240 cwt. in 1863, and 97,621 cwt. in 1850.

THE LATE MR. W. H. LEEDS.—The decease of Mr. W. H. Leeds has been announced. Mr. Leeds was the author of "Translation of Memorials of German Gothic Architecture, by G. Moller," "Supplemental Volume to Illustrations of the Public Buildings of London by J. Britton and A. Pugin," "The Traveller's Club House by C. Barry," many of the papers on architecture in the "Penny Cyclopædia," and contributions to numerous architectural publications.

OPENING OF THE GATESHEAD INDUSTRIAL AND AMATEUR EXHIBITION.—A committee having secured the upper part of the Mechanics' Institute, and erected a wooden building at the south end of the Institute, in a plot of ground in front of the houses in West-street, an exhibition has been got up in it, and opened with some ceremonial. The building is 120 ft. long by 28 ft. broad, and fixed together by cross beams inside, with gas on the top extending from one end to the other. A staircase has been erected from the east front of the Institute, and covered in, that leads from the temporary building to the large room of the Mechanics' Institute. This room is set apart for paintings, sculpture, and other miscellaneous articles of value which have been sent by the artists and manufacturers. The Exhibition is divided into classes, comprising machinery, manufactures, &c., naval architecture and civil engineering, sculpture, philosophical and other instruments, &c., articles relating to household utility and ornament, and miscellaneous articles.

THE CASH PAYMENT ASSOCIATION (LIMITED). A new institution, in social or domestic economy, has been started for the purpose of enabling the members or subscribers to purchase all sorts of requisites,—from hats to boots, and from fishing-tackle to fish,—at lower prices than usual, for ready money. The Earl of Albemarle, Earl Ducie, Lord Suffield, and Lord Overstone, are the patrons of the society: and the managing committee, are Lord Bury, and Messrs. William Howitt, W. M. Wilkinson, Willert Beale, and George Wood. Many householders pay ready money, without thereby obtaining more favourable terms than are granted to those who take credit; and it is evident that if such customers could combine, a system so inequitable could not be maintained. The Cash Payment Association affords to its subscribers the requisite opportunity of combination. Any person may secure the advantages of the Association by the annual subscription of 10*s.* Ticket-holders are not shareholders, and do not incur any liability whatever. Mr. John Robertson is the secretary, and the offices are at 11, Waterloo-place, Pall-mall. Lists of shopkeepers, willing to deal with members of the Association, have already been printed.

ORMSKIRK MECHANICS' INSTITUTE.—The first premium for the above has been awarded to Mr. Robert Down, Pimlico; and the second to Messrs. Chadwick, Bros., Westminster.

OXFORD ARCHITECTURAL AND HISTORICAL SOCIETY.—The first meeting this term was held in the Taylor Building, on Wednesday evening, the 23rd ult., when Mr. J. H. Parker read a paper on "The Primitive Fortifications of Rome."

ARCHITECTURAL EXHIBITION SOCIETY.—On Tuesday evening a paper was read at the Gallery, Conduit-street, by Mr. Thomas Wells, upon "The Influence of Eastern on Western Art, and more especially on that influence as exerted through the medium of Constantinople." This makes the third of the annual course of lectures already delivered in connexion with this society.

THE MORTALITY.—According to the Registrar General's report, the annual rate of mortality last week was 26 per 1,000 in London, 27 in Edinburgh, and 25 in Dublin; 27 in Bristol, 19 in Birmingham, 40 in Liverpool, 23 in Manchester, 39 in Salford, 37 in Sheffield, 35 in Leeds, 37 in Hull, 27 in Newcastle-upon-Tyne, and 29 in Glasgow. The rate in Vienna was 37 per 1,000 during the week ending the 19th ult.

NOTTINGHAM OLD TOWN WALL.—In the course of the excavations now going on in Market-street, a section of the Nottingham old town wall, to the extent of 5 ft. in height, was exhumed. The old town ditch or moat, which ran round the outside, has been exposed to view. The wall is about 5 ft. 6 in. thick, built of the common Nottingham sand rock; and the blocks are rudely bedded in sand and clay. The entire moat is ten yards wide, but the depth has not been ascertained, as the excavation for the new sewers only reaches 13 ft.

BRITISH ASSOCIATION OF GAS MANAGERS.—The third annual general meeting of members of this association was held at St. Martin's Hall, Long-acre, London, on Wednesday and Thursday in last week, Mr. Hawksley, president of the association, in the chair, when several useful papers were read, on such subjects as Purifying Coal Gas, and Lighting Railway Carriages with Gas, Olive Oil, and Petroleum. A lecture was delivered by Dr. Letheby, on "The Combustion of Gas for Economic Purposes, and as a Motive Agent."

SUBSCRIPTION TESTIMONIAL TO GEORGE CRUIKSHANK.—No one better deserves a good round subscription testimonial than the veteran and philanthropic artist, George Cruikshank. Before the century was in its teens, as Thackeray remarked, George Cruikshank was amusing the public. His more recent campaign against intemperance merits of itself a grateful testimonial from the public. Mr. Cruikshank is now in his 73rd year, and there is no time to lose in presenting him with some memento of the universal respect for his personal character, and admiration for his genius. It is, therefore, proposed to subscribe a fund, to be given to him in kind, leaving it to himself to make such use of it as he may see fit. A committee has been appointed, and the subscription list has been opened. Donations of whatever amount are welcomed. The hon. sec. is Mr. Charles A. Howell, of 3, York Villas, Brixton. Mr. Ruskin is the president, and Sir W. C. Trevelyan, the vice-president, of the committee.

"SALE BY AUCTION BILL."—Lord St. Leonards's "Sale of Land by Auction Bill," which has passed the House of Lords, is likely to encounter some opposition, on the part of the auctioneers, in the Commons, to whom they have presented a petition, praying that it may not be allowed to pass into a law. They state that "the principle of the Bill is altogether unsound, and if passed would seriously prejudice the interest of vendors." And, further, they allege that "no real necessity exists for legislation on the subject matter of the Bill." They state also, with regard to the general assumption that protection is required for the interests of intending purchasers, that the present law is sufficient for the purpose; and that so far from any protection being required, "it is notorious that artifices of all sorts are resorted to by intending purchasers to depreciate the value of property offered for sale by auction, the object being either to deter other persons present from bidding, or to prevent a sale altogether, and so force the vendor into a sale by private treaty, at less than the fair value of the property."

INSTITUTION OF CIVIL ENGINEERS.—On Tuesday evening the annual *conversazione*, under the auspices of the president of this institution, took place in Great George-street, Westminster, with that success which has always distinguished these most agreeable reunions. The numerous visitors who were present included many of the most eminent representatives of the liberal professions. The rooms were tastefully decorated with flowers and plants, and the walls were hung with works of art.

CARBONIC ACID GAS IN BEDROOMS. — Sir Walter Trevelyan suggests, or rather revives the suggestion, that carbonic acid gas may be useful in promoting sleep in bedrooms, since it is a kind of anæsthetic,—a fallacious and perilous doctrine. Could *pure* carbonic acid gas be limited to a certain *small* quantity, and so breathed by sleepers, perhaps it might promote sleep and no harm ensue; but, as we have before pointed out in exposing this fallacy, the vapours from living lungs are *not* all mere and pure carbonic acid or oxide: they contain much effete and noxious organic matter, which it cannot but be most injurious to the health for human beings repeatedly to breathe, even when that noxious matter has before emanated from their own lungs, and far more especially when it has been vomited forth from other lungs. Such matter is clearly *not* intended to be rebreathed any more than sweat or other waste and noxious excreted matters are intended to be re-absorbed. One object, however, which Sir Walter Trevelyan has in view is to show that the influence of plants in bedrooms by night, when they yield carbonic acid gas, may be harmless, or even beneficial, by the promotion of sleep. Our objections of course apply to the emanations from human or animal lungs much more than to those from plants.

TESTIMONIAL TO GEORGE GLENNY, THE GARDENER.—Mr. Glenny has been a most useful man in his generation. He has done much to promote a love of flowers amongst the working classes, and a knowledge of gardening amongst gardeners themselves, as well as amongst the people at large. He is said to be

"The author of seventeen popular standard works on gardening; was the originator of garden newspapers; editor for some years of the *Court Gazette*, the *Royal Ladies' Magazine*, the *British Luminary*, the *Horticultural Journal*, *Glenny's Garden Almanac* (29 years), and has now been fifteen years editor of the horticultural column in *Lloyd's*, which circulates half-a-million copies every week. He was the founder of the Metropolitan Society, the City of London Pension Society, the Gardeners' Benevolent Society, and the Methodists' Club; the Duke of York's monument, the monument to Mr. Charles Dibden; and was the cause of the first inquiry into, and the subsequent improvements in, Kew Gardens,—a series of services commencing more than half a century ago, and still continued."

Mr. Glenny is now seventy-three years old. At a meeting of florists and amateur gardeners recently held in the rooms of the Central Horticultural Society, Strand, it was resolved to get up a testimonial to him for his long and valuable services in the promotion of floriculture, and a committee for the purpose has been appointed. Mr. Samuel Broome, the well-known gardener of the Temple Gardens, will receive subscriptions. Her Majesty has contributed 50*l.*

AMUSING!—A correspondent, Haydn Wilson, writes to us as follows:—"Had the following idea suggested itself to the individuals who superintended the erection of our city Exchange, they might have added to it the ornament, that if not entirely original, must have been a novelty, the particulars of which I shall briefly describe. Instead of chimes in the tower, that have ceased to be noticed by the public, suppose they had carried the space they occupy to the bottom of the room below, and filled the whole with an instrument of the organ class, to be played by two barrels at one time, each sustaining a distinct vocal or instrumental portion of the score to a selection of the best choruses from the oratorios, and also the national anthem 'God save the Queen,' 'Rule Britannia,' and 'Britons, strike Home,' the pieces to be played at set times during the week, the barrels being set in motion by the clock, with extra weights to turn them; a man to be engaged to superintend the winding-up the weights and blowing of the bellows at the time of playing. The outside to be ornamented with a band of musicians, cut out in stone, with openings between them and on each side of the upper wall, to allow the sound to escape. The choruses to be in one key, accompanied with two large kettle-drums, played by the barrel. The effect of such a novelty could not fail to attract strangers in particular, and must have ranked among the curiosities of London."

TORQUAY SCHOOL OF ART.—A gold watch has been presented to Mr. Henry H. Bridgman, in recognition of his services in promoting the establishment of a school of art in Torquay. Mr. Bridgman acted as the honorary secretary of the preliminary committee who wrought out the idea to a successful issue. Mr. Shepherd, the president, on the presentation of the testimonial by his daughter, Miss Shepherd, said he believed there would not have been any school of art in Torquay but for the exertions of Mr. Bridgman, who on this occasion had just completed his one-and-twentieth year. There are now 120 members connected with the school, with an average attendance of 50. Mr. Bridgman thanked the subscribers to his testimonial in graceful and appropriate language, and alluded in complimentary terms to Mr. Holmes, as the excellent master of the school.

DRINKING FOUNTAINS AND THE CHOLERA.—There is nothing more certain in regard to the Cholera than that it is often associated with the use of bad water for drinking purposes. The importance of drinking-fountains therefore, is obvious, especially at such a time as this, and in localities where there is a want of good water, or a deficient water supply, such as we have shown to prevail in many of the poorer districts of the metropolis. There are many such districts still unprovided with drinking-fountains, and we hope to see the funds of the very useful and active Drinking Fountains Association recruited so as to enable them to provide a good many more of these excellent adjuncts to temperance and health. The office is 1, Shorter's-court, Throgmorton-street, E.C. By the way, how is it that we see so many drinking-fountains without water-supply all winter? Is it imagined by the water companies that people never get thirsty except in summer?

THE WITCOMB RESERVOIRS, GLOUCESTER.—Mr. Bateman, who originally recommended the corporation to construct storage reservoirs at Witcomb, recently inspected the works, in company with the mayor and aldermen, Mr. Small (the surveyor), &c. Mr. Bateman, says the local *Chronicle*, expressed an opinion that the faults in the construction of the works lay in the excavations, and the fact that the embankments were not placed against the surrounding rising ground. To carry out the system of repair recommended by Mr. Richardson, the late surveyor, would be only to make a temporary improvement. Mr. Bateman suggested that a third reservoir should be constructed, against the rising ground on the west side of the works, or that the lower embankment, which has been the main source of cost and anxiety, should be removed towards some rising ground near it. This would involve the addition of only two acres of land, and the cost of the new reservoir would practically be less than that of the works proposed by Mr. Richardson, whose estimate is 13,000*l.*, while that given by Mr. Bateman is about 10,000*l.* Mr. Bateman will shortly present a formal report.

SEWERAGE, ETC., AT NOTTINGHAM.—The annual report of the Highway Committee of the town council has been printed. As to sewerage it says:—"The main outfalls being completed, the internal sewerage is in progress, and as much as your committee can afford to do from year to year is done. Many miles of streets in the older parts of the town are in wretched condition. In some cases there are no sewers, in others two or three lines of old drains exist, of which no one knows the history." New sewerage has been executed during the last year, representing a total length of 970 yards. Improvements have lately been made in the means of access to the public sewers and in the ventilation of the sewers. Experiments are now being made by the surveyor in the large sewers with a view to disinfect the deleterious gases generated therein. During the last year 123 new gullies have been laid down in 70 streets. The total expenditure on public works last year was 6,115*l.* 5*s.* 5*d.*; on private works, 2,132*l.* 0*s.* 4*d.*—making a total of 8,247*l.* 5*s.* 9*d.* The total expenditure in the previous year was 9,846*l.* 3*s.* 5*d.*; last year's expenditure therefore was 1,598*l.* 17*s.* 8*d.* less than that of the previous year. Want of pecuniary means is said to be the cause of this—not want of necessity for amendment. The committee have done "what they can afford to do." Can the town "afford" all that waste of energies and loss of health and life which a "wretched condition" of many miles of street sewerage implies?

THE INDUSTRIAL DWELLINGS COMPANY. — M Alderman Waterlow, on behalf of this compan has taken the Female Orphan Asylum a grounds, which are to be vacated on 27th Jun when the orphan children go to Boddingt Park, near Croydon. The terms of lease a purchase of the asylum are that the compa take a lease of the whole property for ninet nine years; the first year to pay a pepperco rent; the second year, 500*l.*; the third ye 750*l.*; and the fourth and every succeeding ye 1,000*l.*, with the option of purchase within sev years, for the sum of 25,000*l.* The Industri Dwellings Company intend to erect workin class residences on the property.

METROPOLITAN BOARD OF WORKS. — At t weekly meeting of the Board tenders we opened for deepening and reconstructing t Counter's-creek sewer, from Royal-crescen Uxbridge-road, to Bramley-road. They were follows:—J. Wainwright, 22,947*l.*; J. & Williams, 19,000*l.*; J. Niblett, 19,500*l.*; Thackeray, 15,350*l.*; Hill & Keddell, 20,500*l.*; Thirst, 18,700*l.* The whole of these tend were referred to the Main Drainage Committ for consideration. Mr. Newton brought forwa a motion of which he had given notice, on t subject of the supply of gas to the metropol in which at great length he urged the necessi of an early consideration of the question. moved "that the report of the Select Committ of the House of Commons on the Gas Metropo Act, 1860, be referred to a special committee this Board for consideration and report, and th the committee be authorized to confer wi vestries and district boards." The motion w agreed to.

TENDERS

For the erection of Scotland House, Fore-stre Exeter, for Mr. J. Badcock. Mr. W. T. Cross, arc tect:—

W. H. Stafford	£1,940 0 0
E. Stafford	1,796 0 0
Scadding	1,700 0 0
Stanch	1,400 0 0

For alterations, &c., at the Queen's Head public-hou Great Bath-street, Clerkenwell, for Mr. Thos. R. Layb Mr. S. Brookes, architect:—

Cowland	£690 0 0
Gillett & Wisbey	687 0 0
Langmead & Co. (accepted)	565 0 0

For rebuilding the Half-Moon public-house, Hollow road, for Messrs. Whitbread & Co. Messrs. C. W. & S. Lee, architects. Quantities supplied:—

Myers & Sons	£2,452 0 0
Patrick & Son	2,360 0 0
Carter & Son (accepted)	2,096 0 0

For a villa residence and stabling, Blacklands Est Hastings, for Mr. E. S. Bright. Mr. Henry Carpen architect. Quantities supplied:—

Parks	£1,143 0 0
Howell	1,036 0 0
Bourne	998 0 0
Vidler (accepted)	968 0 0

For the erection of a new poorhouse, at Southampt Mr. T. A. Skelton, architect. Quantities supplied by H. Pether:—

Stevens	£22,339 0 0
Sanders	21,900 0 0
Sawyer	21,511 0 0
Sims & Marten	19,777 0 0
Bull & Sons (accepted)	19,534 0 0

For roads and sewers, at Upton, Essex. Mr. J Mason, architect:—

Cooper	£652 5 2
Moxon & Mutton* (accepted)	588 0 0
Rivett	553 0 0
Manning	525 14 0
Porter	327 0 0

* Including stone curb.

For new vagrant wards, for the Guardians of Holborn Union. Mr. Lewis H. Isaacs, architect. Q tities supplied by Messrs. Hovenden & Heath:—

Lovett	£3,363 0 0
Sabey	3,117 0 0
Beaves	3,014 0 0
Gadsby	2,950 0 0
Hart	2,942 0 0
Langmead & Way	2,797 0 0
Simpson & Son (accepted)	2,662 0 0

For the erection of a warehouse, Wilson-street, L bury, for Messrs. Lyons. Mr. H. H. Collins, architec

Hart	£3,770 0 0
Patman & Fotheringham	3,720 0 0
Kenor	3,460 0 0
King & Sons	3,400 0 0
Newman & Mann	3,350 0 0
Hill & Keddell	3,170 0 0

For repairing and re-seating All Saints' Church, H ford. Messrs. Thos. Smith & Son, architects. Quant not given:—

		Deduct Ol Materials
Allen	£1,170 0 0	... ...
Andrews (accepted)	1,007 0 0	... £35 0 0
Field & Son	975 0 0	... 30 0 0
Bint	838 0 0	... —

The Builder.

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he Present Aspect of the Thames Embankment Works.

URIOUS and diversified now is the aspect of the great works connected with the Thames Embankment scheme. The reports of the engineer of the Metropolitan Board of Works, which we often chronicle, though they state the exact measurement and approximate cost of the work ecuted, give no idea of the appearance pre-nted at the various stages of progress. ere we have a length of the granite river ll, with the sewer and subway in the rear it, completed up to the parapet, and the mporary walls of piles and caissons, that pt the water out whilst it was in course of ecution, removed; at another spot we may see part just commenced, with all its ramifications pile-driving, concrete staging, and steam-gine pumping; a little further on a network scaffoldings, surmounted by steam travelling anes and windlass hoists, high up in the air, ing and moving huge granite blocks, pro-ims the approach to completion attained in other length. Here, again, is a piece not ished; there, another being prepared for by the eliminary formation of a wall of piles and issons, with which to shut out the waters. ere, carts are busily uncarting loads of brick-ts and clay, brought from Soho-square; here, e *Hirundo*, Goole, is unloading granite. ere is a *posse* of men making concrete, and sting it down from a great height, to conso-late it; there, is a diver about to descend into e waters, to execute some subaqueous task; re and there are steam pile-driving and steam le-cutting engines, steam pumping-engines, eam cranes, and steam hoists; and moored gainst the works is a floating raft, with a crane on it. Depôts of bricks; stabling for horses; nithies; sheds for oiling mud-boots; piles of ry large iron wedges; piles of iron caissons, me broken, some whole; centres for the tunnel wer; acres of timber network, in balk, for aying, propping, and strutting, are further ominent objects in the scene. Curious bits of d London are laid bare, here and there, by the d wharf side, and familiar features in other places e being buried up. The dimpled tideway, now sing, now ebbing, runs rapidly by all, whilst the umerous floating piers and scores of small aft seem to sob audibly and visibly as the pples are swollen by the frequent passing to nd fro of steamboats. The ever-moving, ever-hanging scene is made still more quick by the reparations to form the proposed railway eneath the roadway of the embankment; and, gain, by the bridges and scaffolding enclosing hers, spanning the river at right angles with , all peopled. Now darts a train across the iver from the Charing Cross station; now the ye considers itself reposing when distracted nly by the swift procession of vehicles on the ld bridges. Here we see the shabby front levations of dingy warehouses and wharfingers' ffices; here the ugly back views of more pre-entious places, such as the huge Charing Cross erminus; and here the river fronts of handsome difices, such as the Duke of Buccleuch's man-ion at Whitehall: and, lower down, of Somerset House and the Temple. Here chaos seems to reign with utter confusion for a court: there order has prevailed, and, out of the materials and men accumulated by chaos, has succeeded in advancing the great scheme. We are now looking only upon the work of the two contracts upon the north shore of the river.

A marked instance of the rapid and unforeseen growth of London is the occasion for an underground railway beneath this newest of the Queen's highways. It is difficult to settle which is more curious, the overlooking of the desirability of this convenience at the first, or the elasticity of men's minds in adapting it after the work was so far advanced without it. Had the project been considered in the first instance, an enormous expense would have been spared. As it is, thousands and thousands of cart-loads of soil thrown into the embankment will have to be dug out again to make this new communication. It is to be hoped, however, that its construction will be taken into account in those lengths of the embankment not yet commenced.

One of the portions of the river wall, now nearly finished, is that which extends from Westminster Bridge to Canon-row. This is in the length undertaken by Mr. Furness. Here the granite facing of the curved and battered river wall supporting the wide roadway, raised on the site of the old mud-banks, is completed up to the point required for the placing of the parapet. The temporary wall of wooden piles and iron caissons used to keep the water out while the work was in progress, is removed, and the river comes freely up to lap and lash itself against its new granite boundary. Two experimental lengths of parapet are placed in position to judge of the effect, of which one has much bolder mouldings than the other, and is therefore much to be preferred. Unless the original intention is altered, there will be, along the parapet, equi-distant pedestals with lions' heads in the front panel carrying iron rings in their mouths, for the convenience of mooring barges and boats of all sorts. These rings are to be firmly fixed to iron tie-rods, which run beneath the roadway for many feet, and are then securely fastened to the back of the river wall with nuts. The new granite river wall, up to the parapet, presents a slightly curved batter of 25 ft. 6 in. in height. At its base it is, with its background of brickwork, 7 ft. 6 in. thick; at its shallowest portion it tapers to a thickness of 4 ft. 10½ in. Above this the parapet will carry up the height another 4 ft. or 5 ft. In the huge mass of concrete and soil filled in between this water-wall and the old river front are bedded, first, the cylindrical sewer, 8 ft. 3 in. in diameter; and, secondly, with a thick layer of concrete between them, the arched subway, 9 ft. wide and 7 ft. 6 in. high, that is to afford convenient access to the subterranean works. We have before now, however, described all this and given sections.

At this portion of the embankment there is a flight of wide granite steps descending to the steam-boat pier from Westminster Bridge. Hereabouts we note new points of view, from which the Houses of Parliament and river frontage have not hitherto been criticised. The huge towers of the great Westminster Palace group up, one behind the other, from this recently inaccessible site very effectively. In proceeding along the river front eastwards we shall realize presently that the base of another public building, Somerset House, will be to some extent buried by the new works. It will be remembered that this structure is raised upon a basement of arches. These will be partially hidden from the river by the new wall and parapet; but it is urged that the mass of granite forming this wall will prove an ample compensation to the eye for the loss. Making our way along the still unformed roadway, starting from Westminster Bridge, we first, however, come upon the huge granite sheds and workshops, a monster depôt, that extends from Canon-row, all along the front of Buccleugh House to the end of Whitehall-gardens. These form one of the most considerable items necessary for the furtherance of the great scheme. There is one in each length of contract. They are provided with every requisite appliance. Here the embankment is traversed by a stupendous transverse scaffolding, stretching, at a great elevation, from Canon-row over the whole width of the works into the river. Upon this is a steam travelling crane, by James Taylor & Co., Birkenhead, that is used in the disposition of the granite brought by the numerous vessels, which, one after another, are moored beneath the scaffolding by the bankside. As the blocks are lifted out of the vessel that has conveyed them to this spot, they are placed on railway wagons, which carry them into the background occupied by the sheds mentioned; there they are lifted off the wagons to be dressed. When this process has been effected, they are lifted by cranes on to the wagons again, and conveyed to the front, when the travelling crane plucks them off the trucks and places them into their destined positions. The granite comes from various places, Ireland, Scotland, Penryn, and Dartmoor. We observe that a red granite is used below low-water mark. Scores and scores of masons are at work in these sheds, making the air ring again with the merry chink of their tools upon the granite.

Opposite Buccleuch House there is a diver descending a ladder, supported on scaffolding, into the water. He is bent upon giving assistance in the task of removing piles no longer required. There are five men in attendance upon him. First they weight him with metal weights, slung from his shoulders over his diver's dress. His helmet is on, and the round glass in front of the face screwed tightly up. They fasten a rope to him. He steps into the water, which rises to his knees, his middle, his shoulders, and finally closes over his head as he descends from rail to rail. The other two men in attendance on him pump air through a flexible tube, which descends with him into his helmet. A shovel is first lowered to him; than an auger. The water flows on as before. Craft of all sorts pass and repass; still there is no sign of him. The looker-on begins to feel an oppressive shortness of breath and sense of anxiety. His thoughts are unconnected, thinking now of the naked pearl-divers in warm Indian seas, wondering almost simultaneously whether this mysterious stay of the well-clad being below the water was another of the secrets that the river would never tell, recurring to the pearl fisheries, and the shark-charmers that accompany every pearl-fishing expedition. At last, half an hour has elapsed. There is a slight commotion among the attendants, and the diver's helmet appears above water. As he comes within arm's reach, the round glass is unscrewed from the front of it, and a handsome bearded face exposed to view. "If I shan't have a better tool I shan't do nothing," says a voice from within the curious casing, as the water runs off his dress into a pool. This being the means used, we need not be surprised that the rate of progress is not very startling. Mr. Bazalgette reported that the value of the work executed on this contract last month exceeded 12,000*l*. The value of the whole work executed including the timber, iron and coffer caisson-dams, the portions of the Lower-level sewer and subway finished, as well as of the small drains, intercepting sewer, flushing sewer, the vast quantities of materials taken from the river to assist in forming the embankment, and all the brickwork, masonry, and concrete used in the construction of the piers and river wall, is nearly 300,000*l*.

Beyond Canon-row, up to the end of the gardens of Buccleuch House, there is another length measuring 396 ft. finished to the level of

the parapet, which is 2 ft. 9 in. above Trinity high water-mark. The piles and caissons are now in course of removal there.

The frontage of Whitehall and its purlieus is in various stages, subway and sewer being in course of formation in some places, and the cartage of bricks and rubbish on to the embankment still taking place. The preparations for the pier are very extensive, though, at present, conducted at a very low level. They are somewhat confusingly complicated with the preliminary arrangements for the Whitehall and Waterloo railway, and with the junction of a cross sewer.

The next length, stretching from Whitehall to Scotland-yard, is nearly finished, and the caissons are removed; but beyond this, to Hungerford Bridge, the Embankment is in various backward stages. It passes beneath Charing Cross Bridge in this length.

In front of Adelphi-terrace the wide roadway is in course of formation, of very questionable materials, the river mud being, perhaps, the most objectionable of these. There is a contractor's railway laid down upon this newly-made *terra firma* (?), and a busy scene presented to the eye by the motions of two pumping-engines under sheds, three crane-hoists, and four others employed in lowering and raising barrows. The coffer and iron caisson dam is fixed here. The picturesque water-gate at this point, which was one of the pleasant resting-places for the mind as well as the eye, as seen from the river, is, by these works, stranded high and dry, and bleared with a foreground of mud and soil.

On a spot of frontage between the printing-office of *All the Year Round* and the Thames Plate Glass Works a posse of twenty men and boys are congregated on a stage, mixing concrete and casting it down. At this place there seems to be some want of organised management both as regards labour and appliances. The lime depôt is situated on the old wharf, therefore lime has to be laboriously conveyed in sacks by barrow runs along the embankment in short distances by four men, one stationed beyond the other. The water, too, instead of being conveyed to the spot required by piping, is carried in pails with great waste of labour. And when one batch of concrete was mixed and thrown down there seemed to be a long delay before the men knew what they were to do next. At this spot, too, to add to the complications of the scene, an old sewer discharges itself, and the sewerage is pumped up to a creek on a part of the bank not yet touched. Here the offensive matter lies smelling terribly till high water disperses some of it. A man is employed to sprinkle a deodorizing material upon it without much beneficial result. This is, doubtless, one of the disagreeable contingencies it would be difficult to treat quite satisfactorily. It is here that mud-boots are required and provided for. At this part of the contract, which is near its extremity and consequently the commencement of the next one, the river is not quite shut out, but finds its way behind the last twenty caissons on to the creek-bank just mentioned. But men are now busy driving piles in below Waterloo Bridge at the second arch in front of the first pier which will complete the length of line. Already some part of the invert of the sewer is in and a commencement has been made with portions of the brick and granite front.

Passing this awkward junction of the two contracts, and getting east of Waterloo Bridge, we are on Mr. Ritson's length, where progress is, just now, slow, only 5,000*l.* worth of work having been executed last month. There are, however, in its length from Waterloo Bridge to the east end of Temple Gardens several portions nearly finished. The whole of the water is shut out, save in a length of 380 ft., and only 300 ft. besides this length is below Trinity high-water mark. One of the finished lengths terminates at the floating Thames Police station. Then comes a high scaffold with a steam crane upon it, with its granite depôt and shed corresponding to that on the first contract. Some of the granite arrives at the landing-place already worked; but the great bulk of it is lifted by crane out of the different vessels and deposited on railway wagons, on which it is conveyed to the shed, whence, after it is duly wrought into form, it is again lifted on to the wagons and taken to its destination. Most of the blocks of the base course of parapets measure 2 ft. 2 in. by 5 ft. 2 in., and are 2 ft. on the bed. The heading blocks are 5 ft. through, and 2 ft. on the bed. This is another focus of activity. Here, in a shed, is an engine, by Appleby, Brothers, busy cutting piles; and here, too, may be seen the greatest novelty on the works,—another engine cutting timber dam under water.

There is a striking amount of work executed towards the completion of the new pier at the end of Norfolk and Essex streets. This occupies a length of the embankment measuring 470 ft. It has pontoon recesses, sluice valves, reservoirs for slushing the granite aprons, a penstock chamber in connexion with the out-fall sewers from Norfolk-street and Essex-street, and storm overflows at each end of the pier. Instead of jutting out into the water, this pier takes the form of a wide platform, or floating dumby, lying alongside the embankment. The approach to it consists of a handsome flight of granite steps, thereby outshining its rival structure at Liverpool. Smaller flights of granite steps at either extremity will afford access to smaller craft than the ordinary steamboats.

From the site of this pier to the end of the contract, or easternmost extremity of Temple-gardens, the objects that strike the eye as being most foreign to the old state of things is a focus of six tall double monkey-engine ladders, and thirty men, all huddled together, just commencing the last length of the task. These men are laying the piles and dredging within the dams. It is noticeable that there are but very few horses employed at the present day, most of the requisite power being obtained by steam. There are, however, a few at this point. These mighty steeds, a life buoy, more cranes, and an apparently unfathomable amount of mud, are now the distinguishing features of this truly transitional scene. The scaffolding of the Blackfriars bridges adds to the labyrinthical mystery of the entanglement.

The third contract, with its proposed new streets into the City, which will be a more important work than either, is not yet touched. Between two and three years have elasped since those we have looked at were commenced. Doubtless, some delay must be attributed to the complication of the scheme with the proposed railways and other improvements; but it will perhaps be urged that if the public had conceded a larger expenditure a swifter rate of progress might have been made. Let in shorter lengths to double the number of contractors, there would have been double the amount of tackle and appliances on the length, and the ground would have been got over in half the time. The drawback to this rate of speed would have been its increased cost. By the present arrangement the same machinery, tackle, and scaffolding are shifted from spot to spot as required, doing duty over and over again, a mode of proceeding which leaves long intervals untouched or at a standstill. Thus the expenditure of time is a matter of diminution of price. Is this a real bargain for the public?

THE DESTRUCTION OF THE THAMES AND THE POISONING OF LONDON.

THE evidence adduced before the Commission for Preventing the Pollution of Rivers as to the neglected and forlorn state of the river Thames, is such as to show the absolute necessity of legislative interference for the preservation, or, rather, the restoration of the stream. Banks broken and untended, causing frequent and costly floods, navigation closed, millers raising their head water so as to waterlog the riparian property, towing-paths swept away and unrestored, water abstracted without compensation, rain-fall passed through sewers before reaching the river, fish poisoned, and mills rendered unavailable from deterioration of the purity of the water, or from irregularity and want of management as to its distribution,—such is the unexaggerated picture painted by the witnesses, without any attempt at contradiction. It is well known that in mountainous countries no feature of the ground is so permanent as the course of a stream. Roads may be deserted and obliterated, fortresses may be dismantled and overgrown, smaller buildings altogether disappear, forests be converted into fuel; but unless the face of the country be positively changed by earthquake, the first autumn storm will form a torrent in the same course that has been maintained since the last great geological convulsion. In great river valleys and alluvial plains, however, the permanence of the line of water-course, so far from being self-maintained, requires the constant care of man. Every winter flood tends to alter the course of the river. Shoals catch floating *débris*, precipitate mud and silt, give root to flags, osiers, and aquatic plants, and gradually form into islands. The river deflected from its course by a new obstacle, burrows into the opposite bank, undermines and carries off the overhanging soil, devours the good land of one proprietor, and leaves barren sand or weedy mud on the contrary side of the channel. The action of the rain-swollen stream is as capricious in a vertical as in a horizontal direction. The rush of water over weirs or through gates, digs deep holes immediately below the obstacle, tears up the bed of the river, and, if left to itself, undermines and destroys the masonry or woodwork of the locks and weirs. The soil thus ploughed up by the force of the water is held in suspension only so long as the rapidity of the current is unchecked. As the river widens in its course, or enters on a level reach, the clay or sand which the water holds in mechanical suspension is dropped from the more gently flowing stream, and thus a series of hills and hollows is formed in the bed of the river, as a series of islands, of undermined banks, and of stony or muddy foreshore, abandoned by the stream, is constantly tending to augment. Nor is this the only destructive action exercised by an untended river. Over the whole of its course, when its waters are rendered turbid by winter floods, gradual but constant deposition is taking place. The entire level width of great river valleys, such as in the case of the Garonne at Bordeaux, and of the Severn from Worcester to Gloucester, show the surface of the alluvial deposit brought down by the inundations of the river, in which it has again cut for itself a channel for the ordinary flow, while it swells over the broad meadows in time of flood. This deposit on the bed of the river so far diminishes the water-way as to require constant attention and additions to the banks. In our Eastern Counties, as in the Netherlands, which they so much resemble, the bed of the river is not unfrequently higher than the level of the adjacent ground. The same care of the banks or levees is requisite in the case of the Delaware. The measurement of the geological action of running water by the formation of deltas is well known; and while the effect of the Thames or the Severn is not to be compared in degree with that of the Nile, the Danube, or the Ganges, it is the same in kind, and in tendency, and demands, considering the high value of land on the immediate course of the principal English rivers, both constant and enlightened care.

In the times when, before the competition of more rapid mode of economic transit existed, the importance of the Thames as a great highway was more generally admitted than is at present the case; the wisdom of our ancestors committed the conservancy of the upper part of the river, above the jurisdiction of the City of London, to a body of commissioners, who now amount to between 600 and 700, entitled to act if they take the necessary oath. The *ex-officio* commissioners comprise the representatives in Parliament of the counties of Wilts, Gloucester, Berks, and Bucks, and of all cities and boroughs within those counties; those of Middlesex and Surrey; of London, Westminster, and Southwark; of the University of Oxford; the Lord Mayor and Aldermen of London; the Vice-Chancellor and heads of Colleges of Oxford; the Dean and Canons of Christ Church; the Dean and Canons of Windsor; the Provost and Fellows of Eton College; the rectors and incumbents of all parishes touched by the Thames and Isis from Cricklade to Staines; the mayors and recorders of Oxford, Abingdon, Wallingford, Reading, Henley, Maidenhead, and Windsor; the senior bridge-warden of Great Marlow; and the clerk of the works at Windsor Castle. Further, every person having land in either of the counties of Wilts, Oxford, Gloucester, Berks, and Bucks to the value of 100*l.* per annum, every heir of a landowner in these counties to double that amount; any resident in either of these counties who owns land in Great Britain of the value of 100*l.* per annum, or who is heir of land to twice that value; every such resident who possesses 3,000*l.* personalty, or who is a bondholder on the navigation to the amount of 500*l.*, is entitled to qualify as a commissioner. That so cumbrous and heterogeneous a body should fulfil the executive functions of river wardens could hardly have been seriously anticipated; and when it is added that since the opening of railways the annual income of the commissioners has fallen from 15,000*l.* to 3,000*l.*, that counsel are of opinion that commissioners would be personally liable for expenditure

ordered by meetings of the board at which they happened to be present, that they "are without funds and can do nothing," we cannot be surprised at the further assertions of the witnesses that they are "an unworkable body, unfit to be even a constituency;" that "they are now at a dead lock, in debt, with no power to borrow, and with works everywhere falling into decay."

Under these circumstances it is a natural result that there should be no navigation above Newbridge; none between Oxford and Ensham; that the fisheries are insignificant in value; that the river and its tributaries are choked with weeds and silting up; that the volume of the river is much reduced; and that the foulness of the stream has increased even more than its quantity has diminished.

Oxford, Windsor, Reading, Kingston, Richmond, and other places contribute the steady daily flow of the sewage of a population of 180,000 persons to the contents of the river above the pumping stations of the metropolitan water supply. Mr. Clarke, of Reading, tells us that he has seen as many as fifteen or twenty dead dogs, cats, pigs, and sheep, besides filth from the manufactories, from the hospital, and from the gaol, coming into the water supply for London from the Kennet; that from just above Reading to where this tributary enters the Thames it is in a deplorably filthy state; and that the bottom of this part of the stream is so saturated with gas tar that a fishing-line becomes coated with it, and a cane thrust to the bottom would get an inch or two of gas-tar and mud. The Cherwell and the Isis "are contaminating the Thames to an enormous extent." In fact, but for the peculiar propensity of river water to deposit its mechanical pollutions in its course, and thus to run itself clear, even when lining its bed with a pestiferous mud that is offensive if stirred up by an oar or a boat-hook, the water of the Thames, where pumped up by the water companies for the supply of the metropolis, would be as offensive as that which was daily to be seen between the bridges before the opening of the new outfall of the metropolitan drainage. Nor must it be forgotten that the greater or less degree of mechanical purity throws no light on the chemical state of the water; and that those who are best fitted to judge, are of opinion that water once thus polluted, until it has undergone the natural filtration of passing through the earth, may contain elements liable, under circumstances that we neither can control nor understand, to develope into active poison.

The plain and unvarnished fact that the inhabitants and visitors of the metropolis are thus subjected to the risk, however low we may reckon the probability, yet the scientifically denounced risk, of the outbreak of pestilence, ungovernable in its rage if it once make head, because springing from the pollution of one main element of daily consumption, is enough to awaken the earnest interest of every individual concerned. When we hear of the appearance of cholera at Mecca, at Cairo, or at Marseilles; still more, when we note with vivid alarm the occurrence of a sporadic case at Liverpool or Southampton, we rush with frantic energy into a series of sanitary measures, that many of those who have most studied the features of the dreaded scourge hold to be somewhat inappropriate. But whatever neglect of the laws of health may or may not increase the ravages of cholera, we have a more destructive, though often less considered enemy, daily at our doors; and the effect of drinking water in any way contaminated by sewage matter in increasing the virulence of typhoid fevers, is well known to every physician. Vain are fumigation and lime-washing, boards of health, and visitations of the closer alleys and dens of our great cities, if a poisoned stream is poured into our cups from the palaces of Belgravia to the cottages of Wapping. Vain will be the utmost resources of our ablest physicians if a hot summer, or any of those mysterious atmospheric or electric changes, the operation of which we so little understand, commence the fermentation of the poisonous germs that the Kennet and the Cherwell pour into the head waters of the Thames. The genius of De Foe has brought before every eye a terrible picture of London during the prevalence of a scourge, as to which it was hoped that the Great Fire had for ever removed the danger of its recurrence. We are now, and after the publication of this report, it is with our eyes open, exposing our great city to a danger more terrible than that of either the plague of 1665, or the fire of 1666.

Two questions suggest themselves from this view of the case. The first is this. What is the Legislature doing in the matter? What will be the result of the labours of the Committee of the House of Commons? On whom do ministers throw the responsibility of action in a question of such urgent importance, one as to which they can no longer plead that they are in want of information? This just and most natural question should be echoed and re-echoed by Parliament, by the press, by every engine and organ of public opinion, and should be replied to as by grave and serious men who feel themselves standing in the presence of a great danger. The other question is one to which the reply, to be conclusive, must be less prompt. What is the best mode of dealing with those sources of danger and disease if misused, of fertility and wealth if wisely economised, which now pollute our rivers?

To this second question the report of the River Commissioners furnishes a partial reply. There is no room left to doubt that the pollution of rivers can be prevented at no great cost. Sanitary precautions need not wait for the solution of this difficulty. But we look for not only an adequate safeguard, but the best method of applying the most advantageous form of safeguard. On this subject the evidence laid before the Commissioners might have enabled them, if less pressed for time, to indicate some very important principles. The subject well deserves further and fuller consideration.

THE EVIDENCE OF ARCHITECTS CONCERNING THE OBSTRUCTION OF ANCIENT LIGHTS.*

CONTINUING this subject, we give the pith of the paper read by Professor Donaldson:—

In presuming to suggest, at the meeting at which Mr. Kerr read his very important paper on the "Subject of Ancient Rights of Light and Air," that the discussion on the subject should be deferred to another evening, as it was then too late to enter upon its consideration so fully as it deserved, I had no idea of opening the discussion myself; but as our honorary secretaries requested me to do so, I felt myself compelled to yield to their wish. Not that I think myself at all competent adequately to grapple with so complex a subject, but as there are many recent decisions which have strictly and accurately laid down the law, hitherto supposed to be vague and apparently undefined, and as this interpretation of the rights of owners appears to me, as it does to Professor Kerr, to trench arbitrarily by its empirical dictum,—seeming to to be at variance with natural rights, and to interfere with the improvement and necessary enlargement of property in cities,—I venture to submit to your consideration some very important observations on the matter. It is to be hoped that some legal mind will take up the subject, and produce a reliable work embodying accurately and fully the law as it is, and suggest some remedies for the wrongs it inflicts. It is not unbecoming for architects to endeavour to unravel these mysteries, as it is upon their statements of facts and opinions as to probable results, that action is taken, and as their own designs for buildings in towns must conform to the limited terms of the law. But I must observe, also, that the judges are apt not to place that reliance upon professional evidence to which we may consider it entitled, from the spirit of one-sided advocacy from which it too often proceeds, and the necessarily contradictory statements made; and I think that our friend Professor Kerr must invent some more simple diagrams and illustrations of his theory ere he will induce a judge or jury to make themselves acquainted with his ingenious but elaborate series of lines, the very sight of which is apt to bewilder the previously uninitiated.

The Light and Air question,—one of great importance, as involving serious consequences to owners and occupiers of property,—divides itself into two clear and distinct divisions;—the rights of the owner; the rights of the neighbour. It might be supposed that the natural right of the owner of the soil would be absolute,—"*ab imo usque ad cælum*;" but this enjoyment is limited by the legal restriction, necessarily artificial, as to the extent to which such right shall not diminish the enjoyment to which the neighbour is entitled. But there are intrinsic and extrinsic rights which may apply to a plot. It would appear a natural conclusion, that whatever may be the extent of the enjoyments of an owner in respect of light and air, they should arise from or be provided on his own plot; but there are usually public rights attached thereto, which afford him certain easements, as, for instance, when the plot abuts on a public way, which thus affords him access, light, and air on that side. And there are also rights derived from the neighbouring land, which by law belong to him from prescriptive right; that is, not a mere natural right, but a right from previous enjoyment for a certain period of time. This period has been fixed by law (2 & 3 Wm. 4, c. 71) at twenty years, as follows:—

"Clause 3. And be it further enacted that, when the access and use of light to and for any dwelling-house, workshop, or other building, shall have been actually enjoyed therewith for the full period of twenty years without interruption, the right thereto shall be deemed absolute and indefeasible, any local usage or custom to the contrary notwithstanding, unless it shall appear that the same was enjoyed by some consent or agreement expressly made or given for that purpose by deed or writing."

As quoted by the Lord Chancellor (Yates *v.* Jack, 1866), there was supposed to exist previously a local custom in the city of London, by which the owner of a house in any street was permitted to raise it to whatever height he might think fit.

It seems strange that the law should so disregard the inherent rights of an owner that, if a neighbour should cover his plot with a building, and derive all his easements of air and light from his neighbours' land, the law does not protect the neighbours from such an assumption, nor even by law to compel the abatement, but forces them to protect their rights by the expensive process of erections in front thereof,—erections possibly useless and nuisances to themselves, and occupying space. Why should they not be able to protect their rights by proper notices, or by law be enabled, as, I believe, is the case in France, by a short process, to compel the abatement of the trespass?

And another case may arise of the limitation of enjoyment of one's property. On one side of a street there may be a house, say 20 ft. high, and on the opposite plot no building. The owner of this plot may not erect any building which may obstruct the light of the low building, which may be only 20 ft. high, although, if he were able to carry up on his own ground a building 50 ft. or 60 ft. high, it would be immensely beneficial to him. But this right as to direct light applies even to an obstruction in a lateral direction, as the owner of an erection of twenty years' standing exercises as to light and air a lordship to the properties not only in front but to the right and left of him.

Vice-Chancellor Kindersley. Martin v. *Headon. 4th May*, 1866.

Reported in the *Times*, May 7. *Re* Premises Conduit-place, London-street, Paddington. The question, then, here, was the quantity of light obstructed; and it must be borne in mind that the actual amount of sky area lost was not only to be taken into account, but the space to which the plaintiff's right had already been reduced by the previous buildings. Looking at it in that point of view, although it was true that here the obstruction was oblique, an enormous amount of sky area was obstructed,—more than half. The evidence established a serious and material injury; and it appeared clearly that the plaintiff was obliged to cease from using his cutting-room in consequence, and that a previous occupant had left because the defendant's houses were built.

A defendant had not a right to say that, because a plaintiff could carry on his business elsewhere, he was not entitled to relief. He was entitled to be relieved against whatever interfered with his business of a tradesman, or his convenience and enjoyment if not. There must be a declaration that the plaintiff was entitled to damages, and the usual inquiry on the subject.

But let us suppose, that the neighbour or neighbours, from unwillingness to incur the wasteful expense of screen, or not at the moment aware of the extent to which the erection may have compromised his rights, should have allowed such trespass to the builder for twenty years, then the plenitude of right accrues to the builder, as if it were an injury to him,—who has already for twenty years by sufferance enjoyed all the advantages of the encroachment upon the adjoining rights,—not to have established

* See p. 404, *ante*.

his control over his neighbour's property. But the unrighteousness of the present state of the law becomes one-sided and more oppressive in regard to what may be called the inherent or primitive natural rights of property, when we consider the case of two plots opposite to each other, on either side of a street or public thoroughfare. The one has an erection, say 50 ft. or 60 ft., his opposite neighbour one of 15 ft. or 20 ft. The latter may not raise his building, as it may obscure the light of the lower part of the building 50 ft. or 60 ft. high, because it was not convenient to him to carry up his 15 ft. or 20 ft. building to a greater height previously, and thus he is tied down to his dwarfish proportions in face of his gigantic opponent, and must so remain. Ought not the public way to confer, at all events, equal rights on the owners of buildings on both sides, and at least to allow of an erection to a like height on both sides? Or why should the dwarf on one side be able to stunt the growth of the aspiring erection on the other, and to keep it down to the like diminutive elevation of 15 ft. or 20 ft., and not leave both free? Does not this become a public wrong, as reducing the value of property, the improvement of which is a public benefit?

Let us also imagine another case. A man has his building, A, say 40 ft. or 50 ft. high on a plot of ground, which building immediately abuts on a vacant plot, B, say 20 ft. wide; but on the other side of the vacant plot is another plot, C, on which a man desires to erect a lofty building, say 40 ft. or 50 ft. high, which may intercept the light and air of the original building; why should he be restrained from exercising his morally just control over his own plot, when a stranger intervenes between the two?

Substantial damage must be done. The term "considerably obstructed" does not enable the judge to form an opinion. The mere having to alter the position of a table to work at in order to see better, is not sufficient evidence.

* * * *

The stringency of the law applies in the case, where a man has one window just sufficient for his purpose: an opposite neighbour desires to build up in front at a reasonable distance. The room with the one window might have all the light already possessed, and even more, if another might be introduced or the window enlarged; but this is not allowed, if the owner object, although his opposite neighbour might be willing to be at the expense. We will now consider the French law upon the subject, and it is extremely simple, as explained in the following work in the library of the Institute,—*Manuel des Lois du Bâtiment et Recueil de la Société Centrale des Architectes.* 8vo. Paris, 1863.

By the French law no owner can make an opening in his external wall, so as to overlook the property of an adjoining owner but under certain restrictions. It must have an iron grating, the bars of which must not be wider apart than 4 in., or be inclosed by ground glass, fixed in with plaster so as not to open; and the openings, which may be of any size, may not have the sill lower than 6 ft. above the floor. These precautions show that such windows are a concession to give light to a room or closet, but so that the adjoining owner's property may not be overlooked. The builder must give notice to the adjoining owner of such intended openings, and indemnify him for any damage caused by such openings; and the adjoining owner may close them upon buying the half of the wall.

These regulations attach to any wall within the distance of 6 ft. from the land of an adjoining owner, and never acquire any prescriptive right. And the adjoining owner, if it be in the country, may at any time carry up another wall immediately adjoining the previous wall. One may not have a window overlooking the neighbours' grounds, or a balcony or other projection, except there be a distance of 6 ft. between front of the balcony or the projection, or between the wall in which the windows are and the land of the adjoining owner. Nor may there be an oblique view nearer than 2 ft. from the end. But supposing an owner has acquired the right of a direct view from a window in a wall, which separates two properties, still the adjoining opposite owner may erect a wall or building in front, provided it be at a distance of 6 ft. from the face of the said wall, such distance of 6 ft. being upon his own ground; and any return wall may be built, provided it be at the distance of 2 ft. from the opening. No prescriptive title precludes the right of the adjoining owner. Thus it appears that the French law jealously protects the rights of the owner of the soil, and allows him to carry up an erection, however it may affect adjoining owners, provided it be done at a distance of 6 ft. within his own boundary.

The reader then referred to various recent decisions, some of which have been already stated in our columns, and are given more at length in the *Weekly Reporter* and other legal journals.

THE AGE AND AUTHENTICITY OF THE NATIONAL PORTRAITS TESTED BY COSTUME AND HERALDRY.*

Concluding Notice.

REIGNS OF JAMES I. AND CHARLES I.—THE COMMONWEALTH.—REIGNS OF CHARLES II. AND JAMES II.

THIS period, although embracing, I may say, the whole of the seventeenth century, for it commences in 1603 and reaches to 1688, will be very briefly noticed by me, as the nearer we approach our own times the better are our means of information; and though we may still meet with many mis-nomers and portraits of doubtful identity, there are very few instances in which a glaring discrepancy in the costume or the appearance of a contradictory coat of arms will justify any observations of mine. I do not pretend to point out apocryphal Nell Gwynnes or mis-named Marys of Modena, where the dress—little as there may be of it—is in accordance with the fashion of the time; and it is merely a matter of opinion to suggest that No. 422, Lady Arabella Stuart, as a child under two years old, painted in 1577, would have been more correctly placed in the reign of Elizabeth.

No. 423, however, presents a curious point for investigation. The subject is Henry Prince of Wales, eldest son of James I., as a boy, stag-hunting, with a companion about his own age, a servant, a horse, and a dog. Over the prince is suspended a shield of the royal arms differenced by a label of three points *argent*, the proper distinction for the Prince of Wales, and I see no reason to doubt the identity of the person depicted; but above the head of his young companion is a shield with the arms of Devereux, *argent* a fess *gules*, in chief 3 *torteaux*; while in a picture precisely similar as regards composition, and differing only in very unimportant details of landscape, now in the possession of the Baroness North, at Wroxton, the arms on the latter shield are those of Harington, of Exton, *argent*, a fret *sable*, impaling Kelway or Kellaway, *argent*, two glazier's nippers in saltire *sable*, between four pears *or*. Harding, who has engraved this latter picture, unhesitatingly asserts that the companion of Prince Henry is John, second Lord Harington, the arms being those of his father and mother, and his age corresponding with the date on the picture near to the figure, "1603. Æt. 11," that over the prince being "1603. Æt. 9." There are no dates discernible on the picture in this exhibition, I believe; but the same would equally well agree with the ages of the Prince and Robert Devereux, third Earl of Essex, born 1592, and restored by King James to the honours of his unfortunate father (one of Elizabeth's victims) in 1603. This would then be the portrait of the youth who was forced or inveigled at the age of fourteen into a marriage with the Lady Frances Howard, second daughter of Thomas, Earl of Suffolk, one year younger than himself. (See Nos. 504 and 505.) It would have been very desirable to have had the picture from Wroxton placed beside this from Hampton Court, in order to compare the faces of these two youths. We might then be able to decide whether one is a copy of the other, the arms being altered; or, which I am inclined to think is the case, they are each original portraits, painted, probably, by order of the prince, representing two of his favourite companions in the same attitude and occupation,—presentation pictures, it may be, to these young noblemen, and, therefore, still more valuable to their descendants. I need scarcely point out that the description in the catalogue, "with an attendant — Lord Harrington" (the name should be spelt with one *r*), is an error occasioned by confounding the two pictures and overlooking the arms.

No. 430, William Herbert, third Earl of Pembroke, the poet nephew of Sir Philip Sidney, born in 1580-81, and who died suddenly in the reign of Charles I., 10th April, 1630, in the fiftieth year of his age, is here represented just as old, if not older, in a dress of the reign of Queen Elizabeth, in fashion about the time he was born. He is described as "leaning on treasurer's staff;" but a white staff does not necessarily indicate that he was Lord Treasurer any more than it would prove that he was Lord Chamberlain or Lord Steward. In this instance, if William Herbert, it is the staff of the Lord Chamberlain, which office he held under King James; but I think there is some mistake in the name of this portrait.

No. 499, James Hay, Earl of Carlisle, K.G., said to have died in 1636 (see No. 538). The hair and general costume in this portrait are of the time of Charles II. The full-length of the same individual (No. 538) is, I should say, much more to be depended upon.

No. 663, Sir John Minnes, Knight. A copy of this fine portrait is exhibited, No. 782, as the Cromwellian leader Henry Ireton, but the mis-nomer is hinted at in the catalogue. The veritable portrait of Ireton is surely that lent by Mr. Charles Polhill, No. 789.

No. 816, Admiral Robert Blake. Compare this fine expressive portrait with Nos. 818 and 825. Independently of the impossibility of reconciling the features in Mr. Andrew Fountaine's life-like contribution with those displayed in the loans from Wadham College and Mr. Raymond Pelly, after making all allowances for difference of age I cannot consider the two latter portraits as those of a man who died in 1667. The twisted cravat smacks more of the age of William III. Upon what authority have they been attributed to the brave old Somersetshire worthy?

After leaving the period of the Commonwealth, and entering the "lower gallery, east," appropriated to the exhibition of celebrities of the reigns of the second Charles and James, I find my task is accomplished. That there are many portraits amongst them misnamed I feel pretty confident; but unless I could point out a discrepancy which would sustain the doubt, it would be the mere expression of my individual opinion, and of no more value than that of any casual visitor. Of the confusion occasioned by erroneous attributions, a ludicrous instance was recalled to me by a friend whom I met in this gallery one day last week. There is here a good portrait of Flamsteed, the astronomer, an engraving of which has been made to do duty for Bloomfield, the historian of Norfolk, as none existed of him, and he was reported to have been very like Flamsteed. That truth in these matters is most valuable and desirable will surely be allowed by even those, and I fear there may be some, whom I may have displeased by the doubts I have raised or the facts I have established. One of the great objects—I will venture to say, *the greatest object*—of this exhibition, is avowedly, INSTRUCTION; and to advance the object, without fear or favour, by every means in his power, is, I think, the imperative duty of every gentleman who has been honoured by having his name placed in the list of the committee of advice.

The means in my power are limited to such knowledge of costume and heraldry as I have been enabled to acquire during a tolerably long life of assiduous research, and for some years past with the advantages of professional labour in the College of Arms. I know there are persons who dispute the value of such indications as tests of authenticity. To these I will only put one question. Can the most imaginative painter design the precise costume which will be worn by the gentlemen of England in the year 1900—only thirty-four years hence—or even the exact form of bonnet that the ladies will affect next season? Fashions are exceedingly ephemeral, and old ones frequently returned to; but there is invariably something in the details which characterises the particular period, and it is impossible that a man or woman in a dress of the reign of Elizabeth could have been painted in the reign of Henry VII. Knickerbockers appear in the sixteenth century, but could a portrait of a gentleman of the present day so attired be mistaken for a contemporary of Sir Walter Raleigh? Or that of a young lady in a "Garibaldi" and a pork-pie hat be received as a likeness of Lady Mary Wortley Montague at the age of sixteen? Yet there are misnomers still more absurd in this exhibition. Heraldry is a severer test; for the slightest difference in a coat of arms has its significations and the least error in depicting it is immediately detected. As wrong names and dates have constantly been painted on old pictures by mistake or for commercial purposes, so all have armorial bearings, but then there is the

* See pp. 320, 357, 380, 400, *ante*.

costume as a "collateral security." Singly a knowledge of costume or heraldry is of great assistance in such inquiries; taken together their importance cannot be overrated. We have yet much to learn respecting the civil and military habits of our forefathers: of many articles of dress and armour the names are unknown, while on the other hand, we have the names of many which we cannot identify in painting or sculpture; but the broad lines of demarcation—the general characteristics of particular periods—are by our present lights, sufficiently clear, and the careful study of such an exhibition as the one now before us must materially add to our information.

J. R. PLANCHÉ.

DECAY OF STONE.

NOTWITHSTANDING that good stone is one of the most lasting and durable materials, the action of air and weather is always more or less destructive upon even the most permanent stones, and the prevention of their decay is consequently a question which has, at some time or other, engaged the attention of almost every living eminent chemist. For this question is most specially a chemical one, and although the practical builder and architect, unacquainted with chemistry, may after a long course of experience be able to deliver an approximately correct judgment as to the durability of a stone, or the efficacy of a preservative process, still he can never speak with the confidence of one thoroughly acquainted with the laws of the true science of matter. In speaking of the causes and cure of the decay of stone, we shall take into consideration —first, the chemical and physical constitution of the stone; secondly, the causes of its decay; thirdly, the chemical composition of the means for preventing the same; and finally, the best methods of applying these preservative materials.

With regard to the chemical and physical constitution of the stone, this is a very important matter, and one so very well known to all connected in any way with construction, that it need hardly be touched upon here. As an introduction to what follows, however, a few remarks on the subject may not be out of place. As regards the physical structure of stones chemically the same, the durability increases with the amount of their crystalline nature. The chemical reason of this is (apart from the question of what is called aggregation), that the less crystalline a stone is, the greater is its number of separate particles, and, consequently, the more surface is exposed to the action of destructive agents. A practical illustration of this is, whereas a lump of marble will take about half an hour to dissolve entirely in hydrochloric acid, a lump of chalk of the same size will be dissolved in five minutes, while if both are pounded as finely as possible, they will both be in solution within a minute. The mechanical reason of the greater durability of crystalline stone is, of course, that the firmer cohesion of the particles in this case enables it better to resist the disintegrating effects of frost, heat, and weather. As regards chemical constitution and durabilility, building stones may shortly be divided into two classes; viz., those not easily acted upon by acids, such as limestones, dolomites, marble, and some kinds of calcareous sandstones. The first consist chiefly of silica and alumina, and the action of atmospheric influenced upon them is mainly mechanical, and only then chemical, when foreign substances, such as potash or iron pyrites are present. The second are composed chiefly of lime and magnesia, combined with the weak and easily expelled carbonic acid; and it is this class of stone so much employed, and so susceptible to disturbing influences, for which a really efficient preservative is so much required.

The next subject for consideration is the cause of the decay. This can be easily named. The one thing, without which the action of atmospheric cold and heat, of sulphuric, carbonic, nitric, and other acids, of ammonia salts, of soot, and, in fact, of every hitherto discovered ordinary injurious influence, would be all *nil*, or almost *nil*, is moisture. It is the moisture which, whether falling from the sky, or rising from the earth, sets in action all this host of stone-decayers. Without moisture, frost would not disintegrate, oxygen would not cause efflorescence, the action of the atmospheric acids would be only superficial and imperceptible, and any soluble salts thus formed, or particles separated, would not be carried to the surface, and washed away. Moisture dissolves and introduces the acids, and the oxygen, and the ammonia salts into the pores of the stone. Moisture keeps them in close and intimate contact with all the particles that can be affected. Moisture combines chemically with, and thus expands, some, and finally carries away, all of the products of decomposition as soon as formed. And moisture finally, by its expansion and contraction by heat or cold, causes the gradual breaking up of the stone by disintegrating the particles of the same. This peculiar promoting action of moisture in all these cases, is the reason why in drier climates the decay of stone proceeds so much slower than in our own country. The grand problem, therefore, that has to be solved before a stone can be effectively preserved is to prevent,—and permanently prevent,—the entrance of moisture. What has hitherto been tried and done to this effect will be remarked upon below.

As regards the action of oxygen, of the acids in the atmosphere, and of soot, but little more can be said than has been said above. Oxygen acts upon two things sometimes present in building stones, viz., nitrogenous matter and iron pyrites. The nitrogenous matter in contact with the lime of the stone it oxidises until soluble nitrate of lime is produced, which effloresces out and is washed away. Iron pyrites it combines with, forming sulphate of iron, and the consequent increase of volume acts destructively by disintegrating the stone. Sulphuric and nitric acids exercise an injurious action by forming a soluble and water-absorbing chemical compound with lime and magnesia. The first acid is always present in minute quantities in the air of towns where coal is burnt, being formed by the gradual oxidation of the sulphurous acid arising from the sulphur burnt with the coal. Dr. Angus Smith found as much as twenty-five parts of sulphuric acid in 100,000 parts of air in the centre of Manchester. Nitric acid is of much less consequence, being present only in very small quantities. It is supposed to be formed by the action of lightning, which causes the nitrogen and oxygen of the atmosphere to combine. The carbonic acid of the atmosphere introduced by water on or into the stone, acts only on two special varieties, viz., stone consisting of the carbonates of lime and magnesia, and felspar. On the former it acts by forming soluble bicarbonates, but the erosion in this case is inconsiderable; and as a rule, the surface of the stone is merely rendered smooth, without being irregularly decayed. But the action on felspar is very destructive. In the latter case the silicate of potash in the stone is slowly acted upon by the carbonic acid forming soluble carbonate of potash, the silica separating; and although this silicate of potash is present only in very small quantities, yet from its being thoroughly disseminated throughout the stone, its decomposition causes the whole structure to give way, and to gradually crumble to pieces. The gradual action of carbonic acid on silicates containing potash or soda may very well be observed on old church windows, the surface of which exposed to the weather will invariably be found to be corroded and opaque. Still more injurious than sulphuric acid is soot. Dr. Voelcker, the well-known agricultural chemist, in a paper read before the Society of Arts, gives an interesting account of its action on Bath and other calcareous stones. According to his researches, the main constituents of soot are, roughly, carbon and moisture, 55 per cent.; iron, alumina, sulphate of lime, and silicious matter, 35 per cent.; sulphate of ammonia, 3·6 per cent.; chloride of ammonium, 1 per cent.; and chlorides of potassium and sodium about ·7 per cent. Of these, the real destructive agent is the sulphate of ammonia. This sulphate of ammonia, in contact with the carbonate of lime in the building stone, decomposes, producing sulphate of lime, which is left in the form of an easily detachable crust, and carbonate of ammonia, which volatilises. The action is much increased by moisture, as the sulphate of ammonia is then dissolved, and retained in solution in the pores of the stone, whereas in a dry situation a mere surface action goes on. An analysis of the black crusts on oolitic limestone which contained carbonate of lime 97·7 per cent. and silica 1·4 per cent., gave, roughly, sulphate of lime 52 per cent., combined water 13 per cent., carbon 6 per cent., and carbonate of lime 20 per cent. No ammonia, either free or combined, was found. Comparing the analysis of the stone, the soot, and the crusts, it becomes evident that the sulphate of ammonia in the soot decomposed in contact with the carbonate of lime, forming sulphate of lime, and volatile carbonate of ammonia. The dampest, sootiest, and most sheltered parts of buildings are generally much more affected than the most exposed, or the dry portions. The reason of this is, that the soot does not adhere to the most exposed portions, but is washed or blown away; and in dry positions the action of the sulphate of ammonia is merely upon the surface, as it is not dissolved and retained in solution within the stone.

Having now stated the causes of the decay of stone, we come to the question of the preservation of the stone. This is indeed a hard question, and one which has troubled many brains. Judging, indeed, from the records of the Patent Office, it would seem either that man had discovered all that could be discovered on the subject, or that he had given it up in despair. Whereas, for every year, for some time back, previous to the 64th and 65th of this century, a goodly list of patents taken out on this question appears in the Index of Patents; these two last years, wonderful to state, present not a single instance. The number of patents taken out on this subject, be it observed, culminated in the years 1861 and 1862, the years of, and following the sittings of the Committee on the Decay of the Stone of the Houses of Parliament. Several of the preservative materials patented are simply worthless; but there are also amongst them two or three of the best processes that have been discovered.

Now, with respect to the chemical composition of the preservative material, we have already observed that the chief, active, and promoting cause of decay is moisture. It is evident, then, that the main object of a really efficient preservative material must be to keep out the water. The next is to make this protection as permanent and penetrating as possible. Now the first condition is not a very difficult one. There are plenty of materials known to the practical man, which are cheap enough, and can be easily enough applied, and which look sufficiently well, and serve to keep out the water for a time. But the second one has proved a stumbling-block to all but the scientific chemist. Only the lapse of years is able to tell the practical but unscientific man whether his pet process will or will not really "hold water;" and even then the result is likely to be obscured by a hundred petty chances and accidents. But to the scientific chemist there is no mystery or uncertainty at all about the matter. With half-a-dozen or so names he is able to specify all the materials that have been, are, or ever will be, able to fulfil the object properly and inexpensively. All preservative materials are therefore divisible into two classes, viz., permanent and temporary. Temporary preservatives those may be termed the duration of which does not exceed at the utmost ten years. By the term permanent preservatives, those will be designated the time of whose efficacy can be measured, if not by centuries, at least by tens of years. We shall carry on the subject in another article.

A NEW BOOK OF DATES.*

THERE are many people who pride themselves upon remembering the exact dates of events, and, perhaps, more who seem to plume themselves upon their inability to do so. It would be difficult to decide to which of these large sections of the community a good chronological record would be most serviceable. Those who retain dates would find them here ready plucked and dried for their use; those who disdain them would find them so placed between records of facts, that, though disposed to regret the encumbrance of the figures, they would still remain possessed of tolerably distinct landmarks, in the shape of preceding and succeeding events, by the aid of which they could assign a period to important transactions in the history of the world. A work of this kind has recently reached a third edition under somewhat peculiar circumstances, the author having published the two first thou-

* A Chronological Record; containing the remarkable Events from the Creation of the World to the present Time; compiled from the most authentic Sources, and collated with the best Authorities, copiously illustrated with Notes; to which is added a List of the Kings and Queens of the leading Countries of Europe; the Popes of Rome; the Presidents of America; and the Peerage of Great Britain. By D. O'Gorman, Author of Intuitive Calculations, &c. Third Edition. London: Lockwood & Co.

sands in Manchester, and addressed the public, on the publication of the third, from Melbourne, whither he had emigrated in the interval.

Strings of dates have their drawbacks like many other things. Of these the difficulty of selection and uncertainty of exactness must be the most considerable. Thus there are many events to which it may be called presumption to fix a date. He would be a bold man, for instance, who would risk much upon the assertion of Mr. O'Gorman, that the world was created on Sunday, the 23rd of October, about one o'clock in the afternoon. Our author gives his authorities; but we must all feel that this must be an event of which man is not yet able to name such an exact date. There must be equal uncertainty as to the period of the creation of Adam and Eve, unreservedly fixed by Mr. O'Gorman, as having taken place on one Friday, October 28th. The date of the first Sabbath must be quite as conjectural,—Saturday, October 29th. It is not less startling to be told, historically, that Noah's Ark rested on Mount Ararat, on Wednesday, the 6th of May, but that the worthy patriarch did not leave his floating residence until Friday, the 18th of December, 1656, of the Vulgar Era. That such precision of calculation is hazarded is all the more remarkable, when we perceive that Mr. O'Gorman is not ignorant of the difference of opinion existing on the subject; nor of the errors that have been made in the computation of time by the most reliable writers.

It is, perhaps, still more remarkable when contrasted with the caution with which easily tested facts are mentioned. Thus in a note to the record of the erection of the Monument in commemoration of the Great Fire of London the editor adds, with unaccountable reserve, "*It is said* that six persons have committed suicide by throwing themselves from the top of this building." Dr. Dozy, the Bishop of Natal, or the recently celebrated Essayists and Reviewers, would, perhaps, have reversed this scrupulousness. Whilst boldly making the difficult inquiry as to the number of suicides from the top of the Monument, they might have hesitated before naming the particular afternoon spoken of as "In the beginning."

The difficulty of selecting the most important events out of the occurrences of a year seems to have been realised by Mr. O'Gorman. Opening his record at the year 1817, at hazard, we perceive he has noted the Pindaree War; that the Marquis of Hastings "Spreads British influence in India;" that the Prince Regent was fired at in the park; that Waterloo Bridge in London was completed; that Moore published his "Lalla Rookh;" and that there was a dearth in Ireland. But he makes not the slightest hint or mention that this was the year in which the Princess Charlotte died, an event that really affected the hearts of the people in a peculiarly vivid manner, much more so, we may assert, than the completion of Waterloo Bridge or the publication of Moore's Oriental poem. However, there are shown considerable scope, research, and ability in the volume before us. In the form of foot-notes readers are directed to sources of information on many general and industrial subjects; and are to some extent saved reference by a condensation of the known facts of the subjects treated.

Against the date A.D. 663 it is written, "Glass is invented by a bishop, and brought to England by a Benedictine monk." This nonsensical statement is supplemented by a note, as from Stowe:—"According to Pliny, glass was first discovered in Syria. It was used by the Romans for windows in the time of Tiberius, A.D. 79. Glass became common in Italy, and from thence was imported into France. It was brought to England by a Benedictine monk, where, Anderson informs us, it was first used in private houses, and for windows, in the reign of Henry II. The first glass manufactory in England was established at Crutched Friars, in 1557." This is incomplete enough; but it might have been more so. Perhaps, in his next edition, Mr. O'Gorman will add an indication of the extension of the glass trade in Newcastle-upon-Tyne since the days the first glass-house was established there by Sir Robert Mansell, when he obtained the monopoly of the manufacture from King James. Concerning another subject with which our readers are equally familiar,—bells,—he is as brief, and leaves his theme equally untold. He gives A.D. 400 as the precise time when bells were invented by Paulanus, although a Concordance would have shown him mention of them in the Sacred Writings hundreds and hundreds of years before the days of that worthy bishop. In a note he contradictingly adds, "Bells were first used in churches by order of Pope John IX. They were first cast in England by Turketel, chancellor to Edmund I. The first set of tuneable bells were placed in Croyland Abbey.—*Stowe.* The largest bell in the world is at Moscow; the largest in England is in London, called Big Ben, which weighs 15 tons 10¼ cwt., and was cast by Messrs. Warner, Houghton-le-Spring, Durham.—*Taylor.*" In his text he gives the credit of the introduction of the organs into churches by the missionaries sent into England to preach the Gospel, by Pope Vitalianus, A.D. 657. This statement he supplements with two notes, one as from Ammonius, assigning the construction of the first organ to Archimedes, 220 B.C., or to Ctesibius, the barber, of Alexandria; and the other from Haydn, giving the number of the stops and pipes of the organs at Haarlem, Seville, York, and Birmingham, with a vague intimation that the Crystal Palace instrument "can overwhelm the largest number of vocal and instrumental performers." Against the date A.D. 644 he places the foundation of the University of Cambridge, by Sigbert, King of East Anglia. As in many other instances, a note qualifies this assertion, by recording that the Danes prevented Sigbert from completing his intention, and that Edward the Elder recommended the foundation in 915. The general impression conveyed to the reader is, that the statements in the text are those made by Mr. O'Gorman before friendly criticism induced him to qualify them by giving other opinions on the same subjects, in the form of notes. His Hibernian sympathies have led him to point out Kilkenny as the exact spot where nature has outstripped her usual efforts in providing for man perfect sanitary conditions.

Writing of the Durham and Northumberland coal-field, without any prevision of the present alarm of probable scarcity, he quotes Bakewell to inform us that the coal-beds in Yorkshire are absolutely inexhaustible, and that the coal in South Wales would supply all England for 2,000 years. This brings him up to the point where he can introduce the surprising fact in question concerning Kilkenny, which leaves its feline associations and traditions far behindhand in interest. "Kilkenny, in Ireland, has a fine coal-field; it burns clear, but emits no smoke whatever, hence the application of the adage, 'Kilkenny has fire without smoke;' and we may add, water without mud, as there is no mud ever discovered in the river Nore which flows through the ancient city."

Besides the chronological record, we are given a review of the six eras into which the period that elapsed before the birth of Christ is divided, and of the six eras into which the 1866 years that have passed since that event took place. There are also a pale outline of the history of England, beginning with the first kings of the Heptarchy and coming down to the events that occurred at the commencement of last year; another faint outline, showing a list of the Irish kings from 1,300 B.C. to the days when Henry II. annexed that island, and which, we perceive, points out the curious historical and ethnological fact that out of some 140 monarchs about 120 of them were either slain by their successors or killed fighting, leaving the small residue to be killed by thunderbolts, drowning, and in a few instances to die of plague or grief; a list of the kings of Scotland, of the kings of France, of the presidents of the United States, leaving Mr. Lincoln at his post; of the czars of Russia; of the kings and queens of Spain; of the margraves, electors, dukes, and kings of Prussia; of the counts, dukes, and emperors of Austria; of the popes of Rome (many of whom were martyred, starved, poisoned, strangled, and more canonised); the English peerage, showing the creation of the title, the succession, family name, and descent, of all our dukes, marquises, earls, viscounts, barons, bishops; and an index. In a colony where large libraries of reference are not generally accessible, Mr. O'Gorman's work would be really useful.

POISONOUS SLATE PENCILS.—The Government authorities at Cologne, have issued a circular, cautioning the public against variegated slate pencils. Schweinfurt green, which contains arsenic, is used for the green, chromate of lead for the yellow, and red lead for the red varieties. The circular points out the danger of this practice, especially to children, by whom slate pencils are chiefly used.

GRAVESTONES.*

I DO not think I should have chosen for myself the subject of to-night's lecture, for fear it would not offer enough of interest. I was asked to undertake the subject, probably because it is a corner of the Gothic revival in which I venture to think we have not been very successful, and because it was known that I had taken an interest in the subject for years past, and I did not hesitate to undertake to do so. It is a comfort sometimes to have only to do as you are bid as well as you can. That is what I am going to do. Having thus been given the subject, with the intention, as I suppose, of seeing if anything practically useful can be said about it, I shall try to treat it in a practical way. I shall abstain from the general subject.

Let us first take a rapid glance at the Mediæval gravestones, to which we naturally look for models, or at least for suggestions, for our own practice; and first of all we may notice that the Mediæval gravestones seem to be modifications of Classical ones. The old Roman sarcophagus continued to be used by Christians and was gradually diminished in size and modified in form, till it took the shape of the tapering stone coffin with its coped lid. A sarcophagus of Classic shape, Romano-Gallic, with Christian symbols from France, shows the transition from the Classic to the Mediæval form. The ordinary head-stone, with a rounded (not a cruciform) head, has its prototypes in Greek and Roman gravestones. On Etruscan sarcophagi we very commonly find reclining effigies of very elegant design, which perhaps suggested the Mediæval effigies, though the attitude and spirit of the figures is very different.

The rude upright unhewn stone, of earlier than Classical times, such as Jacob erected upon Rachel's grave, was first marked with a small cross; then the head was rudely worked into a cross shape; and so it came to be developed into a finished cross, like the Runic or Saxon crosses, and still later into the elegant Mediæval churchyard cross. When we put together the ancient examples which exist in the British Islands, we find a very large number of all the kinds which I have mentioned, and extending to date from Roman times downwards.

But there is another kind of monument more ancient, more appropriate, and more universal than all the rest, viz., the earthen mound. These were the monuments of heroes in the days of the Trojan war, and how much earlier we do not know. They are dotted like low natural hills over the Steppes of Tartary; they are found buried under the rank tropical vegetation of Central America, monuments of races of whom no other monument remains. In England all the races who have successively inhabited the land have left those monuments behind. The British barrows in Salisbury Plain come into one's mind, and the Roman tumuli, erected over sepulchral chambers, and the Saxon barrows, in which we find the remains of whole families, the men with their rusty spear-heads and swords lying by their bones, the women with their gold enamelled ornaments mingled with their dust; and the low turf mounds, which the sexton heaps with his spade over the humble graves in our country churchyards, are the undoubted successors and representatives of the barrows of our Saxon forefathers. Until a recent period the people were buried in them uncoffined as their forefathers were. After all, it is the most appropriate monument. It tells us that there one of our fellow-men has been "laid in ground," as the old ballad says, and has dust placed just that length and breadth of kindred dust which you see raised above the general level of the earth; that heap of dust is his *vera effigies* for dust he was; the green grass which will grow over it will be his symbolical epitaph,—"As for man his days are as grass."

In England these grave-mounds are always of the low rounded shape, with which we are all familiar. In Normandy I have seen grave-mounds shaped in imitation of a ridged coffin-stone, and sometimes with a strip of turf raised from end to end and side to side in imitation of the cross upon the coffin-stone. The old types of monument which have been chiefly imitated in our modern Gothic gravestones are the recumbent stone, which we commonly call a coffin-stone, the upright head-cross, and the sarcophagus. Let us glance at the chief peculiarities of these ancient gravestones. The coffin-stones are usually long

* From a paper by the Rev. E. L. Cutts, M.A., read as part of the Architectural Museum series of Lectures.

narrow, and tapering from head to foot, and probably always formed the actual lid of the stone coffin in which the deceased was buried: the coffin was sunk till its upper margin was level with the earth, and then the lid formed his monument. Sometimes the lid is flat, sometimes it is coped as if to throw off the rain. In nineteen cases out of twenty there is a cross carved upon the coffin-stone. When the stone is flat, the cross is sometimes only outlined with bold incised lines; sometimes it is sculptured in low relief. There is seldom an inscription, and then little more than a name; but there is often a symbol of the calling of the deceased sculptured beside the cross. The cross itself was the symbol of the Christian person: when two persons, or man and wife, were buried under one stone, we find two crosses; in one case a little cross is added, perhaps the symbol of a child. The symbol of calling was placed beside the cross: a sword for a knight, a chalice for a priest, a bow and arrow for a forester, and a pair of shears or scissors for a woman. There is one symbol frequently found attached to the middle of the shaft of the cross whose meaning has baffled all our ingenuity. It is something like a bracket on each side the shaft }{; sometimes the lines are headed like those of a riband; sometimes they are stiff as if of stone or metal, and they differ a little in shape. Here is one from Horningsea, Cambridgeshire, and photographs of others from Helpstone, Peterborough: they are very common. There is a similar ornament on a Roman gravestone engraved in Montfaucon.

The thing that most strikes us, perhaps, in looking over a collection of drawings of these coffin-stones, is the endless variety of ingenious, fanciful, beautiful cruciform designs upon them. Among them are some examples of a method of counter-sinking the design in a way which saves labour, protects the design from wear, and often adds considerably to its effect by enclosing it in a kind of frame.

After looking over a collection of drawings of old designs it would seem to be the easiest thing possible to reproduce them, or to design modern ones in the same spirit; but if we look through a series of drawings of modern designs we shall see that the attempt to reproduce an ancient design generally fails somehow to retain the simplicity and breadth and vigour of the old one; and the attempts to design new ones in the spirit of the old are, I venture very humbly to say, too often unsatisfactory.

These, perhaps, are some of the reasons of failure:—

The first, I think, is the shape. There is something picturesque in the long narrow tapering coffin-stone; but it derived that shape from the fact that it formed the lid of the stone coffin. When we lay it over one of our modern graves it is inappropriate, for it is not the shape of the grave over which it is placed, and it is not large enough—wide enough—to cover it. It is a coffin-lid without any coffin under it; it is a gravestone which is too scanty to serve its purpose of covering the grave.

But, 2ndly, to remedy this defect, and to make the monument larger and more imposing, the coffin-stone in modern practice is often mounted on a massive slab of stone by way of base. But this introduces another incongruity. The massive slab is the real gravestone, and it should be dealt with accordingly. I do not think it is a happy idea to take a stray coffin-lid (the tapering shape irresistibly suggests the idea of a coffin-lid) and lay it upon the gravestone by way of monument. In the margin of a manuscript in the British Museum is a figure of Death on the pale horse, who carries a taper coffin-stone by way of a shield; to lay one on our gravestone is to use it similarly as a symbol.

A third source of failure, I think (and let me say here that if I seem to repeat rather frequently "I think" and "it seems to me," it is to avoid appearing to lay down these opinions as indisputable conclusions: I am driven into egotism to avoid dogmatism), is in the character of the designs sculptured upon the coffin-stones. If we compare the design and execution of the old gravestones with contemporary architectural sculpture we shall find that, in the great majority of cases, the gravestones are comparatively simple in design and rude in execution. The design is generally bold and vigorous, often ingenious and beautiful; but, after all, it is simple, and it is only deeply scratched or rudely carved on the stone. I can imagine that the calligrapher of the neighbouring monastery drew the design on a scrap of vellum, and the local mason hatched it out with his stone axe. The designer showed some taste in giving such a simple broad design as could be effectively executed by such rude hands, and the mason did his work well when he had cut it deeply, or hatched it in relief, with freedom and vigour. But when this kind of work is copied, with our modern elaborate precision, its vigour and spirit usually vanish, and leave nothing but a bald and tame result. When such a stone is mounted on a massive base, and protected perhaps by an elaborate iron screen, the poverty of the design is made more conspicuous by this sumptuous treatment.

I venture to suggest that the modern recumbent gravestone should be the rectangular on plan, *i. e.* of the shape and of the size of the grave which it is to cover. The flat and the coped coffin-stones suggest two different styles of treatment. In the flat style, the size of the stone leaves ample room for an inscription round the margin, to be enclosed within marginal lines or mouldings. These will advantageously narrow the field of the stone, and upon this field may be placed a cruciform design. I think our modern taste requires for its satisfaction more elaboration of design and greater skill in execution than are found in the majority of these old coffin-stones; and now there is not the slightest difficulty in obtaining both. There are some of the old stones which possess these characters, executed probably where skilful design and workmanship were easily accessible. At Milton, Oxon, for example, there is a foliated cross, in which the foliation is of the best style of Early English foliage. At Hexham, Northumberland, there is an incised slab, in which the whole field of the stone is covered with a pattern of vine foliage. In Lincoln cloisters there is a thirteenth-century stone, which has a "tree of Jesse," very well designed and sculptured, covering the field. The method of countersinking the design, shown in some of the exhibited examples, is worthy of consideration; and both in incised and countersunk work it may be considered whether the incisions may not be filled in with colouring matter, if any colouring matter will resist the weather; or filled in with coloured stone, if, again, such inlaid work will stand the climate. This method of inlaying with coloured stone and marble, if it will stand our climate, opens up a wide scope for elaboration in a style which has taken a strong hold of the present taste; only, again, I confess I have misgivings whether, except on a very simple and careful use of it, it will stand our climate.

The coped stones suggest another mode of treatment. Let the stone still be rectangular in plan—not tapering; mould the edge deeply, leaving a plain fillet among the mouldings, broad enough to carry the inscription, and from the upper moulding carry up a plain prism, with a bold and simple roll at the angles, to form a kind of cross. The tomb of William Rufus, in Winchester Cathedral, is something after this kind. One in the Temple Church has sculptured ornaments carried along the edges of the prism with very good effect. Or the mouldings may be made a little deeper, and a narrow flat top left for the reception of a cruciform design. It is very usual in modern practice to add a head-cross and foot-stone to a crossed coffin-stone. This, I venture to think, is also a mistake. It is an unnecessary combination of two different monuments. Where there is a coffin-stone with cross and inscription, a head and foot stone besides are unnecessary. If the ends are rather high, and look bare, cusp the gables, or incise a symbol upon them. Where there is a head-cross, and it is desired to lay a stone over the grave, to protect it, it should, I think, not be a regular coffin-stone, but a plain and simple stone, without any cruciform device. There are some examples both in England and on the Continent of a variety of the coped stone which I can best describe as being on the plan of the roof of a cross church. The ridges, with a bold roll on them, form a plain cross. It is a very beautiful design, susceptible of architectural moulding,—dog-tooth, ball-flower, &c., the like in the base, and of cusping in the gabled ends. Some of the modern adaptations of this type are among the most successful modern designs I have met with.

I come now to the class of head-stones. There are two great types. In one, the general form of the stone is that of a cross; in the other, the stone has a rounded head, and a cruciform device is either incised or carved in relief upon the face of it. Very few ancient examples of these head-stones remain: there are hundreds of coffin-stones; of head-stones only a dozen or two. Our modern designs for head-stones are, I think, less satisfactory than the modern coffin-stones. This does not arise from the scarcity of ancient examples, for many of the cruciform designs on the flat stones are equally applicable, with a little adaptation, to head-stones; and the gable crosses, of which we have many fine examples, would also afford authorities easily applied to the purposes of head-stones. It is the latter type which has chiefly been followed in modern designs, and the fault in them arises almost entirely from making the stone too large—too high, and too wide. The fault does not lie with the designer, but with his clients, who will insist upon having a stone large enough to contain a long inscription, or inscriptions, to several members of a family.

The most noticeable thing about the few old head-stones which we have is that they are small in size, and very simple in character. In the modern adaptation of them, a cruciform head of proper size is put on the top of a high, wide slab, and the effect does not satisfy the eye. Many attempts have been made to shape the slab so as to make it a proper base for the cross with more or less success. Some of the modern head-stones retain the proportions of the old ones, and look pretty well on paper; but, when you see them executed, you find that though the old proportions are retained, they are magnified two or three fold, and that the result is the usual high wide slab with a cruciform head of much too large a size. In short, I have looked through a considerable number of modern designs, in which the designers have attempted to solve the problem, and I come to the conclusion that it is simply impossible to combine a high wide base with a cruciform head so as to produce a satisfactory result. We must, I think, try to persuade people to be satisfied with low and narrow head-stones. If such a stone seems too simple, and does not satisfy the desire to have something more sumptuous, perhaps we can arrange the matter by making the monument of marble, and bestowing some carving upon it of a more artistic character than usual, *i.e.*, give them the value of the money they insist on spending on art instead of material. The greatest difficulty, perhaps, will be to persuade them to be satisfied with a very short inscription; and anything but a very short, unostentatious inscription will spoil the effect of the design. We might, perhaps, obtain leave to have a proper head-stone, if we put a flat stone behind it, on which an epitaph might be inscribed; only this stone must be low and narrow, and unostentatious, or it will spoil the effect of the head-stone.

The other type of head-stone, in which the stone is cut into the form of a slender cross, does not seem to have been much followed in modern design; probably because it offers still less space than the other type for inscriptions; but I think it offers scope for a wide range of designs, which would be artistically satisfactory. What we especially want in the monuments for our crowded cemeteries is great variety in their general form, and this class of crosses ranging from a slender plain cross a foot high, up to a tall cross of the ordinary "church-yard cross" kind, or even to a cross of the Eleanor-cross type, offers greater scope for variety in dimensions and outline than any other.*

THE SHORT SUPPLY OF FISH FROM OUR INEXHAUSTIBLE FISHERIES.

IT is a very great mistake to suppose that London is well supplied with fish. Whatever may be the case at Billingsgate, or in the more central, and in the more wealthy, parts of London, the great mass of the people find fish not only dear, but scarce, and often not to be had at all. The deep-sea fisheries off our coasts are held by competent authorities to be inexhaustible; and fish ought to be the cheapest and most abundant of all food, not only in the metropolis, but throughout the whole country. There is an open and unoccupied field of profit here which one can only compare to the prospect which the steam-engine and the spinning and weaving machinery held forth before the development of British manufactures. Would that these very agencies were brought to bear upon this new field of profit. It is just the fitting out of decked vessels with the steam-engine and

* To be continued.

the spun and woven net that will supply the people with a never-ceasing abundance of cheap and wholesome food from our fisheries. We abuse the Irish for not taking advantage of their splendid fishing-grounds, but we are scarcely any better ourselves. We have often wondered why London was so badly supplied with fish diet, and have often spoken to fishmongers and others on the subject without receiving much enlightenment. Whilst all sorts of mad schemes for joint-stock limited companies get public support, the number of proposals for the working of this sure and inexhaustible mine of wealth is "limited" indeed! A little light on the subject, we observe, has been struck out in a pamphlet by Mr. Henry Dempster, H.E.I.C.S., who has been an advocate for sea fisheries during the last twenty-six years. Mr. Dempster's pamphlet is titled "Open Fishing-boat Reform, Fish Market Improvements, and the Abolition of the Hawking System with Creels." The author does not explain why companies have not been formed for extensive fishing operations: indeed, he is in much the same state of wonder with ourselves on this subject; but his pamphlet explains some of the mystery as to the short supply of fish everywhere, although he appears to have the very much mistaken idea that London has a good supply.

Fishing is, of course, done by fishermen. The present generation of fishermen are an antiquated race. They go on in the old Chinese jog-trot in which their caste was born, and their brains must be arranged entirely on this old jog-trot system. Moreover, they are an idle and unmanly race: their women are the men of the tribe, and *they* are born with such fixed and innate ideas in their heads as it is impossible to change or eradicate. A fishwife is taught from childhood that it is her duty to provide her future husband with his livelihood. We have overheard one fishwoman say to another, while dissecting the character of a third:—"*Her* work for a man's bread!" Mr. Dempster, in referring to this peculiarity, says:—

"It has been discovered that an obstruction to progress that stands in the way of forming fishing companies in northern ports is the existing state of society among the fishing population. Unfortunately for the cause of open fishing-boat reform at some of our northern ports, the female portion of the fishing communities are too fond of out-door labour that is unnecessary for them to perform. They entertain the idea that it is the duty of every woman that becomes a wife to work for a man; or, at least, to greatly assist him with his calling. Believing this sort of doctrine—which, I suppose, must be instilled into their minds when young—they voluntarily and cheerfully perform works of drudgery that few females among other classes of workmen are subject to. Besides gathering bait and baiting lines, many of them, at villages bordering on large towns, hawk and sell fish they carry about in creels on their backs. This part of duty they seem to be tolerably fond of, as, being wholesale and retail dealers of their husband's and others' produce, they get money among their hands unchecked. Clever women very soon manage to become leading partners in the united firm, and wield the reins of power. The result of this system is, they keep down their men's ambition and aspirations to change for the better and rise in the social scale."

Thus, the fishwoman is the fish-dealer; she is the treasurer; the money must get into her clutches, and she must dispense it for her husband's behoof. All he must do is to loll and row along the coast and haul in his fish, and any change on the established system is viciously opposed by the women. When Mr. Dempster expatiated to a crowd of these women on the safety and comfort to their husbands and sweethearts which decked vessels and deep-sea fishing would realise would they only agree to get rid of the small open yawls and cobles; one, he says, "boldly pushed her head forward, clenched her fists, and, looking savagely in my face, exclaimed at the top of her voice, — 'You will no be allooed'!" Now, although it may be said that it is not in London that such ideas prevail, there is no doubt that they react upon the London fish supply no less than on that of the outports, and the whole country. New companies would recruit for hands amongst our fishermen in order to carry on their business, and here is an obstacle not easily overcome.

This is a subject which the Government itself ought to take an active interest in. Fishermen are the raw material of much of our naval strength, and assuredly it is not lolling in open yawls and cobles, but seamanlike practice in larger vessels, that would form the best preliminary education for our tars.

We do not see, however, why fishing-vessels might not be worked well without these antiquated fishermen at all. Only let good stout steam fishing-vessels be got afloat, and well manned with common sailors, engaged on the understanding that they are to act as fishermen, with probably some inducement, such as a per centage on the fish, according to the quantity caught, to stimulate them, and we have not the least doubt of the great success of any well-managed company started for the purpose of supplying the metropolis with deep sea fish,—the healthiest and best, both on account of the possibility of keeping them alive in wells on board large vessels till sold, and also because coast fish come in to spawn, and are not in such good condition as those caught further off.

We do not mean to say that there are no such vessels already at work, but what we maintain is, that there is a great and crying demand for many more than we yet have, and for great companies to carry on the business on a vastly more extensive scale than at present, for the supply both of the metropolis and of every other great town in the country.

WIERTZ, THE BELGIAN ARTIST.

A SUM of 85,000 francs has just been voted by the Belgian House of Representatives to cover certain expenses connected with the acceptance of a legacy of pictures left to the nation by a deceased painter. The whole affair presents a striking contrast with the treatment of artists in this country, though there is plenty of room for a wide difference of opinion as to the real and lasting benefits conferred on art by the "paternal" system of government. The name of Anton Wiertz is probably unknown to many of our readers, and even in his own country it is far from being a "household word;" and yet he was a great but a misanthropical artist, and one who worked for fame and for that alone. The following extract from one of his works describes his character and opinions: "Happy is the young artist, the friend of true principles, who lives in an age in which patronage is guided by good taste. If, however, he lives at a time when mechanical dexterity is preferred to expression, and when originality and composition are considered of little importance, he must either give way to the tide of popular opinion, or, courageously imitating the example of the great Poussin, paint for posterity. His life will be a continual struggle against bad taste; he will remain poor, but he will become a great artist." He carried out these views in their integrity. He never exhibited any of his productions, or allowed them to be engraved; and he only sold his works when forced to do so as a means of support. Most of his paintings are of immense size, and in 1851 the Belgian Government, in order to encourage his talent, came to his assistance, and built him a studio at Brussels, at a cost of 64,000 francs. In this studio the artist lived, worked, and died; and so great was his attachment to his works that he even desired that his body might be buried in it. In compliance with his wish his heart was embalmed and sent to Dinant, his native place. It was in consequence of some legal difficulties, we believe, that his other request was not complied with.

The conditions of the grant are curious. M. Wiertz was to have the sole use of the building during his lifetime, and in return he made over to the Government six of his principal works, and engaged to cover the walls of the studio with frescoes on the express condition that "these pictures, together with those which he might afterwards present to the Government, should always remain on the walls of the studio, which would thus become a state gallery." In 1861, a further sum of 23,000 francs was granted to M. Wiertz for the purpose of acquiring a piece of land situated between the garden of the studio and a new street, which bears the artist's name. In consideration of this grant a seventh picture was made over to the Government on the same conditions as the others.

M. Wiertz died on the 18th of June last, and the Government became possessed of the site, building, frescoes, and seven paintings;—"The Homeric Contest," "The Fall of the Angels," "The Triumph of Christ," "Christ in the Sepulchre," "Eve," "Satan," and another. The artist's will, it appears, was not quite formal, and it contained no expression of his intention with regard to his remaining works. M. Potvin, the sole legatee, offered to give up the whole of them to the State, in compliance with the expressed wish of the deceased artist. Counsel's opinion was taken as to the validity of the will, and the report presented to the king on the subject of the legacy and the expenses connected with its reception, states that the will is "unattackable," naïvely adding that "the use which M. Potvin wishes to make of his rights can only give it increased force." The Government has, accordingly, become possessed of the whole of M. Wiertz's remaining works, to the number of fifty-eight, including some pieces of sculpture. When the necessary arrangements shall have been made, the Musée Wiertz will be opened to the public. A series of photographs of M. Wiertz's paintings was commenced during the artist's lifetime, but was left unfinished, and is now to be completed and published by the Government, as is also a manuscript memoir on the process employed in the production of the frescoes, which, it is said combines the advantages of fresco and oil painting.'

The vote which passed the Lower House on the 18th ult. was not quite unanimous, several members being of opinion that the artist's fame would be best consulted by exhibiting a selection only of his works. Several of them give evidence of a *bizarre* and almost morbid imagination. What, for instance, are we to expect from pictures bearing such titles as "A Second after Death," or "Thoughts and Visions of a Lifeless Head?" The reprinting of M. Wiertz's literary works was also objected to. Some of them, it was stated, were of little value, inasmuch as they were nothing more than long diatribes against the modern Belgian school of art.

SANITARY STATE OF CHORLTON UNION.

AT an annual meeting of the local board of guardians last week a report was presented from the medical committee recently appointed in apprehension of a visitation of cholera, to investigate the sanitary condition of the various townships in the union. Most of these are described as very bad. The reports of the various medical officers of the townships give detailed accounts of them, from one of which, that of Mr. Smith, of the Hulme district, No. 1, we may give a brief passage:—"The most unhealthy parts of the district lay between Russell-street and Cornbrook, City-road, Chester-road, and the lower part of York-street: from this quarter nearly all the cases of typhus had come during the past year; and should the cholera visit us, it would locate itself in that region. There were whole streets of back-to-back houses with most imperfect ventilation and drainage. In many places there were closed courts and passages with privies in the most filthy and neglected state, and cellar dwellings of the most unwholesome character, and utterly unfit for human habitation. The ashpits and shallow drains emitted a constant stench that was most prejudicial to health. Pools of surface-water and refuse lay about; and the sewage percolated through the walls even into the very dwellings."

LABOURERS' DWELLINGS IN IRELAND.

AT a recent scientific meeting of the Royal Dublin Society, Dr. Mapother read a paper, "On Labourers' Dwellings; Successes and Failures of Efforts to Improve them by means of Inspection, Loans, and Public Companies; and the expediency of extending to Ireland the Compulsory Principle in their Erection and Maintenance.' The dwellings of the poor in cities, towns, and rural districts in Ireland were, he said, ill-constructed, dilapidated, overcrowded, and unwholesome. Poverty of the owners was not the cause of the dilapidation of the abodes, for the persons who let them, like many of their class, had raised themselves to comparative affluence by profits thus gained from the poor. Evictions and the demolition of cabins in the rural districts had driven agricultural labourers into the small towns; and, as new abodes in the place of those removed would be subject to taxation, they had not been evicted. Besides the fearful overcrowding thus induced, the labourers had to expend their strength in walking long distances to their work. The remedy was that which followed in England last session upon a masterly demonstration of its necessity by Dr. Hunter, of the Medical Department of the Privy Council,—namely, union rating, for which a Bill had been introduced. There were in Ireland, according to the last census, 89,37[illegible] mud or sod hovels of one room only, and 489,668 mud houses with more than one room, giving an increase in Connaught of 5,168 of the latter

ss since 1841. The average number of per-
is occupying each of these dwellings was, in
ns 4·53, and in the rural districts, 5·24. The
nedy for this deplorable state did not lie in
labourer's hands, however great his willing-
ss to pay for better accommodation, but with
landlord when he recognised the duties
ich appertained to his property. Many
eases, such as fever, diarrhœa, convulsions,
nsumption, even accidental deaths, were pro-
ced, promoted, or rendered more fatal among
poor, and, if contagious, spread to the
b, by such conditions as he had sketched.
ving entered very fully into the subject, Dr.
pother summed up as follows:—That what he
ped for as necessary to improve the dwellings
the poor, and thereby raise immensely the
ndard of public health, was:—
First,—The constitution of a central con-
lling authority for local government and
nitary improvement.
Second,—The enactment of a comprehensive
ilding code, the passing of local Acts being
pensive, is often avoided.
Third,—That our sanitary laws should be
mpulsory in cases of flagrant neglect: the per-
ssion to act is now very generally construed
permission not to act.
Fourth,—A generally diffused desire on the
rt of employers and land-owners to provide
r the healthful wants of their dependants, and
ey will grow according as our nation prospers,
d according as the masses are educated in the
owledge of the laws which regulate the well-
ing of their own bodies.

ANNUAL MEETING, ARCHITECTURAL PUBLICATION SOCIETY.

THE annual meeting of the subscribers was
ld on the 28th of May, at the house in Con-
it-street, Mr. Thomas Henry Wyatt in the
air.

Mr. Arthur Cates, the Hon. Secretary, read the
nual report of the committee to the subscribers,
gether with the statement of accounts and gene-
l balance-sheets of the society. The latter show
at the total receipt on account of the fifteenth
ar, 1862, has been 510*l.* 0s. 4d., and the total
penditure (including 48*l.* 6s. 10d. for reprint)
77*l.* 17s. 5d., leaving a balance of 37*l.* 17s. 1d.
due to the treasurer. The accounts for the
rteenth year, 1863-5, show, after clearing off
e deficit on the fifteenth year, a balance of
5*l.* 4s. 2d. as available for the completion of
e publications for that year.

The Chairman in moving the adoption of the
port said it was not necessary for him or for
y future chairman at these meetings to say
uch about the merits of this society; that had
en so frequently dilated on, and its value and
efulness had been so often acknowledged by
l who had spoken on the subject on previous
casions. He might practically just show the
bscribers how very carefully the committee had
cted upon the suggestions made to them, by
ferring to two or three of the principal. And
rst as to the terms on which the Society's pub-
cations might be purchased, and the notion
hich he believed was rather a prevalent one,
at eventually the publications might be ob-
ined at a greatly reduced rate, or at half-price.
ow the committee had repeatedly asserted that
nder no circumstances would the price be
duced. It could not be too strongly impressed
pon the members of the profession generally
hat the honour of the committee was pledged
hat there should be no reduction in the price
f the publications hereafter. The next point
bmitted to the committee was the condensa-
ion of the articles in the "Dictionary of Archi-
ecture," which this Society was issuing, of
atters not strictly relating to the science of
chitecture, or having only a remote bearing
pon it. That had been left to the judgment
f the committee, who, in their desire to act
pon the suggestion, were at the same time
nxious that the second part of the work should
ot bear a different impress from the first
art: but those who had read the later articles
f the Dictionary would see that the sug-
estion had not been disregarded. Then,
gain, the committee had been urged to
ccelerate the completion of the Dictionary
s much as possible. At a previous meeting
is friend Mr. Horace Jones suggested that
he commercial element might be brought to
ear, and that a publisher might be found who
would be willing to expedite the work to a
greater degree than could be done merely by the annual payments of the subscribers themselves. He was very much struck with the remark made by Professor Kerr at the last meeting, that the great charm of this work was, that it had none of the mere book-making element about it; and he (the chairman) would be extremely sorry if it lost that instructive character; and he thought that would be the case if those who had hitherto laboured on the work ceased to do so from the innate love which they cherished for their art itself, as they had hitherto done. With regard to the commercial element, he confessed, for his own part, he thought it was necessary; and, if it were declared by the hon. secretaries that, in their opinion, a sum of 400*l.* or 500*l.* in hand would conduce to the expediting of the work, instead of obtaining that amount by extraneous aid, he would suggest that they could very readily establish a limited liability, and advance the money amongst themselves; and he would himself very readily contribute 100*l.* towards that object. It was as much as the committee could do to keep up the original subscriptions. The members of the Institute had increased very largely, and he considered it a discredit to the profession that a larger number of subscribers to these publications did not exist amongst them.

Professor Kerr, in seconding the resolution, said he had always thought the publications of the Society peculiar in their character, and peculiar even among professional publications. Without going into the question of the character of this Society, they might say that the various branches of trade, more or less appertaining to and connected with architecture, were so fully represented by publications of their own that there appeared to be little left for the Architectural Publication Society to do. When he said very little was left, he felt that the field of operation which the Publication Society of the present day must occupy must be a field of literature of the very highest class—literature which might not command a large sale, which might not attract a very large number of subscribers, but which would ultimately make its mark upon the progress of the profession by reason of the very high character of its work. Twenty years ago, when this Society was first established, it was that particular want which the Society made it its business to supply; and, he was bound to say, he considered conscientiously the existence of this Publication Society, and the description of works which it has persevered in laying before the profession, had tended very materially to keep up the dignity and the character of the profession before the public. The Dictionary, he felt bound to say, was, in his humble judgment, a work of the highest merit. He considered the illustrated publications, too, in connexion with this Society, taken as a whole, constituted a most admirable portfolio, the like of which was not to be met with anywhere else: in point of fact, year after year as these numbers came out it seemed astonishing where the matter was collected from—seeing it was so different from what they got in ordinary books.

The report having been adopted unanimously,

Professor Donaldson, in moving a vote of thanks to the committee, observed that he felt those who undertook the entire work of the Society had a very serious duty to discharge and irksome difficulties to overcome; therefore they were very much indebted to them.

Mr. J. P. Seddon moved a vote of thanks to the executive officers (Messrs. Papworth, Hansard, and Cates), and said if these gentlemen did not continue to hold office he was afraid the Architectural Publication Society would die a very rapid death: most of such things depended upon the energies of the few, and it was to those gentlemen that the honour and credit of the Architectural Publication Society was due; to Mr. Octavius Hansard for his unwearied energies in directing the illustrations; to Mr. Wyatt Papworth for his able conduct of the literary portion of the work; to Mr. Cates for his general management of the business.

Mr. Wyatt Papworth remarked on the subject introduced by the Chairman with reference to the committee having a moderate sum of money in hand, that he had for many years thought it would be a great advantage to have such a fund, though he had hesitated to propose such a course as had been suggested by the Chairman to-day, as one rarely liked to ask one's friends to put their hands into their pockets in addition to rendering great personal service to the Society. It appeared to him, if they had a fund, a reserve, they could say to those outside, "Here is a fund which, if from any cause not foreseen, there should be any hesitation on the part of new subscribers, would be a guarantee fund for the completion of the works." The reprint having been carried out, under the direction of the committee, if they sold the whole number of copies, they had a stock of the value of above 2,000*l.*, on which they might surely raise 1,000*l.*; and as the subscriptions came in the loans might be paid off in accordance with the arrangements on which they were made. If the meeting would authorize the committee to take this subject into consideration, he believed the step which had been suggested might be adopted with great advantage to the Society.

Mr. Arthur Cates said, with regard to the proposal for the establishment of a fund, he was sure if they had 1,000*l.* in hand it would enable the committee to deal more fully with the matter which was necessary for the production of the Dictionary than they could otherwise do; that sum might be appropriated to the bringing out of the works more expeditiously than had hitherto been the case. There was another point,—that was, obtaining new subscribers. He had done his utmost to try and persuade every existing subscriber that it was to his personal interest to bring in at least one other subscriber, as by so doing he would more than double the amount of matter he would receive for his guinea.

Mr. Arthur Ashpitel moved a vote of thanks to the chairman; and the latter, in acknowledging the vote of thanks afterwards passed, requested the secretary to put down his name for 100*l.* to the fund, which he hoped would be the beginning of a good end.

THE BUILDERS' BENEVOLENT INSTITUTION.

ON Thursday (31st ult.), a meeting of the subscribers and friends to this institution was held at the London Tavern, Bishopsgate-street, for the purpose of electing three persons—two males and one female — as pensioners on the funds of the institution. Mr. Joseph Bird, in the absence of Mr. Rigby (the president), was voted to the chair.

Among the gentlemen present were—Messrs. Geo. Plucknett, Thos. Cozens, J. Thorn, G. Keyes, W. Hutchons, W. Phillips, M. Hall, W. Webb, R. Richardson, R. Thomas, W. Todd, jun., B. D. Dove, G. Head, R. Head, T. Stirling, W. Nicholson, &c.

The financial condition of the institution showed the present amount of stock in the Three per Cent. Consols to be 11,159*l.* 15s. 8d., being for the relief fund 8,437*l.* 12s. 1d., and the building fund 2,722*l.* 3s. 7d.; and that since the foundation of the society in 1847, there had been fifty-four male and thirty-three female recipients, out of which number (exclusive of those to be then elected), twenty-one males and nineteen females were upon the funds, the men receiving 24*l.*, and the women 20*l.* per annum. The amount paid to the pensioners had nearly approached 10,000*l.*

The Chairman briefly opened the proceedings by stating, that that was the twenty-seventh time they had met together for the purpose of carrying out their benevolent object. There were eight candidates for election, all of whom, he regretted, could not be returned that day. They could only return two men and one woman; but to those who were unfortunate on that occasion, he would say, may they be successful on the next. He (the chairman) having informed the candidates that substantial refreshment was provided for them in the tavern, declared the poll open.

On the return of the scrutineers, with the number of votes polled by each candidate, the following were announced as duly elected:—

Thomas Stevens, aged 51, builder, &c., living at Dalston, totally blind.

G. L. Williams, aged 74, builder, &c., living at Somers Town,—distress, arising from great losses in business and old age.

Ann Heard, aged 73 (first application), living at Westminster,—reduced from good circumstances to positive indigence and want, through family misfortune, infirmity, &c.

The Chairman, after some consoling words to those who had been unsuccessful, said he thought there would have been a different result as regarded the females, considering that Anne Colbron had already registered from the last election 1,220 votes. He urged on the candidates to exert themselves in looking up the subscribers, for a great number of votes which might have been obtained had that day been unrecorded.

Mr. G. T. Keyes made some remarks upon the value of the institution, and said some of the recipients of the



LONDON AND COUNTY BANK, CAMBRIDGE.—*Plan of Ground Floor.*

benefits living in almshouses, or being dependent on friends, were materially assisted by the allowance afforded.

The usual votes of thanks were then accorded, and the chairman having informed those elected that the first month's pay would be advanced, the proceedings closed.

FOREIGN NEWS.

An Enduring Beam.—Some days ago, in demolishing a portion of the Paris *Cité* for the site of the Hôtel-Dieu, the workmen discovered an oaken beam in one of the most ancient houses, which had a section of 1 mètre 36. There was very little sign of decay, and on one of the sides was the following inscription:—"I was placed here in the year 1450, and was 600 years old when I was taken from the forest of Rovray, of which the Bois de Boulogne is a small portion." Nearly a contemporary of Charlemagne!

A New Light.—Professor Carlevaris, of Genoa, has invented a new light, called the Carlevaris light, and the experiments made at the close of last month in the theatre of the Technical Institution were attended with great success and loudly applauded. This light is an oxy-hydro-magnesian flame, and is obtained by placing in the flame of a mixture of hydrogen, or coal gas, with air or oxygen, spongy magnesia, a substance of very small cost. The flame is white, rich in actinic force, fixed, and developing less heat than other lights. The expense is very trifling, a light equal to four wax candles only costing two-tenths of a penny per hour. A new trial also took place in the lantern of the Genoa Light-house. It proved that this light was superior to that of the oil-lamps representing an illuminating power of twenty-three Carcel lamps, and yet the cost was only 3d. per hour.

Nitro-Glycerine.—An awful explosion occurred at San Francisco, on the 16th of April last, by nitro-glycerine. Several cases had been ordered from London, and one box containing the dangerous compound had arrived as a sample, and was placed in the yard, where there were many persons present. The case was broken open with a *hammer*, and of course the nitro-glycerine exploded, killing a dozen persons, breaking all the windows and furniture of the house, and wounding some individuals passing by in the street. Such was the force of the concussion that fragments of some of the persons blown to pieces were found on the adjoining houses 60 ft. and 100 ft. high.

MACCLESFIELD RAGGED AND INDUSTRIAL SCHOOLS.

THESE schools have been formally opened. The building is situated at the junction of Brook-street and Turnock-street, and in consequence of the peculiarities of the site, which is sloping ground, having a considerable fall, the principal entrance is on the level of the footpath and basement floor in Turnock-street, and from the entrance-door a flight of steps leads up to the ground-floor. There are three floors. The basement is approached by steps from the ground-floor in the centre corridor, and contains the various rooms and apartments for the working staff of the Institution, including both boys' and girls' departments. The ground-floor, covering the same area as the basement, is occupied by rooms devoted to general educational purposes, and consists of a schoolroom, 40 ft. by 24 ft., and a dining-hall of the same proportions, also infants' room overlooking Turnock-street. The masters' apartments overlook Brook-street, and contiguous thereto are a committee-room and library, with lavatories and closets for the boys. The staircase from the entrance-hall, on the ground-floor, leads to the first-floor, on which there are two large dormitories, each 40 ft. long by 24 ft. wide, one in each wing. The attics are reached by a staircase from the first-floor, and arranged for sick-rooms in cases of trivial disorders.

There is a considerable area occupied by yards and play-grounds, surrounding the building. Means for the physical development of the children will be provided in the play-grounds.

The style of the building is plain Venetian Gothic in elevation. The contractors were:—For the brickwork, Mr. James Anderso masonry, Messrs. Friths, Bros.; carpenter a joiners' works, Messrs. Shufflebotham; plumbi and glazing, Mr. R. Davies; plastering a decorating, Messrs. Kirkham & Sons; paintin Mr. Hulme; slating, Messrs. Bradley & Son and ironwork, Mr. Martin Watts; all local trade men. Mr. Stevens, of this town, was the archi tect.

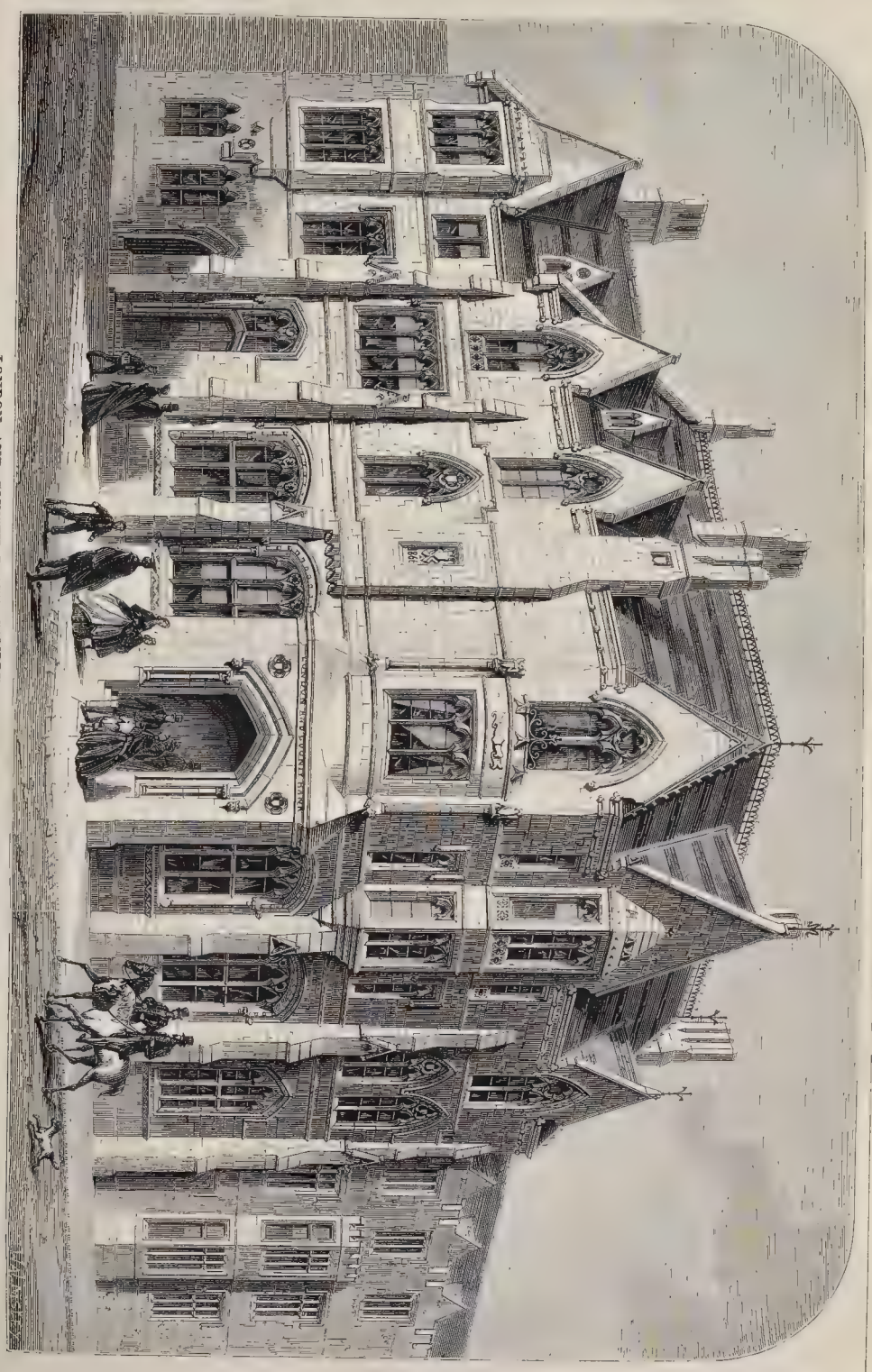
THE LONDON AND COUNTY BANK, CAMBRIDGE.

THESE buildings, now erecting on ground b longing to Corpus Christi College, are situat at the corner of Trumpington-street and Benc street, having a frontage of 55 ft. in the forme and about 80 ft. in the latter, street. T ground-floor of the corner plot is devoted to t purposes of the bank, having a large pub room of irregular shape, about 35 ft. by 33 f with manager's room, waiting-room, priva entrance for manager, staircase, kitchen, a scullery. The strong-room is placed in the bas ment, with lavatories and other conveniences f the clerks.

The upper floors are devoted to the use of th manager, being arranged with suitable receptio rooms, bedrooms, and dressing-rooms.

The eastern portion of the ground in Benc street will form a separate house, unconnect with the bank, and will be let off as a p vate residence. The style adopted is La Decorated Gothic, ample provision having be made to secure a proper amount of light in t various rooms, and especially in the public offic by means of large mullioned windows. Ba stone will be used for all the dressings, a white brick for the wall facings. The ceiling the public room will be of deal, stained a varnished, and the joiners' work throughout w be also stained and varnished. The works ha been contracted for by Messrs. Myers & Sons, f 7,739*l.*, exclusive of the bank fittings, and are be completed by Lady-day, 1867.

Messrs. Francis are the architects employe



LONDON AND COUNTY BANK, CAMBRIDGE.—MESSRS. F. & H. FRANCIS, ARCHITECTS.

CHURCH EXTENSION IN SHEFFIELD.

THE Church Extension Society, which was instituted about eighteen months ago, have already enlarged one church in Sheffield; and the chief stone of another has been laid.

St. Simon's Church, which has been consecrated, is situated at the junction of Eyre-street and Duke-street, and is the ecclesiastical centre of the Porter-street district. Grants from the Church Extension Society have been employed in the conversion of the old chapel that formerly occupied the site into a church which will accommodate a numerous congregation. What may be called the west front, facing Eyre-street, stood back about 15 ft. or 16 ft. from the street. In order, therefore, to enlarge the area inside, the whole of the old front has been pulled down, and the building extended up to Eyre-street. At the south-west corner, in the angle formed by Eyre-street and Duke-street, a tower has been erected 80 ft. high, forming the principal entrance, with ringing-loft and bell-chamber above. The tower is covered with a steep slated roof, with east and west gables, and a parapet of ornamental brickwork and stone capping gives a finish to it on the north and south side. All the gables, both of the tower and the main part of the building, are finished at the top with ornamental stone crosses. The large circular window in the west front, with its shafts and carved caps, is a feature, both from the outside and inside; and the windows below it, which are short on account of the west gallery, have brick pointed arches thrown over the heads, enclosing ornamental stone-work. In order to add strength to the old side walls and improve the appearance, buttresses, with stone gablets at the top, have been built between the windows and the lower part of the building, on each side, faced with new brickwork, with stone weathering at the top. Being unable to dispense with the galleries inside, they have had new fronts of more suitable design. The whole length of the church is now 70 ft. by 41 ft. 6 in. wide, giving an increase of about 200 sittings, or 900 altogether. The old flat ceiling has been removed, and the centre of the old roof taken off and raised to a higher pitch, so as to agree with that formed by the new west gable, making the centre height of nave about 42 ft.; and the old timbers have been cased over and filled with ornamental tracery, so as to improve the appearance of the open roof. The whole work has been carried out from designs and under the direction of Mr. J. Fawcett, architect, at a cost of about 2,000*l*. Mr. White and Mr. Woodhead have been the principal contractors. Mr. Marreson has done the plumbing and glazing; and the staining and decorative painting have been executed by Mr. Stafford.

The chief stone of All Saints' Church has been laid in Grimesthorpe-road. The church will be cruciform, with tower and spire at the west end. It is designed in a style which our authority, the local *Independent*, calls "Geometrical English, suitable to the neighbourhood from which the congregation is to be drawn." The height of the spire will be 190 ft., being about 10 ft. more than that of the old parish church. The extreme internal dimensions of the church are 130 ft. long by 76 ft. wide in the transepts, and 56 ft. 6 in. in the nave and aisles. The height of the nave to the ridge will be 56 ft. The edifice will seat 720 adults and 259 children, sittings for the latter being in small galleries in the tower and transepts, approached by distinct entrances. The contract for the erection of the church is 7,000*l*. The schools, when built, will cost 2,000*l*. or 3,000*l*. more. The architects are Messrs. Flockton & Abbott; the contractor Mr. Geo. Wade. The cost of this church will be defrayed by Mr. Alderman Brown.

DISCUSSIONS ON WORKING-CLASS QUESTIONS.

A SERIES of "discussions between members of all classes of society, at the social meetings of the Working Men's Club and Institute Union" has been going on in the lower hall of Exeter Hall. The subject of No. 1, based upon a paper by Mr. Bainbridge, and recently issued in a printed form by the Club Union, 150, Strand, was, "How far are the Disadvantages under which the Working Classes labour attributable to Causes within or beyond their own Control?" Lord Lichfield occupied the chair, and the chairman, and Messrs. Bainbridge, Austin, Layard, Randall, Jarman, Webb, Watts, Bell, Pocklington, Pratt, and the Rev. H. Solly took part in the discussion, which rather wandered occasionally from the point at issue. At the close, Lord Lichfield said:—

"With regard to the paper we have heard to-day, I do not think Mr. Bainbridge has quite hit the nail on the head. The subject appointed was 'How far are the disadvantages under which the working classes labour attributable to causes within or beyond their own control?' but the points that have been mainly referred to happen to be, in almost every case, the disadvantages which are neither under the control, probably, of the labouring classes nor of any other class. It is quite clear that the questions which were most dwelt upon were those of wages and hours of labour, and also the state of the dwellings of the labouring classes. These are all questions which, as Mr. Layard so well pointed out, it would be very difficult to interfere with. But there are also many points under which the working classes labour at a disadvantage which might have been pointed out, and over which they have power and control. But these I have failed to find in the paper. He takes the case of the agricultural labourer; but I must say that I cannot help thinking that Mr. Bainbridge, when going into those districts, and meeting some of those labourers whose condition he has reported to us, must have forgotten to ask those whom he saw how far the disadvantages under which they laboured were within their own control. I am quite aware that in many parts of this country a vast amount of poverty is to be found in the agricultural districts. In many of the counties the wages are excessively low, but there are many things to be taken into consideration. They have many advantages which the town labourer has not. But these advantages are all set on one side. You say that children between the ages of nine and twelve years receive a very small amount of wages, but you must know perfectly well that the labour of children at that age is worth very little indeed in agricultural work. Of course of that there can be little doubt; but the thing is, ought children of that age to be employed at all? And if there is one thing which I should like to point out while dwelling on this subject, it is that children do not have a fair start in life; that they, *more especially in the country*, are sent to work at an age when they are truly unfitted for it; their schooling is neglected, and their whole time is devoted to obtaining some addition to the income of the family. Then there are, of course, many districts in which the dwellings of the agricultural labourers are far from what they ought to be; and there is one thing which I do not think incorrect in the account which has been given you, and applied to the condition of the agricultural labourer generally. It is the point, reiterated by Mr. Bainbridge, that the agricultural labourers live in places 'which are not fit to be the kennels of the landowners or farmers,' and that they are treated 'like cattle' on the estates of those proprietors. But if, when Mr. Bainbridge visited the agricultural labourers, he had endeavoured to investigate the subject, he would probably have ascertained that even the crowding together referred to is frequently within the control of the labourer himself. In many cases on my own property, I have had the greatest possible difficulty in preventing cottages being overcrowded. I find it, generally speaking, to be the case that a family will prefer being squeezed into one room, even where they have three or four rooms at their disposal, in order to let the other rooms to lodgers. I do not mean to say, for one single moment, that there is not room for improvement in the dwelling-houses of the labouring classes in almost every county in England. In the case of towns, I am quite aware that there is also a most unfortunate state of things existing with regard to the dwellings generally; but I think, also, that much of the misery and wretchedness found in the worst parts of the large towns is, to a certain extent, owing to the state in which these houses are kept by the persons who live in them."

COMPENSATION CASES.

Kennett v. *The East London Railway*.—In this case, at the Sheriffs' Court, Red Lion-square, before Mr. Under-Sheriff Burchell and a special jury, the claim was 2,487*l*. in respect of premises in Wellington-street, Bethnal-green. According to the evidence, the property, which is now rented at 50*l*., was worth 90*l*. a year, on account of the increase of late years in metropolitan property. Mr. Hawkins, Q.C., Mr. Shaw, and Mr. Tyndal Atkinson, jun., appeared for the claimant, a provision dealer, and who declared that he could not get other business premises to suit him. Several surveyors were called for the company, and denied that property at the East-end had increased in the ratio described on the other side. Mr. Karslake, Q.C. (with whom was Mr. Ledgard), submitted that the claim made was most excessive. The jury awarded 525*l*.

Harrey v. *The Mayor, &c., of London*.—The property in this case, tried at the Lord Mayor's Court, is situated in Smithfield, and is required for the Meat and Poultry Market western approach, under the Act of 1862. The claimant was Mrs. Harvey, wheelwright, van and carriage contractor and builder; and, according to the opening statement of counsel (Mr. Giffard), it appeared that Mrs. Harvey and her predecessors had been in possession of these premises for more than a century, and that the business had been carried on there for about three-quarters of a century. In the year 1847 Mrs. Harvey discovered that her then foreman and manager had been robbing her to a very considerable extent. He absconded, and was nowhere to be found. Her son, Mr. Frederick Valentine Harvey, thereupon took the management of the business, and had succeeded in establishing a most flourishing and prosperous one. In the month of February, 1863, Mr. Frederick Harvey (not the claimant) was served with notice to treat, and fruitless endeavours were made to obtain other premises within the City; and the claimant was compelled to take premises on the other side of the water, viz., in The Grove, Guildford-street, Southwark, to adapt which for the purpose of the claimant's business would cost 1,000*l*. The net profits were 1,000*l*. per annum; and it would be for the jury to say how much they should award Mrs. Harvey for the loss of business which must naturally and inevitably arise from the removal to so great a distance. Another item for compensation would be the sum to which the claimant was entitled in respect of the holding of the present premises, which were held on lease for twenty-one years from June, 1863, such lease having been previously promised. That lease was valued at 1,773*l*. Then there was the cost of removal of Mrs. Harvey's very large stock, which was estimated to cost between 300*l*. and 400*l*. The claim altogether was estimated at about 3,600*l*. Mr. Hawkins contended that, as the lease in question was granted after the notice to treat, it would be no element for the consideration of the jury. The Recorder interposed, and said that the case ought not then to have proceeded upon that lease; but, as the corporation had allowed three years to elapse, they could scarcely raise an objection now. Mr. Hawkins then continued to discuss the merits of the claim, which he thought would be satisfied by an award of some 1,700*l*. [The Markets' Committee, to whom this matter is intrusted, had previously offered the claimant 1,800*l*., which was refused]. The jury, after an absence of something less than half an hour, returned a verdict for 2,922*l*.

CASES UNDER BUILDING ACT.

Purging Flues.—At Clerkenwell Police Court, Mr. John Walton, of Hampstead-road, builder, was summoned by Mr. John Turner, district surveyor for the eastern division of Islington, to show cause why he did do certain things contrary to certain rules of the Metropolitan Building Act 1855,—to wit, carry up the flues from several chimney-openings without rendering or pargeting the inside and outside; and did omit to do certain things required to be done by the said Act,—to wit, to render and parget the inside and outside of all the flues, or line the same with fireproof piping. The defendant pleaded guilty; and Mr. D'Eyncourt made the order for the work to be done, and, on the request of Mr. Turner, granted 1*l*. 11*s*. costs.

A QUESTION AS TO THE RECEPTION OF TENDERS.

AT the meeting of the Board of Guardians of the Holborn Union on Wednesday, 30th ult., Mr. Ings in the chair, tenders were received for the erection of new wards for the reception of the casual poor (published in our last issue), but one of the tenders was not sent in till half an hour after the time specified in the advertisement in the *Builder*, and a stormy discussion arose as to whether such tender should be opened. The chairman, a barrister, and Mr. James, the clerk, also a lawyer, gave it as their opinion that to accept a tender under such circumstances would lay the Board open to an action at law by some of the other builders. Mr. Southee, also a lawyer, characterised such opinions as most absurd, and he would pay the expense of an opinion of some eminent counsel on the point. The words of the advertisement, he considered, to be merely directory, and not compulsory: it was not said that tenders sent in after the hour specified would not be received, and the Board was bound to receive it. Mr. Cullen, also a lawyer, took the same view as Mr. Southee. A very stormy discussion then arose on the subject, and it was at length proposed to submit the matter to the majority of the builders who had sent in tenders, and who were in attendance. Mr. Isaac, the architect, and Mr. James, the clerk, then retired from the Board-room, and submitted the matter to the builders, and on their return, reported that the whole of them were in favour of the tender being received. The announcement was received by the Guardians with cries of "very honourable—very honourable." The tender about which the difficulty arose was the one ultimately accepted.

POPULATION OF LONDON AND PARIS.

AN article from the pen of M. Duval on the French census, which appeared in a recent number of the *Journal des Débats*, contains a comparison between the density of the population of London and Paris and between that of English and French towns generally. In the former case, as the population increases, the houses are free to advance into the country in every direction. French towns, on the contrary, are generally hemmed in by an inflexible belt of fortifications, and the new-comers are provided for by the erection of houses of greater height. Thus, in 1861, the date of the last census of both England and France, there was in London 1 inhabitant to every 1,220 square feet, whilst, in Paris, each individual enjoyed only 500 square feet. "The former state of things is brought about by the spontaneous development of social relations, whilst the latter, at first sight, appears to be due to the pressure of war or taxation." The writer insists on the importance of giving the density of the population of each centre, and not simply that of the principal towns or the departments, and points out that the material condition of two towns containing an equal number of inhabitants is materially influenced by the extent of ground which they respectively occupy. The five-yearly census is now nearly complete. The enumeration extends over a fortnight.

DELAY IN BUILDING PARTY WALLS UNDER THE BUILDING ACT.

Payne v. *The Strand Hotel Company*.—The plaintiff in this case (Court of Common Pleas), Mrs. Payne, kept a coffee-house, No. 26, Newcastle-street, Strand; and in the course of building the Strand Hotel, a party wall of the plaintiff's house was taken down and rebuilt, the defendants having power to do this under the provisions of the Building Act. It happened that the plaintiff's premises were so constructed that, whilst the party-wall was rebuilding, they were quite uninhabitable, and she now claimed damages upon the ground that an unreasonably long time was occupied in doing the work, and that, after the work was done there were some defects which required to be remedied. The time occupied about the job was thirteen weeks. Mr. Raymond and Mr. Owen appeared for the plaintiff, and Mr. Murphy for the defendants. The jury found for the plaintiff,—damages 125*l*.

EXPERIMENTS WITH BLASTING OIL, OR NITRO-GLYCERINE.

A SERIES of experiments in blasting is given in the American *Gaslight Journal*, from which it appears that blasting oil is far more effectual and economical than gunpowder in blasting. In some cases there was comparative failure, but in most instances the experiments were successful. We may give the details of one of these experiments, made by Col. Burstenbinder, at the Jackson Iron Mine, Negannee:—

"A drill-hole 2 in. diameter, 5 ft. 8 in. deep, was put into a ridge at the bottom of a large shaft, 25 ft. deep, bound on both sides and back by a solid wall of ore, loaded with 5½ lb. of oil, without cartridge, and fired by means of a percussion cap. This shot would have required at least 30 lb. of powder and four drill-holes. The relative estimated cost of powder and blasting-oil is as follows:—

With Powder.

Drilling 20 ft., at $2·50 per ft.	$50 00
30 lb. powder at 25 cents. per lb.	7 50
Cost of labour in sledging the ore to leave it in its present condition	10 00
Total	$67 50

With Blasting Oil.

Drilling 5 ft. 8 in. at $2·50 per ft.	14 15
5½ lb. of oil at $2·15 per lb.	11 80
Total	$25 95

The ground in which this hole was placed is of a particularly hard nature, known as such to all practical miners in this country, and accounts for the high cost of drilling. The experiments are attested by the superintendents of the respective mines."

BURLINGTON HOUSE AND THE INSTITUTE.

SIR,—Mr. Beresford Hope, M.P., has thought it expedient to publish in the *Times* (May 29th) the profound judgment and subsequent safe resolution of the Council of the Institute of British Architects.—First, that "they are of opinion that Burlington House, with its colonnades, possesses considerable merit;" and, secondly, "that it would be a subject of regret if such building should be wantonly interfered with, or needlessly destroyed." Only a few days ago (May 17th), Mr. Beresford Hope sent a long letter also to the *Times*, expressing his apprehension that the Royal Academy was about to occupy a portion of the ground on the south, or Piccadilly side, of Burlington Gardens; and deploring the probability that, if that Society should be permitted to take possession of the site, the building required for the Academy would interfere with and injure that approved monument of Lord Burlington's taste and genius.

It is scarcely worth while to enter, at this time, into the question of a *possible* Royal Academy building on this site; for, if there is any foundation for certain rumours, it is by no means certain that the Academicians will accept the Government offer of this locality. The subject is under consideration only. Mr. Hope's apprehensions, so far as regards the Academy, may therefore, after all, be groundless; but still he should remember that, under any circumstances, the architects who are members of the Royal Academy, and who, doubtless, would be consulted in any question of such building, are also members of the Royal Institute of British Architects, and competent, it may be presumed, to advise upon the fitness of things quite as fully as their honourable and worthy president.

Whether the very large plot of ground, now unoccupied, should be kept merely as an open court-yard, and whether the "dingy" (Mr. Hope's epithet) brick wall, shutting out all view of the main building of Lord Burlington's design—excepting when a peep of it may, occasionally, be procured through the great gateway in Piccadilly—should be retained, may also be a question for future discussion; but it is one with which, at present, the Royal Academy need not be mixed up. If the Academy should agree to accept any part of the site, the Government will, no doubt, make known under what conditions any new erections will be allowed to interfere with the existing buildings. Then would be the time for Mr. Beresford Hope and his friends, who profess their opinion that Burlington House and its colonnades should not be "wantonly" interfered with nor "needlessly" destroyed, to step in and express their views.

The Government, — with all respect be it said,—has already placed itself in a dilemma in this matter. In its desire to conciliate a small *clique*, in and out of the House of Commons, it has consented (by a majority of one in the division?) to eject the Royal Academy from the very fittest site in London they could have occupied, for public convenience and for their own purposes, as schools, exhibitions, &c., and where the neighbouring ground, for which the Government has already agreed to pay an enormous sum of money, would allow of sufficient, and most effective alterations, to adapt the spot not only to the requirements of the Academy,—of which they agreed to be at all the cost, however great,—but for other public objects. Mr. Hope sees this in its true light. That site will now have to be covered with new buildings—all *in nubibus*, at present—to be erected, when decided on, at a cost, from first to last, that will make the House of Commons and the country "stare again." The soundest opinions upon such subjects seem now to agree, almost without exception, that a more *objectionable* locality for the permanent lodging and exhibition of old and valuable pictures scarcely could be selected than Charing Cross; with its surroundings, and the constant traffic of dust-distributing elements incident to so great a thoroughfare. Burlington Gardens, with its capabilities, if not unexceptionable, is infinitely preferable as a site for a National Gallery of pictures. It is better protected than Trafalgar-square ever can be from the many damaging influences that surround the latter locality; and there is space for a very imposing architectural composition, of sufficient size for the purpose required. This is not, however, a subject of present discussion. It is one of prospective pleasantness to a Chancellor of the Exchequer and a Commissioner of Public Works, in its relation to the money part of the business; and it may be a matter of deep anxiety to those few foolish enthusiasts who care for the preservation of the works of the old masters. But so matters are managed in this country. The Royal Academy has received notice to quit, and has now nothing whatever to do, it seems, but to make way for any new schemes, wise or foolish, that it may be in contemplation to carry out in their old quarters.

Leaving, now, this part of the question, it is impossible,—with respect be it said,—not to be struck with the conviction the accomplished President of the Institute of Architects entertains of his own capacity to *improve* a building which he and the council think ought not to be interfered with, and which it would seem he is so especially desirous to preserve from the possible *vandalism* of the R. As. Filled with horror at the possibility of *their* interference, he has no hesitation in telling the public what *he* would do to amend Lord Burlington's design. He would, he declares, alter the colonnades; he would perforate the screen-wall; and he would add at least another story to the main or centre building! Now it would probably strike a professional architect, or, it may be supposed, any one who has studied such subjects, that the relative proportions of height, width, and length must have been fully and carefully considered by the noble architect when he designed his building; and if these qualities give any value at all to a design, that entirely to alter any one of them would materially interfere with the architect's *idea*. Mr. B. Hope prepares his reader for this, justifying his proposed interference with Lord Burlington's design, in the strangest manner possible. He says, patronizingly, "Lord Burlington was a great peer, and a great architect, but he was not infallible." Mr. Hope would repair this deficiency. He is not himself a great peer, and he is not, at present, a great architect, but he would improve upon Lord Burlington in another quality. He would, he tells us (see first letter), "push up" the main building another story, thus entirely altering its character and elevation: he would "boldly pierce" in one direction, and he would "sweep away" in another; and there is even a suggestion that access might be obtained to any possible buildings that may be at any time erected on the north of Burlington House and gardens, by making an entrance right through the central building. The modesty of these suggestions, as improvements upon the design of the "great peer and architect," will strike every one. It would be interesting to see Mr. Beresford Hope's amended version by the side of the present Burlington House and its accessories, and thus to judge how much of that which is allowed by the council of the Institute to possess "considerable merit," would be left to tell its own tale. Mr. Hope's new design might, possibly, be the best of the two;

"Who shall decide when doctors disagree?"

but it really appears, at first sight, that little, beyond the ground-plan, would remain to do honour to the original noble designer; and, by the way, scarcely that, in its integrity, if an entrance (for carriages, of course, if it is to be of any real use) is to be made right through the centre building.

The council may have seen good reason for inserting their second resolution, if they had any sly misgiving as to what their president was thinking of, by way of carrying out his professed conservatism and scrupulous notions of defending Burlington House from Royal Academy desecration. If so, the wags deserve infinite credit for their cautious rider, as to "wanton" interference, and "needless" destruction. The spirit of Lord Burlington may be imagined hovering fondly over this monument of tasteful genius, and murmuring in doleful apprehension, "Save me, oh! save me, from my friends."

NOT AN ARCHITECT.

FLITCH GIRDERS.

IN 1860 the following experiments were tried at Woolwich Arsenal:—

1. Two Memel deals, each 3 in. thick and 9 in. deep, on bearings 17 ft. apart, were bolted together and loaded on the centre until they broke. The breaking-weight was 6,800 lb., and the deflection 4½ in.

2. Similar deals of the same section and bearing were next taken and bolted together with a flitch of wrought iron 9 in. deep, and ½ in. thick, placed between them, and the beam was loaded as before. It broke with 18,079 lb., the deflection being 4½ in.

3. The experiment was repeated on a beam similar in all respects to the last, but the load was distributed over the length. It broke when the weight was increased to 34,862 lb.; the deflection being 4¾ in.

According to Hurst's formula, the *second* beam should have broken with 16,009 lb., and the *third* with 32,018 lb.

According to Mr. Tarn's formula (p. 412 of The *Builder*), the total weight which may be laid on the middle of a flitch beam, 9 in. by 6½ in., and 17 ft. between the supports, without injuring its elasticity, is 6,021 lb., the thickness of the iron being to that of the wood as 1 to 20.

ENGINEER.

CHURCH-BUILDING NEWS.

Hunslet Moor.—The foundation stone of a new church, the first to be erected under the auspices of the Leeds Church Extension Society, has been laid on Hunslet Moor. The site, which is at the west end of the moor, and close to the Leeds and Dewsbury-road, has been given by the lords of the manor. The church, which will cost in completion between 5,000*l*. and 6,000*l*., is to accommodate 900 persons, and all the sittings will be free. 3,000*l*. have been given by Mr. Ingham, her Majesty's Consul at Palermo, who is a native of Hunslet, and 3,000*l*. have been

added by the Leeds Church Extension Society. The contractors are,—for masonry, Messrs. Bennett Brothers, Wortley; joiners' work, Mr. Britton; plumbers', Messrs. Linley & Johnson; painters', Mr. W. Nelson; slaters', Mr. Atkinson; carvers', Messrs. Mawer & Ingle.

Bedford.—The first stone of the restoration and enlargement of St. Paul's Church, Bedford, has been laid by Lady Adine Cowper, in the presence of a large assemblage. We believe a gentleman resident in London, but possessing considerable property in Bedford, first suggested the idea of restoring the church, about six years ago, whilst some renovations were in progress in the chancel. The present contract comprises the erection of new tower and north transepts. About one-third of the old masonry of the spire will be re-used, and the base slightly enlarged to meet the increased size of the new tower. The revised tender for these works submitted by Messrs. G. Myers & Sons, of London, amounted to 4,819*l.* The work of demolition commenced in November, 1865. The contractors have undertaken to complete the work connected with the present section within eighteen months from that date. The whole of the foundations of the tower up to the ground line, have been executed in cement with York stone landings, and brick inserts to receive the pressure of the piers of the new tower. The piers up to the level of the capitals of the nave arcade will be of Portland stone. The stone selected for the ceremony of the day was the base of a portion of the north-east pier, and weighed about three tons. The apex stone of the new spire will be about 13 ft. higher than the old finial. The new tower will be in the style known as Early Decorated; the north and south transepts in the style prevailing towards the close of the fifteenth century. The old bells, with the exception of No. 4, which will be re-cast, will be raised on a new oak frame in the belfry stage of the new tower.

Petworth.—Three of the pinnacles of the spire of the parish church having been broken off, many of the parishioners have expressed a wish for their restoration, and a subscription has been entered into to carry out their object. The contract has been taken by Messrs. Whitcomb for 200*l.*, and the erection of the necessary scaffolding has been begun: 20*l.* more would carry the scaffolding high enough to put to rights the vane which is out of order.

Denton.—The parish church of Denton, near Newhaven, has been formally re-opened for divine worship after restoration. The fabric has been restored, the chancel solely by Miss C. Catt, and the nave chiefly by the aid of Mr. Henry Willett and other members of his family. The architect, under whose direction the work of restoration has been carried out, was Mr. Scott, of Brighton, and the builder was Mr. Davey, of Lewes. Mr. Parsons, of Lewes, stonemason, restored the eastern and western windows of the church, previously bricked up. Five windows in all have been restored. The seats are of varnished deal, and a pulpit and reading-desk, of the same material, have been erected in the nave. The porch is of oak. A new campanile has been added to the western extremity of the building.

Bingley.—The foundation-stone of a new church has been laid at Bingley. The site selected is at Dubb—the east end of Bingley. The architect is Mr. Norman Shaw, of London, now of the firm of Messrs. Nesfield & Shaw. The style selected is the earliest type of Pointed Gothic. It is proposed ultimately to have a tower and spire; but at first the church will consist of nave, side aisles, and chancel. Except on the roof, there will be no plaster in the interior, the walls showing the stone. The roof, however, will be underdrawn in a cove form, and the plaster will be ornamented. There will be a large western porch, opening with two doors into the church. No attempt will be made to complete the building at once: the first care will be to erect a solid shell, leaving it to the future to add interior and exterior ornamentation. The cost of the ground has been more than 600*l.*, and the building contracts already entered into amount to 3,300*l.*; but before the church is in a tolerably completed state, 1,500*l.* more will be required. Mr. A. Harris, of Ryshworth Hall, headed the subscription-list with a donation of 1,000*l.*

Acton.—The parish church has been consecrated after re-erection, except the tower. The church consists of nave, north and south aisles, south chapel, chancel, and chancel aisles, the latter used for organ and vestry. The total length of the nave is 83 ft. 3 in., and the entire width of nave and aisles 57 ft. 3 in. The chancel is 31 ft. 3 in. by 24 ft. wide. The nave walls are 25 ft. high to the roof-plate, and the total height from floor line to ridge of roof 57 ft. The style adopted has been Decorated Gothic, with red brick facings, externally relieved with black bricks in pattern in bands, and over door and window arches, the walls internally being faced with malms, similarly relieved with red bricks in pattern. The whole of the stone details have been executed in Bath stone. The height of the building was somewhat determined by the old tower at the west end, which it was the wish of the committee to retain, but increased altitude has been given to the north aisle by the introduction of dormers, which enabled the windows to be thrown up above the plate line of roof. The chief entrances to the church are by the old western door in the tower, and by the new porch on the north side. The interior is divided into five bays by columns and arches of Bath stone, the whole of the capitals throughout being carved in natural foliage, with birds and other suitable devices. The roof is open to the ridge, and is of memel fir, boarded at back of rafters, stained and varnished, and is of lofty pitch The seats are of deal, with open bench-ends, also stained and varnished. The stained glass windows in the chancel, by Messrs. Clayton & Bell, are memorials; that over the altar being the gift of the Rev. Ouvry North, and those on the north side being to the memory of the Rev. John Smith and the Rev. E. Antrobus, former rectors of the parish. The windows in the south chapel by Mr. Gibbs, are the gift of Mr. Walmsley, one erected to the memory of his wife, and the single-light window at the west end of the south aisle, also by Mr. Gibbs, has been presented by the architects, who also presented the credence-table in the chancel. The works have been carried out by Messrs. Dove, of Islington, at a cost of about 7,300*l.* Their foreman, Mr. Osborne, has had charge of the works from the commencement. The reredos, pulpit, prayer-desk, lectern, and carving to nave piers, have been executed by Mr. F. G. Ansley; the gas-fittings, including standards within the altar-rails, by Messrs. Hart & Son; and the heating apparatus by Messrs. Benham. The architects, under whose superintendence the works have been carried out, are Messrs. Francis, of London.

Llangattock, Vibor Avil, Monmouth.—The church here has recently been restored by Mr. J. E. Rolls, of the Hendre, Monmouth. A carved wood screen has been erected between the chancel and the nave. The whole of the church has been decorated, the chancel ceiling being divided into forty-nine panels, which are ornamented with evangelistic symbols and other emblems, the walls also being diapered. The nave, ceiling, and walls have been decorated in a similar manner. An oak reredos, with encaustic tile plinth and zinc panels illuminated with the commandments, &c., has been placed at the east end. The whole of the work has been executed by Messrs. Cox & Son, of London.

Ealing.—Mr. S. S. Teulon was called in to design a chancel for St. Mary's Church, Ealing. The design he adopted was a mixture of Byzantine and Louis Quartorze, but somewhat in keeping with the main building. It is apsidal in plan. Other improvements were decided upon. The windows were removed, and new ones of Bath stone, with single shafts and mullions, with chamfered capitals and coloured brick semicircular arches, inserted. About this time the roof was discovered to be rotten, and in a dangerous state, consequently a new roof was put on, partly supported upon cast-iron columns, from which and from the walls semicircular moulded rips spring from east to west, and from north to south. The timbers are stained, and the spaces between the rafters and diagonal braces are plastered. The cast-iron columns which have foliated wrought-iron caps, and are painted in the Byzantine style, also support a gallery running along both sides of the nave. Passages were next built on both sides of the church, in order to increase the size and improve the architecture. These nave windows are of Bath stone. The walls of the church were reduced to piers, and segmental arches of coloured bricks were introduced to support the weight of the thick walls, and throw it upon the piers. The church has also been reseated with deal and oak stalls, and an altar-rail of the same material has been introduced into the chancel. The pulpit is of oak. A baptistery, a vestry, and a chapel for the new dean have been built, as well as two entrance-porches in harmony with the building. It is a pity the tower could not be recast, as it not only destroys the whole effect, but occupies the most conspicuous position. The church was re-consecrated on the 30th ult., by the Bishop of London. The workmen (150 in number), in the employment of Mr. Nye, the contractor for the church, were entertained by a supper.

SCHOOL-BUILDING NEWS.

Dudley.—The foundation stone of a new Congregational school, which is to be used as a chapel, has been laid at Kate's Hill. The building had its origin in a division of the Independent congregation in Dudley, which led a certain number to leave with the minister, the Rev. T. W. Tozer, for whom the new building is to be erected. The design of the proposed building is Gothic. The dimensions of the main room will be 60 ft. by 31 ft., and there will be four class-rooms, 15 ft. by 13 ft. each. The building will be of brick with stone dressings. The architect is Mr. Bidlake, of Wolverhampton, and the builders are Messrs. Trow & Sons, of Wednesbury. The amount of the contract is 1,114*l.*

London.—The new buildings of the Jewish Free School have been inaugurated. The additions to the schools consist of nine new class-rooms for boys, accommodating 800 children, and six for the girls, accommodating the same number of children. In all the schools will now accommodate from 3,000 to 4,000 children. The new class-rooms occupy two ranges of buildings, three stories high, built on iron columns and brick arches, thus forming extensive covered playgrounds for the children in wet weather. The two ranges of buildings form the sides of a paved quadrangle, which is appropriated to the boys for an open playground, the girls having a similar open playground. The buildings on the boys' side are entirely devoted to educational purposes; but on the girls' side, in addition to the six class-rooms before mentioned, there is on the first-floor a dining-room, 35 ft. by 20 ft., for the female teachers, with large kitchen and scullery adjoining, and also a laundry; and on the ground-floor an extensive washhouse, fitted up in the most complete manner. Adjoining this are apartments for the porter. The girls' class-rooms, teachers' dining-room, and the lavatory, are warmed by hot water, in addition to the open fireplaces in each room. The boys' class-rooms are warmed by open fires only, and the ventilation throughout is effected by air-flues running the whole height of the building, and communicating with each room: the whole of the rooms are lighted by gas. The buildings have been erected from designs by, and under the personal superintendence of, Messrs. Tillot & Chamberlain; and the cost of the whole, including a new house and repairs to eleven houses in Sandy's-row, and sundry repairs and alterations to the old schools and class-rooms, was about 14,000*l.*, exclusive of the site, the cost of which was 7,000*l.* The contractor for the works was Mr. G. S. Pritchard.

Doncaster.—At a meeting of the subscribers to the fund for the erection of the new Grammar School, plans from Mr. G. G. Scott for the new school having been produced and explained by Mr. E. B. Denison, and the following estimate of the cost read:—

Cost of building	£5,300
Enclosing grounds and building lodge	1,000
Architect, clerk of works, and incidental expenses	1,000
Repair fund	500
Warming apparatus	200
Total	£8,000

It was resolved that the Rev. W. Gurney be requested to take a convenient opportunity to see Mr. Forman, and to lay before him the plans and estimates, and obtain his views thereupon.

DISSENTING CHURCH-BUILDING NEWS.

Rotherham.—The foundation stone of Rotherham Congregational Church, has been laid in the presence of a large assemblage. The proposed first outlay is to be about 3,500*l.* The plans have been prepared by Messrs. Shaw & Wightman, architects, Rotherham and Wakefield. It has been their endeavour, in the design of the building, so to adapt the forms and details of Gothic architecture as to make them conform to the requirements of the form of worship used by the Congregationalists. The plan is cruci-

form, having nave or main building, 90 ft. by 38 ft., and north and south transepts each 20 ft. by 18 ft., with tower, vestries, &c., abutting on the west end of the nave; the said tower forming vestry with organ gallery over, and having smaller vestries on either side of same. It is proposed only to build the tower at present up to the height of 70 ft. above the Doncaster road, leaving the spire for future erection, which will also be of the height of 60 ft., making a total of 130 ft. The eastern end of the nave abuts upon the new road, which is at right angles with the Doncaster road, the gable rising to the height of 50 ft., and surmounted by an iron cross. In the upper part of the gable is a trefoil light or window, beneath which is a large window of five lights, 20 ft. in height. On either side, and beneath this window, are the two principal entrances to the church, consisting of deeply-recessed arches with columns. The doors are to be of oak, with foliated hinge irons. Within, the architects have been compelled to consider more closely the requirements of Independent worship, than the peculiarities of the Gothic style of architecture. In order to secure the required acoustical properties of the building, an eight-sided panelled ceiling has been adopted, which will be in wood, stained and varnished. The first contract has been let, amounting to 2,500*l.* The contractors are, for mason's work,—Mr. R. Charles Ripley; joiner's work, Mr. J. Newsum; plasterer's, Mr. Richard Gummer; plumber and glazier's, Mr. T. Lister; slater's, Mr. Walker; painter's, Mrs. E. France.

Warwick.—The chief stone of the new Baptist Chapel, now in course of erection on the Back Hills, has been laid. Mr. George Ingall, of Birmingham, is the architect, and Mr. J. H. Clarke, of Warwick, the builder. The style of the new building is modern adaptation of Early English architecture. There will be three vestries, with apse for the pulpit. It will be erected at a cost of 1,550*l.*; the materials being brick with Bath stone dressings, with stained deal interior fittings.

Church Stretton.—The new Congregational chapel, built from a design by Mr. Bratton, of Birkenhead, architect, commenced in the autumn of last year by Mr. Richards, of Pulley, has been completed and opened for divine service. The front is built of free-stone, in the Gothic style. The walls in the interior are coloured and drawn stone work; the beams supporting the roof are all shown and varnished, as are also the seats and gallery front.

Gildersome.—The new Baptist chapel here has been opened. It is in the Italian style. The whole of the building is of Dinsdale stone, the front double hammer dressed, with cleansed facings. The gallery is elliptical in form. The ceiling is divided into panels. The base of the platform and the whole of the pews are varnished, and the gallery front painted in French white of different shades, and stencilled, the moulding being enriched with gold. The remainder of the woodwork is grained. The chapel is 64 ft. by 46 ft. 6 in., exclusive of the orchestra, which is 14 ft. by 29 ft., so that the interior measures about 70 ft. by 40 ft., and it is calculated to seat upwards of 600 people, allowing 1 ft. 8 in. per sitting. A school-room 49 ft. by 29 ft. adjoins the chapel; and the minister's and deacons' vestries are underneath the orchestra, and a large vestry, with oven, boiler, &c., for tea, has been provided. The contractors were Mr. Wm. Birchall and Mr. Hird, decorator, (Bradford), and the total cost is about 2,300*l.* The architects were Messrs. Simpson, of Leeds, under whose superintendence the whole of the works have been carried out.

STAINED GLASS.

York Guildhall.—At a recent quarterly meeting of the York City Council, a coloured drawing of the stained glass window about to be erected in the Guildhall, at the expense of the Lord Mayor, was laid upon the table, and a descriptive letter from Mr. Doyle, the designer, was read, from which it appears that, in the centre of the window is represented the election of Constantine the Great as emperor, at York, A.D. 306. Constantine, habited in a mourning-cloak, is represented as receiving the principal military and civil authorities, who bring him the sceptre, the golden orb, the laurel crown, and the imperial mantle. The portrait of Constantine has been studied from his coins in the British Museum. In the lower compartments are introduced on each side the Roman eagle; and in the middle the monogram of our Saviour, which Constantine, after his conversion, adopted as a device for the Imperial standard.

St. Austle Church, Cornwall.—A memorial in painted glass, the work of Messrs. Cox & Son, London, has been placed in the east window of the south chancel aisle of St. Austle Church. The window represents the following incidents in the life of our Lord:—His Baptism, His Crucifixion, and His Resurrection, introduced in large medallions on a background of passion-flower and vine ornamentation. An inscription underneath states that the window was erected to the memory of Edward Coode, of St. Austle, clerk of the peace and county treasurer, Cornwall; his wife; and Edward Coode, of Moor Cottage, their son, clerk of the peace and county treasurer, Cornwall.

Sutton Valence Church.—A stained-glass window has just been completed in this church, to perpetuate the memory of the late Rev. Frank Walter. The glass work was designed and executed by Messrs. Lavers & Barraud, of London. The window has six illustrations of the life of Christ, as follows:—Birth of Christ, Lord's Supper, Christ blessing little Children, Christ's Agony in the Garden, Christ bearing the Cross, and the Transfiguration.

St. Mark's, Lakenham.—Messrs. Ward & Hughes, of London, have just filled one of the side lancet windows of the new chancel of the church with painted glass, representing Mary sitting at the Feet of Jesus. On the left side of the window the Saviour is represented in a sitting posture, with Mary at His feet, gazing on Him, with fixed attention. On the right hand is seen the figure of Martha, intent upon receiving her Lord with all due hospitality.

The Augustinian Church, Drogheda.—We are indebted to the *Drogheda Argus* for the following:—A memorial window, composed of seven lancet lights, extending over the entire east end of the chancel, has been lately put up in this church. Its centre light, measuring 25 ft. in height, is occupied by a figure of our Lord in majesty, seated upon the rainbow, with clouds and stars under the feet. This figure and all the others in the window are represented under lofty architectural canopies, the background of which is richly coloured foliage in geometrical patterns. In the same ope, beneath the figure of our Lord, the crucifixion is represented, with the Virgin Mary and St. John at either side, and above it an ornamented cross, with two angels standing by it in adoration. The Papal arms are placed in the apex of this light. The next figure in the order of precedence is that of the patron of the church, St. Augustine. He is represented as a bishop, with a book in one hand and the pastoral staff in the other. Lower down there is a group —one of the figures kneeling as if in the act of receiving the rules of the Order from its founder. The corresponding light contains St. Monica, the mother of St. Augustine, and the subject below relates to the historic scene where St. Monica, weeping, entreats St. Ambrose to intercede for her son. In the upper portion of these two lights the arms of the Order and of the Primatial See of Armagh are respectively emblazoned. St. Nicholas, of Tolentine, occupies the open on the right of St. Augustine; and underneath is a legendary group, representing St. Nicholas as being crowned by the Virgin Mary and St. Augustine. The light corresponding to this ope is filled with a large figure of St. Patrick as usually represented, and below it a group alluding to his illustration of the mystery of the Holy Trinity. The armorial bearings of the Messrs. Gradwell & Chadwick, the donors of the window, are introduced into these opens. In the remaining two lights are figures of St. Bridget and St. Thomas, of Villanuova. St. Bridget carries on her right arm a spinning-wheel, as the patroness of spinners. A special interest is attached to this, the memorial figure, because the Messrs. Gradwell & Chadwick are linen manufacturers in Drogheda, and because the idea was suggested by an ancient and partially mutilated basso-relievo of St. Bridget, with the spinning-wheel still to be seen at the entrance of the hermitage in the grounds of Slane Castle. The window has been designed and executed by Mr. W. Wailes, of Newcastle-on-Tyne.

Diss Church.—Another memorial window has been placed in the south aisle of this church. It is the gift of Mr. Mr. T. E. Wallace, and is in memory of the late Mrs. Wallace, who died in June, 1865. The subject is "Three Holy Women of Old," viz.—Ruth, Anna, and Dorcas. Ruth is represented refusing to part from Naomi; Anna in the Temple with Simeon, at the presentation of the infant Saviour, who is seen in the arms of the high priest; and Dorcas being raised to life at the prayer of St. Peter. The artists were Messrs. Ward & Hughes, of London. In the upper part of the window, the twelve principal openings contain figures of angels. There are two other windows in the south aisle, which are at present of plain glass. These will be shortly filled with painted glass.

Books Received.

Travelling in Spain in the present Day. By HENRY BLACKBURN. London: Sampson, Low, & Co.

IN the preface to this volume, Mr. Blackburn explains that "it was originally intended to have published an account of the journey, almost verbatim, from a lady's diary and an artist's note-book; but in speaking of such well-known places as the 'Alhambra,' or of 'Gothic architecture in Spain,' it was found impossible, in order to attain any measure of completeness, not to refer to such authorities as Mr. Owen Jones and Mr. Street; and to quote frequently from the handbooks of Mr. Ford and Mr. O'Shea." Though our professional readers will not find much matter of architectural interest in the present volume; and, indeed, it was not intended specially for such readers; it contains a lively and interesting sketch of a journey through Spain by a party of four, including two ladies. The volume is illustrated by engravings from original sketches, by John Phillip, R.A., Walter Severn, and E. Lundgern, and is well got up by the publishers, upon fine toned paper.

The Toilet and Cosmetic Arts in ancient and modern Times: with a Review of the different Theories of Beauty, and a comprehensive Collection of Formulæ, &c. By ARNOLD J. COOLEY, author of "Cyclopædia of Receipts and Processes," &c. London: Hardwicke.

HERE are eight hundred pages of matter, chiefly on the art of artfully disguising and hiding the human face divine, and its outlying borders, under layers of *pommades de beauté*, ointments, liniments, lotions,—arsenical, cherry-laurelous, phosphoretic, iodurétic, cyanitic, mercurial, antimonial, bismuthic, cantharidetic, and so on, to a fearful extent. Only think of kissing the lovely cheek which has just been "beautified" by the "arsenical cosmetic lotion," or "Aqua Cypria," or washed with the "mercurial soap!" Recondite as the modern art of skin-painting evidently is, we much prefer the ancient and far more innocent and primitive art still practised by the American Indians, inasmuch as ochres are decidedly less harmful than arsenical, mercurial, antimonial, and such like ointments; and clay is not only harmless, but useful, since it forms a suit of tights impermeable to mosquitoes. As for tatooing, which makes the savage "beautiful for ever," we are much mistaken if any preparation by Madame Rachel can equal, far less excel, it in permanency. The tatoo, moreover, affords a field of artistic display, for which Madame's affords no opportunity whatever, except in the artful sense; and it "washes to the last." That the two extremes of the scale of civilization meet, however, in the American savage, on the one hand, and in that modern Pict, the fine lady, on the other, is manifest; and, doubtless, in some far past and prehistorical era, the art of the Picts and other savages originated in just such a refined and recondite science of cosmetology as that which is again advancing towards Pictish ultra-perfection.

Apart from all the evil nonsense of which this volume is certainly a wonderful compendium for all who want it, there is much curious reading in it as to the toilet and cosmetic arts in various nations, both ancient and modern.

The author, by the way, takes rather too much care in the preface to disclaim the punctuation of his volume: he had adopted some other system of his own, which was, probably, rather too crotchety to be correct; at all events, the punctuation as it stands is unusually good, and we see nothing wrong with the orthography and other technical points which he also disclaims, like the punctuation, without any advantage to

himself: it is right, however, although the author did not mean it, that credit should be given to those to whom credit is due.

Men I have Known. By WILLIAM JERDAN. London: Routledge & Sons. 1866.

A CHARMING book, and nothing short of it; full of the most graphic and genial reminiscences. For thirty years and more, editor of the *Literary Gazette*, Mr. Jerdan was brought into close and confidential intercourse with the leading scientific and literary minds of the time; and he here gives his remembrances of fifty-three of them in a style so agreeable that, once dip into the collection, and it is scarcely possible to put it down. Not pretending to set biography, the notes show us these former friends and acquaintances for the most part in their Hours of Idleness,—their moments of enjoyment,—and give insights to character sometimes wanting in more elaborate accounts. Brunel, Britton, Buckland, Chantrey, Thomas Cubitt, Wilkie, and David Roberts, are amongst the names that would first attract the majority of our artistic and professional readers; while Barham, Campbell, Coleridge, Edward Forbes, Franklin, Hogg, Southey, and a dozen others, appeal to an even wider circle.

The volume is illustrated with *fac-simile* autographs, and is inscribed affectionately to one who has never failed in his friendship, the Lord Chief Baron Pollock. The author shows now, as of old time,—

> "—— Warmth of heart sincere;
> And wit that never gave an ill-thought birth,
> Nor ever in its sport infused a sting."

Icelandic Legends. Collected by Jön Arnason. Translated by Geo. E. J. Powell and Eiríkr Magnússon. Second Series. London: Longmans, Green, & Co. 1866.

ACTING as interpreters between Iceland "great in the past," and England "great in the present," Messrs. Powell and Magnússon are doing good service. This second series of legends makes more evident than before the excessive fertility of imagination possessed by the inhabitants of little-known Iceland, a people exposed to hardships of many kinds. The legends are placed under the headings "Stories of God and the Evil One," "Stories of Paradise and Hell," "Historical Legends," "Stories of Outlaws," "Tales and Comic Stories," and are prefaced with a long and valuable introductory essay enabling readers "to take a general and comprehensive view of the popular fancy of Iceland; of its mode of regarding the world of wonders, visible nature, and the various phases of human life and character." It is an able and interesting work.

Miscellanea.

THE ARCHITECTURAL MUSEUM.—In reply to an inquiry, it is premature to say that arrangements are made for the removal of the Architectural Museum to fresh premises. Negotiations have been going on for some time as to eligible galleries in Rathbone-place, but the shortness of the term obtainable will probably prevent completion of the arrangement. Other likely places are being viewed.

FALL OF A CHURCH, STOCKHOLM.—A lamentable catastrophe occurred at Stockholm on the 25th ult., by the fall of part of the Catholic Church dedicated to St. Eugénie, which was in course of being enlarged. The accident arose from the weakness of the pillars of the new portion, which toppled down, dragging with it the walls of the old building. About thirty workmen were buried under the ruins.

ACCIDENT AT GUILDHALL.—On Tuesday evening a serious accident occurred at Guildhall. The yard was being covered in for the reception of the Duke of Edinburgh, and a large number of workmen employed in completing the arrangements. Part of the scaffolding, upon which about twenty carpenters and paperhangers came rapidly, gave way and precipitated the whole of them to the ground. Those who were immediately over the fracture fell direct a height of about 15 feet, but those who were further off slid down and had their fall broken, so that they received but a few scratches, bruises, and shakes.

OPENING OF THE PARISH CHURCH BELLS, LEESFIELD.—These bells have been inaugurated by the Oldham bell-ringers. The peal, which consists of eight bells, was cast by Messrs. Mears & Stainbank, of London. The tenor weighs 14 cwt. 8 lb., the whole peal being three tons, and produced at a cost of 608*l.* 8s. The bells were opened with Mr. John Holt's ten-course peal of grandsire triples, 5,040 changes, occupying three hours and two minutes, in good style.

NATURE-PRINTED TILES.—We would call attention to an advertisement of an invention which appears in our paper this week, called "the Ceramic Petalocanst Process, for the Ornamentation of China, Glass, and Metals." It consists in a *fac-simile* reproduction of a variety of natural objects, and, in some cases that we have seen, with such accuracy that they might be used even as botanical studies. They are burnt in, and permanent as all china, and are equally available for all kinds of it. It may be well employed on tiles, for stove manufacturers, conservatories, dairies, floors, door-plates, or lamps. The addition in cases where plain white china would be otherwise used is comparatively inexpensive.

RESTORATION OF RIPON CATHEDRAL. — The honorary secretaries of the General Repair Fund have just published a statement of account, dated 7th of May, 1866. The secretaries state that the contractor is proceeding with the repairs of the centre tower; and for that and other repairs of the walls a sum not exceeding 10,000*l.* has been granted by the Ecclesiastical Commissioners. The secretaries further state that "the works in the choir are progressing, but the amount hitherto subscribed under the 'Special Fund' for that purpose has only reached about one-half the estimated cost, and a further sum of nearly 3,000*l.* will be required for their completion; and the committee regret to say they are compelled again to appeal to their neighbours and friends in the diocese to assist in making up this deficiency—no portion of the commissioners' grant being allowed for the refitting of the choir." From the statement of account we learn that the contractors, Messrs. Ruddle & Thompson, have been paid 2,947*l.* for repairing the choir roof; for the north-west tower, 2,885*l.*; for the south-west tower, 2,230*l.*; for the east end, 651*l.* 10s.; for the pinnacles and buttresses at the east end, 554*l.*; for the west front and other works connected therewith, 1,298*l.* The total amount received by the treasurer is 14,465*l.* 18s. 1d., and all this has been paid away except 760*l.* 11s.

THE QUESTION OF BUILDING LEASES.—In the Vice-Chancellor's Court, before Sir J. Stuart, the application by Lord Londesborough, under the Settled Estates Act, that powers might be given to the trustees of his settled estates to grant building leases of land in the town and neighbourhood of Selby, came before the court on the 20th of April last, and was directed to stand over in consequence of the opposition of Lord and Lady Otho Fitzgerald, she being a jointress and the testamentary guardian of four infant tenants in tail in remainder. Mr. Malins, Q.C., and Mr. Renshaw appeared for the petitioner; and Mr. Bacon, Q.C., and Mr. Chapman Barber for Lord and Lady Otho Fitzgerald. Mr. Malins said that in consequence of the continued refusal of Lord Otho Fitzgerald to consent to this application, he was sorry to be under the necessity of withdrawing the petition. Mr. Bacon, on behalf of Lord and Lady Otho Fitzgerald, applied for their costs, alleging that his clients had been brought before the court by the petitioner, and thus put to expense which, as a matter of right, they were entitled to be recouped. The Vice-Chancellor said that if he had not considered the application a proper one, he would not have directed it to stand over. He recollected the facts of the case perfectly, and the terms of the refusal. He thought that Lord Otho Fitzgerald would have done right to consent on the former occasion, and that he would do right still to consent. A party who (without going into the circumstances of the case), with the view of making a private bargain, seeks to upset an arrangement which was admitted on all hands to be for the benefit of all interested in the inheritance, was not in a position to ask for costs, and he (the Vice-Chancellor) would not give them. It might be that the petition would be in the paper again in a month's time, and a consent might for what he knew be then given. There would be no order for costs, and no order on the petition.

ENCROACHMENTS ON REGENT'S PARK.—At a meeting of the Marylebone Vestry, on the motion of Mr. Ward, seconded by Mr. Coe, a memorial was adopted, and a deputation appointed to wait on the Chief Commissioner of Works, calling attention to the enclosures of land and the construction of mounds round the villas in the Regent's Park, and calling upon him to have the same restored to the public, as such ground had been made use of in a way subversive of the original condition on which the ground was permitted to be used.

THE COST OF AN EXISTING LOCK-OUT. — The allowance fixed by the filesmiths' union at the commencement of the lock-out, at Sheffield, for the support of the men, was at the following rate:—7s. per week to single men and 9s. per week to married men, with 1s. per week additional for every child. This allowance has for thirteen weeks been regularly paid to every man, and has absorbed the sum of 1,700*l.* per week. Thus the large sum of 22,100*l.* has already been expended on this lock-out, irrespective of the loss in wages to the workmen and of profit to the employers.

ITALIAN RYE GRASS FROM THE MAPLIN SANDS. Among the many objects in the International Horticultural Show was a box of Italian rye-grass, which when brought was in luxuriant and forward growth, having been sown last February on Maplin sand, and since watered with the sewage as it runs into the Thames at Barking. In perfect health and growth, equal already to a cut of several tons per acre, and sown only three months ago, it is considered to be a sufficient testimony to the capability of sewage as a grass-grower upon sand. The *Gardener's Chronicle* states that the experiment on a larger scale at the outfall, where an acre of the Maplin sand has been brought up and spread, is in promising progress.

FRESH DANGERS TO VICTORIA PARK.—A meeting of ratepayers and householders was held on Friday evening at Hackney Wick, to consider the present state of the gas question in connexion with Victoria Park; also as to the nuisances emanating from naphtha, manure, and other factories in the neighbourhood, and to adopt such measures as may be deemed necessary. The Rev. T. H. Woodroffe, M.A., incumbent of the district, presided. It was unanimously resolved that a large and influential deputation be appointed to wait upon the First Commissioner of Works, and that every opposition be offered to the third reading of the bill of the Gas Light and Coke Company for erecting gigantic works within 800 yards of the park.

THE NEW CITY CLUB-HOUSE.—This new building, of which we gave a view, with plans, in our volume for 1864, pp. 650, 651, is now almost completed. It is situated in George-yard, leading from Lombard-street to Cornhill, and in the immediate neighbourhood of the Royal Exchange and the Bank of England. It is the property of a company of merchants, who have erected it at their own cost and for their own convenience, but who reserve to themselves the power of admitting fresh members from time to time. Already the proprietors number upwards of 500. The building, of which Mr. J. H. Rowley is the architect, has been erected at a cost of about 50,000*l.* It is in three stories and basement. The interior is fitted up handsomely.

ST. GEORGE'S HALL, LIVERPOOL.—In the Crown Court the bad acoustics and the poor accommodation for the bar and for the press have long been grievances. Mr. Robson, the Corporation architect, has taken the matter in hand, and the result is, that important alterations are now being carried out, under the direction of Messrs. Holme and Nichol. The changes will afford separate entrances for the bar and the public, while the jury-box will be transferred to the opposite side, nearer the witness-box; and the accommodation for reporters will be placed in closer proximity to both. The long and circuitous passages, by which the bar and the public alike entered the court, will be done away with, and thus more room will be afforded to barristers. The grand jury gallery will be altered, raised, and much improved in position; while the arch formerly over the judges' bench will be removed, and additional light provided. The two granite columns on either side of that position will be taken down, and a gallery for ladies will be erected around a portion of the court. These and other alterations will be completed before the next assizes

INDUSTRIAL EXHIBITION AT WHITEHAVEN.—An Industrial Exhibition has been opened in the Riding School at Whitehaven Castle, the proceeds of which are to be devoted to the building fund of a Working Men's Room in connexion with St. James's Church, Whitehaven.

COMMENCEMENT OF THE HOLBORN VALLEY IMPROVEMENTS.—At an early hour on Monday morning last a large number of workmen, under Messrs. Hill & Keddell, the contractors for the new raised way, or viaduct, over the Fleet-valley, at Holborn-bridge, commenced the construction of an extensive boarding for the enclosure of the works from Skinner-street on the east (near the bottom of Newgate-street) to Hatton-garden on the west.

THE DESIGNS OF THE LATE CAPT. FOWKE.—We have received a statement as to some steps taken by Mr. Liddell, Capt. Fowke's architectural assistant. According to this, Mr. Liddell asserts himself to be the captain's partner in his designs, and so claims to be admitted in the current Government competitions, and to be made the subject of a grievance in Parliament. We avoid the expression of any opinion, information being incomplete.

DESIGNS FOR THE NEW ASSIZE COURTS, BRISTOL. The designs were opened by the Finance Committee on the 1st inst. Twelve were sent in, all, of course, having reference to the site selected—that of the present Guildhall, with the buildings in the rear. The committee met again on Wednesday; but we believe no plan will be selected without the aid of some independent professional man being first called in to assist the committee in their decision.

COLLEGE OF ARMS.—We hear with great satisfaction, in which we have no doubt many of our readers will participate, that Mr. J. R. Planché, late *Rouge Croix*, has been appointed Somerset Herald, *vice* Mr. W. Courthope, deceased. It is to be hoped that the Registrarship, also held by Mr. Courthorpe, will go to "Somerset." The public have long been indebted to Mr. Planché for many pure pleasures. Such an appointment, putting the right man in the right place, is creditable to all concerned.

LIGHTING OF PUBLIC HALLS BY MAGNESIUM.—At the Royal Institution, last week, Mr. Larkins exhibited his method of illuminating public halls by the combustion of magnesium. The magnesium, in a finely divided state, is showered on small flames of gas, and thus produces a brilliant illumination. It was the first time the apparatus had been publicly exhibited. The flame was flickering, but the pure quality of the light contrasted strongly with the usual gas flames of the burners in the lecture theatre.

ROYAL PRINCESS'S THEATRE. — Mr. Charles Kean is playing Louis XI. with all his former power and more than his former finish. Seeing him in this part on the same stage as of old, and with the old accessories about him, it is difficult to realize the facts of his remarkable tour about the world, the strange lands he has visited, and the triumphs he has achieved far away from England, since we last saw him mumbling to the image on his hat, and yielding up, with equal reluctance, his crown and his life. Mrs. Kean strengthens the cast by playing the peasant dame, *Martha*. We gladly welcome back these two admirable artists.

BUILDING ON GREENWICH PARK.—The public require to be perpetually on their guard against encroachers on their rights and privileges; but it is too bad that the Government, who ought to protect the public, should in any case themselves attempt to deprive them of these rights and privileges. It is almost as bad as when a watchman breaks into the repositories of those he ought to protect, and robs them of their valuables. Many years ago, one of the late Commissioners of Greenwich Hospital (an office now extinct) was allowed to use a portion of the park as an orchard, attaching it to his residence, which was also built upon the park grounds. Instead of restoring this land to the park, now that the office with which it was connected has become extinct, the Admiralty are advertising it for building leases, in the prospect of adding some 80*l.* or 90*l.* per annum to the funds of one of the wealthiest institutions in the country. A deputation of those interested in the integrity of the park have had an interview with Mr. Shaw Lefevre and protested against this proceeding, and he has promised to lay the matter before the Admiralty.

THE ROYAL HORTICULTURAL GARDENS.—The large tent full of rhododendrons in full bloom, at this time open, is a sight worth seeing,—a perfect blaze of colour. The variety of tints now obtained in these plants is very remarkable.

THE LONDON GAS COMPANIES.—In reply to a question in the Commons, Sir G. Grey said the report of the Select Committee on the London Corporation Gas, &c., Bills, contained some important suggestions; but it appeared that there had been considerable difference of opinion in the committee. It would therefore be premature for him to state what course he should pursue, but he saw no reason to doubt that it would be right to act upon the recommendations of the committee. It would, however, be impossible to prepare a Bill on the subject this session.

POLLUTION OF RUNNING STREAMS. — It has been decided by Vice-Chancellor Wood, in the case of *The Attorney-General* v. *Richmond*, that persons are not entitled, on the ground of there being an ancient custom or privilege, at various times and in various proportions, to make a river or running stream in order to carry off their sewage into drains, to collect the whole mass and pour it at one time in such a manner and quantity as that the river or stream cannot perform the proper function of diluting the sewage on its passage down to the lower riparian proprietors, and thus cause a pollution of the stream and a nuisance; and the Court of Chancery will restrain the local authorities of a parish from doing the same in future if it has become a nuisance.

THE NEW PARK AT BOLTON.—This park has been opened with great ceremony by the Earl of Bradford. The park, which is situated on the Chorley New-road, about half a mile from the town, is about forty-six acres in extent, and commands a varied and extensive prospect of the surrounding country, which, except on the town-side, where the tall chimneys rear their smoky heads, is of rather a varied and picturesque character. The site was purchased by the corporation of Bolton at a cost of 20,000*l.*, and the work of laying out has been undertaken by Mr. Henderson, of Birkenhead, but is yet in a very incomplete state. The estimated cost of the necessary materials and labour was 30,000*l.*, but before the park is finished the outlay will probably reach the sum of 40,000*l.* At present the park cannot be seen to advantage.

STAUNTON'S PATENT FOR ELEVATING AND DEPRESSING CANNON.—It is claimed for this invention that in all circumstances, and with the heaviest guns, the elevation is perfectly under the control of the gunner, and the gun can be fired instantly upon the sighting being obtained. The gun requires no trunnions, but is worked on a central pivot, the breech resting on two eccentric discs, attached on either side of a drum, having ratchets cut for about two-thirds of its circumference: a double pall acts on these ratchets and retains the gun in its place; a lever at the bottom of the carriage, on being pressed by the foot, puts a break on the drum, at the same time releasing the pall from the ratchet, and enabling the gun to be elevated by the simple guidance of the hand. To depress the gun, a handspike, working in the circumference of the drum, on being moved, has the effect of elevating the discs and consequently depressing the gun. Another advantage is, that there is much less surface exposed to the enemy's fire.

PATENT SAFETY GAS-TAP.—The absence of a safeguard to prevent the accidental turning on of the tap, which often arises by an undesigned knock whilst dusting or cleaning the gas candelabra or other fittings, causes many fires, explosions, and other disastrous accidents; as also does the want of a protection against children or others from improperly turning on the gas. A patent safety gas-tap has been invented which renders the accidental turning of the T piece impossible, by means of a very simple and cheap addition to the ordinary gas-tap. A small spring is so arranged, that by the action of the fingers in turning the T piece or plug, it is readily depressed, and then freely allows the gas to be turned on, whereas it effectually secures the gas-tap from being opened by any accidental cause. If not liable to get out of order, and there seems little fear of that, this invention must greatly tend to insure safety in the use of gas. It can be applied, at a very trifling cost, to existing gas-fittings, and is readily applicable to the ordinary gas-taps.

SEWAGE OF TOWNS AND ITS APPLICATION TO AGRICULTURE. — A discussion meeting of the Framlingham Farmers' Club has been held at Framlingham, the subject for discussion being "Sewage of Towns and its Application to Agriculture," which was introduced by the Rev. J. H. Groome, of Earl Soham. Mr. Groome has taken much interest in Dr. Bird's deodorization of sewage by means of sulphated clay, which has been applied to the town of Stroud, in Gloucestershire; and he urged the application of this system to Ipswich. Dr. Bird, he said, had stated that one ton per day, or 365 tons per annum, would deodorize and precipitate the sewage of Ipswich, taking the population at 40,000; and if the sewage stuff obtained at Stroud be taken as the basis of calculation, they would have 1,200 tons of fertilizing matter in the year sufficient to manure nearly 5,000 acres of upland pasture. The cost of the clay, Mr. Lawrence said, would be about 3*l.* a ton. It was "sulphurated" by means of sulphuric acid. The word "sulphated" would, perhaps, better indicate such a process than "sulphurated." Dr. Bird and other gentlemen took part in the discussion.

PREPARATION FOR CHOLERA. — A "Memorandum of a Plan of united Action in the case of an Epidemic of Cholera; to be communicated to Vestries and District Boards, by the Metropolitan Medical Officers of Health," has been issued in a printed form. The measures recommended, whether cholera visit us or not, would tend to suppress the scarlet fever and typhus, whose continued presence in London causes more mortality than a passing epidemic might do. They are believed to be founded on common sense and experience, and aim at nothing extravagant; if attended to now, much future suffering, panic, and cost will be avoided. The first section treats of water, which, when impure, is a great source of peril; the second, of the measures requisite to check the spread of the disease in any given house which it may invade; the third, of the disinfection of clothes, &c.; and the fourth, of the speedy burial of the dead. Section fifth has reference to the helpless and dependent classes; and section sixth mentions some general sanitary precaution, always necessary, but now more than ever. Appended are hints for handbills for distribution, if thought expedient, to the owners or occupiers of houses, and to the population generally.

TENDERS

For boat-builders' shops, &c., for Messrs. Searle & Son. Mr. Parris, architect. Quantities supplied:—

Downs	£1,996	0	0
Butterworth	1,893	0	0
Thompson	1,880	0	0
West	1,798	0	0
Nightingale	1,760	0	0
Cooper	1,740	0	0
Sawyer	1,734	0	0
Minty	1,795	0	0

For new rectory house for the united parishes of the Holy Trinity and St. Mary, Guildford. Mr. T. Goodchild, architect:—

W. & T. Smith	£2,393	0	0
J. & T. Loe	2,387	0	0
Garnett	2,377	0	0

For the enlargement of the Brighton Hospital:—

Chessman & Co.	£6,355	0	0
Fabian	6,313	0	0
Reynolds (accepted)	4,900	0	0
Elliott	4,900	0	0

For the erection of a new dining-hall for the Merchant Seamen's Orphan Asylum, Snaresbrook. Mr. Somers Clarke, architect:—

Clements	£5,166	0	0
Little	4,674	0	0
German	4,343	0	0
Hill & Keddell	4,266	0	0
Perry	4,234	0	0
Newman & Mann	4,175	0	0
Ashby & Horner	4,120	0	0
Kirk	4,116	0	0
Higgs	4,112	0	0
King & Sons (accepted)	3,916	0	0
Wall	3,755	0	0

For sundry alterations to No. 62, King William-street, City, for the General Fire and Life Assurance Company. Mr. J. Harrison, architect:—

Colls & Son	£2,461	0	0
Axford & Whither	2,445	0	0
Browne & Robinson	2,420	0	0
King & Sons	1,933	17	0

For the erection of a warehouse and offices in Surrey-street, Landport, for Mr. W. Pink. Messrs. Rawlingson & Son, architects. Quantities supplied:—

Damon	£557	0	0
Carpenter & Lane	498	0	0
Backhurst	497	0	0
King	491	0	0
Clark	490	13	0
Morey & Son (accepted)	489	12	0

For house at Stretton, Rutland. Mr. Edward Browning, architect. Little Casterton stone dressings to be used :—

Bagnell	£775	0	0
Morrison	761	0	0
Jeffs & Roberts	758	0	0
Richardson	739	0	0
Pattinson	660	0	0
Halliday & Cave (accepted)	650	0	0

For a tavern at Penge, for Mr. Geo. Martin. Mr. Chas. Laws, architect. Quantities supplied by Mr. Shrubsole :—

Simpson & Son	£1,300	0	0
Caleb & Troughton	1,090	0	0
Harris	1,000	0	0
Stockbridge	925	0	0

For pair of cottages to be erected at Ravensden, Beds., for Mr. Francis Wythes. Mr. J. Usher, architect. Proprietor finds bricks and sand. Quantities supplied :—

Day	£568	6	0
Winn & Foster	496	0	0
Dickens	489	0	0
Canvin	470	0	0
Lawson	468	0	0

For new Works, Battersea, for Patent Plumbago Crucible Company. Messrs. Ordish & Le Feuvre, engineers :—

Thorn & Co.	£3,690	0	0
Perry & Co.	3,495	0	0
Carter & Sons	3,430	0	0
Mansfield, Price, & Co.	3,267	0	0
Kirk	3,090	0	0
Manley & Rogers (accepted)	2,895	0	0

For new infants' school on Wandsworth-common, Surrey, for St. Mary's Church, Battersea. Mr. B. Ferrey, architect :—

White	£713	0	0
Thompson	675	0	0
Lathey, Bros.	657	0	0
Saunders	638	0	0
Livermore	627	0	0
Jarrett	600	0	0

TO CORRESPONDENTS.

A. H.—J. T. H.—T. G.—W. J. C.—L. & L.—J. D. P.—R. K.—R. J. S. —K. & Sons.—F. W. B.—P.—W. J.—J. H.—Messrs. K. & R.—A. A.—Lord L.—E. D. R.—M. J. L.—Professor W.—Mr. W.—C. L.—F.—Mr. G.—G. L.—F. H. G.—Messrs. O'C.—W. W., jun.—R. C. & Son.—W. L. S.—S. S.—A Dutch C. E. (reply to the Indian Government at home first).—W. P. T. (we did subject us to action for libel).—A Subscriber (not to be managed).—Miss J. M. (many thanks for good feelings).—T. S. & Son (we printed what was sent by our correspondents).—J. P. S. (the Editor, as announced 1,000 times, has nothing to do with letters concerning advertisements). J. B., Newport (declined with thanks).—"Orders in writing for extras" (we have received two statements on this subject quite irreconcileable).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than **THREE o'clock, p.m.,** *on THURSDAY.*

[ADVERTISEMENTS.]

THE BATH STONE COMPANY, Limited, saving opened new Quarries, are now prepared to supply any of the following STONES, viz., Box, Ground, Corsham Down, Farleigh, and Combe Down.—Prices and terms on application to E. A. TUCKER, Manager, 4, Railway-place, Bath.

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

TO LEARNED SOCIETIES, ARCHITECTS, and ANTIQUARIES.—Messrs. COX & WYMAN, having had great experience in the production of every variety of Work relating to Archæology, Architecture, and the Fine Arts, their Establishment affords special facilities for the execution of this class of PRINTING, in the best possible manner, with promptitude, and at moderate prices.—COX & WYMAN, Fine-Art and Classical Printers, 74-75, Great Queen-street, London, W.C.

WEST HILL, WANDSWORTH.—Freehold Villa Plots (land-tax redeemed)

EDWIN CARTER will SELL by AUCTION, at the LONDON TAVERN, Bishopsgate-street, E.C. on WEDNESDAY, JUNE 13 1866, at ONE for HALF-PAST ONE o'clock, by order of the Devisees in Trust of the late J. Bailey, Esq., HIGHLY-SIX very desirable PLOTS of FREEHOLD BUILDING LAND, suitable for the erection of detached and semi-detached Villas, from 30 l. to 50 l. per annum value, in a central position from the railway stations, the park and commons of Wimbledon, and the towns of Wandsworth and Putney, giving great facility to pleasure and business, and rendering houses in the locality much sought for, making the property for investment or occupation securely remunerative, and at all times marketable. Part cash, with part, may be had ten days before the Sale; of Messrs. PRALL & ELKINSON, 51, Chancery-lane, W.C.; at the London Tavern; and of the Auctioneer, 32, High-street, Wandsworth, S.W.

MIDLAND RAILWAY, Extension to London, Cambridge street, Agar-town, near the Goods Station of the Midland Railway.—To Engineers, Plant Brokers, and Others.

MR. W. H. BOLTON will SELL by AUCTION, on THURSDAY, JUNE 21st, at TWELVE o'clock, on the PREMISES, late in the occupation of Messrs. Dering, Engineers and Ironfounders, the valuable MACHINERY and PLANT, comprising a very superior carriage machine, capable of taking in a surface of 7 feet 4 inches; a capital self-acting planing machine, by McKenzie & Cotton, capable of taking in 6 feet by 2 feet 6 inches and 3 feet deep; 7-in. centre back-geared engine and foot turning lathe; superior self-acting vertical drilling machine, by McKenzie & Cotton; 5-inch centre foot turning lathe, capital 7 h.p. power high-pressure, direct acting steam-engine, an 11-inch centre back-geared self-acting turning and screw cutting lathe, by Whitworth; 13-inch self acting lathe, Sheilds patent fan, a 5 horse power high-pressure steam-engine, wrought-iron egg-end boiler, 14 feet 3 inches long, 4 feet 6 inches diam., wrought-iron cupola, pair of 33 inch forge bellows, wrought-iron tuyeres, sets of screw keys, centre-plates, chucks, mandrils, cast-steel drills, sets of change wheels for screw cutting, and numerous other effects.—May be viewed the day preceding and morning of sale, when catalogues may be had, on the Premises, and of the Auctioneer, 10, Chesterfield street King's cross, W.C.

MR. W. H. BOLTON will SELL by AUCTION, immediately after the above (unless previously disposed of by Private Contract), on the PREMISES known as Baxter House, late in the occupation of Messrs. E. Bessemer & Co., near the Church, Old St. Pancras-road, a 25 horse power Direct-acting STEAM ENGINE, by Fairbairn, with metallic piston and 12 feet fly-wheel; wrought-iron 50 ft. by 6 ft. Hall's patent elephant boiler, by Hodge & Son, 22 feet long, 3 feet 6 inches diameter, with three 18-inch tubes; also four wrought-iron supply tanks, each 13 feet by 5 feet, and 3 feet deep.—For particulars of the Auctioneer, 10, Chesterfield-street, King's Cross, W.C.

WOODSTOCK.—To Wheelwrights, Coach Makers, Builders, and Others.—The excellent and well seasoned Stock-in Trade and various Effects of the late Mr. T. B. Margetts, Wheelwright, TO BE SOLD by AUCTION by

MESSRS. JONAS PAXTON & GEORGE CASTLE, on the PREMISES, at Woodstock, on MONDAY, JUNE 18th, 1866, at ELEVEN o'clock punctually; consisting of oak, ash, and elm plank of various thicknesses; stout, seasoned gable planks; coach and wagon spokes, et ches; bilhooks; crooks; oak, ash, and elm bolves; felloe plank, spanstaves, prepared wagon work, weather boarding, elm boards, blacksmith's bellows, anvil, vices, tools, &c. The Auctioneers can with confidence recommend the entire Stock to the notice of the Trade as it is of first-class quality, and well and carefully seasoned.—Catalogues may be had on the Premises; at the Marlborough Arms Inn, Woodstock; "Journal and Chronicle" Office, Oxford; "Guardian" Office, Banbury, or of the Auctioneers, Bicester, Oxon.

MUSWELL-HILL.—Valuable Freehold Building Land, containing about eight acres and a half, beautifully situate, opposite The Limes, and near the Alexandra Park.

MESSRS. NORTON, TRIST, & CO. have received instructions to offer for SALE, at the LONDON TAVERN, Bishopsgate-street, in the city of London, on FRIDAY, JUNE 22, at ONE precisely, in Two Lots, valuable FREEHOLD BUILDING LAND, most beautifully situate on the summit of Muswell-hill, a very favourite and healthy locality, within three minutes' walk of the Alexandra-park, near St. James's Church (now in course of construction), and within about six miles of the metropolis. It consists of about eight acres and a half of very valuable land, commanding extensive and lovely views of the surrounding picturesque country, and abutting on the road leading to Highgate, and also to St. James's-lane, to which it has frontages of about 1,400 feet, immediately available for building operations. May be viewed, and particulars, with plans, had of Messrs. DIGBY & SHARP, Solicitors, 13, Clement's-lane, Lombard street; Railway Tavern, Colney-Hatch; Gate-house, Highgate, at the London Tavern; and of Messrs. NORTON, TRIST, & CO. 62, Old Broad-street, Royal Exchange, E.C.

RAMSGATE Valuable Freehold Building Land, close to the Town and the Terminus of the South-Eastern Railway, containing about 6¾ acres.

MESSRS. NORTON, TRIST, & CO. have received instructions to offer for SALE, at the LONDON TAVERN, Bishopsgate-street, in the city of London, on FRIDAY, the 22nd of JUNE (unless previously disposed of by Private Contract), valuable FREEHOLD BUILDING LAND, situate at Ramsgate, close to the South-Eastern Railway Station, and opposite the premises of the Steam Flour Mill Company. It consists of about 6¾ acres, possessing an extensive frontage of 1,155 feet to the high road leading from Ramsgate to Margate, admirably adapted for subdivision into numerous lots, and presenting a good opening for carrying out successfully building operations, small houses being much in request in the neighbourhood.—Particulars may be had of Messrs. GREENLY & BOWCLIFFE, Solicitors, 1, Bedford-row, W.C.; Messrs. LYON & NEWMAN, & LYON, Solicitors, 7, King's-bench-walk, Temple, and Yeovil, Somerset; Messrs. DANIEL & SON, Solicitors, Ramsgate; Messrs. HINDS & SON, Surveyors; at the Hotels, Ramsgate and Margate; at the London Tavern; and of Messrs. NORTON, TRIST, & CO. 62, Old Broad-street, Royal Exchange.

In the choice and favourite neighbourhood of Roehampton.—A capital Mansion, charmingly situate, with extensive lawns, pleasure grounds, gardens, pad locks, stabling, farm buildings, &c. extending over upwards of 18 acres, freehold, with immediate possession; late the residence of Lady Nugent, deceased.

MESSRS. DANIEL SMITH, SON, & OAKLEY, are instructed by the Executors of Lady Vassall Webster to offer for SALE by AUCTION at the LONDON TAVERN, Bishopsgate-street, E.C. on TUESDAY, the 26th day of JUNE, at TWELVE o'clock, in its entirety, the above valuable and attractive FREEHOLD PROPERTY, known as Granard lodge, delightfully situate in Putney-park-lane, Roehampton, to which it has a very valuable frontage of upwards of a quarter of a mile, adjoining the residences of Baron Haubner, the late Viscount Cowden, and others; one of the richest localities near London. The property is in the parish of Putney, within one mile of the Putney and Barnes Stations on the Richmond Line, and only 5½ miles by road from Hyde-park-corner. The mansion, enjoying perfect seclusion, commanding good views, and possessing every requisite for a gentleman's establishment, contains spacio is and tastefully decorated dining and drawing rooms, ante-room, library and morning-room, four large and lofty principal bedrooms, with dressing-rooms, ladies' boudoir, seven secondary bedrooms, night and day nurseries, bath-room, housekeeper's room, two servants' rooms, and extensive domestic offices. The grounds are tastefully laid out and ornamented with choice flowering and other shrubs, and the kitchen garden is productive and well walled on all sides, and well stocked with fruit-trees. There is a small set of conveniently arranged farm premises attached to the property, and the stabling in both homes are good and extensive. The total area is 18a. 3r. 25p. Printed particulars, with plans, may be obtained of Messrs. YOUNG, MAPLES, TESDALE, & NELSON, Solicitors, Bedford Chambers, Old Jewry; and, with orders to view, of Messrs. DANIEL SMITH, SON, & OAKLEY, Land Agents and Surveyors, 10, Waterloo-place, Pall-mall, S.W.

In the Parish of Merton, Surrey.—Valuable Freehold Estate, containing 80 acres of Land, well adapted for Suburban Residences, in a ring-fence.

MESSRS. DANIEL SMITH, SON, & OAKLEY are instructed to prepare for SALE by AUCTION, in the ensuing summer (unless previously disposed of by Private Contract, for which they are ready to treat), the above valuable PROPERTY, known as West Barnes Park, in the Parish of Merton, Surrey. It consists of 80 acres of very valuable Building Accommodation Land, in a high state of cultivation, well timbered and at present divided into three large enclosures, and all tithe free. The surface is pleasantly undulated, and extensive views are obtained in various directions over the country, the neighbourhood is a favourite and healthy one; the estate is sandy for the growth of excellent vines; and, if judiciously opened by new roads, might be made a profitable building speculation on a large scale. The Property is approached by a private road leading out of a high road from Merton to Kingston, and also from the road leading out of that road to Malden, to which it has a frontage. It is about one mile beyond Merton Village, two miles from Wimbledon Station on the Epsom Railway, 11 by footpath, one mile south of the Ridgeway, Wimbledon, and about nine miles from London. The whole Estate is at present in the hands of the proprietor, and used as grazing land, so that possession can be had on completion of the purchase. There is a farm-house on the Estate, and also farm-buildings and sheds.—For further particulars and orders to view, apply to Messrs. D. SMITH, SON, & OAKLEY, 10, Waterloo-place, Pall-Mall, London, S.W.

SUDBURY, SUFFOLK.—To Land and Building Companies and Others.—Important and highly attractive Freehold Residential and Building Estate, including the attractive and picturesque Belle-vue Mansion, with its well timbered and park-like Grounds; a large extent of first class well-situated Sa 10 ay Land, with abundant frontages to the main roads, at the immediate and principal entrances to the town, abounding in valuable brick earth and pure chalk, and possessing extraordinary facilities for profitable development in laying sites, also a valuable Mercantile Property, known as the Sudbury Lime and Chalk Works, with kilns, and railway connection from with the Great Eastern lines, together with about five acres of valuable land, comprising a most extensive and inexhaustible supply of pure chalk and the finest brick earth for the manufacture of the celebrated Suffolk facings; several freehold Farms and Accommodation Lands in the adjoining parishes of Newton, Chilton, and Assington, the property of the late Edmund Stedman, esq.

MESSRS. GEORGE COOTE and J. M. BALLS have been instructed by the Proprietor, to SELL by AUCTION, at the ROSE and CROWN HOTEL, Sudbury, on FRIDAY, JUNE 22, 1866, at ONE p.m. the important and commanding FREEHOLD ESTATE known as Belle-vue; a compact and most substantial mansion of considerable elevation, seated in its own grounds, which are beautifully timbered and studded with choice shrubs, and commanding extensive and charming views of the rich scenery on the Essex and Suffolk banks of the river Stour. The mansion contains superior accommodation as a family residence, and at a convenient distance are excellent stables, carriage house and offices, cow house, barn, and small nursery, with a well-stocked kitchen garden and large conservatory, gardener's cottage and appurtenances, the whole enclosing over about 5 acres.

Adjoining this estate is one of the finest pieces of building sites in the Eastern counties, extending over nearly 12 acres, with important frontages to the two main roads, at the principal entrances to the town and borough of Sudbury, and within two minutes' walk of the railway station, market-hill, town-hall, and other public buildings, and it offers to land and building companies, or private speculators, an opportunity for profitable development rarely to be met with; also a valuable Mercantile Property, known as the Sudbury Lime and Chalk Works, with kilns and railway connecting them with the Great Eastern lines, together with about five acres of valuable land, comprising a most extensive and inexhaustible supply of pure chalk and the finest brick earth for the manufacture of the famous Suffolk facings. This latter property is at present held by Messrs. Aden, whose interest therein will cease at Michaelmas next, when possession will be given, and any business man with moderate capital may confidently rely upon securing a handsome income therefrom with little risk, the trade being capable of unlimited extension; also several valuable Farms and Accommodation land in the parishes of Assington, Chilton, and Newton.

For further particulars and plans, with conditions of sale, may be obtained at the Office of ROBERT F. STEDMAN, Esq. Solicitor, Sudbury; and of the Auctioneers, Castle Hedingham, and Sudbury.

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The Builder.

VOL. XXIV.—No. 1219.

Temple Bar.

THE question of the removal of Temple Bar, hitherto about as difficult to answer as the vexed question,—"Shall Cromwell have a statue?" is again on the carpet. Nor is it at all unlikely now, judging from what is passing around us, that the old gate shall have gone hence before a public effigy of the Protector shall be an accomplished fact. It will be within the recollection of newspaper readers, that thirteen years ago the Bar was the object of considerable discussion, with a view to test public opinion as to the expediency of its removal. A petition was presented to the Lord Mayor and corporation from certain "merchants, bankers, traders, and others of the city of London," setting forth that the petitioners were alarmed at the proposal of the City Lands Committee to expend the sum of 1,500*l.* in repairing and beautifying that structure. They regard the retention of the Bar any longer on its present site as prejudicial to trading interests, "tending very materially to impede the enormous and daily-increasing traffic." They argue that having been so recently erected as 1670, it possesses little or no interest for the antiquary; "that Temple Bar, moreover, was built at a period when the privileges of the citizens were by the sovereign lightly regarded, or set at nought, and therefore is but an imperfect symbol of corporation privileges and chartered rights, as it has been elsewhere styled;" that as an architectural elevation it is equally unworthy of consideration, and though built by Sir Christopher Wren, is little calculated, in an artistic point of view, to add to his otherwise great reputation." The petitioners point out that "such impediments to public convenience did the ancient gates of the City [Ludgate is instanced] prove some hundred years ago, that the Corporation was induced at that period, and on that account, to demolish those really interesting relics of ancient London." A much better case, they consider, has been made out as to Temple Bar, which, "answering no intellectual or practical purpose, offers a convenient ambuscade for pickpockets, impedes by its presence the proper ventilation of the neighbourhood, besides retarding improvements of a desirable character, and the clearance of a district lying to the north of that edifice, which, on moral and social grounds, is greatly to be desired." Finally, the petitioners point out that "the majority of the historic reminiscences belonging to Temple Bar are of so fearful a character that the very contemplation of them tends to degrade human nature. Your petitioners would, therefore, were it possible, willingly consign the dark page of history describing them to oblivion; at all events, they trust that the prayer of this petition may be granted, and Temple Bar—the visible record of such bloody scenes—be, for the several reasons herein enumerated, removed." About the same time, a meeting of the citizens opposed to the removal of the Bar was held, Sir James Duke in the chair. "Mr. Cox, by invitation, gave his reasons for urging its removal, and exhibited some drawings for an iron gateway, which would increase the roadway from 18 ft. 7 in. to 26 ft. 9 in." The following resolutions were, however, passed:—1st. "That this meeting views with repugnance the proposal to remove the ancient landmark and barrier between the cities of London and Westminster, and that it regards the principal reasons assigned for such removal as entirely delusive; believing that the mere removal of Temple Bar, without the adoption of any other improvements, would conduce to no desirable end whatever." 2ndly. "That while this meeting would regret to oppose itself to any substantial improvements in the western entrance to the City of London, it must deprecate any plan of mere demolition as productive of no advantage, and as tending rather to disfigure than to improve the appearance of the street. Hence, it would ask of the Corporation not to consent to any proposal for the destruction of Temple Bar, but rather to seek the counsel of the best judges of street architecture as to how this chief approach to the city may be rendered what it ought to be."* This friendly intervention in its behalf had the effect of defeating the prayer of the petitioners, who, however, were successful in preventing the restoration of the Bar as proposed. Since 1853 commercial men have continued to grumble against the unfortunate structure in proportion as the street traffic has increased, and it is to be feared that the pleadings of the antiquary will not suffice to save it much longer. Temple Bar is now really in danger. The new Courts of Justice will necessitate extensive alterations in this part of the Strand, rendering the translocation of the venerable gate only a matter of time. What will they do with it? Whither will the Board of Works cart the grim pile? Alluding to the likely doom of the "poor Bar," as he calls it, Mr. Sala, in one of his essays, suggests, "It would not be so very bad a notion to erect it in the midst of that new, spruce pleasure-garden, near St. George's-fields, now called Kennington Park. Old Temple Bar would form an apt monument to the memory of Francis Townley, and Jemmy Dawson, and all the brave unfortunate Jacobites who were so cruelly done to death on Kennington Common in 1746. Their heads travelled eastward to Temple Bar; why might not the grim structure make a pilgrimage into Surrey, and do penance on the scene of their martyrdom?" Seriously speaking, perhaps, no more appropriate site than a park entrance could be named for the Bar. That expensive ornament, the Marble Arch, was removed from the front of Buckingham Palace to Hyde Park-corner; and we see no reason why, if Temple Bar must come down, it should not do service in some similar capacity in a less aristocratic neighbourhood. Of course, the City Lands Committee would have to renovate and repair it to make it look comely anywhere. They would have to apply here the chisel to its timeworn outlines, there the putty-knife to its weather-beaten wrinkles. Queen Elizabeth has suffered not a little for having been out in the rain these hundred and ninety-four years; while the three other monarchs look decidedly older for having kept her Majesty company all the while. Their sovereignships stand in need of restoration, and the smut-besmeared, mud-bespattered edifice generally requires a brush up. If the truth must be told, the petitioners of 1853 were not far wrong. Temple Bar is not, by any means, a beautiful "architectural elevation," nor can it add to, as it cannot take away from, the reputation of the great architect of St. Paul's. But we are not, we take it, to rashly pull down Temple Bar on that account. It has other than architectural claims to consideration. True, it is neither so venerable as the London Stone, nor so sacred as Westminster Abbey; but has it not a story to tell as well as they? Is it not sacred and venerable in its way—this ancient landmark, dividing, and yet not dividing, two great cities? Not yet two centuries old, it has, nevertheless, lived through the most stirring period in the history of modern Babylon.

* *Vide Builder*, vol. xi. p. 665. 1853.

Temple Bar! What a throng of associations start to life at the mention of the name. How varied their aspect,—how contradictory their character,—how antagonistic the emotions they kindle, the sentiments they inspire! The very name is a household word, as familiar in the mouth of every Londoner as the thing itself is familiar to his eye. How many thousands of persons there must be living in the metropolis who have never once set foot within St. Paul's, or Westminster Abbey, or the Tower; who have never gone to the top of the Monument, or been to the National Gallery? How many who have never heard of the London Stone, the Colosseum, or Exeter Hall, or a score of other equally well-known places, who are yet perfectly familiar with Temple Bar? Citizen or stranger, who has not passed through it? It is well nigh as prominent and unavoidable a feature of London as St. Paul's itself.

The present Bar dates from a period for ever memorable in the history of London. The Great Fire of September 1666, had covered 436 acres with its ruins, destroying 89 churches, including St. Paul's Cathedral, Guildhall, the Exchange, the Custom-house, and other public buildings, with 13,200 private houses and 400 streets. This catastrophe, as a matter of course, gave an extraordinary impulse to building improvements in the City. During the succeeding ten years Londoners were mostly busy repairing the waste places caused by the tremendous conflagration; and, by the year 1676, London had arisen, like that fabulous bird the Phœnix, from its ashes. "It is an ill wind that blows nobody good." A disastrous affair in the first instance, the fire did more in those four terrible days for the public health of the metropolis than a sanitary commission would have accomplished in as many years. It completely and effectually burnt out the dregs of the Great Plague which had the previous year carried off nearly 100,000 of the people; while, in consequence of the Act passed for the rebuilding of the City, it brought a rich harvest to architects and builders, and made the reputation of the greatest of English architects,—of him who is not considered unworthy to be compared with Michelangelo. The genius that reared St. Paul's may not be equal to that which "hung in the air" the dome of St. Peter's, but it was genius all the same. It was not until 1675, nine years after the fire, that the first stone of the new St. Paul's was laid. The restoration of the other public buildings which had suffered were, however, begun earlier than this date. Guildhall was restored in 1669, the Royal Exchange in the following year. Temple Bar was also begun in 1670, and completed in 1672; and the familiar column known as the Monument, commemorative of the fire, was commenced in 1671, and finished in 1677. Another public edifice, Drury-lane Theatre, which had been in existence since 1662, was burnt down the year Temple Bar was finished. The theatre was rebuilt in 1674. This fire destroyed at least sixty houses in the neighbourhood of the lane.

"Temple Bar," says an old writer, "is a place where the freedom of the City of London and the liberty of the City of Westminster part. This separation was anciently only posts, rails, and a chain; such as at Holbourn, Smithfield, and White-chapel bars. Afterwards there was a house of timber erected across the street, with a narrow gateway and an entry on the south side of it under the house. But since the great

fire there is erected a stately gate, with two posterns on each side, for the convenience of foot passengers, with strong gates to shut up in the nights, and always good store of watchmen. This gate is built of Portland stone, of rustick work below, and of Corinthian order. Over the gateway on the east side fronting the City of London, in two niches in stone are the effigies of Queen Elizabeth and King James I., very curiously carved, and the King's Arms over the keystone of the gate; the supporters being at a distance over the rustick work. And on the west side, fronting the city of Westminster, in two niches are the like figures of Charles I. and Charles II. in Roman habit. Through this gate are two passages for foot passengers,—one on the south, over which is engraven 'Continued, Sir Richard Ford, Mayor. Finished, Sir George Waterman, Mayor.'" Pennant, who, by the way, gives the effigy of Elizabeth to Anne of Denmark, tells us that the figures were "all by John Bushnell, who died in 1701." Bushnel was the sculptor of Cowley's monument in Westminster Abbey; he also executed the statues of the two Charleses, and of Sir Thomas Gresham for the Royal Exchange. Over the central archway of the Bar is a somewhat dingy apartment, leased from the City by Messrs. Child, the bankers, whose premises,—built in 1788, on the site of the famous Devil Tavern,—immediately adjoin. This room has long been a library of the old ledgers of that well-known firm. The historical occurrences associated with the gate are neither few nor far between, and they are of a strangely mixed character. Connected with thee, old Bar, are memories pleasant as well as repulsive,—reminiscences mournful as well as jubilant. At one time thy trappings have brought tears to the eye; at another, they have made the heart leap for gladness. Thou hast worn the willow and the wedding-veil in thy day. Through thy portals, old Bar, have kings passed to a throne, criminals to a gallows, and mighty heroes to the grave. Thou hast been by turns a Golgotha and a bridal altar; but this much may be said in thy favour, that the black deeds connected with thee refer to the earlier stages of thy existence; agreeable are the associations of thy latter years. For awhile thou wert a "Bar sinister" and a terror to evildoers; but better times have changed thee into a triumphal arch, and an emblem of peace and goodwill!

Our space will permit of only the briefest allusion to the chief historic incidents linked with Temple Bar. To begin with those of a "fearful character," borrowing the slightly-impassioned language of the petitioners aforesaid, although the mangled remains of unfortunate mortals were formerly impaled here, London Bridge was the true City Golgotha. For centuries previous to the erection of the Bar, the old Drawbridge Tower was the recognised place of skulls. Upon its stern embattlements were from time to time exhibited the heads of the Scottish patriot Wallace, Lord Saye, Faulconbridge (with nine of his followers, after his defeat), Sir Thos. More, Fisher, Bishop of Rochester, Lord Thomas Fitzgerald (and his five rebel uncles), and that other great Irish rebel Lord Maguire. The limbs of Sir Thomas Wyatt, son of the poet, were exposed from the same spot. In those days, when the laws were written in blood, they used to spike heads by the dozen. Mayor Andrew Aubrey, in 1335, ordered seven skinners and fishmongers, whose offence was rioting in the streets, to be beheaded without trial, and their heads placed on the bridge. This was Jedburgh justice in no stinted measure—hanging first and trial afterwards! Paul Hentzner, the German traveller, who visited England in 1598, counted no fewer than thirty heads upon London Bridge. The first victim who fell to the lot of Temple Bar was Sir Thomas Armstrong, in 1682. Armstrong was Master of the Horse to Charles II., but his warm friendship for Monmouth involved him in the Rye House Plot. He was first carried before the infamous Jeffries, who strenuously resisted Armstrong's demand for a fair trial, and condemned him to be executed at Tyburn within six days. "After hanging about half an hour, he was cut down, and pursuant to his sentence, his heart and bowels were taken out, and committed to the flames, his body divided into four parts, which, with his head, were conveyed back to Newgate, to be disposed of according to his Majesty's pleasure. His head was set up upon Westminster Hall, between those of Cromwell and Bradshaw, one of the quarters upon Temple Bar, two others on Aldgate and Aldersgate, and the fourth was sent down to Stafford, which borough he had represented in Parliament." (Three years afterwards, Monmouth himself passed through the Bar on his way to execution on Tower-hill). The "Merry Monarch" signified his appreciation of this monstrous outrage, by presenting Jeffries with a ring from his own finger. This ring, a valuable diamond, was ever afterwards known as the "blood stone." Twelve years subsequently, Sir William Perkins, one of the Six Clerks of Chancery, and Sir John Friend, a wealthy brewer, near Tower-hill, were executed at Tyburn, for their complicity in the Jacobite conspiracy against William. The head and quarters of the former, and the quarters of the latter were stuck upon the Bar, the head of Sir John being transferred to Aldgate, because that gate was in the vicinity of his brewery. Evelyn writes in his Diary (10th April, 1696), "A dismal sight, which many pitied." The next victim was Colonel Oxburgh, a Lancashire gentleman, who had warmly espoused the cause of the elder Pretender, in the north. He was taken prisoner at the capitulation of Preston, executed at Tyburn, 14th May, 1716, and his head set up on Temple Bar. Christopher Layer, another enthusiastic and indiscreet adherent of the Chevalier, was a member of the Inner Temple, and a man of good abilities, but of immoral life. It was the ambition of this unfortunate man to effect a revolution in England, and to place the Pretender on the throne. He had actually hired a person to assassinate the king. One day, however, while Layer was sitting in council (his accomplices being a few disbanded soldiers), in a public-house, at Strafford, the plot was discovered. Layer fled, but was afterwards apprehended. He was tried, convicted, and hanged, 17th March, 1722. His head was placed upon the Bar, where for thirty years it remained "frowning from the summit of the arch," when one stormy night it fell into the Strand. For a ludicrous incident thereanent, see Nichol's "Literary Anecdotes." The last addition to the ghastly ornaments of the Bar were Francis Townley and George Fletcher. The one belonged to an old Lancashire family, and was Colonel of the Manchester regiment raised to support the claims of the younger Pretender; Fletcher being a linen-draper at Salford, and captain of the same corps. When Carlisle capitulated to the Duke of Cumberland, Townley and Fletcher were made prisoners, and executed at Kennington Common 30th July, 1746. "I have been this morning at the Tower," says Horace Walpole, in a letter written a fortnight after the event, "and passed under the new heads at Temple Bar, where people make a trade of letting spying-glasses at a halfpenny a look." Between three and four o'clock in the morning of January 20, 1766, a person was observed firing musket-balls from a steel cross-bow at the two remaining heads on the Bar. On his examination he affected a disorder of his senses, and seems to have been discharged. He admitted that it had been his practice for several nights to amuse himself in the same way, and probably he intended to continue the amusement, since a stock of musket-balls was found in his pocket wrapt up in a paper bearing the motto, "*Eripuit ille vitam.*" This eccentric was supposed to have been a near relation of one of the unhappy sufferers. The heads remained on the Bar until the beginning of 1772, when one of them fell down, the other following some time afterwards. Apropos of our subject, there is a good joke of Goldsmith. Johnson related it at a meeting of the Literary Club. "I remember," said the Doctor, "once being with Goldsmith in Westminster Abbey. While he surveyed the Poets' Corner, I said to him:—

'*Forsitan et nostrum nomen miscebitur istis.*'

When we got to Temple Bar, he stopped me, pointed to the heads upon it, and slily whispered me:—

'*Forsitan et nostrum nomen miscebitur* ISTIS.'"*

Let us turn to associations of another sort. In 1806 the mortal remains of England's greatest sailor, and in 1852 those of her most renowned soldier, were borne through this gate to their last resting-place in St. Paul's. The body of Nelson was taken by water from Greenwich Hospital to the Admiralty, and thence conveyed to the Cathedral by way of the Strand and Fleet-street. Upwards of 160 carriages followed the hearse, and we are told that the procession was more extensive and magnificent than England had on any similar occasion beheld. On the occasion of Wellington's funeral, the Bar was draped "with curtains of black cloth, relieved with white and silver, which opening in the centre displayed an area of cloth of gold, on which were emblazoned the Duke's arms; the curtains were also relieved by monograms of the Duke on silver. On the summit of the Bar, on the east and west sides, were placed two immense vases silvered." Who that witnessed it can forget the event? The passage of Holy Writ inscribed upon the front of old Aldersgate might have been more appropriately inscribed on Temple Bar. "Then shall enter into the gates of this city kings and princes, sitting upon the throne of David, riding in chariots and on horses, they and their princes, the men of Judah, and the inhabitants of Jerusalem; and this city shall remain for ever" (Jer. xvii. 25). Many a royal procession, "riding in chariots and on horses," has passed through this last of the city gates since the year 1672. They have opened to receive Charles II., James II., William III., and every English monarch since. The Elector of Hanover passed through the Bar on his public entry into London—20th Sept., 1714—as the first of the four Georges. Next year the king, with the royal family, went in state to St. Paul's. George III. made three memorable visits to the city. In 1761, the year after his coronation, he went to the Lord Mayor's show "in great state," the banquet costing 7,000*l.* In 1789 his Majesty attended St. Paul's to return thanks for his recovery from his first insanity, and again in 1789, for the victories of Howe, St. Vincent, and Duncan. George IV. (then Prince Regent) returned thanks at St. Paul's for the general peace of 1814. The same year the Emperor of Russia, and the kings of France and Prussia, passed through the Bar on their way to the banquet of allied Sovereigns at Guildhall. The old gates were flung open to admit young Queen Victoria to the grand city banquet, November, 1837, and also when her Majesty, in 1844, opened the Royal Exchange; in 1855, when the Emperor and Empress of the French were fêted by the Lord Mayor. The feast was, as usual, worthy of the city. Among the good things provided for the imperial guests was "sherry 109 years old, and valued at the rate of 600*l.* the butt." And, in 1863, Temple Bar was converted into a triumphal arch of loyalty and orange blossom in honour of the Princess Alexandra. Associated with the former "Barre" are the names of Edward VI., Mary, Elizabeth, James I., and Charles, all of whom passed under the old timber-house on some royal errand. What the timber-house was like we have no record; but, of the pageants themselves, we have some account. Thus, when Anne Bullen was married in 1533, "Shee with all her companie, and the Maior rode forth to Temple Bar, which was newly paynted and repaired, where stood also divers singing men and children." The day after his coronation at Westminster, Edward IV. marched crowned to St. Paul's, and "there an angel came down and censed him." In an account of a procession made by Queen Bess, January 13th, 1558,—the day previous to her coronation,—it is stated, "From thence her grace came to Temple Barre, which was dressed fynelye, with the two ymages of Gotmagot the Albione, and Corineus, the Britain, two gyantes, bigge in stature, furnished accordingly." These were the originals of the well-known figures in Guildhall.* Fountains running wine, and maidens blowing gold leaf into the air, were likewise customary items of ancient pomp and pageantry. Since the custom of closing the gates every night was abolished, they have been closed, besides the occasions mentioned, only on a proclamation of peace. The last time this was done was in 1856, when peace with Russia was issued. The Garter King-at-Arms, attended by his heralds and pursuivants, finding the doors duly barred on their approach, the usual formality of knocking and receiving permission to enter to proclaim the glad tidings of peace to the City was religiously gone through. The formality would perhaps be more honoured in the breach than the observance.

—— "Through the ages one increasing purpose runs,
And the thoughts of men grow greater with the process of the suns."

We have come to the conclusion that Temple Bar is in the way. It impedes the progress of nineteenth-century London. The old barrier of

* Perhaps one day our names may mix with *theirs*.

* See "Smith's Ancient Topography of London," p. 48.

which no doubt our ancestors were sufficiently proud, has gone out of date, just as its predecessor the timber house went out of date two centuries ago. Still we confess that, as the last of the city gates, we should not like to see it ruthlessly demolished.* Perhaps some more convenient site may be found for the gate in its old age—some sort of suburban refuge where it would be permitted to pass the remainder of its days in peace and quiet, no more to be branded as an eyesore and an impediment, or frightened out of its propriety by the cry of modern improvements continually ringing in its ears. Farewell, old Bar, thou best-abused of London monuments!

NOTES ON MEXICO.†

AT the termination of my last article I entered upon a description of the domestic architecture of Mexico, and in continuance of the subject I must observe, the walls of the houses are finely plastered and finished smooth, and are delicately coloured and embellished with some stencil ornament on both walls and ceiling.

In the decorating of the rooms the surbase is generally made black or brown 15 in. deep; 3 ft. above that is coloured delicate pale blue or green; then a black stripe, 1 or 1½ in. wide; above that a wreath or scroll of coloured foliage, flowers, or fruit, about 1 ft. wide; and above that again some delicate self-colour,—salmon, pink, or French white; and sometimes finishing off at the top with another scroll of foliage, flowers, or fruit.

The design and arrangement have generally a pretty and pleasing effect. The exterior of the houses is plastered, and the eaves of the roofs are made to overhang some 4 ft. or 5 ft., so as to cover the side paths of the street, and the windows are made down to the ground, protected outside by slight and ornamental railing and bars; and wooden shutters are fixed inside so as to close up the fronts. Glass for windows is as yet but sparingly used. Sometimes round the gateways and windows ornamental pillars, cornices, mouldings, pediments, &c., of plaster are fixed, and even colour on the walls and stencil ornament, and figures of animals, are introduced for effect.

The streets of Cordova are laid out similarly to those at Vera Cruz, but they are, like the "Camino Real," in a dreadfully neglected state; serious accidents frequently occur, even to the loss of life by the upsetting of the wagons. The streets are only paved in part, and there is no drainage except on the surface. The city is partially supplied with water from the streams that descend from the adjoining hills, which is brought by means of pipes into tanks in the Plaza. Some of the houses have wells, but the supply of water from them is hard.

An obelisk has recently been erected in the centre of the Plaza, about 30 ft. high (20 ft. the height of the shaft, and 10 ft. the base or pedestal), and the base is 5 ft. square. There are mouldings at the bottom of this shaft, the top is surmounted with a gilded ball, and on each side of the shaft are gilded wreaths. Around the base of the obelisk is formed a basin to hold water, and jets of water are fixed at each of the upper angles of the pedestal, to fall in graceful curves into the basin. This fountain was opened on September 17th, when the Mexicans met to commemorate the achievement of their independence from the Spanish yoke, at which time the city was gaily decorated with various devices and banners, and a public procession of the prefect and authorities took place, at which the French commandant and officers of the garrison assisted, in their gay military costumes, their breasts being freely decorated with orders, including even the Victoria Medal. We had royal salutes of twenty-one guns, both morning and evening, from French guns and cannoneers, and during the day bands of music paraded the streets, and in the evening a brilliant illumination and display of fireworks, for which the Mexicans are celebrated.

But amidst all this display of good feeling and harmony, there evidently appeared anxiety and distrust on the part of the French: strong bodies of troops paraded the streets the previous night, and patrols all day; and on the evening of the festival I could see the glitter of the fixed bayonets by lamp-light, and hear the serried tread of military passing through the crowd: the Turcos and the Chasseurs were on the *qui vive*, apprehensive of an attack from the Guerillas, who were in force in the neighbourhood of the city.

The effect of the proceedings during the day, viewed from the east side of the Plaza, was picturesque and striking in the extreme; the pillars of the buildings that surrounded the Plaza, the prefecture, &c., were decorated with drapery in bandeaux of red, white, and green alternately (the national colours), festoons of the same materials hanging from the arches, the national banner of France and Mexico fluttering in the breeze; the diverse costumes of the people: the Mexican with his silver-ornamented broad hat, jacket, and trousers; the Cordova Corporation in European costume; the French commandant and officers of the garrison in their gay and picturesque dress, freely covered with decorations; the dresses of the French private soldiers; the Turcos' Zouave dress, light blue, trimmed with yellow braid, white turban, scarlet top and tassel; the Chasseurs d'Afrique, blue jacket turned up with yellow, red pants, and white gaiters; the blue dress of the Chasseurs de Vincennes, and the green jacket and red pants of the cavalry; and the gay, gauzy, and butterfly-like costumes of the ladies, with the bold and magnificent range of mountains in the distance,—amongst them the noble and towering peak of Orizaba, capped with snow of dazzling whiteness; and the luxuriant trees and the variegated foliage of the vegetation that fringed the base, changing their character and species at the various stages of altitude until vegetation altogether ceases, and the bare rock and earth above, rough and rugged, alternately sloping and perpendicular cliffs, projecting bluffs and deep chasms, appear to the distant eye, when animated and lighted up by the clear bright rays of a brilliant sun, throwing the respective objects into light and shade, dazzling lustrous colours, and sombre hues and tints in others, for a background, formed a picture of surpassing loveliness, and only those who have travelled and have observed such scenes in similarly picturesque and mountainous countries can at all appreciate them, and be fully alive to the effect on the susceptible imagination.

The different races of men that were congregated together on that occasion would form an interesting study for the ethnologist: there were Indians of different tribes, Mexicans (a mixed race), Spaniards, French, Germans, Americans, Arabs, Negroes, and myself, a solitary Englishman, grouped together to celebrate an event that was of doubtful advantage, as far as Mexico is concerned; for she certainly has lamentably receded since she threw off the yoke of Spain; has been the field of perpetual strife, internal commotion, and civil war ever since; and now, although re-established as a kingdom, under a singularly gifted, enlightened, and benevolent monarch, she is virtually under the dominion of the French Emperor, governed by a French marshal, and necessarily kept in awe by the French bayonet.

The city of Cordova is lighted up at night with refined petroleum, amusingly called by the vendors of the article "gas;" and it is watched at night by armed "policia guardia," who call out the hours of the night like the English "Charleys" of old, and, at the same time, solicit the benediction of the Holy Virgin.

There is a good and capacious cemetery about one mile to the south-east of the city, well laid out and attended to, in which repose the remains of many soldiers of the French army. It was my ill fortune to see several of these brave men carried to that "bourne whence no traveller returns," conducted, it is true, with all the pomp and ceremony of a military funeral, but aliens from their country and fatherland, after doubtless enduring unheard-of sufferings and fatigues in endless marches and counter-marches, by night as well as by day, in hunting down the Guerillas over the worst roads in perhaps all Christendom, and amongst a deadly hostile and inhospitable people.

The market is held on Sunday in the Plaza, which is generally very fully attended by the different tribes of Indians living within five or six leagues of Cordova. They bring the produce of their respective "tierra arrendados," which consists of most of the tropical vegetables and fruits, and even many of the European species.

The female Indian's dress is usually a white robe, loose from the neck to the ankles, ornamented with red or other coloured stripes down the back, generally without shoes, and some of them wear the broad Mexican hat. The men wear a white blouse, and short-legged white trousers or drawers, some adorned with edging round them, and sandals; also a Mexican hat and "serape."

The climate around Cordova is considered very mild and pleasant, except during the rainy season and when the "nortes" prevail. The thermometer ranges a little above and below 80°, seldom reaches 90°; and I have seen it as low as 55°, much lower than I have experienced it in either Honduras or the West Indies.

The scenery around the prairie of Cordova is wild and magnificent in the extreme, girt almost entirely round by a stupendous belt or range of mountains, thickly wooded, and vegetation generally very luxuriant; and it is a popular error to suppose that the Peak of Orizaba, which forms part of this range, is a volcano, as it is the conical mountain, "San Andres," close adjoining, from which eruptions occasionally proceed.

The lands about Cordova are very rich and productive, possibly as much so as any part of Mexico, yielding coffee, maize, tobacco, beans, vegetables of all kinds, both tropical and European, and also a great variety of fruits in abundance.

The coffee of Cordova approaches very nearly in quality to that of Mocha, and is very celebrated both in Mexico, the United States, and France; and, it is said, the late Lord Palmerston got his supply of that excellent article from that place, through the agency of the British Consul at Vera Cruz. It is much sought after, and commands a high price both in Mexico and other places.

The forests and bush in this neighbourhood abound with a great variety of beautiful flowers and plants: amongst the most remarkable and abundant are the convolvolus, very large blossoms, and of a great variety of colours (pink, blue, white, and variegated); the sensitive plant, spreading about extensively over the surface of the earth with its pretty, pink, globular blossoms; and the orchids and ferns are of great variety, size, and unusual magnificence.

In the course of my rambling, I met with some remarkably large thistles, being 12 ft. and upwards high, and with extraordinarily large stems: when amongst them, I fancied I was in a grove of trees, and did not discover my mistake until I looked up and saw the well-known purple blossoms. The yellow thistle also thrives there, as well as in the West Indies, but it is very small. There is also another remarkable tree of the nettle species which grows extensively and of great size in the forests: it is called by the natives "Malo Muger," or, in English, "bad woman:" its sting is very painful, causing great irritation, and sometimes swelling of the parts affected, but it is said by the natives that the milk of the tree is a certain antidote.

Passing on from Cordova, the line of the Imperial Mexican Railway crosses a rough and rolling country, slightly undulating in places, at others deep "barrancas" at frequent intervals, and crosses the main road near Fortin at an inclination of 1 in 39, or 1 in 40, for a distance of seven miles; it then crosses the wild, magnificent, and celebrated "Barranca de Metlac," on a bridge or viaduct, 1,100 ft. or 1,200 ft. long, 360 ft. high above the bed of the ravine, and which viaduct is to be formed of three arches of 300 ft. span each, the piers to be partially composed of masonry and ironwork, and the upper works of the bridge itself to form the roadway is also to be of iron.

The Barranca de Metlac Viaduct will be, when complete, the loftiest viaduct in the world, far surpassing any other yet constructed, either in the Old or New World. The highest viaducts, on any of the English lines of railway are as follow:—The Llangollen Viaduct, Shrewsbury and Chester Railway, 1,530 ft. long and 150 ft. high; the Ballochmoyle Viaduct, near Glasgow, 162 ft. high; the Hownes Gill Viaduct, Stockton and Darlington Railway, 730 ft. long and 162 ft. high; and the Crumlin Viaduct, in South Wales, of iron lattice work, 1-3rd of a mile long, and 200 ft. high.

On the continental railways, the loftiest viaducts are the Kalte Rinne, Soemmering Railway, 150 ft. high; the Sitter Viaduct, St. Gall and Appenzale Railway, iron lattice, 560 ft. long

* The principal City gates, besides Temple Bar, were,—Aldgate, Cripplegate, and Ludgate, pulled down in 1760, and sold for 177*l.*, 91*l.*, and 148*l.* respectively; Aldersgate (91*l.*), Moorgate (166*l.*), and Bishopsgate pulled down the following year, and Newgate. The old gates, if not so famous, seem all to have been more imposing in appearance than Temple Bar. Newgate is described as "the fairest of all the gates."

† See pp. 281, 383, *ante*.

and 200 ft. high; the Elster Viaduct, Saxony, 229 ft. high; and the Gottzsch Viaduct, also in Saxony, 1,900 ft. long and 264 ft. high.

On the American railways, the highest viaduct is High-bridge, at Portage, New York, constructed of timber, on the American trestle principle, and that is 800 ft. long and 234 ft. high, with arches of 50 ft. span each.

From Cordova, passing along the "Camino Real" to the Barranca de Metlac, the country is uninteresting, and the lands are cultivated principally with coffee, maize, tobacco, beans, &c., and you pass by a few Indian huts, ranchos, and Indian villages, until you arrive at Fortin, a large roadside village, passing which you descend the steep hill that leads to the bridge that crosses the Barranca.

In this place I may mention there are many bridges, some rather large ones, erected on the "Camino Real," that cross mountain streams, which are constructed with small rubble masonry such as previously described.

The Barranca de Metlac is an immensely wide and deep ravine or chasm varying considerably in width in places where it was proposed to cross originally with the Imperial Mexican Railway it was 1,300 ft. wide, and 400 ft. deep: the sides are formed in some places of steeply shelving banks, at others rugged cliffs and perpendicular rocks, composed of whitish limestone and abounding with fossils and petrifactions: the sides, where they are not precipitous, are covered with trees, brush, creeping plants, and long grass, and the river below winds about in a small and narrow bed through this immense chasm, except when the "Temporales" prevail, and then the wash of the accumulated water turns this otherwise quiet stream into a tempestuous and overwhelming torrent of vast extent and mighty power.

The subject of the origin of these "Barrancas" or ravines has formed a matter of interesting inquiry by many eminent geologists, as many of them exist in Mexico about the "Tierra Caliente" the southern of the United States of America, and other places. It is supposed by some that when the land is cleared of trees the power of the sun causes cracks or fissures in the earth, 3 ft. deep or more, and during the rains, the sudden rush of water deepens them gradually, until, as in one instance, a chasm measuring more than 55 ft. deep, 300 yds. long, and varying in width from 20 ft. to 180 ft., was the result of 20 years' experience; but the walls of this chasm were composed of clay and sand, and therefore easily abraded and washed away, but in the instance of the Barranca de Metlac the walls are of solid limestone rock.

I am more inclined to advocate the theory that earthquakes are the causes of these remarkable chasms, as Mexico is a territory in which several grand and imposing volcanoes exist, and is therefore very much subject to earthquakes of greater or less magnitude. During my residence there I experienced several slight shocks, which simply had the effect of ringing the cathedral bells, and aroused from their slumbers some of the timid and even the lazy Mexicans. Previous to my arrival in the country, at the latter end of 1864, a serious one was felt, doing considerable damage at Orizaba and other places, shaking down buildings, and killing several of the inhabitants; at Cordova it cracked some of the walls of the houses, the cathedral, and churches.

But the country bears evident marks of volcanic action, the level and extensive prairie around Cordova has several ominous chasms or ravines in it, many of which have been converted into streams of water, conveying away the heavy rains that fall during the continuance of Temporales, but in the hot season are dry; many of these will doubtless, in course of time, from the heavy wash and abrasion of water, become "Barrancas" of more or less magnitude, probably equal in proportion to the celebrated Barranca de Metlac. The phenomena that produce earthquakes are known to geologists to occasion elevations and depressions on the earth's surface, some creating mountains of considerable elevation, and, *pari passu*, deep valleys and ravines; on the plain of Malpais, Mexico, the volcanic mountain Sorullo rose from the level of the plain between the years 1759 to 1780 (a period of twenty-one years), to an altitude of 1,600 ft.; and, in the same locality, a series of minor volcanoes sprang up, the least of which is 300 ft. high.

The surface lines and contour levels of many of the highest ranges of mountains and the levels of coast-lines are said to much changed and their respective levels altered considerably; these changes are also doubtless due to volcanic action. On the "Tierra Templada" I frequently met with a curious mineral called obsidian; it is a blackish glossy substance breaking with a large conchoidal fracture, opaque or slightly translucent on the edge of fragments. It is very abundant in places, and was formerly used by the Indians for arrow-heads, tomahawks, knives, and even mirrors. It is frequently met with in volcanic countries, and is supposed to be amongst the ejected matter of modern eruptions; pumice-stone is supposed to be a species of obsidian in a frothy state produced by the action of water, heat, and melted stone, and there are frequently masses of solid obsidian found which are partially covered with pumice-stone. I brought many specimens away with me, as I thought they would interest my geological and other friends, or might be acceptable objects for some museum. Much has been written latterly and at former periods, on the subject of Indian mounds, and speculation has been rife as to the object of their erection, whether constructed to mark the site "en memoria," where is interred some distinguished chieftain, or more probably the common mausoleum of some particular tribe inhabiting that part of the country where they are established, as I apprehend the Mexican Indians anciently, like the Arabs, led a sort of wandering nomadic life, and settled down at times when the country was inviting or attractive, or probably where they would be likely not to be encroached upon or disturbed. Most of the mounds that exist in Mexico are low, circular, conical-shaped objects, sometimes covered with the ordinary earth on the surface, at others with rough stones; they are generally situated near to rivers or streams, and they do not by their size at first attract the attention of the ordinary observer, but on closer inspection the practised eye of the antiquary can detect their artificial construction. If erected to mark the hallowed spot of the departed they certainly are most effective for the purpose, as their extent and bulk would prevent their removal if in the way of the cultivation of the land, and their low flat shape cannot be sensibly affected or at all altered by the repeated shocks of earthquakes to which the country is subject, or by the heavy falls of rain which take place during the "Temporales." There they stand enduring monuments for all time, resisting alike the destructive propensities of man, the shock and convulsions of terra firma, and the fury of the other elements of nature. The Indians that inhabit or live about the towns, or in villages adjacent, generally carry their dead to the grave on litters, with nothing but a cloth thrown over their bodies to conceal them from view: at Paso del Macho I saw many such disagreeable sights,—yellow fever victims; and they carried the bodies about a mile into the bush, the place appropriated by the French authorities for such a purpose: after they are interred the graves are carefully covered over with rough stone pitching, to prevent the wolves (the coyote) from scratching up and disinterring them.

On the other hand, that is not strictly their general practice, as I saw in the streets of Cordova the corpse of a young Indian girl, apparently like a piece of statuary, carried by an Indian man on a stretcher, dressed out in smart showy garments, covered with ribbons and flowers; and the head similarly embellished, decked out and adorned as if intended for a bridal festival, not to be food for worms and to return to its original dust.

The funerals of the respectable and affluent classes of Mexicans are generally well-conducted and decorous ceremonies: they use no palls to cover the coffins or hearses, and the coffins are frequently highly ornamented with carvings; gilding is used, and otherwise embellished, and they are usually made large and with saddle-backed tops.

The Mexicans adopt the practice, as in most Catholic countries, of laying out their dead in state: the chamber of death is usually dressed out with images and flowers, the bed ornamented with white muslin, ribbons, and flowers, and the bed covered with a scarlet or other showy-looking quilt; and at night it is brilliantly lighted up with long wax tapers in silver or other candlesticks.

Prayers and other religious ceremonies are performed during the night by the friends of the deceased, and occasionally at intervals plaintive music adds additional solemnity to the scene, and imparts a feeling of awe and sublimity at the threshold of the grave.

Having now described all that is interesting in and about Cordova, I will proceed onward from the Barranca de Metlac towards Orizaba. The road ascends from the Barranca in a steep, winding course, until you arrive at the summit, and thence you proceed over undulating ground, cultivated principally with maize and tobacco, occasionally crossing small "Rios," over the same kind of boggy road as before described. Until you reach Orizaba, there is nothing interesting on the line of route. The line of the Imperial Mexican Railway also passes over a rolling country, occasionally crossing small Barrancas, with ascending and descending gradients, the ruling gradient being also 1 in 40, and the line passes close to the city of Orizaba, and on the north side of it. The works on this district are comparatively light, except on each side the Barranca de Metlac, where cuttings of considerable depth are required.

On this part of the line the section shows descending gradients, although the general character and contour of the country is a gradual ascent, Orizaba being 1,123 ft. above Cordova, and 4,123 ft. above the level of the sea at Vera Cruz; this I consider, with all due deference, is an engineering blunder, as on long inclines it is desirable to make the ascent in stages, having short lengths of horizontal line at intervals, to assist the locomotive in making the ascent, as on the Bhore Ghaut and other inclines of the Indian railways laid out under the direction of Robert Stephenson.

Orizaba is a large and flourishing town or city, and is situated in a commanding position for trade and commerce; it contains about 18,000 inhabitants, is well and regularly built on the model of the other Spanish-designed towns, but the outline of the place is rather irregular; the streets are wide, running nearly east and west, and north and south, with two large Plaza de Armis, around which are located the principal buildings. The streets are maintained and kept in better order than those of Cordova; but there is no drainage except on the surface down the channel in the middle of the street, and the water supply is not very copious.

There are a cathedral and seven or eight churches, some of them of considerable magnitude, fitted up with the usual gorgeous display of the country, highly embellished "alto altars," images, frescoes, oil paintings, and candlestick glare and glitter abound, both of a silvery and golden aspect. I do not know whether they are positively and absolutely those precious metals or not, but at any rate they serve the purpose: they have the effect of feasting the eyes and pleasing the bigotry of the female worshippers, and satisfying their consciences.

"Maidens, like moths, are ever caught by glare."

Amongst the remarkable buildings of the place and neighbourhood is the emperor's country palace, called "Ialapillo," to which he occasionally resorts for retirement and repose from the cares and anxieties of a troublesome and weighty empire, and to seek recreation and amusement, as game is very plentiful in the neighbourhood. He is very fond of hunting and shooting, and there is plenty of scope for him to gratify his taste.

There is also a large cotton manufactory erected there, conducted by Senor Don Grandison, an American, it is situated at Coccolapam, and employs from 300 to 400 hands; he manufactures all kinds of cotton and some woollen goods, and the articles he produces are much appreciated and sought after by the natives, both Indian and Mexican. Senor Don Grandison is a very popular man in the country, he was one of the first persons selected by the emperor for especial distinction on his first arrival in Mexico, and has conferred on him the "Order of Maximilian" for his spirit and enterprise. The machinery of the mill is worked by water-power derived from a river that passes through the town.

ROAD LOCOMOTIVES.—The *Journal de l'Aisne*, informs us, that on the 25th ult. the common road traction-engine, constructed by the firm of Albaret et Cie., of Liancourt, had descended the inclined road from Laon to the railway terminus, with a mean speed of 8 kilomètres (4·8 miles) per hour. This incline it afterwards mounted in eight minutes, with a load of 5 tons, and with a pressure of steam of only 73 lb. on the inch. The inventors conclude from the experience of another trial they made, that the engine is capable of hauling 30 tons, at a speed of from 2½ to 3½ miles an hour, from the terminus to Laon, up this slope.

ITALIAN NOTES.

THE Minister of Public Works has demanded an additional subvention for the expenses attending the transfer of the Italian capital, announced to have exceeded by 2,300,000 francs the estimate of 7,000,000; and we now learn that for the Chamber of Deputies in the Palazzo Vecchio, the Senate House in the Uffizi, and the ministerial offices in different buildings at Florence, the outlay has been 5,212,641 francs. As to improvements and new constructions now progressing in this city, the most ostensible are two great palaces, with handsome fronts, in modern style, cornices of considerable projection, ground-floor stories in rustic stonework, for the ministries of war and public works; one on the Piazza di S. Marco, the other in Via della Scala. Also a new post-office, which is, however, a mere adaptation of what hitherto has been the Mint; a wing of the Uffizi buildings between one extremity of the porticoes and the loggia of Orcagna, now to be provided with new ingresses and adorned with national crests in stonework,—an improvement, as we may expect, upon the plain and insignificant "posta," where letters have been long given and deposited under the pent-house roof historically known as the Piazza della Signoria.

We have to add to details already given that show the interest in art-projects which it is satisfactory to find still alive in the governing mind of this country, amidst the absorbing public claims and tide of popular excitement at a period when, it is generally believed, we are on the eve of great events, momentous to the whole future of Italian nationality. In regard to those calmer interests that rest in the sphere of genius and intellect, things once undertaken are not, as yet, laid aside, or totally forgotten—which, under present circumstances, is saying much. Only the other day, the Senate voted a gratuitous grant of the bronze requisite for an equestrian monument to the late Duke of Genoa, only brother of the King. For the statue of Goldoni the locality chosen is a grand esplanade opening off the Lung' Arno, near where the Ponte Carraia forms an angle with those quays. That statue, in the cast, standing 20 ft. high, is now to be seen in the studio of Cambi; and strikes us as altogether appropriate, being of course a portrait, and in the full costume of the time, which, however it may remind us of a liveried footman, is here well treated, while in the countenance is that blending of reflection with humour that we may picture to ourselves as the natural aspect of the great comic dramatist. By Cambi, also, is the monumental figure of Burlamacchi (purely ideal except as to costume), erected about two years ago at Lucca; also the "Magdalene," one of the statues on the S. Croce façade; and we now see, moreover, in his studio, two pretty figures, of much infantile grace, *Amor Mendicante* (Cupid as a beggar), and a fisher-boy, destined to appear at the Paris Exhibition. The Ministry has given approval to the project of a local exhibition (new, we believe, for the centre chosen), to be opened the first Sunday of June, 1867, and continue for ten days, at Urbino, with admissibility for artists of all provinces; but only those of the Anconitan Marches, besides professors or students of the local academy, to compete for premiums,—to consist of silver and bronze medals with the head of Raffaelle on the reverse. This is announced in high-toned language, winding up with a poetically-worded tribute to the prince of painters, whose native city has not, in modern time, taken any distinguished place associating it with any movement of art or literature—either before or subsequently to the detaching of Urbino from the Papal States. On the 20th of May took place the drawing for prizes at the rooms of the *Società Promotrice* (thus to wind up the long-open exhibition of modern works, painting, sculpture, and engraving there displayed, but little noticed or visited), the system being to put out shares at the modest price of 1 franc each, by purchase of which all may compete for the chances of getting an art-work or a sum of money; in this instance twenty prizes being obtained, in sums between 500 francs and 60 francs, and 18 in framed engravings from modern pictures, among the subjects of which are four Biblical, and one legendary, "St. Paul giving Spiritual Instruction to the Empress Poppea," about the most interesting for moral expression. On the whole, it cannot be said that this display of the *Società* has redounded greatly to the honour of the present Italian Schools; and we observe that none of the sculptors of high standing were among the contributors.

The disencumbering of the ancient refectory in the S. Croce convent for the sake of Giotto's "Cenacolo" (a picture which Messrs. Crowe & Cavalcaselle class with works to be "assigned to pupils or followers of Giotto"), was not accomplished so soon as we were allowed to expect; but the weavers' looms are at last cleared away, and we have free access to choose our point of view *ad libitum*, for the great picture, within a hall of considerable extent and width, a dilapidated and dreary-looking place indeed. It is but the lower part of that complicated fresco that represents the Last Supper; above which, the central compartment is filled by a Crucifixion, with two groups below the Cross; on one side the Maries, on the other St. Francis, with other Saints of his order; the Cross itself rising and expanding into a lofty tree (the "Root of Jesse"), to the branches of which are appended scrolls with prophetic mottoes, and around range the half-figures of sixteen prophets that seem dependent upon that mystic tree. Laterally, four other distinct scenes:—The Magdalene washing the Saviour's Feet at the Banquet; St. Francis receiving the Stigmata on the Laverna Mountain; a Miracle of the Franciscan Bishop, St. Louis; and a Scene from the Life of St. Benedict in the Cave at Subiaco. The principal group of life-size figures, distinguished by much individuality, and some by great dignity (most of all that of the Saviour, on whose bosom St. John is leaning, apparently asleep,—a mistaken treatment), has lamentably suffered in the lower part; and no wonder, for a horizontal measurement on the wall at one side shows how this refectory was flooded in 1557, when the water-level rose considerably higher than all the heads in that compartment. The countenances are fortunately preserved intact,—indeed, quite vivid in tone; and one thing, we believe, is certain, that no modern hand has had aught to do with this picture.

We may expect presently to see opened the mysterious corridor between the Palazzo Vecchio and the Pitti, at least in the extent from the Uffizi buildings to the latter residence; and at the same time will the public (as we understand) be admitted to a new section of the Uffizi gallery, containing all the pictures once in the Palazzo Feroni, purchased by Government,—a collection not large, but somewhat rich in works of the Flemish schools, with three Carlo Dolcis and two Salvator Rosas. We have had a glimpse of the hall, not yet public, in which these now hang, and where we also saw a pile of the valuable tapestries, wrought with historic scenes, that pertained to the Medici, and are to be in their totality displayed among the works adorning the walls of that corridor, between the ex-grand-ducal residences. One picture of that same Feroni gallery, the "Massacre of Innocents," by Benefial, with name and date (1730) inscribed, hangs outside the entrance to the new room, but certainly claims nothing that can be reported in its artist's favour—it is coarse and disagreeable.

Among novelties of the studio in Florence may be mentioned a group by Mr. Hart, one of the American artists who have preferred this city for long residence to Rome, and who calls the work he is now modelling the "Triumph of Woman." At first one might suppose it to be merely a reproduction of the often-treated Venus and Cupid subject; but we soon perceive something of higher meaning, a character of thought and earnestness, a modest and severe dignity in the female, who takes from the unwilling little god the last arrow left in his quiver, quite beyond the assumable scope of any such mythologic group. The treatment struck us as doing justice to the sculptor's idea of here conveying an elevated moral with reference to woman's claim to be addressed through her higher nature, to be won by the recognition of her nobler vocation, instead of the flatteries that lower their object. Therefore does Mr. Hart appropriately call his group, which is pleasing and graceful even apart from its metaphysical aim, the "Triumph" of the sex. Another work, by a foreign artist beginning to attract notice here, is a picture, the subject taken from the times of Savonarola, by Mrs. Hay, the English artist, long settled in Florence—"Procession of Children carring Profane Objects to be Burnt," on occasion of the conflagration of the "anathema," suggested by that eloquent friar. On scale about one-third less than that of life, are introduced the figures moving in procession under an awning, several lovely children, acolytes, and a young deacon led by Fra Dominico (Savonarola's chief auxiliar), laden with those Paganish vanities, jewelry, rich vases, toilette furniture, &c., the rear brought up by a group of beautiful girls playing on antique instruments, while several citizens of different station, grave and gay, contemplate the scene, expressing the various sentiments excited by it; and in the back-ground are the baptistery and the lower story of Giotto's campanile, carefully studied from the architectural realities; costumes strictly historic and effective. The figures are not all alike satisfactory: the friar, who ought to dominate, seems insignificant; but the children are all felicitous, full of naïve and serious sweetness; and if we may suppose the actual scene far more tumultuous, more heterogeneous, and grotesquely varied than it is presented in this quiet and orderly grouping, still there is a certain charm in the repose here imagined for it. In short, though faults may be found, this picture interests through sentiment, through the poetic mode of conceiving, and the luminous atmosphere so true to the sunny south that pervades it. We understand it has been bought by an English gentleman, and is to be sent to London.

Amidst the life of the present in Florence, the signs of an enthusiasm for national interests, so all-comprehending, so generous, and therefore irresistible, we are from day to day provided with pictures in streets more striking than those in studios; and we may be led to conclude that this is one of the epochs to supply subjects for art in the future from the historical events of Italy.

THE IMPROVEMENTS IN PARIS:

THE QUESTION OF THEIR IMPORTANCE IN THE VIEW OF THE MORTALITY OF LONDON.

FOLLOWING what has been our annual practice of late years, we once more enter upon a comparison of the mortality of London and Paris, for the purpose of judging to what extent the improvements in the French capital have been followed by amelioration of the public health, and for the sake of any lesson that may be comprised in the facts. We have the figures of the mortality of Paris for five years instead of four: that is, we have not only one more year's experience, but the opportunity for taking the mean or average of five years. The years, or from 1860 to 1864 inclusive, happen to correspond with those for which the last statement of an average for London is given in the Registrar-General's "Summary of Weekly Returns," published in the beginning of this year. Our comparison has not been made preceding 1860, for reasons with which our readers are acquainted, or which are comprised in the difficulty of getting statistics of the mortality of the "*banlieue*," or zone beyond the original *barrières* of Paris, for any year prior to the one mentioned, when the limits of the city were extended to the fortifications. It is not made for any later date than 1864, because the figures for the deaths are not given to a later date. The population for what are not census-years, is necessarily estimated only. Our method of making the addition to the statement of the previous census, namely, adding for each year one-fifth of the previous increase, has been explained by us; and it has been mentioned as suggested by the statistical department of the municipality of Paris. For some reason, difficult to understand, the increase, probable, is usually ignored; and the decree promulgated after each census, requiring that the tabular statement be considered the only authentic one for five years, is so precisely observed that the same table is repeated from year to year in publications such as the "*Annuaire*" of the "*Bureau des Longitudes*," and is quoted without comment by the correspondents of the London papers: it is therefore capable of being made an erroneous basis of calculations. The probability of an under-estimate of the population, by our system, is greater than that of an over-estimate: the births are curiously variable in number; but the increase by immigration goes on very rapidly. The last census has just now been taken; but the figures may not appear for many months. The previous census was in 1861, when the population of Paris was 1,696,141. We estimate the increase of each subsequent year as 34,039·8, as mentioned in our last article on this subject; and multiplying that by 3, for the number of years, the increase up to 1864 inclusive would be 102,119·4, making the total population then 1,798,260 and a frac-

tion. The deaths as given in the statement furnished by the Préfecture, to the "*Annuaire*," were in number 44,913, including those in the hospitals, and prisons.

The results, now for the first time obtained, of the comparison for 1864, are precisely what last year we predicted they would be,—inferring from the figures of the large mortality of London for 1864, which we then had, and from the comparison of the figures for 1863 as regards the two capitals. In effect, the mortality of London, which had been in 1863 somewhat greater than that of Paris, was considerably greater in 1864; whilst the mean-mortality of Paris, or the average of five years, was but slightly in excess of the London mortality of the same period. Thus:—

In 1864:—	Per Thousand of the living.
In London, the deaths were at the rate of	26·53
In Paris (including the garrison), they were.....	24·97
Thus the rate of London mortality exceeded the Paris rate	1·56

It is true that the mortality of London fell last year to 24·62; whilst the mortality of Paris, whatever it was, must have been considerably more, by the cholera, than it would have been. However, it seems to be considered by that most useful body of men, the Medical Officers of Health appointed under the Metropolis Local Management Act, that London will be visited by the disease in the ensuing autumn. If this be the case, a future comparison may not be materially different in result from what we here subjoin:—

Comparison of averages:—5 years, viz. 1860, 1861, 1862, 1863, 1864,—

In Paris:—	Per Thousand of persons living.
1860 =	24·745
1861 =	25·656
1862 =	24·338
1863 =	24·136
1864 =	24·975
	123·850 ÷ 5 = 24·770 mean of the five years.

In London:—	Per Thousand.
1860 =	22·490
1861 =	23·180
1862 =	23·560
1863 =	24·470
1864 =	26·530
	120·230 ÷ 5 = 24·046 do.
Excess of the rate of mortality of Paris, per thousand, over the London rate	0·724 do.

Our last previous comparison, or for four years, showed an excess of 1·293; and the comparison before that, or for three years, showed one of 1·836. As regards the mortality of Paris, it cannot be considered to have diminished in the five years. However, in 1864, there was one death to 40 inhabitants; whilst fifty years previous, the mortality was much greater. In London, in the five years, the mortality went on regularly increasing, till it became greater than the Paris mortality, and till the excess on the average of years was reduced for Paris to an item of less than three-quarters of one in the thousand.

It may be interesting, as it is indeed important, to mention, that in 1864, in Paris, there was a great diminution in the excess of births over deaths. Whilst the deaths increased from 42,582 in 1863, to 44,913 in 1864; the births diminished from 54,077 in 1863, to 53,835 in 1864; and the excess of births over deaths diminished from the number 11,495 to the number 8,922.

There is little more to be said of the causes of the disadvantageous sanitary position of London compared with Paris, than we said last year. In our article then we ventured to attribute much importance to the difference of the atmospheres as regards smoke-pollution and the transmission of light, to the difference of the systems of the disposal of dust and refuse, and to the different attention given to street-cleansing. The Medical Officers of Health would clearly be of our way of thinking. For, in their lately issued "Memorandum of a Plan of United Action in the case of an Epidemic of Cholera," &c., they urge "the more frequent removal of house-refuse," and "the more efficient cleansing of streets,"—adding:—"All refuse, dust, and dirt, ought to be looked upon as containing possible germs of disease, which may be lifted in vapour, or blown about by the wind, and so be inhaled or swallowed." And they truly say,—"It would be wise economy this summer to have the streets kept more cleanly." Excepting atmosphere and light, there is nothing in which the contrast between the capitals is greater than in the matter of street-cleansing. The item in the Paris accounts is a very large one. The daily removal from the streets includes everything that could come under the comprehensive term "dust," in London houses, where it would be hoarded for days. But the Paris streets are left perfectly clean for the traffic of the day. There is nothing in London resembling the efficiency of the Parisian street-cleansing and daily removal of "dust." Mr. Haywood's persevering exertions in the City have made the nearest approach: no part of London is kept so clean; although there are great difficulties arising from the immense traffic. There is no doubt both that the work done is below Mr. Haywood's standard, and that as much is done as the funds allow. As to the removal of "dust," generally in London, it is not done at all excepting on payment; and how this operates in the poorer districts need not be pointed out. Our convenient housemaid's-sinks, too, are often the source of disease in the better class of house. The corresponding contrivance (*plomb*) in Paris, is generally outside, on each floor, instead of indoors and in an unventilated place.

It concerns the different authorities of London to obtain adequate funds for the street-cleansing; and Parliament is bound to assist. Again this year, the stench in the streets, chiefly from finely-divided horse-dung, has been on each day of hot weather most offensive. The stenches in Paris, as we have said, may be different; but they are hardly worse; and they will soon be remedied by the supply of water that will be available. As to the "dust," we seriously think there would be advantage to health in dispensing with dust-bins, and adopting the French system, combined with efficient street-cleansing; and almost the only matter in which we could be at issue with some of the Medical Officers of Health, would be as to their discouragement of the deposition of house-refuse in the streets in the poorer districts. We should prefer their giving all their influence in favour of street-cleansing.

There would be one result from attention to the condition of the streets, and to the cessation of the smoke-nuisance, that the whole aspect of our towns would be more sightly. It is not alone that architecture would be appreciated as art, and that buildings would take their part in a general effect of beauty such as is never realized in London, — unless, at this period of the year, at an hour when the atmosphere has not become thickened, when the "roseate mantle" of morn is unfolden beyond the dome of St. Paul's, appearing over the bridges, and when the stillness adds its own poetry to the scene. Whoever believes that the health of London would not be benefited by an improvement in mere sightliness of the streets, has not given much attention to the mission of architecture.

We may take this opportunity of referring to a recent conversation in the House of Commons, bearing more especially on street-improvement. Unquestionably "a feeling of disapprobation, if not disgust," prevails as to the condition of London in all that relates to its suitableness as a place of residence and as the capital of an empire. As, each year, Londoners become better acquainted with Paris, the less are they satisfied with the results of their system in municipal matters, and are driven to ask whether it be really a condition of the obtaining convenience, healthfulness, and sightliness, that they place themselves in the hands of a despotic authority. Mr. Baillie Cochrane on Tuesday, in last week, merely responded in one way, to the public feeling, when he moved that an address be presented for the appointment of a Royal Commission to make inquiries with a view to the better and more economical government of the metropolis; and Mr. Cowper only gave voice to what is the impression of every one after a visit to the Continent, in saying that this capital was in his opinion the most uncomfortable one in Europe. It is unsatisfactory therefore that we are to proceed under the system as it is, or one which is only improved, without being abreast of the demands, ever-growing, and now weighted with the arrears of long inattention. What has been done by the Metropolitan Board of Works since it came into existence, may be admitted to bear advantageous contrast with anything done in a similar period of time in London. But the Board itself has complained of its want of means to execute entirely the moderate scheme of street-improvement which it has designed; whilst very much that concerns the architectural character, or the sanitary condition, of London, is managed apart from the Board, or in spite of it.

Of the six speakers who followed Mr. Cochrane, three, namely, Mr. Ayrton, Mr. Tite, and Mr. Cowper himself, fell into mistakes of one kind or another. The first of the three said there was no difference in principle between the municipality of the metropolis and that of Manchester or Liverpool, as far as the levying and expenditure of money for "local objects" was concerned; and Mr. Cowper conveyed the impression that he believed the Prefect of the Seine was an officer responsible solely to the people of Paris. The truth is that a very different system has been adopted for the conduct of affairs in Paris, as also in the case of Lyons and Marseilles, to that which prevails in the appointment of the municipal councils elsewhere in France. Rightly or wrongly,—and, as an important section in the legislative body and in the press indeed say, wrongly,—the Prefects and Councils of these places are appointed by the Emperor, and are therefore to be considered as departments of the Government. In the case of Paris, the State contributes directly to the funds. Expression of opinion on proposed improvements, however, is allowed to a much greater degree than many Englishmen suppose; and before works are finally decided upon, the plan is placed for inspection; and all persons interested are invited to take cognizance of it. Now, a certain difference between the cases of London and Manchester is comprised in the repeatedly-adduced fact that the former is the seat of legislation, government, and judicature, for the empire.

If an immense area of ground must be cleared for Government-offices or the law-courts, the fact simply *cannot* be left out of consideration. Neither can the fact of the resort from all parts of the country, to London, for purposes of education, or mere amusement. It is not the Metropolitan Board, but the Government that will be responsible for whatever may be the result in architecture and otherwise, of the erection of the four or five important public buildings that are about being designed; and of each of which the design must be considered in connexion in some measure with the question of street-improvement. The local boards and vestries, defended by certain speakers on the occasion referred to, have in several cases shown desire to interfere with the exertions for the public health, of their medical officers and inspectors, if published reports and statements are to be believed. There is no authority that grapples with the chief evils of London, the filthy state of the streets, the pollution of the atmosphere, and the inadequacy of dwellings: for suggestion as to the mode of combating some of these evils, we must go to France. We should marvel at Mr. Ayrton's notion that the arrangements of houses in London were more favourable than those of the houses in Paris, to morality and the social relations: only the mistake is constantly made. In both capitals, several families reside under the same roof: but in one case, the buildings are planned so as to permit of domestic comfort; whilst in London, they are not; and the consequences in morals and otherwise are what our readers have heard of.

In short, we Londoners have much to learn, and as much in regard to things in which we have deemed ourselves superior, as in anything else. We have to learn to act on the maxim which our continental neighbours say is ours, that "time is money;" we have to learn to be comfortable; we have even to be clean. What matters it that stenches differ, so long as the stench of our streets is as destructive to life as any stenches of Paris? What matters it that in Paris they cast refuse into the street,—only clearing it away, invariably and completely, at early morning,—whilst we do not remove the daily deposit of the streets, and hoard within doors for days and nights our house-refuse? What matters it that we began the pursuit of sanitary science a quarter of a century ago? The mortality of London in 1864 was much more than 26 per thousand of the population, that of Paris being only 25; whilst on the average of five preceding years, the mortality of Paris was only inappreciably greater than the mortality of London. We have fallen to the rear in what relates to health and convenience, as well as in much of what is of the domain of the beautiful; and the sooner we inquire into the reasons for this condition, the better for ourselves will it be, and for our national *prestige* and prosperity.

GRAY'S INN.

OCCUPYING a large area, this great law institution extends from King's-road, on the north, to Holborn; being separated by only a narrow interval from Lincoln's Inn; which includes an area of pretty much the same magnitude, if we leave out Lincoln's Inn-fields; each institution covering little less than thirty acres.

The projected new law courts, between Carey-street and the Strand, will form a continuation of the jurisconsult district; which, when complete, will extend the parallelogram of law nearly to the verge of the Temple grounds and Courts; and thus dedicate to the profession the most valuable, because the most central, portion of the metropolis; reaching the Thames by over a mile in length, and a quarter of a mile in width.

Hitherto but little has been done in the way of architectural improvement in Lincoln's Inn; Mr. Hardwick's fine hall excepted; the solid structure called Stone-buildings, is the only portion at all consistent with modern taste; all the rest, Chancery Courts included, being unsuited to the requirements of the time.

Although in many parts antiquated and shaky, the Temple presents to its visitors and occupants an aspect far more agreeable; the restoration of the venerable shrine of the Templars, the new Gothic Hall, and the fine ranges of Paper Buildings, together with the recent Elizabethan structures, form an assemblage that is at least respectable; whilst the ornate gardens, with their trees, flowers, and dahlias, not forgetting the little fountain, give it some pretensions that may not be wholly out of place when the glorious rivage created by the embankment shall extend its limits to the purified Thames.

It can hardly be doubted that the new courts of justice will be planned in a style to justify expectations of the public, and that thenceforward great structural improvements will be effected throughout all the inns of court.

The first view of dingy ranges, called courts in the Temple, and squares in Gray's Inn, would not impress strangers with the idea that the workhouse-looking fabrics, of beyond 200 years' standing, were in the occupation of the richest and most pretentious of our professionals.

Look at the entrances, the "*portes cochères*," of any of them; there is room for but one carriage, 7 ft. between the curbs; and that passage arched over at an elevation of 10 ft.

Gray's Inn, the most extensive as to space, embracing a large tract of garden, which, in Henry VIII.'s time, was a rural retreat, with a view of Hampstead, has but one such gateway for its two squares, Raymond's-buildings and Verulam-buildings, having access from the outer bounds, on and near the King's-road.

At the present moment the house in Holborn, having 45 ft. frontage, and under which the straight gate is hung across the narrow way, is ticketed *To be Let* by the eighteen benchers. Surely it would appear from this that the funds of the association are at a low ebb, or else that they are little imbued with architectural taste, and a proper regard for the appearance of their ancient foundation.

In the reign of Henry II. the manor of Portepool, Holborn, belonged to Reginald Grey de Wilton. This comprehended four messuages, four gardens, a windmill, eight acres, and the advowson of the Chantrey of Portepool, which having belonged to the prior and monks of Shene, Surrey, was granted in fee farm by Hen. VIII. to the Honourable Society of Gray's Inn, on the suppression of monasteries. From an inquisition dated 44th Edw. III. (A.D. 1371), the above property had been previously let as an Inn of Court at the annual rent of 6*l.* 13*s.* 4*d.*; therefore it is hard to determine which of the fraternities, Gray's Inn or the Temple, is the older, as a law [institute. It appears, however, that the Knights Templars, in the reign of Henry II., in the twelfth century, removed from the Old Temple, Holborn (Southampton-buildings), to the New Temple, between Essex House and Temple Bar, and there erected the church which still attests their taste and power; and which has been recently so admirably restored.

As to Lincoln's Inn, the tradition is clearer; for Hen. III. anno regni 13°, granted that site then called the Old Friar House, near Holborn, in New-street (Chancery-lane), to Henry Lacy, Earl of Lincoln, who lived there, and died anno 1310; soon after which it became an Inn of Court.

In those times, however, Clifford's, Clement's, and Lyon's Inns were used as confraternities with Lincoln's Inn; and at the same time Thavie's Inn, and Furnival's, Holborn, were Inns of Court also.

At the present juncture of important metropolitan improvements, renovations, and embellishments, and especially on the foundation and construction of new law courts, it is much to be desired that suitable routes of inter-communication should be formed so as to create a community, if not unity, in design between the three Inns of Court, which will occupy so large a central section of London.

It may not be desirable to make carriage thoroughfares, with entrances and exits, so as to disturb the quiet studies of professionals and resident pupils, if any; but clear, open and safe routes are surely requisite; and lines of traffic ought to be opened, at least from Lincoln's Inn-fields, both north and south, to communicate with Gray's Inn by Holborn, and with the Temple by the Strand.

Then the condition of the old ranges in Gray's Inn, along Gray's Inn-lane; of Lincoln's Inn, along Chancery-lane; and of the Temple in many of its quarters and precincts, ought to be submitted to the judgment of their several architects, for plans of renovation, that might be more appropriate to the objects of their occupation, as well as more accordant with the tastes and spirit of the times.

Primitive benchers, like other owners of urban property, leased off external portions, with frontage to leading roads; thus, those of Gray's Inn expropriated the Holborn line beyond the Bar, to Warwick-court, reserving only a drift archway and foot across, altogether 14 ft. wide.

The Templars, who possessed the whole space intervening between Whitefriars and Essex-street, wherein stood the mansion of the Earl of Essex, leased the whole of the Strand and Fleet-street frontages, besides much of their border grounds running southward to the river. Whether those properties have been alienated, or still form items of the Inns of Court revenues, is best known to their repective registrars. If it be in their power to reclaim and appropriate some portions of them, to form respectable entrances, and to throw open their still noble courts and squares, so as to give suitable character to their important institutions, it would be most desirable, now that the concentration of the law courts has been decided on.

As for Lincoln's Inn, it will be more easily dealt with. Already Carey-street has been widened, and the invited plans and designs will, doubtless, secure open routes to the courts, and also to the finest square of London, Lincoln's Inn-fields; but Cary-street will be of little use unless extended westward to Covent Garden, and eastward towards the City; and the miserable gut of Chancery-lane will never suffice for the intercourse of all the courts, when permanently located, throughout the year in this central district.

The opening which lately offered in Little Turnstile has been allowed to be barred out by a stupendous printing-office. However, Great Turnstile yet remains in its original antiquity, and it is in this line that the grand opening should conduct northward across Holborn, and and so communicate with Gray's Inn.

THE NEW GENERAL POST OFFICE OF SCOTLAND.

NEARLY opposite the General Register Office in the new town of Edinburgh, but a little to the eastward, there has been erected recently an immense block of building, which was opened on the 7th of May as the new General Post Office of Scotland. It covers the large area of ground occupied, not twenty years ago, by the houses of Shakspeare-square and the Theatre Royal of Edinburgh, the latter of which is endeared in the memory of many a lover of the histrionic art by its association with the names of Mrs. Siddons, William Murray, Mackay (the only man who ever could play Baillie Nicol Jarvie), the Nichols (mother and daughter), Denham, Montague Stanley, and a host of great though lesser stars. The rapidly-expanding business of the Post-office having rendered its premises in Waterloo-place totally inadequate for the purpose, another and more extensive site had to be sought for. Even in Edinburgh centralization is despotic, and the dear old Theatre Royal was condemned, purchased, and demolished. The work of demolition completed, there was a very general feeling of regret experienced that it was necessary to erect any new building on the site, and so exclude from that locality the magnificent view of Arthur Seat and of that unequalled mural ridge of trap rocks, Salisbury Craigs. What city but Edinburgh can boast of such a view? Well do we remember the surprise and genuine admiration of a party of foreigners on their first beholding this glorious old hill, as it burst on their vision in their first walk along Princes-street. The exclamation of one of them of "*Mon Dieu, que c'est magnifique!*" brought them all to a sudden halt, and there they stood literally wrapt in admiration. And well they might. Well, it was, no doubt, very hard on the Edinburgh folks that such a prospect should be shut out by stone and lime; but as the Italian proverb has it, *che sara, sara*; and on the 23rd October, 1861, the late Prince Consort laid the foundation-stone of the new building.

The site was certainly all that an architect could desire. He had ample space, open on three sides, for the proposed building. On the north and west sides there is no structure within 120 ft. of it. To the south lies the deep valley of the Nor' Loch, on the steep declivity descending to which he had to rear his southern wing. He had a frontage to the principal street of the city of 136 ft. and another to the new buildings of 178 ft. He had a quarry of the finest freestone in the world within a distance of three miles. Finally, his constituents were my Lords of the Treasury. Under what more favoured circumstances could any architect desire employment? Here, surely, were opportunity and scope for his raising a monument to his own fame, if not *ære perennius*, nearly as enduring. And what have the citizens of Edinburgh and the people of Scotland got for it all? what have they got to compensate them for the loss of one of the noblest views with which a city was ever blessed?

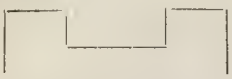
Premising that the edifice forms an imperfect square, the north-east corner being cut out, let us endeavour to describe its north or principal façade. It consists of a central portion—slightly recessed—two stories in height, and a tower of three stories at either end, which attains a height of 65 ft. from the pavement. The basement of the central part, which has before it a broad landing-placing gained by four or five steps, and flanked by branching lamp-pillars, has five semi-circular arches resting on square piers, and terminating in carved key-stones. The three central arches are open and form the entrance to the public vestibule. The two others are occupied by semi-circular-headed windows. Within the intercolumniations over the basement story, the windows are square-headed, and are surmounted alternately by triangular and segmental pediments. Before them is a range of balustrades of those ungainly forms which have been compared, no doubt by those of very vulgar minds, with "footmen's calves."

Above the columns, which are of the Corinthian order, are an entablature and cornice surmounted by a precisely similar range of balustrades. The basement of either tower is rusticated, and contains three plain semi-circular-headed windows. On the first story the windows are similar to those on the same line in the central part, but are divided not by single but by coupled Corinthian columns, which support an entablature and cornice. In the upper story the windows are once more semicircular-headed, the arches resting on piers, and are divided by coupled Corinthian pilasters. The two end windows have balustrading before them, but in the case of the central one there is substituted an unmeaning empty segmental pediment. This upper story is crowned by a plain entablature, cornice, and the invariable balustrading.

Of the western façade little need be said. It is treated precisely in the same way as the northern, except that in place of having a central grand entrance there is substituted a single door, placed in the archway adjoining the south tower. Its dull uniformity is, of course, increased by its being very nearly a third longer than the north front. The southern elevation, overhanging the Nor' Loch, is 130 ft., or, including the foundation, 140 ft. high. It calls for no other remark. In the centre of the structure there is an open space of 54 ft. by 30 ft. The cost we believe to have been somewhere about 120,000*l.*

The effect of the whole, from whatever point of view it is examined, must be pronounced eminently unsatisfactory. No avail whatever has been made of the peculiar advantages of the

site. The towers are very much too large and heavy. A sky-line like this—



and there is not even a chimney, or urn, or statue, or terminal of any kind to break it—is anything but "a thing of beauty" to the eye. Even the late Prince Consort's suggestion, that the pedestals of the balustrade should be set off with ornamental vases, was ignored. And all the elevations want *breadth*. Play of light and shadow there is none, for there are neither projections nor recesses; at least, none deserving of the name. There are more things in heaven and earth than are dreamed of in Mr. Mathison's philosophy, and sciography is one of them.

Entrance is obtained into the public lobby or vestibule by the three open archways, which are 15 ft. in height and 6 ft. in width. They are provided with iron gates, each containing in a circular frame the Scottish lion *rampant*. The vestibule, which is 30 ft. square, has its walls ornamented with Ionic pilasters. In front are three sarcophagi, with brass plates, which have openings for the reception respectively of letters, book parcels, and newspapers. Above the sarcophagi there is an electric clock, which is controlled from the Royal Observatory, and which has a face towards the vestibule, and another to the inside, so that the correct time will always be maintained for the post-office *employés* and the public. It is to be regretted that the outer clock-face is not of such a size as to render its figures legible from the north side of Princes-street. In the vestibule there is placed a wooden stall for a messenger, whose business it is to answer inquiries and direct persons to the different parts of the building. The vestibule gives access, on the left hand, to the Paid Letter Office, and, on the right, to the Money-order Office. These two apartments are remarkable for nothing except the presence in either of two remarkably ugly oblong-shaped piers, with nondescript capitals. What they do in rooms of 20 ft. by 16 ft. we are somewhat at a loss to divine; but if the roof required other support than the walls, which it ought not to have done, ordinary columns of any of the known orders would have been preferable.

Passing along a narrow corridor on the west side, from which open the cash-clerk's, examiner's, and accountant's rooms, the visitor arrives at the accountant's office, a dismal, badly-lighted room, with two huge square piers supporting the roof. This apartment contains desks for twenty-two clerks. These desks overcrowd the apartment, and in many instances are placed much too near the fire-places, of which there are four. We do think that these gentlemen have just cause of complaint. In the old Post-office they might have complained of the manner in which they were "cabin'd, cribb'd, confined;" but they knew that in planning that building the architect could never have foreseen the enormously rapid strides which the business of the Post-office was to take; and they submitted with good grace, if with paler cheeks, to what could not, for the time, be remedied. But here they had hoped for a better state of things, only to be disappointed. Not unnaturally do they object to being penned and huddled in like so many "dumb driven cattle," when there is no earthly reason why they should not have ample and proper accommodation. The entire staff of *employés*,—for both local and general service,—is considerably under 300. Surely that number of persons might be properly and comfortably accommodated in a building whose area is 179 ft. by 136 ft., and where no one possessed a servitude of *altius non tollendi*, or could limit the height of the structure. Yet it is notorious that in many of the departments, as in this of the accountant's, the clerks and other officials—excepting always the *chefs*—complain that they are worse circumstanced than they were in the old building. Not only are the clerks in the accountant's office subjected to over-crowding and deficiency of light, but there is no adequate provision made for their comfort in the way of dressing-rooms, lavatories, or other conveniences. For these they must descend a couple of stories.

On the first floor up, which is reached by a broad and well-lighted staircase, the apartments towards the northern façade of the building are appropriated as secretary's room, chief clerk's room, missing letter-room, &c. The secretary's is an airy, well-lighted room. The walls, which are of a pale green colour, have a good plaster cornice supporting a plain coved ceiling.

Proceeding southwards by a long, narrow, and badly-lighted corridor, from which open, among others, apartments intended for the medical officer and solicitor of the establishment, we come to a well-proportioned room, which, being placed in the angle of the south-west tower, is light and cheerful, commanding charming views of Arthur Seat, the picturesque houses of the Old Town, and the venerable fortress. This, which is perhaps the best apartment in the building, has been allotted to the Adjutant-General for Scotland.

The visitor may now descend by the other staircase to the North Bridge lobby or vestibule, which has an entrance from the street by the circular archway we have already mentioned. In this lobby the room and offices of the controller are situated, and these communicate with the sorting and letter carriers' offices. These measure respectively 80 ft. long by 42 ft. broad, and are sufficiently lighted by some sixteen circular-headed windows, as well as by two lanthorn-lights, 50 ft. by 12 ft., in the roof, which is 30 ft. high. The roof is an open timber one, but we feel bound to say that it has never been our bad luck to see anything so ugly,—always excepting the roof of the recently-erected Moray Church of the South Back of the Canongate. Nor can we approve of the arrangement which placed fire-places in the bays of the second and fourth windows on the south side of the saloon.

The fittings and furnishings of these two saloons, which were done under the supervision of Mr. Williams, the Surveyor of her Majesty's Board of Works, in conjunction with Mr. Lang, the controller of the Edinburgh office, are of mahogany. The letter carriers' and sorters' desks are divided each from the other by brass lattice-work, and are furnished with single gas-jets of the baldest pattern, and with white reflectors or shades. The desk and bench standards are of cast iron; but no taste has been displayed in their design. The tops of the stamping-tables are formed of stone slabs, covered with vulcanite india-rubber, a quarter of an inch thick.

The sorting and letter carriers' offices communicate directly with the paid-letter office, and there is a place on the south side of the former for the register clerks. This is a good arrangement, for so soon as a letter is registered it is at once within the general sorting department.

The first story of the south wing has been let by the Lords of the Treasury to the Scottish Lunacy Board. In the upper story of the north-west tower, apartments have been assigned to the Meteorological Society. The housekeeper's apartments are in the eastern tower. On the basement floor are the sorters' and letter carriers' waiting-rooms, and rooms for the preservation of documents, &c.

Were we not credibly informed of the fact, we could scarce believe that the painters, who had the contract for the decoration of the interior, had been engaged on their work for fully a month, when their labours were interrupted to allow of the hanging of the bells, and the introduction of gas and water-pipes.

GRAVESTONES.*

MOST of the ancient crosses of the head-cross type which remain to us are of early date, and of Saxon character. I have seen some of them reproduced in modern designs, and I do not think the result is satisfactory. I do not think there is any great beauty to our eyes in the intricate interlaced work in which the Northmen so much delighted, or that we appreciate the mystical meaning of the lacertine monsters which they used so commonly in ornamentation; and I doubt whether the peculiar outline which we find commonly associated with such ornamentation is that which our modern taste desires. Of course, some people take pleasure in the reproduction of these forms or they would not reproduce them, but I think it must be an antiquarian pleasure derived from the associations which they awaken rather than from the intrinsic beauty of the designs.

The great majority of the tall crosses to which I have pointed as affording a suggestion for monumental crosses are of this early type. Of the station and churchyard crosses of Gothic design few have escaped mutilation; a stepped base and broken shaft may be seen in hundreds of our villages, but the head—the crown of the design—is almost always broken away. It is quite a wonder to me that, while people have been reviving everything else Gothic that was beautiful, they have not revived the churchyard cross. It was not the early Reformers who broke them down, it was the Puritans. Some of them may have had superstitious images upon them, and may have deserved to be broken down; but it is easy to restore them with a cross head, or with a sculptured group which has nothing objectionable in it. I should be very glad to see all the old ones restored, or a new one erected in every churchyard. I do not know any small architectural work which is more beautiful, and its significance and appropriateness as the ornament of the churchyard or cemetery are manifest.

In saying that sepulchral ornaments of this kind might be erected, besides the one churchyard cross, it has to be considered how it would look to have several such crosses in the same churchyard. If they were not too numerous, and if they were sufficiently varied in general size and form, there would be no fear. There are two at Penrith of the same size and design, at the head and foot of a long space, enclosed by very ancient semicircular stones, called the Giant's Grave; they do not spoil one another. There are two at Sandbach, Cheshire, in the market-place, so close together that their bases touch one another; they are of different size and design, though of similar date and character, and they form a very picturesque group. In MS. illuminations we sometimes find three or four tall monumental crosses represented in the same churchyard. The churchyard cross would be distinguished from sepulchral monuments of the same type by being placed on a base of steps; and it might easily have a further pre-eminence given it by the style of its design or subject of its sculpture. It might have evangelistic symbols at the angles of its base, and a figure of the patron saint in a canopied niche on its shaft. The monumental crosses would, I suppose, not have the same spreading octagonal graduated base, but would rise from a base which covered the grave, and that base would afford ample space for an inscription.

Another very common form of modern monument is the high tomb: it does not seem to have been used as an outdoor monument in Mediæval times; but now-a-days it offers the supposed advantage of a more imposing and sumptuous monument than a mere coffin-stone or head cross, and is therefore popular. Some of the modern designs are adopted from the old sarcophagus. The old sarcophagus, hewn out of one stone, was a very massive and imposing monument, and derived solemnity from the fact that it actually contained the body of the deceased. Some of the modern designs have the modified form of a Mediæval shrine. But a modern high tomb, which is built up of several stories, is not imposing from its massiveness,—it is only a very tiny building; and it has none of the solemnity of a sarcophagus, which contained the dead, or of the interest of the shrine, which contained a saintly relic. The body lies in a grave beneath, and the interior of this sham sarcophagus or shrine is empty. In a working drawing for one which I saw the other day there was this direction written on the section of the interior,—"To be filled with rubbish;" brickbats, I suppose, and fragments of stone,—a convenient way of getting rid of the mason's *débris*, and calculated, I think, to illustrate the inappropriateness of the kind of monument.

Sometimes the high tomb is a copy of the Mediæval altar tomb. In the prototype, I suppose the body was contained within the tomb, and masses for the soul were offered upon its top, so that it is doubly inappropriate for modern use. These objections to the high tomb may, however, be easily removed by not enclosing the space beneath the top, whether the top be flat or coped, *i.e.*, by mounting the top on columns, or by piercing the enclosing sides in panels, so as to show that it is only a monumental slab mounted on an architectural base.

Since variety of type is a great desideratum, I will suggest one of these table tombs, with a square tester over it; there are some comparatively modern ones (seventeenth century) in Wales. Or, again, a table tomb, with a canopy over it; there are two in Aston churchyard, Cheshire, with effigies lying on the high tomb, which seem to have been sufficiently protected from the weather by the broad ogee canopy.

Perhaps the greatest difficulty the designer has to contend with in getting monuments that

* By the Rev. E. L. Cutts: see p. 422, *ante*.

shall look effective is, that the monuments are so crowded together in many of our churches and cemeteries, that they make the place look like a stonemason's yard, and the designs ruin one another. This crowded appearance is exaggerated by the unnecessary size of all our monuments,—coffin-stones on massive bases, head-stones three times as high and broad as they should be, and other types of monument on the same over-large scale. If the monuments were less we should get more green sward, which is what is wanted as a setting for the pieces of architecture.

We may often obtain a broader foil of green, and a more complete isolation from neighbouring monuments, by judicious planting of shrubs and trees. A better effect for our own monument, and for its neighbours also, may often be got by designing the monument with reference to the place it has to occupy. If there are many head-stones about the place, a flat gravestone will have more individuality, and *vice versâ*; if the neighbourhood is only too crowded already with both coffin-stones and head-stones, a slender head-cross may be relieved against their broader forms, or a short massive cross, like that at St. Buryan, will assert itself by its solidity, or a tall churchyard-cross will make itself conspicuous. The best effect of all would be obtained if one-tenth of the people would erect monuments, and all the rest would be content with plain turfed grave-mounds.

What do we want any other monument for? Partly as a lengthening out of the last sad offices of affection—a doing something more to show our love and regret; partly, I suppose, to ensure the grave from violation; partly to form a more permanent record of the place to which our visits of affection may from time to time be paid; partly it is to keep the memory of the lost one alive a little longer among men.

To preserve the grave from violation;—a very natural feeling, and yet, alas! how vain the attempt. Go into any village churchyard and look round you. All the generations of the inhabitants of that village, from its first Saxon settlers down through 1300 years to the fathers of the present generation, have been buried in that churchyard. How could you preserve their graves from what you call "violation?" And, if you could, why should their graves be preserved from "violation?" They passed away from the fields which they once tilled, and a fresh crop of spring corn is at this moment green upon them, sown by other hands. They passed away from the houses which they built, and others' children are now cradled within the old walls. And so their dust was mingled with the earth of the churchyard, and successive generations have been laid over and over again in the same graves until their dust is indistinguishably commingled. You cannot preserve them from violation.

But you want to mark permanently the place where your own dead lie, and to keep their memory alive among men. Well, it might be cynical to say that your own memory ought to be *your own* sufficient remembrancer of your dead, and that you will strive in vain to make the *world* remember them unless they have themselves done something to be remembered for. At any rate, a gravestone will not serve the purpose very long.

What has become of all the old gravestones? In pulling down old churches to rebuild or repair them, we often find a churchyard-ful of them built up in the old walls, as at Bakewell, Doncaster, and Helpstone. And, depend upon it, *our* monuments will no more remain inviolate than those did, and may chance to be put to much viler uses. Why, if everybody's grave had been kept inviolate, and everybody's friends had put up a stone monument to perpetuate his memory, there soon would not have been fields left for men to grow their corn and pasture their cattle upon: the mountains would have been levelled for monuments, and the face of the whole earth would have been crowded with monumental lumber. Let us be satisfied to have our dust mingled, confused, lost, amidst the dust of our fellow men, there will be nothing wanting of us at the resurrection: let us be content to have our memories fade out of remembrance in the world, if only our names are written in the Book of Life.

The lecturer concluded with a few words about epitaphs; the following are some of the examples quoted:—

Judge Rainsford's inscription ends:—

"Quantus Vir, *Bone Deus.*" "Good God, what a man was this!"

"Buried in the mercy of Jesus Christ,"

says an ancient inscription. Let us contrast it with a modern one—

"Who, lest he should be, when dead, a trouble to the living, desired that his body should be burned after the ancient fashion. O cares of men! O the emptiness of things! All is dust, and all is a jest, and all is nothing."

Or another:—

"Near this place lies interred Thomas Johnson, who departed this life at Charlton, Dec. 20, 1744.

From his early inclination to foxhounds, he soon became an experienced huntsman. His knowledge in his profession, wherein he had no superior, and scarcely an equal, joined to his honesty in every other particular, recommended him to the service and gained him the approbation of several of the nobility and gentry, among whom were Lord Conway, Earl Cardigan, Lord Gower, Duke of Marlborough, and the Hon. Mr. Spencer. The last master whom he served, and in whose service he died, was Charles, Duke of Richmond, Lenox, and D'Aubigny, who erected this monument to the memory of a faithful servant, as a reward to the deceased, and an incitement to the living."

Well, and what think you follows this? Why the following from St. Luke's Gospel:—"Go thou and do likewise"—*i.e.*, hunt foxes, I suppose; but this is not all; here is something further in verse:—

"Here Johnson lies. What hunter can deny
Old honest Tom the tribute of a sigh?
Deaf is the ear that caught the opening sound;
Dumb is the tongue that cheer'd the hills around.
Unpleasing truth! Death hunts us from our birth,
And men, like foxes, *take to earth.*"

From Hendon, in Middlesex:—

"In memory of Robert Thomas Crossfield, M.D., son of the late Thomas Crossfield, of Spennithorne, in the county of York, who died 5th November, 1802, aged 44 years.

Beneath this stone Tom Crossfield lies,
Who cares not now who laughs or cries;
He laughed when sober and when mellow,
Was a harum-scarum heedless fellow;
He gave to none designed offence,
So *honi soit qui mal y pense.*"

Here is a man who gloried to have it inscribed upon his tombstone that he was a drunkard and a harum-scarum heedless fellow.

Thomas Cave, Chancel, Barrow-upon-Soure:—

"Here in this grave
There lies a Cave:
We call a *cave* a grave;
If cave be grave, and grave be cave,
Then, reader, judge, I crave,
Whether does Cave here lie in grave,
Or grave here lie in cave?
If Cave and grave here buried lie,
Then, Grave, where is thy victory?
Go, reader, and report here lies a Cave,
Who conquers Death, and buries his own grave.
Cave! ave in Æternum!"

On one Moor,—

"Hic jacet plus—plus non est hic:
Plus et non plus—quomodo sic?

Here lies Moor—no more is he:
Moor and no more,—how can that be?"

I will mention one other, because it has only rather recently been permitted to be inscribed on a tomb in Kennington Churchyard, in memory of a person who met his death by an accident on the Great Western Railway, and died 14th January, 1848.

"The *line* of heaven by Christ is made,
With holy truth the *rails are laid*;
From earth to heaven the *line* extends,
And in eternal life it ends.

God's Word is the *First Engineer*;
It leads the way to heaven so clear;
Through *tunnels dark* and *dreary* here
It does the way to glory steer."

MEMORIAL FOUNTAIN, GUILDHALL YARD, LONDON.

THE monumental fountain represented by our engraving has been erected by the vestry of the united parishes of St. Lawrence Jewry, and St. Mary Magdalene, Milk-street, to the memory of the benefactors of these parishes. The memorial, designed in the Pointed style of architecture which prevailed in Italy during the fourteenth century, is 9 ft. square at the base, and 32 ft. in height. The materials employed are Portland stone and the best description of Bath stone, with polished granite shafts. On the east and west sides are statues of the patron saints of the two parishes; and on the other two sides are marble slabs, on which are engraved the names of the benefactors. On the east side, facing Guildhall-yard, is a bronze basso-relievo of Moses striking the Rock, an admirable production, which forms the drinking-fountain. The total cost has been 665*l.*

The works have been executed by Mr. William Thomas, of Clipstone-street, from the designs of Mr. John Robinson, architect. The two statues and the basso-relievo are by Mr. Joseph Durham, A.R.A., sculptor.

We take the opportunity to express our gratification at the election of Mr. Durham as associate of the Royal Academy. The honour is well deserved, and we have reason to believe the election has given general satisfaction.

THE BRITISH AND FOREIGN BIBLE SOCIETY.

THIS society was established in the year 1804, with the single purpose of circulating the Scriptures, without note or comment, at home and abroad. Its commencement was on a very small scale, but its progress has been very remarkable, and it now numbers among its vice-presidents the most distinguished names among the aristocracy and the home and colonial clergy, with the Earl of Shaftesbury as president. The society has promoted, directly, the distribution of the Bible in no less than 125 languages or dialects, and indirectly (by means of societies in connexion with it), in 44 additional tongues, making together a total of 169 different languages or dialects. The number of versions is 209, and of this number 157 have been prepared since the year 1804. Last year the society circulated 2,450,127 copies of the Scriptures as against a yearly average of about 20,000 copies issued during the first four years of its establishment. The total number of copies issued since the commencement of the society in 1804 amounts to 47,989,579; and if to this be added the number issued by other societies assisted by grants from the society's funds, the total circulation induced by the combined efforts of these various associations reaches to the enormous figures of nearly eighty-three millions of copies of the Bible, either in whole or in part. These results have necessarily entailed a large expenditure, the disbursements during the last year having been upwards of 169,000*l.*, with engagements up to the date of the last report amounting to upwards of 90,000*l.* more.

The society's house, in Earl-street, Blackfriars, being required for the formation of the new street from Chatham-place to the Mansion House, it became necessary for the society to seek accommodation elsewhere; and as its requirements are so large and multifarious as to render it impossible to find premises suitable to their wants, the committee resolved to rebuild their house on a freehold site on the new street, which they have purchased of the Metropolitan Board of Works, between St. Andrew's-hill and Addle-hill, adjoining the proposed new Probate Court, now in Great Knightrider-street, but which, when rebuilt, will also front on the new street. The situation of the new premises is admirably suited to the society, as it is very near their old home in Earl-street, and will be in the midst of a wide and handsome thoroughfare.

The site is of some historical interest. In Baynard's Castle, at the foot of Addle-hill, resided for many years the family of the Earls of Clare. Edward Plantagenet, Earl of March, afterwards Edward IV., took up his quarters there on his entry into London with Warwick, the king-maker. Richard III. some time resided there. Henry VII. kept his court here in the early part of his reign; and here assembled the council which deposed Lady Jane Grey, and raised Queen Mary to the throne.

Between Addle-hill and St. Andrew's-hill, according to Stowe, was "an ancient building of stone and timber, builded by the Lords of Barkley, and therefore called Barklie's Inn;" this was a little to the southward of the present site of the Bible Society. Here Richard Beauchamp, Earl of Warwick, resided in the reign of Henry VI. This house, towards the end of Elizabeth's reign, after the death of William Lord Viscount Berkeley, had fallen into ruin, and parts were let out in tenements; the arms of Berkeley—a chevron between ten crosses patée—were still remaining in the stonework of an arched gateway, until a few years ago. At the upper end of St. Andrew's-hill stood a large house, built by Sir John Beauchamp, in the reign of Edward III. At his death, in 1359, the house was sold to the king, and received the name of the King's Great Wardrobe. Richard II. is said to have resided here in the second year of his reign. Here were deposited "the secret letters and writings touching the states of the realm," which were enrolled here, and not in Chancery. The wardrobe appears, according to Fuller, to have been a kind of "Musée de Souverains," as there were preserved all the robes and ornaments worn by the kings of England on festive occa-



MEMORIAL FOUNTAIN, GUILDHALL YARD, LONDON.

Mr. John Robinson, Architect. Mr. Joseph Durham, A.R.A., Sculptor.

sions. This museum was dispersed by James I. The site of the ancient house is now occupied by Wardrobe-court, in Carter-lane.

There are other reminiscences connected with the locality even more interesting than the foregoing. The house which Shakspeare bought in March, 1612-3, of Henry Walker, was in the immediate neighbourhood. In the counterpart mortgage-deed bearing the signature of Shakspeare, now in the Guildhall Library, the premises are described as "abutting upon a streete leading downe to Puddle Wharffe on the east part, right against the Kinge's Majesties Wardrobe." It is further described as being partly built over a great gate leading to a capital messuage in "the occupation of the Right Honble. Henry Earl of Northumberland;" and we get from this description a glimpse at the character of inhabitants at that time. This house was situated near the Church of St. Andrew-by-the-Wardrobe, shown in the view, and was occupied for several generations of Robinsons, descendants of the John Robinson to whom Shakspeare leased it on completing the purchase.

The first theatre erected solely for dramatic purposes was in Blackfriars, not far off. It was erected in 1570, and stood in the opening called Playhouse-yard, near the *Times* printing-office. Whitefriars Theatre was finished before 1580, and, from the vicinity of these two theatres, there is little doubt that the locality was frequented by Shakspeare and his companions.

The celebrated Romaine was for many years incumbent of the church of St. Andrew-by-the-Wardrobe. The church was formerly called St. Andrew-by-Baynard's Castle, and is supposed to have been founded by the Fitzwalters in the reign of John.

In excavating the ground for the new building, a glass bottle, some Mediæval pottery, a piece of red Samian ware, a quantity of bones, and a small coin of Constantine, were discovered, but nothing of any great interest, although the locality seemed favourable for antiquities and the excavation was continued to a considerable depth, in some places as much as 18 ft. below the present surface.

The Bible Society's new house, of which the first stone was laid by the Prince of Wales on Monday last, has a frontage of 115 ft. on the new street, with a depth of about 68 ft. from north to south, except at the south-east corner, where the depth is only 28 ft., in order to avoid obstruction to the lights of the new Probate Court. The arrangement of the plan presented considerable difficulty in consequence of the ground falling very rapidly from north to south, the difference of level between Wardrobe-terrace on the north side and the front of the building being as much as 11 ft. In order to overcome this difficulty, the principal staircase is continued down to the basement floor, in the centre of the building, at which level the building is entered on the south front. The floor of the "open depôt," at the south-west angle, is on the same level, and this room will occupy the whole height of the basement and the ground floors.

The building is divided into two nearly equal portions, the easternmost being devoted to the warehouse, and the western side being appropriated to the business premises of the society. The basement is taken up by part of the principal staircase, which, as already described, is continued to this floor, a warehouse with an area of upwards of 2,150 square feet, a strong room with a groined roof supported on columns, 32 ft. by 18 ft.; the open depôt, 32 ft. by 20 ft.; rooms for the porter, wine and beer cellars, lavatories, &c. On the ground-floor will be rooms for the foreign secretaries, accountants' offices, depository, and clerks' rooms, colporteurs' room, strong-rooms, and an extensive warehouse floor, 56 ft. long by an average breadth of 32 ft. with waiting-room, and the usual accessories. On the one-pair floor there is a large committee-room on the north side, 32 ft. by 28 ft., over the foreign secretaries' and accountants' offices; also two sub-committee rooms; offices for the secretaries and treasurer; an ante-room, 24 ft. by 13 ft.; a warehouse of the same dimensions as the floor below; and the rest of the space is appropriated to the principal staircase (which will be 20 ft. square, and will form a very striking feature in the appearance of the interior), back staircase, lavatories, W.Cs., &c. On the two-pair floor is a library at the north-west angle of the building next the church, 42 ft. by 32 ft. Agency rooms and warehouse as before. The third and fourth floors are used as living-rooms and store-rooms, with warehouse-room similar to the floors below.

The building, externally, will be executed in Portland stone, with bands of red Mansfield stone, with the exception of the south and east front, which will be of brick: the basement, as high as the torus moulding, of grey Aberdeen granite finely tooled; and the roof covered with green Westmoreland slates. The entrance-door will have an architrave of polished red granite, and the tympanum over filled in with an emblematical design, with a ground-work of glass mosaic by Signor Salviati, from a design by the architect.

Internally, the walls of the hall and staircase will be of Caen stone, with coloured marble in panels, and in places Minton's tiles as wall decoration; the floors paved with veined marble in squares; the columns, of coloured marble, with elaborately carved capitals and alabaster balusters. The skylight, cornices, &c., will be all fully coloured. The partitions to all the principal floors will be of Spanish mahogany, glazed with plate-glass; and the doors to the principal rooms will also be of mahogany.

The contract for the building has been taken by Messrs. Rider & Son, at 29,918*l.*, exclusive of warming and ventilation. The architect is Mr. Edward I'Anson.



THE BRITISH AND FOREIGN BIBLE SOCIETY'S HOUSE, NEW EARL STREET, BLACKFRIARS.—MR. EDWARD I'ANSON, ARCHITECT.

THE ARCHITECTURAL ASSOCIATION.

GEOLOGY.

THE ordinary meeting of members was held on Friday evening (the 1st inst.), at the House, in Conduit-street.

Mr. Josiah Webber occupied the chair.

Mr. J. D. Mathews (Honorary Secretary) reported that on the preceding Saturday afternoon the members had paid a visit to the Roman Catholic Church of St. John and Elizabeth, Ormond-street, Queen-square, and were accompanied over the building by Sir George Bowyer, bart., M.P.

A vote of thanks was passed to Sir George for his courtesy on the occasion.

It was announced that the next visit of the Association would be to the new theatre in Holborn, on the site of the place formerly known as "Jockey fields" (from its having been used as a ground for training horses), now in course of construction.

The Chairman, referring to a communication which had been received from the Clerk of the Works at the New India Offices, as also to the announcement with respect to the proposed visit to the Holborn Theatre, said that it was very important that students of architecture should visit new works more than once during their construction, as a visit if paid when a building was completed, or nearly so, could not be so useful as an inspection at the early stage of the work, and a subsequent examination when it was drawing towards completion. In the case of a theatre, for instance, it was always interesting to observe the provision which the architect had to make for the stage and its appointments, the lowering of scenery, the approaches, and the mode of ventilation, lighting, &c., which could only be studied when the works were in an incipient state. As the season was advancing, he begged to remind gentlemen who might intend to compete for the annual prizes offered by the Association, that their essays would have to be sent to the honorary secretaries on or before the 31st of August, and the drawings for Mr. Tite's prize on or before the 30th of September.

In reply to an inquiry as to the voluntary examination class, it was stated that the Institute was about to make some new arrangements; and that the class would probably be re-organised hereafter.

A member inquired what progress had been made with the water-colour class, which, he thought, was a useful feature in connexion with the Association.

Mr. Plumbe replied that the class had fully realized the anticipations of those who had suggested its formation, and that the full number of students had been kept up without difficulty.

Mr. J. Cumming then read a paper "On Geology as applied to Architecture." Having pointed out the general geological features of the country, he observed that the connexion between the science of geology and the study of architecture was obvious, because as stones, bricks, slates, tiles, &c., entered largely into the construction of all permanent buildings, it was desirable that the architect should know something of the component part of such materials in order to select the most useful and enduring for his purpose. It could not, of course, be expected that every architect should also be a skilled geologist; nor was it necessary that he should be so; but a general knowledge of geology would be a valuable acquisition, and this might be obtained without much trouble, during sketching expeditions to the country or the seaside. This primary knowledge might be made practically useful in the subsequent examination of the materials used in the construction of old churches, carved ornaments, and monuments. Some knowledge, too, might prevent illustrations of ignorance occasionally exhibited; as for instance, when an artist painted a landscape with a bold promontory or rocky eminence represented as composed of a material which could not by any possibility exist in such a locality. Geology in modern years had, thanks to the exertions of Smith, Lyell, De la Bèche, Murchison, and others, become a popular pursuit, and he could assure those who had not dipped into the study that it was a most delightful one. As a further illustration of the practical value of geology, he might point to many cases in the North of England, and elsewhere, where fortunes had been expended in looking for coal-fields in places where no such deposits could possibly be found. In his opinion, next to a good design, the choice of materials was most important. The best building stones were the Peterhead granite, Portland limestone (for ornamental purposes), and the Purbeck and Sussex marbles. Great care, however, was desirable in the selection of stone, even from the neighbourhood of the best quarries, and it was often found that good and bad might exist in the same quarry. In granites, for instance, there was a great variety. Some were undoubtedly the very best that could be found, and the ancients were so well aware of the fact, that they selected the granite for those works which they expected would endure for all time. Some of these were to be found in the sculptured examples brought from Thebes, and now in the British Museum and at the Louvre. Some granites were so soft and friable in their nature, that they admitted 1¼ per cent. of water. The frost, acting upon this moisture, split the stone, and rendered it unfit for building purposes. The best granite when submerged would last for ever; for this reason it was preferred by competent judges to all stones for piers, embankments, and the like. There were many cases of failure in the use of sandstones,—Durham Cathedral, for instance,—and yet similar stones had answered well in the construction of Richmond Castle. The qualities of most stones varied very much, and some impoverished by exposure to the air, while others became disintegrated by the pernicious agencies of the atmosphere of large towns, as in the case of the stone used in the new Houses of Parliament, which, he remarked incidentally, was not of the same quality as that used in the construction of the minster church of Southwell. The difference between stone taken from the same quarry was often remarkable. The Anstone stone, for instance, had stood remarkably well at the Geological Museum, in Jermyn-street, whereas it had failed, to a certain extent, at the new Hall and Library of Lincoln's-inn. He suggested that students of architecture might with profit visit the Museum of Geology, in Jermyn-street, where every description of building material of a geological nature might be inspected.

A short discussion ensued, and eventually a vote of thanks was passed to Mr. Cumming, for his interesting and instructive paper.

THE NORMAN SCULPTURES OF LINCOLN CATHEDRAL.

AT the annual meeting of the Lincoln Diocesan Architectural Society, held in Gainsborough, the Rev. E. Trollope read a paper "On the Norman Sculptures of Lincoln Cathedral." We print the introductory portion of it:—

It is singular that up to the present time so little is known of that band of sculpture displayed upon the west front of our cathedral. This can scarcely escape the notice even of a casual observer, as it comes within an easy reach of the eye, and through the depth of its shadows as contrasted with its prominent light-catching portions, courts inquiry from all entering any one of the western portals of the venerable pile which it serves to adorn. Inquiring looks are indeed usually raised towards these sculptures; but as yet little light has been thrown upon their elucidation, so that only here and there certain subjects have been detected, while the remainder still demand explanation; it will now, therefore, be my object to endeavour to grasp the key unlocking the secrets of that rich band which has so long girt, as it were, the brow of our beauteous queen of English cathedrals. Those who have attempted to describe these sculptures so far have either omitted to make any comments upon their difficulties, or with most inconvenient politeness have left their elucidation to the discernment of future observers. The approximate date even of these ancient works of art has not been agreed to by former examiners, some attributing them to the Saxon period, some to the Norman. Of these, Gough, Wilde, and even Cockerell, deemed them to be Saxon, whereas they most undoubtedly are not older than Remigius's time, from their own internal evidence. The wildest ideas also have been promulgated as to the meaning of some of the subjects, although, of course, others have usually been recognised, such as Noah's Ark, and Daniel in the lion's den. The learned Dr. Warton thought he detected in the former the legend of Birinus; another author has suggested that in these sculptures pagan fables are blended with scriptural truth; and a third that the figures of many friars and nuns appear among them; whereas most certainly no reference is made to Birinus in any one of the subjects; none but scriptural ones are here displayed; and there is not a single friar or nun represented. The greater part of the series has been engraved in the "Vetusta Monumenta," whence it was copied by Gough, in small, for his edition, of "Camden's Britannia," vol. ii., p. 368; but the whole meaning of its groups of human figures, and their connexion with one another, has never, I believe, been understood, and hence remains unexplained. As, however, I feel satisfied that an elucidation of the whole series is possible, after a careful and near examination of its details—sometimes assisted by the sense of touch, a comparison between those nearly lost through the ravages of time or violence with more perfect proportions, and the valuable aid of photography—I am about to submit to you what I conceive to be a true explanation of their meaning.

It will be remembered that a pyramidal group of five arched recesses is the principal feature of the Norman west front of the cathedral, the lower part of the three larger recesses being pierced by doorways, and the subsidiary one on either side constituting ornamental appendages. The series of sculptures I have now to explain passes just above the arches of these last, and along the outer faces and the sides of the piers of the principal recesses, always in the same horizontal line, but in variable continuity. One subject also is found on the southern face of the original Norman west front, which can now only be seen within the tower added by Bishop Alexander at the south-western angle of the older Norman façade. That these sculptures are Norman appears from their characteristics, viz., the disproportionably large heads and the flat faces of the figures, also from their spare forms and ill-proportioned members; yet the treatment of some of them is worthy of comparison with a better period of Mediæval art, and occasionally a classical treatment of their drapery seems to indicate that the influence of Roman art had not absolutely perished in England when these sculptures were executed. Such works of art of the eleventh century are now most rare, and none can be compared with this as to the extent of the subjects treated of, and their peculiar character, so that few have approached the west front of our cathedral without having had their curiosity excited respecting that storied band inserted in its composition, although they have not conjectured why it was placed there; whence it is usually regarded simply as a grotesque specimen of early art, half destroyed by long exposure to the weather. And, indeed, it is curious through its age, and as an exposition of Scripture set forth nearly eight hundred years ago; but additionally interesting from having been, as we have every reason to believe, the work of Remi, or Remigius, as he is commonly called, the first Norman Bishop of Lincoln. No doubt that art-loving prelate thought that a richly-sculptured band like this would serve as an appropriate ornament to his new church; but as he was also a most enlightened prelate, we may fairly give him the credit for a higher motive when he used art in aid of the promulgation of scriptural truth among the comparatively rude people committed to his pastoral care. French was his native tongue, and Latin that of his ministerial office; but of Saxon he was doubtless ignorant altogether when he arrived in Lincolnshire; and from the proud Norman spirit in which he no doubt participated as one of those successful adventurers who had assisted the Conqueror in his English expedition, by contributing a ship to that fleet which brought him and his army from Normandy, he most probably cared not to acquire the language of the conquered. Yet, as a zealous priest who, as we are told, chose devout men to fulfil the archidiaconal and other duties of the great diocese committed to his charge, which extended from the Thames to the Humber—men who were graced, as Henry of Huntingdon tells us, with the triple robe of the most profound learning, the strictest continence, and most perfect purity, so no doubt Remi, with his great heart and bright Christian practice, looked with compassionate feeling upon that people around him whose ignorance he no doubt exaggerated, and the more so because in words he could do next to nothing for them; perhaps, therefore, in the hope of being more successful through eye teaching, and the recollection that a painting of Christ crucified carried before Augustine's little missionary band had aided in making a profound impression upon the people of Kent, Remi determined to carve over the portals of his rising

church at Lincoln a series of holy lessons, well calculated to excite inquiry among those who flocked to gaze in wonder at the progress of his unrivalled building, and thus through the aid of sculpture to set before them an outline of God's dealings with men and the way of salvation through a Saviour, commencing with the creation of the world and ending with the great day of judgment.

Thus thoughtfully did the Norman Remi preach to the people of Lincolnshire; thus did he so mould the very stones of his cathedral church as to constitute a sermon abounding with strong pure truth, portions of which still remain to denote its original fulness when complete and rightly arranged. The series has since been dislocated, like a manuscript whose leaves, after having been torn from their original binding, have again been in part collected and re-bound, without any regard to their first and proper sequence; for now we have only portions of the series, and these are arranged without reference to their chronological order. At first they probably constituted a band extending at least along the whole of the west front in unbroken order, and contained many more subjects than at present. One of the most important of these appears never to have been removed, viz., that over the northernmost recess, as a portion of it is continued round the angle of the adjoining larger recess, and the whole seems to have been composed for this particular spot; but most, if not all of the others, have been freshly arranged, and this probably during the rebuilding of the cathedral, under St. Hugh and his successors. When complete they appear to have formed a sculptured exposition of the Christian faith, gathered from both testaments; and such an exposition whether pictured on the walls or windows of churches, carved in wood, or sculptured in stone, would still not only be admissible in any of our greater churches, but profitable to their frequenters as lively illustrations of God's Holy Word, although our actual need of them is not like that of the Saxons of Lincolnshire in the eleventh century, because we can happily at all times have recourse to the fountain-head of all godly knowledge, from which Remi, having first drawn, distributed its living waters to his people in such vessels of his own as he thought would be most attractive and most intelligible. Exclusive of a subject now destroyed, except the lower portion of a draped figure, there are twelve scriptural subjects still left, seven of which are taken from the Old Testament, and the remainder from the New. They vary considerably in width, but are mostly 2 ft. 5 in. in height, the subject of Daniel in the Lions' Den being an exception, which is rather higher. They are protected by a string, or little cornice, which has rendered them valuable conservative service.

The reader then described them *seriatim*.

ST. NICHOLAS'S STEEPLE, NEWCASTLE.

MR. GILBERT SCOTT, architect, has presented a report to the committee for the restoration of the tower and spire of St. Nicholas's Church, Newcastle-on-Tyne, in which, after recommending underpinning on the northern piers, he says: — "This defect being remedied, we may proceed to restore the architectural features, and the external surface of the tower. The stonework of the exterior is generally in a state of considerable decay. There are at intervals stones which still remain comparatively sound. There are many others which are so completely decayed as to have lost the whole of their original surface; and there is a third class, embracing, perhaps, the major part, in an intermediate state, the surface in the middle of each stone being tolerably sound, but their edges frayed away, so as to give them the appearance of what is technically known as 'Rustic work.' The two first classes offer no difficulty, as the sound stones must obviously be left, and the utterly-decayed ones remedied. The third class, however, presents some difficulties, as, if all were renewed, it would make the tower look like a new structure; while, if all were left, it would leave too much of the appearance of decay. I would endeavour, therefore, to use careful discretion in dealing with these stones, founding my course partly on the degree of decay found to exist in each stone, and partly on the architectural importance of their position. I would test each with a primary desire to preserve it, but would renew such as are found excessively bad, and also such as from their positions are of great architectural importance; such, for instance, as those which form the buttresses, windows, &c., and which, where very much decayed, tend to mar the effect of the architectural design. All new stones thus introduced must be bedded far into the walls, and be firmly keyed in with cement, so as to do full duty as part and parcel of the structure. All cracked portions must be bonded across with special care, and tied, in addition, with bands of copper and iron, the former being always used in external situations. The great belfry windows must be entirely new, being ready to fall out, and at present only held in their places by means of timber and iron. The mullions, &c., should at the same time be increased in depth, as a safeguard against a repetition of the same failure. The buttresses on the level of the clerestory towards the east are very much rent, and must be in a great measure renewed. I would recommend an additional tier of iron ties at the level of the bell-chamber floor. The timbers of the floors and of the bell-frames must be thoroughly examined and repaired or renewed, as the case may be, wherever they require it, and be rendered perfectly sound in construction in all respects. I now come to the upper division. The light and apparently fragile structure which has rendered your steeple so famous has, at all periods, excited anxiety, and led to repeated precautions to insure its stability. The most important work of this kind was, as I believe, carried out early in the last century. It consisted of a system of iron ties in connexion with oak beams, at once binding and staying the feet of the great arch-buttresses which sustain the lantern. . . . The older ties have suffered severely from oxidisation, and the old beams from decay, so that whatever was their original efficiency, I am of opinion that they have now ceased to be trustworthy; those, however, of later date, are still sound, and make up for the time for the defects of their more ancient companions. I do not think it safe to allow this dubious state of things to continue, and am therefore strongly of opinion that the older ties and beams should be renewed, and that on a system of construction calculated, as far as possible, to obviate the danger of similar decay." These and other works, Mr. Scott estimates, will cost about 6,000*l*.

HANOVER SQUARE ROOMS.

MR. CUSINS'S CONCERT.

MR. G. W. CUSINS, at his "Orchestral Concert," held Friday, the 8th, at the Hanover-square Rooms, played Liszt's pianoforte solo from the "Lucia," in a most brilliant and finished style. His own concerto in A minor, given with full orchestral accompaniment, was admirably rendered, and is a charming production. From the goodly list of vocalists collected for the occasion, Mdlle. Liebhart, in Guglielmo's beautiful little song, "The lover and the bird," and in Wallace's touching ballad, "Bring me my harp;" M. Jules Lefort, in Engel's delicious "Aubade;" Santley, in the recitative and romance, from Donizetti's "Don Sebastiano;" Miss Louisa Pyne, in "Bells, merry bells;" and Gardoni and Santley, in Gabussi's capital duetto, "La Ronda," stand out as most noteworthy, in remembrances of the afternoon's entertainment.

Where there is so much to admire, it is always an ungracious task to speak of errors that should be corrected; but, in justice to ourselves and the public, we *must* perform this task, unpleasant though it be. In the remarks we are about to make, however, the giver of Friday's concert bears no share, excepting in one particular;—the generous mistake he made in providing for his audience so over-ample a musical banquet—too great to be digested at any one sitting. The concert commenced at half-past two, and visitors were instructed to order their carriages at half-past four, but at six o'clock the music was still in progress. And yet there were no *encores*, the absence of which is a most praiseworthy fact, growing daily into favour, and no time was lost between the performances. The consequence was, that many persons who had other engagements which they could not neglect, were compelled to withdraw without waiting to hear the grand March from "Athalie," which worthily concluded this very admirable concert.

Our remaining strictures apply solely to the Hanover-square Room itself; and when we say, that on a most brilliant *and* most broiling midday in June, it was found necessary to light the several masses of gas jets above the devoted heads of the performers, to enable them to see the music placed before them, we think we shall not be thought to find fault without just cause. And yet there are five large French windows along the length of the room; but these are inserted in deep rectangular holes, the sides of which most effectually obstruct every oblique ray of light, allowing only the direct ones to penetrate into the inner space. An old Norman architect with his narrow slits of windows—one-fifth the width of these large French ones—would have contrived to get twice as much light into the place.

And then, again, the heat—with gas-lighted corridors and gas-lighted orchestra—was intense. Two of the five windows were opened, it is true, but the current of air that rushed in, was found too strong by some ladies whose seats were immediately beneath the windows, and whose heads and necks, came conveniently to catch the draught, just above the sills; so one of them was soon closed. To be sure, there were several open doors, but the unfresh air that passed through them from other portions of the building did not perceptibly aid *ventilation*; and thus, as we have said, the heat was intense.

That the Hanover-square room is admirably constructed for *sound*, we willingly admit; but man is a composite animal, endowed with other faculties besides that of hearing; and until constructors of concert-rooms, and builders of theatres, will condescend to consider his needs as a conglomerate bundle of senses, and to provide for each one that which it requires, they must expect that the said composite animal will continue to grumble, and that many will keep away from plays and concerts.

RECORD REPOSITORY, LAW COURTS, DUBLIN.

EXTENSIONS and improvements have, year after year, been made to this group of buildings, commonly known, but not now with much reason, as the Four Courts: the courts are now more than twice that number. The original building, more properly the Four Courts was designed by Gandon, who designed also the Custom House. It is a curious fact of antiquarian interest, that an architect, name now unknown, was employed for these courts, and that on the completion of the wings Gandon was invited to complete the work, and inserted the hall and courts, which give their name to the building.

Among recent extensions and changes, are the purchase of a large plot of ground at the rear and west side, together with a portion of Pill lane, compassing thereby the removal of a large number of old crumbling houses, and the demolition of many dens of infamy,—a total rout of hitherto invincible hopping army. It is in contemplation to continue this desirable work by the formation of a new street, connecting the Queen's Inns with the Law Courts. Courts for the sale of landed estates, for probate business and for bankruptcy, have lately been added, the last just completed; and a building by far the most important in point of size and cost, of a public nature, that has been erected in Dublin for some years, is the General Law Record Repository, which occupies a distinct portion of the site contiguous to the Landed Estates Court Offices. This building is now in course of completion, and it is estimated will have cost about 40,000*l*. when completed.

It is 220 ft. long by 100 ft. wide, in form rectangular, and is composed of two nearly detached blocks; one containing the Registry Office, an office for public inquiry, for such as desire search to be made, and convenient offices for record keeper, registrar, and clerks, on each of three floors, with caretaker's apartments on the basement, the other block, containing the Repository proper, consists of a basement, ground-floor, and five galleries, divided into compartments, and filled with shelving for the storing of the deeds.

The public offices, which measure 40 ft. by 28 ft., is approached through a grand staircase somewhat massive in construction, entered from a Roman Doric portico. The public office will be finished in a substantial manner, with a amount of tasteful decoration, and will be filled with counters suitable to its object. The ceiling is coved and panelled, and the space between the coves is formed into a lantern of five bays separated by elliptical arched ribs, springing fro

ornamental corbels. These ribs carry the skylight, from which the public office is lighted.

Around this apartment, and communicating with it by doors behind the counter, are private offices for the officials, who have business most directly with the Public Office and Repository.

The Repository is entered through a short passage from the Public Office. The space within the walls measures 140 ft. by 85 ft., and the galleries, five in number, together with the roof and their supports, are constructed chiefly of wrought iron. The ground-floor is flagged over the arches of the basement.

Transversely the building is divided into three nearly equal spaces. The centre, being open from the ground up, is used for lighting from the roof and end, for galleries of communication, and for a staircase. The side divisions are each again divided longitudinally into ten compartments, each fitted with 114 ft. lineal of shelving. A conception may be formed of the accommodation afforded, from the computation that the superficial area of shelving will amount to 2¼ acres statute. The shelves will be formed of timber, it being deemed sufficiently fireproof for the purpose of storing papers, as paper itself is known to be a deterrent, under certain circumstances, to the spread of fire. The construction throughout the Repository is calculated to be fireproof.

The floors of the galleries are formed of open ironwork. The galleries of communication are supported by ornamental cast-iron brackets projected from the columns, and are protected by a light railing, with oak handrail, carried around the entire area at each floor. At intervals are desks, for the accommodation of the record-keepers and clerks.

The roof is formed of slates, except to the middle division, which is glazed, on stout rolled iron bars, the whole sustained by wrought-iron trussed principals, springing from columns which are carried up in direct series from the ground-floor. The general character of the internal fittings has been borrowed from the fittings of the book-rooms adjoining the reading-rooms in the British Museum.

The walls throughout are faced with granite ashlar, the public department having a more ornate character bestowed on its openings than has the Repository. The design is Classic, and is rather chaste than decorative; the character is Roman, the porch having a Doric order. The walls to the ground-floor are rusticated, and a string is carried round the level of the porch cornice. The windows of the first-floor are pedimented and surrounded with a double-faced architrave; those of the second or upper floor being square, and surrounded with an architrave. The whole is crowned with an entablature and blocking. Plain, yet elegant, chimneys spring from the roof.

The Repository is different in treatment, yet in full accordance, and especially to be commended for the truthfulness with which it tells its story. The windows are large, being designed for the admission of abundance of light.

The new work was designed by Mr. James H. Owen, architect to the Commissioners of Public Works, assisted by Mr. E. Trevor Owen.

THE TRADES MOVEMENT.

Bristol.—The master builders have decided to give an advance of wages to the plasterers, namely, one halfpenny per hour for those working by the hour, and 2s. 6d. per week for those working by the week.

Neath (Wales).—In consequence of a handbill issued, and notices given to the masons and builders by the workmen in Neath, a meeting on behalf of the employers was convened by Mr. Joseph C. Rees, of Neath, builder. There were present (on behalf of Mr. Evan Evans, Vale of Neath Brewery), Mr. B. W. Thomas, Mr. James Timms, Mr. William Davies, Mr. David Parry, Mr. John Jones, and Mr. Treharne (Britonferry); Messrs. Cribb & Harris, Mr. Edward Cribb (sen.), and Messrs. James Betts, cabinet-makers. Mr. J. C. Rees having been voted to the chair, and Mr. E. Cribb, sen., to the vice-chair, a long discussion ensued in respect to the object of the meeting, and it was unanimously agreed to advance the wages of the carpenters sixpence per day (making 4s. 6d. per day instead of 4s. per day as heretofore). With regard to the masons, the masters would not give any advance of wages, but acceded to their request of the Saturday afternoon holiday from two o'clock and an hour on Monday morning, considering their wages to be the same as those given in neighbouring towns. It was resolved that the plasterers should have an advance of 3d., making 4s. 3d. per day, with the reduction of time as masons and carpenters.

The Potteries.—The bricklayers' strike has assumed a new aspect owing to decisive measures taken by the masters. Finding that the men on strike showed no present intention of giving way, the masters formed the resolution of bringing fresh labour into the district, and they succeeded in obtaining upwards of seventy men, whom they set to work at various buildings. This, however, was not done without considerable opposition from the men on strike, who, it is alleged, have attempted, both by bribes and intimidation, to get the new men to leave their work. The masters have, however, acted with vigour, and in fifteen cases in which the fresh men had been induced to break their contracts obtained warrants from the magistrates for their apprehension. Ten of the men were arrested, and either pleaded guilty or promised to return to their work. In every case the defence made by the men was that pressure had been put upon them by those on strike to leave their work.

Hull.—On the 1st of March, the men belonging to the Hull Operative Bricklayers' and Plasterers' Society held a meeting, at which it was resolved to apply to their masters for permission to leave work at one o'clock on Saturday afternoons, instead of at four o'clock. The time having expired without any reply having been received from the masters, the operatives called a meeting, which was numerously attended, and it was resolved unanimously that, unless the application was granted, work should not be resumed on Monday morning. They received 30s. per week, or 5s. per day; but proposed that the wages should be 5s. 6d. per day for the first five days of the week, and 2s. 6d. for Saturdays. The bricklayers' labourers also intend to strike for an advance of 1s. per week, with liberty to leave work at mid-day on Saturdays.

FROM WALES.

Gyffin, near Conway.—The parish church, which was originally founded by Maelgwyn Gwynedd, A.D. 516, and dedicated to St. Benedict, has been re-opened for divine service. The edifice is situated about half-a-mile from the town of Conway, in a valley lying between the roads leading to Llanwrst, Llangelynin, and the mountainous districts, at the entrance of the celebrated Vale of Llanrwst. The plan of the building is in the shape of a T, 79 ft. internally from east to west, including the chancel, and 58 ft. across the north and south transepts and chancel. The former shape of the ground plan was somewhat similar to this, but in the works lately effected the north transept has been enlarged. The features, therefore, are, the nave, the chancel between a north and south transept, a south porch, a small robing-room, and western bell-turret and the receptacle for the bier, &c., under the north transept, the entrance to which is obtained from the fall of the ground from south to north. The chancel, which is 25 ft. by 18 ft., is flanked on the south by an old oak screen; on the north side, by an open oak and yew partition, and the robing-room. In the east wall and gable there is a three-light traceried window filled with stained glass, designed and executed by Messrs. T. Baillie & Co., of London; and on the west there is an arch, resting on carved corbels, supporting the east gable of the nave. The roof is of the old oak forming the former covering. The floor is laid with geometrical tiles, by Messrs. Maw & Co. The nave, which is 54 ft. by 15 ft., is roofed with the old oak, and is lighted by three three-light and one single-light square-headed foliated windows in the north and south walls, and one two-light arch-headed traceried window in the west gable. The two transepts, which are severally 19 ft. 6 in. by 15 ft. 6 in., are roofed—the south transept, with the old oak, and the north with other timber. They are each lighted with an arch-headed traceried window in the north and south gables, and a three-light square-headed window in the east wall. The east gable and bell-turret have been rebuilt, the whole roof re-slated with Carnarvonshire slates, the whole of the interior re-seated. The general style of the church is Late Second Pointed, and the works have been carried out by Mr. Joseph Hughes, of Llansantffraid-glan-Conway, builder, from designs and under the superintendence of Messrs. Kennedy & Rogers, of Bangor and London, architects. The building, as restored, is calculated to seat 273 persons, and has cost about 700*l.*

Ystrad Mynach.—The foundation stone of a new Welsh Calvinistic Presbyterian Chapel has been laid here. The Rev. Aaron Davies, Rhymney, gave the design; and the builder was Mr. Walter Rosser, of Risca. The contract was about 660*l.* The length of the new chapel is 42 ft., and the breadth 34 ft.; there is a gallery, pewed, and a stove to warm the building.

Llanelly.—The Llanelly Market-place has been opened to the public. The erection occupies upwards of three acres of land. The market has four entrances—one in the east from the Market-street, one in the south from Murray-street, one in the west from New-street, and one in the north from Vaughan-street. It was built by the Llanelly Board of Health, according to the design of Mr. Edward Bagot.

ON THE SILICATE OF POTASH AS A PRESERVATIVE OF ORGANIC SUBSTANCES FROM DECAY.

M. CH. GUERIN has called attention to a new method of obtaining, by cold process, a silicate completely insoluble, which can be applied either as an external coating, as in the case of glass and iron, or made to penetrate through the interior of the substance, as for the preservation of wood and other vegetable matters. The process is very simple: a thin coating of slaked lime made into a paste with water, or whitewash, is laid on the object to be silicatised, and when this has been allowed to dry silicate of potash is applied over the coating; the effect, it is asserted, being that all the portions touched by the solution of potash become completely insoluble, and of very great adherence. In order to obtain an insoluble silicate in the interior of a substance, all that is necessary is to impregnate it by immersing it in whitewash, or lime-water, and when it is dry to steep it in a solution of the silicate of potash.

By this means it is proposed to prevent the decomposition of vegetable substances by petrifying them; also to protect porous building stones and brick against air and damp; iron, by a coating of paper pulp or other finely divided woody matter mixed with slaked lime.

Again, letters, characters, or any other device can be traced with the silicate on any surface spread with lime, and those portions touched by the silicate will alone adhere and become insoluble. Or, if they be traced with a solution of gum Arabic, and the whole be washed over with the silicate, the parts protected by the gum can be washed off, the rest remaining in relief, as the letters, &c., do in the first case.

The process described must surely be Ransome's.

THREATENED STRIKE OF JOURNEYMEN HOUSE-PAINTERS IN THE METROPOLIS.

THE Journeymen House-Painters having made a demand for a rise in their wages to 8d. per hour, a meeting of the principal employers in this branch of trade was held in the theatre of the Marylebone Literary Institution, Edwards-street, Portman-square, on Thursday, the 14th inst. About eighty representatives of firms attended. Mr. John G. Crace having been called to the chair, said, — "We are met here to consider a question of great importance both to our workmen as well as ourselves, and I will state as briefly as possible what are the facts. I hold in my hand a printed memorial of the Operative Painters of London to the employers. It is signed on behalf of the London Central Society of Painters by a committee of four members and a secretary *pro tem.* This memorial claims from us 8d. per hour, being, as they state, the same wages as others in the building trade have. Soon after the sending forth of this memorial, however, a printed hand-bill has been circulated demanding 7½d. per hour as a minimum wage, and the men of several firms have already struck for those wages. Such being the situation, it became necessary that the various employers should meet together to consider, in a calm and dispassionate manner, what should be done. You will recollect, that a very short time ago, I believe scarcely a twelvemonth, represen-

tatives of the journeymen painters called upon the principal employers, and by a reasonable and temperate explanation induced them to raise their wages from 6d. to 7d. per hour. This was deemed a fair and satisfactory settlement of the question, and a demand for a still further advance comes now with rather a bad grace. In speaking of a rate of wages for house-painters, we are obliged to consider that the men are necessarily divided into two classes;—the one, those who are employed in the common kind of work called plain painting; the other, those who are skilled workmen, and are able to do better kinds of work, and can use the pencil as well as the brush. You cannot in justice pay the same wages to the two classes—to the common painter who works at palings and iron railings, as to the man who picks in delicate mouldings and elaborate ornament; nor can you put this skilled workman to do the coarser work. The man who in our business improves himself, and shows intelligence and ability, is worth more and ought to be paid more than the rough hand. For myself, since the agreement to which I have referred, I adopted the 7d. per hour as the pay of the ordinary painters, and I gave 7½d. to the better men. I am bound to say, that I have the highest respect for the painters as a class. I have known them pretty intimately during my business life of more than forty years. I can say, that during that time, though my men have continually been in houses full of valuable property, I cannot recall any instance of dishonesty by them, and I have continually received testimony of their good conduct. I wish well to them, and trust not to have a dispute; but I do not believe that this threat of a strike comes from the better class of the men. I believe rather that it proceeds from the 'muffs' and the idlers, and especially from the owners of public-houses frequented by those idlers. To meet the question properly, a series of resolutions have been prepared, which will be brought before you by various gentlemen for your careful consideration, and I venture to hope that our discussion will be conducted with that good feeling which is most likely to bring this subject to a happy conclusion."

The following resolutions were then discussed and passed:—

1st. Moved by Mr. Donaldson (of Gillows), seconded by Mr. Smith:—

"That it is not just and equitable to give uniform wages to journeymen house-painters, the scale of usefulness and ability being so varied."

2nd. Moved by Mr. R. L. Trollope, seconded by Mr. Boyd:—

"That the increased wages of 7d. per hour recently requested by the men themselves, and agreed to by the employers, is ample for ordinary painters, giving for a day's work of ten hours, 5s. 10d., and that higher wages should be a matter of agreement between the operative and his employer, according to his skill and merit."

3rd. Moved by Mr. P. Graham, seconded by Mr. Collman:—

"That a committee be appointed to confer with any deputation of working painters, or to act in any manner they may consider advisable towards terminating the present difficulty."

The meeting then adjourned.

RAILWAY MATTERS.

A JUNCTION railway, between the North-Western and the Charing-cross station of the South-Eastern Railway has been sanctioned at a North-Western Wharncliffe meeting. It was explained that the London and North-Western and South-Eastern were not under the agreement to find capital for construction, but when it was constructed, were to guarantee 5 per cent. to the extent of 20,000*l.* each (together 40,000*l.*), to make up the deficiency of earnings. There, however, could be no doubt that the earnings would be more than sufficient.

The Bill for the pneumatic railway under the Mersey has now virtually passed into law. The railway will pass under the bed of the Mersey from a point opposite James-street, Liverpool, to a point near the Woodside Hotel in Birkenhead. The capital of the company is to be 350,000*l.*, in 17,500 shares of 20*l.* each, with a power to borrow 116,600*l.*, and to create and issue debenture stock.

The East Lancashire Railway viaduct, Preston, is in a very dilapidated condition, and workmen are employed in making extensive repairs. The viaduct was made about twenty years ago. The amount of Mr. Cornie's contract for the embankment and viaduct was 55,000*l.* The viaduct is a brick construction, composed of sixty-three arches, with two or three of the piers nearly double the thickness of the others, for the absorption of vibration. The surface-bricks, however, are now crumbling away in every direction, and there are other signs of decay,—the joint effect of vibration caused by heavy trains, the action of the weather and of the powerful currents of water forced through the arches on every occasion of flood or high tide. The embankment of the North Union Railway, which was parallel to the East Lancashire line at their entrance to Preston, at a distance of about 300 yards, was opened in October, 1838, and has not needed repair of any kind.

Dr. Angus Smith, when travelling in a railway-carriage, collected some of the particles of dust which floated in the air, and which seemed to shine with a metallic lustre. On examination these are said to have been found to be in reality rolled plates of iron, which seemed to have been heavily pressed and torn up from the surface.

The traffic receipts of railways in the United Kingdom amounted, for the week ending the 2nd of June, on 12,343 miles, to 698,625*l.*, and for the corresponding week of last year, on 12,075 miles, to 712,281*l.*, showing an increase of 268 miles and a decrease of 13,656*l.*

THE SEWAGE QUESTION.

IN Vice-Chancellor Wood's Court, last week, the Attorney-General said he was instructed to apply for an injunction against the corporation of Norwich to restrain them from casting sewage into the river. Mr. Bird said he appeared in behalf of the corporation of Norwich, and was instructed to ask that the motion should stand over to give time to answer the affidavits. As the bill had only been very recently filed, he would propose that the relator should at once give notice of motion for a decree, allowing a fortnight instead of a month to answer the affidavits. This course was assented to, and the motion was turned into a motion for decree. The Sewage Committee at the Board of Health meeting on Thursday, reported that, having taken counsel's opinion, they were satisfied that the application for an injunction could not be successfully resisted. The corporation thereupon unanimously resolved that it was necessary to divert the sewage from the river, and appointed a committee to consider and report upon the best means by which this object could be effected.

In the case of the Queen *v.* The Patent Eureka Manure, &c., Company, in the Court of Queen's Bench, it was stated that the defendants, who had a manufactory at Hythe, in Chester, for the manufacture of manure from night soil and animal matter, had been convicted for a nuisance; and as they had not abated it, the prosecution had obtained a rule calling upon the defendants to show cause why a fine should not be imposed, and the nuisance abated.

Affidavits were put in on both sides relative to the nuisance, and it was stated that the nuisance was being continued only until such time as the company could be wound up, and provision made by the inhabitants for the sewage of the town; and it was arranged that the rule should be enlarged, a nominal fine only to be imposed, provided the manufacture was discontinued as soon as possible.

The report of the commissioners appointed to inquire into the best means of preventing the pollution of rivers says;—

"All expedients for disposal of town sewage otherwise than by application to land, seems to us, on one ground or another, objectionable. Cesspits in towns corrupt the air and corrupt well-water; they are incompatible with public health, and should be abolished. Sewerage has, therefore, become a necessity for any large community. The difficulty is to deal with the volume of sewage thus concentrated, so as not to cause a nuisance either in the atmosphere or in rivers. Disinfectants and filtration have been tried in many forms, but without success. As applied to sewage, disinfectants do not disinfect, and filter-beds do not filter. Both attempts have been costly failures. The local board of health at Croydon at one time were spending large sums annually on chemical and mechanical experiments to no purpose but to expose themselves to law-suits; they then commenced the process of sewage irrigation.

In order fully to ascertain the effects upon health of sewage irrigation, we have visited the principal places at which that process is carried on; viz., Croydon, Norwood, Worthing, Carlisle, Edinburgh. We also held open public inquiries at Worthing, Croydon, and Norwood.

"At Worthing we found the sewage works, which have now been in operation for more than a year, unobjectionable. Not a single case of sickness was attributed to the irrigation. With regard to Croydon, the inhabitants of that town generally cannot suffer from their irrigation fields, the sewage farm at Beddington being a distance of about three miles from the town. At the public inquiry all the witnesses, medical gentlemen and others, were agreed that the irrigation works were not injurious to health. As to the irrigation works at Norwood, no complaints have been made by the persons representing that district upon the Local Board of Health at Croydon, and the general rate of mortality in Norwood is low. Some dissatisfaction, however, is felt by one or two proprietors and occupants of house property in the immediate neighbourhood of the works; and Dr. Gresswell, one of the local practitioners, stated that the question had occurred to him as one worthy of investigation whether certain peculiar cases of illness, resembling ague, which he had met with in the district, might not have been caused by miasma from the irrigated fields. The works are inconveniently near to the outskirts of the town, and may exercise a depreciatory influence on the value of adjoining houses; but, on the whole, we are satisfied that no ground exists for serious apprehension of miasma from fields irrigated with sewage.

If sewage irrigation had really bred a special class of diseases, it would hardly have been tolerated for two centuries on so vast a scale near Edinburgh.

It is necessary not to mistake instances of abuse for defects in the system of sewage irrigation. Sewage, if fresh, and in the open air, is scarcely perceptible to the smell. If sewage be pent up in sewers and discharged on the land in a state of active putrescence; or if, as took place once at Norwood, the depositing tank is allowed to get out of order; or if, as at Edinburgh, the carriers are so rudely constructed and so neglected as to become reservoirs of stagnant sewage and accumulating places of corrupt sewage deposit, unpleasant, if not mischievous, consequences must be expected; but these are cases of abuse, preventible by common care.

Sewage water, if passed over a sufficient area of grass land, passes off bright, tasteless, and without smell.

There may be a difficulty in some cases in finding land available for sewage irrigation, but, with the exception of lands liable to be flooded, there seems to be no soil that will not serve the purpose. Between the light and blowing sands of Edinburgh and the stiff clay of South Norwood are included all the mechanical differences of soil which can be met with in this country, but at both extremes we find the application of sewage attended with success.

The same land will serve the purpose of sewage irrigation continuously. The process to the soil is one not of exhaustion, but of constant renovation. Part of the Craigentinny meadows has been continuously irrigated for two centuries. Sewage can be pumped any height and carried any distance. Its conveyance, therefore, to a given point is merely a matter of cost. There is no real difficulty in dealing with sewage, whether the volume be, as at Norwood, a few gallons per head, or, as we are informed that it is at Croydon, from two to four times as great as the water supply of that town. On a clay soil (or wherever pumping is necessary) it is desirable to restrict the dilution. On a gravelly porous soil, on the contrary, as shown by Mr. Marriage, it is an advantage that the sewage should be largely diluted, since it is then much more readily distributed over the surface.

THE VICTORIA INSTITUTE.

A SOCIETY called "the Victoria Institute, or Philosophical Society of Great Britain," was established a year ago, "for the purpose of defending revealed truth from unwarranted attacks made upon it in the name of science." The society recently held their first dinner in Willis's Rooms, when an able inaugural address was delivered by the Rev. Walter Mitchell, M.A., Cantab, vice-president. This address has been published by Hardwicke, of Piccadilly. We need scarcely say that we are not on the side of those who make "unwarranted attacks" upon the truths revealed by "the Spirit of Truth" in the Bible; but who is to be the judge of what is unwarranted and what is warranted? To us this distinction seems to settle nothing as regards anything like a reason for either joining this new institute or opposing it. Bishop Colenso, Mr. Darwin himself, or the author of the "Vestiges," might, under it, become a member with perfect conscientiousness and consistency, still holding his own opinions. On the other hand, there is a latent scepticism in the very first principles of the Institute which may withhold many from joining it. "The Spirit of Truth,"—the Holy Spirit,—who revealed the truths in the Bible, and who constitutes "the true light which lighteth every man who cometh into the world," and is capable of "teaching us all things, and bringing all things to our remembrance,"—for in him are "all the treasures of wisdom and knowledge" centred, in "every man,"—is completely ignored in the rev. vice-president's inaugural address. He seems to confound this Holy Spirit with the Bible itself, which is a mere fragmentary manifestation of the "truths" which emanate from this great living fountain of "all truth" in every man,—a fountain to which the prophets and apostles were ever reverting; and which was regarded as one of so practical and homely a nature as even to give special instructions to the ploughman how to "cast abroad the fitches and scatter the cummin,"—how to be stout the fitches and bruise the bread corn; which processes are all described as "coming forth from the Lord of Hosts (in His kingdom within the man), which is wonder-

ful in counsel and excellent in working;" for "his God doth instruct him to discretion and doth teach him" (Isaiah xxviii. 23—29). The rev. vice-president is clearly a practical infidel in regard to all such special teachings as this, or the possibility of unsealing the hidden fountain of Wisdom which is "shut up" in "the temple," which is the body of "every man that cometh into the world."

TROCADERO AND THE EXHIBITION OF 1867.

AT the Butte de Trocadero, no longer a *butte* properly speaking, but a vast quarry, to be brought to a regular slope when excavated, the works continue with amazing vigour. On gala days, and especially on 15th of August, the Emperor's fête, this was the elevated spot chosen for a magnificent display of fireworks. A large "place" is to be created here, of greater area than that of the Place de la Concord, into which will debouch eight grand thoroughfares, some of which we have already described in our pages when speaking of the improvements of Chaillot and Passy. These are the Boulevard Benjamin Delessert and the Boulevard Franklin, which traverse Passy; the Boulevard de la Muette, a continuation of the Chaussée de la Muette, a charming avenue in front of the Passy station of the Auteuil Railway; the Avenue de l'Empereur, 40 mètres wide; the Avenue du Roi de Rome, which starts from the Arc de Triomphe de l'Étoile at right angles to the Champs Elysées; the Avenue de Saint-Denis, leading from the Porte de Neuilly; the Avenue d'Jena; and lastly, the Boulevard de l'Empereur, which, breasting the Chalhot slope will descend towards the Seine on a series of arches formed of *béton aggloméré*, or compressed concrete, faced externally with stone.

As we have before stated, the works progress at a uniform rate, and there is no doubt of their being completed in proper time. Some apprehensions to the effect that the opening of a war would be the closing of the Exhibition, have naturally been felt by the public. But the commissioners are determined that no circumstance in the natural order of events, of any nature, even political,—that is to say, nothing short of some accident, shall prevent every one of the concluded arrangements from being punctually carried out.

COMPETITIONS.

New National Schools, Beccles, Suffolk.—The Committee for building these schools have selected the designs submitted by Messrs. Hayley & Dawes, architects, Manchester.

ART GOSSIP FROM BELGIUM.

THE Antwerp Society for the Encouragement of Fine Arts, announces that prizes will be awarded in the year 1867, for the following subjects:—1. Sculpture, "Ruth gleaning in the Field of Boaz." The model is to be not less than 3 ft. 6 in. high. Should the work be thought of sufficient merit, the Society will cause it to be executed in marble or bronze. 2. Classic architecture. Design for Public Baths, including a swimming-bath, café, and restaurant, suitable for a town of 200,000 inhabitants, situated on the banks of a tidal river. 3. Pointed architecture of the fourteenth century. Design for a Summer Residence suitable for a member of a Royal Family. 4. Architectural decoration. Grand Stand for a race-course, including a royal box. 5. Decorative sculpture. Design for a chimney-piece suitable for a townhall of the first class. The prize in each section will be a medal and six hundred francs, except in the second and third, where the prize consists of a medal, and five hundred francs. None but Belgian artists, or foreign artists domiciled in Belgium, will be allowed to compete. The 6th of June, 1867, is the latest date in which works can be received. MM. Portaels & Slingeneyer have been unanimously elected associates of the Royal Academy of Fine Arts of Portugal.

The annual meeting of the Royal Commission of Monuments, will take place at Brussels, on the 19th of June, when the following subjects will be discussed:—1. Is it necessary, in order to preserve archæological traditions in their integrity, to establish a marked distinction between old buildings and the parts which may be added to them from time to time? 2. Under what circumstances is an artist, engaged in the completion of a Mediæval building by the addition of sculptured or painted figures, permitted to introduce costume other than that belonging to the age in which the building was erected? 3. How far does the introduction of gas into ancient buildings render necessary an alteration of the form of the old lighting arrangements? The remaining questions are merely of local interest.

INDIAN TELEGRAPHIC DELAYS.

WE have of late been tolerably familiar with complaints of delay against the Indian telegraphs. A circular which has recently been issued by the Governor-General of India to the several departments, throws a little light upon the matter. The Government officers have the power to order telegraphic despatches to be sent as "precedence," "confidential," or "clear-line" messages. In the first case, partially transmitted messages are allowed to be finished, before the Government despatch is sent; but in "clear-line" messages, all traffic is stopped instantaneously; and when the magic word, "confidential," is added, the whole of the offices through which the wires pass are cleared, and not only is the traffic stopped on the line used, but also the traffic on all the other lines whose wires pass through any of the offices on that line. Thus, "clear-line" clears the line, and "confidential" clears the offices; also certain fussy officials, it appears, have been making rather too free use of their privileges in this respect, and the Governor-General, whilst giving them a caution, says that he has "seen" a good many confidential messages of late, the contents of many of which were really not of sufficient importance to warrant such grievous obstruction. The necessity for this interference with the public convenience is the less urgent, inasmuch as the signallers are bound by heavy penalties to keep all messages secret, whether Government messages or not.

REVOLVING VENETIAN SHUTTERS.

AN arrangement of iron shutters has been patented by Messrs. Bunnett & Co., which affords thorough ventilation and shade, combined with the perfect security of a revolving iron shutter. The laths are made in iron and wood, flat, rounded, or curvilinear, as required; but, instead of the hinges being fastened by rivets or screws on the back of laths, as in the ordinary revolving shutters, the hinges form continuous bands from the roller, on which the shutter coils to the bottom, and by which the shutter is made to lower. The top edge of each lath is connected at intervals by means of flaps to the continuous bands of hinges, leaving the lower edge of the lath free to be raised or lowered as may be required. Each lath is fastened to the one immediately above it by the means of points working on a centre fitted to the end of each lath at its lower edge. By an easy contrivance, the grooves in which the shutters ascend and descend are thrown open, and allow the shutter to take the shape of a Venetian blind. The increased cost is not great, so that they will doubtless come into use, at any rate, in first-class buildings.

"ROME AS IT WAS," AND "ROME AS IT IS."

UNDER these titles Messrs. Graves & Co. have published chromo-lithographs of two large drawings, by Mr. Arthur Ashpitel, F.S.A., exhibited in the rooms of the Royal Academy some little time ago. It was at the suggestion of the late Luigi Canina that Mr. Ashpitel attempted a task for which, accomplished, erudite, and painstaking, he was well qualified. The prints are accompanied with a valuable pamphlet, comprising a description and key, showing the authorities for the various restorations:—

"First, every accessible inscription, particularly the celebrated Monumentum Ancyranum; those very valuable early manuscripts, usually called the works of Regionaries, being short descriptions or rather catalogues of every edifice in every 'Regio,' or *ward*, of the city; some very curious Mediæval manuscripts describing the various buildings, with the inscriptions then existing thereon, and intended as a sort of guide-books for pilgrims, particularly the 'Ordo Romanus,' and what is called the 'Anonymus Einsiedlensis;' and of course the numerous allusions in all classic authors, particularly the valuable though imperfect work of Varro de Linguâ Latinâ.

A most curious and important authority has also been repeatedly consulted, usually called the Lapides Capitolini. These are fragments of marble, formerly part of the pavement of the temple called that of Romulus and Remus, on which was incised a complete plan of Rome to a large scale, showing every house and almost every column."

"Another great source of information has been derived from the reverses of numerous medals, on which it was customary to give representations of the different public buildings about the time of their erection; and also from some existing bas-reliefs."

We discussed several necessarily doubtful points in Mr. Ashpitel's restoration, at the time it was first exhibited, and need not return to them.

The two views are taken from nearly the same point; but can scarcely be reconciled at first sight, because of the difference shown in the levels, brought about partly through raising the point of sight and the horizontal line, in the view of "Rome as it was," and partly through the elevation of the present level, by the *débris* of ancient buildings and the other operations of time.

Messrs. Kell, Brothers, have translated the drawings very fairly, and we cordially recommend the interesting result as fully frame-worthy for libraries and studios.

THE DRAINAGE OF SHEFFIELD AND DESTRUCTION OF ROTHERHAM.

MY article in the *Builder* has provoked, as you will observe, a semi-official paragraph in the *Sheffield Independent*, which I enclose; and as they impute blundering, ignorance, and improper motives to my communication, I trust you will afford me space for a reply.

It is now suggested, for the first time, after the protests of the *Builder*, that the proposed scheme of drainage is one of a general system; and, by the time it is commenced, a further plan of outfall sewers, or system of deodorization, will be adopted; and it is not *now* intended to make the River Don the main sewer for the district.

It is asserted that the proposed drainage will not increase the foulness of the River Don more than it has been liable to for many years; and this, I suppose, they consider they have a right to do (the right of usage), and that it is a tangible argument for doing that which every other town is trying to avoid, and has been condemned by the Queen, the Parliament, and the *élite* of the nation.

The works of the main outfall cannot be constructed without Parliamentary powers; and we know well what that means, what plausible pretexts may be made, what dangerous delays may be created, and, in the meantime, the accumulated foulness and filthy exuberance of Sheffield, with its 200,000 inhabitants, will be poured out and mingled with the waters of the Don, spreading disease and its attendant miseries far and wide, and blighting with death the innocent people who have the misfortune to live upon its dangerous banks. I see that at the meeting of the Council, on the 13th inst., instructions are to be given to the surveyor to prepare plans for a system of deodorization, showing that it is only just now thought of; and this may be done as a temporary measure, to avert present evils, and, until powers are obtained, to execute the suggested outfall sewer, or, more properly, to apply the fertilizing matter of the sewage to agricultural purposes. The chairman of the health committee has *coolly* assured the Rotherham people that their *small* quantity of sewage will not sensibly affect the river, and that *small* quantity will be something approaching closely to their water supply, which has been thought so large as, if abstracted from the Don, to seriously interfere with the navigation of the river. (See Evidence on Sheffield Water Bill.) Sheffield is now only partially and inefficiently drained, having only recently obtained Parliamentary powers to enable sanitary works to be carried out; and instead of being in the van, as it ought to be, is in the rear of almost every other place; and we may imagine what a large amount of sewage will be turned into the river from 200,000 inhabitants, when proper sewers and drains are made, the cesspool system abandoned, and no filth is allowed to soak into the subsoil on which the town stands. It may be very pleasant and very convenient thus to get rid of

their own filth and nuisances cheaply and quickly, but I apprehend they have no right to do it so as to be a serious injury and annoyance to their neighbours.

I therefore think, if any blundering has taken place, it has been exclusively done by the authorities of Sheffield, in putting the cart before the horse, making their internal sewers, and just carrying the sewage from themselves without considering a proper system of outfall, or calculating upon the effect it is likely to produce upon the river, as this is thought at the present day a *sine qua non* in all perfect drainage schemes.

Sheffield, I am sure, has no right to complain of comments on her sanitary state, or to criticisms on her plans of amendment, because she is only just now commencing to put her house in order. The Registrar-General's return has warned its inhabitants, week by week and year by year, for a long time past, of the very low ebb to which the public health is reduced, how many hundreds are wantonly hurried into eternity with all their imperfections on their head, and even the solemn repeated death-knell has not roused them to action; and yet, forsooth, they "snarl, and bite, and play the dog," because they are mildly advised to take the proper steps, and "to do unto others as they would others should do unto them," and wish us to believe in their immaculate nature: that they are, as the poet says,—

"As chaste as ice, as pure as snow."

I see the persistence of the corporation in carrying out their pet scheme of dirtiness will be likely to be fatal to the bill of the Sheffield Water Works Company, as it is opposed in the House of Lords, tooth and nail, by the Doncaster Corporation and River Don Company; but Rotherham, I grieve to say, looks on apathetically. As to the corporation ever carrying out an outfall sewer, if permitted once to quietly deposit their filth and nastiness in the River Don, at the place pointed out, it is very unlikely and improbable, unless they have the active and healthy stimulus of law or public opinion to prompt them.

To you are eminently due, Mr. Editor, the thanks of a large community for affording an opportunity in your pages of exposing and nipping in the bud a scheme fraught with such great danger, and averting, in fact, nothing less than a public calamity from this district; and never has the press shown a more independent position, and been of greater service, than on the present occasion, in laying open their valuable pages, and affording facilities for the discussion of this momentous subject. B. B.

N.B. How about this "new light" of Dr. Letheby's, who has just discovered a process by which the drainage of towns will not appreciably affect river water for the supply of the inhabitants? (See Evidence on Sheffield Water Bill.)

RATING CHARING CROSS HOTEL.

THE CHARING CROSS HOTEL *v.* THE PARISH OF ST. MARTIN-IN-THE-FIELDS.

THIS was an appeal (Middlesex Sessions) by the Charing Cross Hotel Company, against a poor-rate made on the 26th of October, in respect of the hotel, by the parish of St. Martin-in-the-Fields.

Mr. Field and Mr. White appeared for the appellants; Mr. D. Keane and Mr. Poland for the respondents.

According to the statement of Mr. Field, it appeared that by the rate made by the parish on the 26th of October, 1865, the hotel was rated to the sum of 9,856*l.*, and as this was brought before a special sessions of the parish, after a short discussion it was decided to appeal against the assessment to this Court.

Mr. Haynes, secretary to the Charing Cross Hotel Company, said the amount received at the hotel for six months was 35,228*l.*, which, multiplied by two, would make the annual receipts 70,456*l.*

Mr. Edward Ride, surveyor to the South-Eastern Railway Company, said he thought this hotel was a similar property to the Pavilion at Folkestone, and the Lord Warden at Dover, and he should say that the rateable value of this hotel was 5,525*l.* The gross value was 6,100*l.*, and from this must be deducted the amount for insurance and repairs. He did not consider it as one of the most prosperous hotels, as he had not much faith in large hotels managed by companies.

Mr. Charles Lee, surveyor, gave the gross value of the hotel as 6,000*l.* a-year, but from this he deducted 15 per cent., leaving the net rateable value as 5,100*l.* The 15 per cent. was for insurance and repairs. He estimated its value according to its cubical contents, and its situation. The Grosvenor Hotel was rated at 4,000*l.*, and its cubical capacity was nearly equal to the Charing Cross Hotel. The cost of a building was no guide as to its rateable value; for Baron Rothschild's house cost 200,000*l.*, and he rated it at 3,500*l.*

Mr. John Bridge, manager of the Palace and Burlington Hotels, Buckingham Gate, said he should be sorry to offer 6,000*l.* a-year for this hotel.

Mr. Daniel Cronin said, if he were required to let this hotel he did not think that he should get more than 5,550*l.* a-year for it, with an ordinary lease, the tenant insuring, and paying all the rates and taxes, and he did not think that a respectable tenant would give more.

Mr. Gardiner, house agent, considered that 5,500*l.* would be a proper rental.

Mr. Frederick Marrable, late superintending architect to the Metropolitan Board of Works, thought that 6,000*l.* would be the outside gross rental.

Mr. J. W. Penfold gave similar evidence.

The Assistant-Judge and the magistrates retired to consider their decision, and on their return they fixed the rateable amount of the hotel at 7,264*l.*

COMPENSATION CASE AT DERBY.

A CLAIM by the proprietors of the Derby Town and County Library for the compulsory taking, under the Lands Clauses Act, of their premises in Iron Gate, required by the Local Board for the widening of the street, has just been settled by arbitration. Mr. Jno. S. Norris, of Nottingham, acted as the arbitrator for the claimants; and Mr. Richard Bayliss, of Derby, for the Local Board; Mr. H. W. Wood, of Nottingham, being appointed umpire. The offer of the Board was 1,800*l.* The evidence on the part of the Library was as follows:—

Mr. H. J. Stevens	£3,092	0	0
Mr. Jno. Jackson	2,916	17	0
Mr. J. C. Gilbert	2,840	0	0
Mr. Jno. Shaw	2,838	0	0
Mr. W. Giles	2,712	15	0
Mr. J. W. Thompson	2,693	0	0

The witnesses on the part of the Local Board were:—

Mr. E. Thompson	£1,750	15	6
Mr. T. Newbold	1,650	0	0
Mr. B. Wilson	1,705	0	0
Mr. G. Thompson	1,795	0	0
Mr. S. Smith	1,795	0	0

The arbitrators not agreeing, the umpire made his award for 1,962*l.*; the costs of the inquiry consequently falling upon the Board.

Mr. J. N. Kahrs, solicitor, conducted the case for the Library; and Mr. Leech for the Local Board.

WOLVERHAMPTON TOWN-HALL COMPETITION.

YOUR paper being always open to the evils attending competitions, and as we think they are more glaring than usual in this case, will you allow us to give a short history of the affair?

In the year 1861 instructions were issued for a series of complicated buildings for corporation and other local purposes: we sent in designs, which in due course were returned, and from that day to this we have never heard of any premiums being paid, or the name or names of the successful architects. About the middle of last year, 1865, fresh instructions for the same purposes and upon the same site were issued, with the addition of a new town-hall: these instructions were most elaborately and carefully drawn up, evincing great care and judgment, with a nicety and exactitude of detail, naming every room and *its size*, and in all the important cases the heights were given. The sum of 15,000*l.* was named as the cost of the large and detailed inventory of the various buildings contained in six separate and detached blocks.

Having sent in for the first competition we determined to try the second. After retaining the drawings of the second competition for nine months they were returned without a word of thanks or explanation as to the result. Upon writing to the borough surveyor, demanding some information upon the matter, we received a letter with a copy of the resolution passed by the committee:—

"Copy of Resolution.

Inasmuch as the Committee are satisfied that the four designs for the new town-hall and public buildings, selected by them from the nineteen submitted for competition, as the best in order of merit, cannot be carried out, according to the drawings and specification, for the amount named in the instructions issued to architects;—

Resolved,—That no premium be awarded to any of the designs sent in."

If the forty architects who have been connected with the two competitions had been asked to furnish designs in the ordinary way of business their charges would have amounted to at least 3,000*l.* It appears that the corporation of Wolverhampton have the power, by a simple resolution, to ignore the labours of the whole of the forty. The result has proved that it was a simple absurdity and impossibility to plan the detailed inventory of rooms for the 15,000*l.*: this was a fact known to us when our draft design was made, and our report contained an estimate amounting to 18,500*l.* The question is, are architects to pay the penalty of the mistakes of corporations? They had, I presume, the assistance of their surveyor, and we thought there would be a reasonable probability of the compatibility of the detailed inventory of rooms, and the 15,000*l.*; or, in the event of the present case, more money voted, and the works carried out according to their elaborate schedule of rooms. ONE OF THE COMPETITORS.

FIREPROOF BUILDINGS IN BRICKWORK.

I SHALL be much obliged if you will allow me to make a few remarks on the article in your excellent journal of the 26th ult., on "Fire Extinguishers and Fireproof Buildings," as it is a subject of a public nature, one of importance, and one, I may say, to which I have given some attention.

After a discussion of the various contrivances that have been proposed for extinguishing fires by chemical means, you proceed to consider what has been done towards introducing a better mode of constructing buildings, and your review of this subject appears to be almost exhaustive.

There is one paragraph, however, which contains the real secret of the failure of all attempts which have hitherto been made to render buildings fireproof, and with your leave I will quote it:—

"When the combustible contents of some one compartment of a fireproof warehouse take fire, the iron pillars get red heated, and soften and twist about, bringing down the [girders and] brickwork of the fireproof floors above, and opening up a way for the 'devouring element' to extend its ravages."

Iron, then, is the difficulty, and it is only by building without iron that any warehouses, for the very reason mentioned here, can be made *practically fireproof*.

The only material which will do this is brickwork, which will neither bend nor break, as iron, nor crumble as stone, under the action of intense heat, and has the advantage of being more available than appears to be generally known for floors, and roofs of warehouses, churches, hospitals, &c.; and even private dwellings need not be omitted.

I enclose a letter which I have sent round to the several dock companies on occasion of the recent fires, to show I have spared no pains to bring the subject before those public bodies, to whom such a principle of building would be especially interesting and profitable, and will remind you of my former communications with you on the subject, and myself of my debt of gratitude for your kind compliance with my request at those times; and, I may be allowed to add, it will show that the subject is one *not recently* taken up. F. H. GROVES.

*** The letter says,—"The principle I desire to lay before you is that of building warehouses (walls, floors, and roof) wholly in brickwork.

This principle involves no extra expense beyond that of a well-constructed warehouse; and the small loss of space (about one-eighteenth) occasioned by its use is fully compensated by the far greater, not to say absolute, security of the building.

This principle of construction has been carried into effect in two floors of a warehouse near Arundel-street, Strand, which is subject to all the rough usage such buildings are liable to, and is laden from floor to ceiling. It has been in occupation upwards of five years, and was favourably noticed by the *Builder* of the 4th May, 1861."

WESTMINSTER CHAPTER HOUSE.

SIR,—You will be glad to learn that a *portion* of the wooden boxes has been removed from the walls of the Chapter House, so that we can now see a little of the character of the work and some of the old hand-writing. I think the architectural public have good cause to be obliged to Mr. Scott for having done thus much for them before the great work of *impossible* restoration commences, which cannot do otherwise than blot out just what it is so delightful and novel to see—the antique writing, as though it had been brought before our modern eyes by magic.

I should not have troubled you with this, but for the purpose of pleading for the removal of at least one-half of the modern lumber, so that we

see a little of the more perfect work (the osed part being so frightfully mutilated at springing of the arches), which will show at and the same time the difference of the k as it goes round the Chapter House, and consequent impossibility of bringing back lost parts. May I also suggest the removal larger portion of the wood floor, so as to v the tiles, and the consequent evident differe between *manufactured* and *art* tiles?

, sir, you will then allow me space for a t, "*How*, and why, not to restore the Chapter se, and yet how to do something," I shall be bearing in mind that after this no more itectural restoration in London is possible, here is but this left of all our Gothic.

C. B. A.

CHURCH-BUILDING NEWS.

dmondthorpe, Leicestershire. — The parish ch has been restored and reopened. The hes are of oak, and new throughout, and e sunk panels, with carved foliage on the . The pulpit has a stone base, with polished aster column, and the upper part is of oak ed. The ancient rood-screen, which is a imen of fifteenth-century work, has been re-d, the missing parts having been supplied, forms a prominent feature in the church. west window in the chancel has been re-d; and new oak benches, with carved y-heads, have replaced the old square pews. floors of the aisles are paved with black and iles in patterns, and the heating apparatus, orritt, of Bolton, has been placed near the a door. The church contains some Eliza-an monuments, in memory of the family of Alexander Smith. The works generally been executed by Mr. Fast, of Mellin. carving is by Mr. Barfield, of Leicester; bells were re-hung by Mr. Taylor, of Loughgh; and Mr. R. W. Johnson, of Melton bray, was the architect.

ickwillow, Ely.—St. Peter's chapel has been ecrated by the bishop of the diocese. The e is cruciform, with a porch on the south and a vestry on the north. The spire or e rises from the junction of the transepts the nave roof, and is covered with oak gles; the walls are lined inside with white s, and cased on the exterior with split flints; uoins and dressings are of Ancaster stone. chancel terminates with an octangular apse; centre contains a three-light window over ord's table, and is filled with stained glass essrs. Heaton, Butler, & Co. The subject sents the Crucifixion. The whole of the ing has been constructed by Messrs. Hook well, of Soham, the contractors; Mr. Bacon, ly, was clerk of the works. The nave was ned by Mr. R. R. Rowe, to replace the old ol chapel, to which, as a nave, the transepts chancel had been added to form the new el.

orpe St. Andrew.—A new church has been ecrated at Thorpe. The new edifice stands diately at the rear of the old building. It sts of a nave and aisle, which are separated ve arcade arches springing from red Mansloolumns, with Roche Abbey capitals. The is on the south side, but the arrangement e building is such that should it be found mall for the congregation, another aisle can ided on the north side without materially fering with the other part of the structure. walls are 3 ft. thick, and the exterior facing it, with string courses of dark brick, the ings being of Bath stone. The principal nce is at the south-west corner, where it is ntemplation to erect a tower. There is a porch at the south-east corner, but the ng intended for its decoration is not com-,ed, and this remark applies to nearly all portions described as carved. The doors oak. The font, fixed near the south-west has for its base, columns of Forest of Dean Ancaster stone, and the bowl is of Bath . The interior walls are of red brick, ly relieved by white brick and string courses white brick mouldings. The sittings are of leal, varnished. The flooring is made of ordshire tiles, and the length of the building ft. and its width 48 ft. The roof is wagon-d. In the west end of the nave is a rose-w filled in with ecclesiastical glass of nt tints, and there are eighteen other ws similarly glazed. Mr. Thos. Jeckyll, rwich and London, was the architect, and Mr. Cornish, of North Walsham, the contractor, Mr. Lacey and Mr. Rust being sub-contractors. The pulpit was made by Mr. Spaul, who also carved the font, and the altar-rails were manufactured by Messrs. Barnard & Bishop. Mr. W. S. Boulton constructed the hot-air apparatus, and Mr. Pank supplied the gas fittings. The clerk of the works was Mr. J. Cooper.

Sutton, near Warminstcr (Wilts).—The foundation-stone of the new church of St. John the Evangelist has been laid. The church will be in the Early Decorated style, with nave aisle, north and south transepts, chancel, south porch, north vestry, and tower at the intersection of nave, transepts, and chancel, terminating with a spire 160 ft. high. The architect is Mr. Pearson, of London. The contractors are Messrs. Rogers & Booth, of Gosport; and the clerk of the works is Mr. A. Harrison, of Wilton. The church is the gift of Mrs. Everett and her family, of Greenhill House, in this parish.

St. Margaret's.—The parish church of St. Margaret's, which is situated about thirteen miles from Hereford, and six miles from Pontrilas, has been re-opened for public worship, by the archdeacon, Lord Saye and Sele. The present work of restoration has been but a very partial one, as the removal of a wall across the nave, with the addition of thirty sittings, which would be thus obtained, the scraping and staining of the nave roof timbers, the opening of the chancel roof, a new porch, bell-cot, Communion railing, and east window are very much needed. What has been done, however, with the exception of some necessary repairs to the roofs and drainage, has been chiefly to the interior. The old pews, with the dilapidated flooring before them, the old pulpit, and reading-desk have been replaced with new ones of stained pine, and ninety-four persons can now be accommodated, which is more than double the previous number. All the seats are to be free. A new stone floor has been laid throughout the church, except underneath the seats, where wood is employed, and in the chancel, in which encaustic tiles have been introduced. A new two-light window, with Bath stone dressings, has been inserted in the north wall of the nave, opposite to the entrance, its mouldings and tracery being made to correspond with the one of the fourteenth century in the chancel. The architect employed was Mr. E. H. L. Barker. Mr. Thomas Watkins was the contractor; and Mr. Rowberry, of Hereford, executed the painting and staining. The encaustic tiles came from Mr. Godwin's works at Lugwardine. The total cost has been about 150*l*. A second estimate was procured for pulling down the cross wall in the nave already mentioned, and erecting a new bell-turret; but from want of funds this work has not been carried out. The bell timbers are in a very unsound state.

PROVINCIAL NEWS.

Derby.—The new Market-hall, of which we have before spoken, has now been opened with great ceremony. The hall, we may here note, is 220 ft. long, and 110 ft. wide. The exterior of the building is not much seen, being encompassed by buildings. There are thirty-seven spacious and commodious shops on the ground floor, which will be principally occupied by butchers. Galleries extend round the building, and are 12 ft. in width; they are protected by an ornamental cast-iron railing, which forms a finish to the cornice of the shops under the galleries. A lady residing in Derby has presented the Corporation with a drinking-fountain, which it is intended to erect in the middle of the large hall. The estimated cost of the Market-hall complete, with fittings, will be near upon 20,000*l*.

Oakenshaw.—The first stone of a mill to be erected by the Oakenshaw Mill Co. (Limited), at Oakenshaw, has been laid, in the presence of a large concourse of people, the inhabitants of Oakenshaw and the surrounding neighbourhood. Messrs. Holdsworth & Kellett, of Wyke, are the contractors for the mason work; and Mr. John Garside, of Low Moor, for the joiner work. During the night following the laying of the stone, some persons lifted the foundation-stone and took the bottle from under, in the hope of having a "find," but were, fortunately, disappointed, seeing that it contained no coins whatever.

Gateshead.—A new drapery establishment has been erected on the site of the Black Bull Inn, in High-street. The new building is of three stories, and has been raised from designs of Mr. Watson, of Newcastle, architect. Its dimensions are 210 ft. in length, by a varying width of from 40 ft. to 60 ft. The shop has an elliptical roof supported by pilasters, and lighted along the whole length by large skylights of opaque and coloured glass. Running parallel with the shop on the south side is the counting-house, private and other offices. On the north side is a range of show-rooms. At the east end of the shop, and in communication with it, is a large building designed for the residence of the numerous assistants and workpeople. Mr. Joseph Kyle, of Newcastle, has executed the masons' and bricklayers' work; Mr. Ralph Sanderson, of Gateshead, the joiner work; Mr Glaholm, Newcastle, the plumbing; Mr. W. B. Wilkinson, Newcastle, the plastering; and Messrs. Firbank & Son, of Gateshead, the painting.

Westerham.—A public hall has been opened in Westerham. Messrs. W. H. & J. Mansbridge, of Camden Town, were the contractors, and the cost was 1,452*l*. The hall consists of a large room, 54 ft. by 28 ft., and is capable of seating 300 persons, a reading-room, billiard-room, fitted with all the new application, &c., smoking-room, lavatories, &c. The local Literary and Scientific Institute is to be removed to this building, and in a short time the Corn-market will be held there also. The architect was Mr. Habershon, of London.

SCHOOL-BUILDING NEWS.

Newcastle-upon-Tyne. — The foundation-stone of the new building for the Royal Grammar School has been laid. The ground on which the new school is to be built belongs to the hospital. The church was built from designs by the late Mr. Green, and the almshouses have, with the St. Mary's School for boys, been already erected. The elevation of the school will be so arranged as to be seen between the church and almshouses at Rye Hill. The design is Mediæval Gothic, and the building will be square in form, the schoolrooms making two parts of the square, and situated north and west. The principal elevation, the only part of the building which will be storied, will face the south. The extent of ground proposed to be used is in all 8,500 square yards. Some 5,900 yards are set apart in front of the immediate site of the school as a playground, to be portioned off from the street by an ornamental palisading, the 2,600 yards or so remaining to be the ground on which the buildings will be erected. A commodious dwelling-house will be provided for the master, with windows principally looking into the playground and partly facing the west side, his apartments being at the south-west corner. There will be a tower in the centre of the façade which will contain the main doorway; and the opposite end of the main building to that where the master will reside will be halls for the day pupils and rooms for the accommodation of boarders; while extending from this point and going round the east side, and the full extent of the back or north elevation will be the schoolrooms, six in number, lying on each side in a direct line, partitioned off the one from the other; but so arranged that by means of private doors the head master may easily obtain admission to any one in particular without being put to the trouble of going to the regular entrances reserved for the boys. The building will be almost entirely of stone. In accordance with the style the windows will be pointed and mullioned, several will be enriched with carved wood, and the relieving arches will be composed of square blocks of red and white stone alternately. Along the entire front will be a terrace, 133 ft. in length, by 20 ft. wide, to which a heavy flight of steps will lead opposite the main doorway in the central tower, a smaller flight of steps leading to the door and into the hall when the terrace is crossed. The tower and spire will rise to a height of 98 ft. and the spire itself will be about 40 ft. in height. The grand entrance will be very large, and will be through a pointed arch. The accommodation provided for teaching is for 500 scholars, and will consist altogether of 570 square yards of floor, being 1¼ square yard for each scholar. The building will be decorated internally in harmony with the general design. Exclusive of the ground, the property of the charity, the building is estimated to cost from 8,000*l*. to 10,000*l*. The contractors are—mason work, Messrs. J. & W. Lowrey; joiner work, Mr. John Weldon; plumber work, Mr. Henry Watson;

plastering, Mr. J. Montgomery; painting, Mr. Wm. Miller—all of Newcastle.

Witham (*Chelmsford*). — The new parish schools of the secluded little village of Ulting have been opened. They have been erected, at a cost altogether of 500*l.*, by Mr. Gossett, of Woodham Walter, from the designs of Mr. W. Adams, of Maldon, architect. The cost of erection was 250*l.*, but other 250*l.* had previously been laid out in the purchase of an old building, which formerly occupied the site. The schools will afford accommodation for about seventy scholars, and are constructed after the model of the Heybridge schools, of ornamental brick and stone, with open timbered roof internally.

Books Received.

The Medical Officer's Vade-Mecum; or, Poor Law Surgeon's Guide. By NUGENT CHARLES WALSH (of the Poor Law Board), Barrister-at-Law. Renshaw, Strand.

THIS small volume contains the regulations at present in force relating to the relief of the poor in sickness, and the appointment, qualifications, duties, and remuneration of union medical officers in England and Wales; with a note on vaccination and public vaccinators, and an appendix comprising, *inter alia*, the "Medical Acts." A copious index adds to the utility of the work, which must be indispensable to those excellent and disinterested sanitary officers for whose behoof it was written by one in every way competent to accomplish the self-imposed task. Mr. Walsh, as the son of one of the earliest workers in the sanitary movement,—one, indeed, who shortened his own life by over-exertion in that direction,—has hereditary claims to our attention.

VARIORUM.

WAITING for review, we have the handsome and valuable volume issued by the Committee of Architectural Antiquities of Western India, "Architecture at Ahmedabad, the capital of Goozerat" (Murray); "Garden Architecture and Landscape Gardening," by John Arthur Hughes (Longmans, Green, & Co.); "Biographical and Critical Dictionary of Recent and Living Painters and Engravers," by Henry Ottley (H. G. Bohn); and some others.

Miscellanea.

ST. MICHAEL'S IN ST. ALBAN'S, HERTS.—This very interesting church, fresh from Mr. G. Gilbert Scott's restoration and revival, will be re-opened on Monday, the 25th inst., and will reward a revisit from those who know it best. The site and elevation of the famous "Sic sedebat" statue of Lord Chancellor Bacon are somewhat altered. The pedestal, too, has been narrowed, to the advantage of the chancel, and Bacon cannot now be said to "shoulder God's altar," or the Priest at the Communion. Still, many regret the change—"improvement," as it is called—and the writer of this is one of the many.

NEWSPAPER PRESS FUND.—The third annual festival of this Institution took place on Saturday evening last, at Willis's Rooms, St. James's-street; Earl Granville in the chair. Nearly 200 gentlemen were present at the dinner, and there was also a large attendance of ladies. The meeting was ably addressed by the chairman, and also by General Knollys, comptroller of the Prince of Wales's household; Mr. Newdegate, M.P.; Mr. Clay, M.P., Mr. Stock, M.P.; Lord Lyveden, Admiral Belcher, Mr. S. C. Hall, and Mr. Fowler. Altogether the meeting was a very successful one, the secretary announcing subscriptions amounting to upwards of 850*l.*

OXFORD ARCHITECTURAL SOCIETY.— At the general annual meeting of this Society, Professor Goldwin Smith vacated the chair, receiving a vote of thanks for his services as president, and Dr. Shirley was elected in his stead. The principal business consisted in the reading of a paper by Dr. Stanley, "On the Monuments of Westminster Abbey." He gave a general survey of the monuments, pointing out the causes of what appeared at first sight to be a very miscellaneous arrangement, showing how, accidentally, one part had been given to poets, another to statesmen, and how the whole had gradually grown up into the grand collection now found there.

THE NATIONAL GALLERY.—Lord Henry Lennox will, on the 19th inst., move a resolution affirming Burlington House as the most eligible site for the national collection of pictures. The Royal Academy, as we gave our readers last week reason to believe, have refused to build there, and at present incline to South Kensington.

LONDON PROPERTY.—According to the newspapers, one of the latest transfers—a comparatively small plot of ground in Mark-lane—belonging to the Drapers' Company, and hitherto let at 455*l.* per annum, has just been secured for a term of 60 years by the Real Property Company at the enormous rental of 2,700*l.* per annum, coupled with an engagement to lay out 30,000*l.* in bricks and mortar.

ALUMINIUM ARMOUR.—A trial has just been made at Florence of a cuirass in aluminium, which is as light as an ordinary waistcoat, nearly as flexible, and capable of turning a musket-ball fired at the distance of thirty-eight paces, and of resisting a bayonet thrust from the heaviest hand. Each cuirass costs only 25 francs. Two regiments are, it is said, to be immediately provided with them.

SOCIETY OF ARTS' EXAMINATIONS.—The Prince Consort's Prize of twenty-five guineas has been awarded to Mr. James Rigby Smith, aged 25, of the City of London College, clerk, who has obtained the following first-class certificates:—Political economy, first-class certificate; arithmetic, ditto; geometry, ditto; book-keeping, ditto; algebra, ditto, with second prize; logic and mental science, ditto; domestic economy, ditto.

SOUTH LONDON DISTRICT OF ODD FELLOWS.—From the annual statement of this association for 1865, it appears that the amount of the capital of the Manchester Unity, to which it belongs, was, on the 1st of January, 1866, 56,680*l.* Of the capital, 45,667*l.* formed the sick and funeral fund. The number of members belonging to the Unity was 368,847, besides 19,143 in the colonies. There had been an increase of 14,481 members during the year 1865.

THE PENZANCE PUBLIC HALL ORGAN.—Tenders were received for this organ from Messrs. Hill & Son, Mr. Willis, Messrs. Bryceson & Son, and Messrs. Bevington, all of London; Messrs. Foster & Andrews, of Hull; and Messrs. Telford of Dublin. The tender of Messrs. Bryceson & Son was accepted. The organ will contain 38 stops, arranged through three rows of keys, and there will be 16 ft. pipes. The instrument will contain nearly 1,800 pipes. The upper portion will reach within seven feet of the ceiling. This instrument will be much larger than the one in St. James's great Hall, London.

CONCERT AT ITALIAN OPERA, COVENT GARDEN. A concert of remarkable merit took place on Wednesday morning at the Royal Italian Opera House, and was attended by a crowded audience. The tenors were Signori Mario, Fancelli, Brignoli, and Neri-Baraldi; the barytones, Signori Graziani and Ronconi, and M. Faure; the bassi, Signori Ciampi and Capponi; the soprani, Mdlles. Adelina Patti, Pauline Lucca, Antonietta Fricci, Maria Vilda, Desirée Artot (first appearance this season); with contralti, Mdlle. Mariette-Biancolini; and a *débutante*, Mdlle. Fanny Deconei. To these were added a solo (violin), by Mdlle. Thérèse Castellan, a performance—between the parts—on the xylophone, by Master Ernest Bonnay, and a pianoforte, "Tarantella" (Liszt), by Mdlle. Marie Krebs. Certainly an extraordinary gathering.

STEAMSHIP "BRIDGES" AS LIFEBOATS. —We understand that Capt. H. W. Hire, of her Majesty's screw troopship *Orontes*, has submitted to the Admiralty a plan for utilising the present "bridges" on the upper deck of troop and other passenger screw steam-vessels, as "lifeboats." The screw now having superseded paddle-wheels in these vessels, the old paddle-box lifeboat is lost as a means of saving life at sea, or of landing quickly any large body of troops. It is with a view to meet this deficiency that the plan now proposed as the joint design of himself and Mr. John White, shipbuilder, of Cowes, has been so far matured. A boat is to be built for the *Orontes*, which will also serve as a bridge. It will be 10 ft. in width, and 50 ft. long, the breadth of the ship, and it will be constructed on Lamb & White's patent. It will, by means of air-cases, be able to carry 150 men, each man carrying with him 20 lbs. of food or stores.

SALARY OF THE LIVERPOOL BOROUGH AR TECT AND SURVEYOR.—The salary of Mr. Rob since the entire duties have devolved upon by the retirement of Mr. Weightman, has raised by the town council from 800*l.* to 100

GUSTAVUS.—The *Gazette Belge* informs that the coffin which enclosed the remain Gustavus III., at Stockholm, had been corroded by time as to render its repair necessary. It was therefore opened, and authorities were astonished to find the head face of the ancient sovereign in a perfect of preservation, whilst the rest of the body completely decomposed. He was killed, assassination, on 16th March, 1792.

COMPENSATION CLAIMS IN PARIS.—The *Ga des Architectes* gives the result of the adju tions touching the quarter St. Victor, P comprising 151 houses, containing 15,000 sons, and which is the most densely popul portion of the capital. Two juries have sat tinuously from the 9th of April last to the 7 May. The offers made by the city amounte 9,359,920 francs; the claims to 25,451,639 fra The juries have given 13,905,700 francs.

DESTRUCTION OF THE NEW YORK OPERA H BY FIRE.—On the night of the 21st ult., a 12 o'clock, a fire broke out in the kit attached to the restaurant of the New Academy of Music. Before it could be arre it had spread to the auditorium of the Op house, and so on to the stage. The fla spread so rapidly that in a few moments whole interior of the building was a mas fire, and two of the firemen who were ur to extricate themselves perished in the fla and one was severely injured. The stiff br blowing at the time made it impossible to the building. The academy was opened on 2nd of October, 1854, a few weeks after opening of the Boston Theatre. It cost n four hundred thousand dollars.

COMBINATIONS OF EMPLOYERS AND EMPLO We have stated that workmen are now perf free under the law to enter into combination the purpose of raising wages, or alterin conditions of labour; but any attempt to en the principles of such a combination upon workmen, is an offence punishable by impr ment, with or without hard labour, accordi the circumstances. We will now adduce o two instances of the application of this law, bears on the proceedings of Trades Unions. following instance may be taken as an exa of a large class of cases:—One of the mem of a trade union, whom we will call A, was ing for a master who also employed other not members of the society, nor qualified rules, to do his work. A was censured by of the members of his union for working i company of the others, and one of his fe members, B, threatened to use his influ with the society to turn A out if he did not l A disregarded the threat, and continued i work. A meeting of the union was called, A was summoned to attend. The busine the meeting was to obtain a distinct answer him as to whether he would leave his em ment and remain a member of the unio abide in his service and be turned out. At meeting B took the chair. Another memb the society, C, who had been deputed to wr A's employer, and endeavour to persuade h conform his arrangements to the principl the union, reported the unfavourable resu the interview. A was then asked by B wh he intended to remain an honourable meml the union, and leave his shop, or stay ther despised by his club, have his name sent r all over the country in the society's report be subjected to other unpleasantness of a si nature. A remained firm in his determin to keep the employment, and an action brought against B and C for infringing th 6 Geo. IV., which we have previously expla The case was eventually argued in the Qu Bench, and it was held that B might pro be convicted and punished for unlawfully threats and intimidation, endeavouring to A to depart from his hiring. Against C evidence was not considered sufficient. We set forth this case as an illustration of th strictions properly placed by the law again inducing or compelling of any workman t otherwise than he himself may see fit. man has the right to dispose of his labour any other property, according to his own c and the law will see that this right is fringed.—*The Working Man.*

The Builder.

VOL. XXIV.—No. 1220.

Lunatic Asylums.

ABOUT this time last year, we collected from the Nineteenth Report of the Commissioners in Lunacy much information concerning the provision for the insane, and as to the asylums then left to be provided. The Twentieth Report has just now appeared; and as we continue to think that those who have to plan asylums should be acquainted with the matter contained in the several reports, we here supplement our former notice with particulars of the works of the last twelve months, and with such information respecting projected works, as seems calculated to interest professional readers. First, however, we may mention that the total number of lunatics in the County and Borough Asylums, Hospitals, Metropolitan and Provincial Licensed Houses; and Naval, Military, and State Criminal Asylums, of England and Wales, was on the 1st of January 30,869, as against the number 29,425 of the same date of last year. The number of patients deemed curable is 3,479; which is actually less than the number on the 1st of January, 1865, when there were 3,534 under that head, out of the 29,425. Thus the demand for asylums must be considered increased in an important degree.

To supply the want, we note only three actual additions, or in the shape of entire new buildings in fresh localities, that is to say the joint asylum for the counties of Carmarthen, Cardigan, and Pembroke; a second asylum for the county of Surrey, not opened at the date of the Report; and the asylum for the City of London. Moreover, it will be understood that the number 30,869 does not include the lunatics and idiots in workhouses. There were, of these, on the 1st of January, 1865, 9,756, as compared with the number 9,608 on the 1st of January, 1864. There are now 688 workhouses in England and Wales. Of them, 104 contain separate wards for the insane. The disclosures recently made as to the condition of the sick-poor in workhouses have, we fear, fallen far short of the facts as to the inmates of the lunatic class. The Commissioners acknowledge "the cordial assistance and co-operation of the Poor Law Board," but say that "as a rule the treatment of insane inmates" of workhouses "continues to be far from satisfactory." It is clear to us that these words are only too leniently uttered; and it is equally apparent that the force of the Commission, for inspection generally, should be increased. The workhouses containing the separate wards are visited at least once a year; but the inspection of the remaining 584 is spread over a larger space of time. The "dull and cheerless aspect of the wards," and "absence of all means for occupation, amusement, and out-door exercise," are still complained of by the Visiting Commissioners, as well as insufficient dietary, imperfect registration, and want of proper attendance.

At the Wigan workhouse, the Commissioners had to recommend the removal of iron bars from the windows, and also that a small walled airing-court, then covered with cinders, should be planted. The guardians decided that no changes were required; and Boards of Guardians generally are represented as objecting to adopt any suggestions for improvements, however obvious and necessary. At Narberth, the guardians deemed "that inmates requiring exercise and variety of scene should not be consigned to a workhouse." On the matter of diet, the medical officers of the Unions sometimes make things pleasant by reporting against any change,—the report at Wigan being that the increase proposed would be likely to produce "injurious rather than beneficial effects." With proper regulations, and provided no recent cases be received, the Commissioners are still of opinion that a larger proportion of imbeciles and old chronic cases could be retained in workhouses, so that the pressure for increased accommodation in county asylums might be reduced.

In a report, generally favourable, as to the Camberwell Union Workhouse, the cleansing and tinting in colours, of the wards, are mentioned with approval, as much conducing to cheerfulness; and similarly mentioned is a reduction of the number of beds, increasing the cubical space for each patient. Want of space in the airing-courts, however, is pointed out as a defect; and it is recommended that the corridor attached to each ward should be warmed in winter and otherwise made comfortable for exercise. In the course of the report on the new Manchester Workhouse, the remark is made that when it is found practicable to provide, by means of workshops, for employment of such of the men as can work at trades, and when a portion of the women can be put to washing and laundry work, there can be no doubt that the result will justify any outlay incurred. As to the Whitechapel Workhouse, the male-imbecile ward is strongly condemned in a report dated in July last: the day-room is spoken of as confined and cheerless, and the dormitory as overcrowded; and the only place for washing, in-doors, was a dark cellar in the basement, approached by a long flight of steps. The airing-court is described as bounded by lofty buildings on the two longer opposite sides, and as "cheerless in the extreme;" whilst, the report continues,—"The erection of a wing, five or six stories in height, which will constitute the male infirmary, has had the effect of still further intercepting light and air from this wretched court, to which the adjoining new dead-house and *post-mortem* room will be in most objectionable proximity;" and, in conclusion,—"No arrangement has been made for the out-door exercise of the male imbeciles, who never go beyond their yard." The report on the Bradford Union Workhouse speaks of a new infirmary in course of construction, as partly enclosing one of the yards, and likely to impede circulation of air. In the case of the Basford Workhouse, stone floors, unprovided with matting, are mentioned; and certain dormitories, having 270 to 330 cubic feet per patient, are pointed out as overcrowded. As to the Bristol Workhouse, it is said there is much that is not compatible with proper treatment and comfort of inmates of unsound mind. "Bare unplastered walls everywhere;" and "an almost entire absence of furniture" are noted. Easy seats for the epileptics, and some small matters of ornament are mentioned as "urgently required." The "large unsightly fireguards" are said to be "wholly unnecessary." The report adds,—"Still more objectionable are the iron guards or bars lately placed to all the dormitory-windows in both wards, and which appear to have been brought from St. Peter's Hospital, and put up here because of the recent escape of one of the inmates, since removed to the borough-asylum. No patients should be kept in a workhouse who require, in the opinion of its medical officer, or other authorities, such provision to be made for their safety; and not only the bars, but such of the present inmates as are supposed to need them, should, as soon as possible, be taken away." Re-arrangement of the dormitories, to admit, in every case, of at least 500 cubic feet per patient, is enjoined, as also is improvement of the airing-yards. As regards two padded-rooms in course of construction, the report says,—"they ought not to be, and are not, necessary," and that if they were necessary, the position, adjoining one another, would unfit them for use, as apparently intended, for a male patient and a female at the same time,—as there would be a facility of communication attended with inconvenience. These observations should be of service to those who have to plan asylums, or lunatic wards of workhouses. The much-required provision for idiots, is still under the consideration of the Commissioners.

The pressure for increased accommodation for the insane, which continues notwithstanding enlargements of county and borough asylums, is shown by a table which gives the total accommodation in each of the county and in some of the principal borough asylums, and gives also the numbers housed in January last. The number in the latter case approaches very nearly, for the majority of the asylums, to the number designed to be accommodated; or in some few cases, it exceeds. Thus the numbers run:—Beds, Herts, and Hunts Asylum,—designed to accommodate 535 patients; actual number on January 1st, 534;—Bucks Asylum,—350; 301;—Cambridge and Isle of Ely,—320; 299;—and so on, similarly: or, including some where there is overcrowding,—Devon,—673; actual number, 690: Dorset,—419; 411: and Durham, —350; 383.

The only new, completed, county-asylum, of the year, was that for the counties of Carmarthen, Cardigan, and Pembroke, before mentioned, at Carmarthen, and providing also for Haverfordwest. It was opened on the 26th of September. The plan consists of the central block, containing the superintendent's residence, the hall, the chapel, the domestic offices, and the store-rooms; of wards to the east and west; and of two detached buildings containing the workshops and laundry, with wards for patients employed in them. Two receding wings, each for 29 patients, which formed part of the original design, have been omitted. The present accommodation is for 212 patients. The second asylum for the county of Surrey, at Brookwood, near Woking, was not open in March last (the date of the report); when it should have been, by the contract. The asylum consists of a main building, and two detached blocks which are placed diagonally towards the north-east and north-west, of a chapel, a superintendent's residence, farm-buildings, a range of workshops, and gas-works.

The other works, for the counties, completed or advanced a stage, during the year, are alterations or enlargements. At the Cornwall Asylum, Bodmin, a new building for 52 private patients is about being completed this summer. The wards will be of a very superior description; and an ample quantity of land has been set apart for purposes of exercise and recreation. At the Derby County Asylum, at Mickleover, near Derby, the structures called the Infirmary, on the north side of the asylum, are in course of conversion into two-storied buildings; and plans for a large day-room, and for a dormitory suitable for quiet and chronic cases, made in accord-

ance with a suggestion of the Commissioners, have been approved by the Secretary of State. The additional accommodation provided is for 72 patients; and the estimated cost of the works is 3,350*l.*

At the Durham County Asylum, Sedgefield, there seems to have been considerable neglect during the past two years, as to sewerage and water-supply. Eight deaths that occurred in 1864 from diarrhœa and dysentery, were believed to be connected with a cesspool: but the representations of the Commissioners did not receive attention from the Visitors; and in 1865, six patients died from the same diseases. The danger was once more pointed out, but without result. Mr. Lawson, civil engineer, was then directed to inspect, and to report as to the water-supply, kitchen, and laundry arrangements (which appeared faulty), and as to the cesspool. The report substantially confirmed the view that had been taken; and the matter has been referred to the Secretary of State.

One of the most important questions of the year had reference to the extent to which it was advisable to carry the enlargement of an asylum. Some enlargement of the Kent Asylum, with provision of new offices, workshops, and recreation-hall, having become necessary, the manner of effecting the enlargement became the subject of much correspondence between the Secretary of State, the magistrates of the county, and the Commissioners. Strongly disapproving, for reasons repeatedly stated in their Reports, of asylums too large to admit of efficient individual supervision, the Board resisted for some time the scheme suggested, by which addition would be made to the existing building at Barming Heath, near Maidstone, to the extent of providing for its accommodating 1,150 patients; but Sir George Grey, taking into consideration some circumstances of the case, and assured by the magistrates that they would acquire whatever additional land might be pointed out as necessary, eventually gave his sanction. The plans are now under examination, with a view to commencement of the works at the earliest practicable time. The same question had previously been discussed, after pressing demands on the part of the counties of Monmouth, Hereford, Brecon, and Radnor, and the city of Hereford, for increased accommodation in their joint asylum at Abergavenny. The present provision is for 459 patients.. The proposal was to add accommodation for twenty-five female and twenty male patients. The Commissioners advised the Secretary of State to give his sanction in this case, on the undertaking that the Visitors would use their best exertions towards procuring additional land: however, later, another scheme, involving a more extensive enlargement, was proposed: to this the Commissioners objected, and urged the erection of a new building in a different locality. In these objections the Justices of Monmouth concurred, very properly, and refused their sanction to the enlargement. Plans for enlargement of the Northumberland Asylum, at Cottingwood, near Morpeth, are now under consideration. At present the accommodation is for 285 patients.

At the date of the Nineteenth Report, it was proposed to erect a new asylum in Berkshire, for 200 patients from the counties of Oxford and Berks and the boroughs in union. The arrangements being matured, a new Union is to be formed. Oxfordshire, the city of Oxford, and the borough of Abingdon, are to pay to Berks, for the interest resigned in the asylum, the purchase-money of eighty-six beds (the word "bed" conventionally expressing the fee-simple and other property in the asylum), at the rate of 157*l.* 10s. per bed; and to Reading, for its entire interest, the purchase-money of twenty-six beds at the same rate. The new Union, which will commence with the year 1869, will be formed for the reception and maintenance in the existing building, at Littlemore, near Oxford, of all the panper lunatics of Oxford, county and city, and of the borough of Abingdon, and of ninety-five patients of Berks; whilst the Justices of Berkshire will probably join with the boroughs of Reading and Newbury in the erection of a new building.

An eastern wing, which is in accordance with the original design, subject only to certain minor alterations, is to be erected at the Stafford County Asylum, at Burntwood, the estimated cost being 11,107*l.* The Wilts Asylum, near Devizes, (where the present accommodation is for 465 patients,) is to be enlarged at a cost of 1,700*l.*, so as to accommodate forty more male patients, the work proposed being a counterpart of that of three years ago, which was for additional female patients. Additions to the Asylum of the West Riding of Yorkshire, at Wakefield, at an estimated cost of 8,000*l.*, are in progress. They consist of a detached block for 122 male patients, and of a detached hospital for contagious diseases. Several associated dormitories and day-rooms, and a cheerful, airy, and quiet ward for convalescents, will be gained. The Commissioners at first objected to the enlargement, but ultimately withdrew opposition on the understanding that the proposed new block should be the final limit of extension, and that steps should be taken at once for the erection of another asylum in a different part of the Riding. The asylum at present provides for 1,150 patients.

The asylum for the City of London, at Dartford, has been opened since the date of the Report. It is capable of accommodating 250 patients; and the cost has been 65,000*l.*, or thereabouts. Upwards of 30 acres of ground are attached to the building. Arrangements are being made for improved water-supply to the Bristol Asylum, through the purchase of 6 acres of land, dividing the grounds from the river Frome. Plans for an asylum for Newcastle-upon-Tyne, to accommodate 130 patients of each sex, were some time since sanctioned for a site of 50 acres, within two miles of the town. But the works have not been commenced. Neither has any planting of trees, considered necessary in this case to prevent exposure to cold winds.

After considerable difficulty as to procuring a site for an asylum for the borough of Norwich,—and some opposition to the Commissioners, on the part of the town council, on the ground that there was no case made out for change from the existing mode of providing for the insane poor of the town,—the Norwich council have placed themselves in communication with other boroughs in Norfolk and Suffolk, with a view to immediate compliance with the Lunacy Acts by erection of a joint asylum.

The want of adequate statutory provision for the lunatic paupers belonging to boroughs not contributing to county-rates, has occupied much of the Commissioners' attention; and everything has been done to urge compliance with the law. It is now expected that all the defaulting boroughs will, within no long period, make the provision, by the erection of asylums for themselves, or by Union, or such other arrangements as are allowed by the Acts. For the present, the "great inconvenience and injurious effect" of sending lunatics to distant asylums, or licensed houses, continues, according to the Report; but readers of the *Builder* are aware that the existence of asylums, in whatever locality, by no means precludes the removal which the Commissioners seem so anxious to prevent. In short, the Commissioners have been found quite powerless to prevent separation of lunatics from their friends. The practice is most cruel, or very foolish. The Justices of Plymouth have reported as their opinion, that a borough-asylum for that town is required for 200 patients, and that the site should comprise 25 acres,—the cost of buildings and land being estimated at 20,000*l.* The Commissioners approve. The enlargement of the Kent Asylum, before mentioned, will provide for 500 patients from the boroughs of Canterbury, Dover, Hythe, Maidstone, Rochester, Sandwich, and Tenterden. An asylum is about to be erected for the borough of Leicester.

Considerable efforts seem to have been made for the improvement, structurally, of many of the licensed houses; but to these we need not further refer, or to the hospitals, and the State Criminal Asylum. But we may do well to make some further reference to the matter of alterations, of the structural kind, in county and borough asylums, and the designs or drawings for them. It appears that the Visitors of certain asylums have proceeded with improvements or alterations of the character mentioned, and with additions, without submitting their plans to the Commissioners, and getting the approval of the Secretary of State as required by the Act of 1853. This Act directs Visitors to report from time to time to the Sessions of the county or borough, as to the "plans, estimates, and contracts" agreed upon, and the money necessary to be raised and levied; and stipulates for the approval of the Court before the plans are completed or carried into execution. The Visitors are indeed empowered to spend an amount not exceeding 400*l.* in a year, as for repairs. But by the 45th section of the Act, "all plans for building, or providing, or enlarging, or improving any asylum for pauper-lunatics," are required to be submitted to the Commissioners in Lunacy, to be by them reported upon to the Secretary of State, and are not to be carried into effect until approved by him. It is evident that the authority of the Commissioners and the Secretary of State must be enforced, to prevent entire change, in process of time, from the approved arrangements of an asylum, — such change as, in fact, we apprehend, has been made in several cases. The Visitors of the Hull Asylum, thinking fit to dispute an opinion of the Attorney and Solicitor General, taken at their own suggestion, as to the power to control them, a mandamus was applied for. However, in this instance, the result was adverse to the Commissioners: the decision of the Lord Chief Justice showed that the plans were to be submitted "prior to the commencement of the works," and that "they could not compel it to be done after the completion of the works." But to show how the matter really is, one case may be here cited. Last year there were considerable structural additions to the Somerset Asylum, at Wells, for which no plans had been submitted at first. They included an additional wing, and the enlargement of a cottage for male idiots; and the idea seems to have been, that as these additions were paid for without a county-rate, they were exempt from compliance with the section of the Act. The Commissioners were able to show that the obligation to submit plans always remained in force. Eventually, approval was certified, accompanied with a remark of the Secretary of State as to irregularity of the proceeding in commencing.

We have before suggested that these Reports of the Commissioners in Lunacy should be accompanied by plans of the asylums and new works. Without them, the description is seldom so clear as it should be: indeed, it cannot be clear. Besides, published plans would help to prevent the unauthorized structural changes. The descriptions, if left only written, might be improved. Thus, cost of the structure might be clearly distinguished from the cost inclusive of ground and architect's commission: the number of patients accommodated, or to be provided for, should be given in every case, instead of only in some cases; and the building-outlay per patient should be clearly seen. Surely, also, names of the architects of the buildings might appear generally.

BROADSIDES *versus* TURRETS.

THE science of war at the present time is in the unusual condition of being appealed to for the principles on which operations of unprecedented magnitude are to be conducted, at the very time that the main element which regulates the relation of attack and defence is undergoing rapid change. The great attention that has been given to the construction of projectiles, since Europe shook off her peaceful dream of forty years' duration, has not only produced results of the first importance, but promises so continued a development of offensive power, that the main military expenditure of a state is now incurred for objects which, in a few years' time, may be almost or altogether obsolete. No state can await the result of experiment, or the more slow progress of experience, at the risk of being attacked by an enemy possessed of an armament which, if far from theoretic perfection, is yet considerably superior to her own in offensive power. But the waste of expenditure incurred in putting a country into what may be called a provisional state of defence, is enormous; and it is not surprising that those who are responsible for military expenditure are inclined, as long as possible, *stare super antiquas vias.*

While, then, we would be the last to underrate the importance of the long series of experiments that have been conducted by the British Government, which, if as yet unsatisfactory as to the determination of the best gun, or rather of the best normal series of guns for field, for siege, and for naval service, have at least given most important and satisfactory results in connexion with the manufacture of armour plating, we think that the actual experience of the engagements of the present time has far more interest for the civil or military engineer. Nor is the interest confined to the professional man alone, any more than the desire to be a crack-shot is confined to the professional soldier. The public and patriotic spirit which, by the organization of our volunteers, has probably saved this country from insult, and has certainly caused it

to be regarded in a very different light on the Continent, regards not the perfection of a single arm, but the efficient protection of our native country; and whether it be the practice and evolutions of rifle corps, the range and aim of the heavy ordnance, or the construction of the best forts for the defence of our ports and harbours, each contribution to our actual stock of knowledge will be eagerly hailed by every thoughtful man.

The results of the sanguinary experience of the Crimean, the Italian, and the Danish wars, together with those of the more gigantic struggle on the opposite shores of the Atlantic, can hardly be said to be clearly apprehended by military students at the moment that the hoarse voice of the dogs of war may be hourly expected to startle the reluctant ears of Continental Europe. The main points which may be held to be certainly established, are, the increased importance of the utmost rapidity of manœuvre, so that troops may be exposed for as short a time as possible to a fire of greatly augmented range and precision, the consequent depreciation in value of heavy cavalry, and to some extent of grenadier regiments, and the alteration in value of once famous strategic points, which now can be commanded from stations formerly out of range, or can be shelled by the heavy mortars that are now borne by floating batteries of various descriptions. For our own particular information, however, as inhabitants of a country in which the defences of ports and harbours is an object of paramount importance, the question of the relative power of land and of floating, sea-going batteries, under whatever name they may be designated, including the capabilities of the guns that are mounted in either case, is of the first and most prominent value.

In this part of the field we have done, and are doing, much, although it is open to very serious question whether, after all, our efforts are bent in the right direction; and the most recent conflict, of which the particulars have reached us, affords an experience not lightly to be disregarded. Nothing is more clear from every naval engagement in which iron-clads have taken part, than the fact that the number of vessels comprising a fleet is now of far less importance than the actual constructive strength of the principal vessel on either side. With wooden vessels, perhaps with the more slightly cuirassed iron vessels which were first launched, numbers stood for much, if not for all. The material damage caused by the broadsides of contending fleets balanced to the one side or to the other pretty much in the ratio of the number of guns. As in the contests of pugilists, each side could give and could take a certain number of blows, and he who could hit oftenest, even if he could not hit hardest, won. But now the case is altered, and it is as in the famous race, when *Eclipse* was first and the rest nowhere. If there be present in any naval engagement, whether it be a sea-fight or an attack on a land-port or harbour, one vessel of skin thick enough to resist the shot of the enemy, and of guns powerful enough to pierce their opponents, it can crush them successively and in detail; and the greater the number of the over-matched combatants the greater the slaughter among them. The present rough rule of proportion is, that the diameter of the bore of the gun should equal the thickness of the armour-plating of the vessel. Thus our latest design, the *Hercules*, which is now being built at Chatham, has the central part of the vessel protected by armour-plates of 9 in. in thickness, and is, *in this part of her structure*, invulnerable to any shot or shell from rifled guns of bore not exceeding 9 in.,—the size of the largest guns which she herself carries. It might be thought, then, that the *Hercules*, presented the *ne plus ultra* of the science of naval artillery, and, like the armour-cased knight of old amid the leather-coated mob whom he could slaughter at pleasure, might enter into any engagement with a certainty of victory; but it must be remembered that this invulnerable skin is confined to the central portion of the ship. The power of flotation is not adequate to support a total armature of that prodigious weight. Nearly 160 ft. in length by 9 ft. in breadth in the *Bellerophon*, and the fore and aft parts of the ship in the *Hercules*, and all similar vessels, is pervious to shot and shell from even an ordinary boat's gun. The confidence, therefore, to be placed in the impervious armour and powerful ordnance of the central battery is diminished in a degree not readily calculable by the power of the enemy to cripple, water-log, and clear of defenders the unarmed portions of the ship; and the value of the turret or Monitor form of vessel, so unaccountably neglected by our Admiralty, appears enhanced by the visible defects of this last and most costly effort of our dockyards. The turrets of the *Royal Sovereign*, a vessel not constructed, but only converted, for an experiment, are of 10-inch plates, and are said to be capable of carrying and working guns of double the weight of the 12-ton guns actually mounted. The circular form of the turret increases the power of the side to deflect shot, and there can be but little doubt that, if they were pitted against one another, the *Royal Sovereign* would send the *Hercules* to the bottom. In what terms can the conduct of the First Lord of the Admiralty, who allows our vast expenditure to arrive at such a lame and impotent result, be duly characterised. In a despotic country, where the responsible man would actually and disagreeably be responsible with his head, such an application of the resources of the state would be impossible, in face of the experience of the present day; and we can only devoutly trust that no unexpected incident of the pending European contest may awaken the people of this country to the wide difference between the parliamentary responsibility of a board, and the actual responsibility of an efficient minister.

It was the saying of a great wit that railway travellers would never be safe till a bishop had been burnt in an accident. If those who directed our armaments were bound to take a foremost position in case of attack, we should, no doubt, have had by this time a fleet of Monitors afloat. The wish of the satirist has just met with its fulfilment, *mutatis mutandis*. The Peruvian Minister of War and Marine, Signor Galvez, has been blown to atoms while actively superintending, in an iron-clad battery, the defence of Callao from the wanton and unsuccessful attack of the Spanish fleet. It would seem, from the best account that has yet reached us of the action, that of the American commodore, that this serious and lamented loss arose, not from the guns of the Spaniards, but from the accidental ignition of a shell. The example of the soldier-minister was in emulation of that of the Dictator, who was "everywhere in the thickest of the fight, animating, encouraging, and directing the Peruvian batteries."

The lessons to be drawn from the recent cowardly and unmartial conduct of Spain, while awaiting that retribution that will probably not be very long deferred, are neither insignificant nor unimportant. The first is, the proof how very little the ordinary rules of civilized warfare, the claims of justice or of humanity, or the public opinion of Europe, avail to check the action of those who, by the command of an armoured fleet, find themselves able to insult or to destroy a great commercial emporium belonging to a people whose prosperity they may, or with whom they have picked a quarrel. The second, and not less noteable one, is, that a Monitor is a sea-going vessel. The American commodore had a turret vessel off Valparaiso as well as off Callao, and appears to have been convinced of his ability to give a good account of the Spanish fleet, including the iron-clad *Numancia*, of 7,000 tons burden. The third inference is not less striking, and points, as does almost all the practical information that we have been able to collect, to the great advantage of the turret form of battery. The Peruvian Monitor, the *Thesoa*, was struck ten times by Spanish shot, and received no damage. It does not appear what part her 68-pound gun took in the action, but the real key of a gallant defence that, to the satisfaction of the civilized world, drove off the buccaneering Spaniards, and saved Callao from the destruction of the undefended Valparaiso, was the position of four 300-pounder Armstrong guns, mounted in iron turrets. There were also five 450-pounder Blakely guns, as well as thirty-six 32-pounders; but as these were mounted *en barbette*, and thus exposed to the shell of the fleet, losing eighty killed and wounded, there can be but little doubt that the gratifying result of the defence was mainly owing to the use of the turret battery.

The information as to which we are in possession as to the Spanish fleet is not so full as we could desire. Six frigates and a three-gun corvette are mentioned by Commodore Rodgers, but the admiral was on board the iron-clad *Numancia*, of 7,000 tons burden, armed with 68-pounders, a vessel which, from its description and burden, must be considered as not unfairly representing the broadside iron-clads on which our Admiralty at present relies. The Spaniards kept at a respectful distance from the batteries, many of their shots falling into the water. The American commodore charitably suggests that "the presence of torpedoes may have inspired caution." That the presence of batteries, unfortunately absent at Valparaiso, inspired caution, is also tolerably evident. The result was, that the Peruvian batteries were but little injured; but the loss was heavy to the Spanish fleet. "It was obvious that several of the vessels had been badly punished." An hour and three-quarters after the first gun was fired by the *Numancia*, the *Villa de Madrid* set her jib and try-sails, and was out of the fight. She made signals, and was taken in tow by the *Vencidora*, with steam escaping abundantly below. She was soon followed by the *Berenguela*, listed over to one side, and with smoke pouring from her ports. Just before she retired a puff of black dust had shot out at her water-line on the side away from the batteries. A ball, the Commodore thought, had gone through the coal-bunkers, and through both sides, and men were seen over the sides attempting to patch with canvas the ragged hole, which seemed some two feet square. There is not much in this description to take the engagement out of the category of a timid attack by ordinary frigates on a port defended by batteries, but great significance is due to the fact that the Spanish admiral was badly wounded by splinters,—a circumstance which proves that, whatever might have been the exchange of shot between the frigates and the lighter guns of the batteries, the *Numancia* was actually engaged, was beaten off with loss and damage, and made no impression either on the Monitor *Thesoa*, or on the iron turrets of the fortifications.

We have, therefore, before us the result of an experiment of the utmost interest and importance, which our repudiating debtors have kindly conducted at their own expense for our especial benefit and information. Lightly viewed, the experience would be cheaply purchased by our naval constructors at the price of a very large nominal amount of "Spanish passives." If we have not every particular of the experiment arranged with as much precision, or noted with as perfect accuracy, as are those on board the *Thunderer*, we must remember the cogent reasons for some degree of hurry and inexactitude on the part of the artillerists. But it cannot be denied that we have an instance of the engagement of a broadside iron-clad, with turret guns, in actual warfare, and of the defeat of the former. The importance of such a result, considering the present state of our iron navy, and the present rules of our constructors, cannot be easily over-estimated. One thing is pretty sure, and that is, that if we do not take the hint and derive from this great lesson the information it affords, some of our neighbours will be less supine. If orders are not given at Somerset House, within a few hours of the receipt of the report of Commodore Rodgers, for laying down the lines of one or two turret vessels, we shall not be surprised if in a country where the individual who directs both land and sea forces is fully conscious that he cannot afford to suffer any check or affront from the superiority of our own or any other navy, no time should have been lost in taking advantage of this new and precious instalment of positive scientific evidence on one of the most important questions of modern warfare.

On the apparent eve of a mighty struggle, of which no man can foresee the upshot or calculate on the incidents, it is of vital importance to this country to be in a position to cause her neutrality to be respected. On this point it is needless to argue. It is universally admitted, and not only so, but has been acted on, and is yet being acted upon to an extent involving the expenditure of many millions. The sole point on which we have to insist is, that these millions should be spent in an efficient manner, and, if possible, in the most efficient manner. It would appear *à priori* to any man of mechanical aptitude that the mode of protecting our engines of offence which affords the least mark to hostile projectiles, and in which the least weight of defensive armour can be disposed in the most perfect and economic form, is the mode which we should seek to perfect. This mode, however, we have neglected. Our sole experiment, by no means a discouraging one, should be fully carried out. We have listened with a contemptuous and incredulous smile to the opinion of the artillerists and naval men of America that their powers of marine offence are superior to our

own. At the expense of other people we are now in possession of the results of an experiment that speaks strongly as to the great advantage of the Monitor or turret form of marine battery. What further is required by the Admiralty before they will act on so plain and so reiterated a warning?

It is on the professional and scientific journals that the duty of raising a warning voice on matters of this nature seems almost exclusively to fall. Two or three of our contemporaries alone agreed with us when we pointed out the great error committed by the Admiralty in completing the armour of the *Northumberland* before her launch; although to the mechanical reasons, the neglect of which caused so much delay, expense, and risk of worse disaster, there might have been added the hopeless muddling of the magnetism of the vessel.

The smaller, but more specially instructed, body of readers who form the public addressed by scientific papers, are competent fully to weigh, and maturely to reflect on, considerations such as we have now advanced, and it is to the informed and matured opinion of such readers, rather than to the more easily excited and less permanent attention of the larger masses, that we must look for the exertion of that influence that shall overcome the reluctance of our naval constructors to avail themselves of the lessons of a costly experience, or to adopt the method of an unpopular inventor, for the plain and simple reason that it happens to be the best.

Since the above remarks were in type, the turret ship, the *Royal Sovereign*, has been subjected to the most rude and violent test to which, as a scientific experiment alone, the work of human hands has, as far as we are aware, ever been exposed. Three steel-headed shot, of 246 lb. and 250 lb. weight, each propelled by 43 lb. of powder, have been fired from a 9-in. rifled gun, weighing 12½ tons, point blank at one of the turrets of this experimental Monitor when actually afloat, at distances of 200 yards and of 160 yards. After these three terrific blows the Monitor was so far uninjured that the turret revolved as freely as before. Some damage was effected, in ploughing out slices of iron, and in stripping the heads of bolts, and the wooden "quaker," which replaced for the time the heavy gun which the turret was intended to carry, was shivered by the concussion; but the vessel was in the main uninjured, and so, it seems, would have been the crew, if on board. It is impossible for any occurrence to confirm more strongly the views which we have above expressed.

It must be remembered that the *Royal Sovereign* is far from being such a turret vessel as we can now produce. The arrangement for the revolution of the turrets has answered admirably, but we must not commit the defence of our waters to 4½-in. or 5½-in. armour plates. There can be little difficulty, even now, in producing cast-steel segments of 14-in. or 18-in. thickness, with half-lap or dovetail joints, and with bolts formed with a tapering head, tapped or riveted into the segments, so as to avoid the flying of the nuts. Turrets so constructed would defy any shot as yet projected from a floating battery. Nor does it seem incredible, considering the great advances we are daily making in metallurgy, that the same energy which has so far perfected the Whitworth gun may present us with a steel turret, cast in one piece under pressure, a floating tower of defence on which the thickest storm of hostile shot that we can as yet think it necessary to provide against would fall but as hailstones on an oak.

THE QUANTITATIVE ANALYSIS OF THE BEAUTIFUL AND ELEMENTS OF HARMONIC PROPORTION.

THE determination of the principle of the beautiful was the incentive to those inquiries which have terminated in the development of the central science. Having a scientific bias, I desired to bring criticism from the ever-shifting clouds of fancy to the solid ground of positive science. Some of my readers on former occasions, I know, thought I was doing the very reverse by seeking confirmation of a theory of the beautiful in planetary phenomena; others because they erroneously supposed I had got into the misty region of metaphysics. But feeling confident that I was endeavouring to grasp the purpose of nature and the exact principle of the beautiful by the method so productive of useful results in the present century, I was proof against sceptical smiles and shrugs. It is not every one to whom the treatment of a subject appears mystical who has a right to say it is really so. To many the enunciation of a simple geometrical or algebraical formula, the clearest of the clear to the initiated, would be an unintelligible mystery. But perhaps I may have been obscure from lacking power over language to express what appears perfectly clear to my own mind. In this final lecture of the series on formative ethics, however, I hope to be more lucid, and that you will discover much of the matter,—thought to be so remote from the end of my inquiries on former occasions,—to be closely connected with it in principle. There is, I must confess, some difficulty in accurately defining the range of phenomena to which the title of "Beautiful" is properly applicable. The common use of the word is exceedingly vague and lax; sometimes being extended so as to include everything that pleases a good taste, and so comprehending grandeur and novelty, as well as what, in a more restricted sense, is called beauty; at other times, being even by good authorities confined to the objects of sight, when they are either seen, remembered, or imagined: yet it is applied to music, to composition in prose and verse, and to character, affections, and actions. These are not objects of sight, and a man could thus be a judge of some kinds of beauty without the faculty of seeing. To fix a determinate meaning to a word so variously extended and restricted, I propose to use the term "beautiful" in this lecture, first, in direct reference to a condition of the human form; and, secondly, in reference to those relations of inanimate phenomena in colour, form, sound, and motion, to which it also may be safely applied. From its application to the perfect, or what for the time being is thought to be the perfect, human form, it easily passes in common use to all that affects the human sense, either agreeably or in the best way; but here limitation is impossible, and we are compelled to acknowledge the propriety of the restrictions we have just imposed.

Now, for the present, I assume the most beautiful human form to be identical with that which reason would approve the best; to be identical with that human form which completely embodies the idea of perfect mental and physical conformation—of perfect fitness to the highest human destiny, and, in a more restricted sense, with the best form of a race. But if the beautiful be only another term for the perfection point of the human species, might it not be as appropriately applied to fitness throughout nature? It might with general consent, but present usage would revolt at the idea of calling the fittest of porcupines or of gorillas, beautiful. According to our present use of language, then, it will be perceived that it is only *some*, not all fitness which may be called beautiful. There may be fitness without beauty, but never beauty without fitness, to human sense. This is a distinction which very much clears the ground for the discussion of the beautiful. And we now pass on to review the premises on which the quantitative theory of the beautiful is logically established.

1st. On the conclusion of the metaphysical or transcendental philosophy, that the fundamental forms of consciousness are space and time.

2nd. On the conclusion of positive science that the fundamental form of phenomena is force in extension and duration, or, in other words, force in space and time.

The foregoing conclusions are in brief those of the two rival systems or schools of thought, in which you will at once perceive there is a common point of agreement, for the space and time of the metaphysician, and the force, space, and time of the positive philosophy are quantifiable. Quantity, therefore, is really the fundamental or ultimate form of both systems. The professed object of positive science is, as I dare say you are aware, the reduction of its knowledge to the definite expressions of measure and number. Astrology was the first to succumb to this method, to the disenchanter positivism, and to become the precise science, astronomy. Alchemy, by the same process, became the science of definite proportions; and the theories of light, heat, electricity, &c., are daily assuming definite quantitative statements; and they who may be accustomed to close reasoning will perceive that the quantitative theory of the beautiful is virtually established on the common premise of the two systems to which we have just directed notice, and that it is as capable of being brought within the pale of exact science as the theory of music, which is entirely one of definite proportional relation, and be as capable of deductive application.

But let us reconsider the subject from a point of view less remote from the ordinary compass of reading and current of thought. Reflect for a moment and you will come to the conclusion that the phases of the artistically beautiful are three, viz., colour, light, and shade, and form: and what is colour but force in extension and duration—active vibrating light of which the velocities of the different rays have long since been accurately determined? All the differences in colour are therefore of intensity and extent, which may be expressed by ratios. The beautiful in colour, then, is inseparable from definite quantitative relation.

2. Light and Shade.—The preceding analysis of colour includes and decides the question with reference to this second phase; and the tempering of the forces of light by absorbent surfaces, the graduation of reflecting surfaces in sculpture, and the combination of spaces of light and dark, are all adjustments of quantity. Here again, then, the theory is maintained.

3. Form.—All forms, be they beautiful or ugly, exist in dimension; not the slightest change can take place in face, form, characteristic, or type without a change of relative measures, *i.e.*, quantities. This is the third and last phase we had to examine; and in this, also, the quantitative theory holds good: we may therefore conclude that the beautiful is inseparable from some definite quantitative relations.

Now let us see whether the method adopted to determine truth in other branches of inquiry, viz., the system of averages, be applicable to our purpose.

"By its means," writes Sir J. Herschel, "we are enabled to conclude the value of that which we do not see with greater certainty than that of quantities which we actually see and measure. It is the useful and valuable property of the average of a great many observations, that it brings us nearer to the truth than any single observation can be relied on as doing, and which renders it the most constant resource in all physical inquiries *where accuracy is desired.*"

Now, having determined the fundamental form of the beautiful, as of other phenomena, to be quantitative, it is equally applicable to the determination of truth in this respect. We have then to obtain the average proportions of the greatest possible number of individuals of any race of mankind to determine the measures of its true, mean, essential, perfect type; in other words, of its moral, ideal, or central form, about which it may fluctuate or oscillate through erratic conditions, but from which, in the aggregate, it can never depart but to become extinct. Now this true, or central, must also be the beautiful type of a race; for any other set of proportions would lie out of those of rectitude, of truth, and would in some degree or other be disproportioned, imperfect. The beautiful, therefore, is only a special title for the perfection point of a certain class of phenomena occupying an analogous position to the same point in any class of phenomena. If this be the case, then, the *mean* is the common measure of rectitude in nature; as we have already shown, by a wide interrogation of science, is actually the case; and, in demonstrating the *mean* to be the quantitative expression for the beautiful, another proof is added to the instances already adduced, tending to confirm the universality of the principle. I showed you on a former occasion that the *mean* distances, orbits, and periodic times of the planets are immutable; that the *mean* sidereal day has not varied a thousandth of a second since the time of Hipparchus; that the *mean* annual amount of light and heat received from the sun is constantly the same; that the *mean* or temperate zones are the permanent homes of civilization; that in these man attains his best development morally, intellectually, and physically; that Aristotle's ethics are founded on the *mean* as the principle of rectitude; and, above all, that we have a higher guarantee of the universality of the principle in Christian ethics which yield this emphatic precept, "Let your *moderation* be known unto all men."

Does not modern science obtain her most valuable results from the method of averages? Which could not be the case if the law of compensation were not inviolable, if every phenomenal fluctuation in excess were not compensated by an opposite one in defect; and thus, on account of a fixity in the *mean* duration of human life, life assurance becomes practicable. Does not man throughout the world seek by artificial means, by building, clothing, ventilating, to preserve *mean conditions* under all the

vicissitudes of climate? Do not the poets love to extol the *mean* seasons of spring and autumn, and, to vivify the precepts of philosophy, sing of the Golden Mean? From Spenser we have the following appreciation of the great truth:—

"The antique world, in his first flow'ring youth,
Found no defect in his Creator's grace,
But with glad thankes, and unreproved truth,
The gifts of soveraine bounty did embrace;
Like angels' life was then men's happy race;
But later ages pride, like corn-fed steed,
Abused her plenty and fat swoine encrease
To all licentiousness and gan exceed
The *measure of her meane* and natural first need."
Canto VII.

From Shakspeare we have:—

"Nature is made better by no *mean*,
But nature makes that *mean*: so that the art,
Which you say adds to nature, is an art
That nature makes."—*Winter's Tale.*

And on the law of compensation:—

"So every scope turn'd to immoderate use,
Turns to restraint."

From Pope:—

"Avoid extremes, and shun the fault of such
Who still are pleased *too little* or *too much*."

With all this accumulated evidence, is it derogatory to the principle of the beautiful that it should be one common to all excellence? and one which, though little understood, is, perhaps, the most ancient of all the scientific truths we possess? I think you will agree with me that it is not.

The beautiful, then, lies in the *mean*; for if it did not it would inhere in excess or defect, in some imperfect disproportioned individual instance, which is absurd. Consider for a moment, and you will perceive that you unwittingly express yourselves, in common conversation, in perfect accordance with the quantitative theory; for you will find that your criticism and censure always fall on what you consider to be *too little* or *too much*. I am not speaking of your criticisms upon art only, but upon all conduct and action. How, then, can you fail to see that your ideal lies between this too little and too much, this excess and defect? Nay, you must have instinctively fixed a *mean* in your judgment in all these matters, or you could not predicate the *too much* or *too little* of them. You find, then, that you are all quantitative philosophers without knowing it, and all that education and science can do is to rectify erroneous ideals,—wrong *means*.

The metaphysical philosophy declares the fundamental form of consciousness to be quantitative; the positive, that the fundamental form of phenomena is quantitative. The mental and physical ideals should, therefore, be co-ordinate; that is to say, if the mean be the measure of the one it should be the measure of the other. And it requires but little acumen to perceive that the platonic doctrine of ideas resolves itself into that of average or essential forms.

I do not stand alone in thinking the *mean* to be the measure of the beautiful; it was surmised independently of any considerations such as have been submitted to you in former lectures, and which lead to the conviction that it is the common measure of rectitude in the solar system. Dryden, Hooker, Du Fresnoy, the Père Bouffier, Hogarth, Sir Joshua Reynolds, had all, more or less, keen perception of this metric principle in reference to the subject in hand. I hope, however, to be entitled to the credit of having removed the theory from the region of guesswork and opinion into the circle of established science. Dryden appears to have had a glimpse of the theory and of the immutability of the measure of the beautiful.

"There is," he writes, "a *mean* in all things, and a certain measure wherein the good and the beautiful consist, and out of which they never can depart." So had also the judicious Hooker, who thus expresses his conviction:—"Measure is that which perfecteth all things, because everything is for some end; neither can that thing be available to any end which is not proportionate thereunto; and to proportion, excesses, as well as defects, are opposite." And Du Fresnoy, recognising a metric principle common to the good and the beautiful, says,—

"Right ever reigns its stated bounds between,
And taste, like morals, loves the golden mean."

Hogarth, too, had a glimpse of the great truth, and in his "Analysis of Beauty" thus endeavours to express his convictions:—

"Let us try," he writes, "to get a clear idea of what constitutes or composes the *utmost* beauty of proportion; such as seen in the Antinous, which is allowed to be the most perfect in this respect of any of the antique statues; and, though the lovely likewise seems to have been as much the sculptor's aim as in the Venus, yet a manly strength in its proportion is equally expressed from head to foot in it; and as this masterpiece of art is so well known, we will set it up before us as a pattern and endeavour to fabricate, or put together in the mind, such kind of parts as shall seem to build another figure like it. In doing which, we shall soon find that it is chiefly to be effected by means of the nice sensation we naturally have of what certain *quantities* or *dimensions* of parts are fittest to produce the utmost strength for moving or supporting great weights, and of what are most fit for the utmost light agility, as also for every degree between these *two extremes*.

* * * * *

Having set up the Antinous as our pattern, we will suppose placed on one side of it, the unwieldy elephantine figure of an Atlas, made up of such thick bones and muscles as would best fit him for supporting a vast weight, according to his character of extreme heavy strength. And, on the other side, imagine the slim figure of Mercury, neatly formed for the utmost light agility, with slender bones and taper muscles, fit for nimbly bounding from the ground.

Our *extremes* thus placed, imagine the Atlas throwing off by degrees certain portions of bone and muscle proper for the attainment of light agility, as if aiming at the Mercury's airy form and quality; whilst, on the other hand, the Mercury augmenting his slim figure by equal degrees, and growing towards an Atlas in equal time, by receiving to the like places from whence they came the very quantities that the other had been casting off; when, as they approach each other in weight, their forms may, of course, be imagined to grow more and more alike, till, at a certain point of time, they meet in just similitude; which, being an *exact medium* between the two extremes, we may thence conclude to be the precise form of exact proportion fittest for perfect active strength or graceful movement, as the Antinous we proposed to imitate and figure on the mind.

* * * * *

In like manner, any two opposite colours in the rainbow form a third (or a mean) between them, by thus imparting to each other their peculiar qualities; as, for example, the brightest yellow, and the lively blue that is placed at some distance from it visibly approach, and blend by interchangeable degrees, and, as above, temper rather than destroy each other's vigour, till they meet in one firm compound, whence, at a certain point, their original aspects are quite lost; but, instead a most pleasant green, is found the colour nature hath chosen and of which the eye never tires."

Sir Joshua Reynolds expounds the same principle in reference to the beautiful, and with an inkling of its universality and immutability: and its immutability is a necessary adjunct or correlative of its truth; for it would be useless to concern ourselves about rectitude, perfection, and beauty, to-day, if their principle could be changed to-morrow; in fact, I doubt whether we should have any ideas on the subject, unless the measure of rectitude were eternally fixed.

The mean was designated the immutable by the Chinese philosopher, Confucius, and modern science is daily confirming the appropriateness of the title; and the law of rectitude is that which we should naturally suppose would, of all others, be immutable as the immediate fiat of the Divine will. The belief in the fixity of a principle is alone consistent with that in its Divine establishment. This was, indeed, the conviction which led me to seek and to readily find the great central law enshrined in the Scriptures; for truth, no matter from whence derived, could not be inconsistent with truth. The mean, the law of rectitude, perfection, and beauty, is an expression for a Divine truth revealed through nature. It is a revelation from the same source, but a different channel,—as the Word. It is a revelation which might again be derived through experience, were even the records of our present faith, as well as of science, to be lost in some convulsion of civilization.

"The Italian painter," says Sir Joshua, in his discourses, "attends only to the invariable; the great and general ideas, which are *fixed* and *inherent* in universal nature. It is *the invariable general form* which Nature always seems to intend in her productions. Thus, amongst the blades of grass, or leaves of the same tree, though no two can be found exactly alike, the general form is *invariable*. Every species of the animal as well as the vegetable creation may be said to have a fixed or determinate form, towards which nature is continually inclining, like various lines terminating in the centre. For instance, in a particular part of a feature, the line that forms the ridge of the nose is beautiful when it is straight; this, then, is the *central form*. In creatures of the same species, beauty is the *medium* or centre of all its various forms.

It is from a reiterated experience, and a close comparison of the objects in nature, that an artist becomes possessed of the idea of that *central form*, if I may so express it, from which every deviation is deformity. Every object which pleases must give us pleasure upon some certain principles, and a man finds them out, not by felicity or successful hazard, but by care and sagacity.

To the principle I have laid down, that the idea of beauty in each species of beings is an invariable one, it may be objected that in every particular species there are various *central* forms, which are separate and distinct from each other, and yet are undeniably beautiful; that in the human figure, for instance, the beauty of Hercules is one, of the Gladiator another, of the Apollo another, which makes so many different ideas of beauty."

"It is true, indeed, that these figures, are each perfect in their kind though of different characters and proportions; but still none of them is the representative of an individual, but of a class. And as there is one general form, which, as I have said, belongs to the human kind at large, so in each of these classes there is a common idea and *sub*-central form, which is the abstract of the various individual forms belonging to that class. Thus, though the forms of childhood and age differ exceedingly, there is a common form in childhood and a common form in age, which is the more perfect as it is remote from all peculiarities. But, I must add, further, that though the most perfect forms of each of the general divisions of the human figure are ideal, and superior to any form of that class, yet the highest perfection of the human figure is not in any one of them. It is not in the Hercules, nor in the Gladiator, nor in the Apollo, but in that form which is taken from all, and which partakes equally of the activity of the Gladiator, of the delicacy of the Apollo, and the muscular strength of the Hercules. For perfect beauty in any species must combine all the characters which are beautiful in that species. It cannot consist in any one to the exclusion of the rest; none must, therefore, be predominant, that none may be deficient. There is likewise a kind of symmetry, or proportion, which may properly be said to belong to deformity. A figure lean or corpulent, tall or short, though deviating from beauty, may still have a certain unity, on the whole, not unpleasing."

This, Sir Joshua more forcibly expresses in a letter to the *Idler*. After stating that "The black and white nations must in respect of beauty, be considered as of different kinds, at least a different species of the same kind, from one of which to the other," he observes:—

"No inference can be drawn," and then continues, "From what has been said, it may be inferred, that the works of nature are all equally beautiful, and that preference is given from custom or some association of ideas; and that, in creatures in the same species, beauty is *the medium* or *centre* of all its various forms." He concludes thus:—"If it has been proved that the painter, by attending to the invariable and general ideas of nature, produces beauty, he must, by regarding peculiarities, and accidental discriminations, deviate from the universal rule, and pollute his canvas with deformity."

From these several quotations, it will be seen that Reynolds not only recognised the *mean* or central form as the ideal standard of a genera, but the sub-central forms as the sub-ideals of species. For if the perfect mean form of humanity be departed from but a tittle, the law of compensation immediately operates and produces characteristic peculiarities which may be classified. If the vital force be turned awry to any undue development, in any special direction, it must be by denial in some other direction, in some other quality,—ponderous strength at the expense of agility,—extreme agility at the expense of power and endurance,—extreme cerebral development by the loss of physique,—extreme muscular development by the deprivation of brain or power of thought. In vital as other mechanics, power may be dissipated in velocity, or velocity concentrated into power, but what is gained on one side of the *mean* will be lost on the other.

That something further should be attempted by way of determining the principle of the beautiful is the more necessary, as the late president of the Royal Academy dismissed the theory of Hogarth and Sir Joshua which I am endeavouring to establish on a wider basis, in words to this effect:—"That, if beauty lies in the mean, it is the average of deformity;" but there is really no *ad absurdum* in this argument, but in the supposition that it is conclusive against the theory. The passage recently quoted from the "Outlines of Astronomy," shows that truth does come out of averages of errors: that it does so is consequent on the fact that errors are but of two kinds, of excess and defect, and thus, in an average struck from a great number of instances, the plus and minus false quantities neutralize each other, and yield *the balanced mean of truth*. That a further demonstration of this theory was needed is also shown by critics abandoning the principle of the beautiful as one incapable of being solved, as may be gathered from a recent article in one of the quarterlies; and precisely on a point to which this theory affords a satisfactory answer, viz., the differences in the standards of beauty of different races. That the solution of a question having reference to phenomena as tangible as any other investigated by science, should be abandoned, has always appeared to me to arise from sheer indolence; from that enervated tone of mind which comes of long prosperity, and which pronounces things impossible of attainment which require any exertion to think them out; or, from that still more wretched state of mind which fancies there is something more divine in mystery than the clear truth; or, still worse, that imbecility which pronounces a thing unknowable because it does not itself know it. If the principle of the beautiful could not be defined, we should be for ever critically blind. To entertain such a notion is certainly unscientific, not to say profane; for if the beautiful is synonymous with the perfect human form, as we have shown it to be, an unfailing source will not leave us in the dark as to its principle.

Now the conformation of the divine human is thus expressed in the New Testament:—He who "is the image of God" "was made in the likeness of men;" both of which expressions imply perfect manhood; the first by directly affirming His conformity to the divine idea; the second by

affirming conformity to the abstract likeness of men: mark, not in the likeness of any human being, but in the likeness of humanity, having all the essential elements which the *mean*, central, or moral form alone expresses, and which can alone be embodied in perfect or divine humanity. It is only the thorough understanding of the quantitative theory in connexion with the preceding texts that will enable us to fully appreciate the import of the injunction of St. Paul,—"Therefore, let us go on unto perfection, till we all come in the unity of the faith and the knowledge of the Son of God unto a perfect man, unto *the measure of the stature* of the fulness of Christ." Here, then, we have a full confirmation of all that science teaches upon this subject; and the foregoing texts are but a few of many that could be brought forward to prove that the perfect, which is also the beautiful, in the human form, has its established measure,—"*the measure of the stature of the fulness of Christ*," which, I think, has now been conclusively determined to be the Golden or Immutable Mean.

W. CAVE THOMAS.

CENTRAL COTTAGE IMPROVEMENT SOCIETY.

THE offer by this Society of two premiums (10 guineas and 5 guineas) for the best and second best design for a detached cottage, not exceeding in cost 100 guineas, has brought 112 designs, and these are now on view in the meeting-room of the Society of Arts. The stipulations as to sizes and requirements were precise, so that the scope for the designer was narrow. To comment on the drawings sent would be useless. It may almost be said that whatever is good in them is old, and that whatever is new in them is not good. There are several that would make convenient and compact cottages: for example, 84, "Can more be done for the money?"; 48, "How do you like it?"; and 47, "*Labor et Honores.*" The last has a better elevation than 48, and would probably cost more money. 62 (a blue triangle) is a neat cheap plan. "*Palma non sine pulvere*" has a pleasant elevation, but would be expensive. The judges, in awarding the premiums will have to consider minute differences.

Two of the competitors contemplate the use of concrete for the walls. One of them, No. 4, "Speed the Plough," submits a fair plan. The other absurdly proposes to make the building circular,—like an old dove-cot or a slice of a round-tower. By the use of this material a considerable saving might be effected in some neighbourhoods. Cottages are being built with it at Bexley Heath, by means of Mr. Tall's apparatus for the purpose, which well deserves the attention of all who are interested in the matters. Some particulars will be found in our advertising columns.

Returning for an instant to the Cottage Improvement Society, we would mention, that Mr. Martin, the secretary, will be found in the room, and will give any information that may be required as to its operations and views.

A CHAPTER OF ACCIDENTS.

IT is melancholy to reflect on the enormous sacrifice of human life which we are every week called upon to notice under the startling head of "Fatal Accidents;" and still more so, we think, when we reflect that in most cases such accidents are not only unnecessary—however sad they may be,—but are in fact easily preventible by the exercise of the simplest and most ordinary precaution. We have taken the trouble to string together, at random, a group of newspaper paragraphs just for the sake of more forcibly illustrating what we have, over and over again in these columns, pointed out as necessary to be done, either on the part of the State or of the individuals whose lives are subjected to such serious risks. The first example we shall take is the deplorable colliery explosion at Duckinfield last week, respecting which we quote a summarised account:—

"A colliery explosion, attended with deplorable loss of life, took place yesterday forenoon, in the Victoria pit, at Duckinfield, five or six miles east of Manchester. More than seventy men and boys were at work in the pit when the accident occurred, from some cause which the brief accounts we have received do not explain; but of this number, happily, thirty were got out of the pit alive. The remaining forty-three, however, did not come to the shaft; and the worst anticipations as to their fate were confirmed, when in the afternoon thirty-two bodies were found in the main level, having presumably been overtaken and suffocated by the foul air in their attempt to reach the foot of the shaft. Eleven of the workpeople are still missing, and it is believed that they will be found to have perished instantaneously by the force and on the spot of the explosion."—*Manchester Guardian.*

At this moment there are various circumstances assigned for the cause of the explosion. It is asserted that there was an accumulation of gas in an unused working, which escaped into the principal part of the mine. There is also reason to believe that there *was great laxity in the use of the Davy lamps;* for, according to the statement of some of the men, which, however, has been contradicted by others, boys were seen on the works with naked candles. A practice is also said to have prevailed in the mine which is very reprehensible. In all coal-pits there are men who are technically termed firemen, whose duty it is to go through every working and inspect the general condition of the pit; and if they find any evidence of fire-damp, or impure gas, to put up a board notifying the presence of gas and the danger of the working, and cautioning the men not to go near the place. It is the rule that these men should do nothing except discharge this duty, *upon the proper performance of which depends the safety of all in the pit.* If the fireman finds that the furnaces are low, and therefore the current of air is small, it is his duty to inform the furnace men of the fact; but it is said that in this mine the fireman was in the habit of replenishing the furnace, as well as attending to his own duty. Some disposition exists to attribute blame to Phillips, the deceased underlooker. Lastly, it is stated that *a sufficient inspection of the different workings was not made* on Thursday morning before the men were allowed to descend, which it was the duty of Phillips to make. The whole matter will, of course, be thoroughly sifted at the inquest, and in the course of the Government inspector's official investigation. But we venture to predict that the causes we have indicated will go to the root of the whole matter,—that is to say, negligence in the miners themselves, and negligence on the part of their employers or their overseers. Of course, we all know that the principle of cupidity or selfishness which some political economists confound with the instincts of progress, is generally sufficient to cause a collier who works by the piece to neglect his safety-lamp (which, like all precautionary measures, operates as an impediment). In other words, he will risk his life to earn a shilling or two extra. But unfortunately it is not his own life alone which is put in the balance! What is true of the men in this instance is also no less true on many occasions of their employers; and this Manchester catastrophe is a conspicuous illustration of the result.

Our next coal-pit accident is of another description, and cannot be properly attributed to either of the foregoing causes:—

"DUMBARTON.—SERIOUS COAL-PIT ACCIDENT.—An accident, which it is feared will prove fatal in the case of one man, took place in No. 2 Pit, Gartshore, on Tuesday. Two miners, named James Carr and John O'Donnell, both young men, were employed at what is termed 'holing,' when a large body of the facing gave way, bringing down with it an immense stone, which fell upon O'Donnell, and struck Carr's feet. Assistance was promptly rendered, but there is little hope of O'Donnell recovering from the severe injuries he has sustained. Carr's foot was bruised and his leg splintered."—*North British Mail.*

Still, we suspect there is negligence here of another order. This "holing" process is simply the process of *undermining;* always dangerous on the surface, but how much more so in a coalpit? It ought never to be intrusted to ordinary miners, "both young men." This is precisely the nature of the accident which brought down the whole side of a Cornish mine, the other day, and overwhelmed five or six miners in a mountain of the *débris* of copper ore.

Next to the category of "accidents in mines," that of "accidents on railways" would appear to be about the most prolific. We shall not refer to the ordinary class of accidents, such as those on the Great Northern, the other day; these have long ago been proved by repeated reports to be due to one cause chiefly, and that is gross carelessness. But here is one of less frequent occurrence:—

"A TRAIN ON FIRE.—On Friday, a train took fire on the Midland Railway between Birmingham and Derby. It appears that the body of one of the carriages in the midday down train, either through being too heavily freighted, or in consequence of defective springs, sank down on the wheels, and the friction set the wood on fire. One of the passengers shouted out of the window, and his cries being heard by the passengers in the adjoining carriages, at length the attention of the guard was attracted. The train was brought to a stand near Tamworth, and the carriage, in which a considerable hole had been burned, was detached from it. Some luggage belonging to a lady was burning, but the damage done was immaterial."—*Birmingham Post.*

Now, who freighted this carriage too heavily?—an occurrence, we suspect, that is much too common, particularly in luggage-vans. Or, if the springs were defective, why had not the ordinary inspector detected this? Supposing "one passenger" had not discovered the fire, or had not been possessed of strong lungs, where would the catastrophe have ended? Most certainly not with the burning of a lady's luggage. But, had there been some communication, however slight, between the passengers and the guard, such an event would be simply impossible. In addition to the possible attack of robbers and murderers in our railway-carriages, it now turns out that we are also liable to be roasted alive. Suppose we try the experiment of heat on a small scale, and make a railway director go through the ordeal of fire!

The only quarry accident we happen to have at hand is a very mild one, comparatively speaking; but it is another of the numerous melancholy examples we have of fatal blasting operations, which are pretty uniformly due to one cause,—recklessness in the quarrymen. It is, indeed, astonishing to see how they will trifle with the highly-dangerous instruments they are in the habit of using:—

"ACCIDENT AT CRAIGMILLAR QUARRY.—Yesterday, a very serious accident occurred at Craigmillar Quarry, by which a man named Barney Higgins was very severely hurt. While Higgins was engaged in a blasting operation, the powder exploded, and he was thrown violently to the ground. Besides being very much burned by the powder, he was severely bruised by the fragments of stone, his face and arms being mutilated, and his left thigh broken. He was taken to the Royal Infirmary, and his wounds dressed."—*Scotsman.*

It is highly proper to point out that the blasting "fuses" are sometimes so ill-manufactured that they refuse to explode. The workmen then venture close up to the seat of explosion in order to ascertain the cause, when, at that very moment, perhaps, the blast takes place, almost always to the destruction of life and limb. Very ordinary precautions, however, would suffice to prevent this class of fatal accidents; one ought to be that the blasting ingredients should be kept in a very dry place. How often is this simple precaution neglected at our quarries!

We shall now enter, just for a single moment, the region of our manufactures. This is, to be sure, well-trodden ground. But the graves are not the less frequently dug on that account. Our first example here we shall take from Glasgow:—

"SHOCKING ACCIDENT AT GLASGOW.—On Tuesday, while a man named John Neill, warper, residing in Gardner-street, was adjusting a machine belt in the Garscube Weaving Factory, his right arm got entangled in the machinery, and he was whirled round with such violence that the arm was torn away from his body. The unfortunate man was removed to the Infirmary, the medical men who attended him being of opinion that, in addition to the loss of his arm, he had been severely bruised internally."—*Glasgow Herald.*

This simple act, adjusting machinery belts, *while the machinery is in motion*, is unquestionably one of the most persistent causes of accidental death. Why should it be allowed? Had the above shaft been thrown out of gear for a few minutes, the adjustment could have been effected with absolute safety, and poor "John Neill, warper," would not then have had to incur the risk of losing his life, and, as it is, to lament the loss of his arm!

A second and still more shocking illustration of the accidents in manufactories we shall take from Sheffield, premising that Sheffield and its surrounding district is the "black country" of fatal accidents, along with other less positive causes of the high rate of its mortality bills:—

"FRIGHTFUL ACCIDENT IN A FILE MANUFACTORY.—On Friday se'nnight a frightful accident occurred at the file manufactory of Messrs. Blake, Brothers, Sheffield, by the breaking of a large grindstone. A young man, named John M'Donald, twenty-two years of age, was working at the stone, which had been in use about a week, and previously carefully tested, when, owing to the velocity with which it revolved—about 300 times per minute—it split into three pieces. The deceased was struck and flung through the roof of the grinding shed, and falling into the yard was picked up dead, his head being shattered to pieces."

Now, we venture to assert that there is not on our list a more common yet more easily preventible cause of fatal accidents than the splitting of these Sheffield grindstones! The mechanical law of it is so simple and easily understood, that we wonder no Government inspector has yet made a point of it. These ponderous stones are usually fixed upon a square shaft by means of timber wedges. There are no metal socket or

skeleton iron wheels bolted on each side, to distribute the *inertia* of the revolving mass. The whole pressure is concentrated on the keyhole; the consequence is, when the rate of velocity becomes greater than the power of cohesion of the loose friable sandstone, that the stone splits, exactly on the same principle that a block of any other kind of stone is split by wedges, and with the same unerring precision. Why should it not be made imperative, therefore, on the proprietors of such manufactories to take all reasonable precaution to *bind* their grindstones and to fit them with cast-iron keyholes? It is really too bad in this age of progress and mechanical invention that such flagrant outrages on our common humanity should be allowed to exist. These Sheffield grindstones already do quite sufficient damage to the lungs of the poor steel-grinders without splitting up and shattering their heads to pieces!

The last paragraph we shall quote under this head is really horrible to think of:—

"Last week two boys, aged respectively fourteen and ten years, fell into a pan of boiling salt at Winsford, and were scalded to death."

Why should such a possibility as this exist? It would be a comparatively easy and at the same time a cheap precaution to cover those salt-pans with a lid of stout wicker-work, which would not interfere with the process of evaporation, and would certainly put such an accident as this without the boundaries of probability. The same principle might apply to brewers' vats, and other capacious vessels, where the innumerable processes of boiling liquids are carried on.

Hitherto we have spoken of cases where the State may, and does, interfere with advantage to the saving of human life. But we cannot leave the subject without a single allusion to accidents of another order, in which the entire responsibility must necessarily reside with the individual. The first may belong to the category of sporting accidents, and its locality lies on the sea coast of the Scottish highlands:—

"DREADFUL DEATH.—On Tuesday, a boy named Grant, son of Mr. Joseph Grant, Ousdale, near the Ord, fell over the rocks at Ousdale while gathering seafowls' eggs, and, falling a distance of more than 300 ft. was dashed to pieces. The poor fellow was only about twelve years of age."—*Northern Ensign.*

The second belongs to the numerous and increasing class of volunteer accidents; but this one we think is of peculiarly painful character.

"FATAL ACCIDENT TO A VOLUNTEER.—A lamentable accident, resulting fatally, occurred to a young Scotch gentleman, named George Stewart, on Wednesday afternoon, at Winchester. Deceased, who was being educated at Winchester College, was a member of the cadet corps of the Volunteer Rifles, raised and maintained by that learned and venerable institution. Some of the college volunteers were at target-practice at the rifle-butts on Teg Down on Wednesday, and towards the close of the firing a young gentleman named Sewell (also a member of the corps) took a loaded rifle from the ground, and not having a cap upon the nipple, presumed that it was unloaded. Sewell placed a cap upon the rifle, pointed the weapon at another person's hand for the purpose of 'sighting' it, it is presumed, or in some juvenile frolic, pulled the trigger, and in an instant the fatal bullet had sped through the fingers of the upraised hand and into the breast of poor Stewart, who immediately exclaimed that he was wounded. He was promptly conveyed from the ground and medical assistance procured, but all efforts were unavailing, and he expired in a few hours. The father of the deceased was formerly member for Cambridge."—*Morning Post.*

Our last illustration, we apprehend is due to crinoline, or to that cognate category of light muslin which every year lays low some of our fairest women, and carries grief and gloomy sorrow into the bosom of some of our dearest friends.

"MELANCHOLY ACCIDENT.—An accident, which unhappily terminated fatally, and which has thrown a gloom over a large circle of friends, occurred at the house of the Very Rev. Dean Ramsay, 23, Ainslie-place, on Wednesday evening. Miss Lucy Cochrane, niece of the Venerable Dean by his lady's side, while sitting with him in his dressing-room, discovered that her clothes were on fire. Miss Cochrane rushed to the lobby staircase, in the hope, it is supposed, of getting assistance. One of the servants, attracted by her screams, caught the young lady at the foot of the stair, and, with great presence of mind, threw a piece of carpeting over her. Admiral Ramsay was likewise immediately at Miss Cochrane's side, and assisted in extinguishing the flames. Professor Henderson was at once sent for, and he called in Professor Spence, who continued with the suffering lady all night; but she was so much scorched, and her nervous system had received such a severe shock, that she expired yesterday forenoon. As there was no fire in the room in which Miss Cochrane first discovered that her dress was burning, and as she had been a short time in the room before making the discovery, the fire must have been smouldering in her dress for some time. Miss Cochrane was about twenty-two years of age, was the daughter of Rupert John Cochrane, Esq., New York, and was on a visit to Dean Ramsay when the melancholy accident happened."—*Scotsman.*

Now, in the first place, who is to blame for the death of a fine boy—too brave, perhaps—who scrambles over a cliff 300 ft. high? We need not answer the question any further than to say that it is not himself. Secondly, will no practical training teach even volunteers never to trust their rifle without the test of the ramrod? Finally, when will the women of England and France cease to array themselves in garments which may be likened unto grave-clothes? Or, at least, why not construct them of fire-proof materials? Surely sixpenny-worth of the tungstate of soda is not a very expensive ingredient to mix with the starch! If we might venture to plough alongside of Mr. Ruskin, we should tell them that they are like the coal-miners in their selfishness, only they risk their lives to adorn—alas! is it adornment?—their persons. They should remember, too, that like these underground workers, they do not perish alone; and that more lives than theirs may depend on the foolish risks which a lovely and accomplished lady will constantly run. And so ends our present chapter of accidents.

PICTURES BOUGHT FOR THE ART-UNION OF LONDON.

THE following works have been already selected by the prizeholders:—

From the Royal Academy.—Drawing Timber in Picardy, R. Beavis, 250*l.*; Happy Idleness, Mrs. M. Robbinson, 100*l.*; Eventide, E. N. Downard, 75*l.*; Louis XI. and Marie de Commines, E. Kennedy, 73*l.* 10s.; Returning from Market, W. Fyfe, 63*l.*; The Doomed Tree, R. Redgrave, R.A., 57*l.* 15s.; The Invalid's Friend, S. G. Pollard, 52*l.* 10s.; On the Conway, North Wales, J. Uwins, 50*l.*; The Tomb of Grace Darling, C. W. Nicholls, 50*l.*; Out of the Lifeboat, A. Farmer, 50*l.*; Cavaliers and Roundheads, A. Cooper, R.A., 36*l.* 15s.; A First Lesson, C. Rossiter, 36*l.* 15s.; The Prisoner of War, J. A. Fitzgerald, 35*l.*; Rest—study for a larger picture—F. W. Hulme, 30*l.*; View in Nottinghamshire, J. Thors, 25*l.*; Rough Pastures, W. S. Rose, 10*l.*

From the British Institution.—Luzern, from the Lake, G. C. Stanfield, 100*l.*; Whitby Harbour, E. J. Niemann, 75*l.*; Frozen Out, G. D. Leslie, 63*l.*; A Rough Road over the Heath, G. Cole, 63*l.*; Fruit, Miss E. H. Stannard, 50*l.*; The Tangled Thread, M. Claxton, 50*l.*; In the Lledr Valley, J. Godet, 40*l.*; Making the Bouquet, J. C. Thorn, 35*l.*; Shorthorns, A. Corbould, 30*l.*; View of the Pool of London, F. Moltino, 25*l.*; Uncle Charles's Favourites, G. Hepper, 25*l.*; Croquet in the Time of Charles II.; J. Barker, 25*l.*; Highland Stags, R. Cleminson, 20*l.*; Mumbles Lighthouse, H. K. Taylor, 15*l.*; Waiting for the Tide, A. Webb, 20*l.*

From the Society of British Artists.—Resting at Plough, J. Tennant, 150*l.*; Dutch Vessel entering Shields Harbour, E. Hayes, 100*l.*; Scene on the little Neath, J. C. Ward, 105*l.*; Gipsy Girls, W. Shayer, 85*l.*; A Carp Pond at Ockham, E. J. Cobbett, 84*l.*; Near Bettws-y-Coed, J. Syer, 75*l.*; Blackberry-gathering, E. J. Cobbett, 75*l.*; View in Richmond Park, J. Tennant, 70*l.*; Three Bluebottles, C. Stuart, 50*l.*; On the Teign, Chagford, W. Williams, 60*l.*; Near Weald, Essex, J. E. Meadows, 50*l.*; A Welsh Spring, E. J. Cobbett, 45*l.*; A Vessel ashore on Whitley Rocks, E. Hayes, 45*l.*; Ullswater from Patterdale, J. T. Walton, 40*l.*; The Harbour and Pier of Watchett, H. K. Taylor, 40*l.*; The Fern-gatherer, S. B. Godbold, 40*l.*; Coast Scene near Eastbourne, J. Tennant, 40*l.*; The Calf-shed, J. Henzell, 40*l.*; Gleaners, W. Shayer, 35*l.*; The Present, J. A. Fitzgerald, 35*l.*; On the Fal, Cornwall, W. Pitt, 30*l.*; The Mumbles Light, H. K. Taylor, 30*l.*; Dunstanborough Castle, H. K. Taylor, 30*l.*; A Summer's Afternoon, Isle of Man, J. T. Peele, 30*l.*; The Weald of Kent, W. S. Rose, 25*l.*; Whistling through the Wood, W. Bromley, 25*l.*; Farm-yard at Carlton, J. F. Herring, 25*l.*; A Breton Interior, A. Provis, 25*l.*; Haymaking, near Bolton Abbey, C. Earle, 22*l.*; A Mountain Stream, N. Wales, A. Barland, 21*l.*; Near Vevey, Switzerland, S. R. Percy, 20*l.*; A Lane in Summer Time, C. L. Coppard, 20*l.*; Near Walton-on-the-Naze, J. E. Meadows, 20*l.*; Stepping-stones on the Lledr, J. J. Curnock, 20*l.*; On the Thames near Henley, C. Pearson, 15*l.*; Enerdale Lake, T. C. Cracknell, 15*l.*; Amongst the Mountains, J. Carlisle, 15*l.*; "Will he buy?" W. Pilsbury, 10*l.* 10s.; The Mouth of the Thames, C. Danby, 10*l.* 10s.; Great at Cards, C. P. Slocombe, 10*l.*; Old Toll-house, Setzel, on the Rhine, A. H. Vickers, 10*l.*

From the Royal Scottish Academy.—In Kirkdale Glen, J. Faed, 30*l.*; Southwick Water, Dumfries-shire, Miss F. Stoddart, 12*l.* 12s.

From the Water Colour Society.—Lago d'Iseo, C. Smith, 52*l.* 10s.; Cornfield at Streatham, C. Smith, 52*l.* 10s.; In the Pass of Llanberis, D. Cox, jun., 50*l.*; Ro, near Conway, D. Cox, jun., 42*l.*; Ophelia, Mrs. H. Criddle, 36*l.* 15s.; Canale della Posta, Venice, W. Callow, 31*l.* 10s.; The Dacres Monument, Hurstmonceaux, J. Nash, 15*l.* 15s.; Capri, Bay of Naples, P. J. Naftel, 15*l.* 15s.

From the Institute of Painters in Water Colour.—Deborah sitting in Judgment, H. Warren, 150*l.*; On the Cornice, Gulf of Genoa, C. Vacher, 52*l.* 10s.; Looking across the Gulf of Suez, C. Vacher, 50*l.*; The River Tees, near Rokeby, J. W. Whymper, 30*l.*; At Studland, Dorset, J. H. Mole, 30*l.*; A Pleasant Look-out, C. H. Weigall, 25*l.*; The Tower Rock, Mewslade, J. G. Philp, 23*l.*; On the River Avon, Shipley Bridge, P. Mitchell, 26*l.* 5s.; The Outlet of Llyn Idwal, J. C. Reed, 20*l.*; The First Tarantella, A. Bouviers, 16*l.*; Changing the Pastures, H. Maplestone, 15*l.* 15s.; A Mountain Road, H. C. Pidgeon, 15*l.* 15s.; The Old Eschenheimer Tower and Gate, at Francfort, T. S. Boys, 15*l.*; A Grey Evening, Dockray, T. Sutcliffe, 11*l.*; Returning from the Harvest-field, H. Maplestone, 15*l.*; A Music Lesson, H. Warren, 10*l.* 10s.; Cullertoats, Northumberland, E. Hayes, 10*l.*

From the General Exhibition of Water Colour Drawings.—On the Thames at Hurley, F. Walton, 17*l.* 17s.; Fosse Rofin, on the Conway, T. Pritchard, 20*l.*

ARCHITECTURAL INSTRUCTION.*

IN a certain sense, architecture may be called the prose, as sculpture and painting are the poetry, of art. Its first principles are truthfulness, good sense, and perspicuity. In its higher walks, it grows eloquent and rhythmical; highly poetical in form and in purpose; aiming at the expression of sentiment more than of use, in a purely oratorical spirit: but, even here, intelligence and sound reason exert a controlling influence, and elsewhere they rule with absolute authority. Considerations of method, order, form, clearness, precision, and sobriety, are what make a good working style, both in writing and in building; and they demand the same qualities in the workman,—a quick and sensitive intelligence; an open, flexible, and cultivated mind. In both, the higher paths can be trodden by genius alone. That work can wait till genius comes. But there is in both a great and indispensable work, a work that cannot wait, a work which every-day necessities require to have done somehow; and it is of the highest advantage to the culture of every community, that in this work, both of literature and architecture, the best methods and ideas should everywhere prevail.

It is in establishing a high critical standard of performance in work of this sort, that, as I have said, educational institutions find their proper vocation. And it is as true here, when we are treating of style, as it was just now when we were speaking of the mere utilities, that, in the nature of things, an organized institution has, in this work, altogether the advantage of private enterprise. This thought has been recently developed, in its literary relations, with so much brilliancy and candour, by a critic whose name is identified, in this community at least, with the best criticism of the day, that it is already familiar as a household word. Almost every consideration which Mr. Arnold brings forward to illustrate the advantage to be derived to a national style from the influence of literary academies, applies almost in terms, and with a peculiar appositeness, to an architectural school. The academies of which he speaks are indeed institutions like the French Academy, a sort of literary hierarchy: the school we have in mind is a collection of neophytes. Both, however, tend alike to establish a high standard of performance, and may, so far, be spoken of in identical terms. I cannot deny myself the pleasure, in further illustration of this, of

* From "An Outline of a Course of Architectural Instruction," by Mr. William R. Ware, Professor of Architecture in the School of the Massachusetts Institute of Technology, read before the Society of Arts of that Institute, with a view to criticism before it be carried out. The first part of the "Outline" treats of the study of architecture as a useful art.

transcribing a few sentences from Mr. Arnold's essay:—

"An institution like the French Academy—an institution owing its existence to a national bent towards the things of the mind, towards culture, towards clearness, correctness, and propriety in thinking and speaking, and in its turn promoting this bent—sets standards in a number of directions, and creates, in all these directions, a force of educated opinion, checking and rebuking those who fall below those standards, or who set them at nought. . . . . It is not that there do not exist in England, as well as in France, a number of people perfectly well able to discern what is good in these matters from what is bad, and preferring what is good: but they are isolated; they form no powerful body of opinion; they are not strong enough to set a standard, up to which even the journeyman-work of literature must be brought, if it is to be vendible. Ignorance and charlatanism, in work of this kind, are always trying to pass off their wares as excellent, and to cry down criticism as the voice of an insignificant, over-fastidious minority: they easily persuade the multitude that this is so when the minority is scattered about as it is here; not so easily when it is banded together, as in the French Academy."

It remains, then, for us to consider how we had best take up this instruction in architecture proper, so as to inculcate sound and serviceable ideas in regard to architectural composition and design. There may be good building without it; but there can be no good architecture unless it is taught, and taught well. The question is twofold: what shall be taught, and how shall the instruction be given?

The first part of the question is already answered in general terms. The thing to be taught is the theory and practice of architectural design; and this is to be learned by studying its history, which everywhere illustrates its principles, and its principles, everywhere illustrated by its history. These principles have an independent existence and an abstract value; they are unchanged through all the changes of the past; and it is by their light, not by following the precedents of bygone ages, that we must hope to find, for the new and strange problems of the future, the simple, truthful, and characteristic solution they demand. Is there any scheme of instruction that can contemplate at once both aspects of the subject, and do justice to each? What course of study can satisfy the legitimate demand of the student for such a knowledge of the past, as shall fortify him with all the experience of the race, and, at the same time, leave him free from prejudice and pedantry, and the prestige of authority, to apply these principles simply and frankly to the work of the future and the present?

It is perhaps not impossible to meet, or rather get round, the difficulty; the difficulty of discriminating nicely between memory and invention, between pedantical learning and wholesome knowledge; the forbidden work of copying, and the legitimate and indispensable work of imitation; by keeping the two things as far apart as may be to start with, and not letting students enter the region where the difficulty and conflict are felt, until they are somewhat robust and mature through practice and experience. They might carry on together an *à priori* and an *à posteriori* course of study; alternating, so to speak, the subjective and the objective, the synthetic and analytical methods, nature with historic art, the future and the past. There might be one course of design founded on general principles,—the laws of harmony and proportion, the study of natural forms and their conventional adaptation to design, of the contrast and gradation of colour and form, and the expression and composition of abstract lines. This would be the æsthetic training, and the useful should accompany it; the class being set to design barns, sheds, cottages, country-houses, railroad stations, markets, &c., where they would be able to keep strictly to the requirements of convenience, and need have no temptation to indulge in the styles of the past; relying for effect only upon outlines, masses, light and shadow, or such other means of ornament and æsthetic expression as their other *à priori* studies might suggest. I think that by keeping to a small scale in the drawings, and not paying more attention to details than the state of progress warrants, something might thus be done to encourage a habit of simplicity and frankness in the treatment of architectural problems,—a habit of working up from the requirements of the problem to the *ensemble*, and thence to the detail, and not *vice versâ*, which, if it could obtain, would put new character and expression into our building, and could not fail to produce the only originality of style that is possible or desirable.

Such a course is, I know, open to the reproach of attempting to reconstruct civilization out of abstract ideas, and of trying to make students learn to design buildings out of the depths of their own consciousness. It is not impossible that serious objections are to be urged against it on theoretical or practical grounds, and it should of course, before being put in practice, be subjected to every test which criticism can bring to bear upon it.

These inventive studies I would alternate with other studies purely acquisitive; the deductive and synthetical method should give place to the inductive and analytical; the class now taking up a purely historical course, and discussing one by one, in their order of development, all the great styles of the past. They should be critically examined to see what they have to contribute in illustration of permanent and universal principles: but, at the same time, they should be studied as an expression of the age which produced them; and whatever assistance literature and scholarship and æsthetic and philosophical criticism can give in understanding the age, and discriminating the thought and feeling really at work in its architecture, should be afforded the student. At least, he should be encouraged to inquire not only what was done, but why, and the proper means of answering the question pointed out and set within his reach. Meanwhile, I would have all his work,—drawing, sketching, water-colours, modelling, carving, whatever might be in hand,—directed to the same channel; and if, for instance, Egypt were in turn, I would have nothing but Egyptian work; so that he might, if possible, breathe the very atmosphere of the civilization, and sympathize with its artistic manifestation. And, while sketches and memoranda were accumulating (and, throughout the whole, the constant employment of sketch-books and note-books would be a matter of course), I would have some good example of the style well drawn out, each student perhaps taking a different building; and, when the materials were pretty well in hand, I would have all make a design upon a subject assigned,—a restoration, or perhaps a simple original building, *not a modern building in the ancient style*, that is mere masquerading, but an ancient building, such as the ancients might themselves have built if they had chosen. And now the study of lines and mouldings, and masses and sky-lines, and geometrical design, and nature and the conventialization of nature, would all come into this historical chapter, as matter, not now of experiment, but of experience.

And it should be an object of especial care in these historical studies to distinguish the moral from the æsthetic qualities of ancient work, as is not always done in architectural criticism. There is a great deal of work, especially early work, which is so natural and truthful as to be an absolute expression of the civilization which produced it, and of the traditions and exigencies by which it was shaped, affording most interesting and instructive examples of the spirit in which the work of an unsophisticated age is done. But it may be all this, and still be quite destitute of artistic merit; it may illustrate none of the principles of composition or design. On the other hand, a great deal of work, especially late work, is deficient in these qualities, but full of delicate feeling, illustrating these principles in every line. The best work of the best ages has both kinds of excellence; but it is important for criticism to note, that truth may exist without beauty, and beauty without truth, and not to praise or condemn, in either respect, without raising a question as to the other.

The effect of these studies would of course be felt when the students returned to the other tack. They would not be able to look with unprejudiced eyes, and their reasoning would show a bias. All nature would now suggest Egyptian types; the most obvious treatment of natural forms and the most expressive turn of abstract lines would seem now to be the Egyptian. Very well. No harm is done, if they are adopted, because they seem to be natural, and are not intentionally borrowed; and against this borrowing, or stealing, or using the admirable remains of other ages, I think the subjects of this discipline would have two safeguards. In the first place, their habitual attitude would be hostile to it, the contrary principle of working altogether in the present in modern work being made a fundamental principle; and, in the second place, the natural and inevitable impulse to copy would find a legitimate channel in the prescribed task of restoration, and there would spend its force. After studying the remains of any style, one cannot but desire, in proportion as he is possessed of its spirit, to manipulate for himself the elements of which it is composed. If he has no good use to put them to, he will put them to a bad one; just as in the enthusiasm which followed Stewart and Revett's researches, all Christendom blossomed out with Doric banks, mints, and custom-houses; and we have to this day little pine Parthenons all over New England. Even now, our country carpenters, who retain the traditions of fifty years ago, will work a hyperbolic moulding upon the gutter of a barn, and carry it up the gable after the manner of the Athenians. But the exercises in restoration, or antique design, besides testing and fixing the student's knowledge of it, afford a legitimate outlet for this enthusiasm; and there only remains the spirit of the old time, giving life, not the dead form. The student may imitate,—he cannot help doing so,—but he will not copy.

It seems to me, that, by the time he gets out of his cottages and barns up to his markets and warehouses, every thing in the historical styles he has meanwhile been studying that is living and true, really germane to his own life, that is to say, really good for this nineteenth century, will have grown plastic in his hand; these old seeds will take root in his mind, if there is in it any richness of earth; and, the ancient stock entwining with the modern, the instinctive and natural tendencies of his fancy will rather be strengthened than stifled; so that his public buildings, when he comes to them, may reasonably show a mind at once full and free, and a method learned without being pedantic, eclectic without patchwork, simple and original without meagreness or caprice.

To say that such a result supposes, on the part of the pupil, talents of no common order, is true: indeed, only the man of genius could carry such a system to its final success. But this is only saying that the future problem of architecture is one which it requires the highest order of mental power to solve, which nobody would deny. What I would claim for such a system of instruction is, not only that the best minds might be subjected to it without injury,—a thing that can be said of but few of the methods of instruction now in vogue in any department of learning,—and that their best and most sensitive capacities would be by it fostered and generously developed; but that it would afford a wholesome and manly school for the development of any mind, of whatever kind and degree of power, warming into activity every germ of originality, and giving to every variety of talent a fair field for its exercise. That it would require a high order of ability to administer such a scheme so as to make the most of it, is also true; but a good system is one which, while it admits of the employment of the rarest ability in carrying it out, and indeed contemplates taking advantage of the best talent that may offer, yet does not demand for its satisfactory working much more than common intelligence and fidelity. I suppose this is as true in education as it is in government.

The remaining question—how all this instruction shall be given—depends for its answer upon the appliances the Institute can bring to bear upon it, and upon the condition of the profession in this community. A great deal of teaching would have to be given within the walls of the school, either by the regular corps of instructors, or by persons invited, from time to time, to give special courses on special subjects. History and antiquities admit, and indeed require, that whatever special learning there is in the community shall be availed of. Certain topics would require to be treated by experts, and the Institute would have to call in, from time to time, the aid of the best men the community affords to speak with authority and inspiration upon them. But very many of these topics, even those most difficult to discuss, are susceptible of perfectly satisfactory treatment, by means of what I may call a merely literary method. The geometrical theory of proportions, for example, is a subject upon which a great deal has been said by able men, and which constantly comes up for discussion without any conclusion being reached. It is too important to be passed over in silence, while not one man in ten thousand could be expected to have anything to say on the subject worth hearing. But any intelligent person, by collecting and collating what has been said upon it, discovering the points of agreement and of contradiction among his authors, would be able at the conclusion of his studies to form a just opinion on the general question, and to convey to our classes a greater amount of useful information upon it than ever was imparted; and the same may be said of many other topics. Lite-

ature is full of fragmentary discussions of great value, but they are as much out of use as if they had never been printed. It is in the power of the School, by the use of this merely literary procedure, not only to compensate itself for the absence of men of original genius, in those walks where men of genius are not readily to be found, but to do a great and much-needed service, by bringing into use these hidden treasures of thought and criticism.

The School would, of course, prescribe the work to be done, month by month; give out the problems to be solved, or programmes to be fulfilled; fix the times and conditions of examinations, and appoint the examiners. The principle that instructors should not sit in judgment upon the work of their own pupils should be strictly adhered to. It would probably be found perfectly practicable to obtain competent juries among amateurs and architects not in any way connected with the school. The great stimulus to be derived from the exhibition of the competitive drawings, and the publication of the names of the successful men, should not, of course, be foregone. Whether it is best for the pupils to do their work in the school, under the supervision and instruction of the professors, or whether they had best put themselves under the instruction of the different architects in the town, and come to the school only for lectures and examination, and to receive the programmes of the work they are to do, is a question of administration which has been variously answered in the schools of art abroad, and may here be left for future decision. The latter method is that of the École des Beaux Arts; and many of the architects in Paris have *ateliers* expressly devoted to their pupils, who pursue, under their direction, the studies prescribed by the school, or qualify themselves for admission into it. A student in the *atelier* of M. André, thus describes to me the details of this system:—

"Once a month we assemble in the *loges* of the school, and there find programmes which are to be 'rendered' in a month, six weeks, or two months, according to their difficulty. At the end of the day, we leave in the school an *esquisse*, or sketch of our idea of the way in which the requirements should be met, giving plan, section, and elevation in the simplest forms possible, merely indicating the *motif*. Indeed, it is quite an art to know how to indicate an *esquisse* in such a manner as to fulfil the requirements of the programme, and yet leave the most ground for changes in studying it out. You leave your original sketch in the hands of an officer of the school, and carry home with you a copy or tracing. When the *projet* is handed in, the *esquisses* are compared with the *rendus*, and those who have changed to much are put *hors de concours*. The other *projets* are judged and receive mentions, half-mentions, and, in the first class, medals of different degrees. In the second class they only give medals to *projets* of construction of superior merit. The *esquisse* carried off is shown to the *patron*, who directs your studies upon it, indicates the changes, and tells you, from day to day, his opinion of what you are doing.

"Half-way between the *esquisses* and the *rendus* come the *esquisses-esquisses*, so called because they are all done in one day, completely rendered. You are allowed twelve hours to do them in; and they must be completed, coloured, and washed in ink, by nine o'clock. They are capital exercises, and I would give one once a fortnight if I had pupils. The programmes, of course, must be short, and the scale demanded be rather small. The system of the school is *concours*. *Concours* for architecture, *concours* for construction, perspective, mathematics, descriptive geometry. You pass from the second class to the first by means of *concours*; and, in fact, emulation is the watchword. . . . All the work, except the *esquisses*, is done in the *atelier*. There are courses of lectures at the school; but the real work is done at the *atelier*."

This example shows how the whole body of architects in the city may be made to co-operate in the work of the Institute, without embarrassing it by any official connexion.

The methods pursued in the Kensington Schools in London are, I believe, entirely different; the pupils receiving their instruction from the professors in the school, and doing all their work within its walls. The changes made in administration of the École des Beaux Arts by the decree of Nov. 13, 1863, contemplate an approach to the English system, so far at least as to establish a certain number of *ateliers* within the school. I do not know all the reasons for the proposed change, nor do I know whether this provision of the decree has been carried out in practice.

I have not been able to learn anything, but its name, of the new École Centrale de l'Architecture.

Of the administration of the English schools I have found it difficult to learn anything in detail, either in regard to that at Kensington, or those established under the patronage of the Royal Institute of British Architects and the Architectural Association. I have seen, however, a programme proposed by the Institute for test examinations, to be voluntarily undertaken by draughtsmen and architects who may desire to establish their claim to public confidence. The range of studies is conformable to the course sketched above; and it is gratifying to find that the Institute recognises the importance of giving to draughtsmen, as well as to architects, a superior culture.

SCHOOLS OF ART.

The Cambridge School.—The excursion of this school will be made this year to Wimpole. The Earl and Countess of Hardwicke have kindly offered all facilities for the gratification of the excursionists. The usual sketching prizes will be given; first prize, 1*l.* 7*s.*; second prize, 10*s.* 6*d.*

Dorchester.—An effort is now being made to establish a school of art in Dorchester. The Rev. B. L. Watson has been appointed provisional honorary secretary, and authorised to write to the borough members and others to ascertain what amount of pecuniary support may in the outset be relied upon. Should some such sum as 100*l.* be subscribed, in a short time, the local *Express* says, a ladies' class in mornings, a school class in afternoons, and an artisans' class in evenings, two or three days each week, will be established.

The Penzance School.—The interior of the school has been decorated by the pupils and teachers, and the casts and models renovated. The gas-lighting has also been improved, and the floor repaired. Numerous prizes have been got by the students, but the result of the competition for national medals is not yet stated.

SANITARY MATTERS.

Reading.—Mr. Woodman, the borough surveyor, has published in a pamphlet the result of his inquiries, in the shape of a report to the Local Board of Health, as to the best method of disposing of the town sewage. He states that he has visited Croydon, Norwood, Worthing, Edinburgh, Carlisle, and Worksop. The following paragraph summarises the conclusions at which Mr. Woodman has arrived:—"In my judgment, the practical result to be derived from this inquiry is, that the sewage of Reading can be utilized without pollution of rivers, with perfect freedom from injurious or unpleasant results, and at a trifling cost, and therefore should remove any prejudice which may have existed towards the drainage of the town. The value of the sewage would in this, as in other towns, materially reduce the annual rate entailed by so great a boon."

Cheltenham.—In accordance with a resolution passed by the Local Improvement Commissioners a committee appointed "To personally inspect and inquire into the sewerage system at present in operation at Stroud, Croydon, and elsewhere, and report the result of such inspection and inquiry to the Board at a future meeting," have visited Stroud and Croydon, and also the Cheltenham works; and after expressing their approval and appreciation of the great care and forethought shown by Mr. Humphris (their surveyor) in the carrying out the works hitherto during a period when knowledge of the disposal of the sewerage of large towns was very imperfect; the report thus concludes:—

"There can be little doubt *now*, that *when irrigation can be applied*, it is the best mode of dealing with this much-vexed question. As the result of their inspection and a full consideration of the subject, your committee are of opinion that the retention of the sewerage of the town in the hands of the Board, and the consequent necessity of their dealing with individual landowners, probably, many in number, is most undesirable: they therefore recommend that advertisements be placed in the papers, offering to responsible parties to dispose of the sewerage of the town, including the use of the tanks, &c.; but one condition must be embodied, which is, that to whomsoever it is let, he should give a guarantee with approved security, to hold your Board harmless from all actions at law from the pollution of the brooks; and, as a further protection, that he undertake not to pass any sewage water into the brooks (when practicable) till it had first passed over the land. In the meantime, your committee consider it to be most desirable that your Board should give a further trial of the deodorising powder, so successfully used at Stroud by Bird's Company, as there can be no doubt but that it is a most powerful deodorant, and under certain circumstances and conditions of the atmosphere, would probably be found to be most useful."

Wolverhampton.—At the recent meeting of the town council, several matters relating to the public health were brought under notice. The council seemed disposed to do all that was at once possible and necessary; but some of the members appeared to treat rather lightly nuisances that were manifestly injurious to the public health. A report is to be made concerning certain pestilential localities noticed in an article which recently appeared in the *Birmingham Daily Post*. A very extensive field is open for sanitary improvements here, as well as at Bilston, where an official inquiry is also to be made.

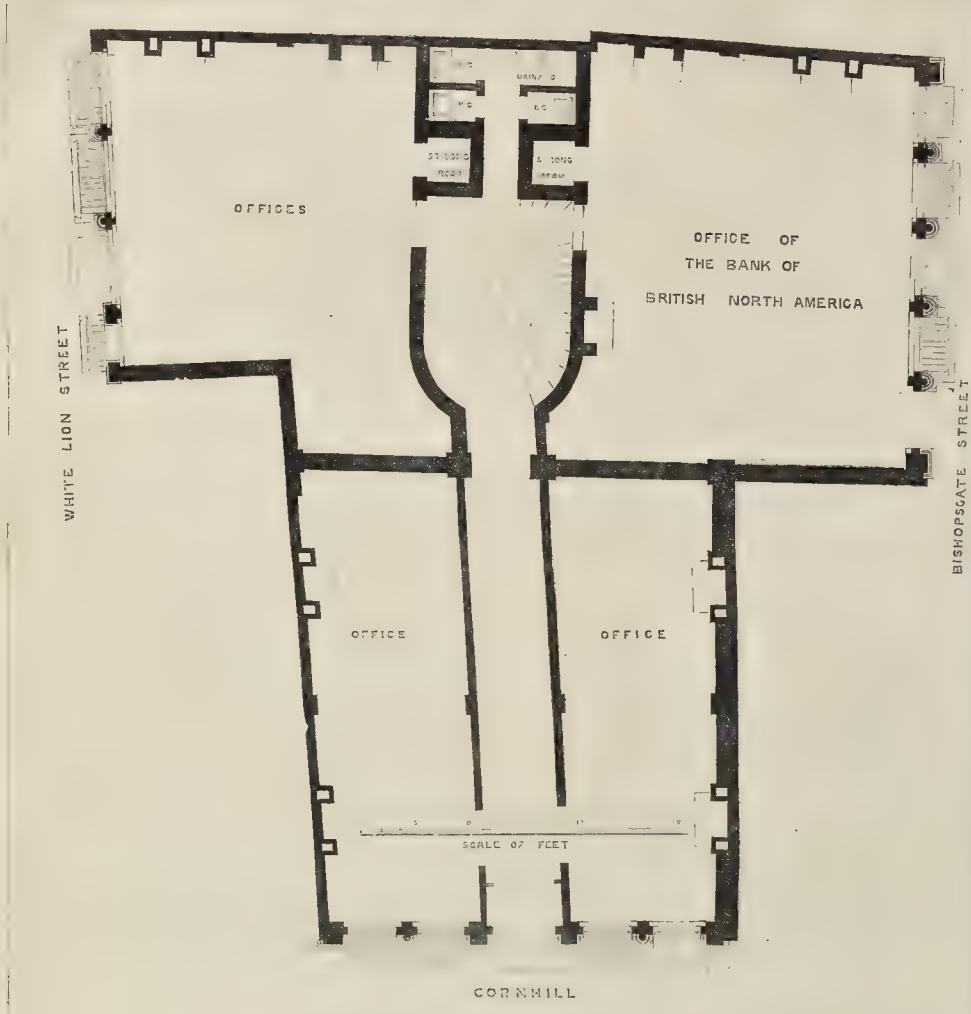
Walsall.—The local board of health have appointed a committee of four members, to go round the town and inspect every place where a nuisance is said to exist. By this means the defects of the town may be discovered and remedied. In some quarters there is a disposition for being excessively tolerant as regards the keeping of pigs.

West Bromwich.—At a recent meeting of the local commissioners, five clergymen presented a memorial, complaining of the sanitary condition of the town, and particularly remonstrating against the course the Board had taken in refusing to adopt the "Smoke Consumption Act." The clergymen who signed this memorial attended at the meeting of commissioners, when they were asked to support their general statement by pointing out particular instances of neglect or error. This they proceeded to do, the cases mentioned being sufficiently numerous to occupy the Board some time in their correction. The interview being over, the inspector to the Board reported that, between May 30 and June 12, forty new cases of nuisance had arisen in the place, half of them being occasioned by inefficient drainage. He recommended that whitewash-brushes be supplied gratuitously to the poor inhabitants of the town.

Sheffield.—At the last monthly meeting of the town council, Alderman Saunders called attention to a resolution adopted in committee, on the motion of Alderman Webster, "That the borough surveyor be instructed to report upon the practicability and probable cost of a temporary system of deodorising the sewage of the borough, until the question of a main outfall sewer shall be finally decided." It was necessary, he said, that something should be done in this matter, as, to turn the whole of the sewage into the river below Attercliffe would undoubtedly create a greater nuisance at Rotherham than was caused at present. Alderman Beckett said he was very glad attention had been called to this matter, as from what Mr. Baxter said in London, the other day, it was clear application would be made on behalf of the Doncaster people, for an injunction to restrain them from turning the sewage into the river, if the plan sanctioned by the council at any previous meeting were carried out, of carrying the sewage by an outfall drain below Attercliffe, and then turning it into the river. Mr. Baxter had succeeded in applications for similar injunctions against several other towns. Mr. Hutchinson strongly objected to the sewage of the town being thrown into the river. He had supported the scheme for an outfall drain, he said, on the understanding that it was to be kept out of the river.

North Shields.—The Admiralty having refused to grant the request of some of the Corporations on the Tyne for a floating hospital, the Tynemouth Town Council, at their last meeting, resolved to erect a temporary hospital for the reception of sailors coming into the port who might be afflicted with cholera. Mr. Thomas Robson, the borough surveyor, was instructed to prepare the necessary plans, and the building is now approaching completion in the hands of Mr. Taylor, builder. The site was obtained from the agents of the Duke of Northumberland, at a merely nominal rent. It is situated on the top of the cliff at the south-west corner of Percy-square, and while close to the quarantine station, is within easy access for the medical men of the town. The hospital is a wooden building of one story, with a slate roof. The walls are made double in order to secure an equality of temperature in the sick ward. There is provision made for ventilation, and hot-water apparatus and baths will be placed in the scullery, the hospital being generally provided with requirements for the comfort of patients. It is 45 ft. long by 22 feet broad, and 12 ft. high, and will contain one ward for six patients, and a dispensary and scullery. The cost of the building will amount to about 220*l.*, exclusive, &c., of the rent.

New York.—It has been decided by the Board of Health of New York, that in cases of typhoid fever, cholera, yellow fever, and other diseases which are or may become epidemic, the police may enter any dwelling in which a person lies sick with such contagious disease, and remove the sufferer to the nearest hospital. All classes of dwellings, rich as well as poor, are to be subjected to these official visits.



CORNHILL CHAMBERS, LONDON.—*Ground Plan.*

JASPER.

AN immense quarry of Jasper has been opened near Saint-Gervais, in part of the Mont Blanc range of mountains, by a company, who have sent some remarkable specimens to Paris, some of which being of a beautifully pure red, without veins, somewhat resembling the marble known as the *Rosso antico*. The working of the Saint-Gervais jasper quarries may lead to the discovery of veins richer still, since the works have hitherto been very limited, as there seems to be a vast bed of jasper, and an almost unlimited supply. The quarry is 5 acres in extent, and the depth to which it can be worked is 22 yards; this will give about 1,040,000 tons of jasper available in that quarry alone. Formerly, jasper used in Continental edifices was imported from Siberia and Russia; but it is now rarely employed except for brooches and other jewelry, the variety most prized being of a green colour, with red spots, known by the name of *bloodstone*. It is also used for pedestals for bronzes, &c. The Saint-Gervais jaspers can be furnished of sufficient dimensions for the ornamentation of public buildings and first-class residences, as slabs, panels, pillars, &c., cut and polished. Among the several orders given to the company, we may cite that of M. Garnier, the able architect of the new opera-house in Paris, who has ordered twelve jasper columns and forty medallions, for the decoration of the state saloons.

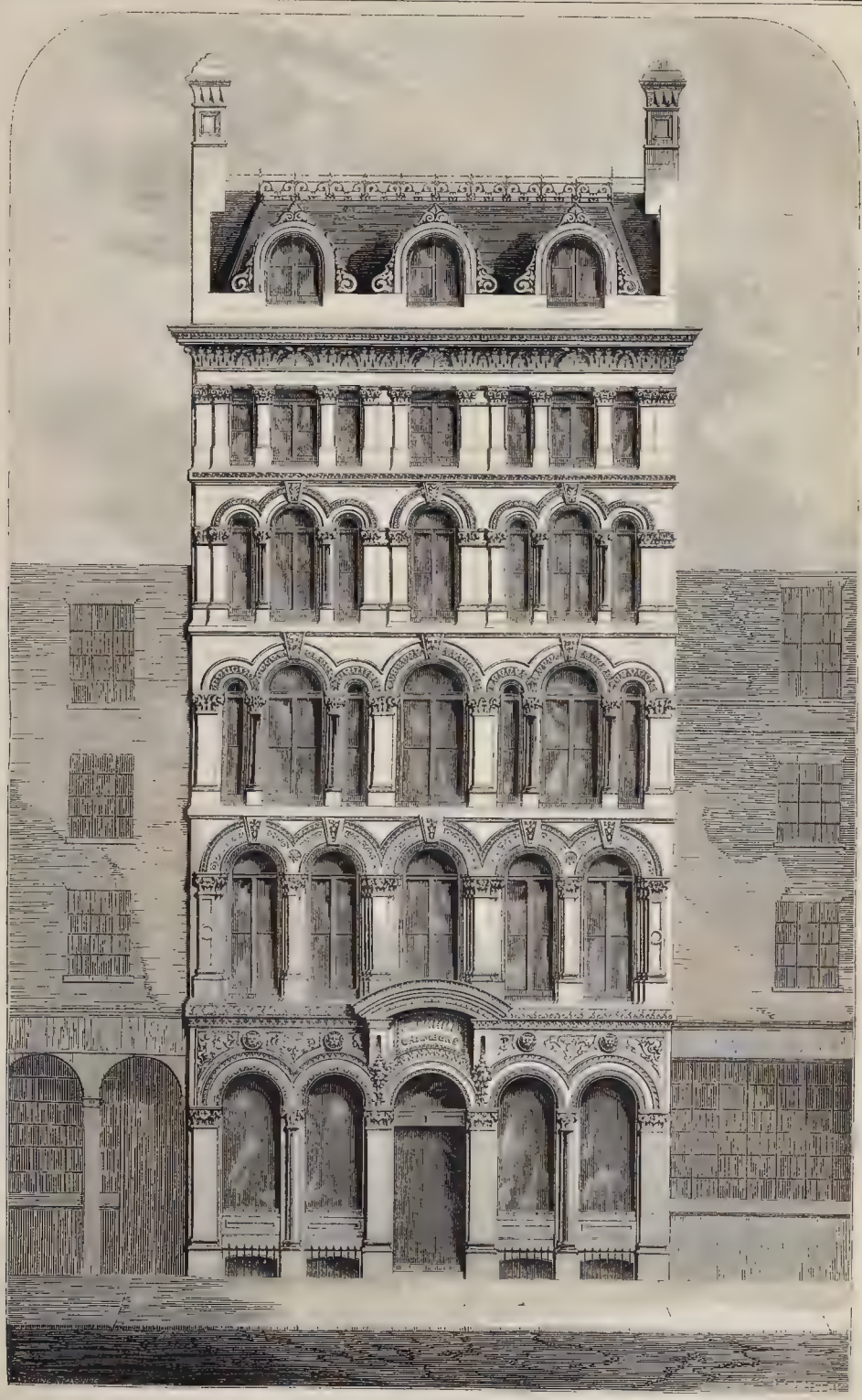
CORNHILL CHAMBERS, LONDON.

THIS building has been erected by a private company of shareholders, and is situated near the junction of Cornhill with Bishopsgate-street. It occupies the site of four old houses, with a superficial area of about 4,000 ft., and has frontages to Cornhill, Bishopsgate-street, and White Lion-court. It was originally intended to obtain the house at the corner of these streets, in addition to the present block, so as to continue the elevation entirely round into Bishopsgate-street, whereby the effect of the whole would have been materially improved; but the company were unable to come to terms with one of the leaseholders.

The building is divided into three blocks of offices fronting to the several public ways above mentioned, with a central staircase, as shown on the plan. In the basement are extensive cellars suitable for wine merchants or similar businesses. The ground and first-floor are subdivided as little as possible, but have additional fireplaces for the convenience of tenants who may require to divide the space by screens or otherwise. The upper stories are arranged in smaller rooms as suites of offices, with doors of communication between. The top story has dwelling-rooms for the housekeeper and other accommodation.

The two principal fronts are faced with Tisbury stone, which has been comparatively little used in London, but is said to stand well the London atmosphere, and is cheaper, more easily worked, and of a warmer tint than Portland. Polished Aberdeen granite is used for the pilasters and shafts.

The works have been executed from the designs and under the superintendence of Mr Edmund Woodthorpe, architect. The contractors were Messrs. Browne & Robinson, who have carried out the works satisfactorily. The amount of the original contract is 14,090*l.*, and the total cost 14,417*l.*



CORNHILL CHAMBERS, LONDON.—MR. EDMUND WOODTHORPE, ARCHITECT.

CONCRETE FOR SEA WORKS.

A PAPER has been read by M. Poirel before the French Academy on this important subject. M. Poirel is the author of a work* which, he states, has become a sort of text-book for engineers; and having had much experience, he considers himself entitled to speak with some degree of confidence. His plan of making mortar for the formation of concrete blocks is to take Roman pozzuolana, which has been sifted through metallic sieves, and combine it with a rich hydrate of lime containing two and half times its weight of water. One part by bulk of this hydrate is mixed either with two parts of pozzuolana, or with one part of pozzuolana and one of sea-sand, according to circumstances. When the concrete is to be submerged at once, the first plan is to be followed; but if it is to be dried before being used, the second method is to be employed. He exhibited to the Academy two pieces of concrete removed from blocks, which had been under water from 1835 to 1842. They were sufficiently hard to admit of being worked into prisms with sharp edges, the mortar taking the same polish as the stones which it enclosed. M. Poirel made use of concrete blocks of this composition at Leghorn and Algiers, the pozzuolana being obtained from the ground near the church of St. Paul, on the banks of the Tiber. At Algiers the lime was very rich, whilst at Leghorn it was slightly hydraulic. It is the practice to use Roman pozzuolana in Italy, Spain, and the Austrian ports of the Adriatic, for making concrete blocks, and for sea works in general. In the Levant, Greece, and Turkey, pozzuolana is also used, but it is obtained from the island of Santorino, which is just now the scene of extraordinary volcanic activity. He believes that none of the Roman cements are capable of resisting the destructive action of the salts contained in sea water, and he has no doubt but that all the English harbour works executed in Portland cement are doomed to more or less speedy destruction. For the last fifteen or twenty years, the use of Roman pozzuolana has been abandoned in France, and the concrete employed for marine works has been made with lime from Theil, a village in the department of Eure, fifteen miles from Louviers. It was used exclusively at Algiers, Toulon, Marseilles, and the harbour of Saida. The future will show whether these blocks will resist the action of sea water as well as those of which Roman pozzuolana is an ingredient. M. Poirel regards this as the only material capable of forming a perfect concrete for marine works. Another cause for anxiety is that whereas, when the use of pozzuolana was first abandoned, builders were careful to obtain the limestone from Theil, and burn it under their own inspection, so as to avoid all chance of bad burning, and even of fraud, it is now the practice to receive it from a contractor without taking proper precautions to ascertain that the quality is really what it professes to be. "By abandoning pozzuolana, engineers have voluntarily deprived themselves of the advantages which it possesses of communicating resisting properties to mortar, which increase according as the lime with which it is mixed is more hydraulic. This property has become of much greater importance since the labours of M. Vicat have proved the existence, in so many localities, of limes possessing a greater or lesser degree of hydraulicity." Economical considerations have doubtless caused this radical change; but M. Poirel says that this is quite a secondary question, owing to the small proportion of pozzuolana required in the manufacture of concrete blocks.

With reference to the new harbour works at Algiers, we may mention that the late Mr. Robert Stephenson stated, in 1857, that "the breakwater was not water-tight, and it was evident that considerable disintegration had taken place, as large cavities existed in the work. When the sea was agitated it was scarcely possible to walk on the mole on account of the jets of water which were driven through the apertures, with great velocity, to a considerable distance. The local engineers anticipated that these cavities would eventually be closed by the accretions of shells, by which several had been already stopped; but this presumed that the disintegration of the blocks would not also progress. Possibly this disintegration might have arisen, as had been suggested, from the use of artificial, instead of natural pozzuolana.

These remarks were made during the discussion of a paper read by the late Mr. George Rennie "On the Employment of Rubble *Béton*, or Concrete, in Works of Engineering and Architecture," which contains, our readers may remember, some valuable information on the subject.

* "Mémoire sur les Travaux à la Mer, comprenant Historique des Ouvrages executés au Port d'Alger, et Exposé complet et détaillé d'un Système de Fondation à la Mer au Moyen de Blocs de Béton." Paris, 1841.

KINGSTON TOWN-HALL COMPETITION—IRELAND.

IN the matter of the Kingston Town-hall competition, after many months' deliberation during which the competing architects were called upon to appear before and undergo cross-examination by the committee, a recommendation has been arrived at which the committee may be able to carry out if they succeed in raising nearly three times the sum mentioned in their conditions; but that they will do so is so doubtful, that the position of the successful man can be considered little else than uncomfortable, if not aggravating. It is this: he has prepared a design that may be called superb in conception, and in the execution of the drawings his idea of the separation of the departments is good; exceedingly convenient also is the provision of possibilities for future extension, or, more properly, completion. In this view his plan approaches excellence; but then is it justice to other competitors, that, knowing,—for know he must, if his motto "Experientia docet," stand for anything,—that his design comprehends what it is not possible should be carried out within the means of the Commissioners, he should run the risk of rendering futile the entire competition?—for this is generally the issue of such a practice. There may not be, among the other designs, one so beautiful, but there are those—three, at least, of the twelve submitted,—which provide the required accommodation, and are capable of being constructed within the amount at the disposal of the committee; and if a little latitude be allowed, possibly by an addition of a sum from 500*l.* to 1,000*l.* beyond the amount stated, six of the designs are fairly open for selection. These are, perhaps, the designs signed, "Neptune," alternative; Mr. Wm. Fogerty; Mr. E. H. Carson; Mr. Charles Geoghegan; "Be just and fear not;" and "Alpha E." Three of these would seem calculated for execution within the amount stipulated. And truly it is scarcely fair to permit any extension.

The designs recommended by the Town Commissioners have yet to go before the Commissioners of Public Works for examination and approval, and there is no doubt that the question of cost and suitability will be fairly weighed: the result will be carefully watched by many non-competitors.

THE TRADES MOVEMENT.

Ipswich.—The painters who have been on strike have returned to work on the old terms, 20s. a week. What they demanded was a rise of 8d. a day, 6d. extra for work done out of town, and to leave off on Saturdays at 4 p.m.

Swansea.—The journeymen painters, plumbers, and ship-carpenters still remain on strike, refusing to make the least concession from their first demands. Several of the master painters have offered to meet the men with a considerable advance of wages, and to allow the half-holiday on Saturday, but their offers were rejected. The seamen of the port have since struck for more wages.

Stockport.—The stonemasons, who had agreed to a settlement of disputes by arbitration, nevertheless struck work in the face of this agreement, and still stand out. This strike has stopped every building in course of construction in the town, and even the union men employed by the corporation have been taken out. The public works committee have given notice to the surveyor that he must not take them on again on any conditions whatever.

Leeds.—Plasterers' labourers have struck for an advance of wages from 20s. to 22s. per week. The masters have offered 21s., but this has been refused.

Sheffield. — The dispute in the Sheffield file trade has at length come to an end. The men go in upon the old terms, but the employers have promised to consider the claims of any particular section of the operatives whom they may deem entitled to an advance. The struggle has lasted sixteen weeks, and the pecuniary loss has been immense. The unions have incurred a vast amount of debt, and it is calculated that there has been a loss of 70,000*l.* or 80,000*l.* in wages alone. The masters have suffered heavily, and several of the weaker firms have got into the *Gazette*. It should be added that machines have already been erected, and, with their aid, the masters hope to be able to retain the pre-eminence that Sheffield has hitherto enjoyed in the file trade.

Carlisle.—The Association of the Master Joiners and Cabinetmakers thus explain their position and that of their men. The wages up to the first of April last, were 24s. per week of fifty-eight hours. On that date, in accordance with notice sent to the masters, the men went out on strike for 27s. per week, which the masters see no necessity for giving in the present state of the trade. The masters proposed arbitration, and have received this reply:—

"White Lion Inn, June 14th, 1866.

Sir,—In answer to your communication of this morning we wish you to fully understand that we will not entertain the idea of arbitration at all, and think you ought to have made the proposal long since. After waiting eleven weeks, we will adhere to our original proposal, and take nothing less than our first demand.

We are, yours respectfully,
THE JOINERS OF CARLISLE."

The Masters' Association, at their committee meeting, unanimously resolved to postpone any further meetings of the Association for a month, to give the men time to reconsider their determination.

Belfast.—The greater number of the carpenters in the employment of builders in this town are now on strike. Hitherto the carpenters have had three-quarters of an hour for breakfast and a like interval for dinner, and they recently gave notice that they wished to negotiate for an hour for each meal. Some of the employers have given the hour. A number, however, have not acceded to the demand, and a strike has been the result. In the mills the carpenters cannot reasonably expect the hour, it seems, but it is understood that an equivalent in wages to the extra quarter of an hour will be paid.

Miscellaneous.—Mr. B. Cochrane recently gave notice in the Commons, that on the 29th of June, he would call attention to the dangerous increase in the organisation of trades unions. ——In a recent police case, in which one Joseph Hill, a ticket-of-leave man, was found guilty of stealing a leg of mutton, which he stole while employed by his master in painting the prosecutor's shop, it transpired in court that masters in the building trade were not allowed to inquire into the character of the men they employed; on which the magistrate, Mr. Payne, said he thought that was a most extraordinary state of affairs.

LIQUID FUEL.

WE have heard much of late about petroleum as a steam fuel, but up to the present time the results of experiments in this direction do not seem to have been very definite or very encouraging. For some months past Mr. C. J. Richardson, who has taken out a patent for his apparatus, has been carrying on experiments at Woolwich Dockyard. The principle of his furnace is probably sufficiently well known to those of our readers who are interested in the subject. Trial has lately been made in Russia by Captain Schepakovski, of the Military School at St. Petersburg, of a furnace for burning fluid hydrocarbons, which appears to possess some points of interest. If "petroleum is ever to be used commercially as steam fuel, it is probable that some such arrangement as that proposed by Captain Schepakovski will be employed for burning it. The principle of his apparatus is very simple, and is one with which we are just now very familiar owing to the recent introduction of the 'vaporizer.' This little instrument consists of two tubes placed at right angles to each other with the extremities in contact. One of these tubes is placed in the liquid to be 'vaporized,' and air is forced through the other, which causes an upward current through the first tube. The liquid ascends, and on arriving at the extremity of the tube is dispersed in finely-divided spray. It is upon this principle that the improved furnace is based. The boat in which the boiler was fixed was 24 ft. long and 5 ft. wide, and was fitted with a steam-engine of two-horse power, by the aid of which a speed of six knots per hour was

obtained, the quantity of turpentine consumed being three pounds per horse-power per hour. The boiler was heated by four jets, the turpentine being contained in a reservoir at the bows. It is stated that the heat obtained by a lamp constructed on this principle is enormous — sufficient to melt steel. This was actually shown some weeks ago by the inventor in a lecture, in the course of which a fragment of copper weighing three-quarters of an ounce was melted by a lamp burning between two and five pounds of turpentine per hour. The flame was about 2 ft. in length, and was of a yellowish white colour. The noise was like that produced by steam escaping from a boiler. The application of the lamp to the superficial charring of wood for preservative purposes was also exhibited."

Oil of turpentine is composed exclusively of carbon and hydrogen in the proportion of five atoms of the former to four of the latter, and a pound of this substance would contain thirty parts by weight of carbon to four parts of hydrogen. When it is burnt under the ordinary conditions, only a small quantity of this carbon is employed in the formation of heat; another part is consumed in the production of light, and the remainder escapes unburnt as smoke. In the apparatus which we have noticed, the turpentine being in a highly divided state, is placed under the most favourable conditions for complete combustion, the supply of oxygen being sufficient to consume the whole of the carbon, very little of which is wasted in the formation of either light or smoke.

We have purposely omitted all considerations of cost, and it may fairly be doubted whether the substitution of petroleum, or any other fluid hydro-carbon, for coal, will be attended with any great economy. M. Schepakovski's experiments appear to have been made exclusively with turpentine, which is, of course, not so expensive an article in Russia as in this country.

THE QUEEN ELIZABETH PROCESSION IN THE KENSINGTON NATIONAL PORTRAIT GALLERY.

I HAVE studied, carefully, a letter in the *Times* of Tuesday last, touching—learnedly, but not, to my thinking, conclusively—on one of the most important and instructive pictures now on loan at the Kensington Exhibition of British Portraits. I refer to No. 256, "Queen Elizabeth carried in State to Hunsdon House, 18th September, 1571," attributed to "Mark Gerrard" (I copy the catalogue), and lent by Mr. G. Digby Wingfield Digby, of Sherborne Castle (Sir Walter Raleigh's and Carr Earl of Somerset's Sherborne Castle) in Dorsetshire; where, years ago, I had the pleasure of seeing it, and subsequently had some influence in inducing the late Earl of Digby (its then owner) to send it on loan to the Manchester Art Treasures Exhibition. It is a highly historical picture, rich in portraiture, manners, and costume. The picture was shown as No. 64 of the British Portrait Gallery of the Manchester Art-Treasures Exhibition of 1857, where it was described as, "Queen Elizabeth in a Sedan, in a Procession to Hunsdon House, Hertford. Engraved by Vertue. Walpole by Wornum, p. 166."

When the picture was at Manchester, Mr. Caldesi published a good photograph from it, with the house of Colnaghi & Scott, in Pall Mall East.

The letter in the *Times* is dated from the "National Portrait Gallery, Westminster," and carries the signature of Mr. George Scharf, F.S.A., the secretary to the trustees of that gallery. Mr. Scharf disputes the received "interpretation" of this "curious historical picture," as he truly calls it, and with the assistance of that pains-taking inquirer, Mr. J. Gough Nichols, proceeds to give his own version of what the picture in reality represents. Mr. Scharf's letter merits preservation:—

"It may interest many of your readers to learn the true interpretation of the curious historical picture, No. 256, of the National Portrait Exhibition, at South Kensington, representing Queen Elizabeth borne in a palanquin or litter on the shoulders of six gentlemen, and surrounded by the leading personages of her Court.

Unfortunately, the explanations hitherto given, both of the locality and of the different persons represented, are almost entirely without foundation. I therefore solicit space in your widely circulated columns to put some check upon a daily increasing spread of error, and to point out as briefly as possible the events which the artist really intended to commemorate.

Instead of representing—as Vertue, in defiance of an earlier and well-grounded tradition, chose to conjecture—a Royal visit to Hunsdon House, Hertfordshire, in 1571, it relates to a marriage that took place at Blackfriars some twenty-nine years later.

This locality of the wedding, at the houses of Lord Cobham and Lady Russell, nearly on the site where Printing-house-square now stands, may tend further to justify the selection I have made in requesting publicity at your hands.

It is somewhat singular that the event represented, and not by any means an obscure one, has escaped the notice of all who have hitherto undertaken to describe the picture. It was incidentally mentioned to me by Mr. John G. Nichols, F.S.A., and I hope that that gentleman's extensive knowledge and active researches may still be brought to bear upon the topography and illustration of the curious buildings that compose the background.

The following passage—not to quote the 'Sidney Papers' and 'Nichols's Progresses,'—from Miss Aikin's 'Memoirs of the Court of Queen Elizabeth,' will conclusively establish the subject of the picture:—

'Her Majesty (June 16, 1600), repaired to Lady Russell's house in Blackfriars, to grace the nuptials of her daughter, a maid of honour, with Lord Herbert, son of the Earl of Worcester; on which occasion it may be mentioned that she was conveyed from the waterside in a lectica, or half-litter, borne by six knights.'

The bride met the Queen at the water-side. This change of date, from 1571 to 1600, has the effect of removing from the scene six out of the seven noblemen specially named by Vertue. They all died before the opening of the seventeenth century; in their stead, we find an interesting group of several marked characters, although of comparatively minor historical importance.

The bald-headed nobleman, in lieu of Dudley, Earl of Leicester, is Edward, fourth Earl of Worcester, father of the bridegroom; and the bridegroom himself, Lord Herbert, afterwards first Marquis of Worcester (see No. 640 of Portrait Exhibition), is dressed in white, and carries the right-hand end of the pole on his shoulder, extending his left arm in a peculiar manner. Immediately behind him follows the bride, Mistress Anne Russell, also in white, between two married ladies wearing ruffs that completely cover their necks, and in black and gray dresses. The lady seen between the bride and bridegroom appears to be Lucy Harrington, Countess of Bedford, wife of the bride's cousin, Edward, the third earl. The lady supporting the bride, on her left, is probably the Marchioness of Winchester.

Other ladies would be the Lady Blanche Somerset, married to Lord Arundel of Wardour; Mistress Mary Fytton, Mistress Anne Carey, and Mrs. Bess Russell, a sister, who died in less than a month afterwards.

The only nobleman now to be identified with Vertue's nomenclature is the Earl of Nottingham, Lord High Admiral.

George Clifford, Earl of Cumberland, who led the bride from church, is the figure in orange satin between the Admiral and George, second Lord Hunsdon, carrying the Chamberlain's wand. The ladies wear jewelled badges on their left sleeves, but no particular device characterizes them; all the men wear white shoes. Notwithstanding the brilliant display of dress and profusion of ornamental jewelry, it is remarkable that, with the exception of one ring upon the Queen's left hand, no rings are worn, and no gloves are to be seen except a solitary pair, held ostentatious by the Earl of Worcester."

Now, with every respect for Mr. Scharf and Mr. Gough Nichols, I am in no way inclined to desert George Vertue, Edward Harley Earl of Oxford, and Horace Walpole Earl of Orford, for their new interpretation, and against the twin description of those gentlemen I beg to oppose the following passage in Walpole's "Life of Mr. George Vertue:" *

"In 1737 the Earl of Leicester carried him [Vertue] to Penshurst; and the end of the same year Lord Oxford took him again to . . . . and to Lord Digby's at Coleshill, to view the curious picture of Queen Elizabeth's procession, since removed by the late Lord to Sherborne Castle, in Dorsetshire. . . . . The next year he went into Hertfordshire, to verify his ideas about Hunsdon, the subject, as he thought, of Queen Elizabeth's progress. The old Lord Digby, who, from tradition, believed it the Queen's procession to St. Paul's after the destruction of the Armada, was displeased with Vertue's new hypothesis."

What "the old Lord Digby" would have thought of Messrs. Scharf's & Nichols's "new hypothesis," we may readily imagine; and with what reading and reference and humour Horace Walpole would have exposed it, all the readers of that enchanting writer can form an immediate and safe conjecture.

Messrs. Scharf and Nichols remove the date from 1571 to 1600, when the most eminent persons in the picture (the queen excepted) were dead. Lord Hunsdon was buried in Westminster Abbey (where his huge monument is still to be seen) in 1596; Lord Burleigh was buried at Stamford in 1598; Lord Sussex at Boreham, in Essex, in 1583; and Dudley Lord Leicester at Warwick in 1588. I may mention here that the Rev. James Granger (no mean authority) seems never to have entertained a doubt about the scenery or locality of this picture. He fixes the date "cir. A. 1580."†

Let me here mention that the most valuable portrait we have of Queen Elizabeth is at Hatfield, in Hertfordshire, the seat of the Marquis of Salisbury, and is engraved in Lodge. It is assigned to Zucchero. Her dress is allegorical. Her robe of golden tissue is worked with eyes and ears,—as all-seeing and all-hearing. On her arm is a serpent,—the type of wisdom,—set and embroidered with pearls and rubies. On her ruff is a gauntlet, by way of challenge, or as indicative of one from whom honours flow. A A rainbow in her hand carries the motto,—

"Non sine sole Iris."

I mention this picture for the purpose of calling attention to "The Devise to Entertayne" Queen Elizabeth at Harefield, in Middlesex, then (July 1602) the seat of Lord Keeper Egerton (afterwards) Lord Chancellor Ellesmere. The "devise" opens with "The humble peticon of a giltlese saint wherewth ye gowne of rainebowes was presented to hir Maty." This device was first printed (by me) in 1845, in the second volume of the Shakspeare Society's Papers.* The guiltless saint is Saint Swithin, to whom the 15th of July is dedicated. "The gown of rainbowes" was typical of fine weather. The water saint, in his speech to the Queen, alludes to "Iris" as "an unbidden gueste." The whole device was by Sir John Dawys, the poet and lawyer, and is very characteristic.

On the following 24th March Queen Elizabeth was—no more.

PETER CUNNINGHAM.

* Walpole's Works, iv., 125; and Walpole's Anecdotes, by Wornum, p. 994.

† Granger, i., 181., second edition, 8vo., 1775.

* Shakspeare Society's Papers, vol. ii., p. 65.

NORTHERN ARCHITECTURAL ASSOCIATION.

ANNUAL EXCURSION.

THE council of this association having some months ago fixed upon Alnwick for this year's excursion meeting, the members and their friends proceeded thither on Tuesday, the 12th inst., from Newcastle, and had unusual facilities for inspecting the entire building afforded them. On entering the keep of the castle, the members were met by Mrs. Yardley, the housekeeper, and Mr. John Foreman, the clerk of works, and under their guidance the tour of the grand suite was leisurely made. They afterwards visited St. Paul's Church, and saw the magnificent stained-glass window, placed there under the auspices of the late Duke, in memory of his brother. At four p.m., the whole party dined at the Northumberland Arms; present, the President (Mr. John Green), in the chair; Mr. F. R. Wilson, in the vice-chair; Mr. Thomas Oliver, honorary secretary; Mr. Johnstone Hogg; Mr. J. Johnstone; Mr. Gibson Kyle; Mr. J. Howison; Mr. T. A. Moore; Mr. James Hogg; Mr. Clemence, South Shields; Mr. S. G. Brown; Mr. Ullathorne; Mr. Irwin; Mr. J. H. Moore; Mr. Ross, Darlington, members of the association. The visitors were Mr. John Foreman, of Alnwick Castle; Mr. Hugh Lee Pattinson; Mr. Mewburn; Mr. R. Dixon; Mr. Stokoe; Mr. Cook, and Signor Bulletti.

TOWER PIERS.

RESTORATION OF ST. DAVID'S CATHEDRAL.

SOME rather difficult engineering work has just been performed in St. David's Cathedral, in removing the lower part of the great tower which was in danger of falling, and putting in new piers. The tottering condition of the tower which needed prompt attention, induced the Bishop of St. David's and the leading inhabitants of South Wales to invite Mr. Scott to examine and report, in 1862, upon these old ruins. There is no town or railway within less than 18 miles, the ancient city of St. David's being nothing more than a village, with omnibus communication with civilized regions about once or twice a week.

Mr. Scott's report was to the effect that the present structure was commenced about the year 1180, by Bishop de Leia, at the exact time when the Romanesque or round-arched style was in a state of transition into the Pointed Gothic; and at the period when architecture was being freed from the barbarism of the Dark Ages. About this time, also, the Church of St. Cross, near Winchester, was built. From the fifteenth century to the present time the cathedral has been falling into a disgraceful state of decay. The old and new sides of the tower had begun to separate in the course of years; so he found a great crack in the masonry, caused by the sinking of the western side, which also crushed down portions of the nave, and threw most o

the pillars of the arches out of the perpendicular.

The *Engineer* gives the following particulars of the works:—Mr. Scott estimated the necessary expense of the restoration at 30,000*l*. The work of restoration was divided into four contracts; and, the most urgent being that for the preservation of the great tower, it was let out first, to Messrs. Wood & Sons, of Worcester. This contract amounts to 11,000*l*., which sum includes the construction of a drain all round the cathedral, to carry off the water already mentioned; taking out the two west piers of the tower, and replacing them with new on the ancient model; restoring the tower, repairing and restoring the choir stalls and seats; repairing the organ; and repairing thoroughly the eastern chancel.

The actual work of reparation was commenced about a year and a half ago, under the direction of Mr. J. B. Clear, the resident architect, who at once began the difficult work of repairing the tower, on the same plan as that adopted a few years since in the preservation of the tower of the Cathedral of Bayeux, in France. The tower of St. David's Cathedral is 124 ft. high, 40 ft. square externally, and weighs more than 4,000 tons. Mr. Clear began by fixing bracing inside and outside the tower, and bolting its walls together to make it as much in one piece as possible, after which he screwed the sides of the tower 3 in. closer to each other. The bracing, which consisted of massive ties of iron, of course took none of the weight of the tower. He next constructed some incompressible foundations for shoring of the most massive description, he supports containing, in all, 17,000 cubic feet of timber under the north and west arches, and against the two western piers. The whole weight of the tower rested for a considerable length of time principally upon the shoring upon oak needles passing through the spandrels of the arches, wrought-iron girders being placed across the angles. The needles were supported by fir logs erected nearly perpendicularly, each of the logs being composed of nine pieces of timber from 14 in. square, bolted and framed together. It was an anxious time when the crazy tower, the heavy patchwork of three bishops, was first allowed to rest on the timber supports, and it is said in St. David's that the resident architect was assisting in operations beneath it at the moment, and told his men that if the tower *did* come down he would be smashed first. While the tower rested on the main shoring, the two western piers were gradually rebuilt beneath it, in good cement work, and in small portions at a time, a removable system of shores being used to sustain the work in immediate contact with the parts operated upon. The north-west pier was commenced on the 12th of January last, and finished on the 12th of March, when the south-west pier was begun, and finished on the 19th of last month, so the great tower is now safe again for some centuries.

METROPOLITAN BOARD OF WORKS.

At the usual weekly meeting of the members of this Board, last week, a long discussion took place, on a recommendation of the Building Committee, with reference to the new building now in course of erection, at Charing Cross, for the Sun Fire Office, it appearing that in November last this Board had given permission to extend the new building, 2 ft. 3 in. beyond the former site; but instead of adhering to this limitation, the builder had extended the frontage 3 in. more on the public way. The committee recommended that the Board should adhere to its original order, and that the building should be set back 3 in. from the present erection. It was urged that such an encroachment on the public footpath should not be allowed; that there was a mistake made in the first instance in allowing a projection of 2 ft. 3 in.; but that the taking of 3 in. more should not be permitted, and especially so as the land in this district was valued by the inch.

The recommendation of the committee was agreed to, and it was ordered that a prohibitory notice from proceeding should be served on the builder forthwith.

SANITARY MATTERS IN MARGATE.

We see by the *Kentish Observer*, of June 14th, that the Council of the Borough of Margate have sanctioned the sewering of a portion of the low neighbourhoods of Love-lane, Puddle Dock, and King-street, into an existing town drain, originally intended for surface-water only, and discharging into the sea in close proximity to the jetty and beach, the once-favourite promenade and recreation-ground of thousands of visitors.

Our "*word of advice*" would therefore seem to have fallen upon deaf ears; and, if the ratepayers are so wilfully blind to their own interests as to permit the prosperity of Margate to be hazarded, and an evil name to be given to its hitherto well-deserved character for healthfulness, it is their own fault, and they must take the consequence. It seems almost incredible to state that this permission has been given under sanction of a mayor who is said to be an experienced medical man; for surely such, of all others, should know that town sewage discharged upon the sea-shore between high and low water mark exhales the most noxious gases, far more putrid and offensive by combination with seawater than if mixing with fresh.

The property thus allowed to empty its house-drainage into the town drain is that which last year we had to point out as being frequently under water: it was bad enough then, flooded with surface and tidal waters only, but what will it be when these are mixed with the outpourings of sinks and soil-pipes?

The scheme, if carried out, will be a serious injury to the town. The outfall indicated is the very worst than can be found, being within a few yards of the jetty, and immediately under the Fort.

SIR,—Will you do me the favour to publish the figures sent herewith relating to the health of Margate during the warmer months of the year. This will prove a curious fact, and do an act of justice to the reputation of the town.

EDWARD MOTTLEY.

Mortality of Margate during the warmer months for the five years 1858-62, extracted from the registration, and being the years in which it was most frequented by visitors. It may be here generally stated that the annual mortality of Europe varies very materially during the twelve months; for example, May is generally an unhealthy month; June, on the contrary is distinguished by a low death-rate. The mortality of July is lower than that of May, but higher than June; while the mortality of August and of September shows a considerable increase in the numbers dying.

The following table will place the health of Margate during these months clearly before your readers, and it requires very little commentary or explanation:—

1858—1862.

Months.	Deaths.	To 10,000 living, five years' average.	
May	70	168	
June	41	99	
July	55	133	Residents.
August	74	177	
September	57	137	

The mortality of 17 per 1,000 being a normal condition of health. Singularly enough, the years most distinguished by the number of visitors are amongst the most healthy upon record.

ISLINGTON WORKHOUSE COMPETITION.

THE authors of the three selected designs, of which the mottoes were advertised last week, are No. 1, Mr. Burden, Oxford-street; 2, Mr. Ellis, Austin Friars; 3, Mr. Bressey, Wanstead.

THE LATE MR. WIERTZ, ARTIST.

A CORRESPONDENT, Mr. Haas, with reference to our recent notice of the late Mr. Wiertz, informs us that one of his best works, the Homeric contest, or, as the picture is called, "Les Grecs et les Troyens se disputant le Corps de Patrocle," is at present exhibited in the Crystal Palace, Sydenham. "This picture, of which he had disposed previously to his engagement with the Belgian Government, is the original of that which is at the Museum in Brussels, and has become, after various adventures, the property of a gentleman in Antwerp."

DWELLINGS FOR THE LABOURING CLASSES.

THE new Act to enable the Public Loan Commissioners to make advances towards the erection of dwellings for the Labouring Classes has just been printed. It recites that by the Labouring Classes' Lodginghouses Act, 1851, powers were vested in certain local authorities for the purpose of facilitating the erection of lodginghouses for the labouring classes, and declares it is desirable that further provision should be made for facilitating and encouraging the erection of dwellings for the labouring classes in populous places. The Act is to be incorporated with the Lodginghouses Act, and the Public Loan Commissioners may make loans to Councils, Boards, or Commissioners, authorized to carry out the Act recited, and to any local authority acting under the Nuisances Removal Act, 1855, to Railway, Dock, or Harbour Commissioners, associations established for the purpose of this Act or for trading or manufacturing purposes, or to a private individual having a fee simple for a term of not less than 50 years. The objects of the loan are set forth and the money to be advanced on interest agreed upon, the same not being less than 4 per cent., and 40 years given for repayment. Other Acts are incorporated with the present, and the powers given to companies are detailed. Mr. M'Cullagh Torrens brought up (on Tuesday) the report of the Select Committee on the Artisans and Labourers' Dwellings Bill. Friday was fixed for its discussion, but under present circumstances this will, of course, stand over. We hear that it has been much cut about in committee, but that enough remains to be useful.

SHAM SURVEYORS.

SIR,—Fraught as is the profession with difficulties, and comprehensive as is the mental training, as well as the practical instruction required to qualify a man for the profession of "Civil Engineer and Surveyor," is it not very annoying to the *really* qualified man, that with no education, no practical knowledge, and with very *little* theoretical knowledge, another may at any time start in opposition to him, and damage or take away his fair chance of employment simply by assuming that impudence that will allow him to put "Architect and Civil Engineer," or "Civil Engineer and Surveyor," on his window blind or brass door-plate?

I was lately a candidate for a borough surveyorship, where there were 10 applicants who asked for salaries at from 120*l*. to 200*l*. per annum: 120*l*. was the lowest salary asked, and 150*l*. the next, the others varying up to 200*l*. I asked 150*l*., and produced vouchers of my having been employed under Government and other public bodies for the last fifteen years, and having had large experience for six years as a borough surveyor, and having designed and executed extensive and successful drainage and water works, as well as having been assistant engineer for some years on two railways, and a Gold Medallist of the College of Engineers at Putney, where I studied three years ere commencing practice.

The next lowest tender to mine was that of the successful candidate, a self-styled "surveyor;" a *smart* man as the world goes, no doubt, but one whose sole qualification seemed to be that he called himself upon his door-plate, and advertised himself largely as "auctioneer and surveyor," and offered to perform the duties of this borough surveyorship 30*l*. per year less than any qualified man did. I venture to say, sir, he did not know a "dumpy" from a Y level, or a circumferenter from a theodolite, the difference of a "parting slip" from a "meeting bar," a "countess" from a "lady" or a "queen;" a sample of "blue lias" from one of Roman cement, or a "bull-nose" brick from a common "paver." Yet, sir, he applied for the surveyorship, and got it by seven votes against six. I am one of the aggrieved, and on behalf of others as well as of myself, I venture to state the facts and ask, Can no means be devised of our hedging ourselves around by some legal enactment such as that which protects surgeons and solicitors from the intrusion of invaders into their profession?

INSIGNIS.

CONSTRUCTION OF TAN PITS.

A CORRESPONDENT writes:—Can any of your numerous readers or correspondents inform me whether, in any of the extensive tanneries in Britain, or on the Continent, tan-pits have ever been constructed of bricks and cement; and what is, or would probably be, the effects of pits so constructed on the process of tanning?

HOUSE-PAINTERS' WAGES.

SIR,—Allow me to make a few remarks in reference to the meeting of the masters that took place last week to consider whether they should give the halfpenny above that which they already advanced; a report of which appeared in your last week's edition. The result of this meeting is evidently against the required demand. But it has done some good. The worthy chairman, Mr. Crace, very honestly says that there are two classes of workmen, one to pick in a panel at a Belgravia mansion, the other to wield the pound brush on the outside of some enterprising linen draper's establishment; two widely different branches of the same trade. No one will deny the superiority of the one over the other, consequently they should be remunerated accordingly. Mr. Crace says that he is in the habit of giving two prices; but men in the same firm, all under the denomination of painters, are apt to grow discontented at their more artistic companions: thus laying the groundwork of strikes.

Again, who is to draw the line between these two classes, as the masters themselves are very rarely ever seen by the men? Thus this most important duty would rest entirely upon the fraternity technically called coddies, * whose practical knowledge is often confined to

* Coddy, evidently derived from the word *cod*, meaning a big fish.

the stone colour of every-day life, men of quantity, *not* quality; consequently genius would stand but a poor chance with them.

The method which I should suggest to remedy these evils, is that there should be one standard rate of wages for painters, the superior or pencil-work to be paid as piece work by measurement, or according to the number of colours and the richness of the figure. And I think, by these means, both master and man will receive a fair day's work for a fair day's pay. Trusting to your well-known impartiality for inserting this in your valuable journal, I am, &c.,

G. COLLIER, Designer, &c.

ERECTION ON A FLAT.—BUILDING ACT.

THE DISTRICT SURVEYOR OF ST. MARYLEBONE *v.* COCK.

IN this case, before Mr. Knox, the magistrate at Marylebone police-court, defendant had erected a W.C. at the back of the house, No. 69, Oxford-street, rising above the flat roof over a show-room on the ground-floor. Two sides were enclosed with quartering covered with zinc. The stairs leading up were taken out of the show-room itself. The district surveyor considered that this erection was appurtenant to the house, and not an erection upon a roof, and that it must, therefore, be enclosed with brick walls carried up from below.

The defendant contended that it was an erection on the roof, of the nature of a dormer "or other erection" (sec. 19), and that it was only necessary to carry up the party wall in brick-work. The case was adjourned for an inspection of the premises, and on May 25th Mr. Knox attended at the premises, and determined that the enclosure was an external wall, and must be in conformity with the Act.

CHURCH-BUILDING NEWS.

Shortwood (Gloucestershire).—A new church or chapel of ease has been consecrated at Shortwood, a village 5 miles from Stroud, about a mile beyond Nailsworth, and an equal distance from Horsley. The edifice comprises nave and chancel, and is capable of seating 200 persons. The building is surrounded by a wall. It is roofed with rough stones, which are said to have covered in a workhouse that formerly stood on the site. The style is Early Decorated. At one end is a small bell-turret. There is a porch on the north side, and a vestry is separated by a curtain from the chancel. The nave is 51 ft. long and 22 ft. broad. The body of the church is lighted by five windows on the one side, and four on the other. These windows are divided into two lights, with a circular light above, which may be opened, and are filled with glass bordered in purple, blue, red, and yellow. There are three smaller windows at the sides of the chancel, and at each end of the church is a large window of three lights. The pointed roof is supported by stained rafters resting on carved freestone corbels. All the seats are open: they are of stained wood. The whole cost is 900*l.* The architect was Mr. Clissold, of Stroud; and the builder, Mr. Edmd. Clayfield, of Horsley.

Great Holland.—The parish church has been rebuilt and consecrated. It is of Early English Gothic, designed by Mr. Arthur W. Blomfield, of London, and built by Mr. Joseph Grimes, of Colchester. The walls are of rubble, faced with round flint, and Bath-stone dressings. The roof is of plain red tiles, surmounted by a crested ridge. There is an entrance-porch on the south, corresponding with the architecture of the church, with richly-moulded arch, open-timbered and tiled roof, and coped gable, surmounted by a foliated cross, the gift of Mr. Charles Hicks, one of the church-wardens. Among the principal features of the interior is a stone arcade of four arches (the columns having moulded caps and bases), dividing the nave from the north aisle. The chancel east window consists of three lancet lights, filled with stained glass, the gift of the rector; and there are single-lancet windows on the north and south sides of the chancel, which are also filled with stained glass. All the chancel windows have inside shafts of Devonshire marble, with moulded stone caps and bases. On the south side of the nave are three two-light windows, filled with stained glass. The north aisle is lighted with four similar windows, filled with tinted cathedral glass. The tower, which was formerly blocked up by a gallery, has been cleared and thrown open to the church, and the space inside the base fitted with sittings for the school-children. A portion of the north aisle is partitioned for a vestry. The floors of the nave, aisle, and tower are paved with red and blue Staffordshire tiles; and that of the chancel with Maw's encaustic tiles. The church is seated throughout with open benches, oak-stained and varnished. The roofs are open timbered, of fir, stained in imitation of oak. The reredos on the east wall of the chancel, with the creed and decalogue, and also the stained windows of the nave, are the work of Messrs. Heaton, Butler, & Bayne, of London. The churchyard has a new boundary wall, of stone rubble, with moulded brick coping, and a pair of framed deal gates, stained and varnished. The cost of the re-erection of the church amounts to about 2,000*l.*, nearly the whole of which is borne by the rector, the Rev. R. Joynes.

Croydon.—St. Matthew's Church has been consecrated. The church stands on a small slip of land in the Addiscombe-road, and cost in round numbers 5,000*l.* Of that sum 4,750*l.* had been subscribed, leaving a deficiency of 250*l.* The building is of the early French style, decorated in the interior, and will seat 600 persons. With but few alterations the original plans have been carried out. The only important alteration noticed on entering the edifice is the ceiled and painted roof instead of an open one, with oak stained timbers. The chancel and chancel roof are decorated. The building will be lighted by jets of gas arranged round the capitals or shafts, about twelve on each shaft, and two rows along the chancel arcades. At present the interior of the church presents an unfinished appearance.

Burton.—The cemetery here has been consecrated. It occupies an area of twelve acres, and is situated on the high ground adjoining Scalpcliff Hill, the river Trent flowing in the valley beneath. The approach is from the Stapenhill-road, to which the cemetery has a frontage of 242 yards. The entrance is placed in the centre of this frontage, and forms a prominent feature, having a central carriage entrance with foot entrances on either side, arched and gabled. On the sides of the carriage entrance are buttresses, upon which stand emblematical figures, above life size, of Faith and Hope, surmounted by canopies, with pinnacles rising to a height of 36 ft. The gates are of wrought-iron. The boundary fence to the public road, right and left of the entrance, consists af a dwarf wall, with cast-iron railings, and piers at intervals; the other fences are of split oak. The registrar's house and office adjoin the entrance. The consecrated and unconsecrated chapels stand right and left upon a raised terrace. Each chapel comprises vestry, waiting-room, and other conveniences, and is fitted up with sittings of polished pitch pine and reading-desk of oak. The coffins have separate aisles provided for them, divided from the chapel by screens of stone and glass. These coffin aisles are subjected to a thorough current of air, while the chapels are kept warm and free from draught. The chapels and all the other buildings are in the Gothic style of thirteenth century, built of stone from the Whatstandwell, Coxbench, and Hollington quarries. The whole of the works have been executed under the direction of Messrs. Lucy & Littler, of Liverpool, architects. The general contractors were Messrs. Simpson & Lynam, of Nottingham; and the railing and gates were manufactured by Mr. Brawn, of Birmingham, from the architects' designs. Mr. Green, of Manchester, executed the carving; and Mr. Godwin, of Ashbourne, supplied the trees and shrubs.

Macclesfield.—The Church of England part of the new cemetery here has been consecrated. The chapels, Established, Nonconformist, and Roman Catholic, are separate and stand in different parts of the grounds. They are somewhat similar in structure; the Roman Catholic being rather smaller, but with a little more decoration. The style is Decorated. The chapels have been designed and carried out under the immediate superintendence of Mr. James Stephens, architect. The stonework has been wrought and built by the masons belonging to the Corporation, under the superintendence of the surveyor to the Board, Mr. Aspinwall. The carpenter and joiner's work has been done by Mr. Evans; the plumbing, glazing, and ironwork by Mr. Davies; the plastering and moulded internal decoration by Messrs. Kirkham & Son, painting and varnishing by Mr. Williams; and the slating by Mr. Brooks. The stone carving was done by Mr. T. R. Williams, of Manchester, sculptor. The grounds are being laid out by Mr. Middlebrook, the curator of the Public Park.

Kingston-on-Thames.—The chief stone of the new Christ Church for New Malden and Coombe, near Kingston, has been laid. Mr. Freshwater is the architect, and Mr. Cumber the builder.

March.—The chief stone of the cemetery chapels has been laid here. The new cemetery is situated on the east side of the Station-road, about 300 yards from the Railway Station. The land purchased for this purpose is between six and seven acres in extent, and, in accordance with designs prepared by Mr. G. W. Stephenson, the architect of the Local Board, it is intended to appropriate four acres for present use, reserving the remainder for future extension of the cemetery, if and when required. The buildings will consist of an entrance and lodge for the sexton, and two mortuary chapels, connected by a tower and a spire 80 ft. high. All the walls will be of wall-stone, from the Warmsmouth quarries, hammer dressed, and laid in random courses, and the other masonry will be of wrought Ancaster stone. The style of architecture is Pointed, of about the fourteenth century. The chapels will be approached by a gravel roadway, 170 ft. long and 15 ft. wide, ornamented on either side by evergreens and shrubs.

Salisbury.—The new church of Fonthill Gifford, near Salisbury, has been consecrated. The edifice, which is built at the sole cost of the Marquis of Westminster, is 100 ft. long from east to west, 60 ft. across the transepts, and 28 ft. across the nave. The church, which is built in the style of architecture which prevailed in France during the early part of the thirteenth century, has a nave, north and south transepts, chancel with apsidal end, and a vestry on the north side. The principal entrance is through a groined porch beneath a tower erected at the south-east angle of the chancel and south transept. From this tower rises a spire, at the angles of which are four pinnacles. The whole of the exterior is built of Tisbury stone, the greater part of which belonged to the old church, and which has been reworked and built as random ashlar, pointed with grey mortar. The whole of the interior is lined with Bath stone, and a string course of green stone, breast high, runs round the nave and transepts. The roof of the nave is of open work, the wood employed being red Memel pine. The roof is supported by six corbels on each side of the nave, carved in naturalesque foliage. The transepts are separated from the nave by two equilateral arches, resting on Devonshire marble columns, 16 in. in diameter, with freestone capitals and bases. The chancel arch is moulded and finished with carved crockets in alternate patterns. The arch is supported by Devonshire marble columns, with freestone annulets in the middle of the shafts, and with carved freestone capitals and bases. A receding arch is supported by two short columns of Irish green marble, resting on corbels. The chancel is groined with rock chalk, the moulded ribs, which are of free-stone, springing from Purbeck marble columns. There are five Early English windows in the apse, and two cinquefoil windows on the north side of the chancel. At the west front are two Early English windows, divided by a buttress, over which is a circular window, composed of eight quatrefoils, running round a circle with eight cusps. The window is filled with stained glass, executed by Messrs. Lavers & Barraud. In the centre is a representation of Christ blessing Little Children. On each side of the nave are Early English windows of two lights, with a cinquefoil over. At the north-east angle of the tower is a circular turret, which is covered with a tile roof of conical form, terminating with an iron finial. The whole of the roofs are covered with tiles, and the chancel ridge is finished with an ornamental iron cresting. The belfry windows in the tower are of two lights, with quatrefoils, and the arches are supported by Derbyshire marble columns. The four cardinal sides of the spire have windows, with gablets over. The spire is over 100 ft. high, and is finished with ornamented ironwork and gilt copper vane. The seats in the nave and transepts are of varnished oak. The doors are also of oak, with Early English ironwork, executed by Mr. George Williams, of Shaftesbury. In the vestry, on the north wall, is a stone which was discovered in the old church. It has the following inscription:—

"18th May, 1743,
William Beckford, Esq.,
Founder."

The church is warmed throughout with Messrs. Haden's heating apparatus. Mr. T. H. Wyatt, the diocesan architect, furnished designs for the edifice; Mr. T. B. Miles, of Shaftesbury, was the contractor. Mr. A. Harrison superintended the works, and the carving was executed by Sansom.

Newland.—The old parish church is now swept way, and on the site of its little homely chancel as been erected a stone cross, to mark the spot. he cross, which is the production of Mr. Forth, is 23 ft. high, and is a conspicuous object many parts of Malvern and the adjacent ountry. There are four steps to the base, and slab of red Mansfield stone on one side of the ase contains a Latin inscription, explanatory of e object of the cross. On each of the other ree sides is a quatrefoil, inclosing a Maltese oss of black marble. The shaft is of a light ey Staffordshire stone, and between the limbs the cross at the top of the shaft is the sacred onogram in a vesica, with the inscription, "In c vince."

STAINED GLASS.

All Saints', Emscote.—Two memorial windows ve just been placed in this building. The one the north side contains four large figures St. Clement, St. Ignatius, St. Polycarp, and Hermes. In the tracery above are emblems saints and angels, bearing inscriptions, with reaths, &c. That on the south side has four ures of corresponding size, namely, the Virgin ary, Anne the prophetess, Mary Magdalene, d Elizabeth. The tracery above is similar to at in the other window, and both windows were mposed and executed by Mr. T. Dury, of arwick.

Church of Holy Sepulchre, Northampton.—is church has recently had three stained-ass windows, manufactured by Messrs. Hardman, of Birmingham, put in the chancel, oney for the purchase of them having been aranteed by fifteen ladies of the congregation, o undertook to collect the amount. The subjts represented are in accordance with the aracter and designation of the church. Each ndow is divided into four compartments or nels. The four panels in the north window, ading from the bottom panel, on the north, to e panel above, and so forth, represent:—1. e hewing of the stone for the Sepulchre; The entombment of Christ; 3. Setting the ard over the tomb; and 4. The sealing of the nb. The centre, or east window, represents:— The angel rolling away the stone; 2. The surrection; 3. Mary weeping near the pulchre; and 4. The two angels guarding the pulchre. The south window represents:— The risen Saviour making himself known to ry Magdalene; 2. The three Marys and the gel near the sepulchre; 3. St. Peter and St. m looking into the sepulchre; and 4. Christ king himself known to the disciples at maus.

St. Stephen's, Bristol.—A west window has n executed for the Merchant Venturers, and up in St. Stephen's Church, the hall of the iety being situated in that parish. The work by Messrs. A. & W. H. O'Connor, of London. e window is a large perpendicular one, of six in lights divided by a transom, and a tracery an important series of openings. The subjects six in number, each subject occupying two apartments: they are as follow—1. The ination of St. Stephen as deacon; 2. St. phen distributing alms; 3. St. Stephen aching; 4. St. Stephen's defence before the ncil; 5. His martyrdom; 6. His burial. ese subjects are enshrined in tabernacle ornant of jewelled effect, and above these, in the per part of the main lights, and filling the re tracery, is shown, on a crimson ruby und, the heavenly vision of our Lord in glory, rounded by the host of angels, bearing crowns martyrdom and palms.

Holy Trinity Church, Prestolee, Lancashire.— windows in the north transept of this church e just been filled with stained glass. The e window is in memory of the late Mrs. mpton, who built and endowed the church; the work has been executed by Messrs. lantine & Son, of Edinburgh, by whom the e east and west windows were formerly e. The large north window represents Christ aching and blessing little children. In the tral shape of the tracery are three angels h palms, and in the two side shapes are texts.

Thuxely Church, near Leeds.—A twin-light dow has been erected in this church in mory of Dr. George Gardener. The subjects strated are "Christ Healing the Sick," and "Raising of Lazarus." The emblem of the nity is introduced into the central shape of ery, and the canopies, bases, grounds, and lderings are deep in colour, and in unison with the architecture of the building. On a brass beneath the window is the inscription.

St. Cuthbert's Church, Blaydon-on-Tyne.—The great east window of this church has been recently filled with stained glass, which has been erected at the expense of the Rev. W. Brown, rector of Blaydon, as a memorial to several members of his family, and contains four large groups from the Life of Christ, surrounded by geometrical ornamentation, interlaced with foliage, on azure and carmine backgrounds. Appropriate emblems and monograms enrich the tracery. The two windows, south of the chancel have also been adorned with stained glass, of an ornamental character; likewise the triplet window in the west gable, which latter has been placed as a memorial to the late Mr. J. Mitford, who gave 100*l.* towards the completion of the church, and left a further sum for the benefit of the poor of the parish for ever. The whole are from the stained-glass works of Mr. H. M. Barnett, of Newcastle-on-Tyne.

Books Received.

History of Julius Cæsar. Vol. II. The Wars in Gaul. London: Cassell, Petter, & Galpin.

THAT the active ruler of such a country as France should find time, even with all possible aid, to write a work such as this, is only one of many extraordinary circumstances in the life of the Emperor Napoleon III. His previous experience as an author has no doubt facilitated his labours on the "Life of Cæsar," and has shown the nations how he can write, and how improbable it is that any one else deserves the credit of having written the "Life of Cæsar" in his name. That he himself has done it no one competent to speak either doubts or insinuates; and the fact is certainly an extraordinary one.

The present volume relates to the wars in Gaul, after the "Commentaries," and it ends with the crossing of the Rubicon.

The work needs no criticism from us: it has already been fully made known to readers of all orders by the press, a portion of which appears to be of opinion that the author meant perpetually to insinuate parallels between Cæsar's actions and his own or his renowned uncle's, Napoleon I.; while another portion can see no such intention. Either way, however, the work is a most able and instructive one.

In the particularly interesting address made by Earl Stanhope, as president of the Society of Antiquaries, at their last annual meeting, his lordship read the letter which the Emperor had written to him, on receiving intimation that the council, appreciating the high literary merit of the "Life of Cæsar," had elected the author of that Life one of their Royal Fellows. As our readers may like to see the letter (not hitherto made public), we give it textually:—

"AUX Tuileries, 30 Juin, 1865.

MILORD,—J'ai reçu à mon retour d'Alger le diplôme que la Société des Antiquaires de Londres m'a adressé en me conférant le titre de membre honoraire de cette savante réunion. Je suis très flatté que mes travaux historiques aient mérité l'attention d'un corps aussi distingué et m'aient valu un pareil honneur. Veuillez-vous rendre l'interprète de ma reconnaissance auprès de vos collègues et recevoir pour vous-même avec mes remercîments l'assurance de mes sentiments de haute estime.

NAPOLEON."

Penny Readings, in Prose and Verse. Selected and edited by J. E. CARPENTER. Library edition. London: Warne & Co. 1866.

BOUND together in three volumes, this selection, of which we spoke favourably as it appeared originally, makes a table-book of more than ordinary interest. As an advanced reading-book for the school-room, too, it may be warmly recommended. Mr. Carpenter has performed his task with much discrimination, prefacing each "piece" with a few judicious particulars of the author.

Practical General Continental Guide. By an Englishman Abroad. London: Simpkin, Marshall, & Co. 1866.

HERE, in a small flexible volume for pocket or knapsack, is given a large amount of direction in the most condensed form, for the advantage of travellers, concerning Belgium, Holland, the Rhine, parts of Germany, Switzerland, Venice, Italy, &c. We must award praise for the manner in which this is done. The practical plans, showing the relative positions of objects of interest, are very useful.

A Biographical and Critical Dictionary of Recent and Living Painters and Engravers. By HENRY OTTLEY. London: H. G. Bohn, York-street, Covent Garden. 1866.

THIS volume is a supplement to Bryan's excellent "Dictionary of Painters and Engravers," as edited by George Stanley fourteen years ago. Mr. Henry Ottley, with a practised pen and good knowledge of art-doings in modern times, claims, in respect of this book, little beyond the recognition due to industrious and judicious compilation. This, and something more, we are quite willing to award him. Depending, to a great extent, on supplied materials, there is a want of balance in the notices which may be rectified in the next edition. Meanwhile, the present will be found very useful.

VARIORUM.

"NATURE AND ART" is the title of a new monthly serial, of which No. 1 has been issued by Day & Son, intended to direct attention to that which is interesting in nature and admirable in art. Chromo-lithography and photo-lithography are employed in illustrating it. A paper by Mr. Aaron Penley "On Sketching from Nature," with illustrations, is itself worth the cost of the number. The venture promises very well.——"A Manual of Weathercasts and Storm Prognostics on Land and Sea." Compiled by Andrew Steinmetz. London: Routledge. This little volume contains both folk lore and scientific lore on the always interesting subject of the weather, with an explanation of the method in use at the Meteorological Office, and is said to be adapted for all countries, as well as for sea and land. The valuable contributions of Admiral Fitzroy, and other men of note, to the science of meteorology, are made use of by the compiler, who has produced a readable and interesting volume for all classes on the subject of weather-wisdom, well adapted to infuse a little sense and meaning into our every-day salutations and weather discussions.——"The Royal Guide to the London Charities, for 1866-7." Edited by Herbert Fry. Hardwicke, Piccadilly. This is the fourth annual edition of a useful alphabetical list of the vast number of charities with which London, above all other cities in the world, is richly endowed. The Guide is now under Royal patronage. It shows, in alphabetical order, the name of the charity, with its date of foundation, address, objects, income, chief officials, and so on.

Miscellanea.

IMPROVEMENTS IN ROTHBURY.—Modern improvements are being rapidly adopted in this quiet village. Water has recently been introduced by a private company; the seventh and eighth sections of the Northumberland Central Railway are progressing; the erection of Cragside House, the intended residence of Sir W. G. Armstrong, C.B., is being proceeded with; the Rev. C. G. V. Harcourt, rector, has caused another wing to be built on the old school endowed by the late Mr. Tomkinson, for those who attain to the higher branches of education; and the west end of the village is about to be provided with a new school, which is shortly to be built at Thropton, the old school at that place having fallen into a state of dilapidation. The building is likely to cost from 600*l.* to 700*l.* A new bank, the want of which has been long felt, is in course of erection.

HULME.—Three sites are under consideration for the Hulme and Chorlton Public Park. The Hulme Free Library has been opened. The building, which has been designed by Mr. Lynde, the Manchester city surveyor, is in consonance with the town-hall, of which it forms a part, and is in the Italian style. It forms the right wing of the building, the left wing constituting the vestry-hall and overseer's offices. The main entrance is in Stretford-road, and there is a side entrance in Clopton-street. The library is 42 ft. 9 in. by 29 ft. 6 in. It is of one story, and is lighted partly from the roof. The reading-room, which is also one story, is 47 ft. 6 in. by 42 ft. 9 in., and 29 ft. high. It is lighted by ten large windows. There are upper rooms for the committee and for storage; and there are extensive cellars, which it is intended to let off. The heating and ventilating apparatus is by Messrs. Haden, of Trowbridge. The clerk of the works was Mr. Samuel Taylor.

GIGANTIC VEHICLES.—Omnibuses on a new model have, it is said, been constructed in Paris, specially for horse-races and other out-door sights. They are so contrived that upwards of fifty persons can be seated on the roof, and each forms a kind of travelling grand stand.

INDEX TO CONTENTS OF FOREIGN PERIODICALS IN PATENT LIBRARY.—An "Index to the Foreign Scientific Periodicals contained in the Free Public Library of the Patent Office" is being printed by authority. The idea is a good one. The *Index* will be published on each alternate Friday, and the price will be 2d., or by post 3d.: annual subscription by post, 6s. 6d. It appears to be in very good hands.

RAILWAY COMPENSATION.—The owner of property required by a railway does not lose his right to have the value assessed by a jury, under section 23 of the Lands Clauses Act, because he has made no claim, and because the company have proceeded under section 85. They must have actually paid or tendered the money, or the owner may claim to go in under section 23 or 68. The Court of Queen's Bench thus decided in the case of *The Queen* v. *The Metropolitan Railway Company*.

MANCHESTER SOCIETY OF ARCHITECTS.—The annual general meeting of this society was held at the Royal Institution, on Monday, the 11th instant, when the president (Mr. Isaac Holden) read the report of the retiring council on the business that had engaged their attention during the past year, and which was ordered to be printed for the use of the members, &c. The following gentlemen were then elected to form the council for the ensuing year: Isaac Holden (president), J. Charlesworth (vice-president), W. H. Breakspear, W. R. Corson, P. Nunn, E. Salomons, I. Stevens, and J. Murgatroyd (honorary secretary).

A ROMAN GRIDIRON.—One of the most curious objects recently discovered in the excavations in France, says the *Intellectual Observer*, is what we may venture to call a Roman gridiron. It is engraved and described in a recent work by M. Maximilien de Ring, who has made extensive researches in the early cemeteries and burial-places in Alsace. This implement is extremely well made of iron coated with bronze, with a raised open guard on one side for the meat, and a groove to catch the melted fat. Along with this implement, in the same grave, were found a long iron knife and a bronze spoon or ladle with a long iron handle.

DUBLIN.—Tenders have been invited for a county hall, to be erected at Carrick-on-Suir, in the county Tipperary, Mr. J. Stirling Butler, architect. A new drapery mart is about to be commenced in the city of Dublin, from the designs of Mr. William Fogerty, to cover a plot of ground 160 ft. by 56 ft., at the corner of Henry-street and Denmark-street. The approved north light system of lighting is adopted. The style of the building is Astylar Italian; the facing generally of Belfont red bricks, dressings of granite and Portland cement. Mr. John Nolon is the contractor at 4,600*l.*, exclusive of fittings: inclusive of same the cost will probably amount to 6,000*l.*

THE SANITARY STATE OF ST. MARYLEBONE.—The monthly report for May, by the medical officer of health for the parish, has been issued. The death-rate is gradually declining with the advancing season. In April 352 deaths were registered, and in May 333. There is, however, a growing fatality amongst zymotic diseases, or those beyond all others preventible by sanitary means; and Dr. Whitmore urges the adoption of the proper measures to diminish this class of diseases, and to prepare against cholera should it attack us in the autumn. He states that the Thames companies' water supplied to the parish has showed, during the past month, an increasing improvement, and a greatly diminishing quantity of organic matter, whilst that obtained from the surface wells obviously becomes every month more impure and dangerous. "Owing to the bad and absolutely stinking condition of the water obtained from the pumps in New Cavendish-street and Upper Marylebone-street," he adds, "I have found it necessary to close both of them, in order that they may be properly examined, but I very much doubt if any amount of cleansing or repairing will render the water in either of them again fit for drinking purposes: the large quantity of ammonia in the water from the latter pump shows the infiltration of sewage."

ILKESTON.—Mr. Warner, of this town, builder, is the successful competitor for the building of the Ilkeston townhall. The work will be commenced immediately.

ALBERT GOLD MEDAL OF THE SOCIETY OF ARTS. The council of the Society of Arts have this year awarded this medal to Professor Faraday, "for his discoveries in electricity, magnetism, and chemistry, which in their application to the industries of the world have so largely promoted arts, manufactures, and commerce."

STAINING TILE PAVEMENTS. — In reply to an inquiry, manganese and cobalt are both used for staining tesselated pavement and tiles, artificial stone, and probably also brick. The black oxide of manganese can be had from manufacturing chemists, at 20s. per cwt., and black oxide of cobalt at 20s. per lb.

UNIVERSITY COLLEGE, LONDON.—Mr. Samuel Sharpe has presented to the college 1,000*l.* towards building a new wing, on condition that the donation be invested in Consols and allowed to increase at compound interest by investing the dividends in the same stock, until the council, after receiving other gifts for the same purpose, should think fit to make use of it for building.

VALUE OF LAND IN THE NEIGHBOURHOOD OF NEWPORT.—A sale by auction of copyhold property at Bassalleg, was held at the Westgate Hotel, Newport, June 14th, Mr. Augustus Stevens, of Bristol, being the auctioneer. The property realised the following sums:—Lot 1, cottage and market-garden, containing 2a. 2r. 14p., 405*l.*; lot 2, cottage and garden, containing 2a. 1r., 520*l.*; lot 3, two small cottages, 134*l.*; lot 4, five small cottages, 235*l.*

SELF-ACTING SIGNALS.—Sir Cusack P. Roney describes a new signal which he has seen in Paris. It is the invention of Signor Vincenzi, an Italian engineer, and works by electric agency. It is difficult to describe, but the mechanism comprises cast-iron cases placed along a railway, and containing electric apparatus, which causes the whistle of the locomotive to sound when the way is not clear, or when a train in advance has just passed. The communication between the apparatus and the engine is made by means of steel arms, which meet and act together. The inventor is said to be willing to test his apparatus at his own cost on an English railway.

DISCOVERY IN CARLISLE ABBEY.—While workmen were engaged in making excavations in the Abbey, on Monday, in order to level the ground at the east end of the Cathedral, about thirty stone shafts were laid bare. They are 4½ in. in diameter, average about 5 ft. in length, and, from the mortar adhering to them, it is evident that they have at some time been used in some part of the Cathedral buildings. The diameter of the shafts is the same as that of the shafts in the bays of the choir, aisles, &c., of the Cathedral, and it is conjectured that they have belonged to the orginal Early English clerestory of the edifice.

WAREHOUSEMEN AND CLERKS' SCHOOLS.—On Monday last his Royal Highness the Prince of Wales formally opened this large range of charitable schools, which have been erected in the neighbourhood of the Caterham Junction, near Croydon, and the first stone of which was laid by the Prince on July 11, 1863. The design of the institution is to clothe, maintain, and educate the children of warehousemen, clerks, and agents of every wholesale trade who have been engaged in warehouses or manufactories in any part of the United Kingdom, without distinction of sex or religion. Illustrations of the building will be found in a previous number of the *Builder*.

STATUE OF LORD MACAULAY.—In execution of a commission from the University of Cambridge, Mr. Woolner has completed in Carrara marble a full-length statue of Lord Macaulay. The hair, rough and abundant, is thrown back from the forehead in a mass, as was the custom to wear it. By placing the figure sitting in a chair, and enveloping it in the simple and graceful drapery of the gown of a master of arts, the want of height and elegance in the form has been artistically concealed. The right shoulder is drawn slightly in advance of the left. In the left hand is a book, between whose pages some of the fingers are inserted, as if to mark particular passages. It is intended that the statue shall be placed in the library of Trinity, the college which claims the distinction of numbering Lord Macaulay amongst its sons.

ARCHITECTURAL EXHIBITION SOCIETY. — On Tuesday evening, the 19th inst., Mr. T. Roger Smith delivered a lecture on "The Influence of Site in the Design of some celebrated Buildings," the last lecture of the session. The exhibition closes on the 30th inst.

ROYAL ACADEMICIANS.—On Monday evening the members of the Academy assembled at their rooms, in Trafalgar-square, to elect two artists to the full honours of the academy, when the choice fell upon Mr. George Richmond and the Baron Marochetti. At the same time Mr. S. F. Lynne was appointed travelling student in sculpture.

THE MEMORIAL FOUNTAIN, WESTMINSTER.—Owing to a misunderstanding with the contractor, the large fountain in Great George-street of which we gave an engraving in our number for January 27th, is at present at a stand-still. We have been requested to state, that it is being carried out by the architect whose name was given, from a design by Mr. Charles Buxton, M.P. The details of the roof were designed by Messrs. Skidmore.

THE MIDLAND RAILWAY AND THE ST. PANCRAS BURIAL GROUND.—The offensive proceedings of the Midland railway people, already brought into public notice by the *Builder*, have led to an inquiry in the House of Commons as to whether these proceedings had come under the notice of the Government; to which Sir G. Grey replied that they had, and that he had ordered an inspector under the Burials Act to investigate and report upon the circumstances of the case.

THE IRON TRADE.—*Ryland's Iron Trade Circular* states, that "the (quarterly) meeting in Birmingham may be said not to have been held, the stagnation of business was so great, and indeed the absence of the representatives of the trade so general. The circular quotes South Staffordshire bar-iron, at 7*l.* 7s. 6d. to 8*l.* 10s.; North Staffordshire, 7*l.* 15s. to 8*l.* 5s.; Northumberland 7*l.* 10s. to 8*l.*; Welsh, 6*l.* 10s. to 6*l.* 15s. South Staffordshire pigs, 3*l.* to 4*l.* 12s. 6d.; North Staffordshire, 2*l.* 18s. to 3*l.* 5s.

THE ATLANTIC TELEGRAPH.—The cable has been completed, and the *Great Eastern* will start from Sheerness on the 30th. Stopping for time to coal at Beerhaven, she will reach Valentia about the second week of July, and the shore end of the cable having been connected with the main line, the operation of laying will be commenced. The big ship will first lay the new cable from the Irish coast to Trinity Bay, Newfoundland; and, assuming this to be successfully done, and telegraphic communication established, she will then steam back to the middle of the Atlantic, and attempt to pick up the cable lost overboard in July last.

WORKMEN'S TRAINS ON THE METROPOLITAN RAILWAY.—On the motion for the third reading of the Metropolitan Railway (Additional Powers) Bill, in the House of Lords, the Earl of Zetland moved the omission of Clause 42, which provided that the compensation for accidents occurring to workmen travelling by the "workmen's trains" on the Metropolitan Railway should be awarded by an arbitrator appointed by the Board of Trade. His lordship said he did not consider that the additional public advantages which might arise from the Bill would compensate for the abandonment of the constitutional principle of trial by jury. After some discussion, however, the motive was negatived without a division, and the Bill was then read a third time and passed.

THE PROPOSED GIGANTIC GAS WORKS NEAR VICTORIA PARK.—In a letter, dated 13th inst., to the *Star*, Mr. John Plummer, to whom the public in the east of London is indebted for pointing attention to the attempt to smuggle the gas building Bill through Parliament, says:—"The gas companies have gained a triumph. Thanks to the facilities afforded by the private bill system, they have been enabled to obtain a majority of 31 in the House of 307 in favour of the report of the Commons' committee; and, unless that decision be reversed at the third reading, which is expected to take place next week, the beauty and salubrity of Victoria Park, as a recreation ground for the people of the east-end of London will be seriously lessened, if not completely destroyed. . . If the gas companies succeed in carrying their measure in the Commons, we must throw ourselves upon the mercy of the House of Lords, for we shall not give up the People's Park without a struggle, even though we have to implore the assistance of the Crown."

TENDERS

For a detached house at North Grove, Highgate. Messrs. Reeves & Butcher, architects. Quantities supplied by Mr. J. Scott :—

Patman & Fotheringham	£3,723	0	0
Robinson	3,588	0	0
Macey	3,433	0	0
Higgs	3,333	0	0
Wheeler (accepted)	3,140	0	0

For building new aisle and restoring Titchfield Church, Hants. Quantities supplied by Rake & Ranwell :—

Nutt & Co.			
Dallimore	3,015	0	0
Selby & Collins	2,446	0	0
Rapley & Son	2,124	10	6
Till	1,895	0	0

For a shop and house in Godstone-road, Caterham, Surrey, for the Catheram Park Estate. Mr. G. Robson, architect :—

	House.			Shop.		
Hearle	£697	0	0	£582	0	0
Dawson	703	0	0	549	0	0
Dublin	640	0	0	525	0	0
Wood (accepted)	631	0	0	432	0	0

TO CORRESPONDENTS.

Sam Cooking for Hounds (F. S. says:—"Has steam ever been tried to the cooking of hounds' victuals, and how has it answered? In constructing stables and kennels for foxhounds, and would be glad by information in construction and cost of an apparatus using steam to the oatmeal and flesh in the coppers, and hot water to stables adjoining." We believe it answers perfectly well. In addition as to special apparatus must be obtained from the manufacturers).—Semi-Villa (employ an architect).—Correspondent (locality ought to consume their own smoke, but very often do not).—Are not constructed to burn *coal* smokelessly).—Dr. G. (next week).—C. F.—H. D.—R.—H. & M.—P.—C. L.—J. G.—B. & W.—J. R.—J. B.—P. B. L.—F. H. G.—J. W.—C. B.—T. C.—Mr. K.—*Semilla.*—W. H.—J. R. M.—R. L.—L. A. C (we are forced to decline to advertise in private disputes on *ex parte* evidence).—C. E. B. (ditto).—W. (ditto).—R. F. L. J. (see under "Miscellanea").—Honorary Secretary, Architectural Exhibition (no card of admission to the Private Views was received).

We are compelled to decline pointing out books and giving prices.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

N.B.—The responsibility of signed articles, and papers read at the meetings, rests, of course, with the authors.

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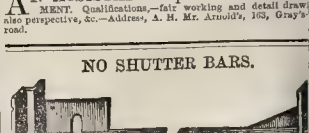
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VOL. XXIV.—No. 1221.

The Art-Union in Parliament.

EN witnesses were examined by the Select Committee on Art-Union Laws, appointed by the House of Commons on the motion of Lord Robert Montagu, namely,—Mr. W. M. Bucknall (of the Board of Trade); Mr. James Pelham, jun., of Liverpool, who told some strange stories of provincial Art-Unions; Mr. H. Cole, C.B.; Mr. Redgrave, R.A.; Mr. M. A. Hayes (Dublin); one of the honorary secretaries of the London Art-Union (Mr. Godwin); Professor Donaldson; Mr. Warrington (Home Office); Mr. Agnew (publisher); and Mr. W. P. Frith, R.A.

The first witness, Mr. Bucknall, came down to condemn the whole system, and certainly made some remarkable statements. He asserted that Art-Unions were not "now doing anything at all to fulfil the object of their establishment;" and at the same time showed that he had an entire misconception of what that object was: for he said it was mainly to obtain a sale for expensive pictures that Art-Unions were established. He asserted that the amount of the subscriptions in the Art-Union of London had not increased from the first year it was established (though the amount in the first year was 489*l.* and the amount this year was 13,684*l.*), and deduced from his statement that "the public have arrived at the conclusion that the chances of winning are very bad in these Art-Unions." He asserted that 144 guineas were subscribed by the public to pay for a 25*l.* picture! and by other similar statements,—however qualified afterwards when questioned by members of the committee,—led them in their report to make the very erroneous statement, that "the chance against winning a prize in the London Art-Union is 99 to 1." Looking to the report of last year, or the year before, it will be seen there was 1 prize to every 11 subscribers; each of these 11, moreover, having received a work of art worth more than the amount of his subscription.

Mr. Bucknall went on to say, that the entire result of the exemption of Art-Unions from the Lottery Laws was "to encourage a spirit of gambling;" that he classed the Art-Union of London in precisely the same category with the shilling Art-Unions; and he gravely propounded as his desire, that the laws protecting Art-Unions from the operations of the Lottery Laws should be abolished; *and that the Lottery Laws should be got rid of altogether!* The Board of Trade have been lax in the discharge of their duties under the Art-Union Laws; injurious abuses have been permitted; and so one of their officers comes down to speak thus.

Mr. Cole's evidence appears chiefly intended to show, what we, at any rate, have never assisted in denying, that the Department of Art is a valuable institution, and, beyond that, to denounce the *immorality* of the principle involved in Art-Unions. When asked his opinion of the operation of Art-Unions in improving the public taste, he said,—

"The opinion I hold about Art-Unions very much agrees with an opinion asked by St. Paul. I think that you must not sin that grace may abound; and although I do not depreciate such an Art-Union as the Art-Union of London, which I believe has a good effect in its way, still my objection begins at the earliest point, and I think that the end does not justify the means.

You are speaking of the moral effect of Art-Unions?—Yes; I think nobody can say that much good results from accidentally getting possession of a picture; because when it is got, it is perhaps sold, but if it be kept and looked at by the possessor, his wife, and his children, then I suppose, on the whole, some good comes out of it."

He further thought Art-Unions artistically harmless; "altogether contrary to the spirit of the times," and "an unjustifiable exemption from the operation of the lottery laws." Mr. Cole was curious as to who the Art-Union of London subscribers are. He says,—

"I looked through the list of subscribers for the year 1865, to see if I could make out what class of people seemed to support it. The conclusion to which I came was, that they are of the lower middle class, in country towns, for the most part. Out of 10,000 subscribers, I only found a bishop, a few peers, two members of Parliament, seven baronets, and only twenty-one persons whose names were at all known, I should think, beyond their immediate locality. So that I do not think it has much hold upon what you would consider to be persons of influence."

The statement is not quite correct: we need only point to the names of the forty-three gentlemen forming the council of the Association to prove this; but to the extent that it is correct it shows that the Art-Union has precisely achieved the object it set out with in the original address issued in 1836, namely, "to increase the number of those who take an interest in the advancement of the fine arts, and who look to them for their most permanent enjoyments." It had been asserted by a committee of the House of Commons, speaking of such associations (and on whose report, indeed, the Art-Union of London was established), that "the smallness of the contributions required would bring together a large mass of subscribers, many of whom, without such a system of association would never have become patrons of the arts." Mr. Cole's analysis proves how exactly this is the case. We will not comment on Mr. Cole's reply to the remark that "having engravings on walls would be no proof of a taste for art,"—"I do not think it is a great proof of a taste for art; but I am not prepared to say that people are not taught a little by seeing engravings on a wall." We should suppose not, considering Mr. Cole's advocacy of museums; it was probably a hasty observation.

Mr. Redgrave, in his evidence, stated very positively, that because the highest-priced pictures were purchased before the Art-Union subscribers could make their selection (sold off the easel, in fact), they only obtained low-class pictures, and fostered mediocrity. At that very minute a prize-holder in the London Art-Union was purchasing at the Royal Academy a picture by Mr. Redgrave, called "The Doomed Tree." Is Mr. Redgrave contented to call this low-class art, because it was only priced at 55 guineas? Other subscribers were selecting the works of G. C. Stanfield, F. W. Hulme, A. Cooper, R.A., Mrs. Robbinson, J. A. Fitzgerald, Niemann, Tennant, Syer, Cobbett, J. F. Herring, C. Danby, Collingwood Smith, Birkett Foster, Henry Warren, Vacher, Maplestone, D. Cox, and of many other well-known excellent artists; while the council of the Art-Union was handing a cheque for 2,000*l.* to Mr. Maclise, for his "Death of Nelson."

"It is inherent in the nature of art-unions," said the same witness, "that they must be popular, and appeal to a low class of taste; and I cannot conceive that they very much improve that taste. A bust of H.R.H. the Prince of Wales is a very good thing to have, from a feeling of loyalty; but I would rather see a fine antique bust in the possession of a poor man, or a copy of a fine antique bust, if the object is to cultivate his taste for art." Mr. Redgrave forgets that,—

"The Art-Union of London was established to promote the knowledge and love of the fine arts, and their general advancement in the British empire, by a *wide diffusion* of *works of native artists*; and to elevate art and encourage its professors, by creating an increased demand for their works, and an improved taste on the part of the public."

In truth, however, while the Council of the Art-Union have distributed 180 busts of the Prince of Wales, produced for them by an English artist, they have spread over the country and its dependencies some thousands of the finest antique busts, those of Clytie, the Apollo, the Ajax, and others.

The Hon. Secretary of the Art-Union of London laid before the committee a general statement of the objects and operations of the Association. When asked if he thought it necessary to use a lottery in order to promote art, he said,—

"I think it would have been impossible to have reached the thousands of persons whom we reach by any other means than those we adopt.

You take advantage of their love of gambling, in fact, to raise their taste?—I have said before, I do not think there is much love of gambling in the case: there is just a spice of chance about it; but they subscribe for the prints round the room which have been given to the subscribers in different years: some of them could not have been produced for less than a guinea and a half or two guineas each, and when a man gets that for a guinea, he takes the chance very calmly of having a prize in addition. To talk of immorality in a case of that sort, in a country where hundreds of thousands are staked upon horse-racing every year seems to me perfectly absurd.

I suppose you consider that the prints of an Art-Union, must be of a popular character?—The names of artists whose works have been at different times selected, are Hilton, Turner, Maclise, Leich, O'Neil, Callcott, Lee, Frith, Mulready, Webster, Stanfield, Landseer, and other painters of eminence.

You do not consider that their paintings are of a popular character, but that they are not of the highest style of art?—They are of the highest style to be obtained in England. If a higher style is desired, it must be sought from artists other than those now painting in England.

Would you say that the Art-Unions of England had degraded art?—I am quite sure that the Art-Union of London has had nothing to do with degrading art.

Would you class those artists to whom you have referred with Raffaelle, Titian, or Michelangelo?—I am afraid we have no Raffaelle, and no Titian. We have recently engraved Mr. Maclise's 'Hamlet.'

It is not the fashion of the country to appreciate that style?—It is not produced.

And perhaps if it were produced, it would not be appreciated?—I think it would be; I think anything that is fine, soon would be appreciated; it is first painted out by those who can appreciate it, and then the multitude follows.

Would it obtain as ready a sale?—It would obtain it ultimately."

Amongst the papers put in by him was one showing the remarkable fact that the sum of 15,110*l.* has been added by prizeholders to the amount allotted to them for the purchase of works of art. He quoted part of the Royal Charter granted to the Association, with the view of showing that the Association occupied an independent position: and said, "I wish to add, on the part of all my colleagues, that we have nothing to conceal, and no pecuniary interest in the Art-Union of London. We simply work for the love of the thing and belief in its usefulness."

Professor Donaldson said he had no doubt whatever as to the important effects produced by the Art-Union of London. Speaking of its mode of operation, he stated,—

"The object of the Art-Union of London is to create a love for art among the masses, and to convey a certain degree of instruction gradually by the diffusion among our 12,000 or 15,000 subscribers of objects of art, rendering good art cheap, and cheap art good, thus superseding the miserable engravings of past periods, miserable in design, in subject, and execution, and replacing the paltry and bad plaster ornaments to the objects of domestic use of former times by artistically designed statuettes, busts, tazze, and other light productions, executed in metal or in parian, by the firms of Minton, Copeland, Brown, Westead, &c., whose articles have become improved, stimulated by the impulse we have given them."

Speaking of the pains taken to secure good works, he said,—

"In some instances we buy the original picture or the copyright of the productions of an eminent artist—as Leslie, Howard, Goodall, Pickersgill, Maclise, Hughe, and others, already named by Mr. Godwin. When the great competition of cartoons and models in the Houses of Parliament occurred, we appointed a committee to select from the premiated designs the following:—'Cœur de Lion,' by Cross; 'Death of Harold,' by Pickersgill; 'St. Cecilia,' by Tenniel (those are pictures); 'Eagle-slayer,' by Bell; 'Youth at the Stream,' by Foley (sculp-

ture). More recently we went to the House of Lords, and have arranged with Mr. Maclise for engraving his two large national subjects. So that we have taken the utmost pains to get the very best subjects."

He thought the result of the Art-Union of London being suppressed, would be disastrous to the masses of the middling class. We have not, as in the Continental provincial towns, museums and galleries of art and science, where the masses may freely enter, and be delighted and instructed by the contemplation of works of art. In Bordeaux, Caen, Dijon, Lyons, and other cities of France, they have collections, not only of fine works of art in general, but frequently of pictures and statuettes by the townsmen, who have risen to great fame. Devonshire is celebrated for the many eminent artists it has produced, as Reynolds, Northcote, Eastlake, Brockedon, and others of note; but there is no gallery at Exeter or Plymouth containing their works, and recalling their worth to their fellow towns- and country-men.

Mr. Frith, R.A., gave strong evidence as to the great value of the Art-Union; showed the extent to which it operated in promoting a taste for art and making picture-buyers; and gave instances of the way in which it had aided rising young artists now well known.

"The prizeholders are not confined to any particular exhibition; they have a choice of all the exhibitions in London; and in the water-colour galleries, I believe, there are works by well-known men. I should not like it to be understood that they are merely young men's works that they buy. I pointed to young men, because I feel that so much good is done to them. The encouragement that they get in youth is very valuable to them; it was to me, for I sold one of my first pictures to the Art-Union. I felt great encouragement from that, and probably some of my successes afterwards may be attributed to it."

As to the additions made by prizeholders,—

"There are many instances of Art-Union prizeholders, adding large sums to their prizes. Mr. Ward's picture of the 'Landing of James II.,' which came to the Vernon Gallery, was bought by Mr. Jacob Bell, who had a very small prize, but he added, I think, 300*l.* or 400*l.*"

Speaking of the collection of the late Mr. Miller, when asked if the value of it was less than 50,000*l.*, Mr. Frith said,—

"I should think not, but I have no idea without going into the thing. I know all the pictures very well; but I think if Mr. Miller were here, he would admit that a great deal of his own love of art sprang originally from the diffusion of taste by the Art-Union of London."

Mr. Frith said he believed an appreciation of art is rapidly increasing, and he attributed this in a great measure to the operations of the Art-Union of London.

Half a dozen other leading artists were ready to give evidence to the same effect, but the committee thought it unnecessary to hear them.

In their report the committee recommend, with the view of remedying abuses proved to exist, the enforcement of a series of regulations precisely similar to those followed by the Art-Union of London, neither more nor less: and they would impose a penalty on any person taking part in the management of an Art-Union who permitted any departure from these regulations. The chief officer of the Department of Science and Art having expressed, with handsome reservations so far as the managers of the London Art-Union are concerned, an anxious desire "to send all the art-unions to limbo" (a place, according to the dictionary, "supposed to lie on the edge of hell"), the committee oddly enough propose that Art-Unions should be placed under the paternal government of that Department.

Our own impression is, that if the Board of Trade and the Home Office would exercise rightly the powers they possess, the swindles that have sprung up here and there in the guise of Art-Unions might be prevented without any fresh legislation.

The committee deduce from the evidence that Art-Unions are not very beneficial to artists, because the amount of assistance which is rendered to artists by purchasing their pictures for prizes is very small indeed. Mr. Frith, R.A., gave a very different opinion, and we doubt if Mr. Elmore, R.A., Mr. F. R. Pickersgill, R.A., Mr. Calder Marshall, R.A., Mr. Durham, A.R.A., and many other able artists, would deny that the Art-Union of London was of service to them in early life. Let us see precisely, however, what the amount of the money assistance alone given to artists by the Art-Union of London has been. Going carefully through the whole of the reports, we find that the Association has paid to artists exhibiting at the

Royal Academy, including for copyrights	£58,353
British Institution	16,854
Society of British Artists	50,968
Society of Painters in Water-colours	11,547
Institute of Painters in Water-colours	13,752
Portland Gallery	12,671
Royal Scottish Academy, Royal Hibernian Academy, Society of Female Artists, National Competition in Westminster Hall, and the Dudley Gallery	1,257
To artists who submitted works to them in competition	2,524
While the amount expended in the production of engravings has been about	90,000
Making a total of ...	£257,926

irrespective of the expenditure on statuettes, bronzes, and other works of fine art. Should the committee call this *very small* assistance?

However, we have probably said enough for the present; at any rate, our space is exhausted. In the interest of the Art-Union of London, and with full knowledge of the enormous amount of good effected by its operations, our chief quarrel with the committee is, that though this Association is throughout the evidence called the "model Art-Union," and the excellence of its management admitted by every witness, and though the committee were aware that it would not be affected even by a repeal of the Art-Union Act, being founded on a Royal Charter, they have in their report mixed it up with all the other associations, bad and good, to which the term Art-Union has been applied, giving no single word of recognition to the body of gentlemen, who, unpaid, and without any personal motive but of desire to be of service, have for years conducted it.

The artists of the metropolis, if they wish to retain earnest and disinterested workers in the cause, should at once take means to express their opinion on the subject.

THE MANUFACTURE OF BUILDERS' HARDWARE.

THE rapid extension of the railway system in this country is working out, among other things, a considerable change in the operations of commercial and industrial enterprise. By abridging, as it were, both time and space, it is bringing the various classes into closer connexion and easier communication with each other,—the merchant with the manufacturer, the consumer with the producer,—a circumstance which, of course, is mutually beneficial, and of advantage to the community at large. In former times there were needed some intermediate stages between these two commercial classes. The manufacturer sold his ware to the chapman, who in turn transferred it to the merchant, and thence it either went to foreign stores or home retail establishments, before it reached the actual consumer, increasing, of course, in price with each transfer. To a considerable extent this is still the case in many branches of trade, to the injury alike of fabricator and consumer, both of whom have to sacrifice a portion of their legitimate profit to satisfy the demands of intermediate agents. The natural effect of such a method is inevitably to encourage the substitution of inferior merchandise, to the injury and inconvenience of society at large.

Builders' ironmongery is a case in point. The manufacturer produces an article at a fair market price, and sells it to the factor; the latter puts on his profit of 10 or 15 per cent., and transfers it to the wholesale ironmonger, who, adding his commission of 10 per cent., hands it over to the retail seller, where it is further taxed, and where it awaits the pleasure of the actual consumer. Assuming, for the sake of argument, that the maker's price was 1*l.*, it reaches 1*l.* 8*s.* or 1*l.* 9*s.*, before arriving at its destination. Now, if the consumer bought at first hand, he might either have a much superior article at the same price, or a similar article to the one referred to at a reduction of from 30 to 40 per cent. Of course, in the case of small purchases, to buy from the ironmonger is the only method; but builders using a fair quantity of articles would be considerable savers by either visiting the maker, or (as many now do) buying from the factor direct.

It has occurred to us that some information as to the principal localities in which Builders' hardware is manufactured, pointing out the descriptions peculiar to each, may be of service to builders by bringing them into more direct communication with the manufacturers of their hardware, and also of service through them to the public generally, by removing to some extent the necessity for using articles made rather for sale than for use.

The seat of the builder's hardware and metal trades is undoubtedly that part of South Staffordshire and East Worcestershire known as the Black Country. The district has been often described in terms quite analogous to its dark appellation, teeming as it does with all the outward evidence of its remarkable industry. The principal towns are Wolverhampton, Dudley, Wednesbury, Walsall, Westbromwich, Bilston, Willenhall, Darlaston, Tipton, Stourbridge, and Wednesfield, all of which, with their adjacent hamlets, have a branch of manufacture peculiar to themselves, and most of them are more or less engaged in the production of some department of builders' hardware. The main difficulty in the way of direct dealings on the part of builders, or other strangers to the locality, is the distribution of these trades among so many "small masters;" but a few larger establishments are to be found in connexion with each department of the trade. Most of the towns named are in direct and frequent communication with Birmingham, the district being quite intersected with main lines and branches. We subjoin a classification of the leading descriptions of builders' hardware, with the respective localities at which they are produced, together with other incidental information.

Locks.—The better class of *levered* or *tumbler* locks are chiefly made at Wolverhampton, and can be had in almost endless variety. "All brass," and "brass case" rim, dead, and mortise, are largely made for export, and the patterns include many which would considerably improve the style of the better class locks for home use, if properly brought under the notice of builders in this country. The iron locks and night-latches made here include the patents of Bramah, Barron, Chubb, and other well-known names. In mortise, Young's *palace motion*, well known in the building trade, are made in this town. The cheaper kinds of stock locks, such as "Banbury," and "fine plate," are made almost exclusively in Wolverhampton, and are to be bought just now at very low prices, owing to the severe competition in that trade. For the cheaper kinds of door-locks, Willenhall is the great emporium. Here dead, rim, mortise, and drawback locks, with either fine, round, or solid wards, can be obtained in any style, and almost at any price. The very common descriptions, which are chiefly made of cast iron, are, however, only adapted for export to such places as do not overflow with treasures, and therefore need little security. For home and export trade there is a wide range of patterns in every conceivable variety, and of fair medium quality, to be obtained here. A goodly number of superior door-locks, such as Carpenter's patent, which, for thirty years, have had a world-wide reputation, are also made here at the original establishment, Summerford Works. Attempts are frequently made by other makers to palm on to builders, and even merchants, spurious *imitations* of these articles. Chest, till, and cupboard locks, of superior quality, are made chiefly at Wolverhampton, and are to be had with levers and detectors. The cheaper kinds, made of iron, are manufactured at Wednesfield, and the neighbouring hamlets of Short Heath, New Invention, and Wood End. Many useful patterns of these

articles have never yet been properly introduced into the home market; and, as is the case with other goods, we are sending the best abroad, and being content ourselves with an inferior quality.

Bolts.—Barrel, tower, and shutter bolts, of medium quality, are made principally at Willenhall; and since the introduction of machinery to this trade, the manual labour required in their production is merely nominal, and the price of the articles fluctuates with the rates quoted for iron. These bolts are sold by the makers subject to a discount, which is sometimes as great as 75 per cent.! Better kinds of brass and bronzed bolts, for doors, windows, lattices, &c., are made at Wolverhampton.

Knobs.—Brass door furniture is made exclusively at Birmingham and Wolverhampton, of various qualities. Competition has been so great in this branch of industry, that the common brass knobs are made so light and frail as to render them unfit for any lengthened wear. Builders wishing to secure serviceable knobs should specify *cast necks*, or quote "No. 50," well known in the trade. Cooke, Hyatt, and Rogers, of Wolverhampton, are all makers of best cast brass furniture. China, glass, and other kindred descriptions of door furniture, are made in Birmingham, and also (to some extent) in Wolverhampton, of beautiful patterns both as regards outline and ornamentation. Wood furniture,—rose, ebony, oak, maple, and other kinds,—is produced extensively at Willenhall.

Latches.—Bow, rim, spring, and thumb latches are made at Willenhall, and also night latches of medium price and quality, but the manufacture of very best secure night-latches is chiefly carried on in Wolverhampton. Norfolk and Suffolk latches are also made in Darlaston.

Foundry-ware (Iron).—Foundries for the manufacture of stoves, grates, furnaces, door-knockers, gates, palisades, and other kindred articles are to be found more or less in all the towns of the district, but Westbromwich is, perhaps, the greatest stronghold of that industry. For heavy cast goods, Wednesbury and Tipton are noted almost as much as Westbromwich; and at Wolverhampton there are several foundries for the manufacture of iron pipes, gutters, sash-weights, kerbing, &c.

Brass Goods.—Such articles as beer-machines, spirit-fountains, chandeliers, taps, front-door bell-pulls, name-plates, and other kinds of brass-foundry ware, are extensively made in Wolverhampton, for home and export trade, in infinite variety. There are also a few brass foundries in Walsall, and other towns of the Black Country; but the greatest centre of this trade is Birmingham, where there are numberless foundries, engaged in every department of this industry.

Nails.—For machine-made nails, Wolverhampton is the most advantageous locality, there being several extensive cut-nail factories there, doing an enormous trade. For wrought nails, Sedgley, and the adjacent localities of Gornal, Netherton, Halesowen, Gospel-end, and Kate's Hill, stand pre-eminent. Builders purchasing nails direct from these places, however, will do better to deal with the "nail masters," as they are called, who are in reality nail merchants, as the manufacturers are almost all very poor, and in a very small way of trade.

Screws.—These articles are mostly made at Birmingham, where the works of Nettlefold and other well-known makers are situated. There are, however, also makers at Willenhall, Wolverhampton, and other places, of wood screws. Screw bolts, and nuts, adapted for ironwork, are chiefly manufactured at Darlaston, where there are numerous makers.

Tools.—Edge-tools of various kinds are largely made in Wolverhampton, Wednesbury, and Stourbridge; but, of course, not anything in extent like that trade at Sheffield, the great emporium of such articles.

Hinges.—Wolverhampton is the chief depôt for hinges, both wrought and cast. The leading kinds made here for home trade are BB bright joint T's, extra strong T's, common T's, japanned light Scotch T's, best H, best HL, edge butts, jointed hinges, and hooks. There are nine principal factories for the manufacture of these articles here, at all of which there is a great variety from which to select.

Iron Roofing.—Iron roofing, plain and corrugated, is made at Woverhampton, Darlaston, Wednesbury, the Crescent, near Willenhall, and other places in the district. Galvanized roofing is, however, chiefly made in the former place. This branch is experiencing a considerable extension of demand for foreign trade, and in England it is more in request for public buildings, markets, &c. There is little doubt that its cheapness and durability will in course of time obtain for it a preference in the covering of smaller erections.

We have now completed our classification of the leading descriptions of builders' hardware manufactured in the various towns of the Black Country, in the hope that it may be of service to such members of the building trade as desire to buy in the cheapest market, and to effect some improvement in the general character of the articles to which we have referred. There are numerous patterns at present made for foreign trade exclusively, which might be introduced with advantage into the building operations of this country; for, as we stated in a previous article, much of the comfort and convenience of a building depends upon the character of the hardware fixtures, and in this respect there is undoubtedly room for considerable improvement, both in our town and country dwellings. To publish prices of the articles would involve us in some difficulty, as they vary greatly, but certainly the saving effected by purchasing at the first hand would be as great as the improvement which might be made in the quality and style of the various goods.

THE HEALTH OF CITIES.

LONDON AND VIENNA, 1865.

EARLY in the seventeenth century weekly bills of mortality were published relating to the city of London, and have been continued with more or less regularity and accuracy up to the present time; it is only, however, since the establishment of the General Register Office, in 1837, that these weekly publications have acquired that undoubted confidence which is so essential to the true value of statistics. During the last thirty years, the importance of vital statistics has grown in popular estimation; and the periodical publication of the various rates of mortality in the different portions of our country is now looked for, so much as a matter of course, that we can scarcely imagine the possibility of a return to the old state of things, when all was uncertainty, and either a dangerous epidemic might be among us without the possibility of knowing the extent of its ravages, or a false report of disease might give rise to a panic, which could not be easily allayed, as no authentic facts would be available to prove its falseness. Up to the present time we have been obliged to content ourselves with comparing the rates of mortality in the different towns of the United Kingdom with each other, as similar statistics in the various countries of Europe are only published at long intervals, and in most instances not until their interest is almost destroyed, by their appearing so long after the period to which they refer. There is still a great feeling on the Continent that the publication of such tables of births and deaths, as we are accustomed to see each week in our newspapers, is liable in times of pestilence to create unnecessary and useless panic. This argument is particularly used by the French Government, when urged to publish similar weekly statements relating to Paris; and to the present day it is impossible to say to what extent cholera was fatal in that city last autumn; although, however, all were kept ignorant of the extent of the danger, the panic created by the disease, in both Paris and Marseilles, far exceeded that experienced in London in 1854, when each Wednesday appeared the usual weekly return, with the authentic numbers of those who had suffered during the week ending the previous Saturday from each disease, including cholera. Nothing is so likely to create panic as an uncertainty as to facts, and the impossibility of contradicting false rumours. At the different meetings of the Statistical Congress, which have been periodically held in various large cities of Europe, the publications of the General Register Office, especially the weekly return, have been accepted as a model, and been recommended for imitation in other countries, which, through their delegates, expressed a desire to establish similar returns. So long as France holds back, very little, it is to be feared, will be done on the Continent. Vienna, however, now publishes a weekly return of deaths, which it is our present intention to examine; and New York has also commenced a similar publication, which, notwithstanding its present imperfections, is intended, we are told, to surpass that of London.

The weekly return of Vienna, of which a copy is furnished to the General Register Office in London each week, is only a lithographed form on a single sheet of paper printed on one side, with the new figures for each week, filled in by hand. The information given is confined to the total deaths in the week ending each Saturday (those that die in public institutions being distinguished from those in private houses), and the numbers referred to each of a certain number of diseases, making up about three-quarters of the total deaths. Two important elements, it will, therefore be seen, are entirely omitted from these returns,—no figures relating to the births, or any particulars as to the ages of the deceased. Certain meteorological facts are, however, given as to the barometer and thermometer, but nothing appears concerning the rainfall. With all its faults we are glad to be able, by putting together the facts of the fifty-two weeks of 1865, to institute some sort of comparison between the health and temperature of London and of Vienna during last year.

The estimated population of Vienna for the year 1862, as furnished by the statistical department of that city was 560,000, and the rate of increase in Vienna is so much smaller than in London, that until the result of a more recent census be known, it is sufficiently near the truth to use the above figures. The estimated population of London for the middle of 1865 was 3,015,494, between five and six times as large as that of Vienna. The mean temperature of the year in the two cities was 50·3° Faht. in London and 49·3° Faht. in Vienna, showing an excess of one degree for the year in favour of London. The variations of temperature, however, were much more extreme in Vienna, although probably not so sudden as in London: the cold of winter and the heat of summer was much more intense in the Austrian capital, as will be seen by comparing the temperature of each of the quarters of the year:—

	London.	Vienna.
March quarter.....	38·5°	29·9°
June ,, ...	56.2°	60·1°
Sept. ,, ...	62 5°	66·0°
Dec. ,, ...	46·0°	41·2°
Average of year	50·3°	49·3°

Thus, the temperature of the first thirteen weeks of the year averaged in Vienna nearly 2° below freezing point, while in London it was 4·2° above, and in the summer months there was an excess in Vienna nearly equal to the previous deficiency.

The rate of mortality in the two cities did not bear so near a resemblance as did the temperatures, as the figures below will show:—

Rates of mortality to 1,000 persons living.	London.	Vienna.
The year 1865	24·44	31·85
March quarter.....	27·98	34·52
June ,, ...	23·16	38·57
Sept. ,, ...	21·91	28·16
Dec. ,, ...	24·05	26·15

The rate of mortality in Vienna during each quarter largely exceeded that in London during the corresponding period, and averaged, for the whole period, an excess equal to above 7 per 1,000 persons living. Had the same death-rate prevailed in Vienna during the year as ruled in London, instead of the 17,775 deaths recorded, only 13,686 would have occurred, a saving of more than 4,000 lives. It is impossible, with the scanty information afforded by the returns in question, to make a satisfactory comparison of the different causes of death, so as to explain this large excess of death in Vienna; but we shall be able to trace a portion of the excess under some of the heads given in the table. Of the 17,775 deaths, the causes are only given of 13,505; of these, 4,518 are referred to phthisis: if this number be raised in proportion to the difference of population, we find, that if Vienna had contained the same number of inhabitants last year as London, 24,151 would have died from phthisis; whereas, in London, only 8,710 succumbed to this disease. From "old age" 801 persons are said to have died last year in Vienna, which, raised for comparison, becomes 4,282, against 2,721 in London. There were 151 deaths from childbirth in Vienna, which, in an equal population to that of London, would have become 807; whereas, in London, they were only 482. As the number of births are not given, we cannot compare the deaths of mothers to children born, which would be much more satisfactory, as probably the birth-rates in the two cities differ considerably. The proportion of deaths from typhus in the two capitals is very similar, as 3,747 in Vienna, to 3,232 in London; with

small-pox also the numbers in Vienna would be 625, and in London they were 646. The infantile epidemics, scarlatina, measles, and whooping-cough, were much more fatal in London than Vienna; in the former the numbers recorded were respectively 2,181, 1,302, and 2,921; in Vienna the figures raised for comparison are only 540, 962, and 615; croup, however, shows 1,433 for Vienna against 742 in London. The 72 deaths from cholera in Vienna would become 385; in London, 193 died from this disease. Deaths from heart disease and apoplexy were considerably more numerous in London than Vienna, suggesting the idea that the excitement and the struggle to live, were more fatal in the larger city.

In Vienna, during last year, 106 suicides were committed, which raised for comparison become 567; in London the number was only 267; other violent deaths were much more numerous in London, where 2,241 were referred to accident, and 132 to homicide; the corrected numbers for Vienna were only 700 and 16. The excess of traffic in our crowded streets, no doubt, largely contributes to make this last comparison so unfavourable to London; it is to be hoped, however, that when our metropolitan system of railways gets into complete working order, we may find our streets considerably relieved.

Of the 17,775 deaths returned in Vienna last year 5,766, or 32 per cent. died in public institutions; whereas in London, of the 73,460 total deaths, only 12,116 occurred out of private dwellings, equal to only 16 per cent. There is little doubt that London is very insufficiently supplied with public institutions of many kinds, and more especially with hospitals, for which workhouses, with but too insufficient staffs, are obliged to do duty; and it will be a disgrace to our metropolis if, after the recent exposures, parishes do not combine to increase the number of our hospitals by the establishment of workhouse infirmaries. Fever cases are now too often left in crowded houses to sow the seeds of infection, from the inability of institutions to receive them.

Before concluding this comparison between the weekly returns of London and Vienna it will be well to refer to one particular in which information is given for the Austrian capital, which is entirely omitted in our weekly return. In Vienna, 746 cases of still-born children were recorded; if these occur in the same proportion to the population in London, they would amount to nearly 4,000, but by what now appears a mistake in the framing of the bill for registration of births and deaths in England, still-born children are not registered, and no record is kept of such events. Still-born infants,—or infants so-called,—may, therefore, be buried without the production of any certificate in support of such an assertion; and this practice has, it is to be feared, been much abused. In the interests of morality and of the accurate collection of statistics, it is to be hoped that an alteration in the law will ere long be made to rectify what is now an omission in our returns.

It is much to be desired that other cities would speedily follow the example of Vienna and New York in imitating our weekly returns of births and deaths, for in addition to the information to be derived from periodical comparisons between the different towns, at a time like the present, reports of the outbreak and prevalence of cholera, in different cities, are more alarming in their vagueness and uncertainty, than if we were in possession of authentic returns of the number of deaths. At any rate, it is a subject for congratulation that the death-rate of our huge metropolis for last year may be favourably compared with that of Vienna, which contains little more than 560,000 inhabitants; and it is to be hoped that the efforts of the authorities in Liverpool, Manchester, and Leeds will soon be enabled to reduce the rates in those towns to something like the same standard.

PROPOSED ESTABLISHMENT OF MORTUARY CHAPELS.—At a recent meeting of the Marylebone vestry, a communication was read from Dr. Lankester, coroner, informing the vestry that a jury empannelled upon the body of a child which, through the poverty of the parents, had been kept in the only room they owned, for ten days after death, had resolved to recommend the parochial authorities to erect mortuary chapels for the reception of the dead. The meeting therefore resolved to act on the recommendation by erecting one chapel by way of experiment.

THE PROTECTION OF STONE.*

A PRESERVATIVE, to be permanent, must be a mineral substance. All matter of organic origin exposed to atmospheric influences succumbs, sooner or later, to the effects of a slow combustion. The ultimate result, as very effectively shown by Faraday, when asked as to his opinion of such a preservative, is the same as if the substance were held in the flame of a candle and there burnt. Under the influence of the oxygen of the air, the action of which is greatly accelerated by the vicissitudes of weather, the carbon and hydrogen of which all organic bodies are built up, are slowly converted into the compounds from which they were first eliminated by the vital force, viz., carbonic acid and water. But although organic bodies cannot be classed under the head of permanent preservatives, a very small number of them exhibit a degree of permanence approaching that of mineral substances; and there are others which, although of even less stable composition, are occasionally useful as means of introducing into the stone a really valuable preservative. Mention will, therefore, be made of both these substances under the head of temporary preservatives.

The only preservatives, then, which are practically available, and to which the designation permanent can safely be applied, are solutions in water of some one or other of the following mineral substances:—Silica, either alone or in combination with the alkalies; or made to combine within the pores of the stone with lime, baryta, strontia, or alumina; or dissolved in hydrofluoric acid, as silicofluoric acid; phosphoric acid, or acid and therefore soluble phosphate of lime; and, finally, either the hydrates of lime or baryta, or their bicarbonates. The organic materials of an inferior but still high degree of permanence are:—Coal-tar, and certain substances obtained from it, such as paraffin; beeswax; and some of the more permanent gums and resins. Still less permanent, but occasionally very useful, are the common drying oils.

It is a very difficult thing to determine exactly the separate merits of all these substances. The Committee on the Decay of the Stone of the Houses of Parliament, after their sittings had extended over five months, were themselves unable to positively recommend a single process. Still, the inquiries and experiments on the subject during the last few years have produced a good deal of information, and we shall endeavour to give here a *resumé* of the most prominent of these results.

A process, having for its object a permanent preservation, which has received the greatest attention, upon which several patents are founded, and which has been the most extensively used, is the silication of stone by alkaline silicates, commonly called water-glass. This process was first employed by Professor Kuhlmann, more than twenty years ago, to harden chalk and porous stone. It was first patented in England by Count de Fontainemoreau, and only subsequently, in 1855, by Kuhlmann. Of the two alkaline silicates, silicate of potash was found preferable to silicate of soda, the latter being liable to give a white efflorescence. The action of silicate of potash on carbonate of lime, under the influence of the carbonic acid in the atmosphere, results in the formation of soluble carbonate of potash, which gradually exudes and is washed away, and of very hard and durable silico-carbonate of lime and silicate of lime. Gelatinous silica also separates, and coats, cements together, and protects, the particles of the stone. This process has been found very satisfactory, but only provided the stone at the time of application was dry, and provided the surface was either not exposed to, or, at least, was protected from, wet weather until hardening had taken place. A portion of the tower of Notre Dame Cathedral, in Paris, the stones of which had been evidently in a state of rapid decay at the time, but which was coated with this silicate, was found after eight years to have become extremely hard, and free from disintegration.

Szerelmey's process of preservation, which consists simply in applying first a couple of washes of silicate of potash, and then one of colourless asphaltum, was stated by him to have succeeded very well without the asphaltum. Two of his answers, when examined before the Committee on the Decay of the Stone of the Houses of Parliament, are worth quoting:—

"Professor Hofmann had the kindness to mention the last time at the Royal Institute of British Architects, that it is very good if the silicate is re-coated with something to prevent the influence of the atmosphere, and I do it only for that purpose. I have tried several places which I have coated three times with silicate only, and it will stand beautifully;" and, further on, "I can show you some places which were coated only twice with silicate;" and, also, "The rain and frost have not the slightest effect upon them."

The chief objection to the use of silicate of potash is that rather an unpleasant colour is produced upon the stone; and also, that a kind of unpleasant reflected light is occasionally to be seen from portions of the stone.

There are several other processes in which the silicates are employed, not alone, but together with other materials, generally with a view to double decomposition, so as to deposit an insoluble substance in the pores of the stone. One of the best known of these is Mr. F. Ransome's process (patented 1856,—No. 2,267), which consists in applying first a solution of silicate of soda of a specific gravity of 1·4, and then one of chloride of calcium. Mutual decomposition takes place, insoluble silicate of lime and soluble chloride of sodium are produced, the latter of which gradually exudes and is washed out. Mr. G. R. Burnell states that he has applied this process to Caen stone and brickwork in exposed situations with satisfactory results. We may add here, that in the same patent Mr. Ransome states that for certain descriptions of stones, more especially freestones and sandstones, he prefers using a solution of sulphate of alumina to be followed by one of baryta, by which a double decomposition is caused, and two insoluble substances, viz., alumina and sulphate of baryta, are produced.

A process patented by Mr. F. T. Barff (1861,—1738) consists in the application of a silicate of potash or soda, mixed in such proportions that the production of insoluble silicate of alumina should only take place some time after the solutions have entered the pores of the stone. The large excess of alkalies required, however, does not speak well for the process. Mr. Barff has likewise patented a process (1860,—2,608), for the use of a solution of silicate of potash together with powdered carbonate of zinc, about one of the former to six and a half of the latter, applying first the silicate of potash and then the carbonate of zinc, so as to produce a permanent silicate of zinc. Another process patented by Mr Barff (1863,—1389) is the employment of a mixture of sulphate of baryta, carbonate of lime, and silicate of potash, to be put on as an oil paint, the sulphate of baryta being added merely to prevent the too rapid combination of the silica with the lime before the surface has been coated. Both these processes, however, are merely a species of permanent paint, and could not be applied to stone, the original appearance of which it was desired to preserve.

A process theoretically excellent, but which would probably be found too expensive, is the one patented by Mr. de Wyldé (1863,—2,550) for the successive application of solutions in water, of silica, and of alumina, so as to produce insoluble silicate of alumina within the stone. This process depends upon the not long discovered facts that both silica and alumina, although usually perfectly insoluble in water, can by certain rather roundabout contrivances, be both obtained in solution. The application of soluble silica, preceded by that of a solution of baryta, has also been patented by Mr. A. H. Church (1862,—220). In this case insoluble silicate of baryta is produced in the pores of the stone. Except as to cost, both these processes are almost all that could be desired, inasmuch as they possess the great advantages of not only introducing two very permanent and insoluble materials, but also of leaving nothing soluble behind to exude and disfigure the surface of the building until gradually washed away.

Various methods have also been patented or proposed with regard to the employment of silico-fluoric acid, either alone or together with other substances. The process of Mr. W. Crookes, the well-known chemist, for hardening and preserving stone containing carbonate of lime, consists in employing a dilute solution of silicofluoride of aluminium, which in contact with carbonate of lime, decomposes with the latter, forming free silica, fluoride of calcium, and fluoride of aluminium, all of which are insoluble and very permanent compounds. Messrs. Bernays and Field's process consists in the use of a dilute solution of silico-fluoric acid, subsequently washed over by ammonia. In this way, if suffi-

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* See p. 421, *ante*.

nt ammonia be employed, gelatinous silica is posited in the pores of the stone, and fluoride mmonium formed, which gradually reacts on carbonate of lime in the stone, forming oride of calcium, an insoluble compound, and bonate of ammonia, which volatilises. The ef, objection to this and Mr. Crookes's pro- s is, that the solutions not only act upon the ne, but by doing so also cause an effervesce of carbonic acid, which tends to keep open pores of the stone. The process patented Mr. Jesse Rust (1861,—1428) is less open to objection, inasmuch as he precedes the lication of silico-fluoric acid by the applica- of a solution of the alkaline earth baryta. en these two solutions come into contact, silica and insoluble fluoride of barium are ned. Mr. Spiller's process for the preserva- of calcareous stones consists in the applica- of a solution of acid phosphate of lime. this case the excess of phosphoric acid bines with the lime of the carbonate of e, producing insoluble phosphate of lime, depositing at the same time also the phos- te of lime it had held in solution. How- r, phosphate of lime is almost as susceptible tmospheric influences as carbonate of lime, hat the only advantage derived from its use its rendering the stone less permeable to er, by permanently choking up its pores. this object alone might have been about ally well attained, and at less expense, by use of a solution of lime, which gradually omes converted into carbonate of lime, or by ploying a solution of bicarbonate of lime.

We now come to that class of preservatives ch may be termed temporary. All of this s which are worth mention consist of oily or minous substances, either alone or mixed with er materials. Leaving out of consideration question of permanency, there can be no bt that substances of an oleaginous nature il very satisfactorily the main object of all ay-preventing processes, viz., keeping out sture. M. Hervé Magnon (the chemist em- ed by the French Government in all questions nected with the preservation of materials) Mr. Burnell, when the latter visited Paris the purpose of collecting information for the mmittee on the Decay of the Stone of the ses of Parliament, that if called upon to advise to the mode of preserving a stone of inferior lity, he should be very much disposed to recom- nd the employment of a mixture of oil (pro- ly linseed or other drying oil) and wax, even the expense of having to renew it when re- red. Under very favourable circumstances, en the stone was but little exposed, and when ad been applied previous to the absorption of isture, oil has remained efficient for from five ten years; but this is its extreme length of ration. Mr. Daine's composition of one part of phur in eight of linseed oil (patented 1854,— 55) appears to have answered very well for a e. When a portion of the stonework of the uses of Parliament, to which it had been ap- ed in 1854, was examined in 1861, it was nd to have generally prevented decay, and surface of the stone proved to have been siderably hardened. A very valuable preser- ive, but only applicable to stones previous to ir insertion in buildings, is coal-tar and cer- n substances extracted from it. Mr. Hutchi- , in his evidence before the Committee on the cay of the Stone of the Houses of Parliament, er fifteen years' experience in hardening and serving stone, stated that, by plunging it into ated coal-tar, or into a colourless resin prepared m the latter, he was able to convert a very low- ced stone into a material perfectly impervious water, and which has stood the exposure of teen years. The substance paraffin, prepared m coal-tar, and the name of which is derived m its remaining unaffected by all chemical ents (*parum affinis*, without affinity), is on this count likewise a very valuable preservative aterial), when it can be obtained cheap enough. process which has a certain degree of per- anency, and which has been frequently recom- ended in the pages of the *Builder*, is the ployment of a solution of soap and one of um, which mutually decompose, forming an eate of alumina, which constitutes an insoluble rnish, impervious to air. A solution of three- arters of a pound of mottled soap in one llon of boiling water, is spread steadily with large flat brush over the surface, allowed to y for twenty-four hours, and then a solution of e-quarter of a pound of alum in two gallons water applied similarly. It is not our inten- n to enter into the subject of paints, or other similar non-transparent coatings; but we may finally mention here that, whereas common paint, when exposed to the atmosphere, does not as a rule last longer than three or four years, Mr. C. Hibble gave evidence before the Committee on the Decay of the Stone of the Houses of Parliament, to the effect that a paint containing ground Dorking lime instead of white lead, proved to be still in good condition after seven years' exposure.

With regard to the mode of application, in conclusion, it is necessary, in order to render the protection as permanent and penetrating as possible, that the following precautions should be taken, if practicable. In the first place, the solution should, if possible, be injected with considerable force, so as to enter more deeply into the stone. D'Almande's process of preserving stone differs from Kuhlmann's only in the fact of the solution being injected with a fire-engine instead of being applied with a brush, and is on this account much preferred to the other in France. Syringes with broad rose nozzles may also be used, care being taken to place at the foot of the walls gutters made of burnt clay, plaster, or cement to collect the excess of liquid, which may serve for fresh operations. It is a good plan, in some cases, to introduce the solution by means of cloths soaked in the same, and kept in contact with the surface of the stone until it has absorbed a sufficient quantity. The liquid employed must also not be too thick: if a solution be employed, this should on this account not be more concentrated than absolutely necessary; if becoming thick when cold, it should be heated before use. The stone should likewise be as dry and warm as possible at the time of applying the solution. As regards dryness, it is quite evident that as long as the pores of the stone are filled with water they will be unable to absorb the preserving solution, especially if it be of an oily nature; as regards warmth, it is equally evident that the solution, especially if cold, will penetrate to a greater depth the more the air inclosed in the stone is rarefied by heat. When practicable, it is a good plan to warm and dry the stones previously to the preserving process, either by heated braziers or by the injection of hot air. For the application of silicate of potash, however, these latter precautions are unnecessary. In this case, indeed, dull weather is even preferable to warm and dry weather, and when the sun is shining warm, it is even advisable to protect the work by means of cloths to prevent too rapid desiccation.

THE QUEEN ELIZABETH PROCESSION IN THE KENSINGTON NATIONAL PORTRAIT GALLERY.

THOSE readers of the *Builder* who take an interest in the treasures of historical art now assembled at South Kensington, will be thankful to Mr. Peter Cunningham for directing their attention to Mr. Scharf's letter on the Procession picture of Queen Elizabeth, as it may have escaped the notice of some of them when it appeared in the *Times*. He has quoted it at length,* and therefore it speaks for itself, and briefly but convincingly unfolds the actual subject of the design. Mr. Cunningham expresses his dissent, but he does not support that dissent by any arguments more pertinent than his abiding admiration of George Vertue, Edward Harley, Earl of Oxford, and Horace Walpole, Earl of Orford. He adds, indeed, some dates of the deaths of the noblemen of Elizabeth's court, apparently to show that the subject cannot belong to the year 1600, because the personages supposed by Vertue to figure in it were mostly dead before that date. They were so: and that accounts for the circumstance that was always embarrassing, and which struck me I may say some years before I met with the historical proofs of the real subject of the picture,—I mean that the heads assigned by Vertue to the Earl of Leicester and Lord Burghley are totally unlike their well-known features.

Mr. Scharf expressly says that the portraits of the Earls of Leicester and Sussex, Lord Burghley, and Henry Lord Hunsdon, are not to be found in the picture; and, having once ascertained the scene represented, I could as confidently have affirmed the same. But Mr. Scharf has done more than this. He has told us that three of the noblemen mistaken by Vertue are the Earl of Worcester, the Earl of Cumberland, and George second Lord Hunsdon. This information Mr. Cunningham seems to have failed to apprehend; or, if he has understood it, why has he not attempted in any point to controvert it? In the place of argument, Mr. Cunningham contents himself with these empty and somewhat supercilious reflections:—

"What 'the old Lord Digby' would have thought of Messrs. Scharf and Nichols's 'new hypothesis' we may readily imagine; and with what reading and reference and humour Horace Walpole would have exposed it, all the readers of that enchanting writer can form an immediate and safe conjecture."

Now, if Mr. Cunningham can imagine in any degree what reasons and authorities, not to say what "humour" or ridicule, Horace Walpole could have brought forward in refutation of Mr. Scharf's explanation of the picture, he ought, to carry the verdict in his favour, to have afforded us some intimation of them; but, as respects Lord Digby, he will perhaps be surprised to find that I can very positively tell him how his lordship, "who (as Walpole allows,) was displeased with Vertue's new hypothesis," would have received the evidence, not hypothetical, which is now offered by Mr. Scharf and myself. Lord Digby would most certainly have accepted it as entirely confirming his own original ideas of the picture; for Mr. Gough (writing about the year 1788) remarks, "I was informed that the noble peer, in whose family it has been, at Coleshill, in Warwickshire, for fifty or sixty years past, had no certain account handed to him of it, but only that *it was painted in memory of Queen Elizabeth's doing honour to a young married couple*, uncertain who, or when, or where."

So that this, after all, was Lord Digby's real notion of the subject of the picture, and Walpole with his usual carelessness misrepresented the noble owner's opinion, when he stated that "the old Lord Digby believed it the Queen's procession to St. Paul's after the destruction of the Armada." The fact is, that "that enchanting writer," as Mr. Cunningham terms the author of "The Castle of Otranto," was more fond of romantic and fictitious air-building, than of modest truths and substantial realities; and that he indulged such supreme self-conceit, that he spurned the judgment of wiser and more judicious men. In such a case I take it to be the part of a true antiquary, as of a true philosopher, to be guided by the maxim,—

"*Nullius addictus jurare in verba magistri.*"

Least of all would I tie myself to the chariot-wheels of Horace Walpole, of whose inventive genius, in the interpretation of pictures, and attributing them to our English history, there are two outrageous instances that hung in his own gallery at Strawberry-hill, and are both engraved in the "Anecdotes of Painting." They are also to be seen at South Kensington, having both been purchased at the Strawberry-hill sale by the Duke of Sutherland, and they still bear in the catalogue of the Special Exhibition their old titles given them by Walpole.

"No. 10.—MARRIAGE OF HENRY VI."

Though this is nothing more than an example of the marriage of St. Joseph and the Blessed Virgin, termed by connoisseurs a *Sposalizio*, Walpole discovered in it the portraits of King Henry and his Queen Margaret, Archbishop Kempe, Cardinal Beaufort, Humphrey Duke of Gloucester, and others.

The nimbus round the head of the bridegroom, the inscription on the hem of the bride's robe, and the evident indication of her approaching maternity, are all in conformity with the usual conventionalities of this subject, and put out of question Walpole's most fanciful and gratuitous hypothesis. The picture is probably Flemish, and nearly half a century later in date than the marriage of King Henry VI.

"No. 27.—HUMPHREY PLANTAGENET, DUKE OF GLO'STER."

This, again, is merely a religious picture, originally representing the Adoration of the Three Kings, but from which the centre panel that contained the Virgin and her Child happens to be lost. Walpole's "Duke of Gloucester" is one of the three kings kneeling to the Holy Infant. A second figure, described by Walpole as "a saint holding the duke's cap of state in one hand, and a golden chalice in the other," is another of the magi, holding his own cap, and his offering; the third is, as Walpole says, "in

* *Builder*, June 23, p. 470.

the act of adoration," in the background, and there also is the manger or ox-stall.

Besides the main design, on the doors of the same triptych are whole-length figures of St. Jerome and St. Ambrose; the former identified by his symbol of a lion, and the latter by his symbol of a scourge. These were converted by Horace Walpole into Cardinal Beaufort and Archbishop Kempe, and they form the authorities for the head of the Cardinal given as his portrait in Harding's "Shakspeare Illustrated," 1791, and for the portrait attributed to the archbishop engraved in the *Gentleman's Magazine* for November, 1845.

Shortly after the latter date these misappropriations were fully exposed during a correspondence in the same periodical, in which the late Mr. Charles Edw. Long, the late Mr. E. J. Carlos, and I myself took part; and I may add that I recently went over the same ground in an article in the *Transactions of the London and Middlesex Archæological Society*, when noticing the chantry of the Tates in the church of All-hallows Barking, of which it is by no means improbable that this altar-piece was once an ornament, for the arms painted upon it are those of Sir Robert Tate (Lord Mayor of London 1488), as Mr. Planché (Somerset Herald) has already pointed out in a former number of the *Builder*, p. 357. This also appears to be a Flemish painting, which was probably bought in the picture market of that day by Sir Robert Tate, and has therefore nothing else to do with English history but the shield of arms which he directed to be added as a memorial of his offering.

If the Special Exhibition of Portraits at South Kensington is to render any permanent service to the history of art, or to the illustration of English history, the opportunity must be taken to correct such flagrant errors as these. And it should be remembered that they are the prolific parents of others. From the triptych, not only the assumed portrait of Cardinal Beaufort, but the head of "the Duke of Gloucester" also, was published as his actual portraiture in Harding's "Shakspeare Illustrated;" whilst that of Queen Margaret, in the same work, was derived from the wedding picture. The whole group of the wedding picture was copied in Knight's "Pictorial History of England," and of course in his "Old England."

In the same way, from the picture of Elizabeth's Procession the heads of Lord Hunsdon, Lady Effingham, and Lady Hunsdon were fabricated by J. Thane, and are duly—or rather unduly—described in Grainger's "Biographical History" as their real portraits; assertions which it has hitherto been impossible to contradict from a comparison with any other engraved portraits of the same persons, for no others have been published.

I shall reserve for the Society of Antiquaries, to whom Vertue's large engraving of that picture belongs, the further details which confirm the subject to be the Marriage of Lord Herbert and Mistress Anne Russell, at Blackfriars, in the year 1600; but I understand that Mr. Scharf, at (this) Friday's meeting of the Archæological Institute, will probably elucidate more completely the portraitures it contains. He has already told us that the bridegroom, Lord Herbert (afterwards the first Marquess of Worcester), appears as one of the six knights that carry the Queen in her litter. There are various other portraits on the canvas, no doubt, and some of them will probably be identified. I shall further be very anxious to learn to what painter Mr. Scharf is inclined to attribute this most interesting and instructive monument of English art.

JOHN GOUGH NICHOLS.

THE DENNETT FIREPROOF CONSTRUCTION.

THIS invention, patented about twelve years since by Messrs. Dennett, of Nottingham, is now becoming extensively adopted, we are informed, both in London and the provinces. It consists of a concrete, having for its base the sulphate of lime, an article found chiefly in the counties of Derby and Nottingham. For the other component any hard porous material is used, such as broken bricks, cinders, or oolitic stone; but bricks, as being the most readily procurable, and combining the two necessary qualities in the highest degree, are preferably used.

The extraordinary hardness which this concrete acquires would, to those accustomed to the use of the ordinary plaster of Paris, be extremely surprising. The absorbent nature of the material which is used in its manufacture, gives to the composition a character wholly different from any other preparation of the sulphate of lime, and to this peculiarity the success of the invention is mainly ascribed.

The arch form is that in which the concrete is generally applied, with this modification, that the spandrels are sometimes filled in so as to form a horizontal floor, which may be finished in the material itself, or left rough to receive any other description of paving. Spans up to 10 feet are bridged over in this manner, and much wider ones have been executed. The minimum rise given to the arches is one inch to every foot of span. It will be obvious that the floor in this form possesses as much the nature of a beam as that of an arch; and this is practically proved by the fact of its exerting little or no lateral thrust on the walls upon which it rests.

Where there is no objection to a curved surface on the under-side, the cost, it is stated, does not exceed, in some cases, that of an ordinary floor composed of boards, joists, and plaster ceiling.

The simplicity of this method especially recommends it for use in cottages. Forming both floor and ceiling in one mass, it presents a medium proof against fire and sound, and not liable to decay; and, what is no unimportant consideration in the crowded districts of our large towns, affording no harbour for vermin.

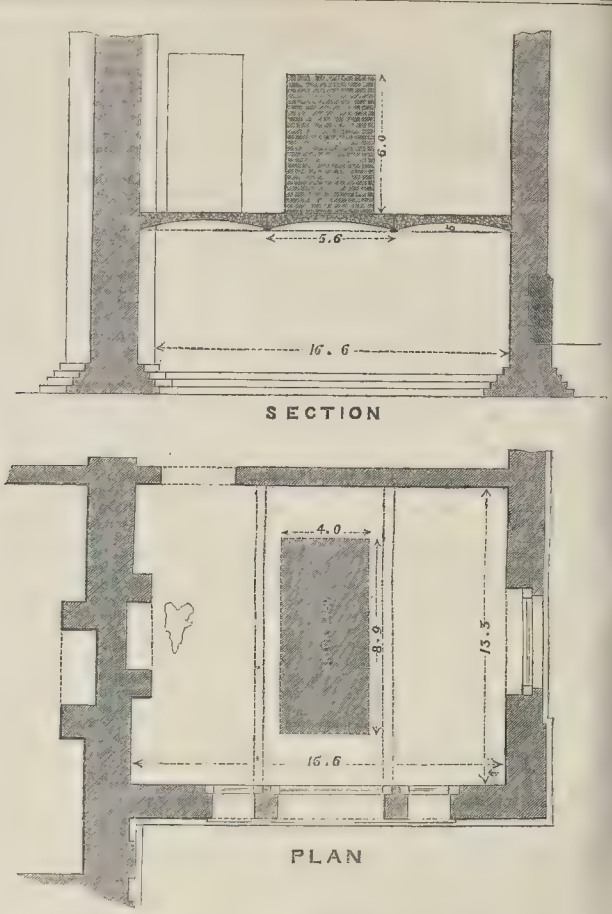
A finished surface can be produced in t material itself; but any required description paving, such as stone, tiles, asphalte, or ceme can be conveniently substituted.

Where a wood floor and flat ceiling are r quired, two series of light joists are inserte those to which the floor-boards are nailed bei mere fillets bedded in the material itself, a those for the ceiling resting upon the low flanges of the girders which support the arch

Mr. G. G. Scott, about seven years sin adopted this system for the thorough fireproofi of Kelham Hall, a large mansion near Newar The floors of the upper bed-rooms were finish in the material itself, and coloured decorati freely disposed on the soffits of the arches and t lower flanges of the wrought-iron girders, both which are exposed. Mr. Scott, in bearing tes mony to the advantages of the system, says th "the arches are so entirely in one mass, th they cover the space like a compact shell or i verted basin, and are consequently almost whol free from lateral pressure."

But it is not alone as a fire-proof constructi that the invention is valuable. The ease wi which any form of groined or domed vault c be executed in the material, without the labo of cutting, renders it an excellent substitute f brick or stone, and it is indeed applicable, many instances where considerations of cost want of strength in the supporting walls to resi outward thrust would quite preclude their use.

The ceiling over the principal staircase at t



Section and Plan of the Dennett Fireproof Construction.

w Foreign Offices is one of the best examples vaulting on this principle. The hall, which about 65 ft. long by 26 ft. wide, is divided o three compartments. The two end com-rtments of ceiling consist of semi-cylindrical ffered vaults, the depth of the panels, which octagonal, being 11 in., and their thick-ss 7 in., making a total thickness in the rgins of 18 in. Each panel is intended to ceive a cast-plaster patera, which will be ured to the panel by an iron bolt. The centre mpartment is occupied by a dome of an erage thickness of 8 in., springing from a ne cornice, which is circular on plan. The andrels formed by this cornice, and the ptangular intersections of walls, are also formed a solid mass of the concrete.

It is intended to construct a groined vault er the cabinet-room of no less span than ft. The ceilings of corridors throughout are ecuted in semicircular groined vaults, divided to square compartments by stone arch-rims.

With regard to the strength of the construc-n we may mention that some experiments stituted by Mr. Legg, the district surveyor, at e new town-hall of Hackney, which has been cently fire-proofed by Messrs. Dennett, pro-ced the most satisfactory results. The floor osen for the experiment was occupied by three ches 13 ft. long 5½ ft. span, rising 5 in. on the fft, and horizontal on the upper surface (shown our diagram). The material was 4 in. thick the crown, and 9 in. at the haunches. The rders upon which the arches rested were of lled iron, 8¾ in. deep and 4 inches broad on the nge.

A number of bricks were placed upon the ntre arch, forming a stack 8¾ ft. long, 4 ft. ide, and 6 ft. high, weighing 6¾ tons, or nearly cwt. on every superficial foot of the base of the ack. The load was sustained for several days ithout any sensible deflexion, either of the rders or of the crown of the arch; and after a reful examination the test was considered per-ctly satisfactory, and the load removed.

The following further tests were then applied, the direction of the architect, Mr. Austin. rough block of Portland stone, weighing about 0 lb., was hoisted over the centre of one of the le arches and being suddenly detached, with a ll of 13 ft., broke into, but not through, the own of the arch, and there lodged. Another ock of stone, weighing 750 lb., was subse-ently hoisted and let fall from the same height the last, and passed quite through the centre ch, the aperture being cut clean through with-t any radial fissures, and without causing any sturbance of the adjoining arches, although one d been previously broken, as before described. The system is to be used at the new St. homas's Hospital, and the Custom House at mbay.

NOTES FROM FRANCE.

Boulogne-sur-Mer.—A shapeless mass of brick d stone is now being erected, of considerable mensions, without any pretension of form or sign, merely heaped together on the beach, ar the public baths. It is said to be intended r an aquarium. The cost to the town will be 0,000 francs; and the shapeless mass is uni-rmly condemned as the utmost disfigurement were possible to imagine. On the quay, far-ter up the harbour, stands the bronze life-size atue of Dr. Jenner, the discoverer of vaccination, tely erected. He is represented bare-headed, d wearing a long-tailed evening coat, with rousers.

Amiens.—The restoration of the façade of the thedral is nearly finished, a very small portion ly remaining to be effected. It is free from scaffolding. The fine bronze effigies of Bishops Evrard and Geoffroy II., of the thirteenth ntury, which stood on the pavement inside the rand porch, have been taken up, and it is pro-osed to place them between the pillars of the ave, as in their late position they were exposed great injury from the *gamins* sometimes tting on them. They will be protected by ailings in their new situation.

Abbeville.—M. Boucher de Perthes has made mmense additions to his museum, in the Rue es Minimes, of every kind of Bric-a-brac oddity. is passion for the worked flints of pre-historic imes has somewhat cooled. A portion of this lass of objects of the museum, with the famous w-bone, he has presented to the Museum of t. Germain, near Paris. A drive through a retty country of about seven miles leads to the village of St. Riquier, where the church has a most elaborately decorated façade, well worthy of an architect's notice.

Paris.—At the museum of the Louvre, the famous statue of "Diane et la Biche" has been placed in the centre of the *salon carré*, and some of the other parts of the great picture gallery have received celebrated sculptures to decorate them. The number of persons constantly copying the most capital pictures much impede a quiet view; indeed, some of the finest works are unapproachable. Certainly it is not for study of young artists to improve themselves, as several of the copyists are elderly men and women, who work at it year after year. What becomes of these numerous copies?

The "Pavillon Denon," immediately under the picture-gallery, is now open, and contains in six separate parts, casts of the whole of the Trajan column at Rome, with the four sides of the pedestal. The whole of the casts are bronzed, and each portion of the column being about 15 ft. in height, gives an admirable opportunity of observing the details of the bas-reliefs.

The department of architecture in the Exhibition of Modern Art, now held in the Palace of Industry, in the Champs Élysées, is very limited. There are the usual number of designs for palaces, triumphal arches, churches, &c., but none of striking note, besides many careful drawings of interiors of churches in Italy, Spain, and elsewhere. The whole number is only 74. The total number of works of all descriptions forming the Exhibition is 3,338. The works sent by the students at Rome are placed in a separate saloon; the best praise of them is to say nothing.

The Prince Napoleon has sold his Pompeian villa, in the Avenue Montaigne, to one M. Berr, who has placed a turnstile at the gate, and the public are admitted to view it by paying a franc. It is unquestionably a very beautiful small building; but the water in the atrium, the fountains, bath, and marble flooring make it a very chilly domicile, unsuitable for a northern climate. M. Berr is much at a loss how to employ his purchase; in the endeavour to form what he calls a museum, he has hung a number of inferior pictures, called Old Masters, on the walls. A more vulgar anachronism could not have been perpetrated. It might make a *café* in the summer months. We believe he already repents of his purchase.

A statue of the Empress Josephine is to be placed at the junction of the Rue Galilée, at Chaillot, and culminating point of the Avenue de l'Impératrice Joséphine, which leads from the Arc de Triomphe de l'Étoile to the Quai de Billy. The execution of the statue is confided to M. Vitol Dubray, and it is to be of the best Carrara marble. The model approved of represents the Empress with the Imperial mantle, and crowned with a diadem. It will be inaugurated before the Exhibition of 1867, and is to be placed on a pedestal of Echallion stone. It was on the 19 Ventôse an V (9th March, 1796) that Josephine Tascher de la Pagerie, widow of General de Beauharnais, was married in second wedlock to General Bonaparte.

The foundations for the new Hôtel Dieu are being taken out to a depth of from three to four mètres, where the primitive soil of the ancient island has been reached. A number of foundations of Gallo-Roman structure have been laid bare, also those of early buildings of the Christian times.

THE HEALTH OF NEW YORK.

THERE is now published in New York a weekly return of mortality and temperature, on somewhat the same model as our own weekly return relating to London and twelve other large towns of the United Kingdom. A copy of the return relating to the week ending the 2nd inst. having just come to hand, it is interesting to compare it with that for our metropolis in the same week. New York and Brooklyn together contain, according to the census of 1865, a population of 1,022,498 persons, and the 478 deaths recorded during the week ending Saturday, 2nd June, show an annual rate of mortality equal to 24·4 per 1,000. During the same week in London 1,540 deaths were recorded, which give an annual rate of 26·2 per 1,000, almost the same rate that prevailed in New York, exclusive of Brooklyn. The proportion of all deaths from zymotic diseases in the American capital to the total deaths, was rather smaller in the week in question than in London; but the deaths referred to scarlatina, diphtheria, and typhus and typhoid fevers, were relatively much higher. The mean temperature of the air during the week in New York was 62·1°; in London it was only 56·2°; the lowest night temperature in the former being 53°, while in London it was 38·6°. The amount of rain which fell during the week in the two cities was the same, 1·8 inches; the atmosphere in New York, however, seems to have been remarkably dry on the last two days of the week, the mean degree of humidity being respectively only 8, and 4, complete saturation being represented by 100. This is an amount of dryness unknown in this country; the average degree of humidity in London during the same week was 72, while in New York it was only 48.

SANITARY CONDITION OF ISLINGTON.

THE Medical Officer of Health for Islington has sent in his report for the month of May, which has been issued in a printed form. According to this report, taking the death-rate of May for the last ten years as the standard of comparison, the number of deaths registered during the four weeks ending the 26th of May, should have been about 280; instead of this the deaths actually registered amounted to 360. This high mortality is probably due, in a great measure, to the low atmospheric temperature of the month. The excess of mortality is noticeable in every one of the principal classes among which the causes of death are distributed. The reporter says he cannot avoid suspecting that there is some additional cause in operation, depressing vital power. One or two deaths from "English cholera" and "choleraic diarrhœa" have been recorded each week by the Registrar-General. Another warning consists in the prevalence of "influenza" pretty generally in London,—a disease which has commonly in this country been the precursor of epidemic cholera. It has not been of a severe type. He urges upon all householders in the parish the paramount necessity there is at the present time that they should see to the careful cleansing of their water cisterns and water-butts, and their dust-bins. Five cases of "enteric fever" have just been sent to the hospital from a tidy and well-drained house in Upper Holloway, due to no other cause than the use of drinking-water from a cistern which, to judge by the appearance of the water, could never have been cleansed since the house was built. The cistern was most inconveniently situated for cleansing. The reporter is very much dissatisfied with the irregular manner in which the collection of dust and refuse is carried out.

THE DRAINAGE OF OXFORD.

THE drainage question was brought under consideration in the Oxford Local Board, last week, by a report from their drainage committee that they had fully considered the report of their surveyor, Mr. Galpin, and recommended it to the Board for their consideration.

The surveyor's report, having been printed, had been sent to each member of the Board, and was taken as read. It recommended the outfall to be at or near Sandford, but left various points undecided upon; and there were alterations suggested by Mr. Bazalgette, to whom the original plan of the survey had been referred, but with which alterations Mr. Galpin did not agree. The cost of the whole scheme, it was believed, would be from 45,000*l.* to 50,000*l.* Mr Galpin estimated it at 45,000*l.*, of which 20,000*l.* would be for the outfall at Sandford.

Under all the circumstances, Sir Benjamin Brodie, who read a letter from Mr. Rawlinson, criticising the plan of Mr. Galpin and Mr. Bazalgette's alterations, moved,—"That an eminent civil engineer be employed by the Board to undertake the responsibility of advising as to the best plan of drainage for Oxford, and superintending its execution." An amended form of motion, however, to which Sir Benjamin assented, was agreed to by a majority of 32 to 8, to the effect "that the plans and reports prepared by the surveyor, Mr. Galpin, for the drainage of the district are worthy the consideration of the Board, and entitle him to an acknowledgment of his services; and with a view to obtain further valuable information, so as to render the drainage of Oxford and the utilization of its sewage as per-

fect as possible, it is resolved that a civil engineer of high standing be appointed by the Board, and that Mr. Galpin be associated with him in order to make final arrangements, &c."

The letter of Mr. Rawlinson contains the following concluding remarks:—

"As sewage irrigation will be imperative, there should be plans, sections, and details of sewage-well, engines, pumps, mains, and sluices; a plan of the land proposed to be purchased or rented, with estimates, in detail, of the proposed outlay and working expenses.

In my opinion, an area of land, not exceeding 300 statute acres, will fully purify the entire sewage of Oxford. This land should not be liable to flooding.

With respect to the ultimate execution of the works proposed, a resident clerk of works, having foremen under him, will be necessary. The work should be measured monthly, as executed, and should be paid for on certificate from the engineer. These certificates, with copies of the detailed measurements, to be vouchers for the auditors.

All the bricks required for sewers should be made specially for the purpose.

The sewering and draining of Oxford will require the entire and undivided services of an experienced man during the entire period of execution; and this man should not have any portion of his work to learn in Oxford, at the cost of the Board. There should be mature experience brought to bear in such works rather than mere 'confidence,' or there is a risk that the results may not be so economical, nor so satisfactory as they may and ought to be."

THE NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.

THE general meeting will be held this year in Manchester, from the 3rd to the 10th of October next. Lord Stanley will probably be president, unless political changes prevent. The special questions chosen by the standing committees of the several departments for discussion at the meeting, include the following:—

Jurisprudence.—What are the best means of extending and securing an international law of copyright?

Education.—By what means can the impediments to the education of the children of the manual labour class, arising from the apathy or poverty of parents and the claims of the market for labour, be most effectually removed? By what means can education be most effectually extended to the smaller rural parishes and the most destitute classes in large towns?

Health.—What means ought to be adopted to prevent the production of smoke in large towns? How can the pollution of rivers, by the refuse and sewage of towns, be best prevented? What legislative or other measures should be employed more effectually to prevent the adulteration of food?

Economy and Trade.—What measures, legislative and other, should be adopted in order to supply better dwellings for the labouring classes? and what means ought to be adopted for improving the management of workhouses?

The meeting is expected to be a very large and important one. The Rev. W. L. Clay, M.A., has been elected secretary; Mr. G. W. Hastings continuing to act as general secretary to the Association.

NORTHAMPTONSHIRE AND LEICESTERSHIRE ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETIES.

A GENERAL meeting of these societies was held at Harborough on Thursday and Friday, the 21st and 22nd of June, under the patronage of the Lords-Lieutenant of the two counties and of the Bishop of the diocese. There was a very large assembly of members and friends of the societies, considerable interest also being taken in the meeting by the public generally. The architectural features of the parish church were pointed out by Mr. M. H. Bloxam, who said that the church had been restored in an excellent manner. The visitors then proceeded to the Church of St. Mary, near the railway station, and Mr. Bloxam also gave a brief description of it. A Roman encampment was then visited, but of this Mr. Bloxam merely said a few words, as the subject would be fully entered into in a paper that would be read in the evening by Mr. Gatty. The museum was opened to the public at three o'clock in the afternoon, and was visited by a very large number of persons, the Corn Exchange, in which it was arranged, being crowded for some hours. There was an extensive collection of curiosities. At six o'clock a dinner took place in the Corn Exchange, under the presidency of Sir William de Capel Brooke, bart. The evening meeting took place at eight o'clock, Sir W. de Capel Brooke presiding. The meeting was a densely crowded one. Mr. Bloxam read a paper on "The Sepulchral Monuments of Leicestershire," which was followed by an amusing one on "The Langton Churches," by the Rev. George Ayliffe Poole. Mr. W. H. Gatty then read a "Sketch of the History of St. Mary-in-Arden, and the Chapelry or Township of Market Harborough." On Friday, an excursion took place to various churches in the neighbourhood of Market Harborough, a large number of members of the society and their friends taking part in the excursion. Foxton, Gumley, Saddington, Mowsley, Laughton, Marston Trussell, and Lubenham, were visited. The party then returned to Market Harborough, where luncheon was partaken of, after which the excursion was resumed, and Rothwell, Desborough, and Braybrooke were visited.

THE TRADES MOVEMENT.

Birmingham.—At a recent meeting of the master builders a proposition was submitted from the operatives, through Mr. Lloyd, to the effect that they were willing to cease work at one or four o'clock on Saturday afternoon at 6½d. per hour. The operative bricklayers had been in communication with the other trade societies to know if the carpenters were willing to leave off work at one o'clock on Saturdays, if they were requested to do so by their employers, and the bricklayers were also anxious to know if the carpenters would put any obstacle in the way of leaving off work at that time, and an answer was promised on Saturday. Under that arrangement the bricklayers were willing to resume work. After some discussion it was resolved,—"That this meeting, having heard the proposition of the operative bricklayers through Mr. Lloyd, feels that the first duty of both masters and men is to redeem the pledge publicly given to each other to abide by the result of arbitration; and resolves, until the men have redeemed that pledge by returning to work under the rules settled by arbitration, no further proposition from them can be considered."

Preston.—For about a month the stonemasons were on strike, their claim being a reduction in the hours of labour. They preferred this to advanced wages, and they have now got, substantially, what they required. The employers entered into a strong combination against them, but one or two firms gave way, and all the others had to follow. The joiners and the flaggers and slaters are on strike, the former wanting more money and the latter certain alterations in their rules. The other day some strange joiners entered the town at the inducement of the masters, and they had to be sharply looked after lest they should fall into the hands of the men on strike, several of whom were looking out for their arrival at the railway station and in the streets contiguous thereto. The bricksetters are seeking more money; and the scavengers, &c., in the employ of the local board of health have made application for additional pay, but they have met with a blank refusal, and are continuing their work at the old remuneration.

Bacup.—The painters are on strike for an advance of ½d. per hour.

Blackburn.—The plumbers and glaziers are on strike. Their employers have offered them more money, but they want an alteration in the regulation as to apprentices. The stonemasons are also on strike for a reduction in the hours of labour.

Carlisle.—The operative painters, who have been on strike since the beginning of May, have at length come to terms with their employers. The men asked for an advance of 3s. a week, with certain arrangements as to country work; and the masters offered them 5d. per hour. The men, however, objected to the hour system of payment, and held out against it till the beginning of last week, when they agreed to accept it; and they have now resumed work upon the terms offered by the masters. The masons are still on strike, and so are the joiners and cabinet-makers. The master joiners have offered to submit their dispute to arbitration, but the men have refused to do so.

Cockermouth.—The journeymen joiners gave notice to their employers that they would require an advance of 2s. per week above the ordinary 22s. Three of the employers acceded to the men's demands, but no decision has been arrived at with regard to the remainder. A strike of the masons in the employ of Mr. Grave has been settled, the advance demanded having been complied with.

Whitehaven.—The strike amongst the operative painters has been amicably settled. This has been effected by the masters offering their workmen an advance of 2s. per week upon their present wages. The demand of the workmen was originally for 3s. per week, but being satisfied with the concession made by their masters they have now resumed work.

Hanley.—Henry Bishop and William Gurnell, bricklayers, were taken up under a warrant and charged at Fenton Police Court with having absented themselves from their work without giving proper notice. It appears that in consequence of the bricklayers of the district being on strike, Mr. John Steele, builder, of Hanley went to Stratford-on-Avon in May, for the purpose of engaging men. Mr. Steele verbally, he says, engaged the prisoners to work for him fifty-eight hours a week, and to be paid sixpence per hour. He made a definite arrangement for them to work a month on those terms, and a week's notice to be given before terminating the engagement. They worked from the 30th of May till the 8th of June, when having been paid their wages they ceased working. They had been informed that there was a strike in the district before they entered into the arrangement with Mr. Steele. Prisoners, who were admitted as witnesses for each other, declared they had not stipulated to work for any definite period, and that it was the custom in the part of the country from which they came to leave an employer whenever they thought it advisable to do so. The reason they left Mr. Steele was, that they did not like the class of work which they had to do, and that instead of being employed in straightforward building, according to promise they were sent to do repairs only. Mr. Steele said they made no complaint before leaving. The prisoners promised to return to their work and the decision of the magistrates was adjourned to allow them an opportunity of fulfilling their promise. A bricklayer's labourer, who had a similar charge made against him, also undertook to return to his work.

Dundee.—The fourth annual gathering of the associated joiners and carpenters of Scotland took place in Dundee on Saturday week, under rather inauspicious circumstances, the weather being most unpropitious nearly the whole of the day. The meeting this year was of a two-fold nature, being, in the first place, for the purpose of celebrating the annual gathering of the members of the association; and, secondly, to inaugurate the adoption of the nine-hours movement, which has taken effect among the joiners and other building trades in Dundee. The meeting, so far as the turn-out of the members of the trade was concerned, was, however, very successful. The day was observed by the Dundee branch of the association as a general holiday, in order that they might be enabled to welcome their brethren from a distance. A procession took place, which must have contained 1,500 or 1,600 persons, and extended nearly a quarter of a mile, studded with numerous flags and banners, and accompanied by four instrumental bands. About 500 or 600 of the Dundee men turned out.

PROVINCIAL NEWS.

East Retford.—The foundation-stone of a new town-hall has been laid here in the presence of the members of the town council, several of the magistrates, and leading inhabitants. The new hall will cost about 9,000*l*. The front is after the Romanesque school, and is to be executed in Bath stone, relieved by having the plinths and columns executed in red Mansfield. The ground-plan contains offices and grand staircase in front, with a poultry market at the back. A housekeeper's residence and cooking kitchen are also attached. The principal floor comprises the council chamber and retiring-room, record-room, &c., and the town-hall over the market in the rear. The hall is provided with retiring-rooms at both ends, so that it is applicable for the purposes of public meetings, sessions-house, and assemblies or concerts. A lift is provided from the kitchen for the convenience of public banquets or tea-meetings; and, for the convenience of ladies and others, a gallery is provided at one end. The corn exchange, butchers', and vegetable markets are at the extreme end of the site, next to Carol-gate, and are designed to correspond with the front building.

Needham Market.—The chief stone of a new town-hall has been laid in this small town. It is designed in the Italian style, with semicircular

openings, faced with white bricks, relieved with red and black work and with moulded bricks over string-courses and cornices. It stands on a plot of ground fronting Needham Market-street, and by the side of Church-lane; while, almost immediately opposite, is the Dissenting chapel. The building will include a petty sessions court, a residence for a police sergeant and constable, two cells for prisoners, a public library and reading-room. The lecture-room will accommodate upwards of 300 persons. The contract has been taken by Mr. Godfrey, of Needham, for 1,300*l.*, from the designs of Mr. Frederick Barnes, of Ipswich, architect. Mr. Scopes, of Needham, is the bricklayer.

Leighton Buzzard.—Messrs. Bassett, Son, & Harris, of the Old Private Bank, at Leighton Buzzard and other towns in the district, are having a building erected, wherein to carry on their business as bankers. It stands in the High-street, on the site of the late old building. The style is Venetian-Gothic, the front of Ancaster stone (Lincolnshire). Mr. A. Waterhouse, of London, is the architect, and Mr. A. Kimberley, of Banbury, Oxfordshire, the builder. The estimated cost is between 4,000*l.* and 5,000*l.*

Northop (*North Wales*).—The restoration of Soughton Hall is now completed. Twelve months ago the work of demolition commenced, and the proprietor (the Rev. R. H. Howard) has had extensive alterations and additions made, care being taken to preserve the relics of the past. Spacious reception-rooms have been added. Mr. Walton, of London, was the architect, and the work has been done by Messrs. Bibby, of Flint, builders; the painting, &c., by Mr. J. Hall. Messrs. Brown & Lamont, of Chester, have supplied some carved chimney-pieces in old oak, taken from the building; and one restored in the library is of ancient carving.

Middlesbro'.—Mr. William Bellerby, of York, is the principal contractor for the erection of the exchange for Middlesbro'. He will execute the joiner's work, and Mr. George Bailey and Mr. Thomas Biscomb, both of York, will execute the stonemasons' and bricklayers' work. The building is estimated to cost close upon 28,000*l.*

THE INTERNATIONAL HORTICULTURAL EXHIBITION.

WE hear with great satisfaction, that after payment of all expenses, including more, perhaps, in the *City* than might have been expected, the balance is about 3,000*l.* Sir Wentworth Dilke presided at the anniversary dinner of the Gardeners' Royal Benevolent Institution, on Wednesday last, and in the course of the proceedings, on the part of the executive committee of the Exhibition, he handed to the treasurer of the Institution a cheque for 1,000*l.*, as one-third of the profit. The disposal of the remaining two-thirds is not yet determined on.

COMPETITIONS.

Bristol Assize Courts.—The town council offered three premiums for the three best designs for improving the present Assize Courts, and having called in the assistance of Mr. Waterhouse, architect, have awarded the three premiums to three designs sent in by one firm, Messrs. E. Godwin & Crisp. It is stated that there will be yet another competition.

METROPOLITAN BOARD OF WORKS.

AT the last weekly meeting of this board, about thirty gentlemen, including Mr. Torrens, M.P., Mr. Alderman Lusk, M.P., and the Rev. D. Wilson (vicar of Islington), waited on the board, as a deputation from the inhabitants of the borough of Finsbury, to present a memorial in reference to the alleged appropriation for building purposes of a certain portion of land purchased for Finsbury Park.

The memorialists reminded the board that the original intention was to purchase 250 acres for the purposes of the park, and that 20 acres of it might be built upon. Only 120 acres had, however, been purchased. The memorialists considered that this small space was barely sufficient for the purpose intended, and hoped none of it would be devoted to building purposes.

The Chairman said a question had certainly arisen as to whether a portion of the land should be devoted to building purposes, but no decision had as yet been arrived at.

The memorial was referred to the Streets Committee.

A report from the Streets Committee, submitting a plan of Finsbury Park, showing the proposed arrangement of building sites on the 20 acres of land which it was stated in the report the board was empowered to dispose of for building purposes, and recommending the board to approve of the same, was read.

Mr. Phillips moved the adoption of the report, and Mr. Savage an amendment,—"That, inasmuch as the board have limited their purchase of the land for the purpose of Finsbury Park to 120 acres, instead of taking the 250 acres authorised by the 20 & 21 Vic., cap. 150, no portion of the land so taken be let or sold, but that the whole be devoted for the health and recreation of the public."

After a couple of hours' discussion, the consideration of the question was adjourned.

The Chairman intimated that the arrangements for laying the foundation-stone of the southern Thames Embankment would be completed by next Friday, when it would be for the Board to appoint a day for the ceremony.

A letter was received from Mr. Furness, stating that a meeting of his creditors would take place that day (the 22nd inst.). The letter was sent for consideration and report to the Finance and Thames Embankment Committees.

NORTH STAFFORDSHIRE NEW INFIRMARY, HARTSHILL, STOKE-UPON-TRENT.

THE land purchased for the new infirmary consists of 10 acres, and is part of the Mount estate, lying to the west of the new road from Penkhull to Hartshill. The site of the buildings is an elevated one, with a substratum of red sandstone. The principal front will have a western aspect, and extensive views over the surrounding country will be obtained from almost every portion of the buildings. One peculiarity of the site, namely, the great difference of level in its surface, has been carefully studied in the arrangement of plan, this difference being as much as 30 ft. between the highest and lowest points. Speaking generally, however, the southern half of the buildings will stand on one level, and the northern half on another, the average difference being about 15 ft.

The higher level has been taken for that of the principal ground-floor, and the lower level for a sub-ground floor; so that the northern half of the buildings will have one story below that of the southern half. In this lower story will be the dispensary, laboratory, drug stores, house stores, coal stores, one ward for "exceptional cases" for six beds, bed-rooms for the the nurses and servants, pantries, larders, servants' hall, and kitchen and scullery, both of which are of the height of two stories, and beneath them are the ale and beer cellars.

The principal buildings are arranged round a central garden court, about 140 ft. long by 70 ft. wide, its length being in the direction of east and west. This garden court is surrounded by a glazed corridor or cloister, one story in height, and forming an open terrace above, which connects and affords a communication between all parts of the main buildings. To the west or front of this court, is placed a central block of buildings, three stories in height, containing the principal entrance, board-room and chapel, and apartments for the house surgeon and pupils. Immediately in the rear of this block, and within the garden court, are placed the museum and library, with the operating theatre above, which will be lighted by a northern window and a roof light, and to which will be attached a patients' lift.

To the east of the central court is another block of buildings, containing the matron's rooms, linen store, and house dining-room, &c.

On the southern side of the central court the male division of sick wards is arranged: they consist of two large and one small intermediate pavilion, and one large and one small special case ward. These pavilions are two stories in height, and have their longer axis north and south, so as to present the largest extent of surface to the light and warmth of the sun's rays. The front or western pavilion is to be devoted to an accident ward for twenty-two beds on the ground-floor, and a general surgical ward for twenty-two beds on the first-floor; the eastern pavilion, to medical wards on both the ground and first floors for twenty-two beds each; the small central pavilion to "exceptional cases" on the ground-floor for six beds, and on the first-floor to burnt cases for six beds. The two other small wards, one to contain five beds and the other a single bed, run east and west, and with a patient's day-room connect the two larger pavilions together. The distance between the larger pavilions is 130 ft., which will not only allow of a free and full circulation of air around the wards, but also secure a view from the rear pavilion of the open country in the western prospect.

The northern side of the central court has corresponding pavilions to that of the south, occupied by the female division of sick wards and the out-patients' department; the latter is placed in the western pavilion, and is two stories in height, and consists of two large waiting-rooms, with water-closets for males and females attached, five consulting-rooms for the surgeons and physicians, a surgery, private examination-room, dispensary, laboratory, and drug stores.

The eastern pavilion contains one surgical ward for twenty-two beds, and one medical ward for twenty-two beds, also the dormitories of the nurses and servants.

The small central pavilion on this side consists of a medical and a surgical ward for six beds each.

The western and eastern pavilions are connected as on the male's side by two small wards for special cases, one to contain four beds, the other a single bed; and a day-room. Each ward has a nurse's room, scullery, and clothes-room attached to it; also bath-room, lavatories, water-closets, sinks, shoot for foul linen, service-lift, and fire-plug. To the accident ward is added a reception-room, where serious cases can be attended to, and admitted into the ward without disturbance to the ward itself.

The large wards will be 88 ft. in length, 25 ft. in width, and 15 ft. high, giving 1,500 cubic feet for each patient; and, in the wards for special cases, 1,875 cubic feet will be given for each patient. The staircases will be of oak.

The floor-boards of the wards will be of oak, and the walls finished in Keene's cement. The windows, for the most part, will be sashes, placed in the side and end walls of the wards, and hung in two parts, both of them made to open, and glazed with strong plate glass; they will reach from within 2½ ft. of the floor, to 1 ft. of the ceiling. The wards will be warmed by open fireplaces; those to large wards will be double, and in the centre of the room. Fresh air will be admitted into them by the windows and by external openings provided for the purpose, and the vitiated air will be drawn off by extracting-shafts.

In addition to the principal group of buildings, two detached blocks, one for males, the other for females, are provided for the reception of fever and other contagious diseases. These are planned for six beds in each ward, on the same principles as the main wards, but having 1875 cubic feet of space for each bed.

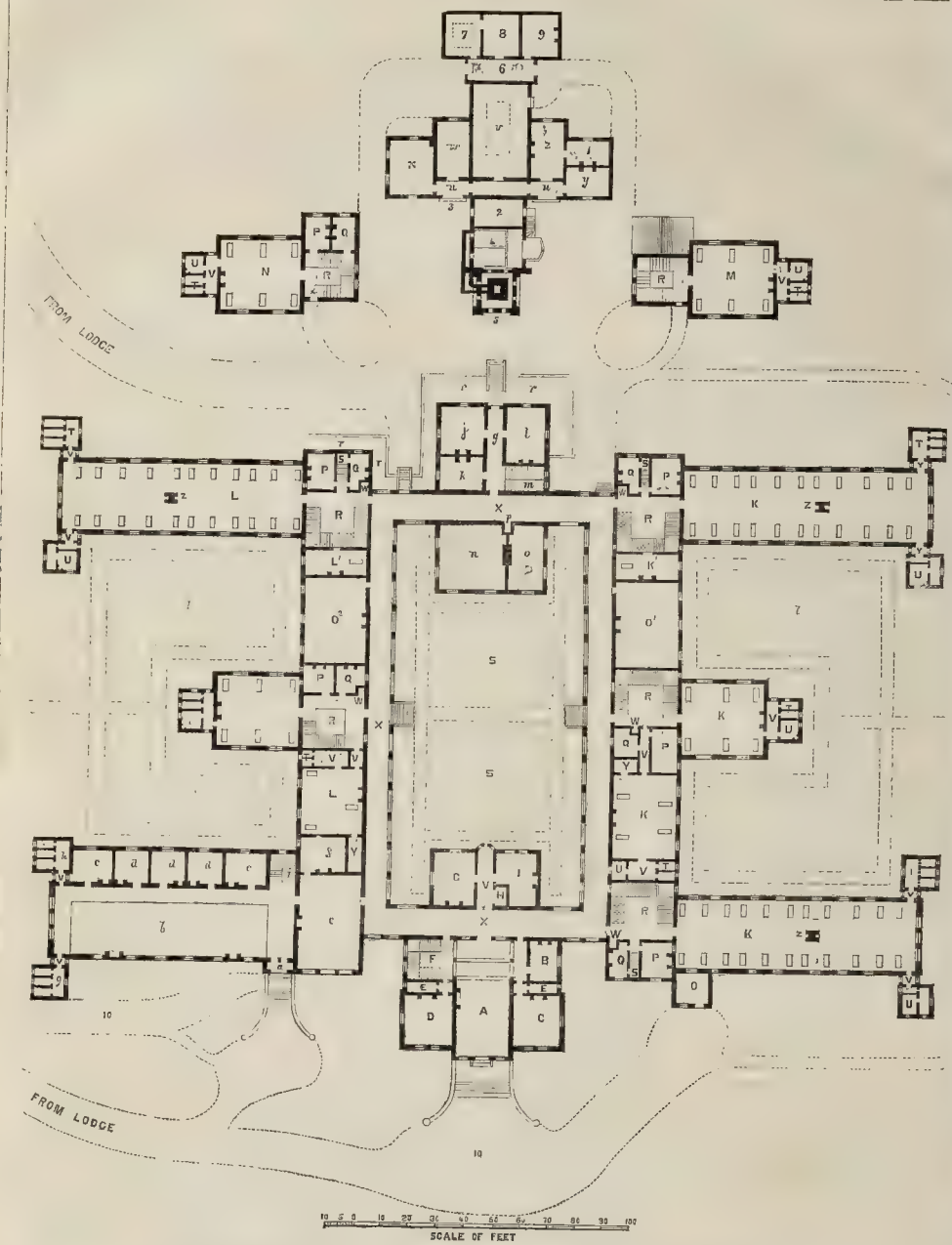
The wash-house, laundry, work-rooms, engine and boiler-house, water-tower, and mortuary buildings, also form another detached block in the rear of the principal buildings; and a porter's lodge, with the necessary stabling, will be placed near to the new road from Penkhull to Hartshill, to which road the site has a frontage of 50 yards along its eastern boundary.

The present approach to the whole premises will be from this road, whence a drive will lead to the front and to the back of the buildings. A well will be sunk for the general supply of water, which will be raised by an engine to a high-level tank, whence the service of the house will be obtained. The soft water from the roofs will be collected and conveyed to the baths, lavatories, wash-house, &c. Boilers will be provided for the service of the engine, cooking apparatus, and the supply of hot water throughout the house. Gas is to be carried to such parts of the premises as will require it. The main drain from the premises will be connected with the public sewer in the Newcastle-road. The main buildings are designed for the accommodation of 167 beds, and the fever wards for 24 beds, together with one pavilion, for the purposes of the out-patients' department.

The buildings in external appearance will be of a plain character, showing only a natural constructive treatment of local materials, and a grouping of the several parts into a sufficiently picturesque whole. The roofs are to be covered with plain tiles. The walls are to be of red bricks, with an admixture of blue bricks, in chequer-work patterns. In the minor features of archways, doorways, windows, &c., the arched form of opening is employed, and moulded bricks are slightly introduced. The cost of the site was 3,000*l.* The contract for the whole of the works, including, buildings, engineering works, roads, boundaries, &c., has been taken by Mr. Alfred Barlow, of Stoke-upon-Trent, and amounts to about 27,000*l.* Mr. G. M. Bates is the clerk of the works, and Mr. G. B. Nichols, of West Bromwich, and Mr. Charles Lynam, of Stoke-upon-Trent, are the architects.

H. R. H. the Prince of Wales laid the first stone of the proposed building on Monday last, to the infinite satisfaction of all concerned.

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NORTH STAFFORDSHIRE NEW INFIRMARY.—*Plan of Ground Floor.*

REFERENCES TO PLAN.

A. Entrance-hall, with board-room and chapel over.
B. Waiting-room.
C. Surgeon's sitting-room.
D. Pupils' ditto.
E. Store closets.
F. Staircase to board-room, &c.
G. Library, with operation-room over.
H. Patients' lifts.
I. Museum.
K. Wards (males).
K¹. Wards (ditto), one story only.
L. Wards (females).
L¹. Wards (ditto), one story only.
M. Fever-wards (males).
N. Fever-wards (females).
O. Reception-room to accident-ward.
O¹. Day-room (males), one story only.
O². Day-room (females), ditto.
P. Nurses' sitting-room.
Q. Ward scullories.
R. Ward staircases.
S. Stairs to mezzanine.
T. Waterclosets and sinks.
U. Baths and lavatories.
V. Lobbies.
W. Lifts.
X. Corridors, with terrace over.
Y. Ophthalmoscope.
Z. Fire-places.
a. Entrance, out-patients' department.
b. Out-patients' waiting-room.
c. Physicians' consulting-room.
d. Surgeons' ditto.
e. Surgery.
f. Examination-room.
g. Waterclosets (females).
h. Waterclosets (males).
i. Staircase to dispensary, &c., and exit for out-patients.
j. Matron's sitting-room.
k. Matron's office.
l. House dining-room.
m. Staircase.
n. Upper part of kitchen.
o. Upper part of scullery.
p. Lift.
q. Passage.
r. Areas.
s. Garden-court.
t. Gardens.
u. Entrance to laundry department.
v. Washhouse.
w. Drying-stove.
x. Laundry.
y. Laundry-maids' sitting-room.
z. Work-room.
1. Mattress-room.
2. Engine-house.
3. Wells.
4. Boilers.
5. Water-tower and chimney-shaft.
6. Open lobby to the mortuary department.
7. Mortuary.
8. *Post-mortem*-room.
9. Friends' room.
10. Drive.



NORTH STAFFORDSHIRE NEW INFIRMARY, HARTSHILL, STOKE-UPON-TRENT.—MR. G. B. NICHOLS AND MR. CHARLES LYNAM, ARCHITECTS.

THE ARCHITECTURAL ASSOCIATION.

PAINTED DECORATIONS.

THE usual meeting of members was held at the House in Conduit-street, on Friday evening (the 15th inst.).

The chair was occupied by the President, Mr. R. W. Edis.

It was announced that on the previous Saturday the members of the Association had paid a visit to the new Theatre in Holborn now in course of erection, and that on Saturday, the 23rd inst., the Association would visit the new Inns of Court Hotel in Holborn and Lincoln's-inn-fields, now partly completed.

After some formal business, including the nomination of officers for the ensuing session, had been disposed of,

Mr. S. Fisher read a short paper on "Painted Decoration," in which he explained the various processes for mural painting.

In the course of the discussion which ensued, attention was called to the paintings in the church in Margaret-street, Cavendish-square, and also in the new Church of St. Alban, Gray's-inn-lane. The latter, it was stated, although not exposed to the external atmosphere, had very soon shown symptoms of decay.

Mr. Fisher observed that the original paintings in St. Alban's Church had been executed in water-glass. They had since been renewed, he believed, in distemper.

Mr. Florence said he had seen some mural paintings in the open air at Munich, which had suffered very much from exposure to the atmosphere, while others which had only been partly exposed to the influences of the weather were curiously enough even more decayed than those which had no protection whatever. At Ratisbon, however, he had observed some mural paintings in a very fine state of preservation.

Mr. Tarver called attention to the absence of figure-drawing in painted decorations, and expressed his regret that diaper was so often substituted for it.

A member observed that he entirely agreed with Mr. Tarver, but that he apprehended it would be difficult to introduce figure-painting as a mode of decoration for wall space in churches unless some better feeling or possibly some more reverent sentiment were instilled into the public mind. So far as fabrics in connexion with the Established Church were concerned, there were so many phases of opinion as to what was appropriate and what was not in the services of the church, that no general agreement could be arrived at. Were the figures of saints and angels introduced there would be a constant wrangle between low church, broad church, and high church, as to what was sacred and what was profane. In the early ages of Christianity there were no such unseemly disputes because there was a general feeling that temples for divine worship should be decorated with the representation of subjects connected with sacred history.

Mr. Redgrave stated that a preparation of quicklime and cheese had been found a useful medium for preparing walls for painting, as the combination underwent some chemical change which produced a hard fine surface, admirably adapted for decoration.

Mr. Fisher stated that some mural paintings had been discovered at Marlborough House by the late Prince Consort, and that the Prince of Wales had subsequently taken measures for their careful preservation.

In reply to inquiry whether the painted decoration at Mr. Pearson's new church, at Vauxhall, was a fresco, Mr. Fisher replied that it was not a fresco, but an outline painting in oil.

The Chairman said it was very desirable that students of architecture should learn what ought to be used in painted decoration, and what should be avoided. It seemed to him that the decay of wall decorations was not to be traced so much to the materials used, as to the defective preparation of the walls before receiving the colour. On no other principle could it be accounted for that the decorations of Pompeii and those of a much earlier date, to be found in the ruined temples of Syria, should be fresh and bright, as if but painted yesterday. In some of the old Norman churches, too, painted decorations might still be found in fine preservation, showing, as he thought, that our ancestors were acquainted with some superior mode of preparing the surface, with which we were not familiar. For his own part, he would be glad to see mural painting introduced, not only in churches, but in domestic and public buildings. The modern style of dress was not, however, favourable to figure drawing, for who would like to see crinolined ladies, and gentlemen in white neckcloths and swallow-tailed coats, represented on their walls. There was enough and to spare of that sort of thing already in the drawing-room. He feared that until artists could be found to produce really good figure drawing, we should have to confine ourselves to other descriptions of decoration.

INSTRUMENT FOR SETTING OUT CURVES.

AT a recent meeting of the Institution of Civil Engineers, Mr. H. Temple Humphreys explained, with diagrams, an instrument called the cycloscope, for setting out railway or other curves, without the aid of the transit theodolite, &c. Externally, it somewhat resembles a box sextant. It is composed of two essential parts only, viz.,—two plane mirrors, one of which is silvered over the whole of its surface, and the other over one-half of its surface. By a law of physical optics, he said, which was called either combined or successive reflexions, a series of images would be formed in the half-mirror, which were rendered available to set out any curve of any given radius, by applying the eye to an eyehole in the back of the whole mirror, and at the same time setting the two mirrors at an angle to one another equal to the required tangential angle. Then the several successive reflected images of a ranging rod, for instance, were seen to lie upon the circumference of a mathematically true circle. The curve was then readily set out in the field by simply placing other ranging rods in line with these several images. This could be done by looking through the unsilvered half of the half-mirror, and planting the rods opposite to and overlapping the successive reflexions. No error could arise in the manipulation, and the whole process of setting out a true curve was shortened and simplified. After setting the mirrors to the requisite tangential angle, no further adjustment or support was needed than could be afforded by the top of a ranging rod placed at the commencement of the curve, and shifted occasionally to any stake on the curve, that the limits of distinct vision might require.

RESTORATION OF WOOD CARVINGS.

MR. G. A. ROGERS has restored some of the carvings which were executed for the Gatton estate of Lord Monson, and are attributed to Gibbons. These fine works (like many others of the same period) had been attacked and all but destroyed by the destructive agency of worms and beetles; Mr. Rogers has, however, with great care restored these works to almost their original beauty and strength.

Firstly, he had them photographed, then he took the carvings to pieces and thoroughly destroyed every germ of insect life by means of corrosive sublimate and other poisons. This done, the rotten portions were scraped out from the back (which in most instances were reduced to fine powder), and then the cavities thus made were filled with a soft hardening substance. The next operation was to fill up the innumerable wormholes on the front surface, remount the carvings by aid of the photographs, and varnish the wood to equalise the colour. A specimen of the carving retained in its decayed state shows how far the carvings were decayed, and contrasts remarkably with the finished frame.

BENCH MARKS IN FRANCE.

A MOST important work is now in progress throughout France, viz., the levelling and establishing of bench-marks all over the country. The object of this undertaking is to furnish a series of levels that will enable the course of canals, railways, &c., systems of drainage and irrigation, and other public and private works, to be laid down on the map and marked out on the ground without any error.

The operations were commenced in 1857, under the control of the Minister of Public Works, and will be terminated in five or six years hence; the work has been, since the beginning, under the superintendence of M. Bourdalone, civil engineer, to whom is due the series of levels taken for the Isthmus of Suez from the Mediterranean to the Red Sea.

The datum line of the levels in France is the usual sea-level; the bench-marks established on the ground consist of cones of cast-iron, set in masonry, on the spot where the levels are required to be noted; and a great number of these have been placed in lines of level which touch seaport towns, groups of rivers and canals, lines of railway, roads, &c. More than 18,000 linear miles have been thus laid down as base-lines; but, in order to complete the work, the operations must be extended to 120,000 miles, a length equal to five times the circumference of the earth, and more than half of our distance from the moon.

This gigantic undertaking is very costly; but, when once completed, it will enable every engineer or contractor, who may wish to attach a series of levels in any part of France with those of the remotest districts, to do this by aid of a bench-mark on the spot, or near at hand, for the maximum space between the levels is to be only three-quarters of a mile. The accuracy of these levels is such that they are true to three centimètres, or 1·2 inch for the whole length throughout France.

RESPONSIBILITIES OF ARCHITECTS.

Burnell v. Ellis.—This was an action, in the Court of Common Pleas, to recover 50*l.* for professional services under these circumstances:—

The plaintiff is a surveyor, and the defendant is an architect. In June, 1864, the latter employed the former to take out the quantities in the case of a plan for building a hotel and stables by a company at Newmarket for the accommodation of gentlemen engaged or interested in racing at that celebrated place in the sporting world, and the original estimate for which was 28,500*l.* The plan was subsequently twice altered, and a reduced estimate of expense for the work was the result. The plaintiff said his charge for his professional services would be 100*l.* or guineas, but as the company had determined not to go on with the scheme, and as the defendant did not expect to receive all he was entitled to, he asked the plaintiff, under the circumstances, to reduce his charge. The latter consented, and wrote a letter to the defendant, saying that in the event of his not receiving the full amount of his account he would take 40*l.* for his charge. The company having determined to wind up its affairs, as the plaintiff could not get his money from the defendant, he brought the present action.

The defence was, that the plaintiff was to look to the company for his remuneration, and not to the defendant. The plaintiff, however, denied this, and in his evidence said that he had only to do with defendant in the matter. The defendant, on the other hand, deposed that the plaintiff was employed by Mr. Hall, the builder, who was engaged to erect the hotel and stables in question, and that he was to look to the company for payment. It turned out that in the course of the transaction the plaintiff had 10*l.* 10*s.* from the defendant. The plaintiff said that sum was paid to him on account, whereas the defendant said it was a loan to the plaintiff.

The jury found a verdict for the plaintiff. Damages, 39*l.* 10*s.*

BREACH OF APPRENTICESHIP CONTRACT.

RAYMONT *v.* MINTON.

THIS was an action in the Court of Exchequer for breach of covenant in a deed of apprenticeship.

The defendant, who resided in Wilmington-square, covenanted to teach the plaintiff's stepson the business of a builder, ornamental painter, and decorator, and to supply him with meat, drink, and lodging. During the month's trial the young man was treated very well, but afterwards he was subjected, according to his account, to all kinds of ill-usage and indignities. Instead of being taught the trade, he was employed as a labourer; he had also insufficient food, and for a year and a half he had to sleep on four chairs in the kitchen, which was swarming with black beetles and cockroaches, and to dress in an open area.

On the part of the defence there was a complete denial of all these allegations, and counter-charges of misconduct were made against the apprentice.

The jury, before retiring to consider their verdict, asked the learned judge whether they had power to cancel the indenture of apprenticeship.

Mr. Baron Martin.—You have no power to do that. You can only find damages for breach of covenant.

The jury, after a brief absence from court, found a verdict for the plaintiff—damages, 29*l.*

IMPROVED MANUFACTURE OF LUCIFER MATCHES.

M. GAILLARD has lately presented to the Academy of Sciences a new process of manufacturing common phosphorus matches. The method consists in reversing the present mode of preparation. Instead of steeping the wooden slips first into sulphur and then into phosphorus, he plunges the matches into the phosphorus in the first place, and afterwards into the sulphur. This new process is attended with several advantages. One of these is that sulphur is insoluble in water, and that, not being fusible

under a temperature of about 128 Fahrenheit, there is no risk of accidental or intentional poisonings of food by these matches, since the sulphur forms an insoluble covering for the phosphorus. Another advantage depends on the hardness of the sulphur coating, which requires more friction than is ordinarily applied for its removal, and the laying bare of a portion of the phosphorus. This is calculated to decrease the risk of fires occurring accidentally from the too ready inflammability of phosphorus as an outer covering for the lucifer match.

THE DISUSED BURYING GROUNDS OF THE HOLBORN DISTRICT.

THERE are three of these enclosures, viz.,—that of St. Andrew's, Holborn, on the east; that of St. George the Martyr, on the west side of Gray's Inn-road; and one in Benjamin-street, belonging to the parish of Clerkenwell. The extent of these grounds is about six acres, and as they have been long closed for interments, and are but seldom visited, they have a waste, desolate, and utterly neglected appearance. The district medical officer of health, in his last report, urges that they should be utilized as public walks and recreation grounds. He says,—

"The reasons I urged in 1863 for the conversion of these grounds to such a purpose, were,—1st. The great sanitary advantage, in an overgrown town like London, of freely planting every available open space, in order that *free oxygen* might be supplied by the plants, its only known source, to the atmosphere.

2nd. Their proximity to the abodes of the people, consequently their convenience of access, to the young and old, the sick and infirm, especially of the poorer classes. The parks are much too distant to be reached by the poor of this district on any day except Sunday, whereas they might avail themselves of these resorts for exercise and recreation during their scanty leisure hours on week days.

3rd. The immense improvement, if used for this purpose, they would cause in the public health. About 25 per cent. of our deaths are occasioned by tubercular diseases, and in as much as these diseases are hereditary, this percentage is a growing one. 'Tuberculosis, the blight or depravity of the blood' in question, takes its first rise from the continuous inhalation of impure air, and the prolonged exclusion from the healing virtues of sunlight, so that the best way of reducing this frightful mortality is to provide walks and gardens of convenient access, where persons of sedentary occupation may be allured from the dark courts and alleys of this district, to take exercise in the open air. To these reasons I would now add the admitted dangers of the public streets, which are the only places in the central districts of the metropolis where persons can take air and exercise."

It appears that the only way of getting these grounds thrown open, will be either to place the necessary funds in the hands of the churchwardens, or for the local sanitary authority, with the assent of the legal trustees, to take charge of them for public use.

THE INDUSTRIAL SCHOOLS ACT.

IT is important that the chief provisions of this Act should be widely known.

"Children of the descriptions hereinafter mentioned may be sent to certified industrial schools in pursuance of the provisions of this Act; that is to say:—

1. Any child apparently under the age of fourteen years found begging or receiving alms, or being in any street or public place for the purpose of begging or receiving alms.

2. Any child apparently under the age of fourteen years that is found wandering, and not having any home or settled place of abode, or any visible means of subsistence, or frequents the company of reputed thieves.

3. Any child apparently under the age of twelve years who, having committed an offence punishable by imprisonment or some less punishment, ought, nevertheless, in the opinion of the justices, regard being had to his age and to the circumstances of the case, to be sent to an industrial school.

4. Any child under the age of fourteen years whose parent represents that he is unable to control him, and that he desires such child to be sent to an industrial school, in pursuance of this Act, and who at the same time gives such undertaking or other security as may be approved by the justices before whom he is brought, in pursuance of this Act, to pay all expenses incurred for the maintenance of such child at school.

Provided that no child who, on being brought before the justices, is proved to have been previously convicted of felony, shall be deemed to be within the provisions of this Act."

Any person may bring before justices any child that is hereinbefore declared to be liable to be sent to an industrial school; and the justices, if satisfied on the result of inquiry, may order the child to be sent to any certified industrial school the managers of which are willing to receive such child; subject to this qualification, that it shall be the duty of the justices to select, if possible, an industrial school conducted in accordance with the religious persuasion to which the parent of the child appears to them to belong.

No child shall be detained against his consent in any certified industrial school after he has attained the age of fifteen.

The provisions of this Act may be made highly beneficial to persons of all ranks, but especially to the children of idle, dissolute, and reprobate parents.

REPORT OF SELECT COMMITTEE OF THE HOUSE OF COMMONS ON THE ART-UNION LAWS.

THE abundance of topics of excitement at the present moment makes it difficult to gain much attention for any matter involving neither home politics nor foreign war; but there are some points connected with the report just laid on the table of the House of Commons, in reference to the Art-Union laws, which should not remain unnoticed, though it is quite patent why you would feel it necessary to observe a certain reticence on the subject not incumbent on an independent observer.

As a very old and zealous supporter of the Art-Union of London, I cannot but feel, in common with all who wish well to the society, the greatest satisfaction at the testimony which friends have been prompt and opponents unwillingly constrained to render to its character and management, the latter allowing it to be "the model Art-Union," "excellent in all its arrangements," and its works "better in some cases" and mostly "produced at a much lower cost" than those in the shops.

The evidence adduced abundantly proves that it was quite time to do something to distinguish between those associations which are conducted with good faith for the sole purpose of fostering a love and encouragement of art, and those schemes which were designated by one of the witnesses as gigantic swindles; but it may be fairly objected that this report has been drawn up with a hostile and, in some cases, unfair spirit,—not, as a general rule, holding the balance evenly between the two lines of evidence produced; and a comparison of the draft report as originally submitted (p. 8), with that finally agreed upon (p. 3), will show how very much more of a hostile and oppressive character it was at first purposed to insert than the committee could decently venture to sanction in the face of the evidence on which they had to proceed.

It may fairly be concluded from a general view of these proceedings, that the Board of Trade gravely neglected their duty in sanctioning the operations of certain lottery schemes taking the name of art-unions; and, finding that these are becoming too numerous and too gross in their operations for further endurance, the Board saw no other way out of the difficulty than to abrogate altogether the law under which these schemes are licensed, not caring if, in so doing, they put in peril at the same time other well-conducted institutions. With this view evidence must be brought forward to prove that *all* art-unions had failed in attaining the object for which they were sanctioned, and making a powerful lever of a holy dread of the "enormous spirit of gambling" which was supposed to be aroused. This latter point was, however, curiously lost sight of by the officer of the Board of Trade, whose pet remedy was "entirely to suppress the lottery laws."

Here let me remark that the committee perversely inferred throughout the course of the examination that the object of sanctioning Art-Unions by the Legislature was the encouragement of "HIGH ART." Such a term does not enter at all into the original programme of the Art-Union of London (which association was chiefly instrumental in obtaining, with Mr. Wyse and Lord Monteagle, the passing of the Act). Nor would its managers have committed themselves to the embodiment of an idea so indefinable and so fertile in differences of opinion as the term "High Art." The object was, and is, *primarily* "to promote the knowledge and love of the fine arts;" and, *secondarily*, "to elevate art and encourage its professors."

Mr. Bucknall stated, in the course of his evidence, that in the Art-Union of London the chance of gaining a 25*l.* prize (though there appears no reason why this particular sum should be quoted) was 90 to 1; while the report improves on this by saying that "the chance against winning a prize is 99 to 1,"—a statement so startling that one is induced to refer to the annual reports for information; and we find the truth to be that the proportion of prizes is never less than 1 in 12 or 13. Again, this gentleman says, "While the Art-Union *publishes* one print, a publisher will *publish* a dozen," disingenuously omitting to state that while the publisher's *issue* is very limited, not much exceeding 1,000 in the case of ordinary plates, that of the Art-Union varies from 12,000 to 17,000.

Mr. Cole, of course, could see nothing good out of the bounds of the South Kensington Museum; and although the Art-Union of London alone has produced and distributed some 350,000 engravings, 100,000 sets of illustrations, besides 172,961*l.* worth of pictures, bronzes, Parian and other statuettes, sent into all corners of the earth; while the operations of the Museum, as far as the public out of London is concerned, are confined to about forty galleries of casts from the antique fixed in large provincial towns, and a travelling collection or two of paintings, drawings, &c., which circulate from place to place; yet he thinks the Art-Union of London has "had very little effect in improving the national taste;" and further, that "the Arundel Society does more good to art than all the Art-Unions put together." The fact being that the Arundel Society numbers some 1,500 members, confined entirely to *cognoscenti* in art, who do not want instructing and leading on to take an interest in art-matters; and that it concerns itself more particularly with the archæology of art, reproducing foreign and ancient works only, and by *foreign* means; in this point especially contrasting with our Art-Union, which is confined exclusively to the works of native artists.

Mr. Richard Redgrave, R.A., in his evidence, generally took the tone which a painter of what are generally termed high-art subjects might have assumed, stating that artists are induced "to produce slight and ephemeral pictures, with a view to meet the small prizes;" but he omitted to say *where* these are to be found. The prices of pictures generally have enormously increased of late; and as another witness pointed out, "there is one gallery less now for oil-paintings than there were some years ago."

Of this kind, sir, was the best evidence that its enemies could bring against the Art-Union of London. But what said its friends? The mass of *facts*, not *opinions* only, poured out in abundance by its own officer, must have been enough to force the conclusion at which the committee was obliged to arrive. The artists whose works have been bought or engraved by the Art-Union of London, include the names of "Creswick, Copley Fielding, Dyce, Maclise, Uwins, Ward, O'Neil, Cole, D. Cox, Callow, Lee, Frith, Mulready, Callcott, Webster, Stanfield, Landseer, Turner, Hilton, F. Tayler, Haghe, and many others." The society has produced a series of sixteen medals, "and is keeping alive the art of medal-die engraving in England, which had nearly ceased." It has "incurred liabilities chargeable on the revenue of future years incurred on the faith of our charter, amounting to 16,700*l.*" "It has led a very great number to take an interest in art, who were before wholly indifferent to it." To stop such an association as this "would injure hundreds and take away pleasure from thousands;" and at this conclusion the committee perforce arrived.

Mr. Frith, R.A., considered that the Art-Union of London especially fulfilled its object in "encouraging young and rising artists," and that it had very much been the cause of the present increased demand for works of art. He attributed a great deal of the increasing appreciation of art to the Art-Union of London.

With regard to the encouragement of a spirit of gambling, the committee appear throughout to have felt, that in the case of the Art-Union of London, this object enters so little into the motives of the subscribers as to be too small a weapon to wield with the effect intended, and as was well put by one of the witnesses:—"Getting anything for certain removes it from the mere matter of chance;" and, "to talk of immorality in a case of that sort, in a country where hundreds of thousands are staked upon horse-racing every year, seems to me perfectly absurd."

The result is most complimentary to the Art-Union; for, though not setting it forth in precise terms, the committee simply take the regulations of this society, and substantially embody in a code of regulations every important principle, without an exception, which the council laid down for the government of its own proceedings, and recommend this code of regulations as the precedent to be adopted by the

Department of Science and Art, under whose supervision they recommend that art-unions in general should be placed.

May we not confidently say to our old-established institution, for which so many battles have been fought, Go on and prosper. I enclose my card.

AN OLD MEMBER OF THE ART-UNION OF LONDON.

SHAM SURVEYORS, AND THE RESULTS.

I MOST cordially endorse the statement made by your correspondent "Insignis" relative to sham surveyors. The evil undoubtedly is one of great magnitude, and very widely spread; and this arises in a great measure from a defect in our public health laws that requires no standard of intellect or merit for those who aspire to such offices, as our Boards of Health by their *ipse dixit* can make and unmake engineers, as the poet says of peers,—

"A breath can make them as a breath has made."

And until there is some change in the law, or until a higher range of intelligence, station, and qualification is required in the persons comprising our Health Boards, as well as a higher franchise for the electors, we can hope for no change and but little improvement in the health of our towns, as, let the sanitary works be ever so well designed and carried out, they are, when completed, placed too often in the hand of some nondescript sort of person such as described to manage them, and everything goes to the bad: the water supply is neglected, and becomes impure; the sewers and drains stopped up; the pavements and surface of the street get out of order; cottage house-construction and arrangements are not looked after, and the consequence is, all is chaos again,—

"Wide anarchy of chaos, damp and dark,
Flew diverse and with power."

I think it is the duty of Government to require some qualification of attainments and merit for the persons appointed as engineers to our Public Health Boards, as they require in the Indian, Colonial, and Civil Service of England, as is also required by the district surveyors under the London Building Act; and until some such clause is introduced into Public Health and Improvement Bills, I shall consider that Parliament is doing a great injustice to the competent professional men of this country, who constitute a large, intelligent, and influential body, and to whom the merit is due of carrying out, successfully, all the large and important works that are executed in this country, and, indeed, in many other parts of the civilized world, and who have aided materially to develop the resources, and so the wealth and greatness of England, and elevate her in the scale of nations.

It would be a very curious and interesting subject of inquiry if some philanthropic and indefatigable M.P. would move for returns upon the matter, as to the antecedents of the surveyors to our Public Health Boards, their qualifications and experiences; also the detailed state of the water-supply, sewerage, drainage, paving, cleansing, house construction and convenience, lodging-houses, smoke nuisance, and other sanitary matters of towns generally; and a commissioner or inspector might be sent down to different towns to examine and look closely into these things in confirmation, as I believe the laws of public health are as much neglected and abused as those of the poor-laws in London (and other places), the expenses of which, by the *Times*, have produced so much horror and sensation throughout the kingdom.

As a rule, I would cause inquiries to be made in all those places where the mortality was in excess of the rate that indicates healthiness, and ascertain precisely and to a certainty where the evils lie; whether from neglect, imperfect or ill-devised works, or other causes; and I feel confident that if such a system of supervision were carried out, it would work out a vast amount of good, and act beneficially on our future health return.

In confirmation of the foregoing observations I may mention, that at the last meeting of the Board of Health of the Rotherham district, the neglect of cottage structural arrangements was brought before them, and one member observed, "that the cottage builders boasted at the public houses that they could do as they liked with the Board." Another member of the Board condemned the erection of water-closets, and argued in favour of privies and cesspools, as being less offensive and injurious than the fouling of the River Don; it therefore appears evident that, after more than a quarter of a century's experience and knowledge of our sanitary defects, and our endeavours to apply remedies, we are as far off as ever from having reached the desired goal. Our board are ignorant, or have not been trained to their work; they have not read, marked, learned, and inwardly digested their sanitary catechisms; the vessel of sanitary reform is drifting and liable to be wrecked, as it has a disorganised crew on board, and no chart, compass, or pilot to steer clear of the breakers.

In issuing my "bulletin" on the state of the river Don, I am happy to say the filthy deposits in the river are somewhat reduced in this neighbourhood by the late heavy rains washing them away; but I see a correspondent of the *Times* (June 22nd) traces the effect on the river between Doncaster and Goole, where the fish by thousands are poisoned and lying belly upwards all along the banks of the river Don; and he compares the condition of the river to that of the Thames before the outfall sewer was constructed—a state of filth and dire pollution patent at that time to all London and her visitors—and for all this the river Don is indebted to the lavishness of Sheffield, Rotherham, and other places. The Doncaster Corporation, I understand, intend preventing, if possible, the Sheffielders from further fouling this river and poisoning their water supply, as you will see by the paragraph I enclose: so Sheffield will not be allowed to carry all before her with a high hand, "à la Bismarck," to the serious injury of her little helpless neighbours, Rotherham and other places.

B. B.

ANGELO.

ROLL back the sun in the heavens, and seek,
By the light of its dazzling rays,
Another mind that can aye bespeak
From the world its lasting praise.
Rome will live, whether Prince or Pope
Hold away by the Tiber's flow;
Rome will live, with a power to cope,
In the name of Angelo.

Architects she has had in her day,
And craftsmen, with subtle skill;
Popes, who have reign'd with a curbless sway,
And ruled with an iron will.
They live in their niche, in their silent fame,
Eclipsed by a greater glow;
But bright with the rays of a peerless name,
Lives their master, Angelo.

O gifted Artist, the highest present
In the realms of art sublime,
Through endless tracks of thought released,—
From the sluggish breaks of time,
Oh, teach through thy works the earnest few
Who bend at the shrine to know
The spell that can make them dare and do,
As thou didst, Angelo.

Sculptor, or painter, or architect,
Thy poet mind reign'd through all;
On marble or canvas you still reflect
The genius that can enthral.
Mighty, in sooth, 'midst the Titans great,
That Rome in her strength could show,
Ages for aye shall celebrate
Thy memory, Angelo.

Ah! the world is waxing old and grey,
And worth, with a palsied hand,
Scarce holds its own, while it toils away
On the monuments of the land.
Carrara may give the rough-hewn block
To the forum and studio,
But earth may heave in many a shock,
Ere it's shaped by an Angelo.

C. H. C.

MOSS ON TILED BUILDINGS.

IN localities producing what is called "stone tiles" or "heavy slate," the accumulation of moss on the roof is an endless tax, and a remedy for the same, I take it, will be appreciated. More than forty years since, about 6 ft. square of a roof covered with such tiles was painted, in anticipation of the result now so fully demonstrated. The portion so painted shows no sign of paint, merely looks as though recently laid with good clean seasoned tiles, while every other part of the roof abounds with moss.

As the accumulation of moss greatly injures a roof, and as the scraping it off is both expensive and troublesome, I think localities where such tiles are produced will be glad to read this successful trial of about half a century. I should not imagine that more than one coat of paint would be necessary.

W.

CIRCULATING MUSEUMS.

AT the conference of the Institutions in union with the Society of Arts, recently held, it was resolved,—

"That this conference desires to express its opinion that district unions of institutions should be able to borrow small collections of objects of scientific and general interest for loan to institutions and evening schools within their limits; and that the Society of Arts would confer a great benefit upon the institutions by moving the Committee of Council on Education to organise a number of small loan collections (through the agency of the South Kensington Museum), of simple productions, illustrative of natural history and art, and the general manufactures of the country, for loan on easy terms to district unions."

Mr. Pakington proposed a supplemental resolution to the above as follows:—

"That the council be requested to consider whether, without interfering with the operations of the Science and Art Department, they could not offer prizes for local collections of natural objects, such as minerals, fossils, insects, or wild flowers."

Mr. Thomas Lewis (Dover Museum and Philosophical Society), seconded the resolution, considering that great benefits would arise from such collections. He suggested that a system of interchange of the collections might be adopted between the institutions of different districts.

This resolution was also agreed to.

CONCRETE BUILDINGS.

SIR,—As the subject of building in concrete is now exciting some attention, I may, perhaps, be permitted to give the result of my observations and recent practice. Having some rather important works to carry out in France, I made it my business some time since to minutely examine some six-roomed houses that were being built by Messrs. Tall & Hartley in concrete, with their patent apparatus. I spent some time at Bexley in very carefully examining the mode of constructing and in testing their strength; and, although perfectly satisfied, I determined, in order to make assurance doubly sure, to carry on some works under my own eye and superintendence. This I accordingly did at Norwood, near the Crystal Palace, where I have built some walls and a considerable addition to a house, which, unfortunately, I had built in the ordinary way before my attention was directed to Mr. Tall's system.

I am now so convinced of the immense strength of the walls, and the great economy of the system, that I am about to proceed to carry out my works in Paris on the new plan. The works I have carried out at Norwood are made of eight parts of hard-burnt brick ballast at 1s. 6d. per yard (cost of burning), and one part of Portland cement. The walls, as to solidity, leave nothing to desire, being considerably stronger than brick walls. I am employing only common day labourers to mix the concrete and fill in the apparatus, and doing all that is required. The plastering, I find, comes to just one half in labour and materials what is usually paid to render and set brick walls.

W. E. NEWTON, C.E.

WHITBY STONE.

SIR,—Having read your article on the decay of stone, I have ventured to address these few lines for your consideration, asserting that the Whitby white freestone will stand the test of ages, which any impartial individual may see for himself by inspecting the Whitby Abbey ruins; and in order that you may further satisfy yourself, I quote the following extract from the report of the commissioners:—

"Whitby Abbey (thirteenth century). Of stone generally in good condition, with the exception of the west front, which is very much decomposed. The stone used is of two colours, brown and white; the former in all cases more decomposed than the latter. The dog's teeth and other enrichments in the east front are in good condition."—*Gwilt's "Ency."*, p. 473.

Mr. Gwilt, in his "Encyclopædia of Architecture," p. 480, has observed, that the "Whitby sandstone successfully resists the destructive effects of atmospheric influences."

J. S. R.

CHURCH BELLS.

SIR,—Believing that "Cardinal Wolsey's Tenor" at Sherborne, the previous "cathedral" to Salisbury, was little known beyond that neighbourhood till lately, I will ask of your kindness,—not for the first time,—admission of a few general remarks on campanology.

Having long had an impression that there may be many heavy "tenors" ("the great bell" was the more usual term fifty years ago) yet unknown to fame, a memoir of Dr. Parr, a campanologist, stated that there was a bell at a "parish church in Gloucestershire" weighing 8,000 lb. I have heard on most unsuspicious authority that there is a village tenor in Oxfordshire weighing 56 cwt. Some of your very numerous readers might identify both these instances.

In a printed notice of the grand old church of Felmersham, Beds, by the long-deceased worthy Rev. E. O. Marsh, of that place, known to me, and before to Mr. Lysons, the tenor is stated to weigh "500" lb. This is, of course, some gross misprint. Having heard the bell myself, and from the testimony of a very competent friend who visited the bell-chamber, the real meaning may be 5,000 lb. Certain it is that at Luton, in the same county, some seventy years ago, was an old peal of five with a tenor of very nearly 50 cwt., very indifferently substituted in my view by a mediocre one of eight, with tenor only weighing 20 cwt.

Since the above was written, it has been stated in the

Illustrated News, that a bell was given to the church of Tonge, Kent, by a Sir Henry Vernon, about 1500, weighing 18 cwt, and measuring six yards round, which, without some mistake, would imply much thinness. Whether now entire, or debased, as at Luton, does not appear. The weight of the six "great," and "merry Christchurch bells," brought from Oseney Abbey,—to hear which chimed it is said foreigners have purposely visited Oxford,—is not known, at least publicly. The peal of ten which supplanted them has, I understand, a tenor of 40 cwt., which is respectable.

It transpired not long ago, through the *Builder*, that bells can be purchased now for much less than the cost in the last generation,—*8l.* 8s. per cwt. Exception was also made to the solitary note of most new churches. Self-denyingly religious, rejecting adventitious aid, this certainly might be,—a kind of "Quakerism" (meaning no disrespect to a most respectable sect) in the Church of England; but, at least, it is not in keeping with much other Mediæval taste, otherwise we could not have had objections to Puseyite or considered Romanizing display. A problem of my childhood of a church where they rang all the bells at a funeral and only one at a wedding, may be easily worked out now in many quarters. A few new peals, far between, we certainly have read of; and I expect that, to a benevolent and munificent lady, Miss B. Coutts, may be owing, not only the giving three peals at least,—two to churches of her own founding,—but the stimulating others to a little less deadness in the matter of campanology. P.

CHURCH-BUILDING NEWS.

Kidderminster.—Some time ago a circular window, filled with stained glass by Messrs. Connor, was inserted in the east wall of St. George's Church; and now Mr. W. J. Hopkins, of Worcester, architect, has been engaged to give effect to the wishes of the subscribers towards a reredos, which will shortly be erected underneath the window. The great subject of the reredos (which is being carved in freestone by Mr. Forsyth, of Worcester, as we understand, at the entire expense of Messrs. Brinton & Lewis, of this town) is the Ascension, inclosed in a canopied trefoiled arch, with serpentine marble shafts. The figures will be raised 7 ft. 6 in. from the chancel floor. On each side of this central subject the reredos is to be inlaid with various kinds of marble, Maltese crosses in circles, and four quatrefoils, enclosing emblems of the Evangelists.

Liverpool.—Everton Valley Church, which is a branch of St. Peter's in Great Oxford-street, has been opened for divine worship. It is in the Lombardic style of architecture, and forms a parallelogram. The internal dimensions of the church are 75 ft. by 52 feet, and spaces are taken out at each corner of the front elevation for staircases to the gallery. Accommodation has been provided for 1,000 persons. There are galleries on three sides, and in the front elevation are four entrance-doors, two to the ground-floor and one in each tower for gallery purposes. The edifice is surmounted by a tower spire, which rises at the east angle to the height of 130 ft., exclusive of the vane. At the west angle there is a small turret with an ornamented slate roof, 56 ft. in height. The church is lighted with five sets of double windows on each side. At the rear of the building are vestries, and above these is a lecture-room. The front elevation of the church is built with Yorkshire shoddies, and the side elevations with white brick, the whole being dressed with Stourton stone. Messrs. Nicholson & Ayre, of Liverpool, are the builders; and Mr. W. J. Mason, also of Liverpool, is the architect. The total cost of the building is about 5,400*l.*

New Ferry (*Liverpool*).—The church of St. Mark the Evangelist, at New Ferry, has been consecrated and opened for public worship. The church is situated in the New Chester-road, and is distant from New Ferry Pier about a quarter of a mile. The edifice, which is in the Early Decorated style of architecture, consists of nave, with north and south nave aisles, south porch, chancel, south chancel aisle, and vestry, and provides accommodation for about 560 persons, including children. The building is capable of enlargement, sufficient space having been left for the purpose on the north side. A turret for one bell at present takes the place of the tower. The seats are of stained deal, and open. The pulpit, which is of stone, and inlaid with different coloured marbles, stands at the south-east angle of the nave. The church has been built of Tranmere stone, the dressings being from the Stourton quarries; and the cost, including the boundary-wall and laying out of the ground, is about 2,600*l.* The architect was Mr. E. Haycock, jun., of Shrewsbury; and the builder, Mr. Richard Lloyd, of New Ferry.

Newtown (*Leeds*).—The chief stone of a new church, to be built by the Leeds Church Extension Society, has been laid in the parish of St. Mary, Newtown. The church will seat over 600 persons, and the contracts for the whole works, including lighting, boundary, fencing, &c., is 3,060*l.* 9s. The style of the architecture is Early Decorated; and the plan, as being that best suited for a town church, simply divided into a wide nave and chancel, terminating with a semicircular apse, and north and south aisle to nave and chancel. The entrances are at the west end, from a porch the entire width of nave, and by a porch under the turret. The seating throughout is to be open benches of stained deal. The interior will be lighted by traceried windows and lancet and cusped clerestory windows. The walls are to be entirely built of stone, finished internally with plaster. The division of chancel from nave is formed internally by two framed principals, with curved braces, and pierced boarding between, resting on shafts of red Mansfield stone. The external dimensions are as follow:—Length of nave with western porch and chancel, 115 ft.; width of nave and aisles, 52 ft. 6 in.; height, 51 ft. from nave floor line to ridge; height of octagonal turret and spire at the west end, to top of finial, 84 ft. The architects are Messrs. Adams & Kelly, of Leeds. The contractors are Mr. Henry Smith, mason; Mr. John Tomlinson, carpenter & Joiner; Messrs. Watson & Wormald, slaters; Mr. Henry Orange, plasterer; Mr. George Wilson, plumber and glazier; Messrs. Heaps & Robins, ironfounders; Messrs. Hemingway & Son, painters.

Hartlepool.—The restoration of the ancient church of St. Hilda is at length to be proceeded with. The Restoration Committee have agreed that the tender of Mr. Graydon, builder, Durham, for the restoration of the nave, aisles, seats, &c., should be accepted. The cost of these restorations will amount to about 1,700*l.*, which will leave a sum in the hands of the committee as a nucleus for further improvements. The roof of the nave will be restored to its ancient high pitch; the windows will likewise be replaced in keeping with the original architecture of the building. The floor will be relaid, the gallery and seats pulled down and replaced, and the whole interior thoroughly renewed. These restorations will occupy from six to eight months, during which time the church will be closed. The Restoration Committee have not lost sight of the tower, but consider they will not be justified in interfering with this part of the work until they have considerably more funds in hand.

Bethnal-green.—The foundation stone of a new church, adjoining Victoria Park, Bethnal-green, has been laid, by Miss Burdett Coutts.

Kingston-on-Thames.—We are requested to state that the architects of the new Christ Church for New Maldon are Messrs. Raphael Brandon & H. J. Freshwater.

SCHOOL-BUILDING NEWS.

Birkenhead.—The Albert Memorial Industrial Schools, presented to the town by Mr. Wm. Jackson, M.P., are situated in Corporation-road N., Birkenhead, upon a site both convenient and healthful, on the high ground and open to the breezes from the mouth of the Mersey. The design erected was selected from a number sent in competition, and on plan resembles the letter E, having a frontage to Corporation-road 108 ft. in length, by a depth of 60 ft. The principal entrance, and the superintendent's residence, board-room and offices, &c., occupy the front centre, whilst the right side of the building is devoted to boys, and the left to girls. On either side of the entrance-hall is the board-room and office, and descending a few steps on to the basement floor the dining-hall is reached, an apartment 40 ft. by 35 ft., having an open timber roof, and lighted therefrom by clerestory lights. The workrooms for industrial pursuits are arranged on this floor, immediately under the schoolroom on the right; whilst the girls have kitchens, laundry, &c., on the opposite side, having lavatories, bath-rooms, &c., attached to each, with a large plunge bath for the use of both. Stone staircases are provided for each wing from this floor the full height of the building, the superintendent's and matron's apartments being approached by the principal stair from the front. The ground-floor is approached by a wide, well-lighted corridor from the entrance-hall right and left, leading to the boys' schoolroom, 57 ft. long by 20 ft. wide, and girls' schoolroom 43 ft. by 20 ft., of proportionate height, with class and sewing-rooms attached. The entresol floor, over office and board-room, contains the sitting and bedrooms of the superintendent and matron. The dormitories are arranged on the first-floor wings. The second-floor has dormitories the same size as the floor below, in addition to which it is provided with isolated sick-wards, store-rooms, &c. Large play-grounds are attached to the schools, and a covered play-shed is provided round three sides of the building. The material of the building is local brick, interspersed with bands of black, the window arches having bricks of three colours, and roofs slated in particoloured slating. The style of the building is called "Victorian," being a free adaptation of brick to modern requirements. Internally, the whole of the walls of the school-rooms, dormitories, and offices, are finished in brick, painted a warm tint, all the corridors being tiled. The entire cost of the building, with the furnishing, was about 6,000*l.*, the whole of which was defrayed by Mr. Jackson, who likewise gave the site. The works have been executed by Mr. T. W. Neill, contractor, from the designs, and under the superintendence of Mr. David Walker, of Birkenhead and Liverpool.

Levenshulme (*Manchester*).—Mr. Alfred Whitworth, F.R.S.L., Manor House, Levenshulme, has given the United Methodist Free Church congregation of that township a new school-house. Two years ago, a chapel, which also served as a Sunday school-room, was erected. Mr. Whitworth, who is superintendent of the Sunday schools, volunteered to build a school, and in October of last year the foundation-stone was laid. The building, which is in the Italian Gothic style of architecture, is built of common red bricks interspersed with blue bricks, has two entrances, is 39 ft. by 28 ft., and is arranged for seating 200 children; there are also two class-rooms, having a gallery over them, which is connected with the large school-room. Messrs. Whyatt & Redford, of Manchester, were the architects, and Mr. Davidson, of Cheetham, the contractor. The expense of the building, which is entirely borne by Mr. Whitworth, is upwards of 500*l.*

Colwall.—A national school for girls has been completed and opened. The building is near the Grammar School. It is 41 ft. by 18 ft., with a class-room 18 ft. by 41 ft., and has an enclosed play-ground. Mr. Woodyear, of Guildford, was the architect; Mr. Davies, of Malvern Wells, the contractor; and the clerk of the works, Mr. Walker. The entire cost is 700*l.*

DISSENTING CHURCH-BUILDING NEWS.

Christchurch.—The chief stone of the Congregational Church, which is to be rebuilt here, has been laid. The design is Lombardic, with tower and spire. Mr. Jervis Stent, of Warminster, is the architect.

Shipley.—Rosse-street Baptist chapel has been opened. The architect was Mr. S. Jackson, of Bradford. The design is Gothic, modified to meet the requirements of congregational worship. The principal front is to the south. It is pierced by three doorways—one in the centre, opening into a vestibule, and thence into the body of the chapel, and one on each side, opening into the galleries. Over the principal entrance is a four-light window, with geometrical tracery head; and over each gallery door a two-light, tracery-headed window. The basement story contains school-rooms, and a kitchen for festival purposes. The chapel windows are filled with green tinted and stained glass (the central window at the south end being of stained glass). The roof is pentagonal, divided into panels. At the north end is an orchestra. The woodwork,—front of orchestra, pulpit, gallery, fronts, and seats, are all of white wood, varnished. The pulpit is of semi-platform character. The entire cost, including furniture for the chapel and the school-rooms, but apart from the cost of ground, will be about 5,500*l.*, and of this sum 1,700*l.* required to be raised at the opening. The contractors were, for masons' work—Messrs. Johnson & Denby, Bingley; joiners' work—Mr. William Ives, of Shipley; plasterers' work—Mr. B. Dixon, Bradford; slaters' work—Mr. Edmund Thornton, Shipley; plumbers' work—Mr. Samuel Rushworth, Shipley; and stained glass—Messrs. Edmundson & Son, Manchester. There are nearly 950 sittings in the chapel.

Over.—The new Independent Church at Over is being covered in. It is built principally of Tarney bricks of varied colours. Its interior dimensions are 20 yards by 12, or 240 square yards in

area, and its height to the domed off top is 10 yards. The front or east gable end elevation is set off by two pinnacles on each side, with a centre pinnacle or finalement. The exterior of this front of the church is built on three Gothic stone arches sprung off Aberdeen polished granite columns, on bases, and carved capitals. The vestibule is to be approached by a flight of polished Yorkshire stone steps, and the interior laid with Minton tiles. There will be erected a gallery at this east end for the organ and singers, the approach to which is from the vestibule by a flight of winding, self-supporting, stone steps. Behind the gallery is a large three mullioned front tracery window. On each side, that is north and south of the church, are five jambed windows of two lights each, with a circle light at each top. In the west end is a large stone wrought-wheel window. The interior of the roof is an open polished one for a very considerable way up it, and finished off with a dome a little below the ridge. The roof is borne by four carved principals, and supported by angled iron tires; and the exterior will be shortly covered by an ornamental slated roof with curved ventilators. The total cost is computed at 2,000*l.*, to be raised by voluntary subscription. The architect is Mr. John Douglas, and the contractors are Mr. Richard Price and Mr. J. Dutton, both of Winsford.

Books Received.

VARIORUM.

"GOD save the Green! A few Words to the Irish People." Under this title, Mrs. S. C. Hall has published (through Partridge, Paternoster-row), an excellent little story against what, of all stupid and wicked conspiracies, is certainly the stupidest and wickedest,—"Fenianism." In her own genial manner, the writer makes one of the "boys," who has travelled, point out to his excitable family about him that Ireland has now nothing to complain of, not a grievance to show, badly as she was treated in the old times, as well as the sort of change they would be likely to get if the plot succeeded; and leads them to shout with good feeling at the close, "God save the Queen, *and* the Green." A wide scattering over the Green Isle of these leaves, which bear with them good seed, could scarcely fail to produce good fruit. "They won't hear me, as yet;" as the author makes James Roche say, "but, please God, they soon will. And may the good God teach them! May they hear their true friends; may they be taught to *think*." A little slip as to the difference between London and Dublin time, which interferes with the capital anecdote on the last page, may as well be corrected in the new edition which will, doubtless, be called for directly.

Miscellanea.

THE REDUCTION OF OMNIBUS MILEAGE DUTY.—It appears that the sum which will be saved annually to the London General Omnibus Company by the reduction of the mileage duty on their omnibuses from 1d. to ½d. is about 39,000*l.* What will the public gain?

DIGGING WELLS: HOW TO DETERMINE WHERE WATER IS.—At a recent meeting of an American Institute Club, a member related his experience in this matter, as follows:—"An Irishman in his employment, in order to ascertain where he ought to dig to obtain water soonest, got a stone, and buried it overnight in the ground next to the hardpan. In the morning he found it quite moist, but not sufficiently so to suit his fancy. Next night he tried it in another spot, and it was found very wet on the following morning. 'There,' said Patrick, 'you will find the water not many feet deep, and plenty of it.' Sure enough, in a few days' digging, Patrick confirmed his prediction, notwithstanding the jeers of the workmen,—finding a vein which filled the well to overflowing, and rendered it exceedingly difficult to bail out the water so as to stone it. The philosophy of the operation seems to be, that as great evaporation takes place from the surface of the earth during the night, the water rises up from the depths below to supply the loss, and accumulates in the vicinity of the stone, often making quite a puddle."—*Canada Farmer.*

THE NATIONAL ALBERT MEMORIAL.—According to the daily papers, Mr. Scott, the architect of the National Memorial which is being erected in Hyde Park to the memory of his Royal Highness the Prince Consort, on Thursday, the 21st inst., by command of her Majesty the Queen, deposited in the central stone of the structure a collection of the coins of the realm, together with a short descriptive account and plan of the design inscribed on parchment.

THE LIVERPOOL INDUSTRIAL FINE ART EXHIBITION.—The Earl of Caithness has distributed the prizes won at this exhibition. There was a tolerably numerous attendance. The exhibition was opened on the 23rd of January, and remained open till the 13th of March: the number of visitors was 15,200. The admission fees were 289*l.* 8s. 4d.; advertisements in catalogue, 39*l.* 12s. 6d.; sale of catalogues, 35*l.* 15s. 3d.; sale of tickets, 33*l.* 19s. 6d.; advertisements in exhibition, 12*l.*; commission on sales effected, 3s. 9d., making, with other items, a total of 412*l.* 7s. 8d. After meeting the expenses, there was a balance for division between the hospitals of 14*l.* 19s. 3d.

"DEEP SEA TELEGRAPHY."—A paper has been read at the Inventors' Institute, by Mr. Kaulbach, on a special plan for the establishment of ocean lines of telegraph. This plan consists in the formation of a permanent-way or bridge, formed of a series of vessels floated 10 to 15 fathoms beneath the surface of the ocean at moorings, for the support and carrying through of the wires. The vessels can, within a few minutes, be brought to the surface, together with their respective burdens, when required, without any effort or machinery. By means of a simple appliance, messages may be sent from mid-ocean through any one of the buoys along the wires, by ships privileged to use them, and wishing to communicate with either of the continents or islands wherewith the permanent-way may be connected, or with each other. The actual cost of permanent-way communication between Cape Race and Cape Clear has been estimated at about 400,000*l.*

COWKEEPERS' PETITION AS TO DISINFECTANTS.—A petition from London cowkeepers has been presented to Parliament, complaining of the appointment of Dr. R. Angus Smith to report on disinfectants, on the ground that he was a joint patentee with Mr. McDougal, in regard to the use of carbolic acid as a disinfectant, under the name of "McDougal's powder;" and praying for "a full and impartial inquiry by chemists of the first rank, and other competent but unprejudiced persons, on the subject of disinfectants." The petitioners state that, from the first outbreak of the cattle plague, they adopted a system of disinfection which very much limited the loss of cows in their district, and that they have therefore the utmost confidence in that system; and they quote from a report of Dr. Barclay, the Chelsea medical officer of health, to his vestry, "as evidence of a scientific and important character in support of the article known as Condy's fluid, and the one which your petitioners have had in use." This fluid is composed of alkaline permanganates, and has been repeatedly brought under favourable notice in the *Builder*, during the past few years.

SANITARY PROCEEDINGS AT THE MANSION HOUSE.—Frederick Sadgrove was summoned before Alderman Allen, by Sanitary-inspector Clark, for neglecting an order of the Commissioners of Sewers to cleanse and repair the houses Nos. 1 to 17, New-court, Old Bailey. Mr. Wm. Clark said he served an order on the defendant on the 3rd of May, for cleansing the water-closets of the above houses. There were sixteen houses, and they contained in all forty-six rooms. In them thirty families resided, the aggregate number of which was 129. In No. 2 the small-pox had broken out. Two men commenced work on No. 15 on the morning of the 16th. The ground in No. 4 was saturated with filth. Nothing had been done to the other houses except a little washing outside. He had heard that the defendant had applied to two or three builders, who were unable to undertake the work. Defendant was fined 7*l.* and costs, being 10s. per day for fourteen days.——Drummond Farmer was also summoned at the instance of Inspector Clark, for not cleansing Nos. 21, 22, and 23, Catherine Wheel-alley, Bishopsgate-street. Inspector Clark said the closets, houses, and rooms were in a filthy state. Defendant was fined 4*l.* 10s., being 3s. per day for thirty days.

FORESTERS' CEMETERY.—A proposal is under consideration for the formation of a Foresters' Cemetery for the members of the ancient order within the metropolitan district. The *South London Chronicle* says, any profits accruing would be given to members' widows and orphans.

WORKMEN'S DWELLINGS, EAST GREENWICH.—A block of buildings is nearly completed at East Greenwich, for the Blakely Ordnance Company, including workmen's dwellings. In the upper part of the tower over the principal staircase is a tank to contain water for the supply of each suite of rooms and W.Cs. in the back galleries. The cost of the large block of workmen's dwellings is 12,000*l.*, and of the whole of the buildings 22,600*l.* They are being erected from the designs of Mr. A. Manning, by Messrs. Patrick & Son, builders.

THE DELHI MEMORIAL CHURCH.—From an appeal in the *Morning Post*, it appears that St. Stephen's Memorial Church, Delhi, the chief stone of which was laid by the Bishop of Calcutta in March, 1865, is now nearly finished, but no funds remain for the internal fittings: these are estimated at 418*l.* The fabric has cost 2,000*l.*; and of this nearly 1,500*l.* were raised in India. The church, our readers may recollect, is intended as a memorial of English and native Christians killed in Delhi in the mutiny; and it is to those who then may have lost relations and friends, as well as to all who take an interest in the spread of Christianity in India, that the appeal is made. The Rev. W. T. Bullock, S.P.G., 5, Park-place, St. James's-street, S.W., is the secretary.

ANOTHER EXHIBITION IN INDIA.—Mr. Temple, chief commissioner, Central Provinces, encouraged by the success which attended the Nagpore Exhibition last Christmas, has preparations afoot for holding a similar exhibition at Jubbulpore, in January, 1867. The Viceroy in Council has given his sanction to the proposal and likewise a Government subscription of 15,000 rupees (1,500*l.*) towards defraying the expenses. The object of the Jubbulpore exhibition is more special and local for the Saugor and Nerbudda country. Accommodation for the exhibition will be provided by the Jubbulpore Railway Company, whose engineer is sanguine that suitable buildings can be got ready by January next. This gentleman states, according to the *Times of India*, that rails will by that time be laid nearly as far as Meyhere.

THE METROPOLITAN MUNICIPAL ASSOCIATION.—The general council of this association have issued an address, in which they say:—"For many years past the local government of the metropolis has excited a serious and growing discontent. It is a matter of notoriety that the first city in the empire is one of the worst and most expensively governed. A want of system is conspicuous in every department of its management. . . . . The defects of the present system are patent, and the expense is enormous. As an example of the comparative cost of management between consolidated and divided districts, the parish (not the borough) of St. Marylebone and the city of Westminster may be taken. The population of each is about the same. Marylebone parish collects 194,036*l.*; Westminster city, 194,031*l.* Plus police and county rate—Marylebone, 38,167*l.*; Westminster, 78,814*l.* The salaries and poundage are respectively—Marylebone, 7,711*l.*; Westminster, 17,462*l.* Marylebone parish is managed by one vestry, and its administrative expenses are under 8,000*l.* per annum, while the five Boards of local management in Westminster cost nearly 20,000*l.* These five Boards employ twenty-one clerks and vestry clerks, six surveyors, four solicitors, nine officers of health, six inspectors of nuisances—all these officers being employed for the purpose of carrying out the provisions of the Metropolis Local Management Act." After detailing the recent legislation on the subject, the address proceeds to speak of the views of the association, and says that "the endeavours of the association will be directed towards obtaining an Act of Parliament, with carefully-considered provisions, which will be calculated to secure a better government by a better representation of the ratepayers, and more efficient and economical management by reducing the large number of jurisdictions, giving to larger corporations greater powers, greater authority, and, at the same time, greater responsibility. To this end a Bill is now before the committee of the association, which they are prepared to accept as the basis of discussion, leaving matters of detail open for consideration."

LAKE SUPERIOR COPPER.—The total copper product of Lake Superior for 1865, according to the *American Gaslight Journal*, was 8,561,999 tons, producing about 6,850 tons ingot copper, worth 6,859,000 dols.

AN AMATEUR'S WINDOW.—A stained glass east window has been placed in Burnchurch parish church, Kilkenny, painted by the Countess of Desart, and dedicated to the memory of her husband. This work of art has occupied her ladyship's thoughts and leisure hours for months.

CHICHESTER CATHEDRAL SPIRE. — This spire has been completed; and there was to be a grand procession on the 28th (Thursday), at the crowning of the spire, and, after an appropriate service, a dinner in the Priory Park, the Duke of Richmond occupying the chair; in the evening a display of fireworks.

OZONE ANTICHOLERAIC.—Mr. Hay, an American, has noted that ozone always exists in abundance in the telegraph offices, and to this fact he attributes the immunity from cholera and contagious fevers which the clerks of those offices enjoy, as he himself remarked while professionally engaged on the telegraph lines west of the Ohio in 1849-54, when the cholera overran nearly the whole of the American continent.

CONTEMPLATED RESTORATION OF THE CROMLECH AT PORTESHAM.—A party from Weymouth have visited Portesham, for the purpose of inspecting the Hellstone, and deciding on the best means of carrying out its restoration. From the want of machinery there appears some difficulty to be anticipated in raising the top stone to its former position, as its weight is calculated to be 16 tons. Hutchins thus describes this cromlech: "North of Portesham are three hills, Rockley, Ridge, and Hampton, lying parallel to each other, north and south, and divided by three vales. They are spurs or excrescences of Blagdon or Blackdown hill, which lies about half a mile to the north. On Ridge hill, the middlemost of the three, is a cromlech, the only one in this county. This cromlech consists of nine upright stones, or supporters, about 3 ft. broad, and 6 ft. high above ground, and a horizontal one which is oval; its long diameter, 10 ft. 6 in., its short one 6 ft., and it is about 2 ft. thick at the north and south ends, and 1 ft. 8 in. at the east and west ends. These supporters are not of equal length; the highest are on the south, so that it must have dipped towards the north. All these stones are rough as drawn from the quarry, except the underpart of the horizontal one, which seems roughly chiselled. This monument stands on a tumulus, and on the north-west is a terrace or avenue, 60 ft. long, leading to it, 3 ft. broad at one end, and 10 ft. at the other. To the east is a small barrow, but no other nearer than the top of Blagdon."

ANCIENT PITS.—Some ancient pits have been discovered at Fisherton, near Salisbury. They occur singly and in groups; and are carried to a depth of from 7 ft. to 10 ft. in the drift-gravel, resting upon chalk. The entrance to each pit, or set of pits, was by a circular descending shaft. The pits are nearly all circular, from 5 ft. to 7 ft. in diameter, and narrowing at the top from 2 ft. 6 in. to 3 ft. 6 in. The floors were of chalk. Moveable circular covers, composed of interlaced sticks coated with clay, appear to have been used. It is supposed that these pits were at one time used as winter dwellings; but they may have originally been mere chalk-pits. Remains of a small race of horses have been found in them, and also of the red deer, a small variety of goat, sheep, dog or wolf, pig, water-rat, field-mouse, house-mouse, toad, frog, and fish. Nearly all the bones are scored as if with flint knives; some are burnt. Traces of gnawing occur upon most of them. One bone needle, with a drilled eye, is very like those found in the caves of Périgord. Two curious combs, with short thick teeth, and a long handle for grasping, have been found. There is a deficiency of objects in worked flint. Only one leaf-shaped arrow-head, and one hatchet (unrubbed), have as yet been obtained, whilst there is an absence of *cores* and waste flakes. No trace of metal has been found. Although the surface-soil around the pits is full of fragmentary Romano-British pottery, none has been found in the soil removed from the pits themselves. It is therefore assumed that when they were *filled in* Roman pottery did not occur upon the surface-soil.

THE LINCOLN SURVEYORSHIP.—The local board have appointed Mr. Pearson Bellamy as their surveyor. The other candidates were Mr. Michael Drury, Mr. Henry Goddard, and Mr. George Betham.

THE MORTALITY.—The annual rate of mortality last week was 22 per 1,000 in London, 29 in Edinburgh, and 23 in Dublin; 17 in Bristol, 16 in Birmingham, 36 in Liverpool, 26 in Manchester, 21 in Salford, 25 in Sheffield, 29 in Leeds, 20 in Hull, 25 in Newcastle-upon-Tyne, and 28 in Glasgow. The rate in Vienna was 39 per 1,000 during the week ending the 9th inst., when the temperature was 6·6° Fahrenheit higher than in the same week in London, where the rate was 24 per 1,000.

UNITED SOCIETY OF IRONMONGERS. — The friends and members of this Society dined last week at the Freemasons' Tavern. After the usual loyal toasts the chairman briefly alluded to the rise and progress of the Society, and earnestly entreated the attention of employers to the benefits to be derived from their becoming beneficial members. The secretary read a report, showing a balance of 4,538*l.* 8s. 9d. to the Society's credit, to which is to be added the very liberal list of the evening's subscriptions.

A GAS COMPANY FINED.—At the Newcastle Police Court, on Saturday, the gas company of that borough were charged with unlawfully supplying gas which was not equal to that prescribed by their Act of Parliament, inasmuch as it contained more than 15 grains of sulphur in every 100 ft. The clause under which the proceedings were taken had been inserted in the Act at the instance of the corporation, who were now the complainants. It was proved by an analytical chemist that on the average there were 24·11 grains of sulphur in every 100 ft. of gas. The magistrates considered the complaint to be proved, and inflicted a penalty and costs amounting to nearly 25*l.*

CHURCH BUILDING IN THE METROPOLIS.—The eleventh annual meeting of the London Diocesan Church Building Society and Metropolis Churches Fund has been held at Willis's Rooms. The Bishop of London presided. The report recalled attention to the termination the year before last of the ten years' subscriptions which had been paid by certain large landowners since 1854. This had decreased the society's income from 5,000*l.* to about half that sum. The financial position of the society, however, was by no means unfavourable. The committee proposed to establish a guarantee fund of 5,000*l.*, which should only be drawn upon in cases of emergency, while the interest upon it would be used to defray the office expenses of the society. The committee accordingly made a special appeal for the creation of this fund. The Bishop of London remarked upon the difference existing between the older societies and the fund which bore his name, and spoke of the importance of preserving the older, more comprehensive, and more complete machinery in full working order, so that it might not be found wanting when the Bishop of London's Fund ceased to operate. The report was adopted and ordered to be circulated; and a resolution urging the necessity of establishing the guarantee fund was come to.

METROPOLITAN ASSOCIATION FOR IMPROVING THE DWELLINGS OF THE INDUSTRIOUS CLASSES.—The annual meeting of this Association has just been held. The report congratulated the shareholders on the steady progress of the association. The Victoria Cottages in Albert-street, Mile-end New Town, had been completed during the past year, and thirty-six families were now provided with comfortable dwellings on a site where, a short time since, but thirteen families were accommodated. Dwellings for 149 were also in the course of erection, consequent on an arrangement effected with the Marquis of Westminster. Eight pairs of semi-detached cottages had been erected at Penge, on the freehold property where there was room for 160 cottages and gardens. The net profits for the year amounted to 3,760*l.* 3s. 10d., out of which a dividend of 3½ per cent. was recommended, the payment of which would leave a balance of 345*l.* 19s. 8d. to be carried to the guarantee fund, which would thus be increased to 2,924*l.* 18s. 5d. The average rate of mortality during the year in the property of the association had been about 17 per 1,000, contrasting favourably with that of the metropolis generally, which had been 24 per 1,000. 697 tenants are now living on the property of the association.

EXTENSION OF HAIRBRUSHING MACHINERY TO HORSES!—At a large omnibus establishment at Pendleton, near Manchester, it is said, the horses are cleaned by machinery. Formerly a man was considered to have done a good day's work if he cleaned a dozen horses, but he can now clean thirty with much less fatigue.

THE NEW RAILWAY LINE TO BRIGHTON.—The bill promoted jointly by the South-Eastern Railway Company and the London, Chatham, and Dover Railway Company for an independent line to Brighton, affording access to all the city and west-end termini in London of those two companies, and to the centre of Brighton, has passed through committee of the House of Commons.

TENDERS

For the erection of a public-house, in Willes-road, Kentish Town. Mr. J. Dent, architect. Quantities supplied by Messrs. Richardson & Waghorn:—

Manley & Rogers	£3,344	0	0
Keeble	3,278	0	0
Eaton & Chapman	3,193	0	0
Sawyer	3,160	0	0
Cooper	3,030	0	0
Langmead	2,793	0	0

For erecting a 75-quarter malthouse, at Newark-upon-Trent, for Mr. John Wilson. Mr. Charles Baily, architect:—

Lane	£2,641	0	0
Mackenzie	2,623	0	0
Fretwell (accepted)	2,558	0	0

For erecting two 60-quarter malthouses, at Newark-upon-Trent, for Messrs. J. W. & H. Branston. Mr. Charles Baily, architect:—

Mackenzie (accepted)	£6,000	0	0

For erecting a 60-quarter malthouse, at Lichfield, Staffordshire, for the Lichfield Malting Company (limited). Mr. Charles Baily, architect. Quantities prepared by Mr. Charles Poland:—

Burkett	£4,280	0	0
Lovatt	4,180	0	0
Clarson	4,110	0	0
A. & R. Dennett & Co.	3,995	0	0
Huddlestone	3,694	0	0
Dakin & Thornelee (accepted)	3,269	0	0
Collyer & Scott	2,750	0	0

For erecting four dwellinghouses, at Newark-upon-Trent, for Mr. Zachariah Wood. Mr. Charles Baily, architect:—

Staniland	£625	0	0
Fretwell	624	0	0
Henderson	621	0	0
Lane	617	10	0

For a detached residence, for Mr. N. J. Fenner, at Blackheath. Mr. J. H. Rowley, architect:—

Brass	£3,615	0	0
Cushion	2,620	0	0
Bland	2,417	0	0
Kilby	2,327	0	0
Hart	2,248	0	0
Browne & Robinson	2,203	0	0
Rogers	2,034	0	0

For stone piers, abutments, wing walls, &c., to new iron bridge over the river Soar, at Leicester. Mr. Stephens, borough engineer, architect. Quantities supplied. Sydnope stone to be used:—

Porter	£1,920	0	0
Neale & Sons	1,840	0	0
Osborne, Brothers	1,833	0	0
Johnson	1,650	0	0
Gimson & Co.	1,346	12	2

For new building, No. 35, King-street, Cheapside. Messrs. Young & Son, architects:—

Ashby & Sons	£4,890	0	0
Lawrence & Sons	4,872	0	0
Ashby & Horner	4,854	0	0
Brass	4,721	0	0
Piper & Wheeler	4,481	0	0
Henshaw	4,227	0	0
Hart	4,000	0	0
Webb & Sons	3,918	0	0

For rebuilding warehouse, at Wapping, for the Aberdeen Steam Company. Mr. George Judge, Jun., architect:—

Johnston	£785	0	0
Rivett (accepted)	743	0	0

For works at Newington workhouse. Mr. H. Jarvis, architect. Quantities supplied by Mr. Shrubsole:—

Thompson	£620	0	0
Mitchell	596	0	0
Wilkinson	565	0	0
Hammond	548	0	0
Tarrant	544	0	0
West	539	0	0
Cook & Son	516	0	0
Nightingale	500	0	0
Marsland	499	0	0
Kenn	499	0	0
Bangley	492	0	0
Wright	486	0	0
Cooper	485	0	0
Prescott	469	0	0
Payne	451	0	0
Pearce	449	0	0
Taite (Brothers)	440	0	0

For residence and offices, at Croydon Common. Mr. Charles Rutley, architect. Quantities supplied:—

Pollard & Savage	£1,720	0	0
Woodward	1,370	0	0
Jarrett (accepted)	1,340	0	0

For erecting residence at Shortlands, Kent. Mr. Edward L. Tarbuck, architect. Quantities not supplied :—

Hill	£2,025	0	0
Rose	1,816	0	0
Farthing	1,674	0	0

For the erection of a villa residence and offices, Rhayader, in the county of Radnor, exclusive of well, and also of stone, lime, and sand for walling purposes, for Mr. R. Richardson. Mr. E. H. Lingen Barker, architect :—

Woolley	£1,100	0	0
Evans	1,067	0	0
Freeman (accepted)	973	0	0

For a new house at Ickleford, Herts, for Mr. Thomas Priest. Mr. J. Shilcock, architect. Quantities supplied :—

Davies & Redhouse	£2,372	9	0
Butterfield	2,267	0	0
Stapleton	2,255	0	0
Warren & Son	2,112	0	0

For Forest-hill Congregational Chapel, Stanstead-lane. Mr. H. Fuller, architect. Quantities supplied :—

Howes	£3,210	0	0
Sawyer	2,977	0	0
Perry	2,970	0	0
Staines & Son	2,948	0	0

For residence at Tonbridge, Kent, for Mr. Wimber. Messrs. Charlton & Skinner, architects. Quantities supplied by Mr. Shrubsole :—

Anscomb	£1,593	0	0
Stump	1,525	0	0
Woodruffe	1,370	0	0

For alterations at the Horse Shoe Tavern, in the Borough. Mr. Aldous, architect. Quantities supplied by Mr. Shrubsole :—

Hull	£595	0	0
Pierce	535	0	0
Burch	475	0	0
Holcomb	445	0	0

For a detached house on the Copeland Park Estate, Lea Bridge-road. Mr. T. J. Hill, architect :—

Smith	£897	0	0
Cushing	890	0	0
Reed	848	0	0

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WANTED, an ENGAGEMENT, by a GRAINER, PAINTER, and GLAZIER.—Address, A. B. 27, Grafton-street, Kentish New Town, N.W.

WANTED, by a steady Young Man, a good Joiner and Staircase Hand, EMPLOYMENT, in town or country.—Address, W. C. 51, St. Paul's-road, Kennington Park, Surrey.

TO BUILDERS AND GASFITTERS.

WANTED, by a good Workman, a SITUATION in the Bellhanging and Gasfitting line.—Address, H. H. Morland House, Stoke Newington.

WANTED, a RE-ENGAGEMENT as CLERK of WORKS.—Address, R. P. Post-office, Forest-gate, Essex.

TO ARCHITECTS AND SURVEYORS.

WANTED, a RE-ENGAGEMENT, as DRAUGHTSMAN or ASSISTANT. Has been six years in the profession; is a good draughtsman and colourist, and used to taking out quantities and making other calculations. Satisfactory references as to ability.—Address, 1052, Office of "The Builder."

TO ARCHITECTS, BUILDERS, &c.

WANTED, an ENGAGEMENT, as CLERK of WORKS, or BUILDER'S ASSISTANT, in Town or country, by the Advertiser, who has had considerable experience, and can give good reference. Age 34.—Address, A. B. Post-office, East Grinstead, Sussex.

TO CARPENTERS AND OTHERS.

WANTED, by a Young Man, a permanent SITUATION as JOBBING CARPENTER, &c. Terms moderate. Town or country.—Address, A. C. 1, Mount Pleasant, Gray's-Inn-road, London.

TO BUILDERS AND OTHERS.

WANTED, by a good practical Carpenter and Joiner, PIECEWORK, in large or small jobs. Labour only. Town or country. Gentlemen building and finding their own materials will find it to their advantage.—Address, W. R. 32, Upper Bemerton-street, Islington, N.

TO BUILDERS AND PLUMBERS.

WANTED, by a respectable Young Man, a SITUATION as good PLUMBER. Has no objection to fill up his time with painting, if required. A good reference can be given.—Address, T. T. 1, Bermondsey-square, Southwark.

TO MASTER BUILDERS.

WANTED, by a first-class STAIRCASE HAND, aged 29, a SITUATION, at the above. Willing to fill up time at joiner's work, if required.—Address, W. B. 61, Brandon street, Walworth.

WANTED, by an efficient, energetic Man, a Joiner, a RE-ENGAGEMENT as BUILDER'S FOREMAN or CLERK of WORKS. Good references.—Address, C. D. Post-office, Zoar-place, Coldharbour-lane, Brixton.

TO MASTER BUILDERS AND PLUMBERS.

WANTED, by a Young Man, a constant SITUATION as PLUMBER. No objection to fill up time with painting. Good reference if required.—Address, G. L. No. 2, Nottingham Mews, High street, Marylebone.

TO ARCHITECTS.

WANTED, a RE-ENGAGEMENT as CLERK of WORKS. First-class references.—Address, F. A. 93, Regent-street, Lambeth-walk.

WANTED, a SITUATION, with an Architect, Builder, or Land Agent, by the Advertiser, aged 25, who is a neat draughtsman, a good colourist, and thoroughly understands the usual routine of the above offices. The advertiser, having a competency, would be willing to take 1l. per week for a permanency.—Address, FIDES, Yelgham, Halstead, Essex.

TO DECORATORS, UPHOLSTERERS, AND OTHERS.

WANTED, by a thorough and Practical Draughtsman, a SITUATION, or ENGAGEMENT, in an Office of the above. Is a good colourist, &c.—Address, S. OKE, 33, Lisson Grove, Marylebone-road, N.W.

TO BUILDERS AND OTHERS.

WANTED, by a thoroughly practical Man STAIRCASE WORK, by the Day or Piece; or a SITUATION as Shop or Out-door FOREMAN. No objection to the country. Unexceptionable reference from last employer.—Address, A. B. 16, London-road, Southwark.

TO PLUMBERS AND BUILDERS.

WANTED, by a Young Man, a constant SITUATION as PLUMBER. No objection to fill up his time painting or glazing.—Address, G. Y. 36, Lucas-road, Kennington-park.

WANTED, by a practical Man, a RE-ENGAGEMENT as General FOREMAN or CLERK of WORKS. Joiner by trade.—Address, A. Z. 79, Great Suffolk-street, Borough.

TO BUILDERS, &c.

WANTED, a SITUATION, by a Builder's Son, aged 25. Has had the management and kept the accounts of a small builder's business. Can measure work, take out quantities, and draw working plans. First class testimonials as to character.—Address, A. CHAMBERS, Headcorn, Kent.

TO ARCHITECTS, SURVEYORS, AND BUILDERS.

WANTED, a RE-ENGAGEMENT, by a fully competent ASSISTANT.—Address, SURVEYOR, No. 2, Minerva-terrace, Tavistock-road, N.

TO CONTRACTORS AND BUILDERS.

WANTED, by an energetic Bricklayer, a SITUATION as FOREMAN, or General Superintendent of Works, sewerage or otherwise, or would take the Management of a Business. Has no objection to the country.—Address, C. W. 4, Surrey-place, Thomas street, Kennington Park.

WANTED, by a Young Man who has just completed his term, EMPLOYMENT in an Architect's and Surveyor's Office.—Address, R. T. 54, Marlborough-villas, Studley-road, Stockwell.

TO ENGINEERS, SURVEYORS, AND CONTRACTORS

WANTED, by a Gentleman, EMPLOYMENT in an OFFICE. Has had practice in railway, bridge, gas, and sewerage engineering, and in the laying out and construction of roads and drainage work. Is a good draughtsman and quick at figures. Good references. Salary about 30s. a week.—Address, W. 129, St. George's-road, S.W.

TO BUILDERS AND CONTRACTORS.

WANTED, a RE-ENGAGEMENT, by a thoroughly practical JOINER and STAIRCASE HAND, as WORKING FOREMAN of JOINERS, or as General Foreman. Well up in setting out work. Reference to builder and clerk of works where last employed. Country not objected to.—Address, H. K. 30, Cardington-street, Hampstead-road, London.

TO CARPENTERS AND JOINERS.

WANTED, by a respectable Youth aged 18, a SITUATION as an IMPROVER, IN-DOORS. Has been two years and a half at the trade.—Address, H. G. care of Mr. Grout, Vicarage-lane, Stratford, E.

TO BUILDERS AND CONTRACTORS.

WANTED, by an experienced Man, a SITUATION as FOREMAN of WORKS. Has been accustomed to sole management. Bricklayer by trade. Good testimonial.—Address, R. S. care of Mr. Lee, 60, Penton-place, Newington-butts, London.

TO BUILDERS AND CONTRACTORS.

WANTED, a SITUATION, by a thoroughly practical FOREMAN of BRICKLAYERS. Good testimonials.—Address, S. R. care of Mr. Lee, 60, Penton-place, Newington-butts, London.

WANTED, a SITUATION, as BUILDER'S CLERK, by a Young Man, thoroughly conversant with all branches of the business, and possessed of unexceptionable references.—Address, S. M. 12, Princes-row, Victoria-road, Pimlico, S.W.

TO SAW-MILL OWNERS.

WANTED, by a thorough persevering Man, aged 27, who can be well recommended, a JOB to WORK a CIRCULAR SAW, or one of Worse-man's Trying-up Machines. Can sharpen his own saws, and would make himself generally useful.—Address, J. C. 26, Marlborough square, Chelsea.

WANTED, a CONSTANCY, by a good MASON and LETTER-CUTTER, who has been twelve years in the trade. Country preferred.—Address, J. C. W. Office of "The Builder."

TO CARPENTERS AND BUILDERS.

WANTED, to APPRENTICE a strong active YOUTH, aged 17, to the above trade. Has been working at the trade for the last eighteen months.—Apply to Mr. LUFF, Slough.

TO SURVEYORS, &c.

THE Advertiser, who wishes to improve himself in making surveys for railways, would be glad to give his services for a time, in return for further experience in the field. Is a fair draughtsman, and used to getting up plans, calculating earthworks, and the usual routine of a surveyor's and engineer's office. Aged 24. Good references.—Address, 1051, Office of "The Builder."

TO BUILDERS.

THE Advertiser wants a SITUATION on a BUILDING, to Work at the Bench, and Assist the Foreman or Builder with Drawings, Tracings, Accounts, Pay Sheets, &c. Town or country. References. Salary, 25s. per week.—Address, 1053, Office of "The Builder."

TO ARCHITECTS.

THE Advertiser desires a RE-ENGAGEMENT in a London Office. Is a good draughtsman, &c. First-class references.—Address, E. F. C. at Deacon's, 154, Leadenhall street, E.C.

TO BUILDERS, &c.

THE Advertiser, aged 23, requires a SITUATION, as CLERK or TIMEKEEPER. Has had some years' experience in the office of a builder, is willing to make himself generally useful, and, if required, can fill up his time at the bench.—Address, A. B. Post-office, Upper Gloucester-place, N.W.

TO PLUMBERS, BUILDERS, &c.

THE Advertiser is in WANT of a JOB, as PLUMBER. Can do gasfitting and zinc work.—Address, E. M. D. 2, Clyde Villas, Myatts-road, Lothian-road, Camberwell, S.

TO BUILDERS, CONTRACTORS, &c.

THE Advertiser, a man of extensive experience in every branch connected with joinery and carpentry, is desirous of entering into negotiations with any one having WORKS TO LET OUT, either as contract for the whole or piece per measure. Further particulars can be obtained by letter, addressed to Mr. NIXON, House Agent, &c. 32, Junction road, Upper Holloway.

TO LAND AGENTS, AUCTIONEERS, AND OTHERS.

THE Advertiser is open to an ENGAGEMENT. Has had extensive practice in surveying, mapping, levelling, and computing quantities; can design elevations and ground-plans of buildings, &c. and can furnish estimates; and will use his own instruments. Good references.—Address, B. C. 6, Bridge-terrace, Bridge-street, Stratford, Essex, E.

TO BUILDERS, &c.

THE Advertiser, a Carpenter and Joiner by trade, who has just finished a large job in town, wishes a RE-ENGAGEMENT as FOREMAN of WORKS, in town or country. Satisfactory references given.—Address, A. Z. 39, St. James's-road, Holloway.

TIMEKEEPER.—WANTED, by the Advertiser, a RE-ENGAGEMENT as above, or in light capacity. Address, C. E. 57, York-road, Lambeth, S.

TO CONTRACTORS, BUILDERS, AND SMITHS.

THE Advertiser WANTS a SITUATION as a FIRST-CLASS FIREMAN, or as Working Foreman, or as Leading Hand. Can take the work by the piece or sub-contract. Labour only.—Address, L. G. 5, Elizabeth terrace, Camilla-road, Blue Anchor-road, Bermondsey

TO CIVIL ENGINEERS AND CONTRACTORS.

THE Advertiser, aged 39, is in want of a RE-ENGAGEMENT, as AGENT or GENERAL FOREMAN. Eighteen years' experience on railway and large public works; a thoroughly practical man, well up in all branches of building and surveying, measuring, and estimating. First class references from large Land n firms.—Address, L. W. J. 71, Drummond-street, London, N.W.

TO BUILDERS AND OTHERS.

EMPLOYMENT WANTED by a Young Man, aged 21, in the CARPENTERING and JOINERING.—Address, J. W. 17, Grosvenor-street, Page-street, Westminster.

AS DRAUGHTSMAN or CLERK of WORKS.—Required, a RE-ENGAGEMENT in either of the above. In town or country.—Address, A. No. 15, late 8, Rich-terrace, Brompton, S.W.

TO ARCHITECTS.

AN ASSISTANT desires a RE-ENGAGEMENT as DRAWING ASSISTANT. Is a good draughtsman, well up in colouring and perspective. Good references.—Address, F. J. C. Mornington Library, Mornington street, N.W.

TO MASTER PLUMBERS, PAINTERS, AND GASFITTERS.

A GOOD practical PLUMBER, GASFITTER, and ZINC-WORKER is in want of a SITUATION. Has a good practical knowledge of the Painting and Decorating.—Address, E. B 9, Whittington-place, Highgate hill.

TO SURVEYORS, VALUERS, LAND AGENTS, AND AUCTIONEERS

A THOROUGH SURVEYOR, neat Draughtsman, and expert Penman, well up in field and office work of the above professions, desires a RE-ENGAGEMENT. Can give first-class references.—Address, X. Y. Z. Office of "The Builder."

AN accomplished ARCHITECTURAL ASSISTANT is WANTED. To a gentleman meeting the requirements a high salary is offered.—Address, T. Messrs. Thomson & Baxter, Princess-street, Manchester.

A GOOD PLUMBER, well experienced in old and new work, is in want of EMPLOYMENT. Can fill up time painting or glazing. Good references, if required. Aged 34. Address, W. M. 2, Bouverie-street, Fleet-street, Paddington.

TO BUILDERS.

AS OUT-DOOR FOREMAN.—The Advertiser, having recently completed an Engagement with a City firm in the above capacity, is open to a RE-ENGAGEMENT.—Address, L. M. 8, Murray-street, Hoxton.

TO CIVIL ENGINEERS AND CONTRACTORS.

A CIVIL ENGINEER, temporarily engaged in the country, is open to an ENGAGEMENT. Experienced in drainage and water works. Salary required moderate. Testimonials as to character, energy, and ability. Security if required.—Address, E. E. 27, Castle-street, Dover, Kent.

TO ARCHITECTS.

A GOOD DRAUGHTSMAN and experienced General Assistant, is at Liberty. Accustomed to Gothic design, perspective, colouring, &c. and the preparation of all necessary drawings from rough sketches, or otherwise. Would undertake the management of an office of limited practice in the country.—Address, No. 1,071, Office of "The Builder."

TO PLUMBERS OR BUILDERS

A THREE-BRANCH HAND, who can turn his hand to Gasfitting or Zinc work, is in want of a constant SITUATION. No objection to a job of plumbing, piece-work.—Address, A. C. 2, William street, Kennington, London, W

A CHRISTIAN Young Man is open to an ENGAGEMENT, as PLASTERERS' FOREMAN, or Contract Work. Good references, as to ability and character.—Address, W. D. 27, Edmund-terrace, Cornwall road, Notting hill.

A GENTLEMAN, whose time is not fully occupied, would be glad to EMPLOY a PART of it in the Office of a Builder.—Address, 201, Office of "The Builder."

A DRAUGHTSMAN desires a SITUATION. Is a good bookkeeper, can level, and thoroughly understands all office work.—Unexceptionable reference can be given.—Address, G. W. Sphyux Lodge, 9, Upper Church-street, Chelsea, S.W.

A LONDON MONUMENTAL LETTER-CUTTER and WRITER, of experience, wishes for OCCASIONAL WORK in the Country, round Surrey and Kent.—For terms, address, ENGRAVER, 243, New Kent-road, London, S.E.

TO BUILDERS AND CONTRACTORS.

AN efficient, energetic Man, a Mason by trade, is in want of a RE-ENGAGEMENT as FOREMAN of WORKS. First-class testimonials.—Address, E. OXFORD, Black Bull, Chapel-street, Westminster, S.W.

A LAND AGENT and SURVEYOR'S ASSISTANT is at LIBERTY. Experienced in estate and railway surveying, and well qualified to undertake the management of an office. Is an excellent draughtsman, and accustomed to prepare and finish plans for estate, Board of Health, Parliamentary, mining purposes, &c.—Address, SURVEYOR, Moor Pool-lane, Harborne, near Birmingham.

A PARTY, aged 30, thoroughly conversant with plans and mason work, a good carver, and excellent scholar, wishes to get a SITUATION of responsibility. The best reference.—Address, L. S. Office of "The Builder."

TO MASTER BUILDERS.

A FIRST-CLASS STAIRCASE HAND, of twenty years' experience, requires a SITUATION, by the piece or otherwise. Town or country. Or to superintend any quantity of staircase work.—Address, G. BODLEY, 3, Selsurst New road, South Norwood, Surrey.

TO BUILDERS.

AN efficient Prime-cost and general CLERK is disengaged. Town or country. Seven years' reference.—Address, 1,054, Office of "The Builder."

A FOREMAN of BRICKLAYERS is in WANT of a SITUATION. Has just finished a first-class job, and is able to do any class of work. Aged 42. First class reference.—Address, H. 22, Adam-street, Bryanston-square, W.

TO BUILDERS AND PAINTERS.

A FIRST-CLASS GRAINER, &c. wants EMPLOYMENT, by Piecework, or otherwise.—Address, T. C. 7, Southwark Bridge-road, S.E.

The Builder.

VOL. XXIV.—No. 1222.

The London-Dwellings Question before Parliament.

PENDING the present interruption of Government, there is one inquiry that must forcibly strike "outsiders" interested in the improvement of the condition of the people, as necessary to be made of men belonging to each party in Parliament, and there is a subject which as much deserves to be one for public demonstration as even that of the improved representation of the people. The inquiry is this:—Is it essential that every measure for the well-being of the community should wait for the reconstruction of a Ministry, or, as now, only to find the time for measures nearly gone, or the men waited for preoccupied with the main idea of each Government, to wit, retention of its position? The session, to the present time, has been almost wasted; and unless something be done by members of the House of Commons not of the Government, during the next fortnight,—when the elections would otherwise cause delay,—or by the House of Lords,—the opportunity for improvement will be lost for another year at least.

We are thinking chiefly of the legislation imperatively demanded with a view to the provision of dwellings in London, in lieu of those destroyed and about to be destroyed, as well as in stead of the great mass of those existing places that are proved unfit for human habitation. Here are the Law Courts going to unhouse 4,175 persons, according to Lord St. Leonards; who, remarking that much credit was taken for clearing away this crowd of people, asked, more than a year ago,—Where were those persons to go? and said, "Government has made no provision for their future residence: nobody pretends to know where they are to be located: we know that, go where they may, they will assist to further crowd some place already too full: doubtless their filthy habits will accompany them; and the fever-stricken—the never-failing fever—will be carried to other localities, to add misery and sickness to their inmates." The year since this was uttered, however, has seen nothing done. Here are railway-companies occupied in the destruction of houses for the completion of circular routes, or the formation of connecting lines through the east, west, and centre of the metropolis; whilst others are absorbing no inconsiderable amount of ground, and spoiling what is adjacent, by their viaducts and embankments; some of which, judging from a sudden resolve of the London, Chatham, and Dover, not to take up debentures of theirs, at the appointed time, seem likely to remain for a while incomplete. The law-courts must be built; and the railways, which are capable of serving,—as indeed they have served,—the working-classes, must be allowed to be provided: but are the objects of one kind to be attained only with a certain amount of injury to a defenceless section of the people? Everything yet done; provision of designs, and erection of model-buildings; formation of railway-routes to the districts around London; eleemosinary work, and the application of the Peabody funds; or the assertion of capability of returns from investment on the commercial principles, have, all together, been insufficient to make any great present diminution in that gigantic want of London which pulsates through every part of the composite body of its social life, effecting discomfort of families and ruin to morals and health. There are members in the House of Commons, as there are in the other House, who though unconnected with the outgoing, as probably with the incoming, Government, may be reasonably asked to take up the reins which have been so inconsiderately loosened and at last allowed to drop.

For, surely, the theory that government, parliamentary or executive, in this country, can merely *enable* good to be done,—that good government is, as one might say, not *government*,—has been carried to unfortunate issues. Government, through the medium of government-works, public works, has done much harm at times, and is at least bound to find means of effecting the correction of such amount of evil. It is bound to do more than this. Indeed it accepts a duty of action, in every case of emergency, whatever the now asserted principles. As it has been obliged to act in emergencies like the famine in Ireland, the cotton-famine in Lancashire, and the cattle-plague, and as it must act when the cholera next prevails,—or as it always acts, or professes to act, for guardianship of the poor,—so it must act again, at all events legislatively, for the removal of whatever are the causes of the lamentable condition in which are the masses of the people in their places of abode. More must be attempted than is likely to be the result of the measure that has passed the House of Commons, on the basis of the Bill brought in by Mr. Childers; and of which the intention is to effect loans at a low rate of interest, to those making application. The evil has become so great that, so far as legislation can operate, compulsory legislation alone can cope with it; and we are glad to see that this idea is retained in the Bill to provide better Dwellings for Artisans and Labourers, "prepared and brought in by Mr. M'Cullagh Torrens, Mr. Locke, and Mr. Kinnaird," as it has been amended by the Select Committee, and just now printed. We will first state what is the general purport of the Bill, as it is, and will then offer some observations, whilst reverting to arguments that we have used from time to time, and of which we think the force is shown by much that has been lately said.

The Bill, amended from that of which Mr. Torrens was the original promoter, consists of forty-four clauses, and two schedules. The preamble states that "it is expedient to make provision for taking down or improving dwellings occupied by working-men and their families, which are unfit for human habitation, and for the building and maintenance of better dwellings for such persons instead thereof." The Act is to apply to all places in the United Kingdom, which are boroughs, or burghs, or which are comprised under certain Acts, such as "the Public Health Act 1848," and "the Local Government Act 1858." The most important clauses provide, that the "Officer of Health," under the Act, on finding any street or premises in a condition prejudicial to health, shall report that the powers of the Act ought to be enforced, and whether the defects may be remedied by structural alterations, or by demolition; and, similarly, that he is to inspect and report in the event of a representation made to him, by four householders, that contagious disease exists or is likely to be engendered in a house. Copies of the Report are to be delivered to the Clerk of the "Local Authority" and the Clerk of the Peace. The former of them is to transmit a copy to the owner of the premises, and to give him notice that the Report will be considered by the Grand Jury, or in Scotland by the Court of the Burgh-Magistrates, before whom it is to be laid by the Clerk of the Peace. The Grand Jury, or Burgh-Magistrates, are to take the Report into consideration, viewing the premises if they think fit, and are to make a presentment or order thereon, according to what they may consider the requirements in the case; and a copy of the order is to be sent to the Local Authority. This latter authority, on the receipt, is to cause a survey to be made, and to have prepared a "plan and specification of the works (if any) required to be executed." The Clerk of the Local Authority is then to give notice to the owner of the premises, of the order, by forwarding him a copy, and informing him "that a Plan and Specification of such works as are required in reference thereto has been prepared, and that such plan and specification may, if such owner think fit, be inspected and transcribed by him or his agent at the office of the Clerk of the Local Authority without charge": within fourteen days after receipt of the notice, the owner may state any objection that he has to the proposed method of executing the works; any matter in difference is to be settled by two justices, who may make such order as they may think fit (or one that might involve alteration in the plan and specification); and the plan and specification, amended or approved of, is to be that according to which the works are to be executed. There are certain provisions for appeal by the owner against the order or presentment; but the clauses following them require that within three months the owner shall signify whether he is willing to effect the works, or whether he requires the Local Authority to purchase the premises. Should the owner, electing to effect the works, not commence them within two months, and complete them within the time mentioned in the specification, the Local Authority is to execute them, and recover the amount. If the owner do not elect to effect the works, or should he require the Local Authority to purchase, then if the amount be not previously agreed upon, a valuation of the premises including the site is to be made by two able practical surveyors, not officers of the Local Authority; and notification is to be made to the owner, of the willingness of the Authority to purchase at the amount of the valuation. If the valuation be accepted, the premises are to be conveyed: if not accepted, the amount is to be assessed by a jury; and upon payment or tender of the money, the corporation or Local Authority may enter upon the premises and execute all the works required by the plan and specification. There is, of course, provision for cases where there are two or more owners, as also for determination of tenancies.

Where total demolition, rather than improvement of premises, is required, compensation is to be given for the damage that may be sustained, including value of the premises and the site,—unless the owner desire to retain the latter, subject to the provisions in the Act with reference to the use. A house that is required to be merely improved, may, if preferred by the owner, be taken down, instead of the works required by the plan and specification being effected; but in every such case, as well as in the other, or the event of the owner retaining site of premises totally demolished,—

"... no house or other building or erection shall at any time thereafter be erected on all or any part of the site of the premises so taken down, without the previous consent of the Local Authority, and in accordance with plans and elevations previously approved by them; and they may at any time, at the expense of the owner thereof, abate or alter any house or other building or erection at any time wholly or partly erected contrary to the provisions of this section."

Property acquired by the Local Authority, under the Act, is to be held upon trust to carry

into effect some one or more of the purposes of the Act. These are to be deemed to be:—

"First, the providing, by the construction of new buildings, or the repairing or improvement of existing buildings, the labouring classes with suitable dwellings situate within the jurisdiction of the Local Authority:

"Second, the opening out of closed or partially closed alleys or courts inhabited by the labouring classes by pulling down any building, or otherwise leaving such open spaces as may be necessary to make such alleys or courts healthful."

But subject to the trust, the Local Authority may sell, exchange, lease, or otherwise dispose of acquired premises. An account of what has been done is each year to be presented to the Secretary of State. A special clause allows the Local Authority to make contracts for building, lighting, and supplying with water. Another allows them to make bye-laws for regulation of the dwellings belonging to them, and to recover penalties for breach of such laws. Other clauses refer to local rates for purposes of the Act, and to loans from the Public Works Loan Commissioners, on mortgage of the buildings, and sites, or of the local rate: but the rate is not to exceed threepence in the pound in any year; and proceedings are not compellable to be taken by the Local Authority, for purchase of any premises, in cases where the Public Works Loan Commissioners are not authorised to make a loan on account.

Description of what is meant by the term "Local Authority," is given by the first schedule, along with designation of the places to which the Act is to apply. In London, the Local Authority would be the Commissioners of Sewers of the City, or the Metropolitan Board of Works: in the boroughs and generally, it would be the Town Council, or the Commissioners under general or local Acts; or, as in places within the jurisdiction of Boards constituted under the Public Health Act 1848, and the Local Government Act 1858, or one of them, it would be the Local Board. The form of presentment, in the second schedule, by the Grand Jury, designates the particular premises "specified in the report of the Officer of Health" as unfit for human habitation, and says that they ought to be improved, or demolished (as the case may be), "in pursuance of 'The Artisans' and Labourers' Dwellings Act 1866.'" The term "Officer of Health" is to mean and include Medical Officer of Health, Sanitary Inspector or Inspector of Nuisances, or any other officer performing duties analogous to those under the Act of 1858, or under the Metropolis Local Management Act, or under the Acts with similar objects, as the police and improvement Acts for Scotland and Ireland. Thus it is not clear that the Bill does not make one great omission, namely, in not providing for the inspection of buildings by those who alone would have the knowledge requisite for saying whether the defects could be remedied by structural alterations, and in leaving the actual decision upon "the plan and specification" to the magistrates unadvised,—since the services of practical men, "surveyors," are required to be obtained, it would appear, only in the event of a valuation. In working the Act, of course such an omission might be remedied; but it requires now to be pointed out. The Metropolitan Medical Officers are so far qualified for their duties, that any one with the knowledge that an architect possesses might well be indebted to them for valuable hints and for positive information; but no Medical Officer or Inspector of Nuisances is competent to decide what particular structural measures will meet his object; and the sooner our legislators are disabused of the notion that the functions of one profession, specially educated, can be safely entrusted to another profession, the better will it be for the general end in view.

We trust, however, that the Bill will be duly considered, and in the present session. It does not deal entirely with the causes and effects: but its intention should be adopted by Parliament: its passing into an Act should be supplemented by other legislation, and by measures of the municipalities and boards, and other institutions of the country; and the question should none the less be pursued, of what the people can and should do for themselves. Exclusively regarded, the Bill would lead to misapprehension of the whole subject, to a degree that might have appeared impossible, were there not the fact that to this day mistakes continue to be made. The Bill, not necessarily, but practically, deals with the present thickly-populated districts alone, for the relief of them from over-crowding: it would deal with them mainly in one way, that is, by the pulling-down of houses, and rebuilding on better plans; and we are not sure that Mr. Locke at least, of its promoters, does not err by depreciating such power as the people have to help in some measure themselves. It seems the misfortune of all who move in this great work of the amelioration of the condition of the people, the people especially of London, in their homes, to view only parts of the question, and to make therefore the mistakes. Some of these were well exposed at a meeting in May last, held in Exeter Hall under the auspices of the Working Men's Club and Institute Union, and presided over by Mr. Torrens himself; when the subject for discussion was, "Is it the duty and province of the Government and local authorities to assist the industrial classes in providing themselves with better dwellings?" Thus the opening speaker, Mr. Paterson, whilst contending as to the duty of Government, and also admitting that the railway-demolitions had greatly aggravated present pressure, and had produced individual cases of the greatest hardship, showed, with the help of a map, that the areas absorbed were small in proportion to those elsewhere that were occupied by dwellings of the kind needing demolition and reconstruction, or improvement. The real work to be done was far too large to be affected proportionately in an evil way, by the railway companies, or in the opposite manner by compensating building-work proposed to be required of them. It was well that these companies should be able to run cheap trains from the central districts; but their management of such communications was not likely to be made more easy by forcing upon them new undertakings of entirely different character. He contended that the working-classes had means of their own. Taking the returns of the savings-banks, it might be seen that these classes had, invested in the Funds, or in the hands of the Commissioners for the Reduction of the National Debt, an amount then reaching to 46,205,348*l.*, and increasing by more than a million of pounds a year. It realized little more than 2½ per cent. It might be invested in houses, to produce a much larger rate.

"Supposing it to be so applied, it would build a row of ten-roomed houses more than 261 miles long; or, supposing a tenement sufficient to accommodate one family to cost 100*l.*, it would provide dwellings for more than 460,000 families. The yearly profit of this, taking it at a low average, say 7½ per cent., would exceed the profit derived from the money as at present invested, by 2,790,238*l.* equalling in one year the cost of constructing about eleven miles of ten-roomed houses, or accommodation for more than 27,000 families at 100*l.* each tenement. Now, as this money was in the hands of the working-class, and they can so apply it whenever they can be persuaded to combine for this purpose, the true way to meet the difficulty seemed to him to be to press upon them these facts, and, convincing them of their power, induce them so to use it. No one would refuse to have a larger per-centage a year for his money, if he were certain that the investment were quite secure. If this were done, and working-men were induced so to invest their money, the result in fourteen years would be that more than a million of families, or five millions of persons, would be provided for, probably the whole number in England and Scotland who required such accommodation. It appeared to him that if the working-classes cried out to Government for assistance, without doing anything with this immense sum of money, it would be something like a man begging in the street who had money in the Savings Bank. Working-men ought to put their shoulders to the wheel, and see what they could do for themselves."

He also alluded to the Building Societies; whose money, with the interest, was "in a great measure lost to the persons putting it in." At present, he said, by keeping their money invested at 2½ per cent. and paying 15 per cent. for lodging-accommodation, the working-classes were throwing away every year something like six times the amount of Mr. Peabody's immense gift. Mr. Locke, in following Mr. Paterson, contended, on the other hand, that the buildings for the working-classes would not pay in the ordinary way; and he addressed himself, as did afterwards Mr. Torrens, to urging what was the duty of the legislature in the direction comprised by the Bill, then proposed, of which we have sketched the chief provisions. The grand difficulty being as to sites, these two speakers, and others, including working-men, set themselves to showing that the working-man ought to have an opportunity of locating himself where he chose—near his work and his friends. Mr. Symons indeed touched an element in the question, in saying that if men who worked in London were to be "well fed and well looked after," they must feed and live "where their wives could attend to them,"—or, as he made out, in London. And Mr. Torrens rightly enough referred to the women's knowledge of what it was to break up a household. But the latter speaker's belief that there was a delusion in the idea of sending people off by train to what he called "Woodbine Cottages," was not a correct view altogether; albeit there was some point in his reference to the words of a great employer,—"Keep my men near me," and to those which in his, Mr. Torrens's, mind, would be the words of every wise artisan,—"Let us be near our work:" whilst he was entirely right in not wanting to see "suburban villages built for the entire occupation of the working classes."

As we have said, in all the recommendation of this or that agency for meeting the evil, there is apparent disregard of the fact that each of the agencies is valuable to some extent, and that all are required. Far from its being necessary to provide in the centre, or other now thickly-populated portions of London, residences for the whole of the working classes, it is undesirable, and unnecessary, and it must proximately become impossible. The same conditions that have made the City thronged by day, and almost depopulated by night, will prevail wherever else there is a concentration of affairs, of retail-trade, public business, or otherwise. Quarters like those of Regent-street and Oxford-street must become the marts for larger and larger quantities of the products of the labour of working-men and women. The time must inevitably arrive, and that speedily, when the condition of those resident in the adjacent streets, and who desire to be near their labour, will be intolerable—from considerations of health and comfort, if not expense. What the present condition of the rooms, called *homes*, is in these neighbourhoods, our readers know. We have indeed reason to wish that now, by the working-classes themselves, the condition were, even more generally than it is, felt to be bad; for, as we apprehend, not all who reside there are compelled to do so. Liking for the society, amusements, or dissipation of London, has as much weight as have the advantages contrasted with those of a more distant residence. Reconstruction of buildings on new plans will provide for a larger number of occupants,—and even with gain immediately in health of the population: a story may be added in some cases: but neither the general increase in density of population, nor the increase of height of buildings in proportion to the widths of streets, can go on indefinitely, as certain persons would seem to assume.

If the teaching of sanitary science become felt as truth; if the demand for premises for the sale and warehousing of articles continue; and if the wants of the working-men at present resident in the dens near Golden-square and Berwick-street, be catered for, as they might be, contemporaneously with the supply of the employer's demands, and as the wants of the merchants and clerks in the City have been to some extent, the question of residences will be solved—not altogether by the improved planning of buildings in London, but by the provision of residences out of it. The matter having arrived in this position, it will be found by manufacturers employing considerable numbers of workpeople, to be good economy to establish their works out of London,—thus keeping their "hands" near to them as Mr. Torrens desires. Manufactories productive of nuisance of course should be ejected from London, generally; but there would be every advantage to workpeople and employers in removing others. Messrs. Letts have taken the judicious course in constructing for themselves premises near to the railway-station at New Cross. Ultimately, a condition of things might be arrived at similar to that which has long prevailed in manufacturing districts of Lancashire and Yorkshire; and of which perhaps the illustration best known to the reader of the *Builder* will be the recently-formed town of Saltaire.

There will be always a considerable number of persons of the working-class for whom residence must be provided in town: but if others, including a portion of the upper classes, can reside out of town, health and comfort in London will be improved, instead of, as otherwise they would be, diminished.

There are then two modes which have been alluded to, within the scope of the efforts of companies for the provision of dwellings for the working-classes,—the one sort of company looking to sites in the country or suburbs, the other to improved and more economical planning on sites in the metropolis. We say, far from the majority of working-men being unable to live in the suburbs, as was stated some time ago in the scheme originally put forward for the Operatives' House-building Company,—a company, however, which has strong claims on the attention of working-men,—we believe that eventually the

majority would prefer, as they would be obliged, to live at some distance from their employment.

Similar conclusions to these of ours were lately stated, with force, in a letter addressed to the president of the Metropolitan Association of Medical Officers of Health, by Dr. Rumny, of Cheltenham. That letter concluded,—

"Let me not be understood to oppose the erection of a limited number of blocks of lodgings on approved principles in town-centres, for those workmen who from various causes may be quite unable to go into suburban residences. The proportion of these, however, is probably not so large as has been imagined. But the size, weight, and human contents of the blocks should be under certain restrictions, and especially they should not be built near together, or in rows or streets. The first desideratum is the suburban settlement."

Thus we are brought back to a position which we long since took up, or in showing that the question of improved communications through, and to and from, London, is connected with the dwellings-question intimately. The improvement required is by the provision of direct street-routes, of adequate width, along with bridges in greater number than there are, for carriage-traffic, and by the perfection of the railway-communications. The latter class of improvement must extend beyond the affording facilities for construction of the lines themselves. If the railways are to be of the service to London, that is here contemplated, their arrangements as to times, and as to comfort in travelling, must be under supervision. The companies must not obtain privileges, and omit as now the performance of their part, implied, of the contract. The delays on the Crystal Palace line are no invention of the newspapers—they still continue; and the loss of time is aggravated by the bad arrangements at stations, and increased by the bad lighting of carriages. To render a suburban residence as convenient as it should be, however, something requires to be done in the way of improvement in matters of police, and postal-service. For the supply of food, much has to be done; but for that, the inhabitants must look to their own power of making themselves heard in demand, and must establish the proper corrective to the present shops, stocked with the refuse of those of London, namely, the cöoperative store.

THE COMMISSION ON THE COAL SUPPLY.

THE important question of the durability of our supply of coal has, since we addressed our readers on the subject on the 5th of May, received not inadequate attention. When those remarks were already in print, although before they were in the hands of the public, the Chancellor of the Exchequer, in his speech on the Budget, dwelt at some length on the subject of the coal-fields of Great Britain, and in so doing he used language, in one or two instances, so closely identical with our own as to present a very remarkable coincidence. "The great race," we said, "may be run at an increased speed, but we may no longer be the foremost runners." "A race," said Mr. Gladstone, "is going on between nations in industry and enterprise, and no doubt can exist as to what nation is at this moment foremost in the van. New inventions and contrivances there may be," continued the Chancellor of the Exchequer, "but they will not give us a pre-eminence over other countries, because other countries will be able to make use of them as well as ourselves. Supposing that a substitute will be found, it will not be peculiar to England." Mankind may be better off, we admitted, but Northumberland and Lancashire will be frightful losers by the transfer, if other products are substituted for the produce of their pits. "In the face of such a state of things in the future, we ought to make preparations for it," said the Minister. "It is incumbent on those who would deal honestly with their children's children to look this great danger in the face, and to regard it with wise precaution," said the *Builder*. The working out of two such similar seams of thought, in shafts so far apart, is an indication that they are integral and consistent parts of the great system of truth.

In abatement of alarm as to any sudden alteration in the value of coal, although by no means as an argument against the full investigation of the subject, an able paper appeared, "from a correspondent," in the *Times* newspaper, shortly after Mr. Gladstone's speech on the Budget, which took the course of dividing the present assumed consumption of coal into the distinct branches of domestic consumption, coal for railway travelling, coal for the iron trade, and coal for trade purposes, and argued in each case as to the improbability of an annual increase of 3½ per cent. This view of the subject is undoubtedly entitled to fair consideration, but it must not be lost sight of that the consumption for nautical purposes,—that is to say, for the propulsion of the military and mercantile navy of this country, irrespective of the export of coal for the service of other nations,—is an item of very great importance, and one in which a very large increase may be considered as certain. The waste of coal, not only in the form of smoke, but of slack and ungot coal consumed at the pit mouth or abandoned in the collieries, is another enormous item in the account. And the experience of the last fifty years is certainly such as to render it chimerical to assert that within the remainder of the present, or the course of the next century, no uses for coal, beyond those with which we are now familiar, will press upon our finite source of supply.

The statements published in the *Times* were repeated and more fully detailed in the very able and comprehensive speech with which Mr. Hussey Vivian prefaced his motion in the House of Commons, on the 12th inst., for an address to the Crown for the appointment of a Royal Commission to investigate the present state of the coal-fields of Great Britain, and questions connected with the present rate of consumption, and probable duration of that supply. The honourable member referred to the introduction of the subject some years ago by Sir William Armstrong, then president of the British Association, who spoke in a manner calculated to awaken grave fears. Since this the works of Mr. Hull and Mr. Jevons had appeared; the member for Westminster had brought the matter under the notice of the House of Commons, and the Chancellor of the Exchequer had dwelt on the subject on one of the gravest occasions on which he was called on to address the House. The importance, therefore, of a clear and distinct statement of all that science can teach us on the subject, can not admit of question. The main points of inquiry are, the depth at which coal can be worked, the effect of depth in increasing the cost of working, the quantity existing or calculated to exist in our present coal-fields within a practicable depth, and the contents of those fields which as yet are undiscovered, but of which the possible existence is indicated by geology. The question of the rate of consumption would remain after all the others were disposed of.

In elaborate detail, and with minute knowledge of the subject, Mr. Vivian reviewed these several points. As a practical coal-owner he was indisposed to admit the limit of 4,000 ft. depth, proposed by Mr. Hull; and stated that, in the South Wales coal-field alone, with which he was most intimately and personally acquainted, the limit of 4,000 ft. would leave untouched below it the gigantic quantity of 24,000 millions of tons, and that, through our coal-fields generally, some of the largest deposits would be excluded. The reasons which led Mr. Hull to assign this limit were connected first with temperature, and then with pressure. While admitting the universally received opinion that heat increases with the depth, Mr. Vivian cited experiments which vary considerably from those which are usually quoted in support of that view. There is, no doubt, considerable force in the argument that, if a coal-mine be amply supplied with air by a well-organized system of ventilation, the strata exposed to the current will be gradually cooled, and the temperature of the workings in consequence considerably lowered. The mean rate of increase of temperature, which was not mentioned by the honourable member, is usually reckoned at 1° Fahrenheit for every 70 ft. in depth. In the Cornish lead mines it is stated to be somewhat more, 1° for 60 ft.; but in the Dukinfield mine, 2,055 ft. deep, the increase is only 1° for 83·2 ft. This rate of increase would give a temperature of upwards of 100° Fahr. at the depth of 4,000 ft., and of 71° at a depth of 1,800 ft. The Rose Bride mine, which was cited by Mr. Vivian, has a depth of 1,800 ft., and the return air has a temperature of 73°. Mr. Vivian, having taken the temperature at the surface at 60°, considers that the augmentation of temperature in this pit, including all the animal heat and that given by lamps disengaged in the working of the mine, is only 13°, owing to the good ventilation. It must, however, be inquired whether the proper comparison be between the intake and the upcast air, or between the latter and the zone of equable temperature of about 50° Fahr., that is reached at some 50 ft. under ground. If the latter be the true comparison, the results of Mr. Vivian's experiment tally very closely with the usual estimate, and confirm the probability of an Indian heat being unavoidable at the greater depth. It is clear that a longer series of experiments, conducted at different seasons of the year, is necessary before we can arrive at the conclusion that a normal heat, due to depth, of 81°, is reduced to 73° by ventilation; and yet further inquiry would be needful, even if such were proved to be the case, before we could infer whether, at a depth of 4,000 ft., a calculated normal temperature of 100°, or rather of 110°, if we start from the intake air, as Mr. Vivian does, might be reduced by the same number of degrees, or in the same ratio per foot; that is to say, might be reduced to 102°, or to 89°.

With reference to pressure, we are disposed fully to agree with Mr. Vivian, that no considerable increase in the mechanical difficulty of coal winning need be anticipated, owing to this cause, for an increase of 2,000 ft. or 3,000 ft. in depth, while as to the additional cost of lifting, the direct evidence which he adduced is highly satisfactory. There is, however, a difficulty as to pressure only incidentally alluded to by the honourable member, and that is the weight of the barometric column. Mr. Vivian spoke of this merely as tending to increase temperature, but the result of an increased pressure of the superincumbent air, to the extent of a fifth of that prevailing at the surface of the earth, must tell considerably on the health and capability to labour of the miner, and thus upon the cost of working. It is true that habit is second nature, that any moderate increase or decrease of barometric pressure, if gradually undergone, ceases after a time to produce very marked effect; that the variation in this respect that obtains in the deepest mines is very trifling when compared to that undergone by divers, or even to that which is known to produce mountain sickness; but after all these allowances are made, it is pretty clear that to reach the depth of 4,000 ft. is no light task.

Another question of very great interest raised by Mr. Vivian, relates to the existence of coal beneath the permian strata, and even beneath the trias and other superincumbent beds. It can, however, hardly be expected that a royal commission should be able very fully to investigate this part of the subject. To ascertain and to bring together the facts bearing on the question is highly desirable, and lies within the attributions of a commission; but we can hardly hope that Parliament will vote funds for the purpose of enabling us to explore and to penetrate the earth in search of coal, "for the sake of an idea." Some interesting cases have been cited by Mr. Vivian, in which coal has been reached by piercing the red rocks at moderate depths, but the simile of a red shawl with a black fringe will hardly hold as indicating that we are as yet only at work on the edge of our future coal grounds. Mr. Vivian calculates the area occupied by the permian and triassic formations in Great Britain at 9,412 square miles, that of the coal-fields being 4,499 square miles. It would have been better to give the separate areas of the permian and the trias. The latter, judging from the geological map, must cover by far the greater part of the area in question; and it must be remembered that in most cases the permian must be expected to underlie the trias, and the thickness of each formation to increase as we we depart from the edge of the "fringe." Thus the depths quoted by Mr. Vivian vary from a minimum of 130 ft. in the permian, and 120 ft. in the trias, to a maximum of 3,000 ft. in the former, and 4,750 ft. in the latter; and it may be expected, as a general rule, that the full depth of the permian strata will underlie the thinnest beds of the superincumbent rocks. Again, it would be far from safe to assume that coal fitted for consumption underlies the whole or the greater portion of the permian and triassic area. The more natural supposition is, that the great deposits of coal were brought together in river deltas or valleys; and whether this view be correct or not, it is by no means established that thick carbonaceous seams were evenly deposited over areas of such an extent as Mr. Vivian points out. Yet, again, even from the optimist point of view, no less than from the pessimist, the importance of serious and impartial inquiry is manifest.

Among the methods referred to by Mr. Vivian as likely to be hereafter made available for the

reduction of temperature underground was the absorption of heat which takes place on the liberation of compressed air. We are not without some valuable experience on this point. The intense cold produced in the experiment for solidifying carbonic acid gas, which is first liquified by pressure, and then, as it escapes into the atmosphere, reduces the temperature by the expansion of the first volumes that escape to so low a point that the remainder of the issuing fluid freezes, may have occurred to some who heard the speech. But in the now abandoned atmospheric railway the largest amount of experimental acquaintance was obtained as to the mode of squeezing out the heat contained in the atmosphere. The pumping-engines on the South Devon Railway were heated almost red, and the restoration of the tension of the rarefied air by the influx of heat from the atmosphere presented a far more insuperable obstacle to the economic working of the plan than did the often-mentioned leakage of the valve. When, as in the present instance, it is sought to reverse the process,—to absorb, and not to liberate heat,—it will be borne in mind that the liberation must precede the absorption, and that the compression of the air employed must take place outside the mine, in order that the reduction of temperature desired may follow its liberation in the galleries. The operation would be the reverse of a warming process, and probably far more expensive with regard to the difference of temperature actually produced. With the increased barometric pressure due to increased depths, moreover, all the gaseous products of the mine would increase in tension, and foul and fiery workings would more and more tax the skill and vigilance of the miner. In fact, work the question as we may, with increase of depth we have an increase in all the elements of expense, and at depths hitherto untried such increase can only be matter of very uncertain estimate.

On the main points, however, a general accord is now happily arrived at. The coal supplies of Great Britain have hitherto given her, together with her other advantages, the foremost place among producing and manufacturing people. This supply has its limits; first, those of actual quantity; secondly, those of available quantity. The quantity available depends on the expense of working, an expense which, to a certain extent, increases with the depth at which the coal is won. To ascertain, as far as may be done, the probable nature of these limits, to collect and verify information from all existing sources, and to satisfy the public mind on a subject of such vital national interest, the Government, with the general assent of the House of Commons, have agreed to the appointment of a commission as moved for by Mr. Vivian. It only remains that the persons selected to serve on that commission should be such as fully to carry out in the best manner this important duty.

On one point, we trust, the Government will be on their guard. It is too much the fashion of the present day to overtax the powers of any human brain that is known, or thought, to be of more than ordinary capacity. In medicine, in law, in different departments of business life, the first effort is made to secure the first, that is to say the most busy, man. Patients and clients suffer by this want of consideration no less than do the over-tasked, but enriched leaders, and the leisure-stricken juniors in each profession. The patient hour given by the young and competent physician is far better worth the guinea of the sufferer than the hurried five minutes, and the stereotyped prescription, of the doctor who cannot empty his antechamber in time to commence his round of visits. The fee given to the barrister who will read his brief, and bring, not only the *coup d'œil* of the coif, but the careful attention of the educated legal mind, to bear upon it, is better earned than the larger amount that is swept off by the sleeve of the silk gown, who leaves the conduct of the case to his junior, and perhaps is not in court after all. So is it in the present case. The subject matter of inquiry lies for the most part within the proper *métier* of the civil engineer. The geological questions of formation, the surveyor's mensuration of area, the mining surveyor's delineation of seams and beds, the direction of the miner as to the most economic mode of working the coal in the most exhaustive manner, the mechanism of shafts, and gins, and pumps, and steam-engines, the whole treatment of the coal until it is placed on the salesman's wharf, or on board the merchant vessel, all this is his proper province. The great question of labour, which directly constitutes sixty per cent., and indirectly a much larger proportion of the price of coal, and which will most directly and sensitively be affected by any increase of difficulty in its winning, is an engineering question. The sole parts of the inquiry that lie outside the proper province of the profession are the commercial questions, as to export, on which direct information will be supplied in evidence, and such questions of general policy, or international relation, as may fall beneath the cognisance of the statesman or the diplomatist. Such, for example, is the question, how far the mineral needed for the propulsion of ships of war should be treated differently from the minerals needed for the propulsion of projectiles; or, in other words, why coal should, or should not, be regarded as contraband of war.

Above all, the result to be hoped for from the Commission is a full, clear, and unprejudiced report, based on a lucid *précis* of the evidence, bringing out in brief, incisive lines the great lessons learned by the Commission, and placing them so plainly before the public that further legislation will either appear totally unnecessary, or that its course and provisions will be made so evidently requisite as to command general assent. Let the Commission thus deal with this great subject, and Mr. Vivian will have earned the gratitude of the country, and the, late, Home Secretary will have added another to his existing claims on our respect.

We trust that the valuable report on foreign coal-fields recently presented to the Government will be given to the public through the instrumentality of the new Commission.

THE ELEMENTS OF HARMONIC PROPORTION.*

So far we have traced the *mean* as the quantitative expression for the beautiful human form, which may be variously entitled the Ideal, the Moral, or Central Form. And to follow the method of scientific demonstration, an experimental proof is all that is now required to insure conviction. And this I hope to exhibit in some future and more popular lecture, by combining a number of imperfect images rapidly, so as to produce a *mean* effect upon the retina more perfect and beautiful than any one.

We have now to pursue the theory in phases of art whose effects upon the mind of discord and harmony are more self-evidently dependent upon relative proportion, and which are not imitative; for certain relations of inanimate phenomena; of sound, of colour, of form, of motion, are also called *beautiful*.

It should be borne in mind that it is a corrollary of the quantitative theory,—that all harmony and discord in nature have their measures. It is no longer a mere fanciful analogy between the harmonies of music, colour, and architectural proportion; for in the quantitative theory they have an identical basis. The harmonies of musical instruments, of the proportions of the Parthenon and of the planets, may all be noted or expressed by measure and number. If not a full, it was, doubtless, a dawning perception of this truth that permitted the statement to pass current that Pythagoras listened to the music of the spheres, and that his philosophy affirmed all things to be the copies of numbers. It has ever been observed that the ancients made their doctrines mysterious to the vulgar, and kept them secret from those who were not of their particular sects and societies, by means of symbols and hieroglyphics. Lamozzo says, chap. 29, book 1,—"The Grecians, in imitation of a more remote antiquity, searched out the truly renowned proportion, wherein the exact perfection of most exquisite beauty and sweetness appeareth, dedicating the same in a triangular glass unto Venus, the goddess of divine beauty, from whence the beauty of inferior things is derived." The triangular figure in

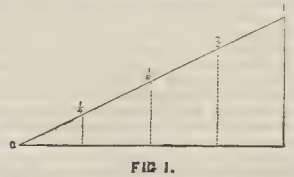


FIG 1.

diagram No. 1 may perhaps serve to explain this curious fact, it being an epitome of all quantitative relation; and a piece of glass in this form, with the mean indicated, as by the central dotted red line, would recal to all the initiated the great secret. And when I speak in this mysterious way of the *great secret*, I do so with somewhat of a belief that what I am now expounding was then a science imparted only to a guild—the Freemasons, if I may so term them, of that day.

To many minds, the idea of grasping the infinity of proportional relation would appear an impossibility. In one sense, of course, the Infinite is beyond our comprehension; in another, however, we can grasp it: that is to say, the infinite subdivision of known limits,—the *limited infinite*, if I may so express it. Theoretically, a magnitude of one inch may be divided into as many degrees as one of a million of miles. Thus it is that a small circle, square, or rhombus is an epitome of a circle, square, or rhombus, of any conceivable magnitude, and divisible and subdivisible proportionately to the largest. It is precisely the same with ratio; two magnitudes varying relatively to each other within the limits of an inch would pass through the same variations as two magnitudes varying within the limits of either ten, a hundred, or a million of miles. In fact, when we come to contemplate the relativity of knowledge, actual size appears of little account. In diag. 1, we have an epitome of the infinite sub-division of any unit, and of the relations of those sub-divisions to the unit, and to each other. Now, the mean of all the possible sub-divisions of the unit is half (½), for there are as many possible sub-divisions greater than half as there are less than half. If, then, the unit of magnitude be taken as the representative of positive qualities, of light, heat, colour, &c.; and the minus extreme, or zero, of negative qualities, shade, cold, colourless, &c., the *mean* will express the half tint; the mid-temperature, the moderate hues; of which we all know either the beauty, agreeableness, or value. Again, most are aware that the circle, the square, the equilateral triangle, and the rectangular rhombus, are respectively the limits of the ellipse, of rectangular parallelograms, of every variety of rhombus; the other limit being that of greatest inequality, or greatest difference—their equality and greatest inequality being expressible by 1 : 1 and 1 : 0. Between which we have a series of secondary figures, the means of each of their species, having their longest to their shortest diameters as 2 : 1. These are represented by the dotted red lines in fig. 2, each being the central form of

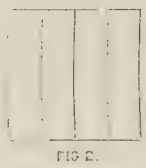


FIG 2.

every possible variety of its class. The mean-rhombus being composed of *mean* acute and obtuse angles, *i.e.*, of angles of 45° and 135°. This relation of *mean* variation has been recognised in architecture, in the proportions of windows, doorways, and intercolumniation. It is that of the octaves in music: and to show how the judgment under very different circumstances, but by a similar process, adopts the same ratio, it may be noticed that after experience has balanced the relative advantages and disadvantages of different parallelograms for the proportions of a billiard table, that of 2 : 1, or the central form, has been adopted as the true one.

How is this? you will inquire. The circle, the square, and equilateral triangle have always been considered as the most perfect of geometrical figures. In a purely abstract sense they are so. But, paradoxical as it may appear, although the circle, the square, and the equilateral triangle are respectively the mean or most centralised linear dispositions of their several modes of limitation,—the circle, *par excellence*, of every possible disposition of a circumscribing limit in the same plane, and therefore adopted as the symbol of the eternal,—yet the three geometrical figures are mean conditions with reference to configuration only; they are in proportion to their line the greatest containing of curved, square, or triangular figures, and are therefore in another sense extremes. The limit

* See p. 460, *ante*.

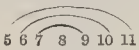
of our field of vision being a circle too, is *practically* the reason they are so regarded. There is no doubt that the equilateral triangle was the base of Gothic architecture; this has been most conclusively shown by Mr. W. P. Griffith. And it was doubtlessly adopted from its presenting a precise analogy or symbol of the trinitarian element of Christianity. The effect produced by its use was a congruity, which is sure to follow the adoption of a basic idea. But we must not suppose on this account that it helps us to the fundamental law of the beautiful without further considerations, or that the mode of using it is in conformity with the ends of Christianity recognised by the light of our own times; for there never was a style of architecture in which extreme ratios were more used than in the Gothic, and for this reason it was in tune with the time. Indeed, one of the directions to thought, which the quantitative theory gives is, that there must be correspondences between the emotions and certain proportional relations in form, colour, and sound; and to broach a theory somewhat hastily, we believe, that as the same gamut of ratios is common to all, we may transfer the proportions known to produce a certain effect in one, to any of, or all the others. This idea of correspondence is, perhaps, better understood in music than any other art.

It should be noticed before further advance, that the circle, being the greatest containing figure, although it is the absolute mean or central form of configuration, offers an analogy to the perfect idea of humanity; for this also includes that of the largest general or containing power, which is the characteristic of genius.

The gamut or progression of numbers may be considered the representative of a progression of magnitudes. We shall, therefore, now consider whether there be any reason for adopting any ratios as harmonic. Now, the first numerical relation which presents itself is, that of one to two. The reason generally given for the frequent adoption of this ratio is, that it is the simplest. But on the quantitative theory we are enabled to give a more efficient one. It is the ratio of *mean* variation, for in all the possible variations of ratio there is an equal number of terms greater as there is less than half. It is for this reason the relation of the octaves in music, and the progression of octaves, 1, 2 : 4, 8, 16, &c., might be called *mean* progression. We have already noticed that the ratio 1 : 2 has been recognised by architects. One to two, then, is not merely the simplest numerical relation. It is, as the ratio of *mean* variation, harmonic. The next progression is to three; 1, 2, 3 is the next simplest combination of ratios, but it is not for this reason important, but that 1, 2, and 3 represent the centre and limits of the tenor half of the gamut of ratios, the compass of moderation, as may be seen by the position of the dotted lines in diag. 2. The relations 1, 2, and 3 were those recommended by Michelangelo as the best harmonic division of quantities for artistic purposes.

There are two modes of harmony, viz., of resemblance or assimilation, and of compensation or contrast. We have shown in former lectures that nature exigently demands exact compensation in all her phenomena, for every aberration in either excess or defect of a mean state—as rigidly in the human as the planetary system. If it be true, then, that the aberrations of the larger phenomena of nature are becoming less, and consequently the rectifying compensations less; that the throes of nature are moderating; that the process of assimilation is steadily progressing (a fact mistaken by some to indicate an entire dissipation of the energies of the system), it may be concluded from analogy that the lesser phenomena follow the progression of the greater; and if this be the case, the harmony of compensation or contrast is a lower stage in taste than that by assimilation or resemblance; for the compensating alternations required by the use of extreme forms, sounds, and colours, resemble the wider oscillations of an earlier state of the solar system. It is rendered more than probable, too, by the facts, that barbarians delight in excessive contrasts, whereas the most consummate works of art in painting show an assimilation of colours by a pervading tone, and in sculpture of forms by moderated proportions and undulations.

In the gamut of ratios, diagram 1, we see that they are arranged in compensating pairs on either side of the *mean*, perhaps more clearly in the instrument which I have called the balance of nature; for in this, commencing from the central or mean relation of equality or of equilibrium, which requires no compensation, we have an infinite series in which the sum of the terms in every successive change is always the same, the one being as much greater as the other is less than the mean state, till we arrive at the limits of extreme difference, or 1 : 0; from which it follows that all variations of phenomena from their means must in the aggregate be compensating. Now we can always produce a series of compensating or harmonic numbers by proceeding in regular progression to any number, then continuing the progression and coupling the corresponding numbers on either side, thus :—



0, 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

of which the compensating pairs are 9 : 7, 6 : 10, 5 : 11, 4 : 12, 3 : 13, 2 : 14, 1 : 15, 0 : 16; the sum of each pair being equal, and 8, the predetermined centre, the *mean*.

This much is a key to much more which you may unlock for yourselves. I believe I have brought some much-neglected truths into a deserved regard and honour. For myself, I am content to have made some sacrifice to possess such a criterion of judgment as the quantitative calculus affords; and of those who see nothing in the theory, I only ask this favour, that they will accord me the honour of its development if it should turn out after all something of more worth than they value it. From the time that the mean first struck me as being the fulcrum of the understanding till the present time, now many years, I have kept it steadily before me, tracing it first as the immutable law in planetary phenomena, then as the *natural* basis of ethics, then as the end of formative education,—mental and physical,—and now, finally, as the principle of the beautiful. I have shown it to be the law of highest generality in the solar system, and it is thus the point of contact between science, art, education, and religion; and I trust the entire of my investigations on this subject will soon be before you under the title of the Central Science.

I have chosen the positive method of procedure, because I am convinced it is the method most conducive to belief. It acknowledges that matter and motion, which many suppose to be known causes, are but effects of noumena we cannot know *per se*; it teaches us that we can only be "darkly wise," and permits us to exclaim "*Gloria in Excelsis*," whilst venturing to develop that great principle of "moderation in all things" which tends to secure adherence to the practical command and virtue, peace and good-will toward men.

W. CAVE THOMAS.

FROME CHURCH.

THE parish church has been restored. The west front has been entirely rebuilt, in the thirteenth century style. On either side of the great west door are sculptured the Evangelists, with their emblems. In a niche over the nave window is a figure of St. John the Baptist, and the apex is formed in a cross, in the centre of which is carved the head of the Saviour in a crown of thorns. The north approach is also entirely new. The ascent here being steep, the church is approached by four flights of steps. Entering the church by the nave door the visitor will find life-size figures of St. Aldhelm, Bishop of Sherborne, the founder of the first church; of St. Alban, the first English martyr; of St. Andrew, the patron saint of the diocese; and of St. George, the patron saint of England. The aisle windows are all filled with stained glass, the whole illustrating the life of St. John the Baptist. The chapel of St. Nicholas is now used as a baptistery, and the glass in the windows illustrates its uses. The ladye chapel has an altar and reredos, and windows of painted glass, descriptive of the life of the Virgin. The St. Katherine's, or Ken chapel (near which Bishop Ken is buried), has also been restored. The chancel has been decorated. Above the reredos is a window illustrating the life of the Saviour. The architect was Mr. C. E. Giles, of London. The sculpture has been executed by Mr. Forsyth, of London, and the carving by Mr. Hurley, of Taunton. The pavement has been laid by Messrs. Poole, of Westminster, and the decorations have been executed by Messrs. Clayton & Bell, of London.

FREEMASONRY.*

THERE are two great questions connected with Freemasonry which have given rise to much discussion, and neither of which can be said to be settled by general admission. These are its historical origin, and the origin of its tenets or "mysteries," and symbols. The latter may be of extreme antiquity, while the former is not, or *vice versâ*. An association of comparatively modern historical origin might adopt tenets or forms and observances of great antiquity. An association of extremely ancient origin might adopt tenets of less antiquity. Moreover, both the association and its tenets might be either ancient or modern. Freemasons who believe, with some of their legends, that their fraternities originated with Nimrod and the building of Nineveh, nevertheless hold tenets connected with the Jewish temple of Solomon; which also, on the other hand, those still do who believe that their fraternities originated only in the Middle Ages. The question of the historical origin, in short, of Freemasonry is one to a certain extent separate and apart from the question of the origin of their tenets and forms. These latter, we conceive, are of undoubtedly great antiquity. They appear at least in forms identical with those of very ancient origin. Such are the "mysteries" of the regeneration, still enacted, as of old, in the forms of initiation, comprising a simulative death and resurrection on entering into "the light" out of outer darkness, in the high noon of night; which closely resemble the mysteries and initiations of the "Noctis Societas" of Isis or Ceres, and the Druidical mysteries of Ceredwin or the Celtic Ceres. And as regards the symbolical temple of Solomon, of course there is in that an identity of tenets, to a certain extent at least, with those of Jewish origin, although this does not necessarily imply for Freemasonry an antiquity of historical origin dating from the time of Solomon, any more than the Druidical, Greek, Roman, or Egyptian forms imply on its part an antiquity dating from the eras of ancient Britain, Egypt, Greece, or Rome.

The work of Mr. Findel, under notice, only deals with the question of the historical origin of the fraternities of Freemasonry, apart altogether from that of the tenets or mysteries. We shall therefore here confine ourselves to the historical question, and that not so much to be critically considered, as merely to give our readers an idea of the views taken by the author.

Herr Findel is the editor of the German Masonic periodical named *Die Bauhütte*, and an honorary member not only of several German, French, and Italian lodges, but of the Minerva Lodge of Hull. His book was originally written in German; and it is from the second edition of it that the present English volume has been produced by the translator, Herr C. van Dalen, provincial master of a lodge at Berlin, and representative from the grand lodge of Scotland to the grand lodge of Prussia, "Royal York zur Freundschaft." Herr Van Dalen is also editor of the German "Freemasons' Calendar."

Brother Findell's views we shall endeavour to give as much as possible in his own words, not meaning thereby to commit ourselves either to his opinions or his historical statements :—

The history of Freemasonry, long veiled in mystery, interwoven with legends, purposely distorted by misrepresentations, has, through the profound and conscientious research of some few solitary and unprejudiced brethren, acquired of late years a sure foundation upon scientific principles. This more especially refers to the origin of the fraternity, concerning which, even to this very day, the most confused, ridiculous, and discordant opinions prevail. Blinded by absurd self-conceit and an eccentric desire to prove the extreme antiquity of the institution, many have strenuously combated the idea that the fraternity originated in the operative masons; or, seeing that the ancient symbolical marks and ceremonial in the lodges bear a very striking resemblance to those of the mysteries of the ancients, have allowed themselves to be deceived and led astray, imagining they can trace back the history of the craft into the cloudy mists of antiquity. Instead of endeavouring to ascertain how and when these ceremonies were introduced into our present system, they have taken it for granted they were derived from the religious mysteries of the ancients.

* The History of Freemasonry. By J. G. Findel. Translated, with a preface, by C. van Dalen, Dr. London: Asher & Co., Bedford-street, Covent-garden. 1866.

Each fancied resemblance or agreement with some symbol or pretended custom of the ancient mysteries, is considered as a safe guide. A close connexion is immediately inferred, which not unfrequently involves an entanglement in unessential particulars, having not the slightest bearing on the subject.

A learned brother, the Rev. Geo. Oliver,* with all gravity, places the origin of Freemasonry even prior to the Creation, tracing its germs back to the very honeymoon of Paradise, informing us that Moses was Grand Master, Joshua his deputy, and Aholiab and Bezaleel Grand Wardens!

Other Masonic authors attempt to fix the origin of Masonry somewhat later, one attributing it to the followers of Pythagoras, another to the Essenes and first Christians, as does the Swedish system. Many English brethren and one American brother, J. W. S. Mitchell, bring it down to the period of the building of Solomon's Temple. Thomas Payne and others ascribe it to the Druids; Dansc de Villoison to the city of Herculaneum, or else to the time of the Crusades, which likewise the Knights Templars especially think proper to adopt.

It was in 1740, in France, that a Scotsman, Chevalier Ramsay, first suggested the possibility that the origin of the fraternity might be in the time of the Crusades; for before that period no mention whatever was made of any connexion between the Masonic order and the order of Knights Templars. Afterwards this fable assumed a more tangible form in the higher degrees of several Masonic rites, and thus received fresh encouragement.

The first writer on the subject of Freemasonry who ventured to hint at the existence of an historical connexion between the fraternity of Freemasons and that of the stonemasons was the Abbé Grandidier, a non-Mason, who, while engaged on his "*Essai Historique et Topographique sur la Cathédrale de Strasbourg, Strasbourg*, 1782," had occasion to examine the archives of the cathedral and the various manuscripts therein preserved.

Researches having made the intimate connexion between Freemasonry and the operative masons of the Middle Ages exceedingly probable, Krause's work still further confirmed the supposition; for he sought to trace back its history to the building corporations of the Romans. These Roman corporations were, at any rate, a medium necessary for connecting the lodges of the Middle Ages with the mysteries of the ancients; therefore we will dwell a little longer on this hypothesis of Krause's.

The Architectural "Collegia" of the Romans enjoyed the privilege of a constitution of their own, and were recognised by the State as a legal body. They were placed under their own officer, Aedilis, who was skilled in architecture; and, according to Vitruvius's statement (in the time of Augustus), the members were required to be well skilled and to have a liberal education. Upon the overthrow of the Republic, when all other corporations lost their privileges owing to the despotism of the emperors, the thirst of the rulers for splendour and renown caused the Collegia to be confirmed in nearly all their former rights and privileges.

"Three members were, at least, required to form a college, and no one was allowed to be a member of several colleges at the same time. The members, after hearing the reports of their officers and deliberating thereon, carried their resolutions by a majority of votes; and in the same manner members were enrolled and officers elected. The custom which prevailed among the operatives of the Middle Ages, we find likewise here, viz., that besides the legitimate members of the corporation, lay or amateur members (patrons) were admitted. The corporations held their meetings in secluded rooms or buildings exclusively appropriated to that purpose, and most of them had their own schools for the instruction of apprentices and lower grades of workmen. They had also their own peculiar religious ceremonies and priests, also an exchequer belonging to the corporation, an archive, and their own seals. The members took an oath mutually to assist each other; indigent members received relief, and on their demise were buried at the expense of the corporation. They kept registers of the members (similar to the lists or directories of the lodges) some of which are still extant. They had also their records, their masters (*magistri*), wardens (*decuriones*,), fellow-crafts and apprentices, censors, treasurers, keepers of archives, (*tabularii*), secretaries (*scribæ*), and serving brethren; their tools and working-implements had besides a symbolical meaning; and in religious matters they were tolerant.

The members called themselves Collega, Incorporatus or Collegiatus, the name of Brother not becoming general till the Christian Masonic Fraternity adopted it."

One of the Roman colleges, the Dendrophori or Tree-bearers, was originally divided into different parts, and thus distributed amongst all the colleges and mysteries, but was afterwards united in one body (*corpus*) with those of the Fabrorum or Masons,—a circumstance that is said to have facilitated the transmission of the doctrines of the heathen philosophical schools and mysteries into the Roman building corporations, which were the most distinguished and numerous of all those existing in the Roman empire over which these corporations were scattered, and were everywhere exempt from all public taxes. On the tombs of the Roman Masons are to be found not only the compasses, square, plummet, trowel, and hammer, but often two shoes, upon which lay a half-opened pair of compasses, perhaps the symbol of a well-spent life, or of conjugal fidelity.

"Several Roman authors and some monumental inscriptions furnish undeniable proofs that these associations (*sodalitia*) of artists and artisans continued among the Romans for a considerable period. That they were in Gaul and Britanny is beyond a doubt; and that a certain connexion existed between them and the building corporation of later date, can also scarcely be disputed. What we wish to ascertain is this: whether the one is a direct continuation of the other? Whether there exists sufficient historical proof to justify the tracing back the fraternity of masons to the building corporations of Rome? Both these questions must be answered in the negative, for the German fraternity of the "*Steinmetzen*" (stonecutters) have so completely and designedly metamorphosed the original signification of whatever they, by any possible chance, can have received in a traditional form from the Roman Architectural Colleges, that we must regard their laws and customs as something essentially new, and totally different from those in use in ancient times. Besides which the history of Freemasonry is wholly and entirely gathered from documents (constitutions and customs) belonging to corporations formed in the Middle Ages, and not from any Roman corporations."

Some authors seek to find the elements of Freemasonry in the mysteries of the Indians and Egyptians. All attempts, however, to trace its history farther back than the Middle Ages have been, up to the present time, most decided failures; and, placing the origin of the fraternity in the mysteries of Egypt, that land of obstinate adherence to caste, must most especially be rejected as a wild and untenable hypothesis. Whatever could be accomplished in this line may be seen in Br. J. Schauberg's recent work on the building corporations of the ancient and modern ages. Armed with all the erudition that books can afford him, both in the history of architecture and of jurisprudence, Schauberg has endeavoured to demonstrate the connexion between Freemasonry and the building colleges of the Romans, and through them with the building lyceums and mysteries of Greece and Egypt. And what is the result?

He has proved that schools of architecture and societies of architects existed among the ancients; that the science of architecture is of very ancient date, and has been transmitted to modern times; and that a similarity is to be found between a few Masonic symbols, theories, and customs, and the mysteries of the ancients, the Druids, and the Cimbric bards in Wales, as well as in German legends and fables. Thus he has confirmed anew what, it must be confessed, no one doubted, that these institutions and confederations resembled those of the Freemasons. He has furnished fresh material for a more perfect recognition of all this, and has shown that everywhere certain tokens are to be met with, the counterparts of which may be found in Freemasonry, either on coins or pictures, ballads and legends, or on architectural monuments and inscriptions. It is very evident that the borrowing and appropriation of these is something nearer the truth than the reception of the improbable presumption of a propagation of some mystic order or other, especially as it can be incontrovertibly proved that many symbols, legends, and customs did not find their way into Freemasonry till the seventeenth and eighteenth centuries; and the resemblances may be stated as simply the offspring of civilization in general.

The decline and final discontinuance of the ancient mysteries was a necessary consequence of the spread of Christianity; for whatever Christianity taught, she taught and promulgated openly before the whole world. Who, then, should be the propagators of these mysteries?

The Christian societies of builders were composed at first almost exclusively of monks and lay-brethren; and the stone-cutters, it is well known, were in like manner originally employed in the service of the Church. The mysteries of the ancients were specially national, and herein do they essentially differ from Freemasonry; for the admission of foreigners was prohibited, and they taught only the mythology of their own country; whereas Freemasonry is universal, cosmopolitan.

Thus far Herr Findel. But if cosmopolitan or universal, it they cannot be regarded as exclusively Christian, which is no more universal, under its own special form, although its lord and master is called "the Desire of all nations," than is the Buddhist, for example,—not so much so, indeed; for the Buddhist is more nearly universal, or comprises a far greater number of adherents than the Christian. And if Freemasonry be held to be universal or cosmopolitan in its tenets, does not this imply that the more highly initiated Freemasons hold that there is truth in all religions, and that the Freemasonic and universal forms and mysteries of initiation were intended to comprise these universal truths in general,—Pagan no less than Christian?

Herr Findel, however, has brought together a large number of facts; and, though we cannot say that he has marshalled and used them in a manner to produce the most interesting result, his book is a valuable addition to the literature of Freemasonry.

* "The Antiquities of Freemasonry, &c., from the Creation of the World, &c., by G. Oliver. London, 1823. Page 26, sq. 268.

CHICHESTER AND ARUNDEL.

THE capstone of the new spire of Chichester Cathedral was placed, last week, as we intimated would be done, and much gratulation was naturally expressed. Passing the lofty structure on the rail a day or two afterwards, the effect of the scaffolding, built up in receding stages and with its scores of flags, seen brightly white against a heavy bank of clouds preceding one of the heavy showers with which this July has been ushered in, was strikingly curious. Bosham Church, of Bayeux tapestry fame, is getting finished, and should be visited. The view of Arundel from the rail is beautiful exceedingly, even without the marvellous sunset, showing in the midst of stormy clouds a spot of fire, Eastern in its brilliance, that occurred when we last passed it. Fewer people visit Arundel than might be expected by those who know it. The rigorousness with which the interior of the castle,—the successor of the castle of the Fitzalans and Howards,—is kept closed, may have something to do with this. The ancient keep, however, may be seen on Mondays and Fridays; and the park, full of beauty, is always open. One view in the park of the valley of the Arun, with a foreground of oak and beech trees, sunk in the hollow before you, just now velvety and varied in the extreme, can scarcely be surpassed in the county.

The town itself well kept and florally adorned, with the main street mounting steeply from the river, is very agreeable. Entering it from the railway, extensive fourteenth century ruins, of the *Domus Dei* or *Maison Dieu*, destroyed when the town was besieged by the Parliamentary general, Sir William Waller, in December, 1643, and taken in January, are first seen. The parish church, however, with its picturesque entrance and well-kept graveyard, affords more matter for study. Built of a coarse stone there are no fine mouldings, but a good effect is produced by the largeness of the parts. Notice the odd way in which the roof has been strengthened, a king-post truss being placed on each side of each of the original principals. There are some curious wall paintings in the north aisle of nave, one chopped up by a wretchedly ugly modern gallery. The church proper ends with the easternmost tower-arch at junction with the transept; and where the chancel would be looked for, is the College Chapel, commenced at the end of the fourteenth century, and which, being the property of the Duke of Norfolk, holding another faith, is kept locked away from the church. Herein are the well-known and remarkable Arundel monuments, belonging to the fifteenth and sixteenth centuries. The whole are now in a shattered and discreditable condition. Externally the windows of this part of the structure, which are curious on the north side, have been restored.

The church at Leominster, and those of Yapton and Torkington, are amongst the points of interest in this agreeable locality: the most interesting, however, is that of Climping, near to Ford Station, an Early English Church, one roof covering nave and aisles, with a transitional Norman tower (the doorway has the dog-tooth moulding) at the end of the south transept. Much might be said about this pleasant neighbourhood. We here simply write a brief recollection with a rapid pen.

THE EFFECT OF ELEVATION AND FLOODS ON HEALTH.

IN all branches of knowledge those radical inquirers who seek to prove the fallacy of popular and deep-rooted convictions, although they rarely meet with that consideration and gratitude they merit, do nevertheless deserve well of their fellow-labourers. It is especially important in matters relating to public health that in the present state of sanitary science, which has yet scarcely passed through its infancy, we should really take nothing for granted, and that even those axioms which one has never dreamed of disputing should be submitted to the crucial test of inquiry. It is difficult to uproot convictions imbibed almost from birth; for in the face of continued proof to the contrary, how often we feel inclined, on a bright frosty day in winter, to exclaim upon the healthy bracing morning, oblivious of the certain large increase of deaths which the next Registrar-general's weekly return will prove to have been the result of the cold weather. Mr. Rowell, in an interesting pamphlet before us,* has attempted, and we must own with apparently considerable success, to combat one of those popular convictions, namely, the necessary unhealthiness of all damp and low-lying districts. In the first few pages he states his belief that he will be able to prove that "not only are the lowest and dampest villages more healthful than those that are higher and dryer, and that occupations which are connected with moisture are generally much healthier than those of a dryer character, but also that there are grounds for believing that in moist situations contagious diseases do not spread so much as in those which are dryer." That such a theory can be advanced in a pamphlet, and supported by a good train of reasoning, and an amount of corroborative evidence which is not easy to refute, is a sufficient proof of the want of reliable information on the subject, and of the usefulness of the present inquiry. That Oxford, fortunately for Mr. Rowell's theory, is a peculiarly favourable example of a town built almost below the high-water level of a neighbouring river, and surrounded by a country especially liable to continuous floods in the winter season, is very evident; for, as it is mostly situated upon a gravel foundation, and the surface drainage is moreover good, the marshes and swamps which under other circumstances would remain a source of what is commonly called malaria till the hot season, have little or no existence here. With much labour Mr. Rowell has collected the statistics relating to the deaths in a certain number of the villages in the immediate vicinity of Oxford, most liable to floods, and also of others situated on neighbouring hills and high grounds; and has proved, in accordance with his theory, that both the duration of life and the immunity from zymotic diseases are greater in the damp valley than on the hills. It is, of course, impossible to rely too much upon calculations the basis of which, after all, is very small, and is confined to one neighbourhood; but it would really appear that our ancestors, who almost invariably built in valleys and sheltered spots, did so from an instinct which led them to a safer conclusion than the reasoning of recent years, which has pointed to higher elevations as the healthiest sites for dwellings. There is no doubt that one of the greatest banes of the English climate is its exposure to long continuance of dry east winds, which are at all hands acknowledged to be hurtful to the constitution. It would appear from the researches of Mr. Rowell, that those villages which he has found naturally sheltered from these winds enjoyed an appreciably longer duration of life than those more fully exposed to their influence. This naturally arose from the reduced fatality of phthisis and diseases of the respiratory organs in the more sheltered situations, but more especially in the dampest valleys. It is not easy to decide how much of this immunity from diseases of the lungs was due to the shelter, and how much to the damp; for, although Mr. Rowell thinks to the contrary, it is quite possible, and we should imagine probable, that were these valleys effectually preserved from future floods, the death-rate would be still lower than at present. Without more extended inquiry, such surmises are, however, merely speculative. In support of the theory of the usefulness of moisture in the air, advanced in the above pamphlet, which we cordially recommend to the study of all who are interested in sanitary matters, it may be useful to notice that rainy seasons have, from the observations of recent years, almost invariably proved the healthiest; thus disproving another popular idea that seasonable weather must be healthy. Cold, wet summers have always been accompanied by low death-rates. The following figures will be interesting in support of these facts:—

	Rainfall of each year in inches at Greenwich Observatory.	Annual rate of mortality in England and Wales, to 1,000 persons living.
1854	18·7	23·5
1855	21·1	22·6
1856	22·2	20·5
1857	21·4	21·8
1858	17·8	23·1
1859	25·9	22·4
1860	32·0	21·2
1861	20·8	21·6
1862	26·2	21·5
1863	20·0	23·1
1864	16·7	23 9
1865	29·0	23·4

Thus, the highest death-rate of the twelve years, 23·9, occurred with the smallest rainfall, of 16·7 in., in 1864, and the lowest rate 21·2, in 1860, with the heaviest rainfall, of 32 in., in 1860. This may doubtless be accounted for in many ways, and principally by the cleansing influence of the rain during the summer upon the impurities of towns, which, in dry weather, prove so noxious in crowded populations; but it is also very possible that the greater humidity of the air induced by the rain may be useful to all persons suffering from affections of the lungs.

We cannot quite go with Mr. Rowell, who would persuade us that floods, and even stagnant ponds, are productive of health; for the consequence of civilization from the earliest time has been to reclaim land from flood and marsh, and with the undeniable result, generally speaking, of rendering the land more fit both for cultivation and for human habitation. Many instances might be quoted of whole districts which, previous to being reclaimed, were deadly for man, and have been rendered salubrious. Could the Pontine Marshes be effectually drained, it is more than possible that their deadly malaria would disappear. But in the face of these facts, the reading of Mr. Rowell's pamphlet has left in our mind almost a conviction that we may be over-draining and over-drying our land and our air, to the detriment of both animal and vegetable life; that we may have too deep-rooted a dread of a pond near a house, if it be kept clean, and also of trees, which may serve the double purpose of shelter, and of preventing too complete an evaporation from the ground. It also appears obvious that the advantage of shelter for a house, especially from the east, is now often too much overlooked in the desire to build on high and dry situations. We must not forget the homely *simile*, that a candle in a draught will always burn wastefully.

With regard to the second portion of the pamphlet, which deals specially with the health of Oxford, Mr. Rowell has successfully made out its claim to be considered one of the healthiest towns in England. It is, however, to be remarked that Cambridge, which contains our other large university, also appears with an exceedingly low death-rate; and it is pretty certain that in the calculation of these rates both towns derive an unfair advantage from so considerable a proportion of their population being composed of students, who may be called picked lives, and of a large class of persons depending upon the colleges and their inmates: very few or no deaths occur among these, as in case of illness they naturally return to their homes and families to be nursed, or to die, as the case may be. Mr. Rowell naturally demurs to Oxford being classed in a list of the declining towns of England, but it would be interesting to know how he would account for the population remaining almost stationary; for if we put the collegiate population of 1861 as high as it was in 1851, we find the increase in the population of the borough between 1851 and 1861 barely 500, and this in the face of an excess of births over deaths in the ten years, in the Oxford registration district alone, which does not include the whole borough, amounting to 2,111.

On the whole, we have to thank Mr. Rowell for a very useful and especially suggestive addition to sanitary literature, and hope to see it followed by other and more extended inquiries into the influence of elevation and humidity upon rates of mortality.

* "On the Effects of Elevation and Floods on Health; and the General Health of Oxford." By G. A. Rowell. London: Williams & Norgate. 1866.

ITALIAN NOTES.

ON the 11th of June commenced the works—noticeable in local story—of the demolishing of the ancient walls of Florence; the point chosen being on the northern side near the Porta Pinti, where the actual constructions are neither very old nor at all picturesque to look at. These walls, of different ages and styles, are in plan and circuit the same, the building of which was ordered by decree of the Republic in 1283, and resumed, after many interruptions, in 1324, when they were fortified by barbicans and by square towers, 80 ft. high, at intervals of 400 ft.; also provided with a moat, of which no trace is left, and pierced by sixteen gates and posterns, eight of which were built up in the earlier years of Medicean government. Their actual circuit is 5¾ miles; they are still guarded by those high old towers, and for the extent on the southern side have an antique and picturesque aspect, elsewhere being quite insignificant and uninteresting, save in the Mediæval gateways, four of which are of the fourteenth century; and one (Porta S. Frediano), rebuilt 1340, from the design of Andrea Pisano; but only one other (the S. Niccolo gateway) retains its original height, with stories of deep-recessed archways, gaping, gloomy, and cavern-like, in dusky stonework on the inner side. The demolishing works are carried on partly by blasting and partly by instruments; so far advanced that a gap is now open near Porta Pinti, through which any invader might pass unimpeded, and beyond which is now presented a fair landscape of villa-studded slopes and loftier mountains. Standing on the high terrace-road that here skirts the condemned fortifications on the inner side, we now look down on a net-work of new streets rising rapidly on the spacious and hitherto uninhabited level ground that extends between a populous quarter round the Duomo and the two gates, SS. Gallo and Pinti. Here, at least, do we see the enlargement of Florence swelling forth into conspicuous reality; and amidst rectilinear streets, all at right angles, with generally handsome house-fronts stuccoed in imitation of stonework, one might take the whole new quarter for an importation from Turin. Here, too, amidst mansions mostly suited for the wealthier, rises, near to completeness, one of those immense establishments thrown up by the company of shareholders, *Società Edificatrice*, with promise of unfurnished rooms at the lowest possible rents for such as must economise; but neither this great building, nor the other of similar character, outside the Porta S. Gallo, is yet ready for habitation.

The Municipality has voted 550,000 francs for the new "Lung' Arno" on the river's left bank, to be formed from the design of the engineer, Del Sarto, and in correspondence with the broad handsome quays on Arno's right, that present so prominent a feature of modern Florence. And for carrying into effect the same engineer's project of enlarging by iron works the Ponte Carruja, the most frequented and inconvenient of bridges here, the dangers of transit on which have been long complained of, the Magisterial Council also voted 122,616 francs. At another of its sittings, a short time previously, that Council decided to assign 30,000 francs towards the rebuilding of the Florence Observatory and Museum of Natural History, decreed, and to be undertaken, by Government—an improvement highly desirable, for the actual *Museo Fisico*, founded and fitted up in the reign of Peter Leopold, occupies an inconvenient, straightened *locale*, where an almost unique collection of Italian geology, palæontology, anatomic waxworks, &c., is crowded into many suites of rooms, small, ill-lighted, and labyrinthine.

The "David" of Michelangelo is now seen cased in a huge frame of scaffolding, ordered for the inspection of its conditions by a committee *ad hoc*, among whose members we find the well-known artists Dupré, Santorelli, and Papi; and by whom has been appointed a subcommittee, charged to inspect, and to report on the advisability of removing this colossal statue, which, it is now anticipated, may be ultimately placed in the great hall of the Pretorio, instead of the bronze lately executed under Papi's direction, which latter would, in that case, find its way to the pedestal before the Palazzo Vecchio, where the marble original has so long stood the test of time and escaped unhurt from tempests of revolution. The necessity for precaution against future dangers to this classic sculpture was forced upon attention by the accident that occurred last winter, when, in the pro-

cess of erecting a bronze statue to record the annexation of Tuscany to the Italian kingdom, on the palace front, a heavy beam fell from the scaffolding just above it, and struck one arm, but fortunately without damage to the marble. The two Società Promotrici (for the encouragement of art), that have for some time kept up rivalship in Florence, and have been opening their exhibitions separately, have at last agreed to a fusion, on a basis of new statutes, mutually approved, but to be finally discussed in detail before the two become blended into one, at sessions to which members are invited for the 24th and 29th of June.

On the 19th inst., the Bill for the total suppression of monasteries was passed by the Chamber of Deputies, after long and very vehement debate, with much opposition, especially from the Sicilian members, 179 voting against, 45 in favour. According to its terms, the cloistral buildings are to be ultimately assigned to the magistracies, or provinces, on whose territory they stood, to be appropriated as schools, hospitals, or infant asylums; but if not so utilized within a year after the suppression, to be aggregated to the property forming the fund for expenses of public worship, the *cassa ecclesiastica*; the expelled members of the several communities to be pensioned at rates varying, according to age and station, between 96 francs and 600 francs per annum. In the course of the debate, exemption was proposed, but not admitted, for the Tuscan Camaldoli, and for the entire orders of Hospitallers, founded by St. John Calabita, and popularly known in Italy as *fatibenfratelli*; but, strange to say, not one voice arose to assert the special claims of such illustrious monastic centres, entitled to respect by so many titles from the past, as Monte Cassino, Vallombrosa, La Cava, Monreale. The Sicilian deputies were strongest in opposition, and with particular reference to the conditions of the island where the suppression, they represented, would be unpopular and prejudicial; and though it is to be inferred that the great majority, at least among the educated Italian classes, are favourably disposed towards this measure, adverse to the monastic cause, and all influences within that sphere, there is still a respectable party on the opposite side, and an anticipation prevails in many minds that this law will be rejected by the Senate.

Among novelties of the studio in Florence we have to notice the monument of Cavour, commissioned to Dupré by the magistracy of Turin, and for which so high a remuneration as 600,000 francs is guaranteed without any conditions whatever imposed upon the artist in regard to treatment. A competition had been opened for this work, and 140 artists sent in designs, all which being rejected, Dupré, who had *not* competed among that number, received the compliment of being chosen and thus generously dealt with, as preferred for a task itself conferring honour on the sculptor. A portrait, half-length, of Dante, lately finished in the marble by a Sicilian, Signor Fratelloni, for the public library of his native town, Caltonisetta, has been noticed within the last few days, whilst visible prior to its removal,—an indeed impressive and finely individualized figure, the head founded upon the extant mould of the poet's countenance after death, and in character more wildly intellectual, less fiery, than are most of the more or less idolized Dante portraits. It has been a happy thought of the same artist to honour the memory of the greatest sculptor among his countrymen, one hitherto little known out of Sicily, where he lived, laboured, and died in the sixteenth century;—Gazzini, whose statues in the cathedral and other churches of Palermo, as elsewhere, also in Sicily, convey a high idea of his powers, but who left no authenticated likeness of himself, and has yet been scarcely done justice to (that we are aware) in art-biography. Fratelloni has executed his statue, of heroic size, with an expressive and eager countenance, founded in its type on a mask, to be seen among accessories in different sculptures by Gazzini, and conjectured to be his own portrait. Another of the Sicilian artists settled in Florence, named Salvatore Grita, is now engaged on the complicated group of subjects better suited to painting than sculpture, and perhaps too unrelievedly painful—an actual episode in the bombardment of Palermo, 1860, when a lady, with her three young children fell victims at night amidst the ruins of their shattered home; the moment here represented being the most tragic, the mother and youngest child lying dead; two others, a little boy and elder girl, expiring; the body of the parent partly supported on a broken beam; the ground strewn with ruins and spent bombshells, among which lies a crucifix. One may be glad to see art give preference to actualities, to subjects taken from the thrilling events, and appealing to the sympathies of the present; and in this respect Signor Grita sets good example, whilst there is also a moral aim and lesson in his group, as exemplifying the results of unjust war to the innocent and helpless. We cannot but believe that where a higher purpose is apparent, as in this work,—hitherto but rarely in modern Italian efforts,—*there* the artist ought always to be encouraged, if he give proof of having the genuine vocation. A pathetic statue, nearly completed in the marble, "Hope in Sorrow," by the same sculptor, has been ordered for an orphan asylum, and deserves such destination.

We have to add what Royalty has just been doing for art in Florence. The Prince di Carignano offers 1,000 francs for the best design, on a patriotic theme, left *ad libitum*, to adorn a kind of prospectus for presentation to all subscribers by the society for relief of financial embarrassments known as "Consorzio Nazionale." And the King, shortly before his departure to take the field, like a gallant soldier, at the head of his army, sent for the best photographists here, the Alinari Brothers, to execute his likeness, life-size, in different attitudes; one, that satisfied Majesty the most, in costume of commander-in-chief. The recent departure of Victor Emmanuel, between four and five in the morning, called forth a burst of enthusiastic loyalty, and presented one of those picturesque and inspiring scenes that are sure to occur at epochs of national excitement in Italy.

Florence.

P.S.—The name of a sculptor whose merits are noticed in one of our last, should be, not "Conelly," but Connelly.

THE BIRTHPLACE OF BEDE:

JARROW PAST AND PRESENT.

Of northern modern towns Jarrow and Middlesbro' are, indeed, of mushroom but prosperous growth. The extent of ancient Jarrow or Giray as a peopled place must have been small, if we are to judge by the dwellings that have remained or been existent within the century or for long previous. But Jarrow of 1866, though containing no fine specimens of modern architecture, is a busy hive of rampant and growing industry, bidding fair to rival older and more pretentious towns in the north. A bare dozen of years since, any one choosing to take a survey of the spot might have stood on any elevated mound convenient and counted the number of the houses with the greatest facility, and the task would have been a brief one; but, *hey presto!* isolated heath and cozy and rugged river's edge are crowned with serried lines of brick and spacious and far-stretching yards of timber and iron. Ship-building, rolling-mills, blast-furnaces, brick-making, paper manufacture, chemical and other works, are the primal sources and motive powers which have lifted once desolated Jarrow from a region of eclipse into a region of light.

One establishment alone, that of the Messrs. Palmer, employs half the working population of the place.

The mining district sends in its mineral wealth in the shape of ores, and the mechanical versatility of Palmer's legions launches it forth in the form of floating castles and locomotives. Yet raw, indeed, is the appearance of the new town and its surroundings, notwithstanding the busy and increasing flux of its growing and incoming inhabitants. Everywhere one turns, scores of brick carcasses are thrown up with pitchfork expedition and crafty ingenuity to meet the exigencies of the swollen working population, who are crying out for more house-room. The humble as well as the well-to-do are building here as if seized with a helter-skelter masonic mania which it is impossible to escape; the proprietary of the former is growing most rife under the ægis of the building societies. The population of the town is almost a business and working one. Here, as into one focus, have gathered the distinct characteristic shades that distinguish the natives of the three kingdoms,—the Scottish of the lowlands; the Celts of the north and north-west of Ireland, with a contingent of the direct west; combined with a large portion of the native English of the northern and midland counties. Already fusion by intermarriages has taken place, as workmen must be wived; and as blood is thicker than water, the peculiar feuds of one race and the clannishness of the other may receive its *quietus* in the social mingling: but there is an *if* in this.

The requirements of the town have recently necessitated the establishment of a local Board; but this is likely to be superseded by a not very distant town council, for the pent-up importance of an uprising town like this will need an escape-pipe for its growing thunder.

Jarrow has a steam-ferry communication along the whole extent of the Tyne, on each side, to Gateshead and Newcastle. It has also a railway transit, but the latter is very imperfect as a branch connexion, and censurable as a management.

The Great North-Eastern Company ought to remedy this at once. The fare, also, is most unfair and indefensible, whether proceeding north or south. The infant town has already a theatre and mechanics' institution, and churches to suit the religion of its varied community.

Ormond-street, a long thoroughfare of mostly two-story houses, is the leading street of the town. It has not a very elevated appearance, though possessing a somewhat lively look of business. It is sacred to the great shopocracy of the township. The great evil of all growing and industrial districts is, however, rapidly developing itself here in the shape of too many low beer-houses. The working population is, of course, the basis of speculation. In the district of Hebburn adjoining, which is just springing up into a large community, from its proximity to the great chemical works of Messrs. Tennant, a tie is placed upon the householders by the landed proprietor, which prevents the opening of any ale-houses.

It is time we should say something of the scene of the "Venerable Bede's" labours. The remains of the ancient church and monastery of St. Bede are situated about a mile below the present town, on an elevated spot in Low Jarrow. The Tyne widens here, and enlarges inland by a bend in the river. This large expanse of side water is termed Jarrow Slake. On this reputed haven it is surmised that the tiny navy of Egfrid, king of Northumbria, was floated. The Slake embraced an area between 400 and 500 acres, but has been for an indefinite time choked up with mud and sand. The existence of this waste land was availed of a few years since by the North-Eastern Railway, who obtained an Act for constructing docks, piers, a quay, storehouses, &c.; and the present Tyne Docks in connexion with their railway, and which has considerably increased the trade of the Tyne, was the result. Lower Jarrow has large chemical and iron works also.

It is impossible now to trace, from the present vestiges of the old monastic establishment, the extent or plan of the original building. History, however, supplies us with some reliable data, which prove ancient Jarrow to have been in existence as a settlement in Roman times. The Saxon history of the place opens some time in the seventh century; and a monastery, dedicated to St. Paul, was commenced about the same period. This establishment was consolidated with that of Monkwearmouth.

Bede, the father of English ecclesiastical history, entered this monastery, and with it his name and fame are inseparably connected. It is needless at this date to give an estimate of this man and his works. Suffice it to say, his learning was great considered with his time, and his Ecclesiastical History, which opens with the invasion of Julius Cæsar, and comes down to his own day, has been the fount of reference and research of all our historians. The original monastery was burnt down by the Danes, and after two centuries of ruin was revived, and endowed by Bishop Walcher, of Durham, who added to it several possessions. Earl Waltheof also subsequently added that of Tynemouth Church.

Bishop Carileph, of the same see, destroyed the independence of Jarrow monastery in 1083 by removing its monks to Durham, and making it only a cell under the monastery of St. Cuthbert.

The old church, which adjoins the monastic buildings, is now undergoing a restoration and additions, as already noticed in the *Builder*. The portions of the old structure remaining present some features of interest and antiquity. The tower rises from the centre of the building, between chancel and nave, from two rather low arches. The chancel, on the south side, has windows with pointed lights, and tracery in

quatrefoils. On the north side, one of the windows of the same height has three lights, with tracery, but it is square-headed.

The tower has rude double lights, round-headed. One small window on the north side, with its surroundings, shows the peculiarities of the Saxon style; but the entire building exhibits at once features Saxon and Norman.

An old and rude oaken seat, the reputed chair of St. Bede, formerly in the vestry, is at present in the parsonage adjoining. Of the monastic establishment, a considerable portion of the old walls may be traced south of the present church. Here and about some features of domestic arrangements evolve themselves incompatible with the age of the foundation—features at once rude, simple, and modern. There is some reason for imagining that on the site of the original structure a considerably later edifice arose. Be that as it may, as a whole, hoar antiquity is ineffaceably stamped on the fretted fragments of St. Bede's.

Concerning the restoration now going on at the instance of Sir Walter and Lady James, it is rather premature to speak conclusively. The works in themselves are highly commendable. The external appearance of the tower and chancel retains the antique aspect; but the nave, which is rebuilding, though it will undoubtedly perpetuate the name of the old building, cannot be considered a harmonious embodiment reflecting the peculiar lineaments of its predecessor. However, we should be thankful for the spirit that prompted, and the animus pervading and directing this and similar restorations in the country. A rebuilding is one thing, and a "restoration," in its true sense, is quite another; and few of them are, or can be from many causes, successful.

The old churchyard attached is crowded with tombstones, but few of them can be traced older than two centuries back. One or two of the seventeenth century, with old English and Latin letterings, are worthy of note. The inscription of the former, being peculiar to the period, is in a marginal line with the edge of the slab, in the old spelling. One bearing the name of Kelley, with graven crest, shows that there was some slight Celtic element existent about Jarrow two centuries ago.

Inside the churchyard wall, to the right of the gate, may be seen the remains of an old oaken piece of carpentry, called "the stocks," one of the forms of punishment in vogue with our ancestors, as every one knows.

The soil in the vicinity of Jarrow is clammy and unproductive, but to the new town it has been a source of wealth, for brick, cement, and pottery purposes.

It would be well if the Local Board would direct their attention, just now, to a thorough system of town drainage, in view of the future crowded population of the district. Even now, cases of typhoid fever have appeared, and that in quarters where it might have been expected. Behind the Pit Row and its offshoots, many of the back yards and their usual inclosures are in a most censurable condition. The restrictions concerning the cattle traffic are carried out, but other sanitary precautions, the prevention and removal of internal nuisances, are as necessary.

Such as what is above briefly sketched is a picture of Jarrow in this year of grace. What it may grow into in another decade it is impossible to augur, as much depends on the continued encouragement given to speculation by the lord of the soil, and the acknowledged and continued existence of those works in the vicinity which have infused the breath of living industry into its nostrils. C. C. H.

THE TRADES MOVEMENT.

Birmingham.—A meeting of delegates from a number of trades-unions has been held, to consider the desirability of forming one grand union, which shall embrace all the trades in the town. The question was fully discussed, and a demonstration, it is said, will be made in a short time.

Liverpool.—Letters conveying threats of assassination have been received by a number of men engaged at the Mersey Steel and Iron Works. This shows the extreme lengths to which misguided men on strike can be carried. The police are engaged in the discovery of the writers.

Whitehaven.—The quarrymen in the employ of the master builders having resolved to follow the example of the masons, struck work, for an advance of 2s. per week and the Saturday half-holiday. The masters readily agreed to give the increased wages, but refused the half-holiday; and the men having consented to forego the half-holiday, resumed work.

Glasgow.—The lock-out on the Clyde may now be reckoned as fairly closed for the present. The opening of the works by the masters for all who chose to enter them at the old terms, and the submission of the non-society and many of the society men, have induced the workmen's delegates to abandon the struggle in despair.—— The ironmasters in the west of Scotland have given notice that, owing to the great fall in the price of iron, they intend to reduce the wages of their workmen, in many cases by as much as 1s. per day; and that in the event of non-compliance with this arrangement, they will put out the furnaces and close up the works. Meetings of the miners are being held in Glasgow and other places, and the men seem determined to resist the threatened deductions at any cost.

THE INSTITUTE OF THE ARCHITECTS OF IRELAND IN KILKENNY.

THE session for this year of the Royal Institute of the Architects of Ireland was brought to a close on Thursday last, by an excursion, the first of many, it is to be hoped. On this occasion, the ancient city of Kilkenny was selected for a visit; and it is much regretted that the visit was necessarily but short, time not permitting the party to see one-half of the interesting ruins which that city and suburbs contain. Some of the old abbeys display work of the latter part of the twelfth and commencement of the thirteenth century, and in parts Pagan remains, which even then were ancient. Portions of the old wall of the city, erected in the fourteenth century, still remain, and there are yet many houses presenting their gables to the streets, their ground stories appropriated to the barter of merchandise, which, on or about the fifteenth and sixteenth centuries, formed the habitations of religious orders and the nobility. It is with pleasure to be recorded that an affectionate regard seems to exist in the neighbourhood for these historical monuments. As you pass along the streets, you may at short intervals perceive, over the level of the inevitable signboard, a coat of arms, or panelled inscription, discovered somewhere on or under the premises. Well would it be that a similar care were evinced in other equally, if not more, favoured localities. In Kilkenny, a great deal may be due to the exertions of the Archæological Society of that city, mainly, perhaps, owing to the zeal of the Rev. James Graves, Mr. J. G. A. Prim, and Mr. Robertson; the latter gentleman curator of the interesting museum of the society; the former gentlemen well-known archæologists and joint authors of an interesting history of the cathedral church of St. Canice.

The visitors had the good fortune to meet with these gentlemen, who conducted them through the city and its abbeys, giving at the same time most interesting information on matters relative to their history. They seem most desirous to give every encouragement to visitors who may feel interested in the preservation of such relics of antiquity; and it is a matter of surprise that outside of a very limited circle but little is yet known of the mine, as it may be called, of archæological lore which the county of Kilkenny possesses.

The abbey churches of St. John, St. Francis, St. Mary, the Black Abbey, and the cathedral church of St. Canice, now undergoing restoration, were successively visited and explained. Mr. Deane's free restoration of St. Canice's Cathedral did not quite escape criticism. The work, though slightly foreign in character, will be of an excellent description, and it is a pity that the funds available to the committee are now so low as to stop the proceedings. An interesting paper on this cathedral, by Mr. Thomas N. Deane, was read before the Institute of British Architects in February last. To this it is only necessary to add, that it is found difficult to determine with any accuracy the locality which furnished the stone for the ancient dressings; it is a texture not unlike that of some beds of Caen stone.

The Augustinian abbey of St. John the Evangelist is the oldest of those of which traces remain, and it is not many years since the vandalism of some person or persons, invested with a little "brief authority," caused the total destruction of a great portion of the abbey, to clear a site for a barrack and an almshouse; the contractor, it is confidently affirmed, using in the walls of the recent erections much of the handiwork of Mediæval stonemasons, whose hearts, we have evidence sufficient to prove, were more deeply interested in their productions than ever are those of any workmen under the modern system. Enough, however, to indicate its former magnificence remains in its lady-chapel, arcades, choir-windows, sedilia, and a monument with effigy of its knightly founder and his wife. There is little doubt that excavation would bring much more that would be interesting to light.

Of the Franciscan Abbey there are traces in the large orchard. From these scattered ruins a doorway leads to the tower and choir, of which alone the walls now remain. All traces of the nave have disappeared above-ground, and a roadway now crosses its position. The choir-arch, over which, in a tumbling condition, stands, or rather totters, the much later tower, has a groined archway, springing from shafts and sculptured corbels, in good preservation, the sculpture presenting some historical record of the purchase of the site and foundation of the abbey. The choir-windows are completely built up, and the space formed into a tennis-court. Much of the ground formerly occupied by the abbey is now under an extensive ale and porter brewery.

St. Mary's was, some years since, repaired so as to fit it for worship; and although some good work was done it is to be regretted that so much old work has been concealed, and so much that is new introduced as to deprive it of much of its interest, there yet remain, in a few corners, some quaint freaks of Mediæval fancy.

An old almshouse, now in a decayed condition, erected and instituted by a Sir Richard Shee, in 1581, and of which the property has mysteriously disappeared, much deserves notice.

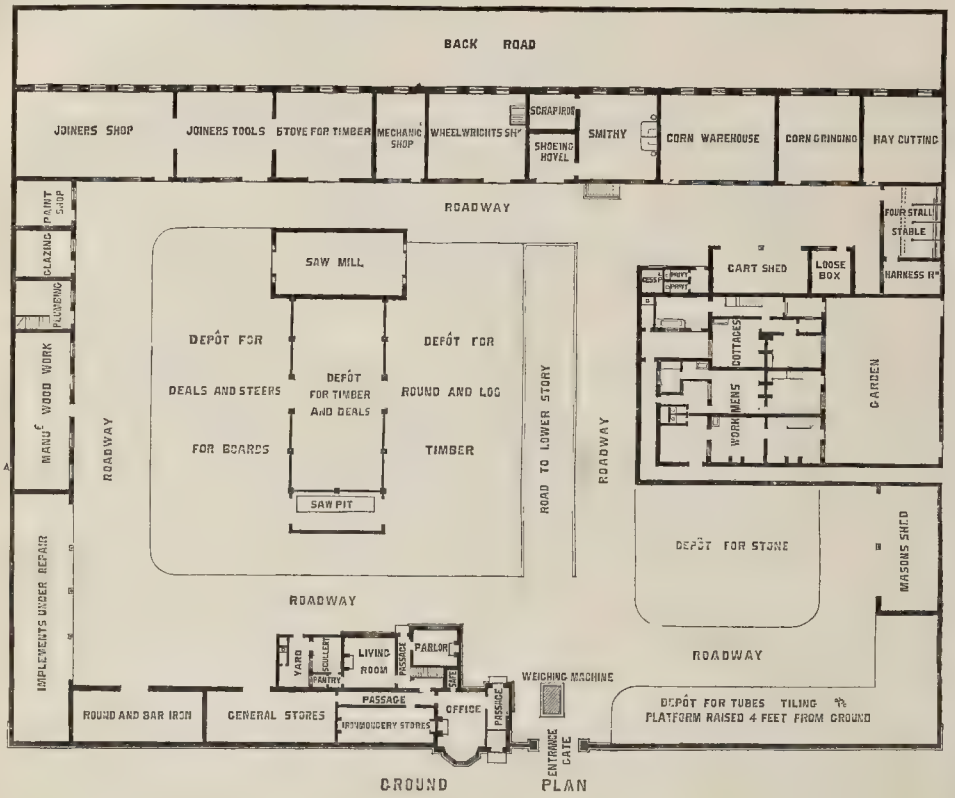
Kilkenny Castle, part of which was built in A.D. 1195, is beautifully situated on the brow of a hill overlooking the river Nore. The buildings which now form the Castle were erected at such different periods and often under such disadvantageous circumstances that it is difficult to find where the old work began or ended. The walls are in many places 11 ft. thick. The whole has recently undergone repair, and the picture-gallery, in which are many valuable and interesting paintings, landscape and portrait, has been entirely renovated, and a new stone staircase also was constructed, but in a manner somewhat violently contrastive with the repose exhibited in the rest of the building.

THE EARL OF DERBY'S ESTATE WORKSHOPS, NEAR BURY, LANCASHIRE.

THE estate workshops recently erected for the Right Hon. the Earl of Derby, at Redvales, near Bury, form, as shown by the accompanying view, a square containing an area of upwards of two acres of ground, and are constructed to supply manufactured building materials of every description, and other farm requisites for the use of the extensive estates possessed by the earl in this district.

The west side is of two stories, the lower of which is approached by an inclined road and archway from the yard; and the buildings in this range comprise depôts for lime and sand, with mortar-mills; depôts for bones, and grinding mill for the same; also stores of different kinds connected with farm requisites. A steam-engine of 20-horse power, with boiler, is also fixed in this story, which provides power for the entire works. The whole is constructed fire-proof, having brick segmental arches carried on iron beams and columns.

The second story comprises,—joiners' shop, with an adjoining shop fitted up with every kind of the best modern machinery, for planing, mortising, sawing, &c.; a stove, for drying timber, provided over the boiler-house; and adjoining are mechanics', wheelwrights', and blacksmiths' shops, and shoeing forge; also corn-stores and grinding-mills, hay-cutting and steaming rooms and stables, loose boxes, harness-room, and cart-shed. An open shed, contiguous to joiners' and wheelwrights' shops, is fitted with circular saws; and adjoining this is a large store depôt for boards and cut timber, 60 ft. long, 28 ft. wide, and 33 ft. high, having moveable louvre ventilation all round. There are also separate shops provided for painters, glaziers, and plumbers, and a large room for assorted manufactured articles for building and farm requisites, such as

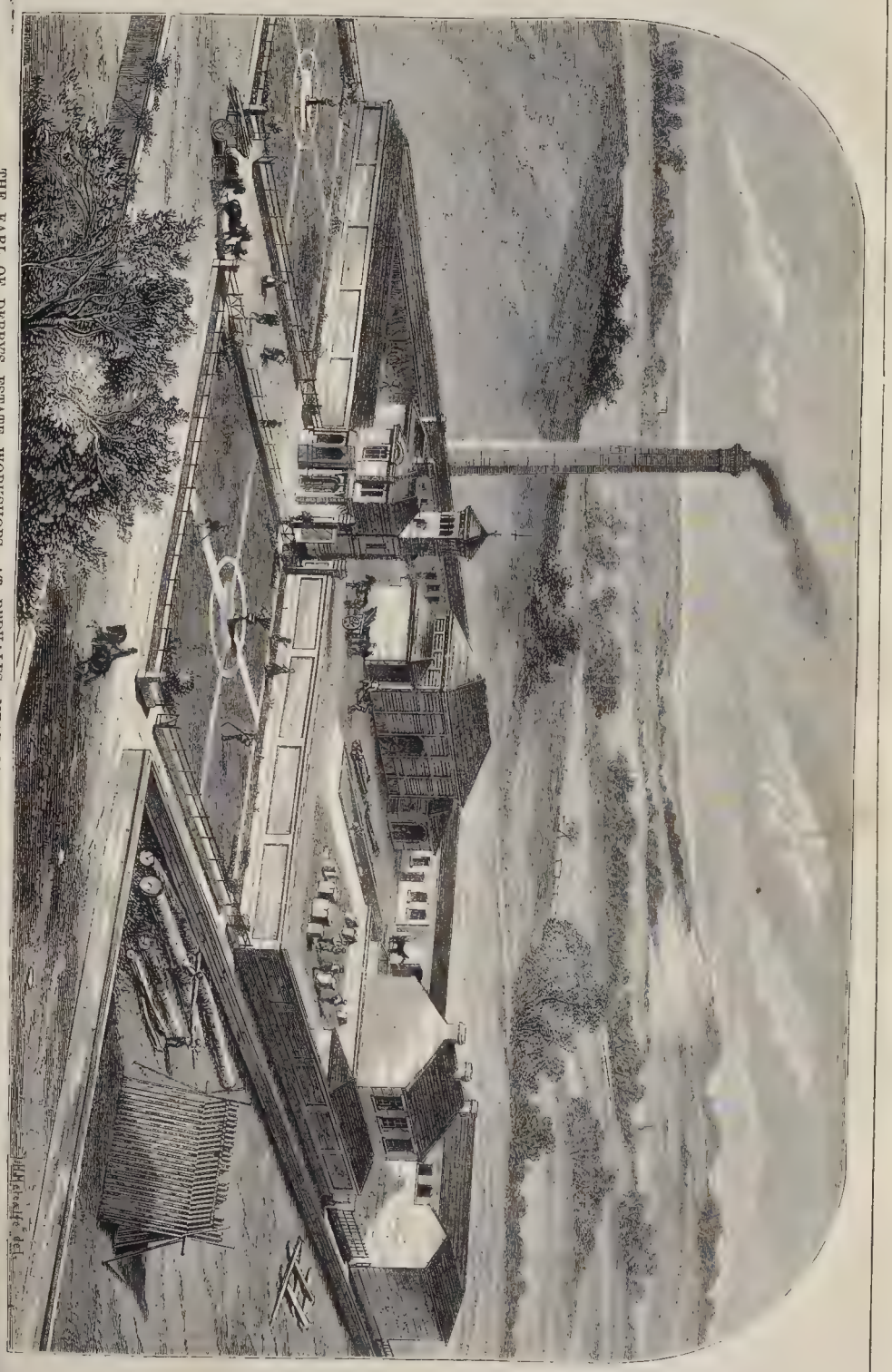


PLAN OF THE EARL OF DERBY'S ESTATE WORKSHOPS, NEAR BURY.

doors, windows, gates, and so forth. Sheds for agricultural implements under repair, masons' sheds, and depôts for stone, bricks, tiles, and slates, are round the yard, the centre of which is a store depôt for round and log timber, deals, and boards. The whole is approached by large entrance-gates capable of admitting carts and wagons, on one side of which are porter's lodge, offices, weighing machine, and a commodious dwelling-house for the resident manager. Store-rooms for ironmongery, oil, tallow, round and bar iron, and other articles, are contiguous to the office, and under the immediate control of the manager. Adjoining the entrance lodge is a handsome clock tower and bell turret.

Workmen's cottages are immediately adjoining the yard, but do not communicate with the same. The whole establishment is fitted up with water-pipes and fire-plugs.

The buildings are of a substantial character, of brick with stone dressings, and although neat in character, are designed more with regard to utility than ornament. They have been erected under the direction of Mr. Thomas Statter, agent to the Earl of Derby in this district, from the designs and under the superintendence of Mr. James Green, architect, Portsmouth, near Todmorden, at a cost of 10,000*l*. Mr. Lofthouse had charge of the erection as clerk of the works, and is now the resident manager.



THE EARL OF DERBY'S ESTATE WORKSHOPS, AT REDVALES, NEAR BURY, LANCASHIRE.—MR. JAMES GREEN, ARCHITECT.

ON SOME OF THE SEPULCHRAL MONUMENTS AND EFFIGIES IN LEICESTERSHIRE.*

THE study of the sepulchral monuments and effigies contained in our churches is one replete with information and instruction. Whether regarded as relics of family antiquity, as memorials of those who flourished in many a past age, in their own generation honoured and respected, but now, except for these records, almost, if not altogether, unnoticed and forgotten; or, as reminiscences of the last six centuries, exhibiting, in language not to be misunderstood, the gradual changes which have taken place in the social condition of the nobles, the clergy, and the gentry of the country,—they are aids to historic research which can hardly be dispensed with. Regarding them in another point of view, we trace through them the incipiency, the rise, the progress, the decadence, the various changes in sculptured art, and, both in design and execution, of architectural detail. Independent of those worthies of the thirteenth and fourteenth centuries, the architects and sculptors of consummate taste and skill, who have left their works, but not their names, behind them, we connect the later period with some of the great names in our country we love to reverence, and who have left the impress of their minds in marble,—of Torregiano, Nicholas Stone, Fanelli, Bernini, Grinling Gibbons, Rysbrack, Roubiliac, Bacon, Banks, Nollekens, and last, not least, of Flaxman, not to mention names of living worth. Their works are not confined to cathedral and large churches. In many a retired village church we meet with works of the highest interest in sculpture, in costume, in architectural detail. Even on that *vexata questio* "*De Re Vestiariâ*," as much mooted perhaps at the present day as it was three centuries ago, how much light can be thrown by an examination of the sepulchral effigies of the clergy of the different grades, Episcopal or otherwise, of the past Reformation period, taken in conjunction with other historic records. I do not, however, propose to enter,—not here at least,—on a question on which so much contention has arisen. If I allude to it again, it will be with no party feeling, but simply, incidentally, and by way of explanation.

Time is of importance; I shall, therefore, now descant,—and that as briefly as possible,—on some few only of the monumental remains in this county.

Of the more ancient Celtic sepulchral monuments I know of none in this county. In Charnwood Forest there may be one or more of the ancient pillar stones, *Maen hîr*, the most ancient form of sepulchral monument we possess, like that described in Holy Writ, rough, unlettered, and unhewn; but none such have hitherto, to my knowledge, been noticed or described. Nor can I point out any sepulchral monument of the Roman era, although Leicester was a Roman city, and we might reasonably have looked for such in or near its precincts. Again, of the Roman British, of the Anglo-Saxon, and of the Norman eras, I have been unable to discover any sepulchral monument within this county.

At some future period, some such, or the fragments of such, may be brought to light, buried in the foundations of some of those numerous churches in this county, which appear to have been re-edified in that remarkable church-building age in this district,—the fourteenth century.

There is not, to my knowledge, any wooden sepulchral effigy in this county, although in the neighbouring counties of Northampton and Rutland there are several.

The earliest sepulchral effigies in this county I can bring to your notice are of the middle of the thirteenth century.

In Tilton Church are two early effigies of this period, representing,—as Wyrley, an heraldic antiquary in the reign of Elizabeth, who took notes of the monuments in some of the Leicestershire churches, tells us,—Sir John Digby, knight, who died A.D. 1269, and Arabella, his wife, daughter of Sir William Harcourt. The first of these effigies Wyrley describes as "*Imago hominis cum cruce super crurem hâc inscriptione*:—

'+ *Iehan de Digby gist ici praies pur lui.*'

Et hoc scuto quoque super brachium. Azure a fleur de lis argent, with a sun and moon."

I have personally examined this effigy, and it agrees with the date assigned to it by Wyrley. It is the recumbent effigy of a knight clad in a hawberk or coat of mail, with a sleeveless surcoat over, with the right hand represented grasping a sword. A long heater-shaped shield—the length of the shield on these effigies is indicative of greater or less antiquity, and ought, therefore, always to be noticed—3 ft. in length, is attached to the arm. This is charged with a *fleur de lis*. Rowelled spurs are affixed to the heels. At the feet is represented a lion, with the fore paws on a man's head. There is nothing particular to notice in this effigy. The details of armour have probably been painted, and are now worn away. The legs are crossed. This figure has been sculptured with the taste and artistic skill prevalent in the then rising school of art. The surface is now somewhat abrased, and the paint with which it was formerly covered entirely worn off or removed.

But with respect to the lady, the effigy of whom is described by Wyrley as "*Mausoleum quoddam Dominæ cujus toga ornatur his notis gentilitiis ut hic notavi. On the upper garment, fleur-de-lis; on the inner, or, two bars, three crosslets, in chief gules, Harcourt.*"

These charges are now obliterated, the paint has disappeared, and, like the other effigy, the surface is abrased.

This lady appears clad in a gown, with close-fitting sleeves buttoned to the wrists, the "*manicæ botonatæ*;" over this gown is worn a mantle very tastefully disposed. On the head is a veil, whilst in the left hand is held a scroll, hanging down in front, which formerly bore an inscription painted upon it; but this is now obliterated. It is this scroll which renders this effigy more than usually interesting, and one of an extremely rare class, as I only know of three others. These are—the effigy in the west front of Rochester Cathedral, of the twelfth century, representing the Queen of Henry I.; the sepulchral effigy of a lady holding a child, in Scarsdale Church, Derbyshire; and the sepulchral effigy of a lady, in Bedale Church, Yorkshire. These two latter effigies are of the thirteenth century, and all three are thus represented holding scrolls.

There is another interesting effigy in Tilton Church, of the same family, Digby, with certain peculiarities of detail; but, as it is of a much later date, I shall allude to it presently.

There are scattered about the country in different churches certain sepulchral effigies, which, as a class, have not hitherto met with that particular notice they deserve. These effigies are those of civilians represented in their ordinary every-day habit, as worn by civilians or frankeleins in the fourteenth century. Now, although we find the same arrangement of vestments repeated over and over again in the sculptured effigies of ecclesiastics, the same details and arrangement of armour, differing, indeed, in successive ages, of knights, the details of the same dress applicable at the same time to ladies, I have not found in the sculptured effigies of civilians of the fourteenth century any that resemble each other so closely in costume, as with regard to clerical vestments, or the armour of knights, or the dresses of ladies; and, therefore, when I meet with any effigy of this peculiar class, I am particular in noting the precise articles of dress and how worn. Of this class of effigies there are several examples in this county, perhaps as many as in any county. These I shall now proceed to notice.

In Sibson Church there is an interesting sepulchral effigy of this class, probably of the re-builder of the church, and apparently of the first half of the fourteenth century. Over the head is a pedimental canopy, crocketed externally, and finished with a finial. Beneath this is a pointed arch, which has, to all appearances, been foliated, but the foliations have been destroyed. Below this canopy, forming part of the sepulchral slab, is the recumbent effigy of a civilian: his head reposes on a lozenge-shaped pillow, supported by two mutilated figures of angels. The head is bare, with curly, flowing locks; the person represented is habited in a long coat or gown—the "*tunica talaris*"—with somewhat loose sleeves, reaching midway between the elbows and wrists; from these issue the close-fitting sleeves of the "*Cote-hardy*," or inner vest. Covering the breast and shoulders, but not the head, is the *capucium*, or hood. The feet rest against some animal, now too mutilated to pronounce upon, whilst the hands conjoined together on the breast, or nearly so, are holding a heart.

Effigies of the fourteenth century are often represented holding a heart between the hands, and this was either in allusion to that saying of the prophet in the book of Lamentations, "Let us lift up our heart with our hands to God in the heavens," or to that expression in the Eucharistic service, both of the old and reformed Ritual, "*Sursum corda, habemus ad dominum*;" "Lift up your hearts: we lift them up unto the Lord."

In the church of Sheepy, not far from Sibson, was formerly the recumbent effigy of a civilian of this period, the fourteenth century. This, in some recent alterations, was removed out of the church, a movement to be regretted if we consider this, as we fairly may, to be the effigy of the re-builder of the church, and placed under a low segmental arch, constructed for the purpose, in the basement of the west wall of the tower, so as to render the effigy somewhat difficult of minute examination, and yet render it liable to the deteriorating influences of the weather.

It represents a man habited in a long gown, tunic or coat, with close-fitting sleeves, and a mantle or cloak worn over the back, descending downwards not quite so low as the gown. The head is not bare, but covered with the *capucium* or hood; the hands are conjoined on the breast, holding a heart between them; at the feet are the mutilated remains of some animal, and on each side of the head are some slight architectural details. The effigy is of stone and in high relief, but somewhat rude and formal in execution.

In Peckleton Church, under an arch in the south wall of the chancel, is the recumbent effigy of a civilian of the fourteenth century. This, from the nature of the material—a kind of blue lias stone—is much deteriorated, and is covered with limewash, which peels off in flakes. The features of the face are obliterated, but the head is bare. The personage represented is habited in a long gown or coat, the *tunica talaris*, with close-fitting sleeves; the hands are conjoined on the breast as in prayer, the feet rest against a mutilated animal, and the head reposes on a lozenge-shaped pillow. There are other effigies in this church of interest, of the fourteenth century, a knight and his lady, but they appear to be little regarded. Many of the minute details are concealed by coats of whitewash; the material is of a blue lias-like stone, much deteriorated with age, and all these effigies require careful cleansing and attention.

In the ancient chantry chapel of the Turvile family, on the north side of Thurlaston Church, are some most interesting monumental effigies. When I first visited this church, some five-and-thirty years ago, this chapel was blocked out from the church, and the windows were also blocked up, so that I could only examine the monuments by candlelight. The nave was of brick, I think, with plain Palladian windows, re-built in the latter part of the last century, in the "style of the time," the whole of the church being in a most deplorable, neglected, and dilapidated condition.

When I revisited this church, on Monday last, the 18th of June, I found the nave entirely rebuilt, in the Decorated style, at very considerable expense, and the whole church in complete order; the chantry chapel of the Turvile family, and in which so many of that family had been buried, being, as many ancient chantry chapels were, private property, had, as I was informed, been purchased by the rector, and now constitutes part of the church, the monuments therein of great interest being preserved and kept as they ought to be.

Two only of the sepulchral effigies I shall proceed to describe. The first, executed in a warm-coloured, durable stone, like that of Mansfield Woodhouse, is of a civilian of the fourteenth century. He is represented bare-headed: the *capucium*, or hood, is folded over the breast and shoulders. The body-habit consists of a long supertunic or sidegown, with loose sleeves reaching to the elbows, and oval-shaped slits or pocket-holes on the sides, disclosing the inner tunic, coat, or vest, which was belted round. From beneath the sleeves of the supertunic appear the close-fitting sleeves of the tunic. The hands repose on the breast, holding between them a heart; at the feet is a mutilated animal, perhaps a dog.

The dress of this worthy would come under the description we sometimes find in ancient wills—"*Tunica et supertunica cum caputio.*" Under a sepulchral ogee-shaped arch, in the north wall of this chantry chapel, appears the effigy of a civilian of the fourteenth century, probably, from the position it occupies, that of the founder of the chantry. From the perish-

* By Mr. H. M. Bloxam: read at the General Meeting of the Northamptonshire and Leicestershire Architectural Society.

able nature of the material, that, like the effigies at Peckleton, of a kind of blue lias, this effigy is not so perfect as could be wished. It represents one bare-headed, with a fillet round the head, clad in a tunic, belted about the waist, and extending to the knees. The lower part of the legs are gone, but the cross-legged attitude is very apparent, a most singular instance, as I know only of one other example of a civilian being thus represented,—an effigy in Much Marcle Church, Herefordshire. The feet rest against a lion, and the hands are joined together on the breast. I consider this to be the effigy of one of the *cruce signati*, or those who contributed in money to pilgrimages made to the Holy Land.

I now come to a curious, and what I believe to be a perfectly unique sepulchral effigy. This is in the Church of Ashby-de-la-Zouch, where under a depressed ogee arch, cinque-foiled within, is the recumbent effigy of a personage evidently of rank, habited in the garb of a pilgrim. Some years ago my late friend, the Rev. John Morewood Gresley, whose recent loss must be felt by this society, as it unfeignedly is by myself, drew up, in conjunction with myself, a long and illustrative account of this effigy, which was printed under the "Description of a monumental Effigy in the Parish Church of Ashby-de-la-Zouch." This account may, probably, be possessed by some of the members of this society. I shall, therefore, treat of this effigy very briefly.

This pilgrim is represented as habited in the Sclavine, the peculiar garb of pilgrims, a kind of loose over-robe, super-tunic or gown, reaching nearly to the ancles, with short and loose open sleeves falling over the shoulder to a little below the elbows. From beneath these sleeves appear the full sleeves of the inner vest or tunic extending to the wrists. On the feet are worn short boots pointed at the toes, and loosely laced in the front a little above the instep. Partly hidden by the head, neck and right shoulder, appears the pilgrim's broad-brimmed hat, with an escallop or cockle shell upon it. The palmer's scrip or bag is suspended on the left side by a narrow belt crossing diagonally over the right shoulder; and under the left hand appears the bourdon or pilgrim's staff. I do not enter at length into the description of this effigy, having already done so in the printed account I have alluded to, and which is now before me; but I may observe that, of the Apostles, the conventional garb of St. James, as represented in Mediæval sculpture or carving, is that of a pilgrim in the Sclavine and escalloped hat, with the scrip and bourdon. He is so represented in a small figure at the end of one of the stalls in Rothwell Church, Northamptonshire. Many other instances might be adduced, as that on the orphrey of a cope on a fine sepulchral brass at Botteford, in this county, to which I shall shortly have to allude.

This effigy at Ashby-de-la-Zouch I take to be of the early part of the fifteenth century. From the collar of S. S. round the neck, it is evident that it represents some person of rank and importance.

I must now return to Tilton Church, to an effigy in plate armour, the details of which I shall not enter into, but representing one of the Digby family, the father, indeed, of Sir Everard Digby, who was implicated in the Gunpowder Plot; but the peculiarity here consists, not in the effigy itself, but in having a tilting targe or shield affixed to the left arm, with the bouche or rest for the tilting lance. This was long after the fashion of representing shields on effigies had ceased; and as shields in the time of this worthy were not worn in actual warfare, I look on its introduction here as a singular but fanciful conceit.

Of the sepulchral effigies of ecclesiastics, there is, I think, in Leicestershire, only one of episcopal rank—that of Bishop Penny, in St. Margaret's Church, Leicester. There is nothing peculiar in this effigy, which is of somewhat late date, with this exception, that one of the episcopal vestments, the dalmatic, which was worn over the tunic, is not apparent.

Effigies of priests, sculptured or incised in brass or alabaster, are not rare, and are represented in the usual vestments worn at the celebration of mass. There are, however, two incised effigies in brass which require notice. The first is one in the church of Bottesford, in this county. This, I must confess, I have not yet seen, and for my description can only refer to the engraving in "Nichols's Leicestershire." This effigy is of Henry de Codyngton, formerly rector of Bottesford, and prebendary of Ortown and Crophill, in the Collegiate Church of Southwell. He died in the year 1404, and is here represented in his canonical habit, consisting of surplice, "*almucium, aumasse* or furred tippet, and "cope."

The orphreys of the latter exhibit figures of St. Peter, St. Paul, St. John the Baptist, St. John the Evangelist, St. James of Compostella, as he was called, in the garb of a pilgrim; St. Michael, St. Catherine, and a bishop. The cope was the processional habit or vestment. In the church of Sibson is a very fine and interesting effigy of a prebendary, who is also represented in his canonical habit. He appears in the cassock or long side-gown, the ordinary everyday dress of the clergy. Over this is worn the choral habit, the surplice, with long loose sleeves; and over the shoulders, and hanging down in front, is worn the ancient *almucium* or fur tippet of the canons ecclesiastical. This is singularly represented by sheet lead. The personage here commemorated is John Moore, priest and rector of the parish church of Sibson, and also prebendary of Osmonderley. He died in 1532.

The canonical habit in which he is represented is a late example of the pre-Reformation period. The surplice was the habit inveighed against by Bishop Hooper, in the reign of Edward VI., as the "white vestment," and the surplice and tippet fell under the ban of the Puritan clergy early in the reign of Elizabeth, when, in 1564, commenced the celebrated vestiarian controversy of the sixteenth century, a full and unbiassed account of which is a desideratum, and has yet to be written.

From the fifteenth to the seventeenth century we have effigies representing the body nude and emaciated, skeleton forms, the lively image of death, and figures in winding-sheets, apparelled as for burial. In the seventeenth century the sculptured effigies of the last are generally well executed, and are represented either in a recumbent or upright position, enveloped more or less in the burial shroud tied round about the heap and below the feet.

In Frolesworth Church we have an instance of such an effigy represented recumbent on a high tomb, enveloped in the shroud, with the face only visible. This commemorates Mrs. Frances Staresmore, wife of Frances Staresmore, lord of that manor, of an ancient family, tracing descent from the reign of Henry III.

This lady died in 1657, and this monument was erected in 1658. The sepulchral effigy of her husband, clad in armour, is on the opposite side of the chancel.

The effigy, in grave habiliments, of Mrs. Frances Staresmore, is sculptured in alabaster; and I can trace the hand and execution of the same artist on another monument, containing no less than three effigies and two busts, in Wissendine Church, in this county.

With a rich store of materials still unused, I must now conclude; for I have adduced but few only of the sepulchral effigies in this county, and I have not at all descanted upon the architectural features of the monuments themselves, differing much and varied in design. But, whether two or six centuries old, the language each and all speak is unmistakable, though perhaps more vividly depicted by the last effigy described.

"Let no man slight his mortalitie."

WHY SWEAR?

SOME time since we directed attention to this useless and bad practice, and we have reason to believe that our observations received a considerable degree of attention, and were, at the time at any rate, attended with good in many workshops. But evil habits are difficult of cure, especially in those who have been long accustomed to particular practices. We have, however, a hope, from certain indications, that the foul habit of using language which in no instance gives increased expression to speech, but which is often a means of causing thoughtful people to shudder, will, as education progresses, be abandoned altogether, among the classes by whom it is still much used. Formerly the practice of swearing was common amongst men of position and intelligence; even females who moved in good society were addicted to this unseemly practice. In his youth, the writer heard a lady of great beauty and high rank swear like a *trooper*, or a Newcastle fishwoman. It is told on good authority, that a once famous Royal Academician—Fuseli—had a wife who was rather violent in temper, and on the occasion of these outbursts the painter was apt to say,—"Why don't you swear, my dear? It would do you good!" The advice was not good; but in those days, when the Prince Regent was popular, swearing, of a quality which now would seem to be vile amongst costermongers, was fashionable at the Court; and we have heard of persons of position who took a pride in instructing their sons to swear like *gentlemen*. Now, however, such impurity of language is not tolerated in good society, and, like Brummel neck-ties, cocked-hats and swallow-tailed coats, the custom in those circles has gone out of use, and it is remarkable how, in a comparatively few years, this change has been made. It is from this we feel hope; for the habits of those who take the lead in society are distributed to other and lower channels with a greater degree of rapidity than is generally supposed.

At present, however, the practice of swearing, even by boys of tender years, and often by women who are the mothers of families, is shocking to hear; and so habitual has this evil become, that the parties who employ it actually seem to be unconscious of harm: and, far too frequently, it is in the homes that the use of improper words is taught to infant ears. In the workshops, as we have before said, there is also encouragement of this mischief; and it will be a goodly symptom of the advancement of the working classes of this community, when the practice, amongst the men and the older boys, of chaffing and fagging the younger ones, is put an end to; and when men who are advanced in years, who have families of their own to instruct by their example, will think with shame of using words which seem really to be as degrading to those who utter them as they are contaminating to those who are more or less affected by the pattern which is set before them.

Swearing and the use of improper language are forbidden in the friendly and social societies of workmen: a fine is enforced; and a man on whom it is necessary to impose it is little thought of by the majority of those who are members of such communities. Why, then, should practices which in this way are condemned by the almost unanimous voice of the very best portion of the working classes, be tolerated in the great workshops, in the manufactories, and in places where important works are in progress?

We do hope that efforts will be made to get rid of the habit to which we have now somewhat unwillingly directed attention. If fines are levied in benefit societies for using offensive words, why should not some similar practice prevail in the workshops? In many establishments, the example of two or three persons would do wonders; and it has been suggested that in the metropolis and large towns it would be of advantage to form an association which would have for an object the discountenancing of the use of swearing and unseemly words. We believe, if measures of this kind were properly taken, that in the course of a few years the practice would be persisted in only by the very dregs of society.

FROM AUSTRALIA.

Adelaide.—The South Australian Government, having resolved upon erecting a new post-office, offered prizes for the best design; and one, bearing the motto "Nunc aut Nunquam," sent in by Messrs. Wright & Wood, gained the first prize of 300*l.* The building will contain accommodation for the telegraph as well as the postal departments. A sum of 50,000*l.* has been placed on the estimates for its erection, but it is generally supposed that it will cost 70,000*l.* before it is completed. The South Australian authorities seem to be going ahead with permanent buildings, for a sum of 10,000*l.* is also placed on the estimates for new police and local court offices.

Brisbane, Queensland.—Up to a very recent period the only means of communication between the two portions of the city of Brisbane, which, though constituting one municipality, are respectively designated North and South Brisbane, being separated by the river, consisted of punts and ferry-boats. It was evident that the only way in which the want could be suitably supplied, was by the erection of a substantial bridge. The site considered the most eligible was a line across the river in continuation of Queen-street, the principal thoroughfare of North Brisbane. The corporation accordingly advertised for plans both in the colonies and in England for an iron

bridge. The competitors to whom prizes were awarded were Mr. F. T. Rose, Balmain, Sydney; Messrs. Robinson & I'Anson, Darlington, England; and Messrs. Redmans & Knipple, Westminster, London. None of the prize plans, however, were adopted. Mr. T. Oldham, C.E., engineer to the corporation for the erection of the bridge, having had the plans submitted to him, expressed his preference for that of Messrs. Robinson & I'Anson as regarded its principle, but objected to its details. He accordingly himself prepared a plan differing in mostly all the details, but proceeding on the principle of Robinson & I'Anson's. This plan was adopted by the corporation, and tenders were invited for the supply of materials and erection of such a bridge as it represented. The successful tenderer was Mr. John Bourne, formerly of Melbourne, by whom the two iron bridges near Melbourne, over the Yarra, were constructed—the traffic bridge at Hawthorn, and the Railway bridge at Cremorne. His tender was for 53,000*l.*; but, in consequence of numerous alterations, this sum will be considerably exceeded. Including the cost of approaches and compensation for private property, the total cost of the bridge will be between 70,000*l.* and 80,000*l.* The foundation stone was laid by his excellency, Sir G. F. Bowen, on the 22nd August, 1864. Simultaneously with the building of the stone abutments, a temporary wooden bridge to be used as a platform for the erection of the permanent structure was proceeded with. It was found, however, that it might at the same time be used for traffic, and it was accordingly opened for that purpose on the 24th of June, 1865. At the south end of the staging there is a double-lift bridge, to permit vessels to pass up and down the river. The permanent bridge is to be built of wrought and cast iron, on the lattice girder principle. On the south side of the bridge there will be a swing-bridge, having an opening on either side of the centre. When the swing is fully opened, there will be a clear space of 60 ft. on either side for the passage of vessels. To provide for the extension and contraction of the longitudinal girders, by the great heat of summer and the frosts of winter cast-steel rollers will be placed on the top caps of the piers underneath the girders. The bridge will be 1,004 ft. long. The abutments, which are of dressed freestone, are each 40 ft. long, so that the total length of the bridge will be 1,084 ft. The vertical space from the bottom plate of the longitudinal girders to high-water mark will be on the north side 33 ft., and on the south side 22 ft., so that there will be an incline, on the whole length, of 11 ft. The English engineers for the construction of the work, which is supplied by Messrs. Peto, Brassey, & Co., Birkenhead, are Messrs. Robinson & I'Anson. Most of the plant has already arrived, and the remainder is on the way out. The work of fitting the "caissons" has been commenced, and it is expected the bridge will be completed about October next.

Victoria.—The local legislature have recently voted 50,000*l.* towards the construction of bridges in the colony of Victoria.

Port Phillip.—Mr. George Coppin has initiated a company for the prosecution of deep-sea fisheries. It is to consist of 100 shares of 10*l.* each. The management is to be entrusted to the captain of a cutter which lately went round the coast prospecting at the Government expense. He is of opinion that, on capital sufficient to pay for the outfit of a vessel and gear, he would be able to return a very handsome profit, as he believes there are several banks in close proximity to the coast, and nearer Port Phillip Heads.

THE DRAINAGE OF BLACKBURN.

IN Vice-Chancellor Sir W. Page Wood's Court, the suit of Feilden *v.* The Mayor, Aldermen, and Burgesses of the Borough of Blackburn, has just been decided. The suit was instituted by the plaintiff, Sir William Feilden, bart., who is the tenant for life of Fenniscowles Hall, which, with its park and pleasure-grounds, is situated on the banks of the river Darwen, in Lancashire, to restrain the defendants from allowing the sewage of the town of Blackburn to pass into the stream called Blakeburn or Blakewater, and thence into the Darwen, so as to injure and be a nuisance to the plaintiff. The defendants, in the course of carrying out a modern system of drainage, constructed a main sewer which now empties about two million gallons of sewage daily into the Blakewater, the natural current of which is only about 200,000 gallons daily. The Blakewater enters the Darwen about two miles above the plaintiff's grounds. The plaintiff alleged that the new system of works made the Darwen much fouler than it had ever been before, turning it, in fact, into a vast open sewer. The defendants denied that the new drain had made matters worse than they were formerly, and attributed the increase of the nuisance to private drains, and the discharge of foul and greasy water from the numerous cotton-mills on the banks of the stream. They also urged in their defence the difficulty of acquiring land for, and of constructing, necessary receptacles for the deodorization of the sewage. In his judgment the Vice-Chancellor said it was quite clear there was a nuisance to the petitioner, and that in consequence of the recent concentration of the sewage it was forced further down the river, so that the nuisance at the point complained of by the petitioner was much greater than it had ever been before. He determined, therefore, that the defendants, after the 2nd day of November, should be prohibited from allowing any sewage or other offensive matter to pass from their main drains in the bill mentioned, or any other drains under their control, into the river Blakeburn, to the injury of the plaintiff. Defendants were ordered to pay costs, but liberty was given to any parties to apply. The result of this trial must place the corporation in a very awkward position, but it may probably lead them to adopt the utilization system. Indeed, recent law decisions are likely to settle for us, perforce, the whole question of the disposal of sewage, whether its deodorization or defecation, and its application to land, be profitable in a money sense or not. The sanitary profit will be certain.

FROM SCOTLAND.

Edinburgh.—New barracks for the Staff of the City Artillery Militia have been erected on a piece of ground adjoining the Easter-road. There is accommodation for twelve staff-sergeants and their trumpeter, with their wives and families—each having a separate house, containing a room, kitchen, bed-closet, &c. The houses form a block two stories in height. The space of ground required for the purposes of the barrack measures about an acre, and is of a somewhat irregular shape. The houses stand on the west side of the ground, and on the east side are the stores. A stone wall encloses the ground, and at the entrance-gate is a small lodge. The barrack has been erected by the Commissioners of Supply for the City at a cost of 4,000*l.* Mr. Cousin, city architect, prepared the plans for the buildings; and the contractors were,—mason, Mr. Berry; joiner, Mr. D. Greig; plumbers, Messrs. Stewart & Rae; plasterer, Mr. Campbell; slater, Mr. Anderson.——New premises are being erected here for the City of Glasgow Bank Branch, one-half of which is nearly completed; the remaining half is to occupy the site of the present offices, and will be proceeded with so soon as the new portion is in a fit state for occupation. As both portions of the elevation are to be identical, we are in a position to form an opinion of the design as it will appear when finished. The building is situated in Hanover-street, with a return to Rose-street, and faces the east; the northmost portion is to be appropriated to the purposes of the bank, and the southmost is to be let as business chambers. The façade is of three stories, the centre being placed back from the street. The advanced wings have three-light oriel windows rising to the height of the first-floor; they are flat-headed, with a balustrade running over the cornice. Against the projecting wings are porches supported by fluted Corinthian columns, and between these are two windows. Those on the ground-floor are arched, the top of the arch being filled in with the nautilus shell, and the angles of the oriels have fluted Corinthian pilasters attached: the first-floor windows are flanked by fluted Corinthian pilasters, with pediments over, and and at the foot of each of these windows a row of balusters is attached to the wall. The second-floor windows have moulded architraves, those over the oriels being divided into three lights; an enriched frieze and dentilled cornice finishes the wall-head. As a work of art this structure has no claims; the detail is stale and commonplace. Mr. David Bryce, jun., is the architect.

Leith.—This town has been noted for many years as one of the principal corn-importing towns in the United Kingdom, and it has now become one of the chief flour-manufacturing places. Five extensive flour-mills, driven by steam power, are in full operation daily, and often night and day, and yet the flour produced is unequal to the demand. The extent of the trade may be judged of by the fact that one of the mills alone is capable of preparing flour sufficient to supply all the inhabitants in Edinburgh and Leith. To the mills of the Messrs. Tod a large addition is now to be made. A new building is to be erected in front of the present mills, with the frontage towards Commercial-street. According to our authority, the *Scotsman*, it will be 122 ft. in length and seven stories high. The building, which will be somewhat ornamental, will be relieved by a wing on each end, having on the ground-floor rustic pilasters, and round arched windows 20 ft. in height. On the upper stage there will be pilasters, with entablature and pediment, the top being finished at the same level as the attic story in the centre of the building. A part of the building will be fire-proof, and the different divisions isolated from each other by walls extending from the ground to the roof. The new and old portions of the mills will be connected by iron bridges. Another engine of 400 horse-power, and twenty-seven pairs of stones, will be fitted up in the new premises, bringing up the steam power of the establishment to 800 horse, and the number of stones to seventy-two pairs. In connexion with the Messrs. Tod's mills, large grain-lofts and flour-stores are to be erected at the back of the mills on a piece of ground at the corner of Prince Regent and Couper streets. These lofts and stores will be 110 ft. long, six stories high, and will contain upwards of 14,000 superficial feet of floor space. There will be several cart-entrances into the premises, so constructed that carts can be loaded under cover, and pass out without backing or turning. An iron bridge, spanning Couper-street, will connect the new lofts and stores with the mills. Other blocks of warehouses and lofts are in course of erection, the floorage of which will exceed 10,000 superficial feet.

PROVINCIAL NEWS.

Needham-market.—The chief stone of a new town-hall has been laid here. The design is in the Italian style, and the material is white brick, relieved with red and black work. The building will contain a magistrates' room, entered through a lobby, on the ground floor; a residence for the policeman, consisting of parlour, kitchen, scullery, and four bedrooms; a room on each side of the lobby, which it is proposed to use for a public library and reading-room; and on the first floor, entered from the lobby by a wide staircase, is the lecture-hall. The room extends over the entire frontage, and is 45 ft. long by 27 ft. wide and 23 ft. high. The roof will be open, the principal timbers being shown, shaped with carved spandrels on moulded brackets springing from stone corbels. There will be a raised platform at one end of the room, and a smaller room opens upon the platform, for the use of the lecturer or performers. The room is calculated to seat 300 persons. The contract for the work was taken by Mr. Godfrey, of Needham, for 1,300*l.* Mr. Scopes, bricklayer, of Needham, is doing the brickwork.

Worcester.—For several weeks past workmen have been engaged putting a new roof to the butter-market. The work is now completed by Messrs. Hemming & Son, under the direction of the city architect, Mr. Rowe. At a meeting of the markets' committee, on Tuesday, it was decided to carry out the resolution of lowering the fountain, at a cost not exceeding 20*l.* The present alterations will cost about 1,000*l.*

THE ARCHITECTURAL ASSOCIATION.

THE closing meeting of the Session of 1865-66 was held on Friday evening (the 29th ult.), at the House, in Conduit-street.

The chair was taken by the president, Mr. R. W. Edis.

The following gentlemen were on ballot elected members of the Association:—Mr. G. Bird, 132, King-street, Hammersmith; Mr. C. C. Hargreaves, 1, Junction-road, Kentish Town; and Mr. J. A. Payne, 8, Buckingham-street, Strand.

Mr. J. D. Mathews (Honorary Secretary) reported that the members of the Association

had on the previous Saturday visited the new Inns of Court Hotel, the inspection of which had afforded them much satisfaction.

A vote of thanks was passed to the architects for their courtesy in the matter.

Mr. Spiers, of Oxford, attended and stated that he was requested by his son, who had received the travelling scholarship of the Royal Academy for his architectural designs, to lay before the Association a portfolio of drawings made by Mr. R. Phené Spiers in Northern and Southern Germany and in Egypt.

The Chairman said the Association had heard with great pleasure that one of their members had distinguished himself so highly, and thanked Mr. Spiers, on behalf of the Association, for submitting the drawings, which, he added, bore testimony to the zeal, assiduity, and ability with which their author was applying himself to the pursuit of his profession.

At the instance of Mr. Riddett, the balance of cash in hand from the funds of the voluntary examination class was transferred to the library fund.

The Chairman announced that the result of the ballot for officers of the Association for the year 1866-67, showed that the following gentlemen had been elected by a majority of votes:—

President, Robert W. Edis. Vice-presidents, R. Phené Spiers; Edward J. Tarver. Committee, G. H. Birch, J. S. Edmeston, E. B. Ferrey, H. L. Florence, Ernest Lee, C. H. F. Lewes, W. Lonsdale, J. S. Quilter, L. C. Riddett, L. W. Ridge. Honorary Treasurer, J. Douglass Mathews. Honorary Solicitor, Francis Truefitt. Auditors, C. B. Arding; J. A. Bunker. Curators and Librarians, L. C. Riddett; W. Frewer. Honorary Secretaries, J. Douglass Mathews; Rowland Plumbe. Registrar and Collector, William Farthing.

Mr. C. H. F. Lewes subsequently read a short paper "On Ornamental Ironwork," in which he contrasted ancient with modern blacksmiths' art, and pointed to the railway-bridge at Charing Cross as something to be avoided for all time. He deplored the obstinacy with which we adhered to the old forms of area railings, balconies, &c., and observed that the former represented the menageries of wild beasts more than anything else he could call to mind. A fine specimen of ancient ironwork was to be found in the screen of Hampton Court Palace, now in the South Kensington Museum, which was all hammered and welded, and displayed the rose of England, the thistle of Scotland, and the harp of Ireland in agreeable combination. This work was executed in the time of William and Mary, at Nottingham, and was said to be made from designs supplied by Sir Christopher Wren. The system of screwing and riveting which had taken the place of ancient welding was, he thought, much to be deprecated, as it had not only spoiled the appearance of ironwork by substituting "fire-work" designs for really artistic conceptions, but it was liable to dislocation at the hands of any mischievous person who might experiment upon it. At the Broad Sanctuary, Westminster, for instance, there was some ironwork of the description he referred to, many of the ornaments of which had disappeared, owing to the substitution of screws and rivets for welding. Mr. Lewes then called attention to several specimens of ironwork, ancient and modern, in Paris (at Notre Dame and elsewhere), and in other continental cities, which, he argued, contrasted most favourably with our own. He concluded by recommending the students of architecture to study ironwork more, and above all, to ignore screwing and riveting.

A member said he quite agreed with Mr. Lewes in deprecating the abominable manner in which the London and South-Eastern Railway Company had contrived to carry their railway across the Thames at Charing Cross. The iron bridge put up there, with its pillars like inverted pipe-stoppers stuck into the bed of a river, was a perfect disgrace to the metropolis, and he considered that some representations ought to be made to the company on the subject. It was, of course, too late to get rid of the piers in question, but it was not too late to ask the company to direct their engineer to do something towards mitigating their hideous appearance. Surely something might be done by resorting to the screwing and riveting process, which Mr. Lewes deplored so much, to give the cylinders the appearance of pillars. Something ornamental might be designed and affixed to the tubes which would relieve them from their present hideous appearance. With regard to area railings, he was glad to see that in Portland-place an attempt had been made to substitute some artistic iron work for the dreary succession of menagerie railings now generally in use, which looked as if they were intended to keep cats in and beggars out.

Mr. Riddett commented upon the execrable character of the Thames-street pattern-books, and referred to the screen in the church of St. Andrew, Wells-street, as a creditable example of modern ironwork.

Mr. Ash was inclined to attribute a good deal of bad ironwork to the circumstance that architects were themselves careless in the matter, and that in their specification they put down a round sum under the head of ironmongery, instead of insisting upon good work being executed in accordance with good designs supplied by themselves.

After some observations from Mr. L. W. Ridge, Mr. Tarver, and other gentlemen,

The Chairman observed, that ironwork was too often neglected, and that cast iron was too frequently substituted for wrought, owing, no doubt, to the cheapness of the former as compared with the latter. With regard to the Thames-street patterns, an iron founder in that locality had accounted for the utter absence of artistic taste in their designs, by assuring him that the great difference of opinion among architects as to what was good and what was bad, prevented any really good things being produced. As a rule, what one architect called tasteful was denounced by another as vile. Really good specimens of ironwork were, he thought, to be found at Merton College, Oxford, and at St. George's Chapel, Windsor.

A vote of thanks was recorded to Mr. Lewes, for his paper.

Mr. Matthews announced that the first out-of-door sketching excursion would be made on the 7th of July,—the locality, Chislehurst, Kent.

THE ARCHITECT THE OWNER OF HIS PLANS.

IN the county court, on Friday, before Mr. J. K. Blair, judge, Robert Esdaile, Harford House, Fairfield-crescent, Fairfield, who appeared in person, sued Thomas Mercer, architect, 40, Church-street, for the detenue of certain plans and specifications of property for which the defendant had been architect. The plaintiff stated that some time ago, requiring some alterations of property in London-road, he employed the defendant to prepare plans and specifications. After the work was completed he required the plans, in order that he might be prepared when any question of drainage or repairs arose. He called at the defendant's office several times, and at length was told that the defendant declined to let him have the plans. For the defence, it was contended that it was the custom of the architect to retain the plans he made as his own property, unless a special contract to the contrary was made. Sometimes the plans were given up, but merely as a concession. He called Mr. Wordley, architect, who confirmed the allegation as to the custom of architects retaining their plans as their own property. The owner of the property might have obtained the plans that the builder worked from. The judge nonsuited the plaintiff, and allowed defendant his costs.

ACTION FOR WRONGFUL DISMISSAL OF SURVEYOR.

ON the 13th ult., in the Manchester County Court, was heard the case of Nunn *v.* The Manchester Corporation, before the judge, Mr. E. Ovens; and in this case a jury was impannelled: the question to be considered was one of damages for wrongful dismissal.

Plaintiff conducted his own case, and Mr. Higgin, barrister, appeared for the defendants.

The town clerk and Mr. Austin, the late assistant to the town clerk, attended as witnesses in the case.

The plaintiff was surveyor and measuring clerk in the offices of Mr. J. G. Lynde, who is the Manchester city surveyor. He had in the course of his duties to measure up all the works in the new townhall in Hulme, a subdistrict of the city of Manchester, and a very large building. These works were originally *tendered for*, and certain of the tenders were selected as suitable in amounts, &c. In consequence of very serious errors in "the quantities" prepared for the work, it was afterwards arranged with all the contractors (with the exception of the excavators, who had commenced their portion), that the works should be measured and valued according to the schedules of prices for extra works attached to the tender sent in in the first instance.

The tradesman chosen to do the plastering and painting died before the building was ready for him, and no one could tell much about his affairs, and the administratrix to the estate did not know if he had signed a regular contract for the job, and the plaintiff could not get the use of it, if there was one, it being mislaid in the town clerk's department. It was also not clear that the schedule of prices, a draft copy of which was found, was the correct one, as there were many discrepancies in it. Plaintiff measured the work along with a surveyor for the widow, administratrix to the estate. The latter made out an account for her, and priced the work according to the schedule (of which contractor had had no copy) found, and plaintiff ticked off those prices and the measurements in the account when it came in, and handed it to the chief surveyor for his examination, as it came to much more money than the original tender sent in, and he (plaintiff) was not satisfied with it. Plaintiff was brought before the surveyor's office sub-committee by his superior in office; he was accused of allowing too much measurements, was not allowed to be heard in his own defence, and was summarily dismissed from the service of the corporation. The only defence was, that the plaintiff had acted with gross carelessness in the affair, but no proof was given as to this matter. The corporation had themselves made out a second account, which was considerably (about 400*l.*) less* than the first made out by the surveyor for the deceased's estate, and paid the widow the balance due to her as stated *by them* in that account.

The jury retired for about ten minutes to consider their verdict, which was for the corporation, but that they should pay the plaintiff 8*l.* 8*s.* for two weeks' services due at the time of his dismissal.

The case lasted nearly three hours.

THE MARYLEBONE SURVEYORSHIP.

IN reply to an advertisement in our columns, thirty candidates offered themselves for the appointment of architect and surveyor to the Board of Guardians for the Parish of St. Marylebone. Messrs. Josiah Webber, H. Saxon Snell, and Thomas Goodchild, were recommended by the committee as most eligible for the post; and ultimately the Board elected Mr. Snell by thirteen votes. The other two candidates had six votes each.

IMPROVED MANUFACTURE OF LUCIFER MATCHES.

I OBSERVE in the *Builder* of last week a paragraph to the effect, that a Mr. Gaillard has lately presented to the Paris Academy of Sciences a new process, as he alleges, of making common phosphorus matches, by reversing the ordinary mode, and instead of steeping the wooden slips first in sulphur and then in phosphorus, he plunges the match first in phosphorus and then in sulphur. How far there is any novelty in this will be seen by the following extract from the published Transactions of the Society of Arts, for the year 1845:—

"The *thanks* of the Society were voted to Mr. C. M. Barker for his improved congreve match. Mr. Barker's improvement consists in putting a layer of sulphur over the combustible composition, instead of (as formerly) putting the composition on over the sulphur; so that it requires a temperature of nearly 300° to ignite the match by heat, and a greater quantity of friction than those formerly used. Moreover, the match is not affected by damp."

Large numbers, I know, were at the time manufactured and sold regularly in the shops as a commercial article. P. LE NEVE FOSTER.

*** We have since received a letter to the same effect from Mr. Barker himself. It is not the first time the Paris Academy of Sciences has been imposed on.

THE BOMBAY MARKET BUILDINGS.

SIR,—A few weeks since an advertisement appeared in your publication inviting parties to send in designs for the above buildings, the price being limited to about 50,000*l.*, and offering premiums for the three best designs.

I am credibly informed that one of the premiums has been awarded to a design the estimated cost of which was about 80,000*l.*

Is not this a palpable injustice and a manifest breach of faith?

I may mention that I have no connexion whatever with any one of the competitors, nor do I know who was the fortunate individual in whose favour the rules were so unfairly infringed. A BARRISTER.

SHAM SURVEYORS.

SIR,—I do not think your correspondent, "B. B.," goes far enough when he deplores the evils that arise from the surveyorship of sham surveyors, and ascribes them to "defects in our public health laws, that require no standard of intellect or merit" in the candidates for an appointment of surveyor; nor do I believe he is right when he says "Boards of Health, by their *ipse dixit*, can make and unmake engineers."

I would just remind "B. B." that the "Towns Improvement Clauses Act" of 1847, 10 & 11 Vict. c. 34, s. 7, provides for the appointment of "a person duly qualified, subject to the approval of one of her Majesty's principal Secretaries of State, to act as surveyor," and the 11 & 12

* This was occasioned by measuring in all grounds, and behind all skirting, according to the usual mode of measuring work in Manchester, and allowing things not in "the quantities" taken.

Vict. c. 63, s. 37, will not allow a surveyor once appointed by a Local Board of Health, to be dismissed without the consent of the General Board of Health in London; but it is not so much against sham surveyors being appointed to the many surveyorships of Local Boards, whether highway, or harbour, or health, that the profession should protest (for instances of incapables being so appointed form the exception and not the rule), as against the mushroom growth of self-styled "surveyors," or "civil engineers and surveyors," whose intrusion into the profession tends to lower the status of the really educated and capable man. In our provincial towns there are commonly found men of no special education,—frequently men whom it would be mere gratuitous courtesy to consider as *educated* men, even in a very moderate degree,—who affix to their names, "architect, auctioneer, and accountant" (suggestive of the old story about the three r's), as in a local instance; or "architect, surveyor, and house agent," as in another instance; or of a bankrupt builder's clerk, as in a third instance, who having made an assignment of all his worldly goods for the benefit of creditors, goes away to America or elsewhere, for a few months, and suddenly re-appears in the neighbourhood, with "Mr. Jeremy Diddler, architect and civil engineer," on his door-plate. The time of barber-surgeons, practising hair-cutting, wiggery, tooth-drawing, and other general surgical operations, has passed away, and no man may now hold himself out improperly to the world as "physician" or "surgeon," or even as "attorney" or "solicitor," without the dread of a legal prosecution for his impudence. If our professions are of equal standing, importance, and responsibility (as I fearlessly contend they are), with those of law or medicine, cannot we hedge ourselves round with some protective legislation such as that which surrounds them?

W. L. S.

LONDON STREET ARCHITECTURE.

SIR,—I am sorry to see buildings increase in which very small windows prevail. In this dull atmosphere we want for our rooms all the light that is possible.

On a recent visit to Holland, I was much struck with the superior look of their modern residences to ours (as at the Hague), a difference chiefly attributable, I think, to the greater breadth of the windows, and to the graceful curve at the top of each.

I must not forget, moreover, that the doors are much larger and handsomer than ours, which is a main feature in the aspect of a house. The Dutch ones are often beautifully carved and ornamented. In regard to the windows, I can speak from experience of the interior being as light as the exterior is agreeable.

I may take this opportunity of making another suggestion, *i.e.*, that the long line of road, known as the Euston, New, and St. Marylebone respectively, should be planted at regular intervals with trees. It has now, since the Metropolitan railroad has diminished the traffic, much of the appearance of a Boulevard; and the planting it, as I see has been done near the South Kensington Museum, would complete its pleasant aspect, and make it one of the prettiest thoroughfares in Town. I am aware that the trees might be exposed to injury, but I,—and I doubt not others who live in the vicinity,—would gladly contribute to the expense, if necessary, of a custodian along the line.

A DENIZEN OF THIS CITY.

CHURCH-BUILDING NEWS.

Charlton (Woolwich).—St. Paul's Church, Charlton (the foundation-stone of which was recently laid by Sir Thomas Wilson, bart.), consists of nave and aisles, chancel, north and south chancel, transept, organ chamber, vestry, two north porches, vestry porch, and tower and spire at the south-west angle of the building, with porch in the lower stage. The style is Decorated Gothic. The dimensions of the church are,—Nave, 84 ft. by 24 ft.; aisle, 14 ft. 2 in. wide; chancel, 35 ft. by 24 ft.; transepts, 17 ft. by 19 ft. each, and tower 11 ft. square internally. The height from floor to ridge of nave is 60 ft. The nave is separated from the aisles by an arcade of five arches on each side, and the chancel is similarly separated from the transept. The clerestory above is pierced with ten double-light windows on each side, with traceried heads, and the roof principals are supported on Bath stone shafts, and carved capitals and bases. The aisles and transepts are lighted by three-light windows, with heads filled in with tracery, and the west window of seven lights, and the chancel window of five lights, have traceried heads. The tower is of four stages, the lower containing the south porch, with belfry floor over, and two-light windows in the upper, with marble shaft, traceried heads, &c. The church is of brick and stone, the interior being faced with Suffolk white and red, and blue Staffordshire bricks, in bands, device, &c., white brick arches to the nave and chancel, and coloured bricks to the rear arches of doors and windows. The roof is open-timbered, with curved principals, the rafters being exposed, and boarded on the upper face. The chancel stalls are of oak, and the other seats of deal. The whole of the woodwork, except the oak, will be stained and varnished. The paving to the chancel is to be in Minton's encaustic tiles, and to the gangways of nave, &c., of blue and red quarries laid in patterns. The tower (except part of the lower portion), and spire will not be commenced until the church is farther advanced. The contract for the church has been taken by Mr. E. Abraham, of Poplar, at 4,813*l.*, and the accommodation is for upwards of 900 adults. There are no galleries. The architect is Mr. W. Wigginton, of Cornhill, under whose superintendence the work is being carried on.

Itchingfield.—The parish church has been re-opened after having undergone a restoration; and a south aisle has been added to it; the whole works having been completed under the direction of Mr. G. G. Scott. All the work that was old and could possibly be preserved has been retained, but it was found absolutely necessary to rebuild the greater part of the north wall, using every stone of the old Norman work. A new decorated east window has been inserted in the place of one of a debased description, the mullions of the former being composed of bricks. Wherever the traces of Norman windows could be distinctly ascertained they have been preserved, and the perpendicular windows of the south side of the nave have been inserted in the new south aisle. The church has been reseated throughout in wainscot oak, and the high pews, together with a west gallery, erected within the last seventy or eighty years, have been removed. The ceiling has been repanelled in oak, according to the design of a small piece found remaining. The tower has been repaired and preserved, but a shingled spire has been raised above the former depressed dovecot. New bells have been added: there is now a musical peal of five. The new bells are by Mears & Co., who have re-hung and entirely refitted the three old bells. The building is warmed by the system introduced by Mr. Fitter, of Wolston, near Coventry. The east window is filled with stained glass by Messrs. Clayton & Bell. It is of three lights, the left hand representing the Saviour's Agony in the Garden; the centre, the Crucifixion; and the right, the Entombment. The Norman windows in the chancel contain the figures of the four evangelists. A small [low decorated window of two lights in the chancel represents the Presentation of Christ in the Temple. These, together with a small Norman window on the north side of the nave, the subject of which is Christ as the Good Shepherd, are by Messrs. Lavers & Barraud. Minton's tiles are used for the whole of the church; the chancel and sacrarium being interspersed with encaustic tiles. The contractors for the work were Messrs. Sharp & Burstow, of Horsham.

Pangbourne.—The church here has been consecrated and re-opened. The new building was commenced about eighteen months since, but owing to the shortness of the subscription list it was decided to erect only the body of the church, leaving the tower and spire to be added at a future period. The church consists of nave, chancel, porch on the south side, aisles on the north side, both of nave and chancel, and vestry at the east end of the chancel aisle. The walls throughout are built of flint and Bath stone; the entrance doorways are moulded, the external archway having cusped and carved spandrels. The nave is separated from the aisle by moulded arches springing from circular piers, with caps and leaves. Polished granite columns with carved capitals and brackets support the panelled archways separating the chancel and aisle. The chancel arch has some of the mouldings enriched with carvings of passion-flowers. All the roofs are open timbered, and have arched foliated braces resting on carved corbels. The chancel roof braces are decorated on the edges, and the spandrels are filled in with tracery. Longitudinal arched braces are introduced in the nave and chancel roofs, and the latter has a moulded plate, with wall-flower carvings. A contrivance for ventilation is introduced in the roof of the porch over the doorway to the nave, and assumes internally the shape of a double archway, with a column carved and moulded between the arches. All the seats are open benches of the modern pattern, those of the nave being of stained deal, and those in the chancel of oak. In all the fittings of the chancel the architect has introduced a new arrangement, by having all the prominent parts of walnut, French polished, the subsidiary parts being in wainscot oak, left its natural colour. All the windows are glazed with rough plate glass in various patterns, bands of yellow and dark green glass being introduced. The churchyard has been enlarged by gifts of land from Mr. Breedon, the lord of the manor: it is enclosed with a flint and stone wall, with oak gates on the south side opposite the main entrance to the church. The contract for the work was undertaken by Messrs. Reavell, of Windsor, at the sum of 2,700*l.* The ironwork was supplied by Mr. Leaver, of Maidenhead. The painting, glazing, and staining were executed by Messrs. Freeman & Son, of Reading. The reredos was the gift of Mr. Woodman, the architect. The subject is the Descent from the Cross, carved in Caen stone, the side panels being inlaid with coloured marble, and supported by six columns of serpentine marble. The work was executed by Mr. Anstey, of London.

Basingstoke.—The parish church of Sherfield-on-Loddon has been re-opened for divine service, after having been closed since August for restoration and repair. Prior to the commencement of the work the whole building was in a most dilapidated condition, and the greater portion of the walls had to be rebuilt, while the timbers of the roof were decayed beyond the possibility of repair, so that the present covering of the church is entirely new. Four square windows have been filled with mullions in the Early Decorated style, to correspond with those already in the chancel and nave. Open sittings of stained deal have replaced the square pews, and the space thus gained rendered possible the removal of a low heavy gallery. The north wall of the chancel has been thrown considerably further back, to allow of the erection of an aisle and vestry. The seats in this aisle and in the chancel are of oak, and the communion-table and rails, also the reading-desk and pulpit, are of the same material, carved. The church is paved throughout with Minton's tiles, and there is a new font of Caen stone. The work has been executed by Messrs. Wheeler, of Reading, under the superintendence of Mr. Woodman, architect.

Derby.—The memorial stone of the new district church of St. James, Litchurch, has been laid. The site lies at the top of Douglas-street, Osmaston-street. Within a few yards of the church, the parsonage-house has been erected. The church will accommodate about 750 on the ground-floor when complete. It will consist of nave 71 ft. long, by 24 ft. 6 in. wide; north and south aisles 58 ft. 9 in. long, by 12 ft. 5 in. wide, under gable roofs, with an apsidal chancel; and a tower and spire to be hereafter added. The building will be entered by two porches at its west end, the font being placed under the west window. It will be fitted throughout with open benches. The aisles will be paved with black and red Staffordshire tiles. The chancel floor will rise two steps at the chancel arch, and be fitted with four rows of benches, and paved with Minton's tiles. Internally, it will present one window at the extreme east, and an arcade of three windows on each side, with shafts of Derbyshire spar. The lower portion of the apse, internally, will be lined with encaustic tile in pattern, forming the reredos. The whole of the nave and aisles inside will be lined with Coxbench and Eaton stone, in bands, worked to a smooth face. The nave columns will be of blue Eckington stone, the arches of Coxbench, laced with Eaton stone, the spandrels being widely pierced to give a light and open effect inside the church. The columns and the chancel aisles will be double, with banded shafts of Derbyshire spar. The roof of the nave and aisles will be of open timbers, wrought and stained. The chancel will have a barrel roof of deal, with moulded ribs, the wall plate being carved with ball-flower ornaments. The style of the church is Early Decorated, the apse having a continuous arcade of attached shafts, with a vestry on each side, showing a smaller arcade, surmounted with a parapet carved in diaper, with a terminal buttress. The windows vary in design from the east. The whole of the roofs will be covered with tiles. Mr. Joseph Peacock, of London, is the architect, and Mr. William Huddlestone, of Lincoln, the contractor.

Gloucester.—A meeting of the committee appointed to make arrangements for erecting a church on the site of the ancient church of St. Catherine, in this city, has been held. Plans had been sent in by Messrs. Medland, Maberly, & Medland, Messrs. Jacques, Mr. F. Niblett, and

Mr. H. James, and these having been minutely examined, it was resolved that they should be forwarded to the Bishop of the diocese and Mr. Monk, M.P., requesting their advice as to the plan most suitable to the requirements of the parish. The expressed desire of the committee is to have a church free from unnecessary ornament, and with unappropriated seats, open alike to rich and poor.

Cambridge.—The roofs of the chapel and organ chamber of St. John's College, says the local *Chronicle*, are now nearly covered with Colley Weston slates; a slate much the same in colour as the chapel stone. At the apse end, the parapet is on: this parapet is an open arcading, having pillars with carved caps and arches; and the buttresses finish with a crocketed pinnacle; all this work takes away, what seemed at first a somewhat lofty pitch of roof. The chapel ceiling will be of groined oaken ribs, and the intermediate work of the groining filled in with Scripture subjects, in inlaid work. The organ chamber, which stands at the north side near the apse, will have a groined ceiling in stone. The tower has made considerable progress: the lower arches are all turned, and the tracery of the great window is nearly completed: the second story windows over these arches and window will be open to the ante-chapel, that is, as high as the groined wooden floor of the belfry. Carvers are busy upon the outer cornice of the chapel, also upon the gurgoyles, one of which there is to each buttress.

Redhill.—St. Matthew's church has been consecrated. The edifice consists of a nave, north and south aisles, transept, chancel, and vestry, and will seat about 800 persons. There are three entrances. In the interior the principal shafts terminate with carved capitals, and the roof is of open timber work. The sittings consist of stained open benches, and the aisles are paved with red and black Staffordshire tiles. The pulpit given by the Rev. J. Fry, consists of stone carved, the book support being a cherub, bearing the inscription:—

"Behold I bring you good tidings."

The body of the pulpit is divided into panels by small dark marble columns, the central panel showing a carving, the subject being our Saviour as a Shepherd, with the lambs in his arms. One feature in this church is the total absence of all ornamental painting and adornment.

STAINED GLASS.

St. Stephen's, Carlisle.—Mr. John Scott, of this city, decorator, has just filled with stained glass the windows of the chancel of this church, by Miss Burdett Coutts's orders. There are three two-light windows in the chancel; and in the central window the principal designs are placed. These are, "The Taking down from the Cross," and "The Ascension," a symbolical lamb occupying the central circle of the quatrefoil window above. The groundwork which forms the setting of the two pictures is of a floriated character, the predominating colours being ruby and blue, toned down by an intermixture of green. The designs of the smaller windows on the right and left of the chancel are,—"The Miracle at Nain," and "Christ healing the Blind;" "The Miracle at Cana," and Christ stilling the Tempest." These are much smaller groups, partaking more of the character of medallion pictures, set in a floriated groundwork similar to that which borders the larger designs.

Bishopstone Church.—Mr. William Blackmore and his wife have placed in this church a painted window. It is the large window of the north transept of the church which has been selected for a memorial, and, like many of the other windows in this fourteenth century church, it is of fine tracery of the Flamboyant style. A young artist (Mr. J. T. Lyon, of London), recommended by Mr. Gambier Parry, was selected to execute the work. The three lights represent the three Christian virtues,—Faith, Hope, and Charity. They are each represented by two subjects, one selected from the Old Testament, the other from the New. Faith is represented by the Sacrifice of Isaac, and the poor woman touching the hem of the garment; Hope, by Moses on Mount Pisgah, viewing the Promised Land in hope, but not allowed to enter it; and by our Lord as "our hope," ascending into the land which has been promised to us. Charity is represented by the Prophet Elijah, multiplying the meal and oil of the widow of Sarepta, and by the woman who showed her love to her Lord by anointing his head with ointment. The heading of the window is filled with angels, bearing scrolls.

Benenden Church.—This church has just received a stained-glass west window, in memory of Mr. Thomas Law Hodges, by the tenantry on the Hemsted estate. The window is a mixture of the Decorated and Perpendicular styles, and the stonework was rebuilt when Mr. Hardy restored the church in 1861-62. It is in four compartments, and represents two Resurrection scenes; the first and second compartments showing the women at the tomb, with the angel declaring that the Lord is risen; the third and fourth representing our Lord himself with Mary Magdalene in the garden. Mr. Hughes was the artist.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Brentford.—The new church, of which the first stone was laid in the autumn, has been opened by Archbishop Manning. The church is in the Gothic style, about 80 ft. long and 40 ft. wide, and will accommodate about 320 persons. It is situated near the Brentford Railway Station. The architect was Mr. Jackman, and Mr. Adamson was the builder.

Whitby.—The foundation-stone of a new church at Egton Bridge has been laid. The new building is intended to seat 600 persons, and the cost will be 1,600*l.*, of which sum about 1,000*l.* have already been obtained. It is in the Early English style, the designs having been prepared by Messrs. Hadfield & Son, architects, Sheffield. The execution of the work has been given to the following contractors:—Messrs. Barton, Wilson, & Co., masons; Mr. John White, of Whitby, joiner; Mr. G. Anderson, plumber; Mr. T. H. Readman, painter; and Mr. Braithwaite, plasterer. The edifice will consist of nave and aisle, a semicircular apex for the sanctuary and cloister, connecting the new with the old chapel. There will be a baptistery at the entrance end, and a loft or gallery for the choir. The interior will have a wide nave, separated from the aisles, by a bold arcade of five openings on each side, with pillars and arches of stone. The roof will be of coupled rafters. The principal front will be to the Egton road, having a gable with bell turret, and a circular-window within. The exterior will be entirely of stone. The dimensions of the church are,—length, 114 ft.; width, 47 ft.; height to the ceiling, 43 ft. Considerable progress has been already made.

Wolverhampton.—The foundation stone has been laid of a new church to be erected at the corner of Little's-lane and Carribee-street, in the Stafford-street district, and intended chiefly for the Irish who dwell in large numbers in that part of the town. The edifice is to be in the Gothic style. It will stand east and west, and its length will be about 100 ft., and its width about 50 ft. The exterior will be of brick, with stone dressings, and the windows will be filled with tracery. It will have an apsidal end, and the roof will be open timbered. The church will consist of nave and aisles, and accommodation will be provided for about 700. In addition to the church, it is intended to erect a presbytery, which will face Carribee-street. The cost of the whole, exclusive of the site, will be nearly 4,000*l.*, a considerable portion of which has already been raised. The erection of the buildings will occupy about twelve months. Mr. Pugin, architect, furnished the designs. Mr. G. Heveningham is the contractor.

DISSENTING CHURCH-BUILDING NEWS.

Stratford.—The chief stone of the new Congregational church, Stratford, now in course of erection, has been laid. The design is by Mr. Rowland Plumbe, of London. Underneath there will be school-rooms, so that the chapel itself will be reached by a flight of broad steps, extending the whole width of the front. From the basement the chapel will be carried up in a free Italian style, with light fluted and cut stone columns. The cost will be about 9,000*l.*

Spilsby (Lincolnshire).—A new Congregational church has just been opened here. The building is 60 ft. long, 37 ft. wide, with side walls 29 ft. high, and is intended to accommodate about 250 persons on the ground-floor. The materials employed are white brick and Ancaster stone dressings. The style adopted is Italian. The end of the church fronts the Hundleby road, and presents a large pedimented gable, having a raking cornice with cantilevers. The corners are formed by rusticated piers, and in the centre there is a large semicircular-headed window. The entrance to the chapel is under the window, by a projecting porch. The pews are open, with circular-headed bench-ends capped with mahogany. All the internal woodwork is stained and varnished, and the walls and ceiling are coloured in appropriate tints. All the windows are filled with ornamental embossed glass. It is intended to erect vestry and school-rooms in the rear of the church, and a gallery above the vestibule, provision for which has been made, as soon as the funds of the congregation will permit: the total cost at present is about 1,000*l.* The architects were Messrs. G. P. Kennedy & R. Dalglish, of Glasgow. Mr. Sivers, of Spilsby, was the contractor for the whole works, and Mr. G. Smith acted as clerk of works under the architects.

Bishop Stortford.—The foundation-stone of a new Wesleyan chapel for Bishop Stortford has been laid. The building is to be in the Gothic style. The architect is Mr. J. Cowell, of London. The internal dimensions are 47 ft. by 28 ft. The place will afford accommodation for 220 persons. The chapel is to be built of white brick, with red and black bands: the front wall will be coped with Bath stone. The front entrance doorway will be of stone, and will project from the face of the wall, to admit of greater depth for the mouldings. On each side of the entrance-door there will be a lancet window, and over it an ornamental three-light window. The side windows will be pointed, and have red brick arches. The whole of the arches in front will be relieved by red and black bands. The roof will be high pitched, and all the exposed timbers stained and varnished. The pews will be circular in form, of stained deal. The pulpit will be of Gothic design. The cost is estimated at 600*l.*, exclusive of the site.

Ore.—It having been determined to erect a new Wesleyan chapel, on the Vine Farm property, abutting on the London-road, plans were prepared by Mr. Thomas Elworthy, architect, early in the spring, and the tender of Mr. F. Crittenden, of Ore, was accepted. The structure will be in the Gothic style, with four windows on each side, and two in the front elevation. The inside dimensions are 41 ft. by 28 ft., affording sittings for 180 to 200 persons. The roof will be in open timber-work, and all the interior woodwork of the chapel will be stained and varnished. It is also proposed to substitute a preaching platform for the old pulpit. Underneath, on the basement-floor, is a school-room. The estimated cost of the new chapel, exclusive of the site, is 450*l.* The walls have been brought up to a level with the chapel-floor, and the chief stone has been laid.

Wolverhampton.—The Methodist New Connexion Chapel having become unsuitable for its purposes, has just been pulled down, to make room for a larger structure. The new edifice will be in the Italian style. The front elevation consists of a portico, with Corinthian columns and entablature, surmounted by a triple window, with geometrical heads and marginal lights, to be of stained glass. These windows are divided by small columns, having moulded bases and foliated caps, from which spring circular moulded heads. On either side of the centre windows are single windows of similar design. The upper part of the front is finished with a moulded cornice, from which rises a pediment over the centre, having wings on each side, with scroll terminals. The side windows of the chapel are also of an ornamental character, with side margins, and double centre margins for stained glass. In front are a palisading and gates. Galleries internally extend all round the chapel, with an organ-gallery at the far end. The interior walls are divided by piers, with moulded plinth caps and arches, and will be finished in imitation of stone. A deep hollow cornice will run round the ceiling, and there will be ornamental ventilators in the centre. The woodwork will be of the modern style, and will be stained and varnished. The internal measure of the chapel will be 65 ft. long by 41 ft. wide, and 35 ft. high. There will be two schools under the chapel, each 41 ft. by 32 ft. 6 in., and class-room, 20 ft. by 10 ft. The two vestries will each measure 16 ft. by 10 ft., and the larger vestry 20 ft. by 14 ft. The plans also include boiler-house and other outbuildings. The chapel will contain 700 sittings, and the cost, including warming and lighting apparatus, will not exceed

00*l.*, exclusive of the site. The architect is Charles Manton, and the builder, Mr. Elliott, h of Wolverhampton.

Forest of Dean.—The spire of Ruardean Church ing become so much out of the perpendicular t a high wind might blow it down, it has n resolved to put it in repair. From 300*l.* to *l.* will be required. The work is in the hands Messrs. Pearson & Son, of Ross, and the scaf- ing is now being erected.

Waterloo.—A new Congregational church has n opened here. The building consists of rch, 63 ft. by 48 ft.; two lecture-rooms, 34 ft. 20 ft. (one arranged for dividing into two ries), and a minister's vestry; and tea- er room and heating apparatus in the base- nt. The style of architecture is Gothic, ly treated, with reference more to suitability purpose than to strictness of style. The s are taken up with buttresses, and two- t windows with cusped heads, quatrefoil res, moulded labels, and carved bosses. The rcases are placed at the two front angles of building, projecting several feet beyond the of the main gable, and connected together vestibule, with moulded and carved centre way and gable over. The church has an timber roof, the ornamental slating finish- just under the sill of a traceried five-light dow, which occupies a great part of the cipal front. The main gable is finished with rved stone cross; and at the junction with of the staircases, a stone spirelet rises to height of about 90 ft. The walls are built shoddees, or parpoints, of a blueish grey ur, with bands of red stone in continuation he window sills, arches, &c.; the general sings being stone, of a buff colour. The rior is arranged for 600 persons, in open s. All the timbers are moulded, stained, and ished. Mr. Westmoreland was the contrac- for the building; Mr. Price for the gasfit- s; Messrs. Gray & Davidson for the organ; Messrs. J. R. Jeffery & Co., for the fur- ing. The cost has been about 3,650*l.* for building proper, including seats for 600; and lecture-room and vestries, walling and gates' and furniture, brought the amount up to 0*l.* The architect was Mr. C. O. Ellison.

dford.—The new Wesleyan Chapel here has opened for divine service. The chapel will about 700 persons, and the schools upwards 00 children. The style of architecture is entine Gothic. The roof is panelled with ied wood: the seats, which are all open, are stained. The free seats are numerous. The ing is by chandeliers, and there are stained windows. Mr. Palgrave, of Westminster, the architect; Mr. Houghton, Mr. Joy, Mr. ll, and Mr. Hinton, all of Bedford, being the ractors. The following notice, according to *Bedford Times*, was put up at the commence- t of the works:—

Christopher Wren to the Workmen employed in the building of St. Paul's, London.

ereas among labourers and others, that ungodly m of swearing is so frequently heard, to the dis- r of God and contempt of His authority; and to d that such impiety may be utterly banished from works, which are intended for the Service of God, he honour of Religion, it is ordered that profane ing shall be a sufficient crime to dismiss any labourer omes to the call; and the Clerk of the works, upon cient proof, shall dismiss him accordingly."

ice.—The above rule will be strictly carried out g the erection of the Wesleyan Chapel, St. Mary's, rd.—By order, Robert Palgrave, architect.

don, November 7, 1864.

Miscellanea.

ORCESTER DIOCESAN ARCHITECTURAL SOCIETY. first excursion for this year took place Tuesday in last week, with the accom- ment of brilliant weather. About thirty s and gentlemen assembled at the Eves- railway station, and proceeded in car- s to visit the churches lying between Honey- ne and Evesham, under the guidance of Severn Walker, who gave a few historical s, and pointed out the principal architectural res of the various churches on the route. excursionists were hospitably entertained at orton Hall, by Mr. and Mrs. J. S. Dixon; afterwards sat down to dinner at the Crown l, Evesham, under the presidency of the H. G. Faussett, rural dean; Mr. Severn ter occupying the vice-chair. The last of excursionists arrived at Worcester at about past nine, all being highly delighted with greeable day they had spent.

BAD SMELLS.—One pound of green copperas, dissolved in one quart of water, and poured down a sink drain, will effectually destroy the foulest smells. For water-closets on board ships and steamboats, about hotels and other public places, there is nothing so nice to cleanse with as simple green copperas.—*American paper.*

THE CANTERBURY SURVEYORSHIP.—Mr. John Green Hall, of Winchester, has been elected surveyor under the local Government Act. Alderman Collard, who opposed the introduction of the Act, was a candidate, but retired previous to the election as he found the majority of the Council opposed to his election. The only other candidates were Mr. Hall and Mr. Varsall.

ANOTHER TUNNEL PROJECT FOR THE CHANNEL.—Mr. Hawkshaw is engaged in the preliminary operations necessary to determining the practicability of a submarine road to the Continent. Borings are now being made at a considerable expense in the neighbourhood of Dover, and, by permission of the French Government, between Calais and Boulogne; and in the course of this summer explorations will be made in mid-channel.

THE SCANDINAVIAN INDUSTRIAL EXHIBITION AT STOCKHOLM.—This exhibition was opened on the 15th June, at noon, in the presence of a vast number of people, who not only filled the interior but also crowded the neighbourhood to a considerable distance. The structure rises between the avenues of Carl XIII. "Torg." The principal building covers a space nearly half as large as that occupied by the Exhibition Palace erected in Paris in 1855, though in exterior decorations it cannot pretend to compete with either the Paris, the Hyde Park, or the Kensington Exhibitions. The Scandinavian Palace of Industry is a wooden building. It does not lay claim to any architectural beauty. The queen opened the exhibition in the name of the king.

NEW THEATRE AT BRIGHTON.—The theatre at Brighton is now being entirely reconstructed, from the designs of Mr. C. J. Phipps, under whose direction the new theatres at Bath, Nottingham, and South Shields have lately been erected. The former arrangements of the interior will be removed, and the auditorium reconstructed upon a new plan. The width of the "house" throughout will be increased by the addition of the two passages on either side of the main walls, and which are now used for entrances to the pit, gallery, and stage. The new pit will accommodate above 500 persons. The entire capacity of the auditorium will be for about 2,000 persons. The proscenium opening will be 30 ft. wide. The height from the pit-floor to the centre of the ceiling will be about 42 ft. From the plan, every auditor will have a view of the stage. The iron columns supporting the box-tiers are intended to recede on the dress-circle level, so that there will be two rows of stalls with an uninterruptedly clear view. The upper box tier will also be thrown back. Behind the curtain, large scene docks, painting-galleries, and dressing-rooms, are already in course of construction.

THE LIVERPOOL ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.—The annual excursion of this Society took place on Saturday in last week, Lyme Hall, near Disley, the seat of Mr. W. J. Legh, having been selected. The attendance was not so numerous as usual, but it was augmented by a number of members of the Manchester Society. After partaking of luncheon the party proceeded to Lyme Hall, paying a visit on their way to Lyme Cage, a curious old square tower, which forms a prominent feature in the landscape. Arrived at the hall, considerable time was spent in inspecting the new stables recently erected on the site of the old stag pond, from plans by Mr. A. Darbyshire, at a cost of about 10,000*l.*, the stone being obtained upon the estate. Mr. A. Darbyshire, who is secretary of the Manchester Society, conducted the party. Having superintended the more recent restorations of the hall, he directed attention to the most interesting objects. The dining-room and saloon contain some specimens of Grinling Gibbons's carving. Leaving the hall, a number of the party proceeded across the moor to inspect the "Bow Stones." They consist of two upright cylindrical stones inserted in a slab of limestone. Returning to Disley, the party sat down to dinner at 4.30. Mr. J. Boult, vice-president of the Liverpool Society, occupied the chair, the vice-chair being taken by Mr. H. Booth, president of the Manchester Society.

"MANUFACTURE OF BUILDERS' HARDWARE."—Messrs. J. Tyler & Sons claim "that the builders' brass work, or brass foundry-ware, has its principal seat of manufacture in London." Messrs. Tyler add, "We do a large trade in sending goods to Birmingham and Wolverhampton, pumps, water-closets, cocks, &c."

THE LIVERPOOL WATER SUPPLY.—At the last meeting of the Liverpool Water Committee, the engineer made some comparatively encouraging statements respecting the present supply of water, a matter of great sanitary importance at the present moment. He said that the rainfall during the previous fortnight was 3·047 inches, which had increased the stock in the Rivington Reservoir by 358,000,000 gallons. There is now in stock at Rivington 1,094,000,000 gallons, being 78,000,000 gallons above the average of the same period last year.

PREPARATIONS FOR BUILDING A GREAT BRIDGE. A raft for an experimental pier for the Great Forth Bridge, by which it is proposed to enable the North British Railway to cross the Frith of Forth, between Blackness and Charleston, about fourteen miles west of Edinburgh, was recently launched at Burntisland, in presence of numerous spectators. The raft consists of a mass of parallel logs of Memel timber, bolted together on a series of cross-beams. It is 80 ft. by 60 ft., and 7 ft. thick, and its superficial area is 4,800 ft. Its purpose is to form the foundation of an experimental pier, the frith-bottom being of silt, which has been bored to the depth of 120 ft. It is thought that by giving this broad platform or rest to the structure a secure foundation may be obtained even on that slimy bottom, and on the success of the first pier so founded, the hopes of the bridge may be said to rest. The mooring of the raft will be effected by two barges of 700 tons burden, fitted inside as dwellings for the workmen, and the decks being a platform for materials. After the raft is moored, the masonry will be proceeded with, and, as the work goes on and the platform settles down, the walls of a caisson will be carried up, so as to keep out the water. When the silt is reached by the gradual depression of the raft, the cylinders will be loaded with 10,000 tons of pig iron, about 2½ times the ultimate weight of the bridge upon the pier, so as to press the foundation into the silt, and also to secure a perfectly horizontal position. The Forth Bridge, which has been designed by Mr. Thomas Bouch, of Edinburgh, C.E., and is estimated to cost about half a million, will, should it be carried out, be 2¼ miles long. It will be a lattice girder bridge, resting on sixty-one piers, and with four great spans of 500 ft. each, which will be 125 ft. above high-water-level in the centre.

FIRE AT THE HIGH-LEVEL BRIDGE, NEWCASTLE.—An alarming and extensive fire has occurred in Newcastle, which at one time threatened the destruction of the High-level Bridge, which spans the Tyne from Newcastle to Gateshead, and has resulted in a loss of many thousands of pounds worth of property. The scene of the occurrence was a flour-mill on the Quayside, a large portion extending under the bridge. The High-level Bridge spans the river in two divisions, the upper one being used by the North-Eastern Company, and the lower by foot passengers and vehicles, and a hose was immediately laid along the latter, the framework of which is iron, with a timber and asphalt flooring. But before this could be done the flooring caught fire, and the asphalt became ignited, and poured down a melted torrent into the burning mill beneath. The mill was entirely gutted, and the machinery inside destroyed. In the meantime locomotive tenders were dragged along the railway above, and the water pumped out. The asphalt flooring was also dug up, and the connexion cut between the north and the south side of the bridge. By these means the fire was subdued. The damage done to the carriage-way and footpaths is estimated at about 2,000*l.* or 3,000*l.* Much of the ironwork is injured, while one of the stone piers is also seriously damaged. Should the pier require to be rebuilt and the iron replaced, the loss to the railway company will be very great. The bridge has since been examined by the railway company's engineers, and they have certified that it is "perfectly safe;" but the lower level will necessarily be closed for traffic until the damage has been repaired, and the old Tyne Bridge will thus prove useful before it gives place to the new swing-bridge. The damage done by the fire is estimated from 25,000*l.* to 30,000*l.*

ANTIQUARIAN DISCOVERY IN CARLINWARK LOCH, CASTLE DOUGLAS.—A riveted brass cauldron, containing a large assortment of antique armour and armourers' tools, has been accidentally discovered in the Carlinwark Loch, according to the *Dumfries Herald*. They are thought to be as old as about the year 1300; and it is matter of history that Edward I., when in possession of Galloway, had a camp in the Fir Island, on this loch or lake, and the remains of a camp have been found in it.

THE AMATHONTE VASE.—The famous vase of Amathonte has reached Paris. As the weight of this monster work of art is not less than 15,000 kilogrammes (33,060 lb. English), it is hoped that its landing may be effected by means of one of the cranes used on the Quai d'Orsay to raise blocks of stone. The diameter of the vase is 3m. 5c. (9 ft. 10 in.), and the height 2m. 25c. (6 ft. 6 in.). It has been sculptured out of a single block. It was discovered by M. Vogüé at the summit of a hill 1,500 ft. in height, and in a piece of ground over which are scattered the ruins of the Amathonte, twenty-five miles south of Lamala.

THE THAMES PURIFICATION BILL.—This Bill has been reprinted as altered in committee. The opponents of the measure, as regards Windsor, Eton, and the Farnham Royal district, have got the following clause inserted:—"Provided also that nothing in this Act contained shall authorise the company to execute any works, or take any of the lands, in Windsor, Eton, or Farnham Royal, shown on these plans." The Bill has gone before the House of Lords. Its operation is limited to the treatment and diversion of the sewage of Oxford, Abingdon, Kingston, Richmond, Twickenham, Isleworth, and Brentford.

THE YORKSHIRE FINE-ART AND INDUSTRIAL EXHIBITION.—Arrangements are now nearly complete for the Fine-Arts and Industrial Exhibition, at York. The guaranteed fund amounts to 7,000*l.*, and two-fifths of this amount have been paid up. The building was designed by Messrs. Atkinson & Turner, and has since been erected. In the various spaces between the framings in the front are being placed carvings, allegorical paintings, &c., and in other parts are emblazoned the arms of the nobility and gentry of Yorkshire. The external panel plastering and decorations are in the hands respectively of Mr. Rawlings and Mr. Worthington. The exhibition, it is expected, will be open from the middle of July to the end of October. The Archbishop of York has promised to attend the opening ceremony.

MARSH FEVERS DIMINISHED BY INCREASED DENSITY OF POPULATION.—Some curious facts and theories respecting intermittent fevers have been brought into reconsideration by the demolitions in Paris, and are alluded to in the *Journal of the Society of Arts*. Dr. A. Tripier, of Paris, has taken up the question, and quotes from a work by M. de Tournon, prefect of Rome in the beginning of the present century. M. de Tournon, from a consideration of the state of health in Rome and other cities, and the sanitary influence of the Pontine and other marshes about Rome, was led to the conclusion that you pass, almost insensibly, from a healthy portion of a city to one quite the reverse, but the danger invariably diminishes in proportion to the density of the habitations. "I recommend to the attention of the reader," says M. Tournon, "these remarkable facts, that the miasma gives way in the presence of the agglomeration of the buildings; that the closer they are together the less are its effects; and that the centre of a town presents the maximum of security. Moreover, whenever a village begins to be depopulated, no matter from what cause, the malaria first attacks its outer parts, advances as the houses are emptied, lays siege to the inhabitants, pursues them towards the centre, where it attacks them when they are too much diminished in numbers to repel the germs of death by congregation." Dr. Colin, formerly professor in the French School of Medicine, has likewise studied the subject at Rome, and adopts M. Tournon's view with respect to the influence of density of population on the fevers produced by malaria. Dr. Tripier agrees with them as regards malarial fevers, but adds that however density of population may be good against the influence of intermittent fevers, it is certainly not so, but precisely the contrary, as regards the greater number of other pestilential diseases.

BEDS ARCHÆOLOGICAL AND ARCHITECTURAL SOCIETY.—The annual public meeting of this Society has just been held; Mr. C. L. Higgins in the chair. The Rev. B. E. Bridges read a paper on "Chicksands Priory;" the Rev. W. S. Escott one on "Ancient Saxon, Norman-Saxon, and Early English Translations of the Bible before Wyclif;" and the Rev. W. Monk one on "The Importance of preserving Ecclesiastical Monuments."

THE NEW BUILDINGS AT DULWICH COLLEGE.—The new buildings, the chief stone of which was laid on the 26th ult., will comprise schools, official residences, playgrounds, &c., and occupy upwards of 30 acres. The governors have been enabled to carry out the work only in consequence of receiving large sums in compensation from the London, Chatham, and Dover, and Brighton Railway Companies, for land taken by them through the estate of the College. The new buildings, which are from the design of Mr. Charles Barry, will be in the Northern Italian style, the materials principally of coloured brick and terra-cotta, with necessary ornamentations. The contract for the erection of the structure has been taken by Mr. W. Downs, of Southwark, builder.

THE NEW BATHS FOR CROYDON.—The swimming-bath has been completed. The large bath-room is decorated. The bath is 60 ft. long, 24 ft. wide, with a depth at one end of 3 ft. 8 in., which is gradually increased to 5 ft. 6 in. The sides are fitted with glazed tiles, edged with blue. The floor is laid with encaustic tiles. Accommodation has been provided for twenty-one bathers. The roof is of open timbers. The water will be supplied direct from the condenser of the engines, at the works in Surrey-street, and is so managed that it can be heated to any temperature. The private baths—nine in number—are fitted with modern appliances for turning on hot or cold water. The hot water will be supplied from a self-acting boiler, situated at the west side of the building. Separate compartments are made for male and female bathers.

ARCHITECTURE, UNIVERSITY COLLEGE.—The following is the list of prizemen and those commended, for session 1865-66:—Architecture, Professor Hayter Lewis.—Fine Art, First Year's Course.—Prize, Alfred Henry Paget, of Leicester. Certificate, 2, G. W. Ballisat, of London. Construction, First Year's course.—Prize, G. W. Ballisat, of London. Certificates, 2, Alfred Henry Paget, of Leicester; 3, H. J. Benham, of London. Fine Art, Second Year's Course.—Silver Medal, Lewis Solomon, of London; 2nd prize, Thomas Batterbury, of Totteridge. Certificate, 3, Percy Oakden, of Tasmania. Construction, Second Year's Course. Silver medal, Percy Oakden, of Tasmania; 2nd prize, E. M. Whitaker, of London. Certificate, 3, Lewis Solomon, of London. The prizes were distributed by the Dean of Westminster. The "Donaldson" medals were this year for the first time awarded.

SOCIETY FOR IMPROVING THE CONDITION OF THE LABOURING CLASSES.—The annual meeting of this Society has been held at Willis's Rooms. The Earl of Shaftesbury presided. The report, which was voluminous, stated that the demolition now going on amongst the dwellings of the labouring classes was assuming features of great importance, the railway Bills before Parliament in the present session alone proposing to destroy 16,000 houses, whilst all the London model lodging-houses combined afforded accommodation to 8,798 persons only. Dwellings of the kind advocated by the Society were more required in London and the suburbs, and a society had been formed called the "Operatives' House-building Company (Limited)," and a prospectus had been issued for the purpose of endeavouring to secure suitable sites and erecting buildings in London. The report also alluded at great length to the efforts made in this direction in the provinces, on the Continent, and in America, and acknowledged in grateful terms the munificent donation of Mr. George Peabody for improving the dwellings of the poor, and also Miss Adeline Cooper's exertions in the same cause. The mortality during the past year of dwellers residing on the property of this Society, which gives accommodation to 1,678 persons, had been only 28, or 16 per cent., and twelve of these were children under eight years of age. The report concluded with an earnest appeal to the benevolent on behalf of the funds of this Society, to enable it to still further extend its benefits.

THE ELY SURVEYORSHIP.—The local Board [illegible] Health have unanimously resolved, on the grou[nd] that their surveyor has saved money to t[he] Board by practising as strict economy as w[as] possible, and at the same time retaining t[he] works in a high state of efficiency, to advan[ce] the surveyor's salary to 150*l.* per annum.

EXPORTS OF COAL.—The exports of coal, cu[l]m and cinder from the United Kingdom for t[he] four months ending April 30, reached 2,915,8[00] tons, as compared with 2,637,795 tons in t[he] corresponding period of 1865, and 2,674,049 to[ns] in the corresponding period of 1864. The [in]crease was principally to Russia, France, Spa[in], Italy, and other Continental markets, the im[pro]nence of war having no doubt caused a brisk demand. France, which is still our larg[est] customer, took in the four months no less th[an] 576,471 tons, as compared with 501,030 tons [in] the corresponding period of 1865, and 492,[000] tons in the first four months of 1864. The to[tal] value of the coal, culm, and cinder exported [in] the four months of 1866 reached 1,494,38[0]*l.* against 1,280,163*l.* in 1865, and 1,267,487*l.* [in] 1864.

METROPOLITAN BOARD OF WORKS.—At [the] usual weekly meeting, the report from [the] Streets Committee, submitting a plan of Fi[n]sbury Park, showing the proposed arrangem[ent] of building sites in the twenty acres which [the] Board are empowered to dispose of for build[ing] purposes, and recommending the Board to [ap]prove of the same, was further considered. [Mr.] Savage moved as an amendment, "That, in [so] much as the Board have limited their purch[ase] of the land for the purpose of Finsbury Park [to] 120 acres, instead of taking the 250 acres aut[hor]ised by the 20 & 21 Vict., cap. 150, no port[ion] of the land so taken be let or sold, but that [the] whole be devoted for the health and recreat[ion] of the public." After some discussion, [the] amendment was put and lost, the numb[ers] being—for the amendment, 17; against it, [45].—The original motion was then put and carried.

THE DRAINAGE OF ST. LEONARDS.—At the [last] quarterly meeting of the St. Leonards' comm[is]sioners there was presented Mr. Bazalgette's re[-]port, with plans for a new and independent s[y]stem of drainage and outfall for their district. [Mr.] Bazalgette recommends that a pipe should be carried outside the parade wall, from the ar[ch] way to the end of West Marina; thence alo[ng] the roadway nearly to the railway arch acr[oss] the roadway. A turn to the south-east will re[ach] some waste land on the beach, and here it is p[ro]posed to erect a covered reservoir, from wh[ich] the sewage will be discharged by night and dur[ing] the ebb tide, so as to carry it away in the di[rec]tion of Beachy Head. The cost was estimated [at] 5,000*l.* The plans met with nearly unanim[ous] approval, and after their adoption the clerk w[as] instructed to issue the usual notice to landown[ers] &c. In connexion with the new intercept[ing] sewer, it was also resolved to widen the Par[ade] along the western portion at a cost of 2,000*l.*

TENDERS

For New Hotel at the Leeds Central Railway Stat[ion] for the Great Northern Railway Company. Me[ssrs.] M. E. Hadfield & Son, architects. Quantities supplie[d by] Mr. D. J. Brown:—

Hall & Co.	£35,000	0	0
Kirk & Parry	35,059	0	0
John Kirk	33,578	0	0
Beaulaud	32,397	0	0
Farrell	32,700	0	0
Mill	32,660	0	0
Boothman & Broomhead	31,957	0	0
Shafto (accepted)	31,250	0	0

For additions to the Blue Anchor Tavern, Coler[ain] street. Mr. F. H. Williams, architect. Quantities [sup]plied by Mr. A. Peebles:—

Geddes	£1,285	0	0
Morter	973	0	0
Ennor	788	0	0

For New Church, St. Leonard's-on-Sea. Mr. [J.] Newton, architect:—

Dove	£12,010	0	0
Howell	11,990	0	0
Piper & Wheeler	10,848	0	0
Myers	10,667	0	0
Clemence	10,469	0	0
Jackson & Shaw	9,850	0	0

For a block of four almshouses in the Magdalen [Road], Exeter, for Palmer's Charity. Messrs. R. & W. [Hill], architects:—

Luscombe	£900	0	0
Moss & Son	895	0	0
Kenshole	837	0	0
Stafford (accepted)	764	0	0

The Builder.

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Architecture at Ahmedabad, the Capital of Goozerat, Western India.

SIR BARTLE FRERE, the present Governor of Bombay, took an excellent step, when, in 1865, he led several of the leading members of the European and native community there to form themselves into a committee for the illustration of the Architectural Antiquities of Western India. In the course of the last ten years the Government of Bombay has formed, at its own expense, very costly and extensive collections of photographs and engineering drawings of portions of the magnificent architecture with which that Presidency and the territories bordering on it abound. The majority of these buildings are unknown in Europe, and have never been drawn or engraved, though many of them are beautiful and very original. These collections have been placed at the disposal of the committee, together with other materials to be procured, with the view to their publication in a series of volumes. The expense of bringing out illustrated works of this description being necessarily so heavy, that even if sold at cost price they would be within the reach of a comparatively small portion of the public, certain native gentlemen nobly volunteered for the honour of their country and to promote the adaptation of its artistic treasures to modern requirements, each to take one volume under his patronage, and to contribute 1,000*l.* towards its publication. The materials for three volumes reached England last year, and are now in course of publication by Mr. Murray, of Albemarle-street, under the gratuitous editorship and supervision of Mr. T. C. Hope, of the Bombay Civil Service, who has also presented the historical and descriptive text relating to Ahmedabad, ably written by himself. Two of the volumes are under the patronage of Mr. Premchund Raichund, and the third is under that of Mr. Kursondas Madhowdas. The book now before us, a magnificent volume, sets forth the architecture of Ahmedabad, and comprises a historical and descriptive sketch of the province, with description of the buildings at Ahmedabad, by Mr. T. C. Hope, as already mentioned; Architectural Notes by Mr. Jas. Fergusson; 2 maps, 22 wood engravings, and no less than 120 photographs of the buildings.*

The volumes about to follow are on "The Architecture of Beejapoor, in the Bombay Presidency." Photographed by Colonel Biggs and Major Loch. And "Architecture in Dharwar and Mysore." Photographed by Dr. Pigou, Mr. A. C. B. Neill, and Colonel Biggs.

Ahmedabad is supposed to have been founded in the eleventh century, and for the last 450 years has been the capital of Goozerat, ranking next to Bombay in Western India in importance and size. Goozerat is about equal to Great Britain in extent! Bounded on nearly three of its sides by the Arabian Sea and gulfs opening out of it, the coasts of Goozerat form a considerable portion of the India known to the ancients. Its merchants now are among the most enlightened and wealthy in India. Its early history is remarkable and interesting, but we may not attempt to enter upon it, beyond a quotation, from Mr. Hope's sketch, concerning the *Jains*, who take an early place in Goozerat history, and may be briefly described as a most ancient sect, the sect of Jaina, analogous to the Buddhists, whose chief peculiarities are a tenderness for animal life, and the substitution of twenty-four Teerthunkers, or saints, who have attained final reunion with the Divine Spirit, for Sákya Mooni, whom alone the Buddhists recognise as their mortal teacher. "Mahávira, the last of the Teerthunkers, was nearly contemporary with Sákya, and died about 600 B.C., from which period the Buddhist religion dates its rise. After some centuries of expansion and triumph, Buddhists of all denominations had to endure long and sanguinary persecution from the Brahminical supporters of the religion of the Vedas, by which the adherents of Sákya, though spreading their tenets to Thibet and the far East, were gradually exterminated in India, and by the twelfth century had ceased to exist there. Not so the Jains, who maintained their ground, principally in Goozerat and Mysore, and still survived to hold in their hands a large proportion of the wealth and trade of India. They were remarkable for the costliness and beauty of their temples." Mysore and Dharwar still abound in them; but the most ancient are to be found at Geernár, the most exquisite on Mount Aboo, and the most extensive and still flourishing at Shutroonjye, near Palitána.

These last were restored and beautified by Shilláditya, a sovereign of Vulubhee, who was converted to the Jaina sect in the fifth century. The hill of Palitána affords a remarkable example of the building capabilities of the Jains. "Street after street, and square after square," says the Hon. A. K. Forbes, "extend these shrines of the Jain faith, with their stately inclosures, half-palace half-fortress, raised in marble magnificence upon the lovely and majestic mountain." In the dark recess of each temple one image or more of Adeenáth, of Ujeet, or of some other of the Teerthunkers, is seated, whose alabaster features, wearing an expression of listless repose, are rendered dimly visible by the faint light shed from silver lamps; incense makes the air heavy with perfume, while bare-footed female votaries, in scarlet and gold, move round and round in circles noiselessly on the polished floors.

These buildings, by the way, are receiving constant additions. One temple, at Shutroonjye, completed a few years ago, cost 170,000*l.*

The Mahomedan architecture of Ahmedabad, more especially illustrated in this book, is essentially derived from the local Jaina forms which it replaced. The Corinthian, Ionic, and Doric orders, that the men of the Renaissance of Italian art used, were not more distinctly of

* The Architecture of Ahmedabad, Capital of Goozerat. Photographed by Colonel Biggs. John Murray, Albemarle-street. 1865.

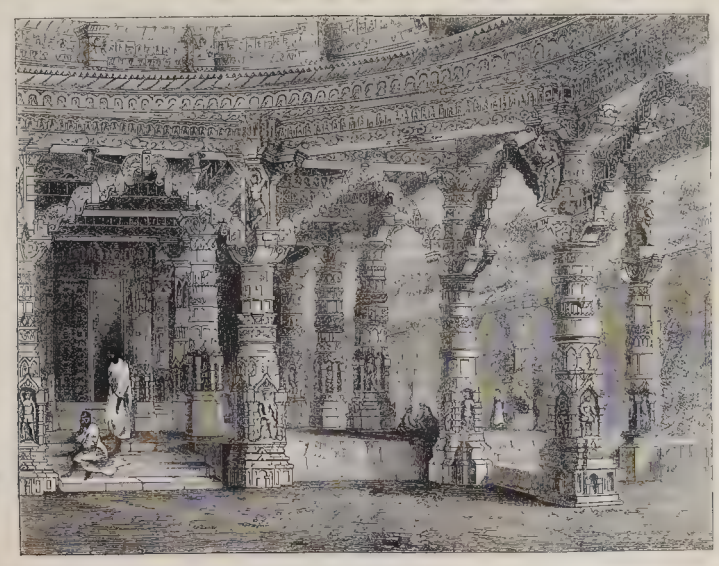


FIG. 1.—*Temple of Veemul Sha, at Mount Aboo. A.D.* 1032.

Roman origin, says Mr. Fergusson, than the arrangement of plans and the order of pillars which were used by the architects of Goozerat when working under their new masters for a religion they had adopted under extreme pressure from without, were Jaina. The main formative idea in Jaina planning was *the octagonal dome resting on horizontal architraves, supported by twelve pillars.* Where the form came from is doubtful. It seems that no example has yet been found that can with certainty be called earlier than the tenth century, but the earliest known are as complete in all their details as any afterwards constructed, so could scarcely be the first employed. Be it as it may, all the plans of Jaina architecture were elaborated from this one idea. First, two pillars were added on each face; then four on each face, and two again in front of these; and so until each corner contained 14 pillars, making 56 in all. The variety of outline and play of light and shade that this arrangement afforded are remarkable. When the Jains wanted a cell with solid walls, they adopted the same general plan as in their porches, only using double the same number of facets; 20, for instance, instead of 10, in a first-class example, and enriched each face with sculpture.

The great peculiarity of this mode of design is, that the entrance, or at least the principal feature, is always on the angle, never on the longer side, as in other styles. We are enabled to give a view of the temple of Veemul Sha, on Mount Aboo, fig. 1, from which the internal appearance of these porches may be judged of. This temple, finished in the year 1032, is entirely composed of white marble, and is one of the most perfect specimens of Jaina art to be found in India. The great defect of their porches, in an architectural point of view, is the smallness of their dimensions; and though the elegance and exuberance of their details are such as are admirably suited to their scale, and would be inappropriate to larger buildings, still size is so important an element of architectural effect, that its absence is always to be regretted.

"In Jaina art," says Mr. Fergusson, "it arose from the fundamental fact that no native of India will use an arch except under foreign compulsion. The consequence was, that from 10 ft. to 12 ft. was as wide a space as could be conveniently used in the wider aisles, and 7 ft. to 8 ft. 6 in. for the narrower spaces, and the diameter of the domes was consequently limited to 24 ft. or 30 ft. Even dimensions like these were felt to appear weak in construction, and the Jains in consequence employed an elaborate series of struts under the domes to take off the apparent strain: as now seen, they,—like the vaulting shafts of the Gothic architects,—are merely used to satisfy the eye, rather than the mechanical exigencies of the case."

Fig. 2 * represents pillars at Chandráwutee, belonging to a ruined Jaina temple erected in the thirteenth century, and serves to show further details.

Looking through the photographs in the book before us, it may be seen how a style of architecture to suit the religion and views of the Moslem conquerors was produced, the transition, according to Mr. Fergusson, being completely accomplished between 1412 and 1443. The mode of lighting,—a sort of open clerestory, introduced by the Mahomedans, but found only at Ahmedabad, and probably, therefore, borrowed from some Jaina form, of which no examples have yet been found,—is an excellent peculiarity, and is probably the ground-work of Mr. Fergusson's theory as to the lighting of Greek temples elsewhere propounded.

Notwithstanding all the efforts of the Moslems to stamp out the Jaina faith, it continued to be practised, and buildings continued to be erected for its purpose during the whole period of the Mahomedan empire. At the present time the Jains hold in their hands a large proportion of the wealth and trade of India, and in their buildings they still follow the time-honoured arrangements of their forefathers.

In illustration of this, we give a view of the Temple of Shet Huttising, completed about twenty years ago. This structure, fig. 3, * is dedicated to Dhurmanáth, one of the twenty-four deified mortals, whom the Jains reverence as rulers of the world. The plan of the temple follows the arrangements which were adopted at Mount Aboo, at least as early as the beginning of the eleventh century, and have been followed with little variation to the present time.

"The principal feature in all these temples is the 'Vimiáas,' square at the base and containing a cell, in which the principal image of the saint is placed. Sometimes there are three such, as in this instance; at other times, as at Sadree, four cells containing images are placed back to back. These cells are always surmounted by a 'sikra,' or spire of that peculiar form shown in the engraving, and which, with the Jains, seems hardly to have varied during the last eight centuries. In front of this sanctuary there are always one or more porches. In this instance the principal one is two stories in height, and in front of this again is an open porch, surmounted by a dome, supported on twelve columns, arranged as explained above."

These features form the temple proper; but in this example, as at Aboo, at Sadree, and indeed, wherever the temple is complete, the whole is enclosed by a range of smaller cells, each containing an image of the same saint to whom the temple is dedicated, or in some instances one is appropriated to each of the twenty-four Teerthunkers, as they are called. At Aboo, every cell is ornamented with bas-reliefs in white marble, illustrating passages in the life of the saint, and in modern times at least these are generally surmounted by sikras or spires of the usual form. This gives peculiar importance to the outer enclosure. Mr. Fergusson justly exclaims,—

"It will startle many to be told that even buildings so original as these are being erected in sight of the Doric pillars of the verandah of the collector's bungalow and the sham Gothic of the padre's church. It is not only in Goozerat, however, but wherever native feelings are allowed to prevail, that buildings as beautiful as these,—some more so,—are daily springing up, and, with very slight encouragement, might be made far more numerous and beautiful than they are. Not only does the Hindoo still love art, but he still instinctively adheres to the only system by which good architecture was ever yet produced in any part of the world. It is the system which enabled our forefathers to build those wonderful churches which still excite our admiration and our envy, and which we foolishly fancy we can reproduce by copying. The Hindoo knows better, and can consequently do better things: his system is right, though, unfortunately, his standard is not so high as his well-wishers would desire."

In examining the photographs we cannot but fear, from indications already apparent, that time will have an effect upon them. If for the rest of the work the carbon process or some other mode of indelible printing could be employed, this fear might be removed. The windows near the northern side arch in the Queen's Mosque in Mirzapoor (dating probably about A.D. 1430), the wonderfully elaborate perforated marble windows of Seedee Syeed's Mosque (fifteenth century), and the perforated stone screens of Dustoor Khan's Mosque (also dating from the fifteenth century), are amongst the works that will attract most attention. Seedee Syeed's Mosque, by the way, after being desecrated by the Maharattas, was converted by the British into one of the public offices, and has been hacked about, we are told, to suit official convenience as much as the Chapter-house of Westminster. It was time that influential people should stir for the preservation of the Architectural Antiquities of Western India. Honour and credit are due to all concerned in this very noble work of recording and making known, now for the first time, the architectural treasures of their country.

* See p. 524.

STREET ARCHITECTURE OF THE NEW TOWN OF EDINBURGH.

IN last year's volume of the *Builder* we directed attention, in a series of articles, to the street architecture of the Old Town of the Northern Metropolis,* interesting alike from its historical associations and the semi-continental character which Scotland's old standing alliance and intercourse with France had stamped upon it. The lofty gables fronting the street, and overhanging timber stories, the high-pitched roofs, with their picturesque dormer-windows, the different varieties of crow steps, the outside and turnpike stairs, the corner turrets, with their high conical or ogee roofs, the sculptured panels,—these, as we pointed out, were the characteristic features and charms of the sixteenth and seventeenth century houses of Old Edinburgh. But within somewhat less than a hundred years there has sprung up beside it a new and stately city, which has,—not inappropriately, — been termed the Modern Athens. Listen to the words of one of the most eloquent of her citizens, whose lips, alas! are now silent for ever, but whose colossal bronze statue adorns the city he loved so well. He is speaking of the contrast between the Old and New Towns:—

"Two separate cities, not twins,—but one of ancient, and one of modern birth,—how harmoniously in spite of form and features characteristically different, do they coalesce into one capital! This miracle, methinks, is wrought by the Spirit of Nature on the World of Art. Her great features subdue almost into similarity a whole constructed of such various elements, for it is all felt to be kindred with those guardian cliffs. Those eternal heights hold the double city together in an amity that breathes over both the same national look—the impression of the same national soul. In the olden time she gathered herself almost under the very wing of the Castle, for in her heroic heart she ever heard, unalarmed but watchful, the alarums of war; and that cliff, under heaven, was on earth the rock of her salvation. But now the foundation of that rock, whence yet the tranquil burgher hears the morning and the evening bugle, is beautified by gardens that love its pensive shadow, for that it tames the light to flowers by rude feet untrodden, and yielding garlands for the brows of perpetual peace. Thence elegance and grace arose; and though

'The ancient spirit be not dead,
Old times, methinks, are breathing there,'

as now chime the merry music bells from St. Giles's dome,

'In shape and gesture proudly eminent.'

over that wilderness of antique structures picturesquely huddled along the blue line of sky,—as Wilkie once finely said, like the spine of some enormous animal,—yet all along this side of that unrivered and mound-divided dell now shines a new world of radiant dwellings, declaring by their regular but not monotonous magnificence, that the same people, whose 'perfervid genius' preserved them by war unhumbled among the nations in days of darkness, have now drawn a strength as invincible from the beautiful arts, which have been cultivated by peace in the days of light."*

It is to the character of the architecture of this New Town that we propose to invite our readers' attention. That it has its faults, and those not a few, we most readily admit; but there is so much, on the other hand, in the beauty of the situation of this new city, the streets are of such breadth and the houses built of so enduring a material, there are so many beautiful gardens and pleasure-grounds interspersed, so many magnificent *coups d'œil* from the different corners of the streets, that it is doubtful whether, when taken as a whole, it has its equal in the world. Visitors from every quarter of the globe have united in writing and singing its praises. Burns and Scott, Delta, Aytoun, and Ballantyne, have wedded its glories to immortal verse. The great limner, Sir David Wilkie, pronounced it unrivalled. Grecian Williams compared it to Athens, but awarded it the palm of superiority. "Whoever," said Charlotte Bronté, "have once seen Edinburgh with its *couchant* crag lion, will see it again in their dreams." And even the writer who of all others has passed the severest criticisms on her architecture, the author of "The Stones of Venice," has said that of all the cities in the British islands it is the one which presents most advantages for the display of noble buildings; although he adds, most truly, that it is the one "which on the other hand sustains most injury in the erection of a common-place or unworthy one." Would that her citizens and architects might keep this warning ever present before their eyes!

The site of Edinburgh is picturesque in the extreme. Distant about two miles from the Frith of Forth, it is on the other three sides surrounded by hills of great beauty. On the west is the richly-wooded and villa-studded hill of Corstorphine; to the south are the wavy Pentlands, Craiglockhart, and the Braid hills; while to the east are the Calton Hill, the semi-circular moral ridge of perpendicular rocks called Salisbury Crags, with the lion-shaped Arthur Seat towering upwards of 820 ft. above the level of the sea. Speaking of the resemblance between Athens and Edinburgh, Mr. Williams says, "There are several points of view on the elevated grounds near Edinburgh, from which the resemblance is complete. From Tor-Phin, in particular, one of the low heads of the Pentlands, immediately above the village of Colinton, the landscape is exactly that of the vicinity of

* See *Builder*, vol. xxiii., p. 256, &c.

* "Winter Rhapsody," by Professo Wilson.

Athens, as viewed from the bottom of Mount Anchesmus. Close upon the right, Brilessus is represented by the mound of Braid; before us, in the abrupt and dark mass of the Castle, rises the Acropolis; the hill Lycabetus, joined to that of the Areopagus, appears in the Calton; in the Frith of Forth we behold the Ægean sea; in Inch-Keith Ægina; and the hills of the Peloponnesus are precisely those of the opposite coast of Fife."

Until the middle of last century, Edinburgh continued to cover little more than the area which it had done in the end of the fifteenth century. Occupying the valley of the Cowgate and the two steep ridges on either side of it, it was surrounded by a fortified wall, some portions of which still remain, with several gates or ports, one of which, the Netherbow Port, we formerly described.* It is little more than one hundred years since Lord Provost Drummond laid the foundation-stone of the North Bridge, which spans the valley between the Old and New Towns, and beneath which are the rails of the North British Railway Company. It consists of three arches 72 ft. in width and 68 ft. in height, with small side arches, which give a total length of 310 ft., and still constitutes the principal as it did originally the sole communication between the north and south side. In 1767, the magistrates obtained an Act for extending the royalty, and on the 20th of October of that year the foundation-stone of the *first* house in the New Town was laid. We may here remark, *par parenthèse*, that in 1861 the population of the new city amounted to 60,603, an extraordinary fact, when it is remembered that there are almost no manufactories or large public works in Edinburgh. To return, Mr. Craig, architect, had been employed to make plans for the proposed extension, and these comprised three main streets, Princes, George, and Queen-streets, running in parallel lines from east to west, with two intermediate streets of smaller width, and intersected by cross streets running at right angles from north to south. George-street, the central of these main streets, is built on the level brow of the hill, or ridge, formerly known as the Lang Raw,† which was separated by the "Nor' Loch"‡ from the parallel ridge extending from the Castle down to Holyrood Palace. It is nearly three-quarters of a mile in length, and 115 ft. in breadth. Literally crowning the causeway, this noble street presents a charming vista, at the same time that it commands at various points where it is intersected by its seven cross streets, each 100 ft. broad, the most varied and magnificent views. Look northwards, and lying far beneath you and beyond a rich champagne country, where many a comfortable villa nestles among trees, is the broad silver Forth "hasting to pay its tribute to the sea;" and the opposite coast of "the kingdom," with its sea-board sprinkled with old-world fishing towns gleaming white in the sun, and the Ochils forming the back-ground of the picture. Look, again, towards the south, say down South Castle-street, and looming before you is the grand old basaltic rock of the Castle, grim, weather-beaten, and defiant-looking. Take your stand at the head of South Frederick-street, and before you is the steep slope, green from one year's end to the other, and with, probably, some score of sheep browsing peacefully on it, which rises from where the Glasgow mail train is, perhaps, passing at the moment to the Castle esplanade, where the monument to the Duke of York, and the Runic cross-like cenotaph erected in honour of the braves of the 78th Highlanders killed in the Indian Mutiny, break the sky-line. Or, look down South Hanover-street, and you have before you what seems some old Grecian Doric temple, but which in point of fact is the Royal Institution; while rising behind it, far up the steep, are the towers and crocketed pinnacles of the Free Church College; the pepper-box turrets, dormer windows, and gilded crest-ridges and vanes of the Savings Bank, and the exquisite perpendicular spire of the Victoria Hall. Look yet once again, down South St. David-street, and you see that marvel of modern Gothic art the Scott monument; and behind it, but a little to the east, the graceful open lantern of St. Giles's Cathedral, rearing itself, as it has done for two centuries, airily over the lofty gables of the Lawnmarket. The street terminates at either end in a spacious square of palatial-looking buildings, with gardens in the midst. From among the trees in St. Andrew-square, that at the east end, rises the imposing fluted Doric column of the Melville monument higher than the celebrated Trajan column, and second in height only to *the* Monument in London; while behind those of Charlotte-square, in the west, towers the majestic dome of St. George's Church, surmounted by lantern, cupola, and cross.

Any one of the seven cross streets gives access to Princes-street, which is a single line of houses built like a terrace, of which more by-and-by, and northwards to a similar terrace, Queen-street, which overhanging a beautiful belt of gardens, looks down upon the Forth. These new streets, all built of the finest free stone, as well as another broad street communicating between the east end of Princes-street and the main road to Leith, were completed about the year 1815. In the same year, with the view of providing a suitable approach to the city from the east, was laid the foundation of the Regent Bridge, which now spans the deep gully or ravine, lying between the eastern extremity of Princes-street and the Calton-hill. The arch of this bridge is 50 ft. wide and 50 ft. high, and is surmounted on either ledge by a species of open screen or colonnade, consisting of a central arch and side Corinthian capitals, supporting an entablature. This screen-work connects with the houses in Waterloo-place, which were built at the same time, and are continuous with those of Princes-street. They are of beautifully polished ashlar stone, and are four stories in height, towards the street, but their foundation being on a level with the base of the bridge, they present the peculiarity of being twelve stories in height at the back. The gable ends facing Princes-street are ornamented with massive columnar ordinances and pediments, taken from the model of the Erectheum of Athens. From Waterloo-place the new road sweeps round the shoulder of the hill, and the Regent, Carlton, and Royal terraces, erected on the slope of the hill in segments of circles, together with the classic building of the High School, the castellated prison, and the numerous monuments, have a very striking and imposing effect. But in the year 1801 a further extension of the New Town, northwards, had been projected, and commenced upon a very similar plan to that of Craigs. The new parallelograms of streets were laid down on the sloping ground, to the north of the Queen-street gardens. They consisted of a terrace in front and rear, a large central street (Great King-street), two intermediate narrow ones (Northumberland and Cumberland streets), and cross streets in continuation of those intersecting George-street. They were completed about the year 1826, and between them and the Forth have since sprung up innumerable villas and mansions, embosomed among trees.

But this was not all, for in the first quarter of this century the Modern Athenians seemed to have been imbued with a veritable mania for building—a species of *cacoethes ædificandi*. The years 1823, '24, and '25 witnessed the erection upon the Earl of Moray's property of Drumsheugh, which lay between the western confines of the new city and the Water of Leith, of a series of superb and stately crescents, places, and circuses, each with its private garden or pleasure-ground, constituting the now aristocratic *quartier* of the town. Trees, shrubs, and green sward are met with unexpectedly at each corner of a street you turn, and are, in our opinion, in a clime where shelter from a burning sun is but seldom desired, infinitely preferable to long lines of trees planted at regular intervals, such as are met with on the boulevards of continental cities.

Nowhere in the world, not even, we believe, in the much-vaunted Salt Lake City, is the *rus in urbe* so thoroughly realised as in Edinburgh. How delightful it is in spring,—

> "The bonny spring time,
> The only pretty rank time,
> When birds do sing,
> Hey ding-a-ding!"

for those groves are then resonant with the voices of many a feathered songster. The lawyer hurrying to the Parliament House, the merchant to his shop, and the clerk to his office, alike stay their steps to listen to the melodious warblings of the thrush or the clear notes of the blackbird, while the laggard youngster "creeping like snail unwillingly to school" mimics the "wee, wee drunken soo-ie" of the chaffinch. In the midst, too, of the New Town, the crows and jackdaws have established their abode. Here are several rookeries perched on lofty trees. There, higher than the house-tops, sits a staid solemn old gentleman in black:—

> "He sees that this great roundabout
> The world, with all its motley route,
> Church, army, physic, law,
> Its customs and its businesses,
> Is no concern at all of his,
> And says—what says he?—Caw."

In 1832 the deep and rocky ravine, through which brawls the Water of Leith, was spanned by a magnificent stone bridge, 447 ft. long and 39 ft. broad. This was one of Telford's happiest designs. It has four arches, each 96 ft. in span, two of the piers rising from the rocky bed of the river, and is upwards of 100 ft. in height. The views both above and below bridge are in the highest sense picturesque, and such as few cities can boast of. Looking down stream, we see it wending its way slowly, and forming here and there a tiny cascade over its stony bed, or, when "in spate," roaring headlong on between its confining walls, on one of which is perched romantically a handsome Doric temple, consisting of a cyclostyle rising from a rusticated basement, and supporting a circular dome, within which is a colossal statue of Hygeia, appropriately placed over St. Bernard's mineral well.* Further down is a bridge of two arches, which seems a mere toy, when compared with Telford's, over which the may be seen spires and steeples of Leith, and the island of Inch-Keith, midway in the Frith. On the right bank are beautifully-wooded hanging gardens, crowned by the stately edifices of Randolph-crescent, Great Stuart-street, and Ainslie-place; on the left are equally stately buildings, but without the gardens. Above bridge, in the midst of the old-fashioned rural village of the Dean, with its quaint crow-stepped houses picturesquely huddled on the precipitous banks, the river rushes over a weir, and falls a height of some 10 ft. or 12 ft. There, facing you, is the palatial quadrangle of Donaldson's Hospital, a royal-looking Elizabethan structure of pure white stone, and its pretty little Gothic chapel abutting on its northern façade; while on the right bank, above the "tall ancestral trees" of the Dean Cemetery, are the two open towers of the Orphan Hospital. Looking from your stand-point westwards are seen rising the walls of the Fettes' Institution, now in course of erection, one of those numerous eleemosynary buildings in which Edinburgh is so rich, and which promises to outstrip all its rivals in architectural effect and beauty, Heriot's Hospital alone excepted.†

It will surprise no one, probably, to learn that this building mania produced a commercial crisis, the effects of which were felt for many a year afterwards. Indeed, for the second quarter of the century the further extension of the city was entirely arrested, and the builder's occupation all but gone. At the expiry of that time, however, the pendulum had again swung back, and the last fifteen years have witnessed extensive additions made to the New Town, while the unsightly gaps, which had been left on many a half built-on stance, have been filled up. To the west of the Dean Bridge have sprung up Buckingham-terrace and Clarendon-crescent, with its side-wings, so to speak, Eaton-terrace and Oxford-terrace, all handsome ranges of polished ashlar buildings. New streets and crescents have been erected on the lands of West Coates, while the grounds of the Grange have been covered with a number of streets in a style of architecture more novel than praiseworthy. Of these last-mentioned erections we shall have a few words to say, by-and-by, in the way of protest; meantime we keep our rod in pickle.

We have thus endeavoured to give our readers some idea of the distinctive features of the site occupied by the New Town, and of its general plan. Its central portion, as we have shown, consists of a series of regular parallelograms, and there have been those who have argued that the plan does not evince much intelligence or inventive genius in its contrivance. But simplicity in the general plan by no means infers poverty of invention or meanness in the result.

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* See *Builder*, vol. xxiii., p. 326.

† Along the Lang Raw rode Graham of Claverhouse, with his dragoons, after he had retired from the Congregation of Estates in 1689, by Leith Wynd, on his way to raise the Highland clans in favour of the deposed James the Second. It is curious, too, to know that it is not many years since the death of persons who, in their youth, enjoyed the sport of wild-fowl shooting over the site of George-street.

‡ The "Nor' Loch" was drained about the same time as the North Bridge was built.

* St. Bernard's Well was erected by Lord Gardenstone, one of the judges of the Court of Session, from a design by Naesmyth, taken from the celebrated Sibyls' Temple, at Tivoli.

† An illustration of the Fettes' Institution was given in last year's *Builder*.

Greatness of general effect, we grant, can seldom or never be obtained by mere extent of building, by mere length of vista. That must be accompanied by the prominent use of projecting and recessed features in the view, and variety in the elevations; but without symmetry, on the other hand, you cannot have a really grand or beautiful city. Variety there must be, but it is not so much variety in the bulk as in detail that is wanted. Were we even to admit, which we do not, that streets laid out in formal parallelograms must of themselves be somewhat monotonous and soulless, there is enough in the natural features of the scenery in and about Edinburgh to counteract the effect.

But street architecture to be effective must have a certain massing of parts, and possess variety of ornament in its component edifices. And here it was that the architect of the first portion of the New Town erred. Each one of his houses was the counterpart of its neighbour—of one figure and elevation. They all consisted of three stories of polished ashlar, the first being rusticated, with attics, and a sunk area in front, enclosed by an iron railing. A few of the doors were ornamented with a shallow portico, so shallow as to be neither useful nor effective in appearance; but the windows were for the most part little more than oblong glazed apertures—a lintel of a single stone laid across square-cut jambs. A plain cornice terminated the wall, whence a high-pitched slated roof rose, since broken in each house by one or two dormer windows, constructed like oriels, and with gablets running into the roof, but clumsy and inelegant, and by one or two glazed openings to light the garrets. Most of the streets of this portion of the New Town have undergone such changes that, were the architect to come among them again, he were scarce likely to recognise them; but others still remain in their pristine state, and it cannot be denied that they produce a feeling of depression in the observer.

Beyond a doubt Craig had no great taste for the picturesque in architecture. The sky-line does not seem to have entered into his calculations at all, and so all his houses were of one uniform height. He had no idea that chimneys might be made to vary the outline of the roof, and give lightness and elegance to the composition. Vents had to be found for the escape of smoke, but that was all, and so he surmounted the gable of his houses with a clumsy stack of chimneys, each surmounted by its brick-red can. No attention was paid to grouping the objects in the foreground, such as the pavement, the area railing, and the door-steps, all of which, when properly contrived, should swell out the area of the base, and help in the appearance of structural stability.

The houses erected by Craig are of two classes,—self-contained houses and flats. A self-contained house is the whole tenement from top to bottom, to which entrance is gained by an outer door on the street floor. A flat is a house occupying no more than a single story of a tenement, with its door opening into a staircase common to the other flats or stories of the building. This most convenient arrangement, enabling persons with a limited income, or desiring a comparatively small establishment, yet to reside in the better parts of the town, must be familiar to those who are acquainted with Paris and other Continental cities. The first flat is *au premier*, the second *au second*, and so on. The Edinburgh flats, however, differ from the Parisian in this respect, that no *concierge* is required. The entrance from the street to the common stair is guarded by a door, at the side of which are placed name-plates and bell-handles, which enable the visitor to communicate with the inmates, who, without coming down stairs, can "pull up" the outer door by means of a chain working over a pulley, while the inmates can admit themselves by means of a check- or pass-key.*

The accommodation of one of these self-contained houses is considerable. Access is obtained to the front-door by a flight of steps and landing-place, which bridge across the area in which is the sunk story. The lobby is generally spacious, and well-lighted by a segmental fanlight or kind of *entresol* above the door, and occasionally by two narrow lights on either side, from which open the dining-room, giving upon the street, and the library or business-room and butler's pantry at the back. On the sunk or area flat are the kitchen, scullery, wash-house, and one or two servants' bed-rooms. The second story contains the drawing-room, which ordinarily extends the entire breadth of the house, and is lighted from the street by three windows. To the back are the withdrawing-room and a small bedroom. The third is the bedroom-story, while sufficient space is found in the attics of the roof for sleeping accommodation for the servants, store and lumber rooms. From the areas in front open cellars beneath the pavement useful for storing coals, ice, &c. At the back of the house is a small garden or green, at the extremity of which are a coach-house and stables arranged as a mews. The apartments have lofty stucco ceilings, and are well lighted by good-sized windows. The doors and window-shutters are panelled, wainscotting generally runs round the lower part of the walls, which at the top are ornamented with a plaster cornice. Most of the rooms—at any rate, the public rooms—have spacious fire-places, with marble mantels supported by jambs of the same material. So far, well. But in Craig's time the domestic use of baths was but little known in Edinburgh, and they are accordingly not found in the houses erected by him, unless where they have been subsequently introduced. The conveniences, too, are often few in number, and sometimes so awkwardly situated as to deprive the principal room of its amenity, or they are placed in such a situation as to have little or no means of ventilation. These observations apply *à fortiori* to flats. Before we are done we propose to say something of the cognate subjects of the drainage, sewerage, and water-supply of the New Town. Meanwhile we leave this somewhat unsavoury subject, recommending to the attention of those more particularly interested in these matters the valuable work undernoted.*

Few of the houses in Princes-street remain as they were built; the most of them—all in the east division—have been converted into warehouses, shops, club-houses, hotels, or insurance-offices, the proprietors or tenants of which have adopted the style of architecture and variety of elevation which seemed to them best to suit their own tastes and requirements. The presiding genius over these many alterations and additions, if you admit his existence, must needs have held with the melancholy but philosophic *Jacques* of Shakspeare's "As You Like it," that "motley 's the only wear." In styles, the Grecian Doric, the Grecian Ionic, the Venetian, the Palladian, the Gothic, the "nineteenth century Mediæval," and the modern French, are all represented. Motley, in very truth; and yet the general appearance of the street is, on the whole, eminently satisfactory. Here and there are veritable abortions—sores to the least-educated eye, where the surroundings have been utterly ignored, and moulding and cornice abruptly cut off,—but these in time will doubtless be weeded out. But the site of this street, or, rather, terrace (a mile in length), is superb. Here and there may be blots of bad taste, but, at any rate, there is no sham; the masonry is at least solid and substantial. There are no mushroom buildings run up with stuccoed and meretricious fronts, nor can it be said of them, that "things are not what they seem." While Nature has done her best, Sculpture and Statuary have been invoked to lend their aid in the embellishment of the street, Mr. Steele, F.S.A., the greatest of living Scotch sculptors, having furnished no less than six colossal statues, in bronze, freestone, and Parian marble.

* This arrangement is of comparatively recent introduction,—certainly within the last forty years. The same observation applies to the dormer windows in the roof.

* "Report on the Sanitary Condition of the City of Edinburgh," by Henry D. Littlejohn, M.D., Medical Officer of Health for the City. 1865.

THE WORKING MEN'S CLUB AND INSTITUTE UNION.

AFTER much blundering philanthropy, and some recent making of political capital out of the working-man, the right way seems to have been at last found of enlisting efforts of the numerically preponderant section of the community towards that advancement of the social condition which all classes may be said to need. In this movement it is scarcely possible to overestimate the importance of Working Men's Clubs as they may be, or as they are. The report presented to the fourth annual meeting of the Working Men's Club and Institute Union, and the proceedings on Tuesday last, afford reason for much satisfaction; and it is only needed that attention be now given to the published explanations of the Society's aims and operations, to ensure these latter being understood and approved by those who would promote objects which are those of the Union, or would benefit by the realization of them. Hitherto the Society has laboured against a considerable amount of misapprehension, both on the part of the upper and middle classes, including employers of labour, and on the part of the working-men who belong to trades-societies. Thus it has been supposed that the working-man's club would tend to draw men away from their homes,—the directly opposite tendency being confidently looked to by the promoters of the club-movement, and being shown by experience. Thus also has it been put forth that the operations of the Union would not tend to induce self-reliance, and that the clubs ought to be self-supporting,—the principle maintained by the Society being that the clubs should be so supporting, whilst however mutually aiding, and being during the time of their gestation and probation not shut out from the lessons of experience in the establishment of clubs, and from the obvious advantages of a common centre in London. Thus it has been supposed by those who, not intemperate men, were under no necessity for giving up beer, that the movement was part of that of the temperance-societies. Thus again, as by the leaders or members of trades-unions, it has been assumed that the operations of the Working Men's Club and Institute Union tended rather to the advantage of the employers than the employed. The truth is that the work of the Union is entirely limited to the removal of the necessity, almost, under which the working-man may be said to have been, of resorting to one sort of place for his social intercourse, and for his transaction of business of his calling,—including the search for employment,—that is, a place where he might be induced to expend his earnings for the mere "good of the house," or not always for his personal comfort, leaving out of consideration his family. Antagonistic to trades-unions, the Working Men's Club and Institute Union does not attempt to be: on the contrary, it would wish, when its machinery is complete, to provide the Trades and Friendly Societies with places where their ordinary meetings could be held; and where also, as common ground, the meetings in cases of dispute between employers and employed might take place. Antagonistic it is not, even to the public-house, only inasmuch as it puts prominently forward the conclusion which is that of working-men themselves, that removal of the temptation may be necessary in order to cope with the evil of intemperance, and inasmuch as it sees the truth of what has fallen from every one who has studied the subjects of pauperism, insanity, and crime, that the great mass of the misery and evil which is expressed in these three words, is the result of a habit, contracted, of drinking,—or rather, as working men say they find it, of the good-fellowship,—which, in this country, happens to have had no comfortable place for its manifestation, but that where intoxicating liquors are sold, or no outward sign but the drinking-together. For, we have unfortunately almost nothing in this country that is like the French *café*, to which a man may take his wife and his whole family, and where they may remain as long as they choose, whilst he plays billiards, chess, or drafts; and there are barely two places in all London, where a cup of drinkable coffee could be got. The coffee-houses that are in London are comfortless places; and anything to gratify the eye there, exists not. The West-end parks; and Battersea Park, and Regent's Park; Victoria Park, and Kensington Park; with the gardens of the Temple, and those of the other Inns of Court, afford indeed relief to tens of thousands in summer-time: but even trees, grass, and flowers are not all that is required; whilst there are tens of thousands of working-men's children in London, left, who are at long distances from anything of the sort, except what can be seen through the railings of a square. If we have any imputation at all to offer touching shortcoming on the part of the Working-Men's Club and Institute Union, it is on the score of the Society's having as yet done little in the way of getting the clubs made properly comfortable, and moderately attractive in their appearance internally, and in that of getting them to provide superior refreshment to that which is to be obtained at the coffee-house. In the infancy of the movement there may have been some difficulty in keeping clubs alive at

all; but there can be no doubt, that club-premises should not be below the standard of the public-house in cleanliness and state of repair: we might go much further, and say that the walls, fittings, and furniture should be in good taste, however moderate the outlay upon them. But the refreshment should be more varied, and of a better kind than it is. We believe that good cookery, and the opportunity for obtaining more varied food,—such opportunity as the French working-man has,—would help to diminish intemperance. We would commend the consideration of these questions to the Council of the Union. Wherever a coffee-house, retailing food and refreshment of indifferent quality, can support itself with profit, a club for working-men should be able to flourish,—especially if receiving the members of other clubs affiliated to the Union, when engaged on jobs in the neighbourhood,—as it is proposed that they should be received. The Union should as soon as possible perfect this latter portion of its arrangements: without means of resorting to other clubs than his own, the working bricklayer, or carpenter, at a distance from his home or his club, will have no alternative from going still to the public-house.

The main aim, then, of the Working Men's Club and Institute Union is to provide something which may afford the working-man advantages analogous to those which are supplied by the clubs, as of Pall Mall and St. James's, for the upper classes. But inasmuch as the members of working-men's clubs cannot afford to belong to other institutions, and would not have the same resources away from the clubs, and independent of them, as the upper classes have, it is sought to combine with the working-man's club some facilities for education, besides all possible means of harmless amusement. The particular institutions in question start from a different platform to that of the mechanics' institutions. These last, indeed, are by no means admitted to have been valueless, although it is felt that they have met the wants of a select number of working-men, or a class above, rather than of the general body of "mechanics;" and that after a long day's toil, relaxation of some kind or other is what the majority of men desire. The provision of such things as are to be obtained at a West-end club—food and refreshment, books and newspapers, and social chat—therefore are sought to be provided,—but having combined with them conversational lectures, readings, and musical and other entertainments, to which members can take their wives and families, for the winter months, as well as opportunities for meeting persons of other classes of society; and excursions and out-door games in the summer. But further combined with them are not only discussion and mutual-improvement meetings, but regular classes for instruction, where a sufficient number of pupils can be got together,—as there often can for the French language. In some of the institutions, a small museum may form part of the system. The idea wherefore which in the mind of the Council of the Union, should be sought to be conveyed to the public and working-men by the title of each one of the institutions, is not that of a mere club, or mere educational institution, but of the two as essentially combined; and this explanation may serve to show why the designation of the Union is as it stands. It is not quite so explanatory as might be desired; but there is considerable difficulty in finding a better. In practice, the institutions themselves are variously designated as Club, or Institute, or both, with the name of the locality or other prefix: the actual idea however, in most cases, corresponds with that of the Council of the Union. There are at present about thirty-five of the clubs and institutes in the London district,—some localities as Highgate, Holloway, Islington, and Marylebone, having two clubs each; which circumstance, in one or two of the cases, may be to be regretted. There are about 300 clubs known to exist, including those in the country; and of these about half have been formed under the auspices of the Union in about three years and a half. Those made known to the Council during the past year are 125 in number, or many more than those of any previous year. The number of clubs that have been suspended, or have ceased to exist, since the formation of the society, does not appear to be more than 7 per cent. This may be a sufficient answer to statements that have been made. A commencement has been made in the formation of district-unions, and one already exists for the metropolis. This measure, it is expected, will greatly serve the individual clubs, and abridge the labours of the Council, which so far have been heavy. An appeal has been put forth for a considerable sum of money, preparatory to the establishment of a central or model club, in the metropolis, with a hall capable of containing 500 persons or more, and for the provision of better offices for the Union, and for the meetings of delegates of the metropolitan-clubs forming the district union. In connexion with these provisions, a good central reading-room and a library for periodicals and books specially interesting or pertaining to the working-man, will, doubtless, be found, following the model which there is in connexion with Mr. Twining's museum, at Twickenham.

It would, however, require much space to enumerate all the objects which are collateral or ulterior aims of the Union. The primary object is to establish clubs and institutes of the kind we have mentioned. But other objects, are the improvement of the condition of the people, as well sanitarily as socially,—reformation of that lamentable state of things which was well described by the Rev. Septimus Hansard, at the annual meetings, and by Mr. Solly in saying that there are those in our own island, and of our colour, who require "emancipation" from that condition which causes them "to stand outside your churches and to sit inside your pot-houses."

So far as we can help the work of the Council, it will have our cordial support, as it has had it hitherto. We see in the work much that is calculated not only to elevate the class for which the Union prominently places itself forward, but much also of inkling of a future when the upper classes may have acquired something of which they are now deficient. At present, knowledge of what is most to be esteemed in the character of the working-man, is wanting with other classes: utilization of gifts and qualifications of his that are essential to the well-being of society in the mass, is not contemplated as necessary: the facts of his moral nature and his capabilities are unknown just as much as the exact position from wealth and other advantages of the other classes, is just now incapable of being grasped by the average mind of the working-man.

There is nothing with which the industrious man is so easily disgusted as patronage; and it is not the purpose of the Working Men's Club to afford it. It is thought there are means by which working-men may help themselves. The Council recognise the aptitude at suspicion which prevails as to all efforts like theirs; whilst also they believe that the class has indeed been mis-described in print,—somewhat as mentioned by Mr. Layard at the meeting; and they are confident that till there is more intercourse between classes, there will be the want of knowledge and appreciation of the working-classes, and the mutual distrust. It was however well shown at the meeting, by Mr. Paterson, a working-man himself, that there is a course possible towards the class, that is even better than flattery. Mr. Hodgson Pratt, of the Council, ably set forth that "property of the brain has its duties as well as its rights," being "held in trust for diffusion abroad," and that isolation of classes was one of the signs of a false civilization; that the working-man's use of his time did not contrast so very unfavourably with the use by the man of the upper class, of his time; and that the personal communication and mutual co-operation were essential to all social improvement, general, and of an extensive kind. As one of the steps to these ends, and to the due appreciation of the objects and operations of the Union, we recommend perusal of the publications. The presidency of Lord Brougham, and his appearance on Tuesday, show that he feels the work to be the necessary complement, or supplement, of what he commenced in Mechanics' Institutions; but to the Rev. Henry Solly the great bulk of the work is due, as by him personally it has been done. Lord Lyttelton and the Earl of Lichfield, however, and many others, have been efficient supporters. The names of several ladies in the Council, each of them known to take interest in questions of the *home*, may help to testify that "Working Men's Clubs promote Domestic Comfort," which is the thesis supported in one of the "Occasional Papers" of the Union. In fact, as to the home, the thing must be so. The best husband will be all the more comfortable if sometimes away from it,—not to mention his bringing in the news; and such is far more the case where limited space allows no chance for temper to cool in another part of the place of residence. It was "*worry* aggrawating in a cart," the temper, according to Dr. Marigold; and it must be almost as aggravating in a single room. Do not the police records show this? The great bulk, we fear, of the upper classes expect of the working-man conduct which, had they his disadvantages of home and means of relaxation, would not be theirs.

ANOTHER CHAPTER OF ACCIDENTS.

IN our former paper we purposely omitted all allusion to the death of children by accident. We do not mean to dwell upon the subject even now; yet we cannot help pointing out that in this direction there exist some of the saddest and most easily preventible cases of fatal accidents. It needs no illustration at our hand of the unfortunately too common cases in which children are killed through actual neglect. They are sometimes starved to death, and sometimes burnt to death; ridden over in the streets, and tumbled into the rivers and the canals. It sometimes happens, too, that they tumble out of a window, as the following instance will show:—

"On Tuesday, a child, three years of age, son of John M'Kenzie, residing at 58, Tennant-street, Glasgow, accidentally fell from one of the windows at a height of three stories, and was killed."—*Glasgow Herald.*

Those who have had occasion to pass through the crowded and densely-populated quarters of the principal towns in Scotland, must have observed with horror and dismay the manner in which children are allowed to lean over and play themselves at the open windows of the lofty tenements. The simple precaution of a guard-rod, or a screen of rails or trellis-work, as far as we have observed, is totally unknown, or at least never employed. The parents of course will say they cannot be constantly watching their children; and hence the very common occurrence of such cases of fatal accidents of this sort. As there is no law of coroners' inquests in Scotland, such deaths occasion very little remark, and are the object of no public inquiry. We should not feel at all surprised to find that the death-rate of children in Scotland is about the highest in Europe.

Rising beyond children, we next come to the very fatal type of accidents occurring from boys being put to work involving the charge of horses or machinery, or, as we sometimes read, with indignation and surprise, of railway wagons and goods trains! The following very simple cause of death will aptly illustrate our meaning:—

"CORNHILL.—SINGULAR AND FATAL ACCIDENT.—On Thursday, an inquest was held at St. Cuthbert's Steads, Cornhill, before Mr. J. J. Hardy, coroner, on the body of James Tait, a boy twelve years of age, farm-servant at that place. On Tuesday afternoon, deceased was employed rolling grass with a horse and wooden roller. A little before six o'clock he was seen standing upon the roller, as if looking for the signal to unyoke, and shortly after that hour he was found underneath, as if he had slipped off, and the roller had passed over his body, as it was resting upon his shoulders. The horse, which is a very quiet one, was standing quite still. When the body was taken up life was extinct. Verdict, accidental death."—*Kelso Chronicle.*

Is it not sad to think that a few simple spars across the shafts of this roller would have prevented the boy falling underneath it? The horse, we are told here, was a very quiet one, but what has that to do with the cause of death? The horse could not, we suppose, understand that he carried a dangerous instrument behind him!

We shall now turn for a moment to a class of fatal accidents which are unfortunately cropping up more and more plentifully in the newspaper accounts. We refer to accidents in connexion with iron furnaces, of which the following may be regarded as a fair type:—

"HORRIBLE FURNACE ACCIDENT.—A shocking accident happened at the Holmes, near Rotherham, on Sunday evening. An old man named Turner, was feeding one of two furnaces with ironstone, for the manufacture of pigiron, when a youth similarly employed at the other furnace heard him cry out, and on turning round, saw that the unfortunate man had fallen into the furnace, which was at 'full heat.' An alarm was instantly given, and as soon as possible his corpse was got out—an incomplete skeleton, utterly denuded of flesh, and presenting no likeness to the human form. It is thought that he may have been wheeling a barrow of ironstone, and suddenly lost his hold, and fallen through the feeding-hole, or that he stumbled and fell over a bar at the foot of the hole. There was no reason to suppose that he was otherwise than quite sober, and his shocking death has excited great commiseration."

Just think of this! Either this poor man was in the performance of his duty, or he was not; or perhaps, as it may be delicately suggested, at the moment unfit for its performance. In either case it may be said that he was alone to blame for the horrible sacrifice of his own life. But

we think our readers will agree with us in assigning such a cause of death as this to that division which ought to be placed under the jealous supervision of the State. We speak under correction; at the same time we do not suppose that iron works stand in this relation at present. But if they do, we should very much like to read the report of a Government inspector on this and similar cases; for there can be no manner of doubt but they are most horrible. Our own conviction is, that supposing it to be a necessary business, for example, to ascertain the progress inside of those fiery furnaces, no man should be allowed to run the fearful risk of bending over their brink and looking into them. An ingenious mechanic could easily invent an arrangement of mirrors, or some form of hand-glass, that would answer the purpose without any risk to human life. Need we add, that it appears to be a most imperative duty on the part of all overseers of furnaces to take care that the men are perfectly sober when in the discharge of their dangerous duty. It ought to be borne in mind always that such duties, demanding a severe and constant drain on the respiratory organs, are in themselves more or less the cause of the workmen drinking. Indeed, such proximate causes of mortality as the influence of a man's trade on his death are too much overlooked and neglected by writers on social phenomena. It seems, for example, as certain as any other return of the mortality tables—and far more fatal than most of them—that a number of men, women, and children shall be annually killed in the London streets. This is a well-known fact; and it has already received consideration at our hands. But it is not so well known, we believe,—although it is capable of easy demonstration,—that an equally constant although not so large percentage of human beings perish on the London scaffolds! We shall take the following case as a mild illustration.

"FALL FROM A SCAFFOLD.—On Wednesday last, a bricklayer, named Owen, while engaged with three others on a scaffold, building a chimney, in connexion with the enlargement of Mr. Parish's villa, fell to the ground, a distance of about 18 ft., sustaining severe internal injuries. The accident was occasioned by a portion of the scaffolding giving way. The other three men escaped by clinging to the scaffold-poles. The sufferer was removed home, and attended by Dr. Tipple."

We are not going again into details which we have often given. But we may repeat that most ordinary care and a few of the most simple precautions, would be sufficient to put these scaffold accidents beyond the boundary of the fatal category.

From scaffolds which kill the poor workmen in upper air, it is an easy transition to sewers which are quite as potent in killing people in lower earth. A history of sewer accidents, if properly written, would constitute one of the most interesting features of our chapter of accidents. We need not refer to the celebrated accident at Pimlico, about ten years ago, nor to the conflict of scientific opinion which it occasioned. But here is a case we happen to have at hand, which is, at all events, quite as suggestive as to the causes of death:—

"FATAL ACCIDENT IN A SEWER AT HASTINGS.—On Thursday night, three of the local Board workmen entered the main sewer, near the Albert Memorial, as soon after the ebb-tide as they could get to do any work, in order to clear out the sewer. The evening had been threatening for the thunderstorm. Soon after eleven o'clock the rain came on in a tremendous downpour. The surface-water, of course, soon began to rush into the sewer. Wilson and Lawrence, finding the sudden rush of water, called to Winter, 'Harry, we shall have no more of this; come on.' They made their way through the rushing flood with difficulty, and supposed Winter was following. This he did not or could not do; and in a few minutes he must have been overcome with foul air, or by the water, which filled the tunnel in a very short time. His companions immediately raised an alarm, and every effort was made to release the unfortunate man. At the time the tide-flap of the drain was fastened down, but this was soon unscrewed, and the water let off. The body was found in the sewer at which he had been at work, but at a distance of about 60 ft. northward of where he had entered."

At first sight it might appear that this was in reality a sheer accident. But let us examine the circumstances, and restate the facts in another form. Going into a sewer is exactly like going into a tube. Put a fly into a test tube and seal it up, and it will die in a very short time. Supposing the tube to be filled with pure oxygen, it would still die. But how much more speedy the process would be if the tube were filled with carbonic acid? or the compound gases which we need not specify that are generated in sewers? It does not matter much whether the process of *scaling* be effected by a rush of water or a tide-flap; the substantial effect is the same; and we venture to state as a melancholy truism, that whoever goes into a sewer without providing against a possible flood, or, in fact, a stoppage of the free admission of air, is simply running the risk of certain and immediate death. We may illustrate this principle a little further by a single reference to the prolific class of well accidents:—

"A WELL-SINKER SUFFOCATED.—On Tuesday last, George Steeple, pit and well sinker, High Hoyland, whilst going down a well at the iron-works of Mr. Thompson, Normanton, was attacked with the foul air towards the bottom of the well. He called to his son and another man who were letting him down, to draw him up, which they at once proceeded to do, but, before he got to the surface, he became completely insensible and powerless, and fell to the bottom. An alarm was instantly given, and Benjamin Smith, engine-tenter, courageously descended the well for the purpose of recovering the unfortunate man. On getting to the bottom, he saw from a movement of Steeple's legs that he was not dead, though blood was pouring from a wound in his head. He seized hold of him and tried to pull him into the tub; but before the brave fellow succeeded he himself lost consciousness. In the meantime the people at the top were devising expedients to clear the well of its accumulation of vitiated atmosphere. One means suggested was to pour water down the cavity; and it was fortunate they did so, for, not only did this partially remove the bad air, but, falling upon Smith's face, aroused him from his swoon. *The instinct of self-preservation was now uppermost*, and, without paying any further attention to Steeple, he climbed half-way up the rope, and was ultimately drawn out in a very exhausted and weak state. Further means having been adopted to clear the well, Steeple's body was recovered, but life had then fled."

The instinct of preservation! Alas! would that this instinct should take some definite shape, based upon well-ascertained facts and positive law. There is no fact better known even by ignorant people than that of the deaths which arise from going down wells, and therefore the dangerous risk of doing so; but because the fatal gas is not visible nor tangible, there is no risk more constantly run. We have spirit-dealers licensed by the State? why should we not have carbonic acid-gas dealers likewise licensed? The merest tyro in chemistry knows how to take the simple precaution of lowering a lighted candle into a well before descending. But why should poor George Steeple, who probably never attended a class of chemistry in his life, and therefore knew nothing about the poison of gases, be allowed to commit unintentional suicide down a well!

It would be easy to prolong this discursive matter; but before concluding the subject, we shall ask our readers' attention to one or two cases of *possible* accidents,—that is to say, cases in which the event was, either through foresight or chance, fortunately averted. The first we shall quote is only one instance out of two or three of the same kind which have happened lately; and we only refer to them in order to show that under the present system of our railway administration such possibilities and contingencies may be looked for to increase:—

"An extraordinary escape of a runaway engine, with carriage attached, took place on the North London Railway, on Monday evening, the 2nd instant. It appears that, in *the absence of the driver, a fireman attempted to shunt his engine* and train at the Stratford bridge station without the aid of a pointsman. Having put the engine in motion, he got down and held the points while the train passed over; but before he could regain the engine it had attained increased speed, and proceeded without any one upon it along the Hackney Wick and Stratford branch. The escape of the train was immediately telegraphed to the various stations, and most providentially the line was comparatively clear. The engine rattled over the Hackney Wick Junction along the main line, through Hackney and Dalston Junction. When it passed Hackney, a train for Fenchurch-street was in the station, and Amy, the driver of the engine attached to this train, immediately unhooked his engine, and, crossing over to the down line, started off in pursuit of the runaway engine, and came up with it on the line between the Dalston and Shoreditch stations, and succeeded in coupling his engine to it. Had the escaped locomotive rushed into the Broad-street Station, sad destruction must have ensued. It is most fortunate that there were no trains passing along the main road when the engine ran past the several junctions. The conduct of Amy, the driver, in going in pursuit of the engine is spoken of in high praise."

Now, supposing this narrative of the case to be accurate, would it not occur to anybody that there ought to be some inquiry instituted respecting the duties of this fireman?

Here is a final and crowning illustration which might, but for the courage and fortitude of "a gentleman," have done more than the late Ministers' want of tact to embarrass the Government of the British empire; inasmuch as at a most critical period of our history it nearly deprived us of our constitutional head and sovereign:—

"NARROW ESCAPE OF THE QUEEN'S TRAIN.—On Monday afternoon the Royal train, with Her Majesty and the Royal Family, had a very narrow escape from a rather awkward collision on the Scottish North-Eastern line. The train was due at Forfar at 5·20 p.m., and, *it being understood that the usual precautions for safety* had *been made*, the engine-drivers were proceeding past the station, under the usual signal of a white flag waved from the platform. Some of the company's servants had, however, been engaged about the same time shunting a wagon from one siding to another, and for this purpose they had to pass the wagon across the main line. The wagon and horse happened thus to be standing on the 'up' line, a little west of the station, when the royal train was nearing the spot, and would doubtless have been upon the wagon. *A gentleman standing near fortunately observed the position of matters*, and immediately went between the rails and signalled to the drivers: and the consequence was that the train was almost immediately brought to a dead stand, but not till the distance between the wagon and the royal train was only two or three yards. Her Majesty then came to the window of the saloon, which was opened by the Princess Helena, and the Queen and the Princess stood for some time at the door, and occasionally smiled to the immense crowd of Dundee excursionists who had been on the platform, but rushed to the royal saloon on the unexpected stoppage of the train. The engines were oiled, the wagon removed, and the train re-started, after a delay of fully two minutes."—*Dundee Advertiser*.

On this "narrow escape" we will only remark that it is too much that the QUEEN OF ENGLAND should be called upon to run the risk of her life, by the obstacles which thickheaded railway porters of the "Scottish North-Eastern Railway" seem disposed to create. Where was the pilot engine here? Where were the directors? Such a case of gross, culpable, and criminal negligence has not, in our estimation, occurred for many a day; and we earnestly hope that it may not be repeated!

THE "SORCERY HALL" AND ROCK CARVINGS.

SINCE renewed attention was drawn, in the *Builder*, to the Irish chambered barrow or sorcery-hall carvings in connexion with those on the rocks of Northumberland and Argyleshire, and in the sorcery-hall at Maeshowe, in Orkney, some remarkable carvings, both chambered barrow and rock ones, have been discovered in Ireland, where, indeed, chambered barrows, excelling in interest those of Dowth and New Grange, have been only recently opened, and the carvings therein described.

In the last issue of the quarterly journal of the Kilkenny Archæological Society, there is a paper by Mr. George V. Du Noyer, of the Geological Survey of Ireland, titled, "Remarks on a Carved Rock at Ryefield, County of Cavan," with lithographs of this rock and of one of the cells, or kists, with its stone dish or bason, and carvings, in the chamber of one of the three large cairns which, surrounded by many smaller ones, have lately been opened on the three summits of Sleive-na-Caillighe, in county Meath. The rock carvings at Ryefield, however, appear to us to be of somewhat doubtful interest: they mostly consist of irregular scratchings or scrapings in the forms of rude and simple crosses; and it is admitted that children, who could readily have made them, have been in the habit of using the sloping rock on which they are inscribed, in their amusements, as a slide. The only thing which seems to invest these carvings with any real interest is the circumstance, that amongst the scratchings there are two St. Andrew's crosses, enclosed in squares, and resembling a carving which occurs in one of the sorcery-halls on Sleive-na-Caillighe, only it is more of the lozenge-shape. Even these rock-inscribed squares, however, may have been the work of children.

The carvings in the (lithographed) cell of the chamber at Sleive-na-Caillighe are exceedingly interesting: they are nearly identical in their nature with many of those on the Northumbrian rocks, but there is one such as does not seem to appear on these rocks. It may be described as consisting of the ∧ and ∨, or masculine and feminine symbols of Egypt alternating, but each filled with lines all radiating from, or concentrating to, the apices of the respective angles, while one consists of both conjoined, point with point, much in the way in which our correspondent, Mr. J. E. Dove, symbolized the concentrative or masculine, and radiative or feminine principles of life in conjunction,—



FIG. 2

only instead of assuming the arborescent form, like the similar symbol at New Grange,—



the subdivisions are made by lines crossing the

rays. The alternating angles form a zigzag between them, the zigzag, of course, also consisting of the alternate V and Λ forms. It is beside these carvings, and apparently incised in a similar way, that the crossed lozenge occurs.

On one of the upright stones in the cell, there is a carving which seems to be precisely of the same alphabetical-looking class with one engraved by Governor Pownall, from the New Grange chamber, and with others since discovered on the Northumbrian rocks, all of which have already been referred to in the *Builder*. On the same upright there is also a lozenge-shape within a circle, and on another upright the Λ, or masculine symbol. The general character of the carvings, however, is that of concentric circles, with the cup-like centre;* and in a letter by Mr. Du Noyer, quoted by the Rev. James Graves, in a paper of his, on a carved boulder, in a previous issue of the quarterly journal of the Kilkenny Archæological Society, it is stated that in the chambers of the cairns on Slieve-na-Caillighe, from one of which Mr. Du Noyer's lithograph was taken, there occur a great variety of other forms, such as spirals, single and double, stars of six to thirteen rays, nine-rayed wheels, rayed circles, pothooks, lines with ribbed crossings, a central dot with lines radiating from it, an Ω shaped curve, each loop enclosing concentric circles, "and a vast number of other combinations of the circle, spiral, line, and dot, which cannot be described in writing." Mr. Du Noyer considers that some of this "decorative carving" may have indicated, by its rayed circles, &c., something like a worship of the sun, moon, and stars. There are also, he says, "amongst these carvings what may possibly be emblems of Priapian import;" and he adds,—"with regard to letters, *I find what I believe are short Oghamic inscriptions*; and this is a point the determination of which is of the utmost importance; for up to the present the Ogham letter has been regarded as early Christian, while its occurrence here proves it to be Pagan."

The discovery of these chambers, however, was not made by Mr. Du Noyer himself, but by a friend of his, Mr. Conwell, although it is Mr. Du Noyer who describes them in the letter which Mr. Graves quotes in his paper "On a Boulder with presumed Pagan Carvings at Clonfinlough, King's County." The chief subject of interest and importance in this paper is Mr. Du Noyer's account of these newly-opened chambers, which have no ostensible connexion with the carved boulder at Clonfinlough; just as, in Mr. Du Noyer's own paper, on the carved rock at Ryefield, the chief subject of interest and importance, oddly enough, is the lithograph of one of the cells or kists at Slieve-na-Caillighe, which has nothing to do with the carved rock at Ryefield. From Mr. Graves's paper we find that the name Slieve-na-Caillighe means "the hill of the hag or witch." The range of three summits is nearly 1,000 ft. high; so that this new discovery still supports our suggestion, that many of these pre-historic records may relate to a time contemporary with the people whose traces have been found in the glacial drift which must have covered these traces at a period when the low lands of our island were under water, and the high lands were in many cases islands.

The chambers of the "sorcery-halls" at "the Hill of the Hag" are precisely like those of New Grange and Maeshowe in plan, being cruciform, the shaft representing the entrance-passage, or "transe," and the termination of the arms the small kists or cells. These kists are from 4 ft. to 5 ft. square, and arranged round the central chamber, which, in one instance, at the "chair" cairn, is octagonal.

In introducing his carved boulder at Clonfinlough to notice, Mr. Graves remarks that it may have been from some such carved boulders or rocks that those stones in the New Grange and Dowth chambers which show carvings on sides of them not visible as set up, and not intended to be seen, may have been taken; and there is feasibility in this suggestion, which would indicate, perhaps, a still greater antiquity in certain carved rocks than even in chambered barrows; but considering that the ancients sometimes finished their sacred constructions quite as carefully and elaborately where they were not—as where they were—intended to be visible to the human eye, the remark of Mr. Graves that in this way many of the markings of New Grange and Dowth *are proved* to have been carved before the stones were used for their "present purpose," is, in its obvious though not very clearly-expressed meaning, not conclusive.

The carved boulder at Clonfinlough Chapel, Clonmacnoise, does not to us seem to be a likely one from which any chambered barrow stone could have been made, since its markings rather appear to indicate a period of transition from Pagan to Christian ideas than one preceding those of the chambered barrow or sorcery-hall people. The markings are chiefly crosses, many of them of the ancient Jerusalem form, with bulbed ends to the branches; and some of the forms partially resemble other cruciform carvings at Clonmacnoise, and elsewhere in Ireland. Nevertheless, as Mr. Graves states, the name by which the Clonfinlough stone is known is "the Fairy's stone," which "points to a Pagan origin;" and "no Christian rite was ever performed at the Clonfinlough stone." In a note, too, he adds, that "two remarkable earthworks,—no mean engineering feats in their way,—consisting each of a deep fosse and rampart drawn across the esker, not very far from this stone, are termed 'the witch's hollows.'"

Well, these certainly *are* indications of a probable connexion, in one common Paganism, or pre-Christianism, between the carvers of "the fairy stone," the earth-workers of "the *witch's* hollows," and the builders of the chambered barrow or "sorcery-hall" order of structures; and we are quite well aware, and indeed have are now pointed attention ourselves to the fact, that cruciform carvings are not necessarily of Christian origin, since the cross was a symbol prominently used in pre-Christian times, and in American as well as in Egyptian and other sacred structures of extreme antiquity.

By the way, in a note on some remarks as to the chambered barrow at New Grange, which he calls "the great sepulchral structure," Mr. Graves, in this paper of his, thus falls foul of our correspondent Mr. Dove:—

> "In some recent numbers of the *Builder* the *theory* is put forward that New Grange was intended for magical rites; *or*, as the writer expressed it, was a 'Sorcery-hall.' It is not worth while losing space to refute this baseless theory."

Now, admitting the "theory" that such structures were, or came to be, used for *sepulchral* purposes; *that* no more proves that they were *not* used for religious or magical rites than the fact that Christian *churches* have been used for sepulchral purposes would prove, in some post-Christian era, that such churches were not used for religious or Christian rites. Moreover, Mr. Graves must surely be ignorant of the fact that most of the pre-Christian or Pagan religions were magical, and especially the Druidical; otherwise he would know that even the sepulchral rites which probably attended Pagan burials in these curious cruciform and kisted, carved and basoned, chambers (if they were used for sepulchral purposes), must have been magical rites. That something more than merely and literally sepulchral rites, however, probably took place in just such chambered barrows, appears from the Taliesin or Druidical records themselves, in which the "mystic cells" in the "narrow house under the tumulus," where the Druidical hero and the god Hu were "bed-fellows" in the magical rites connected with mystical death and regeneration, or being "born again," are spoken of; and it is well known that such mystical deaths, burials, resurrections, and regenerations took place in other religions as well as in the Druidical, and that to this day such rites are practised.

It is probable, however, that, as the religious or magical rites performed in the "narrow house under the tumulus" were simulative of death, the repositories for the really dead might be made on the same model, only smaller, and placed in the same localities; and that it is on this account we find so many as nearly thirty smaller tumuli surrounding the three larger ones on the three hag-hill tops. Nevertheless, the remains of skeletons found by Mr. Conwell were comparatively few and fragmentary;—several dozens of teeth, six pieces of jaws, forty-eight bits of skulls, and so on, but no entire skeleton; which, however, is not to be wondered at, even though the dead of the district for generations had been here disposed of; for traces of burning were noticed on all the bones; and, if so, the chambered tumuli were *not* made for holding these dead at all, although the dust of the funeral pyre may have been there deposited.

We have drawn Mr. Dove's attention to Mr. Graves's note, and will now insert the reply to it:—

> "The Rev. James Graves must be a very reckless writer. On a previous occasion, in order to gain a point against the *Builder*, he boldly asserted that Governor Pownall, in speaking of the alleged inscriptions in the chamber at New Grange, 'mistook these markings for *Ogham*s,' although Pownall himself had distinctly said,—'These characters are evidently neither Irish, nor Runic, nor Saxon,' but were, he believed, '*Phænician*:' and Mr. Graves, in order to clinch his argument, and to show his readers that there could be no mistake about it, at the same time said he 'knew full well what Pownall had written.' This astounding mis-statement is quite on a par with that in which he now informs his readers, in the *Kilkenny Archæological Journal*, that the name 'Sorcery-hall,' applied to a chambered barrow such as New Grange, is a 'theory' put forward (by me) in the *Builder*. Mr. Graves, as the Secretary of an Archæological Society such as that of Kilkenny, ought to know better. The name of 'Sorcery-hall,' applied to a chambered barrow such as New Grange, involves no theory at all, far less a theory for which either the *Builder* or I can be held to be responsible: it is a mere matter-of-fact translation, by an eminent Runic scholar, of certain Runic characters, so applied, in an inscription found in one of the precise class of buildings—chambered barrows—to which New Grange belongs. Mr. Graves, the very Cerberus of the Irish Sorcery-halls, must surely know this also 'full well.'
>
> There are minds of a class ever ready to scoff at theory, and ever preferring to be the perpetual bad-men of science, who can only carry facts—the raw materials of theory—to the builders and designers, or theorists, whom they despise because they are utterly incapable of judging fairly of the force and merits of any theory; but as for Mr. Graves, he does not seem even to know the difference between a theory and a fact.
>
> Theory or not theory, however, the 'Sorcery-hall' is not 1,000 miles off 'the Hill of the Hag,' the 'Fairy's Stone,' or the 'Witch's Hollows!'
>
> Is it the Rev. James Graves and his friends alone who are entitled to insinuate witch- or wizard-craft, sorcery, or magic,—for they are all one,—against the localities of the mysterious chambered mounds and incised rocks of Ireland, while he snarls at others merely for having shown them the example?"

There appear to be Ogham inscriptions in the newly-discovered sorcery-halls of Sleive-na-Caillighe, in Ireland; and there are Runic inscriptions in the lately-examined sorcery-hall of Maeshowe, in Orkney, as well as in a similar one in Baffin's Bay. Mr. Graves can no longer boast that, as in the Great Pyramid of Egypt, so in the *Irish* ones, there are no traces of inscriptions. Well may he call the new Irish discoveries, as he does, a "startling find" and a "new light."

Again we must express our hope that a searching re-examination of the chambers of New Grange and Dowth, by help of the magnesium light, will be made by impartial Irish archæologists who have not been bitten by the irrational Vallency-&-Pownall-phobia. Even Sir William Wilde, who is the Rev. Mr. Graves's great authority on this subject, admits that some of the carvings in the Dowth tumulus "very much resemble the Ogham character,"* although Mr. Graves, while denying that any vestige of an inscription exists, or ever existed, either in the New Grange or the Dowth, or indeed, as he puts it, in any of the then known Irish chambered barrows or pyramids, more than insinuates that Sir William is of the same opinion.

* Amongst the relics found in these chambered barrows of Sleive-na-Caillighe there was a leg of a pair of compasses,—as if to warn archæologists *not* to identify such relics, without farther consideration, with the carvers of the chambers; inasmuch as these carvers, in their concentric circled symbols, used no compasses, and could scarcely, therefore, have possessed or been acquainted with such an implement, otherwise they would assuredly have traced their concentric circles with it before carving them out. No compasses were used either in the Northumbrian rock carvings or in those of Argyleshire.

THE COURTS OF JUSTICE COMPETITION.

THE twelve architects who have been appointed to compete for the Courts of Justice plans, considering that the scheme comprised in the instructions contains a great increase beyond the scheme by Mr. Abraham,—the rooms, for example, appertaining to the courts now amounting to 250 instead of about 100,—authorized Professor Scott, their chairman, to apply for an enlarged space, to be purchased, so as to extend the Strand frontage, and meet the additional requirements. The space asked for is at the south-west corner of the site, and it makes the whole site more square in form than it was, and brings a greater frontage to the Strand.

The architects had a meeting with the Commissioners, the result of which was that the request was agreed to on condition that the Treasury did not object, and that the architects would not include any part of Pickett-street in the extended site.

The Commissioners had previously stipulated also that no part of Carey-street should be included in the site; but the allusion to Carey-street was struck out of their minute. In respect to this matter Mr. Scott, in a letter to Mr. Field, embodied in the proceedings of the commission, says,—"I think that there was no general feeling in favour of including any part of

* "Beauties of the Boyne," &c., p. 207.

JAINA ARCHITECTURE, ANCIENT AND MODERN, GOOZERAT, WESTERN INDIA.*

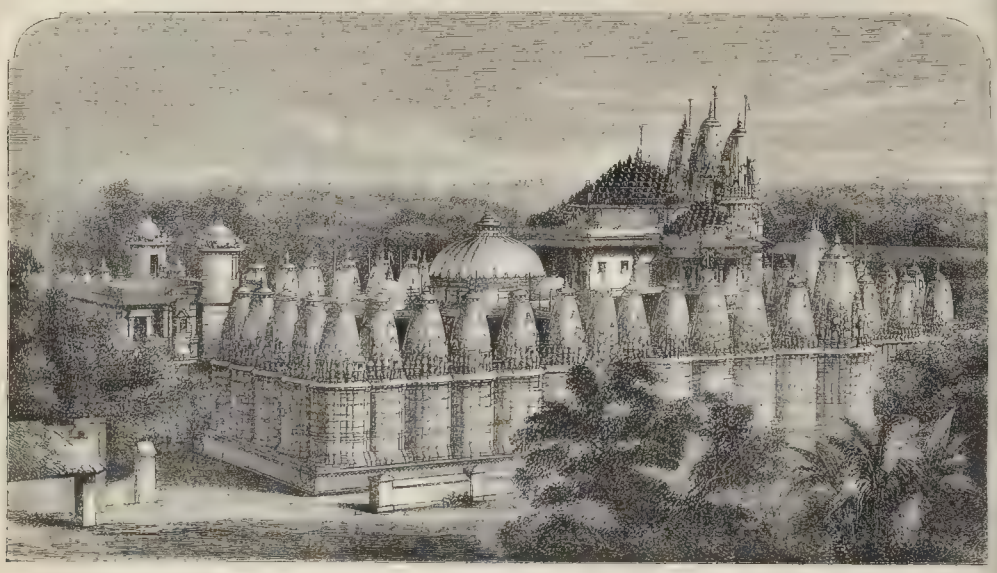


FIG. 3.—*The Temple of Shet Huttising, at Ahmedabad, Nineteenth Century.*



FIG. 2.—*Pillars at Chandrâvuttee, belonging to a ruined Jaina Temple erected in the Thirteenth Century.*

Pickett-street, but there *was*, I am bound to say, a *very strong and very general feeling* of the necessity of adding as much as possible to the depth of the site from south to north . . . . so that in effect no part of the building itself would go beyond the present line of frontage in Carey-street: all we ask is that we may not be compelled *to set our building back* from that line of frontage."

The Commissioners have since obtained the formal approval of the Treasury to their new agreement with the architects.

THE WALTER MEMORIAL.

THE drinking-fountain, erected in Listergate, Nottingham, at the cost of Mr. John Walter, of Bearwood, M.P., as a memorial of his late father, who was first elected M.P. for Nottingham in April, 1841, was dedicated and opened on the 3rd inst. The plans were prepared by Mr. R. C. Sutton, of Nottingham, architect. The structure is of Gothic character, highly decorated, and is octagonal in form, divided into five stages, rising to a height of 40 ft. The diameter at the base is 12 ft. Four basins of polished Aberdeen granite occupy four sides of the lowest stage, the compartments being filled in with suitable inscriptions. Immediately above the basins, on two sides, are medallion profile portraits of the late Mr. John Walter. They are of white marble, considerably recessed under traceried canopies. The eight compartments are finished with gablets having carved finials at the apices, and this stage is surmounted by a trefoil pierced parapet. The flat surface behind the gablets is relieved by diaper work. At the eight angles are buttresses relieved with pinnacles; and these are carried up throughout three stages, and give effect to the general outline. The second stage consists of a series of pointed arches under gablets filled in with tracery, the lower portion containing shields bearing the town arms. The shafts in the first stage are of polished granite, in the second of red Mansfield stone, in each instance with carved caps. The third stage is of diminished diameter. The second stage is connected with the third by a series of steppings. Here the buttresses are again reduced and finished with pinnacles, having carved terminals. The crowning pinnacle rises from a series of eight gablets, surmounted by an ornamental cross. The cost has been about 1,000*l*. A water-trough, for horses, cattle, and dogs, will be placed at the kerb-stone of the flagway surrounding the hospital grounds.

* See p. 517, *ante*.



THE NEW FOREIGN OFFICE, AND THE INDIA OFFICE, DOWNING STREET, LONDON: THE PARK FRONT.—PROFESSOR SCOTT, R.A., AND MR. M. D. WYATT, ARCHITECTS.

THE NEW FOREIGN OFFICE, AND THE INDIA OFFICE, LONDON.

THE new Government offices in Downing Street are now considerably advanced, so that they may be fairly judged of as to the appearance they will present externally. We give a view showing the fronts next the park.

The exterior generally is designed, as our readers will remember, by Professor Scott, R.A., who is the architect of the Foreign Office throughout; while the interior of the India Office, including the Inner Court, which is external work, is in the hands of Mr. M. D. Wyatt. The contractors for the whole are Messrs. Smith & Taylor. The facing material employed is Portland Stone,—the brown, hard, bed; granite for the columns in windows; and granite, marble, and glass, in the shape of bosses and otherwise, in the friezes. This glass, mostly red and green, is provided by Mr. Rust. The various fronts will display a very large amount of carving; the execution of which is placed in various hands. That for the Foreign Office, both inside and out, is being executed by Mr. Farmer; while for the India Office, Mr. Earp is intrusted with it for the inside, and Mr. Philip for the outside. Against the topmost story of the three fronts surrounding the quadrangle, stands, at certain intervals, a series of sculptured figures. Those on the Foreign Office front are emblematical of countries, Italy, France, and so forth; and those on the other part represent the Indian tribes, an Affghan, a Goorka, a Malay, a Mahratta, and so on. These, of which many are already fixed, are in course of execution by four sculptors, Mr. Protat, Mr. Philip, Mr. Armstead, and Mr. Raymond Smith. They will cost, it seems, about 220*l.* a-piece. Niches on the Park side of the India Office, will be filled with statues of Indian statesmen. In the Inner Court of this department, where the greatest elaboration externally is displayed, some of the panels in relief are being carved by Mr. Phyffers. In this court, the friezes of the three orders that mainly form the elevations, are of majolica and mosaic work; the columns are of granite, grey and red; and the ceilings of the corridors surrounding it are of coloured tiles, with patterns in relief, highly enamelled, from the works of Messrs. Maw. The tiles are fixed in this way: plates of iron are secured to the iron joists above, and to these plates the tiles are secured by bolts, the brass heads of which are seen below. Some of the ceilings of rooms on this side will show handsome work in plaster, partly modelled from Indian fruit and flowers.

The Inner Court of the Foreign Office, on the contrary, is quite plain, and not particularly agreeable in aspect. The principal apartments in the Foreign Office are on the one-pair floor, and include the Cabinet-room, 70 feet long and 35 feet wide (which will be vaulted with Dennett's concrete), and two conference-rooms, 108 feet long together, and 30 feet wide. These all communicate, and will afford accommodation for balls and other *réunions*. Over and below these rooms are libraries. The grand staircase here occupies an area of 60 feet by 25 feet. On the India Office side there are four great staircases; but all much less in size than the Foreign Office staircase. In parts will be found some handsome doorways, with columns of marble, and of Devonshire spar. In the stone-vaulted entrances through the India Office from Charles-street, and through the Foreign Office from Downing-street, are columns of one stone, 11 feet high, and yet placed the bed-way of the stone. The vaulting here is handsome; the groins show an incised ornament filled in with red Parian cement. Across Downing-street there will be an arcade, it may be mentioned, with a flight of steps down to the park: there will be a flight of steps also from Charles-street into the park. The loftiest tower on the park side, seen to the right in the view, belongs to the India Office. The Foreign Office tower, though lower by a story, is more bulky.

The hot-water apparatus for the Foreign Office is in the hands of Mr. Rosser; that for the India Office is being put up by Messrs. Baily & Sons. The hydraulic lifts, tanks, and mains for both departments are provided by Messrs. Easton & Amos.

An apartment on the basement has been fitted up by the contractors with hot-plate and other conveniences for such of the workmen as do not desire to leave the premises for meals, but only a few, comparatively, avail themselves of it. The total number of men now employed on the premises is about 1,000. Mr. Sheffield is the clerk of the works for the Foreign Office; Mr. Ruddle for the India Office; and Mr. Harrison acts in that capacity for the contractors. The total cost of the works now in hand may be called about half a million.

The buildings for the Colonial Office to be commenced hereafter will form the fourth side of the quadrangle, and take the frontage of the structure into Parliament-street.

SANITARY LEGISLATION.

A DEPUTATION, emanating from the Metropolitan Sanitary Association, waited upon the Duke of Buckingham (President of the Privy Council), on Wednesday last, at the office of the Privy Council, for the purpose of urging the Government not to abandon a measure introduced under the late Government to give increased powers to the authorities for putting down fever dens, and preventing the overcrowding of houses. This formed the principal subject, but the Bill entitled, "The Artisans' Dwellings Improvement Bill," which provides for the rebuilding of houses pulled down under the other Bill, was brought under notice. The deputation, which was introduced by Mr. Powell, M.P. for Cambridge, consisted of the following gentlemen:—Mr. Locke, M.P. for Southwark; Mr. Torrens, M.P. for Finsbury; Mr. Graves, M.P. for Liverpool; Mr. Godwin, F.R.S.; Mr. Benjamin Shaw, Mr. A. Hall, Mr. Rendle, Mr. Evans, Mr. Pocock, Dr. Sanderson, Dr. Hardwicke, and Dr. Bentley.

Members of the deputation having stated its objects at considerable length,

The Duke of Buckingham said—Gentlemen, I am very much obliged to you for the great amount of information you have given me on this subject, and I am glad to see so large a deputation. With regard to the Public Health Bill, I may say that every endeavour will be made to pass it through Parliament. It will be taken up by the Secretary of State for the Home Department, and I shall be very sorry if anything happens to prevent it passing. There are, no doubt, some provisions which it would be well to add to it, some of which have been alluded to to-day, but I would not supplement in a manner which might endanger the Bill. There is as much in the bills in existence, but the more summary jurisdiction of this Bill will be invaluable. I should not like a single day's delay in this Bill. The other Bill is of very great importance, and a decidedly necessary supplement to the Public Health Bill. The first Bill merely goes to the extent of getting rid of the objectionable houses, and provision must be made for supplying their place. We cannot keep driving our labourers further and further away. The great evil now is that the men are too far away from their work. We know and feel that in the country. I shall be very happy to see the Artisans' Dwellings Bill passed, as a very important supplement to the other, and it has been brought under our notice, but I cannot say more than that it is our wish for it to pass. I do not think it can be in better hands than it has been in, for there is no more difficult task than to pass a Bill through a select committee. If it is brought in by those who have already had it in hand it will meet with every support.

The deputation, after thanking his Grace for the attention he had given, then retired.

PARKSINE AND PYROXYLINE.

PARKSINE is a valuable gift from science to manufactures. An interesting account of it is given in the *Art-Journal* for July, from which we condense a few particulars. Parkesine can be extensively used in fine art, and in the production of articles for useful purposes. The efforts of Talbot, Daguerre, Niepce, &c., in the daguerrotype, resulted in the popular collodion process of photography. A philosophical and practical mind observed that the solid residue left on the paper after the evaporation of the collodion, produced a hard, elastic, and waterproof substance; but the high cost of pyroxyline precluded, at the period of the early discovery of parksine, its production for manufacturing purposes, as its price then reached 130s. per pound; but the inventor of parksine, after years of experimentalisation, has succeeded in reducing its cost to that of less than 3s. per pound. Parksine is composed of pyroxyline and oil. One means of the reduction in price arose from the utilisation of cotton waste, rags, &c., and the admixture for large works of sawings of wood, cork, &c.

The inventor was the first who demonstrated the practicability of uniting colour with pyroxyline, and of producing thereby the most successful imitations of ivory, amber, tortoiseshell, malachite, and many other natural substances. The properties of parksine are, hardness, toughness, and elasticity; it can be moulded, and shaped by pressure in dies, turned in a lathe, cut with a saw or chisel, planed, carved, or engraved, rolled into sheets, inlaid in metal, or converted into a varnish.

The purposes to which it can be applied are infinite. By it can be, and are, produced imitations of the most exquisite gems of antiquity, of priceless cameos in all their minuteness and beauty; ivory carvings from the hand of Fiamingo can be imitated with all the fidelity which characterises the originals, at a minimum of cost; for useful and ornamental purposes there are imitation ivory umbrella and parasol handles, walking-sticks, buttons, brooches, buckles, inlaid work, bookbindings, knife handles, combs, photographic baths, battery cells, and philosophical instruments, incapable of fracture, unacted upon by acids, impervious to water: it realises the flexible glass of the Roman glassmaker. As an insulator of wire for telegraphic purposes experiment has proved parksine has no equal.

Parksine is the invention of Mr. Alexander Parkes, of Birmingham. Its stages of progress are marked by eight patents. Not the least feature connected with parksine is pyroxyline. This principal element of parksine is nearly allied to guncotton, and like this it can rend the hardest rock and propel life-destroying missiles; but by the skill of the inventor it has been deprived of its inflammable and explosive powers. Pyroxyline as a solvent is omnipotent to dissolve all manner of vegetable products, and in this respect it rivals the fabled alkahest or elixir of the alchemists, which was stated to be a universal solvent and to cure all manner of diseases to which humanity was subject. Parksine has no waste; every scrap can be reconverted like metal, reworked and united together; and the various coloured fragments are capable of producing very beautiful combinations of colour.

THE NOTTINGHAM SCHOOL OF ART.

A CIRCULAR has been issued in reference to a scheme for keeping up the interest of students in art-school work, during the long Midsummer vacation: it may be found a useful suggestion to others. Two members of the committee have given the sum of 10*l.*, to be awarded in prizes for work done during the vacation. The prizes will be as follows:—5*l.* for one or more landscape studies from nature, in oil or water-colour; 3*l.* for two or more original designs, for objects of art manufacture; and 2*l.* for a set of at least ten pencil sketches (in outline), from nature, of plant-form, either wild or cultivated.

That the study of ornamental design may receive special encouragement, a prize has been instituted—the Mayor's silver medal,—to be awarded annually to the student producing the best designs for local manufactures.

Mr. John S. Rawle (of the Science and Art Department) is the newly-appointed headmaster of this school, and Mr. H. L. Petty is the secretary. The Nottingham School, considering the new building, class-rooms, school furniture, casts, examples, and library, is one of the first art-schools in the provinces; and the committee, we understand, work earnestly to render the school efficient, especially as regards the application of art to local manufactures.

THE HOME FOR LITTLE BOYS.

THE foundation-stone of the buildings about to be erected at Horton Kirby, near Farningham, Kent, as the future "Home for Little Boys," was laid by her Royal Highness the Princess of Wales, in the presence of a numerous and select assemblage, on Saturday last. The Prince of Wales, who had consented to preside at the *déjeûner* given on the occasion, was also present.

The object of the institution, which was first established at Tottenham in the year 1864, is to afford a home for little boys who have been deserted by their parents, whose natural protec-

tors have become inmates of our gaols, or who, under various circumstances, are disqualified from entering orphan asylums or other refuges. The founders propose to erect school-buildings, workshops and stores, four dwelling-houses to contain thirty boys each, and a residence for the superintendent of the Home. The ground comprises about 19 acres, lying near the village. The buildings have been designed by Mr. T. C. Clarke, architect, and are to be erected by Messrs. J. Gouge Naylar & Son, of Rochester, at a cost of about 7,000*l*. The buildings, when erected, will be a prominent object on the right-hand side of the London, Chatham, and Dover Railway, going to Dover. The school-buildings, which will constitute the most prominent feature on entering the grounds, were selected to take the foundation-stone to be laid by her Royal Highness. It is calculated that, in the main school-room, infants' school, and class-room, 300 children can conveniently be taught, and this is the ultimate number the institution is supposed to be provided for. The main school-room will be 56 ft. in length by 28 ft. in width, and 33 ft. in height; and the building is intended to be faced externally with Kentish ragstone and Bath stone dressings, with a high *flèche* over the centre to take a clock.

The superintendent's residence will stand more in the centre of the ground; and in two long wings in connexion with this building, and accessible by a covered corridor in the rear, are to be workshops in one wing, in which it is proposed to teach the lads various trades; and the other wing will contain the stores requisite for clothes, groceries, and coals, with the bakery, laundry, and drying-rooms. Contiguous to this building a deep well, to supply the whole of the establishment, is being sunk in the chalk: the water is intended to be pumped up by the boys, to a tank to be fixed immediately over the well, and the different buildings will be supplied by high pressure. It is intended to give a good play-ground in connexion with the schools; and play-yards and boys' gardens are to be provided round the dwelling-houses: a portion of the land will be allotted for cricket and other games, the remainder being put under cultivation.

EXHIBITIONS.

The Dudley and Midland Fine Arts, Scientific, and Industrial Exhibition.—This exhibition has been opened by the Earl of Dudley. The exhibition has attracted great interest. It embraces a large collection of objects of art, statuary, pictures, models, machinery, and miscellaneous contributions. Lord Lyttelton, Earl Dudley, the Earl of Dartmouth, and Mr. Gibbons, are the principal contributors of paintings, Earl Dudley's gallery of the great masters being conspicuous.

The Fine-Art Exhibition in York.—The building for this exhibition is rapidly approaching completion. A large number of fixtures have arrived, and the "hanging" process has already made progress.

WATER SUPPLY ON SUNDAYS.

A MEETING of delegates from the vestries of the various parishes took place at the Islington Vestry-hall, Upper-street, Islington, on Wednesday in last week, to consider the best means of obtaining a water-supply for the metropolis on Sundays. Mr. W. Harvey, was called to the chair, and a large number of gentlemen were present. Mr. Rendell, formerly medical officer of Southwark, opened the proceedings by advocating a constant supply of water by the various companies, and remarked that it was a thing necessary for the health, nay, even the very existence of the poorer classes. The various companies, however, urged as an objection to giving a constant supply that the water was wasted, but that he thought should not be allowed to stand in the way, as means might be used to prevent it. He thought the meeting would be unanimous, as they were all agreed on the necessity of furnishing the poor with, if not a constant supply of water, a supply at least on the Sunday equal to any other day in the week. Dr. Liddle thought it was most desirable that the supply of water should be constant, and that they should not be left to cisterns for their supply. As to the waste alluded to that might easily be overcome; and if it was adopted the benefit to the poorer classes would be incalculable. He moved,—"That in the opinion of this meeting it is most desirable that a constant supply of water direct from the main be provided to every house in the metropolis, and that in order to obtain its provision, petitions to the Houses of Parliament be presented, praying for such an amendment of the Metropolis Water Act of 1852 as shall compel the water companies to adopt a constant instead of the present intermittent supply." The resolution was unanimously agreed to, as was the following:—"That in the opinion of this meeting immediate efforts should be made to induce the water companies of the metropolis to supply water to the inhabitants on Sundays, as well as on other days in the week, and that a deputation be appointed to wait upon the several water companies for this object."

HARMONIC PROPORTION.

THROUGH some misapprehension, the figs. 3 and 4 were omitted from the paper on the Elements of Harmonic Proportion, in your issue of last week.



FIG 3.



FIG 4.

You may perhaps be aware that each of the figs. 2, 3, and 4, the square, the circle, and lozenge, represents one limit of the parallelogram, the ellipse, and the rhombus, the other limit being the central right line. The limits of variation of length to breadth, then, of each kind of figure may be expressed by 1 : 1 and 1 : 0. Between which we have the parallelogram, ellipse, and rhombus of mean variation, having their longest to their shortest diameters as 2 : 1, represented by the dotted lines, each being the *mean* or central form of its species or class of figures. The *mean* rhombus being composed of the *mean* acute and the *mean* obtuse angles, which on referring to fig. 5, will be found to be the angles of 45° and 135°.

W. C. T.



FIG 5.

MAPS OF THE WAR.

MR. WILD has, almost of course, published a Map of the Theatre of War (we wish we could say the late war), in Central Europe; also "A Strategic Map of the War in Central Europe and North Italy," both clearly printed, and comfortable documents to refer to. *One* of the advantages of war is, that it teaches people geography. Messrs. Bacon & Co. also have published a cheap and clear map of Central Europe. By this observers will be reminded that while Prussia has, in round numbers, 107,000 square miles of country, and 18½ millions of people, Austria has 248,000 square miles of country, and 35 millions of people!

THE VENTILATION OF SEWERS.

THE directors of the Woolwich Equitable Gas Company, having allowed a connexion to be made with the chimney-shaft at their works in Harden's-lane, for the purpose of ventilating the main outfall sewer passing through Woolwich, Mr. George Hudson, the representative of this parish at the Metropolitan Board of Works, at whose suggestion the ventilation has been effected, last week invited the members of the local board of health to witness the operation of the ventilating process. The iron pipe which connects the main sewer with the shaft at the gasworks is of 12 in. internal diameter, with flanged air-tight junctions. The water-gauge attached showed at the time of the visit a pressure varying from two-tenths to three-tenths of an inch; but, when all the retorts are at work, and the draught in the shaft more intense, the pressure is equivalent to half an inch. According to the *Kentish Independent* the results were very satisfactory. "The shaft erected at the gasworks is the most effective of all the ventilating shafts, because the fires are in action night and day, and there is consequently no interruption to the strong current thus induced. Others, however, are in action at the tall shafts of the steam factory and the saw-mills at the dockyard, and are working exceedingly well. It only remains to complete the system that the War Office should consent to similar shafts being erected in connexion with the furnaces in the Royal Arsenal. If this be done, there will be ample provision for the ventilation of the entire system, so far as the towns of Woolwich and Plumstead are concerned."

NEW FEVER HOSPITAL FOR MANCHESTER.

A REPORT has been received by the local Board of Guardians from Mr. Rawlinson, C.B., on the proposed fever hospital, which Mr. Rawlinson recommends should be on the pavilion principle. Towards the close of the report he says:—

"In the preceding report I have stated that the first requisite in any hospital wards is fresh air. I have also on a former occasion stated that fever cases may be more successfully treated in the open air than in defectively ventilated buildings, whether these are private houses or hospitals. My first lesson in the advantages and uses of fresh air was acquired in the summer of 1838, during the execution of the Bisworth contract on the then London and Birmingham Railway. The works were being pressed on night and day by double gangs of men: all the adjoining villages were crowded: small-pox and fever broke out; and, as the beds could only accommodate one set of lodgers, many men with small-pox pustules thick upon them, and others in fever, were forced to find accommodation, or rather shelter, beneath open sheds in the fields, their only bed a portion of straw, their diet bread, their drink water, or at times milk. In no instance did the fact of a death under these conditions become known to me; whilst in the cottages I know that the mortality was great. This was a practical lesson involuntarily carried out on a great scale, but with complete success. . . . Since the year 1838, I have had experience of civil and of military hospitals on a great scale, and the result of my learning has led to this conclusion, namely, that fresh air is the prime requisite in hospital wards, as also in dwelling-houses and workshops, or, in fact, wherever men are placed for any length of time. I have also by most painful experience been forced to the conclusion that, practically, numbers of otherwise well-educated persons are ignorant as to the necessity of pure air, or that, whilst in health, they forget the fact that overcrowding and defective ventilation generate poison of the most subtle character."

VARYING VALUATIONS.

IT is to be hoped that difference of opinion may not alter friendship among the valuers of Lancashire. Seldom do we notice so great a discrepancy as in the case of the arbitration to assess the value of lands, waters, &c., in the cause of Hoare *versus* The Corporation of Bolton. Mr. Hunt, as assessor, has heard evidence for three days at the Queen's Hotel, Manchester; and the following are the amounts sworn to by the valuers:—

William Wilson	£70,322	1	2
T. Fisher	70,138	10	5
R. J. Lawton	69,845	0	5
T. Statter	57,837	18	0
W. Dorning	11,122	15	0
Thomas Thompson	10,236	17	6
James Farrar	9,317	19	4
J. G. Blackburn	9,067	3	7
W. Radford	9,319	6	10

CONTRACT-WORK DESTROYED BY FIRE.

APPLEBY, BROTHERS, ENGINEERS, *v.* MYERS.

IN the Common Pleas, before the Lord Chief Justice, Mr. Justice Willes, Mr. Justice Byles, and Mr. Justice Smith, judgment has been given in this case. The plaintiffs had contracted to build a steam-engine, boiler, hoisting machinery, and steam drying apparatus for defendant, in his factory at Southwark-street, and the work was far advanced towards completion when a fire took place, and destroyed what had been done.

The judgment was to the effect that, under the circumstances, the plaintiffs were entitled to be paid the value of the work done; which value it was assumed from the form of the question that the parties were content to estimate upon a due proportion of the contract prices.

It was held that, when the plaintiffs agreed to expend their materials and labour on build-

of the defendant, of which he was to retain ossession and control, it was reasonable to that it was contemplated that the subject hich the work was to be done should be pro- and kept at his own risk and peril; and asonable to suppose that the parties intended if a fire happened, in no way attributable e plaintiffs, the defendant should be set free the obligation under the contract. Judg- was therefore given in favour of the plain- o the extent of the work done.

PROVINCIAL NEWS.

idstone.—The works connected with the -needed improvements to the corn exchange ngs have been commenced by the con- rs, Messrs. Naylar & Son.

ucester.—The mayor has laid the founda- tone of the new Worcester Ophthalmic tal, in Castle-street. The builders are s. Collins & Cullis, of Tewkesbury.

LOCAL BOARDS' BYE-LAWS.

case, "Hattersby & Others *v.* Burt," an appeal a conviction which had taken place under bye-laws t the Keighly Local Board, has recently been heard Court of Exchequer, and an important point has ecided. The appellants gave a month's notice of ntention to erect a new building, but commenced d within the month, and before the plans had been ed by the Board. Consequently they were convicted ffence under the bye-laws. The Court held that roceedings were vexatious, inasmuch as the plans ubsequently approved of, and gave judgment for ellants, Chief Baron Pollock remarking, "that the nts fully intend to build in accordance with the , and they merely take time by the forelock. This is a restriction on a man's common law right, and ot receive a vexatious construction." Baron said, "The proceeding is wrong altogether. The given is to make bye-laws as to the structure of d the insufficiency of space, and for the observance ame to make provisions as to giving notices, and osit of plans, the inspection by the Board, and the g, altering, or pulling down of buildings that ene the bye-law. It seems to me, that a man compelled to deposit plans and give notices; but no power to prevent him beginning his building t day, subject to his liability to have it pulled down trivene the bye-laws." The counsel for the appel- s not called upon to argue their case.

TROPOLITAN BOARD OF WORKS.

e last weekly meeting of the Board, Mr. Bazal- resented his report on the cost and progress of mes Embankment, &c., works. It was as fol-

"THAMES EMBANKMENT (NORTH).

tract No. 1, between Westminster and Waterloo .—To the present time the works that have been out comprise about 3,500 ft. in length of timber, nd iron Gibsson dams; 2,075 ft. of the Low Level rying in size from 7 ft. 9 in. to 8 ft. 3 in. in r; 1,767 ft. of subway for the reception of gas r mains; 2,625 ft. of 4 ft. brick sewer, for the tion of the smaller drains, &c.; and 234 ft. of the sewer. The Westminster Steamboat pier for a f 320 ft. has been brought up to a general level of ove Trinity high-water mark, and the screen wall apet by and leading on to Westminster Bridge, steps from the lower to the high level are in f formation; 720 feet of the river wall adjoining en brought up to heights ranging from 1 ft. 3½ ft. above high-water mark. The sub-structure tended new York gate has been executed to a 4½ ft. below that mark, and 677 ft. of the adjoin- have been formed up to levels varying from elow high-water mark. The Charing-cross wall at pier for a length of 45 ft. has been constructed, ft. of the wall eastward of the Charing-cross ave been formed to levels varying from 2¼ ft. to low the same stratum. Excavations have been d materials have been filled in behind the ment generally to the extent of about 447,900 rds. The approximate value of the work done, , and plant upon the ground, up to the present 18,549*l.*, of which 7,636*l.* represent the progress st month.

ct No. 2, between Waterloo Bridge and the nd of Inner Temple-gardens. The coffer-dam tire length is completed, the low-level sewer and ave been completed for a length of 1,420 ft., and -wall for the same length has been brought up to e high-water mark. The approximate value of e of the work done, and of the materials and n the ground, was, up to the 25th of March last, or 187,239*l.* to the present time, 5,485*l.* repre- he progress made in the past month.

ct No. 3.—The drawings for this contract are ing completion, and this work will complete the ent to Blackfriars Bridge.

THAMES EMBANKMENT (SOUTH).

ct No. 1, Between Westminster Bridge and Gun- ey, Vauxhall.—The works executed by Mr. to the present time comprise the driving of 45 ft. of the dam, and 2,280 ft. of the staging, to ge depth of 15½ ft. About 227,878 cubic feet of 1,300 cubic yards of clay puddle, and 158 tons of wrought iron, in shoes, ties, bars, bolts, &c., have d in this part of the work. Within the dam, 900 cubic yards of earth have been dredged, 27,400 yards excavated, 27,700 yards filled in, 700 yards of concrete deposited for the foundation of the river-wall, and 12½ loads of brickwork laid for the head walls to the land arches of Westminster Bridge. The total approximate value of the preliminary works executed to the 25th of March last is 27,000*l.*, or 39,000*l.* to the present time, of which 11,000*l.* are due to the past month's progress.

After some discussion as to the progress of the contracts, the report was received.

LONDON CONGRESS OF THE ARCHÆOLOGICAL INSTITUTE.

THE meeting will commence July 17, and terminate July 25. The presidents of sections are—Primæval Antiquities, Sir John Lubbock, bart.; Antiquities, Mr. Samuel Birch; Architecture, Mr. A. J. B. Beresford-Hope; and History, the Dean of Westminster. The following is the general programme:—

Tuesday, July 17.—The Inaugural Meeting will take place in the Guildhall, at 12 noon. After the meeting, parties will be formed to visit the principal objects of antiquarian interest in the city. *Soirée* at the Deanery, Westminster, at 8·30 p.m.

Wednesday.—Meetings of Sections at 10 a.m. Excursions to Waltham and Eltham. *Conversazione* at the South Kensington Museum, to which holders of the Institute tickets are admitted on specially favourable terms. Evening Meeting at 8·30 p.m.

Thursday.—Meetings of Sections at 10 a.m. In the afternoon, a lecture upon Westminster Abbey, in the Chapter-house, by Mr. G. G. Scott, who will afterwards accompany the visitors in an examination of the structure. Evening Meeting at 8·30 p.m.

Friday.—Meetings of Sections at 10 a.m. At one o'clock the Tower of London will be visited, where Mr. G. T. Clark will discourse upon the building. *Conversazione* of the Royal Institute of British Architects, Conduit-street.

Saturday.—Excursion to Windsor and Eton. At Windsor, the party will be received by the Dean, and, by permission of her Majesty, will be enabled to inspect some remarkable portions of the early structure. Mr. J. H. Parker will point out the chief features of the castle. At Eton, Professor Willis will accompany the visitors over the college.

Monday.—Meetings of Sections at 10 a.m. In the afternoon, St. Paul's Cathedral, Lambeth Palace, and other objects of interest will be visited.

Tuesday.—Meetings of Sections at 10 a.m. Excursion to Hampton Court, where Mr. George Scharf will discourse upon the paintings.

Wednesday.—Meeting at 10·30 a.m., for reading memoirs. General concluding meeting.

ALL ABOUT HORSES.

AMONG much interesting matter in the *Builder* of the 30th ult. (when is the *Builder* uninteresting?), there was a small paragraph of half a dozen lines in the "Miscellanea," which attracted my attention especially: I allude to one announcing the "Extension of Hair-brushing Machinery to Horses." I have for two years suggested this thing in twenty quarters which I thought likely to give it practical effect, but I feared without success. Whether my humble self has been the cause of the Pendleton omnibus establishment adopting the system, by which (as the paragraph says) a man can clean, in a day, thirty horses, with less fatigue than he formerly cleaned twelve (and, I am sure, much better), I cannot say; but, at any rate, I am glad to see the success of the innovation.

Grooms, sir, are perhaps the most ignorant men in the country. It is very hard indeed to induce them to adopt a new practice, however proper that new practice may be. Much as I can see to amend in our London cabs and omnibuses, much particularly in their stabling, which is often disgraceful, yet there is some reason in their proceedings, and I do hope their reasonable proceedings will eventually have good effect upon the body of grooms in this country. Now, what can be more absurd, more cruel, than the using of bearing-reins? You never see a horse belonging to the General Omnibus Company, or a horse belonging to a cab, with a bearing-rein. I once remarked to a cab-driver, that his horse had no bearing-rein, just to hear what he would say. "Oh, sir, my oss ain't rotten; he don't want his 'ed tying on," was, with a good-humoured smile, the immediate reply. Listen to what the author of "The Horse in Health and Disease"* says anent the bearing-rein:—

"I am anxious, in this place, to add my anathema against that inhuman instrument of torture, the bearing-rein. It is not less detrimental to the utility of the animal than it is replete with agony to him. It must have been invented by a savage, and can only be employed by the insensate. Whence the benefit of unbearing a draught-horse when going up hill? Because the head can then be thrown into its natural position, and materially assist by its weight in drawing the load. If it is beneficial to loose the head at that time, it must also be so on other occasions. Look at the elongated mouths of the unfortunate animals thus so wantonly abused—torn by the bit in their unavailing efforts to overcome this truly barbarous instrument. What produces that dreadful disease, poll-evil, but the action of this cruel strap, constraining the head during the violent exertions of the animal, producing inflammation and ulceration of the point upon which it articulates with the spine? Poll-evil, so generally supposed to originate from blows inflicted on the part, is attributable alone to the gagging-rein. I never saw a horse used entirely for the saddle attacked with this affection. In order to obtain momentary relief from the torment inflicted by the bearing-rein on the poll and mouth, the poor creature is compelled incessantly to toss up his head." And so on.

Oh! ye daughters of the land, ladies who compel your carriages to wait at theatre, and shop, and house of acquaintance for the hour together, think what agony you might prevent by a little thought for the dumb beasts who serve *you* so well! *Never allow a bearing-rein.*

Now, sir, I have no desire to do too many things at once, and I fear my next suggestion, that horses should have some shade from the fierce sun during their work, will appear as ridiculous as did the man who first walked down the street with an umbrella in the rain. How the people jeered! The tale is old, sir, and *now* the people jeer when a man walks down the street in the rain *without* an umbrella. The horse shade will come some day, and in the hot summer time we shall get double the work from our horses at half their present sufferings.

Blinkers I am an advocate for. They keep dust out of the eye, and protect it from accidental (or deliberate) strokes of the whip. And a horse without blinkers is continually throwing the eye back to see what is coming after, instead of before to pick his course safely. You say, surely no man will deliberately strike his horse across the eye. Sir, I saw a human devil driving a hardworking blind horse in a van near the London Docks not twelve months ago, and he with undoubted deliberation, with a heavy cart-whip, hit the poor beast over the eye twice; and, on my remonstrating with him, he said he hit him on the eye because it was "a nice tender place." Pressing work compelled me to forbear summoning him, but he richly, richly, deserved it. There is a fruitful field for the Society for Prevention of Cruelty to Animals about our docks and our contractors' works.

This horse question has many more phases, but my letter has already taken up too much of your space.

W. D.

P.S.—Just one word more, and that to the brushers by machinery of human heads of hair. Do not brush hard over the sutures with your revolvers, or you *may* do injury to the brain.

BOMBAY MARKET DESIGNS.

SIR,—In reply to a letter signed "A Barrister," that appeared in your issue of the 7th inst., permit me, on behalf of the committee, to state that in no case was a prize awarded to any design estimated by eminent engineering firms to cost more than from 50,000*l.* to 60,000*l.*, and that the same authorities represented that considerable reductions could be effected in the estimates by modifications in the ornamental and other non-essential portions of the designs.

J. S. TREVOR, Captain Royal Engineers.

SHAM ARCHITECTS OF ANOTHER SORT.

SIR,—The red-tape gentlemen seem very much annoyed with Sham Surveyors. As a practical man, I should like to know whether we are to take practical knowledge as our guide and standard. If we are, where shall we find clever engineers, skilful surveyors, or practically ingenious architects, who are capable of carrying out their own plans in detail?

The red-tape gentlemen should inquire of the builders' foremen, clerks of works, carvers, and others, who have to carry out their plans and details, and they would soon discover that the shams are very numerous even amongst their professional brothers.

* "The Horse in Health and Disease." By James W. Winter, M.R.C.V.S., &c. Longmans, 1846. Page 113.

The blushing of the cheek and the counter-fencing which take place every day with these red-tape gentlemen, to cover faulty plans, details, and construction, should teach them to be less arrogant, and more humble, towards those who have to make good their deficiencies. Parties who are short of intellectual force always call out for legal protection, as their stunted minds are incapable of running the competitive race with manly freedom. They prefer to be like the ugly dog in the basket, snarling and biting at every one who dares to come near their privileged wickerwork. Mr. Hawkshaw, when questioned by a Committee of the House of Commons, whether some means could not be adopted to prevent the noise of the railway trains when passing over iron bridges, said—only by building with solid masonry, &c. Here is a gentleman of high position ignorant of one of the simplest principles in mechanics.

Please to excuse the man of forty-three years' practice. S. B.

TAKE CARE OF THE IRONWORK.

Do raise your warning voice against the destruction of fine old wrought metal-work which is constantly taking place in London. Nobody can pass through Grosvenor-square or the Inns of Court without being struck with the beautiful old ironwork which happily yet remains to some of the houses. The work is well designed, and full of spirit, in the manner it is executed; but, unless some restraining power can be exercised, all will shortly be destroyed, and some miserable iron castings substituted. It is quite grievous to see the bald pea-green gates fixed now in Harewood-place, Oxford-street, in the room of those formerly standing there. Notwithstanding the proceedings of the archæological and art societies, and their efforts to make people understand artistic skill, we daily see the most flagrant acts of destruction. The *Builder* is so generally read, that a hint in your columns may really be very serviceable, and induce the noble and other owners of London property to check the destructive tendencies of those on their estates who seem to see no difference between art productions and the commonest cast-iron railing.

BENJ. FERREY.

In a work published by the late Mr. Arthur Hakewill in 1853, are etchings of some beautiful metal-work then in the London squares, much of which is destroyed.

CHURCH-BUILDING NEWS.

Winterbourne Zelstone.—The church here has been consecrated. The old parish church of Winterbourne, a portion of which was erected in the twelfth and the remainder in the thirteenth century, having become so much dilapidated that it was found impossible to restore the greater portion of it, the lord of the manor determined to have a new one erected. This has been done at his sole cost and charge, from plans prepared by Mr. Digby Wyatt. The work was done by Mr. A. Green, of Blandford, builder, under the supervision of Mr. F. Meader. With the exception of the tower, says the *Dorset Express*, all is new, and even that part of the church in which hang four bells has been strengthened, the parapet taken off and rebuilt, and the whole re-pointed. The tower and nave of the old church, which was in a very ruinous condition, were in the Perpendicular style, and the chancel was Early English; and in the erection of the new edifice the original character has been, as far as possible, preserved. The new church stands on the site of the old edifice, but the chancel has been extended 9 ft., and a vestry has been added on the southern side, in which an Early English priest's door has been restored and inserted. Effect is given to the walls by banding courses of brown heath stone The dressings of the windows and arches are of Bath stone, the exterior walls being of flint pointed with cement. In the chancel, which is paved with Maw's encaustic tiles, a stained glass window, by Messrs. Lavers & Barraud, of London, has been inserted. The ceiling of the chancel is panelled, with carved bosses, and the roof of the nave and aisle is of open woodwork, stained and varnished. The church is warmed with Messrs. Haden's heating apparatus.

Malvern.—The new church of Cowleigh, near North Malvern, has been consecrated. The building consists of chancel, nave, aisles, and clerestory. The style is on the basis of the Early English, which Mr. Street has treated with freedom. The aisles are separated from the nave by five pointed arches on each side, supported by circular pillars, without capitals, the masonry at the spring of the arch overlapping the pillar and answering the purpose of a cap. The roof, which is boarded with plain deal beneath the rafters, is canted, almost semicircular, and steep pitched, having plain tie-beams and king-posts, which add to the strength of the interior; and the clerestory is an arrangement of a large trefoil-headed light, beneath a semicircular arch externally. The aisles have open-timber, plain, merely lean-to roofs. In the aisles two- and three-light trefoil-headed windows are under square heads. The great east window has three lights, with three trefoils in the head, and the west four lights, with a sexfoil and two quatrefoils in the tracery. The former has been filled by Messrs. Clayton & Bell with stained glass, the subjects being—in the centre, the Crucifixion; and at the sides, Christ bearing his Cross, His Entombment, the Women at the Sepulchre, and Jesus appearing to Mary; in the trefoils above, the hand, the lamb, and the dove, as emblems of the three persons of the Holy Trinity. This window was given by Captain Peel. There is likewise a window by the same artist at the east end of the south aisle, which aisle is to be devoted to the use of school-children; the subjects in the window are therefore appropriate to that object, representing Christ's injunctions to Peter (to whom the church is dedicated), "Feed my lambs," and "Feed my sheep." Lady Sudeley was the donor of this window, as also of one at the west end of the north side, and above the font, which represents the baptism of Christ and Nicodemus coming to the Saviour, with the Agnus Dei in a quatrefoil above. The chancel rises by three gradations from the nave. A panelled boarded ceiling is over the chancel, and on its north side is a small vestry. Dividing the chancel from the nave a low stone screen is being ornamented with small sunk panels, having tracery-like windows. A stone pulpit, at a very moderate elevation, projects over the screen on the south side, from the chancel into the nave, in a semicircular sweep. Its moulded top is supported by nine small shafts of various coloured marbles, between which considerable space is left, so that the pulpit is open on all sides. A smaller circular base supports the whole. Open benches are supplied for the nave, being of plain deal varnished, and the floor is tiled throughout (no boarding), in black, buff, and red tiles, set lozengewise. Near the principal entrance, at the north-west angle of the building, is a circular font, large enough for total immersion, ornamented round the top with four-leaved flowers, incised. Malvern-hill stone (rubble), with Bath stone facings and dressings, is used externally, and Cradley stone inside the building.

Bath.—The apse at Christ Church has been consecrated. This apse has greatly altered the interior appearance. The addition thus made to the edifice has been erected on the site of an adjoining house, formerly attached to the church on its eastern side. By the removal of this house, and the erection of the apse, the church is now completely isolated from all other dwellings. The design of the apse, which harmonizes with the architecture of the church, was supplied by Mr. J. Elkington Gill, of Bath, architect. The apse is semicircular, having a diameter of upwards of 30 ft. An arch, nearly as wide and lofty as the apse, connects it with the nave, and the inner part of this arch is supported on carved caps, which rest on shafts with carved corbels. The apse is lighted by nine lancet-headed windows, and covered with a semidome, divided by ribs, which spring from the shafts separating the windows. The whole of the interior of the apse is of clean worked stone. It is hoped that funds may be raised to complete the interior of the eastern part of the church. Messrs. Bladwell, Cross, May, & Kemp, have executed the work lately done. The carving was by Mr. Ezard.

St. Asaph.—There is said to be every probability that the cathedral will be restored. Mr. Gilbert Scott, architect, has furnished plans which have given satisfaction to the Dean and Chapter. It is said the cost of the restoration will be about 12,000*l.*

Padiham.—The foundation stone of a new church has been laid at Padiham. The new edifice is to be built on the site of the old parish church. Mr. William Waddington, of Padiham, is the architect.

Chorlton-cum-Hardy.—A new church has been opened here for divine service. The edifice c sists of nave, north and south aisles; so chapel screened off from aisle and chancel open screenwork of wood; north porch, org chamber, and sacristy, with heating vault belo and an octagonal tower, and spirelet at the w end of the south aisle. The dimensions of church are: nave, 73 ft. long, 23 ft. 6 in. wi and 48 ft. to apex of roof; chancel, 43 ft. lo The style is Middle Pointed. The east west windows, being prominent features, of considerable size. The porch is open t bered, being, with the whole of the ro which are open-framed and boarded, of Ba deal, stained dark and varnished. The se are all open, similarly stained and varnish The chancel is paved with encaustic t made specially for the purpose. The tract for the whole of the work of the buildi exclusive of the spire, is with Messrs. Coch & Co., for 3,700*l.*; Messrs. Ellis & Hinchl doing the mason work. The funds are now provided for the completion of the spire, wh is intended to be commenced forthwith. east window, the gift of Mr. J. Heywood, is being executed by Messrs. Lavers & Barraud London. The cost will be upwards of 300*l.* whole of the windows of the church, includ the large west window, are stained, and w executed by Messrs. Lavers & Barraud. Th altogether bring the cost of the church to wards of 5,000*l.* The whole of the works connexion with the church have been under superintendence of Messrs. Pennington & Bridg architects, Manchester.

Chesterfield.—Staveley parish church has b re-opened, after restoration, at a cost of ab 6,000*l.* The church, which is built in Decorated style of fourteenth century, has b thoroughly renovated, an addition made by erection of a new north aisle, equal in size to nave, and will now accommodate 1,000 pers The work has been done by Mr. M. Marriott Staveley, under the superintendence of Scott.

DISSENTING CHURCH-BUILDING NE

Weymouth.—The chief stone of a new Weale chapel has been laid here. The building in co of erection is to be in the Romanesque or L bardic style of architecture, freely treated. building will afford accommodation for a 900 persons. It will be 83 ft. long, and 39 wide in the clear, and will consist of two p cipal stories; a basement slightly below street level, and the principal, or chapel f The basement is entered at the western from Maiden-street, through a lobby or pass formed underneath the principal entrance. either side of this lobby is a class-room 17 ft 14 ft., and at the end of the lobby are d opening into a room about 50 ft. by 39 ft., tended for Sunday-school purposes, week e ing services, tea meetings, &c. Two more cl rooms, each about 15 ft. by 12 ft., are situ between this room and the eastern end of chapel, which is divided into nave and aisle light ornamented iron columns, and open tim arches carrying the roof. A clerestory, ligh by a row of circular windows, is formed each arcade. The chapel is open to the roof, timbers being stained. A deep gallery occu the western end, and there is a narrow side lery in each aisle. The chapel will be ligh by two large rose windows, one in each ga and by tiers of windows in the sides at respective levels of the ground and gal floors. The end window will be glazed tinted glass, arranged in patterns. The sea is arranged in a central and two side group the ordinary way, with two passages betw them. The school and class rooms are t warmed by open fires, and the chapel by Gurn stoves. The principal elevations of the ed are faced with brick, the dressings of doors windows being of freestone. The basement Portland stone range work. The roof wi covered with slate. The height from the p ment to the apex of roof is 57 ft. The orig design includes a turret and slated spire at north-west corner of the building, the height of which would be 83 ft. The archit are Messrs. Foster & Wood, of Bristol. The tract has been taken by Mr. Stephen Brow this town. The entire expense will be 3,340

Weston-by-Weedon.—The Baptist chape the parish of Lois Weedon and Weston, recently undergone considerable extension improvement. Upper and lower school-ro

been erected, capable of accommodating children. The exterior of the chapel has improved, and the interior remodelled by erection of open ironwork gallery fronts ne new gallery. The old deep pews and on pulpit have been removed, and their s filled by reclining seats and open minis- platform. An apparatus for equalising mperature of the chapel, by the infusion of r, has been fixed.

ewell (*Derbyshire*).—The four chief corner of a new Wesleyan chapel and schools been laid here. The chapel will be in Gothic style, capable of accommodating en 400 and 500 persons; and behind will be a large school-room. The total f the chapel and schools will be about ., namely, 2,000*l.* for the chapel, and for the schools. The architect for the l and schools is Mr. Taylor, of Man- er.

l Aston.—The foundation-stone of a new l, in connexion with the Primitive Methodist has been laid here. The cost of chapel chool-rooms is estimated at about 600*l.* rchitect is Mr. James Currige, of Wisbeach, e contractors are Mr. Fiddler, of Coal Aston, e mason's work, and Mr. Johnson, of Shef- or the joinery.

SCHOOL-BUILDING NEWS.

ne (*Kent*).—The foundation-stone of na- schools for this parish has been laid by Sondes, upon a convenient site lately given lordship on the outskirts of this village. chools are planned to accommodate 150 en (mixed),—the boys and girls being di- by a moveable partition, and there is a oom at the side common to both sexes. A 's residence adjoins the schools. The is in the style of the Early Domestic ecture of this country; and the materials re local bricks, with coloured bands and ches to gable windows, with Bath stone nd cills to the other windows. The roofs vered with parti-coloured slating. The cost of the building, including fixtures, about 1,160*l.* The works are being exe- by Mr. Adams, of Herne Bay, from the s and under the superintendence of Mr. n Powell, of London.

ll (*Northants*).—New parochial Day and schools, erected at the expense of Lord one, have been opened here. The school, has been built under the superintendence Halliday, Lord Overstone's architect, con- f a school-house and master's house. A runs along the whole length of the

STAINED GLASS.

Matthew's, City Road.—A new east window st been placed in this church, to the y of the late incumbent, the Rev. J. Law- The window is in five compartments, and s five full-length figures, executed by Mr. or. The central figure represents our r in the act of blessing; on his right and the apostles St. Peter and St. Paul; and two outside compartments are represen- of the patriarchs Abraham and King The cost of the window was 150*l.*

Mary Magdalen's Church, Hastings.—The ast window of the south aisle of this has recently been filled with stained in memory of Olivia Emilie Suther- The mullion separates the two designs are represented in the memorial. these is the Stilling of the Waves. In er compartment, Jesus is shown seated in , in the act of addressing the people led on the shore. The window was fixed ars. Heaton, Butler, & Bayne.

Minster.—A stained glass window, in y of the late Archdeacon Wilkins, has been in Southwell Minster, on the south side nave, and immediately opposite to the orch. The subjects are, at the bottom, nunciation to Zacharias, and to the Virgin in the centre the Miracle at the Beautiful the Temple, in which the north porch is ced; at the top, our Lord in Glory with rits of the just rising through the gates earthly to the heavenly church. This is the eleventh that has been erected in Southwell Church within the last few years by Messrs. O'Connor, of London.

Clent Church.—A painted window has recently been erected in this church by Mr. Henry Crompton and Mrs. H. C. Roberts. The window is of French design, and composed of three lights: first, a representation of the Birth of Christ; in the centre, Christ Blessing little Children; and in the last, Christ raising Lazarus. The window is at the west end.

Miscellanea.

Competition, Birmingham.—The Free Libraries Committee, we understand, have selected the designs of Messrs. Martin & Chamberlain, for the new library on Gosta Green. The other competitors were Mr. Bland and Messrs. Bateman & Corser.

The Electric Telegraph in Churches.—A novel appliance has been introduced in a new Congregational church at Surbiton. An electric wire has been laid on from the pulpit to the vestry vestibule, to enable the minister to summon the attendants of the church for any purpose for which he may require their services.

New Harbour and Tunnel at Sark.—The construction of a harbour and tunnel at Le Creux, Sark, being in contemplation, a committee was recently formed. Tenders were sent in last week to the president by Mr. James Le Page, jun., and Mr. Duquemin, Guernsey, and Mr. Le Gros, Jersey. The committee have decided to accept Mr. Le Page's tender, which amounts to about 4,000*l.*

Fatal Fall of a Wall in Chester.—A wall which skirted the road in Princess-street, and belonged to Pritchard's brewery, has fallen, killing one woman and injuring another. The wall had bent towards the street for some time. The road had been lowered, and the wall underpinned about four years ago, and since that it has swerved from the perpendicular. Nevertheless, a lot of bricks had been laid up against it on the inner side. The coronor's jury, however, gave a verdict of accidental death.

The Simplon Railway.—On the 23rd of July is to take place the bankrupt sale of the "Ligne d'Italie" railway by the Simplon. All the property is to be disposed of in one lot, which will be put up at 160,000*l.* This lot includes the railway, in daily working order, in the Valais, of a length of thirty-eight miles; the concession for continuing the line in the Valais and for the Simplon Passage; and the rights resulting from the concession in the province of Ossola (Italy); also the works constructed and the land purchased for the line from Domo d'Ossola to Arona.

Working Men's Club and Institute Union Conversazione.—The president, vice-president, and council of this union (concerning which some remarks will be found on another page) held a *conversazione* on Thursday in last week, at the Cavendish Rooms, Mortimer-street. Through its agency 300 clubs have been established in various parts of the country within little more than three years, and nearly 60,000 working men have availed themselves of the advantages which they are meant to confer. Lord Brougham, the president of the association, Lord Lyttelton and Mr. Layard, were the most prominent members of it at the *conversazione*. At seven o'clock there were some sixty or seventy representatives of the metropolitan working men's clubs and of the trade-union societies in attendance, and the time up to eight o'clock was passed in the singing of songs and glees, as well as in the performance of pieces on the piano, which were very creditably rendered by members of the clubs and their female relatives. The trades represented were the joiners, the bakers, the engine-fitters, the cordwainers, the shoemakers, the bootmakers, the gilders, the ironfounders, the united excavators, the decorators, the bootclosers, the builders, the amalgamated carpenters and joiners, the cabinetmakers, the stonemasons, the organ-builders, the zinc-plate workers, and the upholsterers. Mr. T. Hughes took the chair, and opened the question for discussion—"Whether it is the interest of members of trades' unions to make general use of working men's clubs and institutes, and what would be the chief advantages which they might derive from them?" Lord Brougham, Mr. Layard, and Lord Lyttelton took part in the discussion.

Hempel's Elliptical Compasses.—This instrument has been for a long time past reported on favourably by geometricians in Paris: the simplicity of its construction, the facility with which it is handled, and the accuracy with which it traces the ellipsis, give it great value.

The Driffield Union-house Plans.—From a recent decision given by the Local Board of Guardians, the question of building the union-house appears to have been shelved until autumn. The reason why the scheme has proved abortive at present, says the *Driffield Times*, is that the plan of Mr. Oates, of York, has proved too costly; for instead of costing, as intended, about 6,000*l.*, the estimates on such plan ranged from 9,000*l.* to 10,000*l.*, so that other plans will have to be submitted which will materially alter the cost. The same paper speaks favourably of the plan offered by Mr. Charles Taylor, of Bradford, architect, whose production was amongst the four last selected. There were, we believe, about thirty competitors.

Princess's Theatre.—Mr. George Vining has achieved another very considerable success in the production of the *Huguenot Captain*, a drama of great interest, by Mr. Watts Phillips, the manager himself playing the principal part admirably, and Mrs. Stirling and Mr. George Honey supporting him in an equally excellent manner. Miss Neilson, too, gives considerable promise. The ballet supported by four remarkable grotesque male dancers from Paris, is a thing of itself demanding to be seen. It is a new sensation. The lover of art will have recalled to him in seeing it the eccentric works of Jacques Callot, the well-known draughtsman and engraver, of France. The costumes are beautiful, and Mr. F. Lloyds has painted and built up several scenes deserving the highest praise, especially the view of old Paris, with the beacon tower, from which the captain escapes by means of a rope, in the foreground. The result of the whole, including music by Mr. Hatton, and singing by Miss Augusta Thomson, is, as we have already said, a very great success.

Passenger and Guard Communication in Railway Trains.—A system of electrical communication between passengers and guards, and between guards and drivers, is used in the mail and tidal trains of the South-Eastern Railway. The apparatus, invented by Mr. Walker, electrician to the company, is simple in its nature. The passenger compartments have on each side, near the roof of the carriage, a circular box, in the centre of which is a knob, which on being pulled rings the bell in the guards' van, and on the outside throws out a small glass disc set in an iron rim. The guards see at once the compartment from which the alarm signal has been sent, and at their discretion they may at once either stop the train by signalling to the driver or proceed to the next station. Passengers cannot restore the knob to its former place after it has been pulled out, nor replace the indicator outside to its normal position. The electrical communication is maintained by wires passing under the eaves of the carriages, and between the carriages by spiral wires. The power employed is an electrical battery in the front and rear guards' vans, of 18 cells in each case.

The Western Esplanade, Brighton.—The Local Works Committee, at a recent meeting of the Town Council, submitted a report from the surveyor, for providing for additional arches to be built under the Western Esplanade, now in course of being widened. The plans provide for sixteen additional arches, 11 ft. 3 in. in depth; fourteen additional arches, 20 ft. in depth, between Cannon-place Gap and the West-end Pier; five additional arches, 20 ft. in depth, westward of the pier; and five arches altered from 11 ft. to 20 ft. in depth. The estimated cost of the work was 1,020*l.* The surveyor also recommended that the iron fencing on the south side of the Western Esplanade should be made heavier, and coated with oil: estimated cost, about 55*l.* The committee resolved that the works be done; but Mr. Fabian, in moving that the resolution be confirmed, objected to any deviation from the original plans relative to the arches after the matter had been settled, and the money borrowed for the performance of the work; and Mr. Nunn moved, that so much as related to the proposed additional arches be excepted from the committee's proceedings. After a brief discussion the amendment of Mr. Nunn was put and carried by 14 to 1. The remainder of the proceedings were confirmed.

VALUE OF BUILDING LAND IN DOVER.—The parcel of building land embraced in Johnson's Garden, Maison Dieu-road, and consisting of about 2¼ acres, offered for sale by Messrs. Terson & Son, was sold for 2,020*l.*, the purchaser being Mr. P. Stiff.

THE POLLUTION OF RIVERS COMMISSION.—The Royal Commissioners are at present engaged in making a personal inspection of the river Ouse and the surrounding neighbourhood, previous to taking evidence on the spot, which will not be till the first week in October.

TRAFFIC RECEIPTS.—The traffic receipts of railways in the United Kingdom for the week ending the 23rd of June, amounted, on 12,343 miles, to 735,170*l.*, and for the corresponding week of last year, on 12,075 miles, to 707,553*l.*, showing an increase of 268 miles, and of 27,617*l.*

CAERLEON CHURCH. — Arrangements are in progress for restoring the church of Caerleon, Monmouthshire, the ancient city of Isca Silurum of the Romans, the seat of one of the three earliest British archbishoprics, remarkable for its legends and traditions, and the chosen ground of Tennyson's "Idylls of the King." The old church is of the thirteenth century, and the cost of erection is estimated at about 3,500*l.*

ALLEGED REVIVAL OF THE LOST ART OF HARDENING COPPER.—A correspondent at Upper Sandusky, Ohio, informs us that a Mr. Dinsman, of that place, has discovered the process of hardening copper, and has secured a patent for it. The art is supposed to have been lost. The material is properly called silicated copper, and can be worked without friction. All necessity for oiling machinery made from it is said to be obvinted.

IRELAND.—In the year ending with March, 1866, the Irish Board of Public Works issued 46,215*l.* on loan under the Land Improvement Acts. In that twelvemonth 4,775 acres of land were drained. The average cost of thorough drainage under these Acts has been 5*l.* 2*s.* 6*d.* an acre. Since the passing of the Act of 1850, 243 loans, amounting to 85,910*l.*, for the erection of farm buildings, have been sanctioned by the Board; and as with the drainage works, so with these—they are so executed as to afford examples to proprietors who desire to proceed with private funds. Under the Act of 1860, 50 loans, amounting to 22,170*l.*, for the erection of dwellings for agricultural labourers, have been sanctioned by the Board.

GRINDING-MONEY.—At the Clerkenwell County Court, a workman named Stanway, lately in the employ of Mr. Terrey, builder, of Bowling-green-lane, brought an action against his employer to recover 3*s.* 5*d.* for time lost and grinding-money. His situation had been filled up in his absence without leave for about a day and a half on Whitsun-week. The Judge ruled that where a mechanic was employed by the hour, as he was in this case, grinding-time would be disallowed, as it would be manifestly unjust for a master to be liable to pay a quarter of a day for grinding-time where a man might only be put on a job for a few hours. In the case of a man employed by the day the case might be somewhat different, and the custom of the trade might be taken into consideration; but in the present instance the plaintiff must be non-suited.

PUBLIC WORKS (MANUFACTURING DISTRICTS) ACT, 1863-64.—A report by Mr. R. Rawlinson, C.B., to the President of the Poor-Law Board, on the progress of public works in the recently-distressed cotton districts, has been published. Mr. Rawlinson says:—"The amount of money set apart for public works in the distressed cotton district under the provision of the Public Works (Manufacturing Districts) Acts, 1863-64, amounted to 1,850,000*l.* Out of this sum there has been allotted to the local authorities from time to time, upon reports and under your sanction, a sum of 1,846,082*l.* Some of the works will be completed within the estimates made; and in other cases projected works will not be commenced, so that probably not more than 1,800,000*l.* will ultimately be taken up. The total amount advanced up to the 31st of March last was 1,343,806*l.* The amount which appears to have been expended at that date was 1,177,701*l.* 4*s.* 10¾*d.* The entire length of sewerage and drainage works executed at the same date was 560,161 lineal yards, or about 318 miles. The total area of paving and other surface works of street and highway improvement completed upon the 31st of March was 2,131,167 superficial yards, or about 440 acres.

TENDERS

For alterations at Nos. 18 and 20, Edgware-road, Hyde Park, for Mr. John Neal, jeweller. Messrs. New & Cummings, architects. Quantities supplied:—

Cox	£2,398 0 0
Ebbs & Sons	2,383 0 0
H. & J. Ferguson	2,148 0 0
Saunders	2,148 0 0
Brown (accepted)	2,142 0 0

For works to Llanludr Hall, Ruthin (first contract). Messrs. Poundley & David Walker, architects. Quantities supplied:—

Hughes & Bunn	£1,434 0 0
Roberts	1,312 0 0
Clark & Son	1,309 0 0

For St. Peter's Free Church, Birkenhead. Mr. David Walker, architect. Quantities supplied.

Harkness & Dempster	£3,465 7 7
Roberts	3,083 13 0
Forde	2,990 14 9
Cameron	2,889 14 8
Hogarth	2,659 7 7

For erecting four sixty-quarter malt-houses, at Newark-upon-Trent, Notts, for Messrs. Gilstrap & Sons. Mr. Charles Baily, architect. Quantities prepared by Mr. Charles Poland:—

A. & R. Dennett & Co.	£13,167 10 0
Mackenzie & Fretwell*	13,100 0 0

* Accepted.

For converting corn-warehouse into a forty-five-quarter malt house, at East Retford, Notts, for Mr. Francis White. Mr. Charles Baily, architect:—

Lane	£1,218 0 0
Hopkinson (accepted)	978 0 0

For a new twenty-three quarter malt-house, and other buildings, at the Sun Hotel, Hitchin, for the Master and Fellows of Trinity College, Cambridge. Mr. J. Shilcock, architect:—

Butterfield	£1,748 10 9
Gray & Son	1,745 0 0
Jeeves (accepted)	1,568 14 3

For the erection of ten cottages at Arlsey, Beds, for Mr. F. Levitt. Mr. J. Shilcock, architect:—

Redhouse & Brittain (accepted)	£766 10 0

For Cesterna Industrial Schools, Forest-gate, Stratford. Mr. Hudson, architect:—

Jerson	£239 0 0
Ellis	217 0 0
Tricker & Sell	175 0 0
Norris, jun.	169 15 0
Rivett	169 0 0
Langmead	168 0 0
Wenket	163 10 0
Nightingale	145 0 0
Pearce	144 0 0
Webb & Sons (accepted)	127 10 0

For Congregational church, Junction-road, Upper Holloway. Mr. W. F. Poulton, architect:—

	If without Tower and Spire.	
Turner	£8,595 0 0	£7,135 0 0
Dove	8,576 0 0	7,115 0 0
Simpson	8,221 0 0	6,874 17 0
Brown	7,980 0 0	6,630 0 0
Manly & Rogers	7,900 0 0	6,430 0 0
Carter	7,470 0 0	6,270 0 0
Sawyer (accepted)	7,470 0 0	6,042 0 0

For alterations to the Holland Arms, Kensington. Mr. Williams, architect:—

Stimpson	£1,983 0 0
Simpson	1,945 0 0
Foxley	1,920 0 0
Hackman	1,748 0 0
Jarvis	1,737 0 0

For additions to and strengthening Southsea Pier. Messrs. Rake & Ranwell, engineers. Quantities supplied:—

	Contract No. 1.	Contract No. 2.
Burden	£718 10 0	£1,524 0 0
Furness	527 0 0	1,150 0 0
Pritchard	509 0 0	1,122 0 0
Absalom	405 0 0	1,155 0 0
Lawrence & Mills	395 0 0	1,060 0 0
Burbridge (accepted)	390 0 0	883 17 0

For building offices and store, for Mr. J. Woodward, Landport. Messrs. Rake & Ranwell, architects. Quantities supplied:—

Tull & Mumford	£936 0 0
Ward & Son	836 0 0
Light	800 0 0
King	755 0 0
Drofet	745 0 0
Backhurst (accepted)	695 13 0

For alterations and repairs to houses at Surbiton. Mr. Nicholas Lake, architect:—

Coulton	£194 0 0
Hardy	131 16 0
Cheer	115 0 0

For building house and offices in Sutton-road, Dartford. Mr. Nicholas Lake, architect. Quantities supplied:—

Tear	£1,419 0 0
Wood & Munn	1,075 0 0
Wells	1,068 0 0
Wills	1,045 0 0
Blofield	1,000 0 0

For the erection of four houses with shops:—

Rawlings	£13,389 0 0
Trollope & Sons	10,673 0 0
Ryder & Son	13,610 0 0
Myers & Sons	13,102 0 0
Newman & Mann	13,193 0 0
Piper & Wheeler	12,890 0 0
Higgs	12,372 0 0

For the erection of a parochial school and reside Steeple Morden, Cambridgeshire. Messrs. Elmsli Franey, Architects:—

Warboys	£952 0 0
French	889 0 0
Mills	700 0 0

For the restoration of Haverbill Church, Suff Messrs. Elmslie & Franey, architects:—

Runnacles	£3,143 0 0
Mills	2,845 0 0
Lacey	2,650 0 0
Keogh	2,636 0 0
Mason & Green	2,612 0 0

For the construction of viaduct and vaults and o works required in the formation of a high-level appro road, &c., for the London Bridge Land Company:—

Piper & Wheeler	£10,226 0 0
Higgs	9 963 0 0
Trollope & Son	9,941 0 0
Myers & Sons	9,630 0 0
Ryder & Son	9,100 0 0
Newman & Mann	8,995 0 0
Rawlings	8,484 0 0

For a new warehouse, Brown's-buildings, St. M Axe. Mr. T. C. Clark, architect. Quantities supp by Messrs. Hovenden & Heath:—

		Credit O Material
Eunor	£1,252 0 0	£25 0
Patman & Fotheringham	1,200 0 0	20 0
Scrivener & White	1,154 0 0	12 0
Nutt & Co.	1,132 0 0	—
Wood	1,080 0 0	10 0
Dudley	1,080 0 0	50 0
King & Son	1,035 0 0	—
Browne & Robinson	1,014 0 0	20 0

For two warehouses, St. Mary Axe. G. S. Legg, e architect. Quantities supplied by Messrs. Hovende Heath:—

		Allow fo Old Materi
Patman & Fotheringham.	3,100 0 0	£40 0
Scrivener & White	2,851 0 0	28 0
Eunor	2,983 0 0	120 0
Nutt & Co.	2,760 0 0	—
Wood	2,659 0 0	30 0
Dudley	2,750 0 0	110 0
King & Son	2,690 0 0	75 0
Browne & Robinson	2,546 0 0	40 0

For a church at New Malden. Messrs. Brandon Freshwater, architects. Quantities supplied by Mess Rake & Ranwell:—

Nutt & Co. (accepted)	£2,160 0 0

For the erection of church and lecture-room, Bro wick-road, Camberwell:—

Emery	£3,116 1 4
Dove, Brothers	2,695 0 0
Taylor	2,663 0 0
Nutt & Co.	2,595 0 0
Thompson	2,345 0 0

For alterations and additions to the Duke of Well ton Tavern, Notting-hill. Messrs. Newstead & I architects:—

Nutt & Co. (accepted)	£726 0 0

For brick sewer, Fulham-road, Hammersmith, for Fulham and Hammersmith Board of Works. Mr. Bean, engineer:—

Thackeray	£3,228 0 0
Wilson	2,401 0 0
Chamberlain	2,349 0 0
Moxon & Co.	1,884 0 0
Whittick	1,848 0 0
Wigmore	1,840 10 0
Williams	1,800 0 0
Reddin (accepted)	1,749 0 0

For pipe sewer, in Waterloo-street, Hammersmi Mr. A. Bean, engineer:—

Thackeray	£345 0 0
Moxon & Co.	215 0 0
Wilkams	185 0 0
Reddin	169 0 0
Bird	158 0 0
Chamberlain	153 0 0
Wilson	145 0 0
Whittick (accepted)	143 0 0
Wigmore	140 10 0

For pipe-sewer in Beavor-lane, Hammersmith. Mr Bean, engineer:—

Thackeray	£235 0 0
Moxon & Co.	190 0 0
Williams	160 0 0
Reddin	143 0 0
Bird	135 0 0
Wilson	131 10 0
Chamberlain	125 0 0
Wigmore	105 0 0
Whittick (accepted)	100 0 0

TO CORRESPONDENTS.

W. H. E.—W. B.—C. M. W.—N. & M.—Mr. M.—C. B.—W. P.—F. & B.—A. L.—C. W.—J. R.—R. & Son.—C. G.—N. & C.—W. T. D (enter our mark)—J. S. H. F.—P. M. G. H.—R. A. P. S. P. B.—F. S.—B. S.—T. M. (has already appeared).—A. enclosure)—Subscriber, Petworth (send us some particulars o scaffolding).

We are compelled to decline potting out books and s addresses.

All statements of facts, lists of tenders, &c., must be accompani the name and address of the sender, not necessarily for publicati

NOTE.—The responsibility of signed articles, and papers re public meetings, rests, of course, with the authors.

Advertisements cannot be received for the cur week's issue later than **THREE o'clock, p.** *on THURSDAY.*

The Builder.

VOL. XXIV.—No. 1224.

Portsmouth and About.

PRESENCE of the American Iron-clad turret-ship *Miantonomoh;* the reports of the experiments on the turrets of the *Royal Sovereign*, by means of the guns of the *Bellerophon;* and the growing interest in ship and gun questions, have led many, not professionally interested, to visit Portsmouth lately who before knew little of it. We venture to say that none of them have regretted doing so, and that some of them will have arrived at conclusions likely to be useful in the formation of public opinion; especially this, that no obstacles must be allowed to stand in e way of obtaining for the country the rongest and most efficient ships and forts, d the most powerful guns or other means of ar that can be had. It is of no use regretting oney spent,—it will not do to hesitate about tting aside costly results when they are oved to be inferior to what has been obtained the same direction by another country;—it ould be madness to remain contented with old ings while all aggressive Europe are furnish- g themselves with new. It is all very well as happens, that we waited for the costly experi- ents of America before we did much in Iron- ds and Turrets, and saw 50,000 Austrians ot down before becoming very active in the ovision of breech-loaders for our army; but it ould not be so well to have similar convictions nilarly forced upon us in a war with a ntry that had made a step ahead of us. hat iron and steel, and men of iron and steel, n do can be done in Great Britain, if there another metal to set them in motion; and this, with right direction, there must be stint. England cannot afford to be stingy: ere is too much at stake. If the Austrians d remembered and acted on the remem- ance of the losses caused in their ranks, in 59, by the French rifled guns, and the value of e needle gun used on their own side against e Danes, they would have had a better chance ring the late campaign. It is stated that it kes five minutes for a practised marksman to e fifteen shots from a muzzle-loader; eight ots occupy five minutes, or even more, with a ss practised shooter. With a breech-loader at ast seven or eight shots may be fired in one inute. With some plans—such as that of nider, which is being adapted by the British overnment to Enfields,—as many as fifteen nnds, it is asserted, have been fired in a inute.

A visit to Portsmouth shows that, if we have ot been very rapid in our movements, and not o ready to believe inventors and to act on even satisfactory experiments, we have not been standing quite still.

And so too, in other places. Even as respects the guns of one inventor only, a recently issued Parliamentary return shows that from 1856 to May last thirty-seven Whitworth guns have been tested, 10,744 rounds having been fired in the course of the experiments. The guns vary in weight from a handy 1-lb. muzzle-loader for mountain service, weighing 100 lb. and requiring a charge of only ·164 lb. of powder, to a ponderous 7-inch gun which weighs 7½ tons. This formidable weapon throws a shot weighing 130 lb., and requires a charge of nearly a ¼ cwt. of powder. It was used by the Special Committee on Iron Plates, in 1862-3, against the "Warrior" and other targets, Captain Inglis's shield, and a target of Brown's plates. Having sustained some injury, it was ordered to be converted into a service 7-inch gun of 130 cwt. or 140 cwt. "Woolwich" rifling. The greatest number of rounds fired from any one gun was 3,033. This gun was afterwards bisected for examination, and was found to have sustained severe injuries. The quantity of powder expended amounts to 26 tons. A return of the expense of these trials, and also that of the experiments with the Armstrong gun, would be rather startling, but nevertheless must not deter. The 600-pounder Elswick shunt-rifled gun which burst the other day at Shoeburyness, at the eighth round, cost, it is said, 4,000*l.*

It is by no means certain that there is any foreign gun afloat that would sink one of our best ironclads, or that any foreign power possesses an ironclad that one of our best guns could not damage. Theoretically, America denies this, and sends the *Miantonomoh* to back the assertion: it must be the business of our authorities to put the question beyond a doubt.

On the beach at Portsmouth,—or, more properly, Southsea—lies a gun of the soda-water-bottle shape, weighing 22 tons 18 cwt., which, with a charge of 54 lb. of powder, throws a ball of 420 lb. weight. We have at present no vessel to carry such a gun. It will, perhaps, find a place in the turret-fort just now commenced at a short distance out to sea. The guns with which the *Bellerophon* banged away at the turret of the *Royal Sovereign*, 9 in. in the bore, are called 300 pounders, but in reality carry only 240 lb. shot or bolts. The bolts, four in number, about 18 in. long and 9 in. in diameter, were fired at a distance of 160 yards only: the first, discharged merely to get the range, carried away a canvas target fastened above the turret; the second struck the left edge of the port-hole in the turret, and penetrated the 5½-inch plate; but, on reaching the 4½-inch plate, it glanced off, crossed the port, caused a slight indentation on the right side, and was shivered into pieces. The plate of iron next to that on which the bull's-eyes were painted was forced out several inches; a portion of the top of the turret was carried away; and the whole of the bolts in the neighbourhood of the target mark were started. A revolution of a quarter of a circle was then made, and this exposed the thinnest side of the turret to the *Bellerophon's* fire. The second shot entered the turret at a junction of two plates, and made a clean breach through and separated them. The shot passed through the 5½-inch plate, splintered the teak immediately behind it, and, taking an upward direction, forced up the top of the turret, and remained in the teak. The third and last was a glancing shot. Striking the deck at a point where there is a thickness of 6 in. of wood and 1 in. of iron, the shot glided along the deck, then slid on to the side of the turret, caused an indentation, and flew away on the port bow.

The experiment being over, it was found to the satisfaction of all concerned that the machinery for revolving the turret was entirely uninjured, and the turret could be freely turned round as at first. This machinery, by the way, is very admirable, and includes provision for various possible disasters. The strength of the turrets of the *Royal Sovereign* has been rather understated. The strongest part is around each port; here, to the extent of 6 ft. on each side of it, the outer plate of iron is 5½ in. thick; then comes a plate 4½ in. thick, a backing of teak and an inner lining of 1½-in. iron plate, making in the whole a thickness of 2 ft. 2 in. The rest of the turret has a 5½-in. plate outside, 7 in. of teak, and the inner lining of 1½-in. iron, or 1 ft. 2 in. in all.

Examining this turret, of which the plates are thus shaken, it occurred to us, as doubtless to many, that a strong iron coping or continuous capping on the top of the plating all round, or, perhaps, better, strong iron hooping, would bind the whole together, so as to render such a disruption much more difficult. This, as we have since found, has been proposed by Mr. J. Walker, an engineer. Writing to us a few days ago, with reference to a previous article on Ironclads and Turrets in our pages, he says,—"My plan, laid before the War Office five years ago, was simply this: instead of building up framework and bolting the plates on, do as you do with a good arch, and prepare the iron plates to fit the circle of the turret or fort, and then set them up on end and put hoops on. Each plate is a little thinner at the top, which gives the turret a slight taper, so that the bottom hoop drops on tight. There is a recess in each plate for bolts to go from top to bottom, to hold the top and bottom plate together: they may be of any depth and thickness."

But then comes the question, are these turrets, these shields for the guns, so to speak, actually required? The same Mr. Walker says no, and describes to us his system, which certainly seems ingenious. Two independent platforms are erected in the centre of the vessel, and are in communication with two cylinders. When one is lowered the other rises; and as they counterbalance each other, but a slight expenditure of force is required to produce this alternating motion. If a heavy gun be placed on each of these platforms, then each of the guns, after being discharged, can be lowered between decks, where it can be reloaded and raised, to be again fired off while the other is lowered in its turn. The advantages of this system not merely consist in making a simple and cheap machine to do more work by hydraulic power than human strength, but also in simplifying the construction of ships intended to carry heavy guns. Besides the iron plating, which can only protect the sides of the ship, Captain Ericsson, the inventor of the monitors, Mr. Reed, and Captain Coles, are all obliged to additionally load the vessel with a special fortress, in order to protect the working of the artillery. With Mr. Walker's apparatus, the working of the guns takes place in the interior of the vessel, out of range and sight of the enemy. It is sufficient to have on deck a narrow cover for protecting the guns and the gunners at the time of firing. When the vessel is out of action, the guns can be left between decks, where their weight is useful.

The new inventions are of course numerous. First is one by Commander Warren, intended to prevent the entry of water into a ship through external openings made by the action of shot, by collision with another vessel, or by the action of torpedoes. It consists essentially of sheets of lead fastened over the damaged part by means of screws acting on the outside of vulcanized india-rubber suckers. Supposing the damage to be 6 ft. or 20 ft. square, or of any given dimensions, the space so damaged could be effectually covered, he says, and the water excluded in less time than it would take to nail the same quantity of lead on the bottom or sides of a ship built of wood.

A startling invention in gunnery has been announced by Mr. Harding, who makes not

merely a breech-loader, but a gun without any solid breech! He takes a tube open at both ends, and this forms his gun, which is loaded and discharged with deadly effect. The plan is simply this—that a piece of wadding is rammed in at one end of the tube, then another piece, leaving a space, and, of course, some air between them—closely compressed; then the powder is placed in, and then the ball on the powder. The breech is practically formed by the air contained between the first and the second piece of wadding. Others are inquiring if gunpowder itself should be got rid of altogether midst all these changes? Captain Dixon says yes, and sends us one of his gun-cloth charges, a piece of rolled tape, so to speak, in a paper case, open at one end. The patentee claims for the gun-cloth charges freedom from all risk of accidental explosion, "except when confined in a gun-barrel or bomb-shell. They are non-explosive; they burn, but do not explode; if lighted and held in the hand they are harmless; they may be dropped down a red-hot barrel without fear of danger. A hundred may be lighted at once, and the result will not be more explosive or dangerous than setting fire to a handful of shavings, neither would the firing of a whole magazine be attended with more danger than the burning of so much wood, cotton, or paper." The recoil is scarcely perceptible: the report is only one-half; smoke there is none; the combustion is perfect, and no residue is left to foul the barrel; and, with all, these charges are superior to gunpowder as a propelling force,—at least, so says the inventor. Gun-cotton was, as formerly made and used, an uncontrollable, unmanageable, capricious force, besides being liable to ignite at a low heat, and fire by spontaneous combustion. Gun-cloth, this patentee says, as made according to his patent, is a strong but docile servant; weight for weight many times stronger than gunpowder, and capable of being used with entire safety in existing fire-arms. Well; we shall see.

Then the question as to the best propelling power for vessels is also receiving attention. Thus the *Waterwitch*, a gunboat built for the Royal navy, is propelled by hydraulic power, jets of water being sucked in by a turbine and ejected by nozzles at the sides of the hull amidships. The vessel is double ended, and has two screws. In length she is 162 ft., in breadth 32 ft., and depth 13 ft. 9 in. Her tonnage is 778 tons. She is defended by a belt of armour 3 ft. below and 6 in. above the water-line, the construction being 4½-in. armour plating, with 10 in. of teak backing. A strong battery is made in the centre of the vessel by fore and aft shields, or walls of thick iron across the hull, and forming the fore and aft ends of the battery. Through port-holes in these shields the heavy guns will be trained longitudinally with the vessel, while smaller guns will be used for the broadside. The turbine is worked by three engines of 160-horse power.

Try all things and hold fast that which is good. However, we are being led a little afield. We must return for an instant to the *Bellerophon*, the *Royal Sovereign*, the *Minotaur* (a mighty vessel), and others about, in order to remark, that notwithstanding what has been said to the contrary, there will still remain plenty of opportunity in ironclads for the display of British power of endurance, pluck, and dash, and that they are far from being the mere engineers' workshops they are often supposed to be.

The dockyard looks quiet, but offers many points beyond the new ships to those who have not visited it for some years. Then, wood was dealt in, now it is iron. Hollow iron shears of enormous height, hollow metal masks, iron cables, and floating iron ship-like dock-gates, will be looked at with interest: empty, they float; allowed to fill with water, they sink into their required position.*

Barracks, forts, and casemates are being built in various directions on the heights and elsewhere. It is to be hoped that the work is for the most part better planned and better executed than is the case with one piece we happened to examine.

At Southsea a new main sewer is in course of construction, which is to discharge into the sea! Let us hope that before it is finished the authorities may get more light, and find themselves able to apply the sewage more usefully. A new church of some size and cost is being roofed in. Brick and stone are the materials employed. The eastern gable, which is lofty, promises to be bald and less agreeable than parts of the interior. A new hotel, nearly finished, is very barrack-like; in fact, want of architectural taste in the place is even now apparent. An amusing endeavour to ornament some of the small brick residences scattered here and there, exhibits itself in the shape of a couple of diamonds of red bricks, with a black band round each of them, sprawling about, with connecting bands of coloured brick, like ugly book-markers, or a pair of swung-out censers,—*incensors* a joker might say who felt his taste offended. But the works of bricklaying-man are soon forgotten in face of such a scene as was before us when there. The sea was a brilliant green flashed with purple, that came and went; vessels of all kinds passed and repassed, and every house in Ryde, on the island opposite, though seven miles away, touched by the sun, came brightly into view.

* A paper has recently been issued by the Admiralty, in compliance with an order of the House of Commons, showing the quantity of iron ballast in store at the Royal Dockyards on the 31st of March, and the number of square yards laid down as paving. On the 31st of December, 1860, the quantity of ballast in store amounted to 16,912 tons, but this had been reduced to 4,214 tons on the 31st of March of the present year, partly by sales, and partly by using it as pavement for the yards. The total quantity at present used for that purpose amounts to the enormous weight of 31,011 tons. No purchases have been made for forty years, the last contract being dated December 20, 1815, when the prices were 5*l.* 8*s.* and 5*l.* 9*s.* per ton. One ton of ballast covers about a square yard of surface; and the cost of laying varies between 2*s.* and 6*s.* 5½*d.* per yard. Thus, in round numbers, the dockyard pavement has cost about 5*l.* 12*s.* per square yard.

PROPOSED LEGISLATION FOR PRESERVATION OF THE THAMES.

A STORY was once told which, if not actually historic, is at all events highly characteristic, to the effect that a treatise on the natural history of the camel was demanded, at the same time, of an Englishman, a Frenchman, and a German. The first called for a cab and drove straight to the Zoological Gardens, and from his observation of the animals in that menagerie, together with the information to be gathered from our standard works on natural history, he produced in about a fortnight a creditable, if not exhaustive, essay on the great ruminant. The Frenchman took train to Marseilles, and the steamer thence to Alexandria, and after studying the physiognomy and habits of the ship of the desert in its actual haunts, drew up, in little more than six months, a monograph that left but little to be desired. The German retired to his study, and commenced a profound meditation on the "Camel-Idea," which, at the end of some seven years, he ushered into the world in seven octavo volumes, which at least may have been thought to convey to his readers, with all the clearness which so much meditation must have produced, a German doctor's idea of what a camel ought to be, and consequently must be.

Whatever amount of exactitude may attach to this particular instance, it may be taken not very unfairly to describe the mode of grappling with a subject that may be expected from those who drink of the Thames, the Seine, and the Rhine. And while the rough-and-ready way with which we are ourselves most familiar has suited our national character, and conduced to our national greatness, it is not without its own inconvenience. The English Constitution is often fondly compared to an oak of many centuries' growth. But the unity which pervades all organic life is not to be found in our social institutions, which rather resemble a pile of buildings augmented through many generations by owners of various tastes and requirements, than the steady development of natural growth.

Our eminent love of what we call the practical, and our corresponding contempt for what we term mere theory, has, however, the tendency to produce inconvenient results, when any question arrives at such a stage that it can no longer be dealt with as a matter of daily expediency, but has to be treated on principle. It is in such emergencies that the more systematic habits of thought of our nearest continental neighbours may prove to be, in point of fact, more practical than our own. Our good old English habit of bit by bit improvement leads us at times to look rather helplessly at a matter that needs dealing with root and branch, once and for all.

In this state, we are beginning to admit, is the question of the preservation of our rivers. We have come to the conclusion, those of us who have studied the subject, that the worst use that can be made of a river is to turn it into a common sewer. We admit that public health is thus imperilled, and that the neglect which has allowed the rapidly-increasing population of our cities and towns so far to destroy the purity and salubrity of our rivers must not only be put an end to, but atoned for. And in earnest of this conviction we have expended and are expending an enormous sum on the drainage of the metropolis.

And yet, at the very time when we have become aware of the necessity of fully dealing with a question on which, in the not unlikely case of the appearance of one of those mysterious epidemics which, from time to time, have swept over Europe, the health and safety of the inhabitants of this country may be thought principally to depend, we are almost as far as ever from having ascertained the principle on which this great reform is to be based. We admit that the rivers must be kept pure; we are at sixes and sevens as to what we must do with those substances which are the chief and constant causes of pollution. We spend millions to prevent a sewer entering a river in one reach, and we spend them in carrying it on to debouch in another reach of the same river.

The latest authoritative utterance on this highly important subject, that of the Report of the Commissioners appointed to inquire into the best means of preventing the pollution of rivers, shows that we have not exaggerated the incertitude that prevails on this essential part of the case. "We believe," say the Commissioners, "that town and house sewage may be so utilized on land as to preserve the rivers from the danger of pollution." The belief is encouraging, and "we believe" it to be well founded; but it is clear that we look for something further than this from a Commission specially appointed to deal with this very subject. The Commissioners recommend to her Majesty "that, after the lapse of a period to be allowed for the alteration of existing arrangements it be made unlawful for any sewage, unless the same has been passed over land so as to become purified, or for any injurious refuse from paper-mills, tanneries, and other works, to be cast into the Thames between Cricklade and the commencement of the metropolitan sewerage system;" and they further propose that "powers be given to local authorities to take land compulsorily for the purpose of sewage irrigation." It is hardly too much to ask, before Parliament is called on to close the existing system of sewerage, and to give compulsory powers for the purchase of 3,600 acres of land, being at the rate of one acre for every fifty persons, whose sewage is to be applied, for some clear and definite statement, on the part of the Commissioners, of the principles on which this all-important reform is to be conducted.

On this point, which underlies the whole system of river purification, we are without information from the Commissioners. It is true that evidence on this subject has been laid before them, and is printed in the second volume of their report; but the object of a Royal Commission is not merely to collect and print evidence, and to leave it to the public, or the Government, or independent Members of Parliament, or professional journals, to sift and dissect that evidence, and to state and sum up its result. Such, we should venture to suggest, is a part, and a main part, of the duty which the Commission was appointed to discharge. If an Act of Parliament were passed embodying in legal form the recommendations of the Commission, the effect would be to say, for instance, to the authorities of the city of Oxford, "Gentlemen, you are now liable to penalties to be recovered summarily if, after such a day, you have not closed the discharge of all your existing sewers; and you are at liberty, subject to proper safeguards to prevent abuse, to take 550 acres of land compulsorily for the purpose of sewage irrigation." What would be the reply of the authorities thus summarily dealt with? "What are we to do, Messieurs the Commissioners, with our sewage? How are we to render our 550 acres available for the purpose? Are we to dig a great pond of that extent, and turn into it all that rainwater and local impurity that we are to divert from the river? Before we are forced to act, may we not expect that you should clearly point out to us how to act? Are we to study the evidence received by you, and are we to be forced to decide on it for ourselves? Are our neighbours of Reading, Windsor, Kingston, and Richmond to do the same? Is there to be no scientific guidance, no enunciation of principle, no unity of action, no certainty that in the endeavour to

emove one great source of public danger, we ay not be opening others more numerous and ore fatal?"

On such a view of the case it can hardly be enied by any impartial person that the Report f the Commissioners is extremely incomplete. hat their recommendation to preserve the hames from pollution is right, we are prepared o admit; but that, before they ask Parliament o enforce this recommendation, they are bound o show how, at least to the best of their own nowledge and belief, the existing arrangements re best to be replaced, is, we think, unquestionble. Plans of the most opposite character are ecommended by the witnesses. It was to be xpected that the Commissioners should have at ast settled the main principles on which this reat question was to be dealt with, and pointed it those considerations which might render dif- erent details appropriate under different local ircumstances. Until this is done, the recom- endation seems rather to come under the same ategory as one which, some eighteen centuries go, was offered to those in want of such assist- nce, to be warmed and to be clothed, and which as condemned from the point of view that, if ood in theory, it failed in the point of practical pplicability.

This great hiatus in the Report of the Com- ission we do not feel prepared to supply. The ubject is one of too grave importance to be ightly handled. The distribution of sewage is s serious a question as is that of the protection of vers. The two are, it is true, intimately con- ected, but they are not identical; and, as we re not providing for future contingencies, but ealing with actual facts, the former question ust be first settled. Unless you duly provide r the drainage and sewage of your great owns, they will make their way into the earest river outfall in spite of penalties to e summarily recovered, or ill-considered Acts f Parliament.

One point, in our opinion, comes out pretty early from the evidence; and that is, the ropriety of distinguishing between drainage, roperly so called, and sewage, and of treating y entirely different arrangements the products f ordinary rainfall and the impurities arising om the functions of human life. To turn the ain into the sewers seems to be, in point of rinciple, almost as objectionable as to turn the ewers into the rivers; and, moreover, the first tep seems almost to necessitate the second. n speaking on such a subject it must be borne a mind that it is not always feasible to apply he method which is theoretically the best in cases here we have to deal with a long-established rder of things. In systems of drainage, for in- nce, where much expense has been incurred r the passing of the rain-fall into culverts, ome of the considerations which would be mportant to bear in mind if no sewage and rainage works were in existence would be napplicable.

But we must speak of the principle on hich such works should be designed, if the ngineer had *carte blanche* before him, and with- nt taking it for granted that it is altogether esirable to abandon or alter existing works in rder to bring them into full accordance with ach a system. Thus, one very important con- ideration, that of expense, has a very different egree of force in the case of uncommenced work, nd in the case of the adaptation of existing ppliances.

There can be no doubt that in such a ase as the laying out of a new town, or of a arge and important building, much expense ould be saved in the original construction by egarding the rainfall and the sewage as too istinct matters, which it was necessary sepa- ately to provide for. The whole of the sub- erranean work would be much simplified; every rain and culvert would be less in size, and the ction of the daily service would be more regu- ar and uninterrupted, if the same apertures ere not also intended to serve for the discharge f violent showers. The surface water thus roduced, if dealt with as far as possible as Nature herself deals with it under favourable ircumstances, by directing it in shallow chan- els over the surface of the earth, by turning as nuch of it into porous or sub-drained soils as the latter will absorb, and by conducting the re- nainder, with as little disturbance of the soil, nd in as pure a state, in consequence, as pos- ible, into the next outfall, is provided for at small expense, and plays its natural part in the alimentation of the river. The question of first expense, although not applicable in all cases, is therefore one of those that are decidedly in favour of a separate treatment of rainfall and sewage.

When we regard the question of the utilisation of the sewage manure, the expediency of this course admits of no doubt at all. The liquid contents of sewers consist of a body of water rendered foul and turbid by two descriptions of ingredients, the soluble and the insoluble. The soluble ingredients are for the most part of high economic value. The fertilizing elements are almost wholly soluble, and it is by the action of the earth and of the roots of plants, in with- drawing these elements from the water in which they are held in solution that fertilization takes place. The insoluble elements, on the contrary, are for the most part of little or no economic value. Properly treated they become inoffen- sive, and mingle with the ordinary soil. But the object of the scientific sewage engineer is to remove these insoluble elements by mechanical means, for which purpose he ordinarily uses the flow of water, and to avoid at the same time, as far as possible, the unnecessary dilution and waste of the valuable salts. To do this, his hydraulic arrangements should be quite regular, and if they are liable to be disturbed whenever a storm of rain arises, the waste of the valuable elements will be very great, and the difficulty of removing the valueless material in the simplest way will at the same time be increased. It is neglect of this obvious rule that has rendered so many attempts to utilize the sewage of towns failures in point of economy.

We find, then, at least this one grand principle of construction, which the evidence published by the Commissioners very fully illustrates, and to which it is important to give due prominence in every attempt to arrange or to modify a system of economic sewage. Do not mix rainfall and sewage. Do not subject to unnecessary and irregular dilution those liquid salts that are the true pabulum of vegetable life. Do not augment every item of expense incurred in dealing with sewage, by undertaking to provide by the same machinery for dealing with the rainfall. Turn floods and showers through the earth, where you can; over it, in other cases, into the natural outfall; and as to the sewage, then comes the question, simplified but not yet fully answered, how are we to deal with that?

One reply, indeed, has been given to this question in the evidence laid before the Commis- sioners, so novel in its character, and so im- portant in its bearings, that its accuracy should be fully tested. We can readily conceive that the Commission should hesitate to sanction the statements of the Rev. Mr. Moule, without fuller opportunities for investigation than can have been afforded to them. But that these statements should be fully tested, and that on a scale of sufficient magnitude, is extremely de- sirable.

The principles of Mr. Moule's system are undeniably correct, being, first, that the earth is the natural and proper purifier of sewage matter; and, secondly, that unnecessary dilution of such matter should be absolutely avoided. To this end he proposes the direct application of earth, instead of water, for domestic deodoriza- tion.

The practical difficulties that arise are of course considerable. Mr. Moule is of opinion that they are by no means insuperable. The question is, therefore, one of practical experience, first, as to the sanitary and deodorizing efficiency of the dry-earth process; secondly, as to the mode in which the earth sewage can be removed from houses and towns, and applied to the pro- per object of the fertilization of land, with due regard to economy and to convenience. If this can be accomplished, the questions which are perhaps of all the most perplexing as to the future sanitary condition of our great centres of population, as to the purity of our rivers, and as to our economic use of the fertilizing elements now generally thrown away, will be in a fair way for solution. Nothing but large and con- tinued experience could justify the opinion that this solution is attained. Yet we cannot doubt that the leading principles that should regulate the efforts of the engineer have been grasped by Mr. Moule; that his plan points in the right direction; that in some cases it appears to be fully applicable; and that a full and adequate test of its practical value, on a large scale, is eminently desirable. Could it be made tho- roughly available, the dry-earth system would prove a national boon of the first importance. We can ill afford to leave such a question in doubt.

HEALTH OF OUR LARGE TOWNS IN THE SECOND QUARTER OF 1866.

THIS country, threatened at one or two points, escaped last year the scourge of a cholera epidemic, and although once or twice in the first half of the present year, bad cases were in- troduced into some of our seaports, one of which from its well-known sanitary condition, appeared but too likely to suffer severely, to the close of last quarter there was no sufficient cause to justify any panic on the subject of cholera. A wholesome dread of the disease has, however, in many of our towns, been productive of much sanitary reform, destined, before long, to bear good fruit; and may continue to prove useful, if it only stimulate a general interest in the death-rate of our towns, and incite a beneficial rivalry to obtain a favourable place in the periodical returns of mortality.

Weekly returns of the births and deaths in ten large towns of England are now regularly published by the Registrar-general, and they enable us, without waiting for the usual official quarterly return which, relating as it does to the whole of England and Wales, cannot be pub- lished immediately upon the close of the quar- ter, to ascertain at the end of each thirteen weeks the rate of mortality which has prevailed during that period in each of those ten towns. On Saturday, 30th ult., ended the twenty-sixth week of the year completing the second or spring quarter; in the thirteen weeks comprising that quarter, in these ten large towns, estimated to contain, at the middle of the present year, rather more than five millions of inhabitants, 47,786 births and 35,625 deaths were registered, showing a natural increase of the population of these towns during the three months, by excess of births over deaths, equal to 12,161 lives. Beyond noticing that the birth-rates in each of the different towns, and in the aggregate, differ but little from the average rate of corresponding quarters in previous years, we may at once pass to a short notice of the rates of mortality, and of the present sanitary condition of the different towns as evidenced by these rates.

It is now beyond question, that the last three months have been, especially in the large town districts, the most unhealthy spring quarter that has been experienced for some years. In at- tempting to account for an excessive death-rate in a particular season, not confined to one or two special towns, but exhibited in the returns from all our large towns, we cannot fail to remark how little is even yet known of the con- ditions which rule the public health, and thus influence the death-rate. It is somewhat dis- couraging to find that the past three months, in spite of the manifest efforts that are being made in many quarters to improve the sanitary con- dition of our large towns, have been remarkable for an excess of deaths over corresponding quar- ters; and we can only console ourselves in full confidence, that be the cause which has thus unfavourably operated what it may, the result would have been still more fatal but for these efforts. In each of the ten cities and boroughs above referred to, as will appear from the little table below, the death-rate which prevailed during the thirteen weeks ending the 30th ult., considerably exceeded that of the corresponding quarter of last year. The towns are arranged in the order of their rates of mortality for the past three months from the lowest:—

Towns.	Annual Death-rate to 1,000 Persons liv- ing in the Spring Quarter, 1866.	Annual Death-rate to 1,000 Persons liv- ing in the Spring Quarter, 1865.
Birmingham	24·6	21·2
Hull	24·6	22·7
London	25·2	23·2
Bristol	25·5	21·6
Newcastle-on-Tyne	28·6	—
Manchester	30·2	29·3
Salford	30·4	25·2
Sheffield	30·7	—
Leeds	33·9	27·1
Liverpool	37·7	31·3

As returns from the boroughs of Sheffield and Newcastle-upon-Tyne were not published last year, the rates in those towns for the past quarter cannot be compared with those of last year, although there is quite sufficient evidence at hand to show that the excess of the death- rate for the quarter just ended has been as large in these two towns as in the others. It therefore appears that all these towns, without one excep- tion, have been more unhealthy recently than at the same time last year. How is this to be accounted for? There has been nothing very exceptional about the season, meteorologically considered; the mean temperature of the thir-

teen weeks at the Royal Observatory, Greenwich, was 52·9°, which differed very slightly from the average of the corresponding quarter in twenty-four years, although considerably below that of last year, when it was so high as 56·2°, or more than 3° above the average. The amount of rain measured in the thirteen weeks, at the same Observatory, was indeed 8 inches, being ·8 of an inch above the quantity that fell in the second quarter last year, and 2·2 in., or about 40 per cent. in excess of the average of 48 years; it has yet to be proved that this could have been unfavourable to health. The alternations in the temperature of the quarter have, no doubt, been frequent and sudden, and the mean of successive weeks has more than once during the quarter, differed by more than 10°, thus increasing the fatality of diseases of the respiratory organs; but when is an English spring free from these alternations? Moreover, the excess of the deaths in the past quarter, judging from the notes appended to the weekly returns by the different local registrars, is more to be ascribed to the prevalence of diseases of the zymotic class (especially whooping cough, which has, in several of the towns, been epidemic), than to those of the lungs. The largest excess in the death-rate of last quarter, over that of the corresponding quarter of last year, occurred in Leeds, where it was so great as 6·8 per 1,000; it was smallest, rather under one per 1,000, in Manchester.

In the table above it will be seen that Birmingham and Hull for last quarter appear with the same rate, 24·6; but if another decimal be given, that for Birmingham stands first. This town, which also enjoyed the lowest death-rate in the corresponding quarter of last year, possesses the greatest natural advantages, and can fairly lay claim to be considered the healthiest large town in England. It is to be regretted, however, that its inhabitants and authorities appear to be satisfied with this position, and seek not by a little activity in sanitary measures, still further to reduce the death-rate; for the weekly returns plainly show that in some parts of the town an excessive mortality still continually prevails. The appointment of a medical officer of health (which we are glad to see strongly urged by an influential local paper) and the expenditure of a little of the wealth of the town, in the erection of superior dwellings for the factory and labouring classes, which need not be unremunerative, would certainly so reduce the death-rate in Birmingham, as to afford favourable comparison with many of the healthy rural districts. Whooping cough was very fatal among children in a few of the districts of Birmingham, during the earlier portion of the quarter.

There is no town in England which has exhibited more energy in the improvement of its sanitary condition than Hull, and the uniformly favourable position it now holds in the periodical returns from our large towns, proves that these exertions are bearing fruit, especially when the high rates which but a year or two ago used to prevail in this town, are taken into consideration. As the port for most of the trade with those parts of Europe that have been suffering more or less from cholera since last summer, Hull has been exposed to especial risk, and has at present entirely escaped, although so many of those unfortunate German emigrants who two months ago were attacked in Liverpool, had passed through the town. With a well-organized sanitary staff, and the general health of the town in so satisfactory a condition, the inhabitants have every right to consider themselves well prepared to resist an epidemic of the dreaded disease. But their foresight has not rested here; they have prepared a suitable hospital for the immediate reception and treatment of any even suspected cases, which, should any occur, will be the most likely course to prevent its spreading by contagion. It would indeed be assuring did we know that all other large towns were so well prepared for an eventuality of which we have had full and sufficient warning. These fortifications against foreign invasion cannot be useless, for have we not always amongst us diseases, not so much dreaded it is true, but continually and steadily fatal, and against which our defences will be quite as effective, if not so urgently required?

London, with its own three millions of inhabitants, stands well up in the list, with a rate of 25·2 per 1,000; its well-organised body of Medical Officers of Health, and its Main-drainage, and its Metropolitan Railways which by wholesale destruction of the worst dwellings of the labouring classes, has forced public attention towards providing others of a better class, will all tend, it is to be hoped, to a still further reduced death-rate. London shows one of the smallest excesses for last quarter, over the same period of last year. The rate for Bristol was almost the same as in London, but was further above that of last year; the excess is in a great measure confined to one or two of the sub-districts of the City, and the efforts of the Inspector of Health, to discover and correct the cause of this excess, will doubtless be in part successful. Newcastle-upon-Tyne suffered severely from fever in the early part of the quarter, but is now nearly free from this disease. The rates in Manchester and Salford, and in Sheffield, were very similar, rather over 30 per 1,000, all for the second quarter of the year excessive; but in Manchester very little above that of last year, although Salford compares very unfavourably. Manchester has spent much in new and improved sewerage; and Sheffield has, at a great expense, decided upon a main drainage scheme, by which the condition of the Don will be much improved; so we may confidently look for improvement in the health of both these towns.

The case of Leeds appears the most urgent. The death-rate last quarter was 33·9 per 1,000, and 6·8 per 1,000 above that for the same period of last year. The prosperity of the woollen trade and other causes have doubtless during the last two or three years, tended to so rapid an increase of population within this borough, which stands upon a large area, that it is more than probable the estimate of present inhabitants, based upon the rate of increase between 1851-61, is below the correct population, which would to some extent exaggerate the calculated mortality of the town; but as the estimate for the two years has been made upon the same principle, it will not explain the excess of nearly seven per 1,000 this spring over that of last year. The newly appointed Medical Officer of Health has a heavy task before him, and, it is to be feared, almost a hopeless one, unless he meets with most hearty co-operation, by the initiation of strong measures for the purification of the Aire, which is now the open sewer of more than one large Yorkshire town, and the improvement of the dwellings of the factory labourers.

Liverpool seems to defy all the efforts of Dr. Trench and the municipal authorities, who have been long labouring to improve its sanitary condition, hitherto with small success. It is to be doubted if this town has ever been so unhealthy as during the first half of this year; during the twenty-six weeks the deaths have considerably exceeded the births, and the death-rate has been above 41 per 1,000. That cholera, when introduced by the German emigrants, did not attack any of the ordinary inhabitants of the town, was a serious matter for congratulation among those who anxiously watched for a result which they scarcely dared to hope for, the condition of the town being so well known. The alarm of cholera in Liverpool has now again been raised, this time, unfortunately, among residents of the town; but a few deaths have often occurred without the disease becoming epidemic, and we can only trust that these new cases are not of the worst type.

During the quarter upon which we have now entered, at the very commencement of which we have unfortunately heard of bad cases in London and Southampton, as well as Liverpool, influenced, no doubt, by the intense heat, we shall know whether or not this is to be a cholera year; and what is little less important, whether the general sanitary condition of the country, and especially of our large towns, is so far improved as to protect us from the disastrous results of former cholera years.

ARCHITECTURE AND THE PUBLIC WORKS.

IN the change of the Ministry, the office of First Commissioner of her Majesty's Works has, as usual, participated; and Lord John Manners has displaced Mr. Cowper. The administration of the duties of the office by the latter, has been much praised; and it was, in fact, in some respects exemplary. But on the occasion of a change, it would be well that attention should be given to those modes in which the holder of the office,—who has been heretofore entirely ignorant of architecture, as well as of the peculiar language in which architectural designs are expressed and put forth,—can influence the course of public taste, and retard for a while progress by sending it through an abandoned or roundabout channel. There has been, and is, arising from the system of the public works, so much waste of money, that the amount would have sufficed for the finest architecture that the world has ever seen: we leave out of consideration here the waste of time and opportunities. That there should be a dozen separate communications, by letter and interview, when the Office of Works has to provide another public office with a book-shelf, is, we suppose, a part of the system of Government incapable of amendment; and for the more considerable waste which prevails in what belongs to structures rather than furniture, the House of Commons must be held as deserving a considerable share of the blame. We would here direct attention merely to one or two matters.

It were much to be desired that governmental and parliamentary management of public works were relieved of some of the embarrassment that is created as to the mode of selecting the designs. If it be vain to hope for economy of the national expenditure in required buildings, so long as vacillation and cross-purposes characterise the system which is substituted for the control of an efficient Minister of Works, there is no reason why when it has been decided upon to have the opportunity of selecting from a number, more or less, of projects, in what is called a competition, the actual opportunity should be reduced to as little value as possible, by the form of invitation, and by the absence of due care in the selection. Our architecture is in sad contrast with the qualifications of our architects; who require only to exchange the pursuit of styles for that of art, to become the first in Europe. The statues in our squares are marks for "the shafts of ridicule," not merely of foreigners, but of ourselves. Yet there is a growing feeling that decorative character in streets and buildings has its use; and our public men are quite apt to recognise that it concerns the British reputation that past short-comings should be corrected. But the judicious course is not generally taken to procure the best art in buildings and public statues. Still worse, the substituted course is not calculated to produce in the arrangement and construction of the buildings, the entire satisfaction of the primary wants and uses. Utilitarian arrangements and fine-art character of a building are so intimately connected, that neither can be of the first order of merit unless both are so. The design for both must therefore have proceeded from one hand. Moreover the designer must be competent to execute his work. A design incapable of realization has about the same value as a bill of exchange that cannot be honoured; and there is no one who can superintend the realization so well as the competent author of the project himself.

Just now, there are an unusual number of public buildings spoken of, without counting the projected Law Courts and the National Gallery. As to these last, some of the steps towards procuring designs have been taken: as to others of the projects, as the buildings for the Royal Academy, and the University of London, nothing important of the same kind has been done. Would it not be well at this juncture to review the past experience, that any lesson might be applied in the event of further prosecution of the system of competitions in one or other of the forms? Such an inquiry has never yet been made; and we have continued to report conversations in Parliament, evincing that sort of misconception which would betoken repetition of blunders. The facts are, indeed, unknown to those who make themselves prominent in the expression of opinion. They seem little better known to architects, or to those who have been themselves concerned in competitions.

The chief mistakes calculated to jeopardize results desired in future public works, are as to the advantage of unlimited competition, and as to the means to be adopted for obtaining a right judgment. Mr. Tite, who as an architect, and one who has officiated as a referee, should have had far greater experience than any other Member of Parliament, has himself lately fallen into one or both of the same mistakes as are made by those who speak from first impressions. The common notion is, that the less the number of projects be limited in a competition, the greater will be the chance of obtaining something valuable, and of ensuring a good result. It happens that reason and experience alike are against this. Mr. Cowper, when treating the

same question in the House, omitted to mention some of the modes in which unlimited competition acts counter to, rather than in favour of, the object. He rightly showed that in unlimited competition the designs of "men of leisure" rather than of "men of practice," are procured; and he seemed in great part to appreciate the fact that a design is valueless when not backed by the ability to execute it. But he did not show how greatly the element of multitude of the designs, in a competition, operates to prevent appreciation of a really admirable design, supposing one to be there. To begin with, there is the difficulty of housing the drawings, and arranging them for that minute examination and comparison which are essential. It is calculated that there will be in all, about 600 separate drawings of the largest size, sent in by the twelve invited competitors in the case of the Law Courts. Each one of the number of drawings must be near to the eye, at least so that it can be read and measured, and so that the set of drawings embodying any one of the designs may be put together in the competent observer's mind, where alone the design can be realized before actual building. In every recent competition, the essential exhibition-space has been wanting; and one prominent drawing showing the mere appearance of the building, and from one point of view, or often what could be seen from no accessible point, has absorbed the attention that should have been given to the drawings of the more technical description,—but that could not be given without much time and fatigue, and the use of ladders. But this is not all. Each design examined produces to some extent a vitiatory effect on the observer's eye, and a corresponding depreciation in the impression from the design next looked at. In every way, where number of the designs is considerable, the design that is meritorious in itself, and is backed by the capability of execution, contends against heavy odds; and these, architects in good practice feel every reason to decline accepting.

Whether the competition of designs be limited or unlimited, all chance of a wise selection obviously depends upon the constitution of the board of judges. They must be more than men the best acquainted with the nature of the wants; they must have other qualifications than experience of the defects in existing buildings,—as courts of law, or gallery of pictures: they must have more than taste in architecture. Without they are able to *read* the peculiar language in which architectural designs are presented, and what is the only language in which such projects can be presented, their judgment will be worthless. Mr. Cowper may possibly, from the duties of his office, have possessed himself of the qualifications,—those which ordinarily are not found except with architects and persons of kindred pursuits; but men appointed because of their official position are seldom possessed of them. A judgment of any value, in short, must be one given by men who would have been qualified to act each one as a practical architect. Experience however has shown that there are few men who combine the qualifications referred to, with the leisure, and with the right conception of what, well performed, must be a very laborious duty. There is no doubt that the effects of different instances of Government management of competitions have helped to produce some of the hesitation shown lately, by architects, even those invited with the offer of remuneration. The architects of this country are able to hold place with those of the world: it remains with others to utilize their abilities, and to rescue our architecture from a bad name, whilst enabling the architects to satisfy veritably and economically those wants which it is the office of building to supply. Of what is necessary, where competition is decided upon, to promote its attainment of the result, we speak now not for the first time; and we here refer to only some of the points that are of the question.

LONDON CONGRESS OF THE ARCHÆOLOGICAL INSTITUTE.

THE opening meeting was held on Tuesday morning last, in the Guildhall, the Lord Mayor presiding. Lord Talbot de Malahide congratulated the members on their choice, and expressed hope that the objects of antiquarian interest in the City would be preserved as far as was compatible with progress. However much we might admire the efforts of the Emperor of the French to beautify Paris, and might sometimes feel the desire to see our own capital for a short time under similar improving hands, yet on mature consideration we should be sorry to have it done; for Paris, in changing its historic bearing, and in becoming more like a city of the New World, was losing fast its character as one of the ancient capitals of Europe. Mr. W. Tite, M.P., urged the value these annual congresses had in stirring up a love for antiquities, and drawing attention to the desirability of their preservation. In the provinces, immeasurable good had thus been done, and he hoped that the like benefit would be manifested from their assembling in the metropolis. The church of St. Bartholomew was now being preserved with care; St. Helen's, Bishopsgate, and the church in Austin-friars, were worthy of the like attention. Doubtless numbers of the antiquities of London must bow down before the improvements and necessities of modern progress, but much might be preserved; and it was one of the distinct objects of the present congress to interest the citizens of London, and those present at the meeting, in the preservation of its ancient objects. Mr. Beresford Hope at some length set forth jocosely the programme, and likened the conduct of the Institute to that of actors who first essayed their powers in the provinces, and then came to London to seal their fate with its occupants.

The Lord Mayor, speaking somewhat to the same effect, had referred to the Prodigal Son; but a hungry member, recollecting what other corporations had done for the Institute on similar occasions, suggested to those about him that the simile in London was not complete, as no fatted calf had been killed. The Bishop of Oxford said that if, in this great city, the heart of a great country, acts of renovation proceeded at too swift a rate to be agreeable to archæologists, the streets of London must be admitted to be in a most antiquarian condition, or he would not have been so late in coming to the meeting. For three-quarters of an hour he had been on the road from the Waterloo Station, the delay being caused by a single cart with six deals, which, by a "judicious bend" at every turn, managed to completely block up the way for the whole line of omnibuses and carriages. The power of making "judicious bends" is one of considerable value to others beside carters. The eloquent bishop also told an amusing incident of his hunt after a specimen of the old London black rat, supposed to have been extinguished by the Hanover rat, and how he had at last obtained one that had hidden away, for his collection. The moral was, that renovation in London had not destroyed all its monuments; and, indeed, although it proceeded at a greater rate, that it was not so thorough as in provincial places. He hoped the result of the present congress would be, by bringing under their notice hundreds of relics still preserved in obscure places, to cause the members to return to their homes regarding London not only as the centre of all novelties, but as the best preserver of antiquities. The company present then went away to look at the crypt of the Guildhall; Mr. Parker first telling them correctly it was built in the fifteenth century, and then allowing himself to be "set right" by some one near who did not know, and saying it was of the fourteenth. The ancient hall of which it was the crypt was commenced in 1411, Thomas Knoles, grocer, writes Stow, being mayor. Little of the old hall, excepting this crypt, escaped the Great Fire.

Pending the time fixed for visiting the Church of St. Bartholomew the Great, where Mr. Tite afterwards sketched lucidly its well-known and interesting history, some went one way, some another. A few, getting the convoy of the rector, looked into St. Michael's, Cornhill, where some 20,000*l.* were spent five or six years ago in transmogrifying one of Wren's Roman Doric churches into an Italian Mediæval edifice. The windows are filled with stained glass of Mediæval character (greatly wanting in *white* glass), and the walls and vaultings are richly painted. Of the seat-ends, carved by Mr. Rogers, some of our readers will probably remember our praise. By cleverly disposing an open book close to the end you desire to examine, several of them may be fairly seen in the middle of the day when the weather is bright. The painted decorations, we were sorry to notice, are becoming very smoky. It was in St. Michael's-alley, by the way, that coffee, in 1652, was first sold in England. The first coffee-house stood here.

Barber-Surgeons' Hall was visited by a few, tempted by the great picture that shows Henry VIII. giving a charter to the Company of Surgeons. If Holbein did paint this picture, there is but little of his work to be seen. The often-quoted note by Pepys made when he had hoped, by the help of Mr. Pierce, a surgeon, to have bought it for a little money, may show why. "I did think," says he, "to give 200*l.* for it, it being said to be worth 1,000*l.*; but *it is so spoiled*, that I have no mind to it, and is not a pleasant picture, though a good picture." The incident represented occurred in the year 1541, and Holbein, according to new light, died in 1543. Inigo Jones, who built the Surgeons' Theatre, long ago pulled down, is represented both in picture and plaster. We were glad to find that the curiously carved seventeenth-century shell canopy removed from the entrance in Monkswell-street, and which is illustrated in an early volume of the *Builder*, has been set up at the present entrance, in the inner court.

After examining St. Bartholomew's, St. Helen's, Bishopsgate, was visited, Mr. Wadmore, one of the architects directing the restoration of it, acting as guide. Gresham's tomb, it will be remembered, is here.

In the evening Dean Stanley received the members and visitors at his quaint residence in the Westminster Cloisters, formerly the Abbot's House, and set before them many of the rare charters and books from the Abbey library, founded in 1620,—a right thing to find where William Caxton set up the first printing-press in England. Foremost amongst them was the gorgeous illuminated missal prepared under the direction of Nicholas Litlington, in 1373, abbot at that time of the church. Some of the drawings in this are exquisite. It is noticeable, as the Dean pointed out, that the name of Thomas à Becket is erased from the calendar in it, in compliance with a proclamation in the time of Henry VIII., that all services and books of prayer were to be purified from the remains of popery. Amongst the MSS. exhibited was a beautifully-written document expressing the determination of Henry III. to be buried at Westminster. Few things, however, attracted more attention than the series of "tobacco-boxes," presented by the churchwardens and overseers of the parish, on which are engraved on silver plates at the bottom, inside, and on the top the names of the donors, and the principal historical events which had occurred during their year of office. At first the boxes were enclosed in larger ones, made for the purpose, but at length this became unwieldy, and for many years past the history has been recorded on silver plates affixed to the largest receptacle of the preceding boxes. The earliest plate on this box, now nearly covered in every part, appears to be 1713. It is a very interesting custom, and churchwardens should be careful that the engraving is done in the best possible manner, for the sake of our credit by and by. Each plate costs 6*l.* or 7*l.*

The wall of a small staircase leading from the library to a secret apartment, is curiously faced with tiles. This staircase and room were found out by the present Dean at the time of some recent repairs: they are associated if we understood rightly, with Dean Atterbury and his correspondence in aid of the Pretender.

In the Hall of King's Scholars some glees were sung by gentlemen connected with the abbey choir,—not quite so well as, for the credit of that choir, we desired. When the words of a glee cannot be heard clearly, as if sung by one voice, it is badly sung. One charming young voice amongst the singers will probably be heard of again. This hall was built in the reign of Edward III., by that same Abbot Litlington of whose missal we have spoken. It was originally the abbot's refectory: and is a fine apartment, with open timber roof and an enclosed gallery at the end, which has windows looking into the hall. Next this apartment is the Jerusalem Chamber, also built by Litlington, between 1376 and 1386, and this was looked at with interest by many of the visitors, who recalled how that Henry IV., of whom it had been prophesied that he should die in Jerusalem, expired in this room. Shakspeare makes him say, when told the name of the chamber in which he was taken ill,—

> "Laud be to God! Even there my life must end.
> It hath been prophesied to me many years,
> I should not die but in Jerusalem;
> Which vainly I supposed the Holy Land.
> But bear me to that chamber; there I'll lie:
> In that Jerusalem shall Harry die."

The Rev. Thomas Hugo mentions a tradition that Henry V. was born and christened in this room. The present fittings, carved wood chim-

ney-piece and so forth, belong apparently to the beginning of the seventeenth century, when Dean Williams entertained a French ambassador there. The pleasantest souvenir, however, of this pleasant visit, that was taken away by many of the visitors was the view of the Abbey on that still night from the leaded roof of the cloisters, to which access is gained from one of the sitting-rooms. The grand mass of the transept, the quiet cloister, and two or three flickering lights behind the tracery, made a picture that dwells upon the mind, and suggested a long train of thoughts and recollections that would here be out of place.

On Wednesday morning Sir John Lubbock gave an introductory lecture on "Primæval Antiquities" in the theatre of the Museum of Geology; and the Dean of Westminster opened the section of history with an account of Old Westminster and the Abbey. Edward the Confessor, he remarked, considered himself to be especially under the patronage of St. Peter, and he made a vow to make a pilgrimage to Rome to visit the tomb of that saint, but, having come to the throne, and being unable to spare the time for so long a journey, he applied to the Pope to absolve him from the vow, which his holiness did on the condition that he should build a church and monastery in honour of the saint, and perform the pilgrimage by proxy. He selected as the site of the church the little monastery on the Isle of Thorns, which then contained only two or three monks. The dean alluded to the two opposing positions in which Edward was placed. Though a Saxon by birth, he had received his education in Normandy, and his tendencies were French. He, therefore, built the church contrary to the Saxon style of architecture, making it very much longer than any that had previously been built in England, and in that respect the building of the abbey became an era in church architecture in this country. The old church was entirely swept away. Though Norman in his tendencies, yet Edward as a Saxon was strongly endeared to the people. The dean, towards the conclusion of his lecture, alluded to the regalia of the Crown as bearing traces in their devices to the strong affection of the Saxons for Edward, who had been buried in the abbey he had built, and which was afterwards made the place of sepulture of most of his successors.

After the conclusion of the dean's address, Mr. Freeman gave an account of Harold as the founder of Waltham Abbey, detailing his last battle and death, and his first burial at the Conqueror's will beneath a cairn of stones on the sea-shore of Sussex. Thence the body of Harold was subsequently removed to his own abbey of Waltham, in Essex.

In the afternoon an excursion was made along the Great Eastern Railway to the remains of the abbey itself, when Mr. Freeman energetically contended for the earlier portions of the existing remains as being portions of the original abbey of Harold, consecrated in A.D. 1060. An evening meeting was held at the Royal Institution, where the Rev. J. R. Green read a paper on Thomas A'Becket, in which many of the peculiarities and anomalies in our institutions were noticed. Among others the lecturer alluded to the practice of electing sheriffs of Middlesex, who were chosen neither by the crown nor the people of the county, but by a body independent of both. It was also mentioned that in the time of Athelstane it would appear that the people of London devoted themselves to agriculture rather than to mercantile pursuits; for, in a code made at that period, no allusion whatever is made to offences relating to commerce, while almost all its provisions are directed to the punishment of crimes connected with agriculture and the protection of its interests. Many of the members, however, went to the concert, at the South Kensington Museum, briefly alluded to on another page.

MAJOLICA AND PORCELAIN IN ITALY.

AMONG the new establishments by which those of the merchant princes of Florence who do not disdain to keep shops have lately been astonishing the natives and attracting loungers to gaze all day long in the streets of this city, most noticeable for the artistic quality of contents, is that opened a few weeks since for the majolica and porcelain ware produced at the great factory of the Marquis Ginori,—objects hitherto on sale only at one much smaller and less showy Florentine storehouse. Venturing, in the mere capacity of observer, into the penetralia of that porcelain Elysium, we found expectations surpassed by realities in all the graceful varieties, vases and busts, statuettes, tazzi, and tinted reliefs, there on display; and we found also a most courteous reception for the visitor, whose questions and curiosity are alike satisfied, and who, on proper application, may here obtain permission in printed form to visit the factory on any Thursday, not festive, when admittance is given to all with such credentials.

Leaving by railway, we soon reach the little town of Sesto, between Florence and Prato, and have thence a walk of less than two miles to "La Doccia," as the Ginori establishment is named, which stands amid a lovely landscape, on the rising ground above a picturesque, quaintly-built village, in that region of richly cultured, villa-studded uplands between the Arno valley and the lower Apennines.

It was in the year 1735 that the Marquis Carlo Ginori conceived the happy idea of introducing into this country the manufacture of porcelain and terra-cotta, first, we believe, initiated in Europe, and with signal success, by German speculators at Meissen, near Dresden, in 1710. The energetic marquis lost no time in carrying out his good intentions, for, by 1740, the produce of La Doccia had already appeared in Italian commerce, and a few years subsequently a Tuscan ship, equipped at his expense, set sail for eastern ports, to return freighted with specimens of Chinese and Japan porcelain, as well as samples of the different clays used in their fabrication, in order that method and progress might be better understood and imitated by the Italian artisans. Lorenzo Ginori, son of the noble founder, enlarged and improved the establishment, and gave to its buildings the external form they now present; also promoted a new line of industry in the fashioning of statues and painting of vases on a large scale, in such abundance as to suffice not only for internal commerce, but for continual exportation to the Italian States conterminous with Tuscany. In 1805 was substituted for the old-fashioned rectangular furnace a cylindrical one like those used in France for the Sèvres, in England for the Wedgwood wares: and now were also enlarged the limits of the industries at La Doccia so as henceforth to provide things for ordinary household use as well as those ranking among luxuries. In 1819, another representative of the same family, the Marquis Carlo Leopoldo, designed and had constructed the immense circular furnace now in use, 37 *braccia* (about 74 ft.) high, divided into three stories, at once more efficient for caloric action and more economical in respect to the quantity of fuel requisite. By the same proprietor was also opened a stately hall on the premises for exhibiting works of the higher artistic character; and a broad, well-levelled road, for connecting the factory with the highway, half a mile distant, formed for the convenience of approach. The Florentine Academy of *Georgofili* presently paid public tribute to the successes of the enterprise through honourable mention respecting the "coloured and stamped earthenwares and encaustic miniatures on plates or slabs of fine porcelain," produced at La Doccia.

Amidst its picturesque surroundings on the lower slopes of the "woody Apennine" the Ginori "Fabbrica" looks from a distance like a large convent or old-style Italian villa; but, after passing the iron gates that introduce into a quadrangle flanked on three sides by buildings of one story above the ground-floor, and of very neat exterior appointments, we soon perceive the signs of manufacturing industry. There are at present 170 persons employed here, a small minority being females, and a good many children, all at work for ten hours daily, with two efficient intervals for morning and afternoon meals. All the painting of the higher character on flat surface or relief, we were surprised to learn, is for the present entrusted to a single hand, that of an artist who deserves to rank among gifted ones. The earliest date of any object now on display is 1746; but in much the greater number those distinguished by beauty are of recent produce; and a truly exquisite reduced copy, Fra Bartolommeo's sublime "Deposition from the Cross" (at the Pitti), was at the London Exhibition of 1851. The rooms we first visit on these premises are filled with the smaller and more delicate ornamental objects; vases, statuettes, tazzi, busts in biscotto, &c.; some from classic antiques, others from the masterpieces of cinque-cento art, or from the modern statues of Tuscan celebrities in the niches of the Uffizi porticoes; among the busts the Cæsars (from antique originals) and the First Napoleon as Consul being favourite subjects. In this suite, on the ground-floor, we were first attracted to linger in admiration before several admirable copies, without reduction of scale, from Luca della Robbia, especially three sacred reliefs, the Madonna and cherubim adoring the Divine Infant, that struck us as supremely felicitous, rendering fullest justice to originals, in which all that artist's tenderness and grace are manifest in his treatment of religious themes. And we were, indeed, surprised to learn, on inquiry, that the prices set on the two larger of these partially-tinted reliefs, are not more than 80 francs and 150 francs! But it is in the Great Exhibition hall that we find the climacteric triumphs of taste and ingenuity on these premises; that long and lofty room, hung with dark, maroon-coloured stuff, that gives relief to the numerous collection of objects, ranged in cabinets, along shelves or brackets, presenting at a first glance the brilliant *ensemble* of a palace-interior prepared for a *fête*, and to be lighted up, when the hour comes, by an immense chandelier, pendant in the midst, apparently formed of long drooping garlands, wreathed in evergreen and fairest flowers. As for the art generally preferred for copy in the various forms here seen, on painted platters or relief-encrusted vases, we observed that, though Raffaelle, Titian, Fra Bortolommeo, have been chosen as originals to some of the best examples of execution, decided priority has been given to the majolicas of "Maestro Giorgio," who left a great variety of his performances in this walk, to be seen in different Italian museums—a florid and redundant style generally distinguishing the subjects, mythologic or allegoric, the details, in not a few instances, rather ultra-voluptuous; almost all these subjects from cinque-cento originals being in high or low relief upon gracefully formed vases. The statuettes and busts are mostly from the antique; and among specimens of *biscotto*, interesting amid such surroundings, is the profile head of the Marquis, the worthy originator, in whose countenance it seemed to us that good humour and good sense alike predominate. In another richly-stored room, we find an album containing all the premiums and academic tributes bestowed on the "Fabbrica," earliest in date one from the Florence Fine Art Academy, 1841; next from London, 1851; and the latest from the Italian National Exhibition of 1861.

After long lingering in this fairy-land of beautiful and fantastic things, we were led through the labyrinth of workshops and store-rooms in upper regions; admitted into the great furnace, and one of its stories where a milder degree of heat is maintained, and allowed opportunity to observe the different processes; the turning upon the lathe, the immersion in caldrons of metallic varnish, the painting of plates and cups from simple patterns. Nothing so much interested us as the achievement we were able for a time to overlook, of the artist who *alone* executes all the painting of higher style here requisite; a rather young man, whom we found engaged in an ordinary sort of workshop, without pretensions to the comfortable, the subject before him being a large vase encrusted with reliefs, Apollo and Daphne, with other figures, from a Cinque-cento original, to which he was applying the brilliant tints appropriate; this (as he told us) a work to occupy about a month. Near him sat an old man of almost ninety years, diligently working also, and without glasses, on this ornamental tinting of a cup from a flowery pattern,—a province in which he shows skill yet unenfeebled by age.

As to the endless varieties of furniture for the dinner-table and *café*, for the kitchen and bedroom, to be seen at La Doccia, we need only record our general impression of good taste, and of the laudable intent to render ornamental whatever objects for ordinary use prove capable of receiving such character. The clays here used for manufacture are in part from the southern Neapolitan provinces, in part from a mountain in the vicinity of Florence, and one species (with almost the whiteness and purity of marble) from the neighbourhood of Limoges. A pile of new and yet unfinished buildings on one side announces the enlargement of these premises, and is, we were told, to contain another great furnace.

On the whole, a visit to the Ginori establishment is well worth an afternoon's expedition from the capital (whence the distance is about

nine miles); and the stranger leaves with a favourable idea as to the degree in which artistic feeling announces itself in the industrial walk of Italian activities. This is now the only factory of the description entitled to rank high as to scale and variety of produce in that country, seeing that another, which once vied with it, at Capo di Monte, Naples, was suppressed, about seventy-seven years ago. We are told by an acquaintance of the Ginori family that, in the long run, their enterprise secures no clear profit, so great are the contingent expenses. And yet, as we were informed at the *negozio* in Florence, the objects sent to the Great Exhibition in London, of the aggregate value of about 80,000 francs, were all sold in England,—no bad example of successes in the export commerce. The display now brought under the notice of all visitors at the Italian capital must promote the deserved renown of these manufactures.

SOMETHING ABOUT MEXICO.*

THE last article concluded with a description of the cotton-mill at Cocolapam, and I must further observe that there is difficulty at times in procuring the raw cotton for manufacture, as it is not at all cultivated in the neighbourhood of Orizaba, but only on the "Tierra Caliente," in the vale of rivers, and on the coast about Almaredo, and other places a considerable distance off.

There are many good substantial houses and stores erected in the city and suburbs of two and three stories in height, the best of which are occupied by Englishmen, Americans, and others connected with the Imperial Mexican Railway.

The climate of Orizaba is considered healthy; but in the rainy season, and when the nortes prevail, it is visited frequently by disagreeable fogs, a thick atmosphere and sense of dampness prevailing, which produce rheumatic and neuralgic complaints. Many prefer the climate of Cordova, as being less liable to these visitations, &c., more equable range of temperature, although cases of yellow fever sometimes occur there; on the other hand, some Europeans say Orizaba is the first place you reach in travelling westward in Mexico in which they can exist with any degree of safety to health and comfort.

The scenery around Orizaba is picturesque, bold, and magnificent, situated as it is, embosomed in the mountains near the base of the towering peak, which almost appears to overhang it, and seemingly threatens to topple over and destroy it, or with terrible and mighty avalanches of snow to sweep all away to destruction; yet it is twenty miles or more distant, and therefore safe from any such catastrophe.

The ascent to the summit of the peak is seldom or ever made, in consequence of about 5,000 ft. of its summit being usually covered with snow. But that varies at times: in the hot and dry season it melts away; but when the wet season arrives, it materially extends the base which it covers, and these changes are perceptible to distant observers. It requires three days, I believe, to make the ascent from Orizaba, when practicable from a reduced quantity of snow; and parties should provide themselves with tents and other necessaries, and pitch them on the mountain at certain stages to rest in ascending and descending: it is altogether a very perilous undertaking, and persons must be possessed of good physical powers and strong nerves to accomplish the ascent with success.

There are guides to be had at Orizaba, and at the foot of the mountain, to accompany you and lead the way,—active, lithe, fatigue-enduring Indians; and I understand the views from the summit, when the clouds that usually hang about it are dispersed, and, even at lower and intermediate stages, are extensive and grand in the extreme, embracing a large area over the Tierras Templada, Caliente, and "Tierra Frio," and which well repay the adventurous spirits who are lovers of wild and rugged scenery, searchers after the grand, noble, and sublime in nature, for the labour and privation in making the ascent.

Wild animals also abound in this mountain range, and wolves, very like the European species, have been seen there, prowling about near the hour of setting sun, when all nature suddenly assumes the dusky mantle of night, and they can pursue their prey without fear or molestation. As you ride along the road near the dusk of evening, you can hear the horrid howls of the packs of wolves that ravage the country, rendering travelling dangerous at that hour.

Soon after leaving Orizaba, the road passes through the more mountainous region of Mexico; it winds round about the bases and sides of the mountains, passes along the sides of precipitous declivities, crossing solitary-looking dingles and dells, ascending hills at one time, and slightly descending or travelling level ground at others, thus mercifully laid out to assist in the general ascent over a country but little cultivated, barren and sterile in many places, rough, angular, dark-looking boulder-stones, covered with moss and lichens, or still rougher-looking, ill-shaped, projecting bluffs and rocks, the earth covered with long yellow-looking grass, affording but a scanty meal for cattle, goats, &c., until you are relieved by the sight of Maltrato, of ominous meaning, viz., "ill-treatment," a place which richly deserves its name, and therefore not to be recommended as a desirable place for the wearied traveller or tourist to sojourn.

Maltrato is a small Indian village, with a miserable-looking place as an apology for an hotel; it is situated by the side of the "Camino Real," and is now used as the head-quarters of the contractors for the railway, and as a residence for the agents in carrying on the work.

At Maltrato the first sod was cut by the Emperor Maximilian, on this section of about two miles of the railway, which was first prepared for active operations. On this occasion the usual donations of silver spade and silver-mounted wheelbarrow were duly presented by the agents of the contractors, and, after the interesting ceremony was over, a sumptuous "punáda de comida" was prepared for the emperor and his suite by the principal agent of the contractors, and which was attended by the chief engineering and contractor's agents then in Mexico. After the cloth was removed the emperor's health was proposed and drunk with the usual honours. He made a very suitable and pithy reply in fluent English. Amongst other remarks he observed he was much pleased to find the construction of the line of railway was placed in the hands of an English company and English engineers, as they usually did their work so substantially and well, and he heartily wished success to the undertaking. The whole of the engineers and contractor's staff were severally presented to him, and were received with marked distinction: words of a complimentary character were addressed to each individual.

On the emperor's arrival at Maltrato, a novel mode was adopted of receiving and saluting him. Twenty-one shots were placed in the rock of the excavation of the line of railway, and, when he arrived in sight, and gradually approached nearer, they were exploded one after the other, in the usual way of firing cannon in royal salutes, and never before, I should think, has emperor or monarch been honoured in such a way. The shots all told well, and were effective. They did their work in blasting the obdurate rock, as well as paying honour to the supreme power, and may be said, to use a common-place and homely simile, "to have killed two birds with one stone."

On this part of the line are some heavy works, rock cuttings, and embankments, large stone viaducts, and also short tunnels; and many of these are situated on the steep incline of 1 in 25, and even on curves of 450 ft. radius.

From Maltrata to the Cumbres of the Bocca del Monte the road is very circuitous; alternately very steep ascents with occasional level or slightly descending ground, thus laid out for relief to animals in making the ascent, over a rough and rugged road, and in a country as rough and barren, rocky and sterile, as any tourist can imagine in highly mountainous regions; queer-shaped mountain-summits peering up at various points around you, and of different heights; the road winds in a serpentine course along the sides of arid mountains, crosses deep ravines, and ascends circuitously the sides of others; sometimes gently sloping sides and at others precipitous and dangerous, and so on and on until you reach the long-wished-for Cumbres of the Bocca del Monte, the apex of the mountain range where the road crosses, and this is situated about 8,000 ft. above the level of the sea.

On this part of the route vegetation is not very diversified, abundant, or luxurious, being principally rough bush and stunted brushwood; but the organ cactus grows fine and large, and the earth is plentifully covered with the long, yellow wiry-looking grass. The line of the Imperial Mexican Railway, for a few miles after leaving Orizaba, crosses over an undulating country, with steep ascending and slightly descending gradients, the ruling gradient being 1 in 40 until you arrive at the foot of the great incline, which carries you up to the summit of the Bocca del Monte. On this part of the line the inclination is to be 1 in 25 for a distance of 20 miles, and the radii of the curves not to be less than 150 yards.

The severity of the gradients and curves on the Imperial Mexican Railway will doubtless astonish our engineering friends in Great Britain, accustomed as they have been so long to look upon 1 in 100 as the maximum gradient, and the sharpest curve of 1 mile radius; and I have very grave doubts if these steep gradients and sharp curves can be worked with safety and commercial success, because the danger of ascending and descending such gradients with such sharp curves, even with guard rails or other contrivances and expedients, must be very great, and the wear and tear of rolling stock must form a very heavy item in their expenditure. The subject of gradients and curves has occasioned considerable discussion, and absorbed much of the attention of the scientific men of late years, and it may be interesting to state, in a condensed form, the nature of those now in use on the various lines of railway in the world.

The first steep incline, and probably one of the earliest worked by locomotive-engine power, was the Bromsgrove Lickey incline, of 1 in 37½ (this was considered a grave mistake on the part of the engineer); then one on the Edinburgh and Glasgow Railway, of 1 in 42 for 1½ mile; one on the Lancashire and Yorkshire Railway, the Accrington incline, of 1 in 41 for 2 miles; one on the Stockton and Darlington Railway, of 1 in 40; on the 7 miles of the Manchester and Oldham, 1¼ mile, 1 in 48, and approaching Oldham, 1 in 30 and 1 in 39, and about 1¼ mile at the Oldham end, 1 in 27; on the South Devon Railway, 1 mile, 1 in 41, with S curves of 15 chains radius; on the West Cornwall, 1 in 13 for ¾ of a mile; on the Whitstable Branch of the South-Eastern Railway inclines, 1 in 30 (these used to be worked by stationary engines for some years after its construction); another on the Folkstone Branch of the South-Eastern Railway, of 1 in 30; for ¾ of a mile on the North Scotland Railway, the Kitty Brewster incline, near Aberdeen, is 1 in 59, and full of sharp curves.

The above are nearly all the severe gradients and curves on the British railways. The expense of working the incline on the Stockton and Darlington Railway, of 1 in 49, absorbed all the receipts derived from working that part of the line.

On the Continental system of railways there are several steep inclines; on the Turin and Genoa Railway, the Soemmering incline, they are as follows: for 3·84 miles, 1 in 46; for 2·53 miles, 1 in 40; for 3·26 miles, 1 in 47; for 3·58 miles, 1 in 54; for 4·44 miles, 1 in 50; and for 3·84 miles, 1 in 50. On the Giovi incline, the gradient for 6 miles is 1 in 36. On the Tudela and Bilboa line, in Spain, that crosses the Pyrenees for 12 miles, the severest gradient is 1 in 70, and the sharpest curves are 300 yards radius; and on the Wellington and Stillenbosch Railway, at the Cape of Good Hope, for 12 miles the inclination is 1 in 40. On a line in Belgium, near Liége, there is an incline of 1 in 26, originally worked by stationary engines; afterwards, as an experiment, it was worked by locomotive-engine power, and they were obliged to resort to the stationary-engine system again, to work it with economy and success.

On the American system of railways they have similar failings for steep gradients and sharp curves. On the line from Baltimore to Wheeling, crossing the Alleghany mountains, the Soemmering incline has an ascent of 1 in 45½ for 11 miles, and 1 in 45 for 9 miles descending. The length of this line of railway crossing the Alleghany range of mountains is 60 miles: 20 miles are 1 in 45½, and 9 miles 1 in 50. The curves are 600 ft. radius.

On the Virginia Central Railway the incline approaching the Blue Ridge Mountains is 1 in 18 for 4½ miles. The curves are 570 ft. radius. On the eastern slope there is another incline of 1 in 20½ for 2·37 miles; and on the western slope 1 in 22 for 1·89 miles.

On the East-Indian railways there are also some steep inclines. The Bhore Ghaut inclines of the Great Indian Peninsular Railway for 15 miles 68 chains are 1 in 37 and 1 in 40, with

* See pp. 281, 383, 439, *ante*.

short level lengths introduced at intervals to aid the locomotive engine in making the ascent, and to check the speed in descending; and the Thul Ghaut incline of 1 in 37 is worked in a similar way.

These inclinations were laid out under the direction of the late Robert Stephenson, and doubtless considered by that eminent man as the utmost limit to which railway inclines can be laid out and worked with advantage and success, if not with economy.

Although there is a disposition to cast experience to the winds, and to chalk out a new path for us on the subject of gradients and curves, still it must be admitted that steep gradients act for ever after as a dead weight on the prosperity of a railway company, occasioning great wear and tear to the rolling stock and permanent way, and adding considerably to the risk and danger of railway travelling. The latter surely ought to be a subject of serious reflexion and consideration for railway companies, if we look to the proceedings of our Law Courts, when railway companies are so frequently and readily mulcted in heavy damages. Railway accidents must be a source of considerable emolument to the gentlemen of the long robe. Whatever may be said by the advocates for the *amended* system of railway construction, the new lights to dazzle and enlighten the Gentiles, it is not advisable for us to follow blindly, or too closely, what is possible for engineering science and talent to accomplish as to speed on railways, surmounting steep gradients, or working sharp curves: it is an engineering axiom, that maximum speed and results in every way, and of every kind, are to be attained solely on the direct line and level planes, and *pro rata* in the departure more or less from that condition, because there is scarcely any limit or extreme to which the genius of man may not be carried: what we have to do with as ordinary mortals, as simple denizens of this nether earth, is to take a common-sense view of what is practicable, expedient, and of commercial benefit; and if this view had been steadily adhered to in the laying out, constructing, and working of our railways, millions of capital would have been saved, ruin would have been staved off from many households, and our railway property would have been of greater commercial value than at present, and still the moderate wants of the country supplied with a sufficiently accelerated and cheaper mode of transit.

On looking over the "Stock and Share List" of the *Times* (April 18, 1866), I found there were forty-six lines of railway whose prices were quoted, and thirteen only out of that list were at a premium; the highest being 40*l.*, and the lowest 80*l.*, on a 100*l.* paid up, while the remainder were miserably below par. "Oh, what a falling off was there, my countrymen, when you and I and all of us fell down and 'railway jobbery' flourished over us."

To return to the immediate subject of my narrative. Having ascended now to Los Cumbre, formed by an expansion of the Cordilleros of Central America, we arrive at the great table-land or plateau of Mexico, "Tierra Frio," and one of the most important in the world; it is nearly an uninterrupted level, and the most extensive table-land in the world, except, perhaps, those of Asia, and is also one of the most populous.

It surpasses all other table-lands in its capacity for cultivation, and in the temperate climate produced by its great elevation, which permits the growth of the grains and fruits of almost all climates; still it suffers much at times for want of water.

The level of the table-land varies from 5,000 ft. to 9,000 ft. above the level of the sea, and where the "Camino Real" crosses it, varies from about 8,000 ft. to 7,000 ft., from east to west. It is not much cultivated at present, and is principally pasture land, with green patches here and there of wheat, rye, and barley, alternating with stunted brushwood and bush, and arid soil. The country is undulating in places, hill and dale, but not remarkable for timber, or very luxuriant vegetation, except in the dells or barrancas, that are more frequently refreshed by streams of water.

The prickly pear, cactus, Peruvian tree, and agave, or Mexican aloe, flourish there; the latter is extensively cultivated for the sake of its juice, from which the fermented, milky drink, called "pulky," is made, so much esteemed by Mexicans. There are no places of any interest between the Cumbres of the Bocca del Monte and Puebla, a place that will be celebrated in history for the long siege it withstood against the army of France, commanded by a French marshal, and which was bravely repulsed, and driven back on the first assault, but it eventually capitulated after three months' siege.

Columbris, the Mexican engineer officer who designed the fortifications, and so ably conducted the defence of the place, was my fellow voyager on my journey to Mexico; he was returning to his native country from his parole, as when Puebla was taken by the French he was made prisoner, and sent to France, and I suppose he was permitted to return on giving his adhesion to the new empire. He was a man of small stature, and of no soldierly bearing, but still he was apparently active and energetic.

Puebla, before the war, was a place of considerable importance,—in fact, the only place between the "Cumbres" and the city of Mexico; its population was about 80,000, but I think it is now considerably reduced. Its general appearance now is one of dilapidation and ruin, battered and bombarded, gaping walls of convents, shattered churches, and long lines of tumble-down houses; the walls loopholed attest the sanguinary fight and deadly hand-to-hand struggles that took place in the siege, storming, and occupation of the city by the French. Puebla stands upon an extensive plain about 7,381 ft. above the level of the sea; its streets are well and regularly laid out on the same ruling principle that appears to have guided the Spaniards or their predecessors in laying out the towns and cities of this large empire. I must say that if the same foresight and wisdom had regulated the English in laying out their towns as appear to have actuated the founders of the cities of the empire of Mexico, we should hear less of their defective sanitary state, and see less misery and squalor that are a disgrace to us as a civilized nation.

The streets run east and west, and north and south, with the usual central plaza; they are broad and well paved, with the channel down the centre, and the water-supply is introduced by means of an underground conduit, and there are fourty-four fountains erected in various parts of the city.

In the fine central "Plaza des Armis" stands the cathedral, a large and imposing building, and decorated in the same gorgeous and sumptuous manner as the other Catholic churches of this country; there are also sixty-nine churches, nine monasteries, thirteen convents, and twenty-three theological colleges, several educational institutes and charity schools.

So with all these facilities for religious and educational purposes, the inhabitants of Puebla have unusual advantages of religious and other teaching if they would avail themselves of it; but it is notorious to all those who have travelled in the country, that guerillas abound in this part of Mexico more than in any other; robberies and murders innumerable are committed on each side of and at no great distance from the city; and instances have been known where the military have been surrounded, overpowered, and deprived of their arms and what money they had about them by these bravoes, and sent back thus dishonoured to Puebla. There are also the government and bishop's palaces, hospitals, some good hotels, and benevolent institutions in the city.

The houses of Puebla are of the usual Mexican architectural type, and many of them are three stories high; they have flat-terraced roofs, and they adopt the usual system of ornamenting them with stencil patterns in colour, also with fantastic and other ornaments on the exterior.

The scenery around Puebla is of a very flat and uninteresting character, and would be absolutely monotonous but for the remarkable bold and magnificent volcanic and other mountains that may be seen in the distance. To the east is situated the Peak of Orizaba, previously described; to the west the no less celebrated Popocatepetl, 17,720 ft. high, still smoking, in which state it has continued for centuries without any irruption taking place. This mountain, notwithstanding its altitude and its snow-covered, frigid, repulsive cap, has been ascended several times by tourists, and recently that laborious feat has been accomplished by two adventurous Americans.

Other mountains, amongst them Ixtacihuatl, 15,780 ft. high, a little to the north-west, may be seen. They are principally cone-like in shape, capped with snow, and the lower parts are fringed or girded round with forests and vegetation. The upper parts are bare, sterile, and rocky.

About 15 miles to the north-west of Puebla is Cholula, once a flourishing town, but now in a state of decay. Its chief attraction now is the remarkable and ancient pyramidal memorial of aboriginal origin, erected in stages, of clay and sun-dried bricks. It is 1,423 ft. long on its base, and 177 ft. high above the level of the plain. On the top there is a chapel erected, of Spanish origin. This is one of the most wonderful sepulchral mounds existing on the face of the earth at the present day. Its origin is very remote, probably as far back as the days of the "Toultecs," about the year of our Lord 600. It bears a striking resemblance in its character to the pyramids of Egypt, and evidently is as well able to withstand the ravages of time, and is equally lasting and enduring as those celebrated monuments of antiquity, though not constructed in enduring stones.

Mexico may be considered *par excellence* the territory of remarkable and antique ruins. In addition to the great memorial pyramid of Cholula, there are the equally remarkable pyramids of Teotihucan, very much resembling Cholula in design and arrangement. There is also the great pyramid of Papantla, in the northern part of the state of Vera Cruz. These are all artificial erections, the handy-works of men in a barbarous and uncivilized state, and doubtless used by the aborigines to worship the deity, their "god of air, fire, and water," in their own simple and unsophisticated way. As the poet says,—

> "Lo, the poor Indian, whose untutor'd mind,
> Sees God in the clouds, and hears Him in the wind."

This large territory has also been the scene of warlike struggles before the present day; there are numerous military works and entrenchments in different parts of the country, but one of the most remarkable is near Cuernavaca; it is an insulated hill, 370 ft. high, entrenched round, and divided into five terraces, looking like a pyramid. It is constructed of masonry, of durable stone, perfectly wrought, and hieroglyphical figures are carved upon it.

To the south of the country, through which the "Camino Real" goes, is the province of Oaxaca, and to the east of the city of that name stands the remarkable palace of "Mitla." It is thought to have been a palace constructed over the tomb of the ancient rulers of the country, and used for scenes of mourning and retirement. There were originally five separate buildings, and the principal one is about 130 ft. long, with large subterranean apartments; the beams supporting the ceiling were of cedar, and resting on porphyry columns, and the roof was covered with large slabs.

There are pillars, lintels, and other masonry scattered about, leading to the inference that the buildings, of which there is but a very faint outline, were very extensive, and rudely magnificent. The walls that remain are covered with paintings or frescoes, of various subjects, fantastically designed, referring to war and religious observances. Oaxaca, the chief town of that state, like Puebla, occasioned the French considerable time and trouble to take; it was so strongly fortified, and the military works so skilfully designed, that they had to lay siege to it by regular military approaches, and after effecting a breach they stormed it, but the attempt was unsuccessful; and when at length it fell into the hands of the French, it was not carried by a feat of arms, but was treacherously surrendered by the Liberal general, who gave up the place and all it contained, on condition of his being allowed to escape, having been arrested by a French sentinel in attempting to pass through the lines, and brought before the French marshal.

I have no doubt that many ruins exist in various parts of Mexico of equal interest to those above mentioned, and to those of Central America; immense ruins of cities, monuments, haciendas, &c., that are overgrown, covered, and buried in the bush and forest. It is astonishing how rapidly vegetation grows in that country, particularly in the rainy season. In a month's time grass and bush will shoot up at least 3 ft. high; and six or eight years are sufficient to cover the entire surface of the land with lofty bush, and even trees that would measure in altitude from 20 ft. to 30 ft. The trees that grow so rapidly, and that form an almost impermeable forest so quickly, are several species of acacia, the dragon's blood, and other tropica trees; and these are generally interlaced and bound together in one mass by various kinds of parasitical plants.

B. B.

DUBLIN.

THE new office for the Scottish Equitable Insurance Company, which will be another addition to the palatial street houses of this city, is in course of erection in Westmoreland-street, near the offices of the Dublin Ballast Board, and to the scene of the late disastrous fire. The fast-increasing difficulty of obtaining room in the best streets has here put the ingenuity of the architect severely to task, and compelled him to adopt what may be called aptly a vertical treatment; and the result, as seen on the drawings, is satisfactory.

The frontage to this insurance office is confined, measuring but a few inches over 20 ft. wide; the average height is 60 ft. to the coping of the corby-stepped gable, which is presented to the street. The style adopted is Scottish Jacobean, freely yet judiciously enriched. There are five floors, the upper story marked by the gable being almost entirely in the roof. All over the ground-floor will be occupied in chambers. On the ground-floor, flanked by pilasters in polished Aberdeen granite, banded in manner characteristic of the style, the entrance communicates directly with the public office, and with the staircase and rear portion of the premises. On the second story the windows will have arched heads, with tympana containing carved devices intertwining the monogram of the company. On the fourth story, at each quoin, is a pilaster of Aberdeen granite, treated as an adaptation of the Ionic order, polished and divided at half their height, with an ornamental shaped band of limestone: these are surmounted, suitable entablatures intervening, by griffins bearing bannerets, and seated in a defiant attitude. The facing, which is of limestone of an admirable tint, is from quarries at Milverton.

The offices, inside and outside, will be equally decorative. The public office will have an encaustic tile floor, and will be fitted with a stained pitch-pine ceiling, with richly-moulded plates, supported on Caen stone carved corbels. The counters will be of Riga oak, and the fittings and furniture throughout be made to correspond in character and richness. Due provision is made for heating, lighting, ventilation, and safety from the spread of fire. The ventilation is peculiar and remains to be tried, being effected chiefly, if not altogether, considerably over head. The cost of the building will be about 3,400*l*. Mr. John Nolan is the contractor. The architect is Mr. W. G. Murray, assisted by Mr. Thomas Drew.

COMPETITIONS.

Market Drayton Cemetery.—The Board have awarded the first premium to Messrs. Clarke & Son, of Nottingham; and the second premium to Mr. R. W. Johnson, of Melton Mowbray and Leicester. Upwards of thirty sets of designs were sent in.

CROSTHWAITE'S MUSEUM, KESWICK.

WE understand that this well-known museum of natural history, which is, we believe, of high character and utility, and has been the result of nearly a century in collecting, is at this moment in the market. All visitors to the Lakes will remember with interest their visit to that quaint curiosity-shop; and we earnestly trust that some spirited effort may be made to retain it in the district to which it properly belongs. We learn that it was founded upwards of seventy years ago, by Mr. Peter Crosthwaite, a native of Keswick. His activity and unceasing energy through a life of more than ordinary vicissitudes and duration, form an interesting episode in the chapter of local biography. Embarking for India in his twenty-second year, he there entered the service of the Hon. East India Company, was present at the taking of Surat Castle, which happened soon after his arrival, and for his gallant conduct on that occasion received a speedy promotion. On his return to this country he obtained a situation in the Customs, in Northumberland. This he held for some years; but his health suffering much here, he resolved upon settling in his native town, which he did, not much better in circumstances than when he left it. In the year 1780, he conceived the project of establishing a museum for the entertainment of visitors to the Lakes, just then becoming more frequented every year. By dint of much labour and perseverance, he finally succeeded in collecting a museum, which still stands unrivalled, as a private collection, in the north of England. His ingenuity increased his resources; these he always spent upon his favourite object.

The museum is rich in ancient British, Roman, Saxon, and Norman antiquities, illustrating the early history of the district; and contains a collection of Roman and Early English coins. Of ancient books, many are worthy of especial notice, in particular a Book of Psalms in Latin (Paris, A.D. 1488). The geology of the Lake District is portrayed by a collection of geological specimens and fossil remains, including many tropical plants. The mineralogy of the district is likewise particularly represented. In natural history, the founder's plan was rather to select good specimens of rare species than collect a whole series, and in this he and his successors admirably succeeded. Peter Crosthwaite died in the year 1808, and was succeeded by his son Daniel, who devoted the whole of his life to the same object, and with equal industry and research. For some time the Crosthwaite Museum was conducted by his grandson, Mr. Fisher Crosthwaite, who is now manager of the Cumberland Union Bank in Keswick.

IPSWICH SCHOOL OF ART.

MR. W. T. GRIFFITHS, the master of this school, was invited by the students last Friday to a meeting convened by them for the purpose of presenting to him a testimonial of their appreciation of his zealous and able labours on their behalf. Mr. C. G. E. Bacon, the honorary secretary of the school, presided over the meeting, and spoke warmly of the zeal and energy of Mr. Griffiths.

The present consisted of a gold watch and chain, of the value of about 30*l*. The watch, which has the simple inscription on the cover, "Presented to W. T. Griffiths by the Students of the Ipswich School of Art, July, 1866," is a beautiful gold double-bottom lever watch, ¾ plate, gold seconds dial, jewelled in six holes, compensation balance, &c.

Mr. Griffiths, in responding to this token of the esteem of his pupils, said that it had always given him much pleasure to perform his duties in connexion with the Ipswich School of Art, and especially as he saw from time to time such decided advancements in them. He assured them of his attachment to his profession, and of his great anxiety to see fine-art education more widely appreciated.

MEDIÆVAL DOMESTIC ARCHITECTURE OF THE RHINE.

A FEW years ago, no part of Europe contained so many specimens of ancient domestic architecture as the banks of the Rhine. The last ten years, however, have made sad havoc amongst these relics of former times. Everywhere "improvements" are going forward with their destructive influence upon everything ancient or picturesque, so that in a few years little will remain attractive to the antiquary or the artist in these once glorious old towns. Bonn, Rudesheim, Ober Lahnstein, St. Goar, St. Goarhausen, and Remargen have suffered most, probably because most visited by our own countrymen.

One of the finest examples of Old Domestic architecture has just been destroyed at Baccarach, and the oldest group of houses in Coblentz is at this moment under the pickaxe. It is singular and very fortunate that Cologne has, to a considerable extent, escaped this fury of demolition, and most of the streets near the Rhine, and about the old market-place, remain pretty much in their original condition.

But the towns which have best escaped are Oberwesel, Boppart, and Ober Spai, probably on account of their comparative insignificance. Boppart, in fact, offers a most ample field for the study of domestic architecture of every date from the thirteenth century to the eighteenth century. We will give some examples in an early number. The accompanying engraving (p. 542) represents a fifteenth-century house in Baccarach. It formed one of a pair of the finest timbered houses on the Rhine. Its fellow was destroyed last year, and from the remains, consisting of a doorway and two windows, appears to have been very elaborate, and so solidly built as to offer no excuse for its destruction. There are many other old houses at Baccarach, but its street architecture generally is very inferior to that of Boppart.

GATEWAY TOWERS, PRAGUE.

THERE are few more interesting cities in Europe than Prague, the ancient capital of Bohemia, and just now it comes forcibly into view. Whether considered historically or archæologically, a city which has seen the introduction of Christianity into Bohemia, the commencement of the German Reformation and its ultimate overthrow, and the beginning and end of the thirty years' war, cannot fail to be full of memorials of those great events of which it has been the scene.

Prague, or, as the Germans call it, "Prag," is beautifully situated upon the Moldau, a very broad river forming a tributary to the Danube, and consists properly of five distinct towns: on the east bank of the river are the "Alt-Stadt," "New-Stadt," and "Juden-Stadt;" on the west, the "Hradschin" and the "Klein Geit." These are connected by two bridges, one of which is the finest structure of its kind in Europe: it is nearly a quarter of a mile in length: over each pier is a group of statues: the ends are defended by gateway towers, which we shall afterwards describe: the whole is a work of the latter part of the fourteenth century. Each of these towns had originally its own walls and fortifications, and was completely separated from the others. The Hradschin, containing the palaces of the king and the nobility, and several churches and convents, is a lofty hill, nearly precipitous on the east, south, and north sides: the walls and fortifications remain tolerably perfect on the north and east sides, and form a most picturesque group of buildings, crowned by the lofty apse and tower of the cathedral, and the dwarf spires of the Benedictine Church of St. George. The cathedral is a very interesting church, although a most imperfect building, consisting only of a choir, aisles, chapels, and tower: of the north transept the east wall alone has been erected, and the south, although perfect as far as its walls go, is unroofed: the great unglazed east window forms a fine and singular feature from a distance. To the west of this transept is the massive tower, crowned with a modern bulbous spire. The plan of the choir is very similar to that of Cologne, and almost equally lofty. The lower portion of the south transept is vaulted, and forms the chapel of St. Wenceslaus, which is ornamented externally with a mosaic representing the Last Judgment—a work of the fourteenth century, and the only specimen of a picture mosaic existing this side of the Alps. Internally the church is a perfect storehouse of works of ancient art: there are many fine old pictures, some of them Byzantine, a wonderful seven-branched candlestick of the tenth century, numerous old monuments, and in the chapel of St. Wenceslaus a series of frescoes and mosaics of the greatest interest. The high altar and one other altar are of silver, and the immense and costly, though badly designed, shrine of St. John Nepomucine is of the same costly material.

The Benedictine Church of St. George, near the cathedral, is even more interesting; it is of the very earliest Romanesque work, and possesses a singular crypt under the chancel, entered from an arch between the choir steps, and supported upon two rows of very slender columns. At the west end of the nave is a deep gallery of stone, and over the north aisle is a triforium, but no clerestory. To the north of the upper choir is the Chapel of St. Ludwilla. The shrine in the centre of the chapel is a fine fourteenth century monument, with statues and canopies. The church contains also the tombs of Ottakar II., St. Milida, and Ratislaff I., the first Christian Duke of Bohemia, A.D. 920. They are simple Romanesque coffin-shaped monuments. The exterior of this interesting church has been modernized, except the two spires at the west end.

A few portions of the old palace of the Hradschin remain; they are in a style resembling Elizabethan. The modern palace is ugly and uninteresting. There are five other churches in the "Hradschin," one of which belongs to the Capuchins.

At the foot of the Hradschin, and stretching along the west bank of the river, is the "Klein Geit." It contains eight churches. The only

DOMESTIC ARCHITECTURE OF THE RHINE.



Fifteenth Century House at Baccarach.

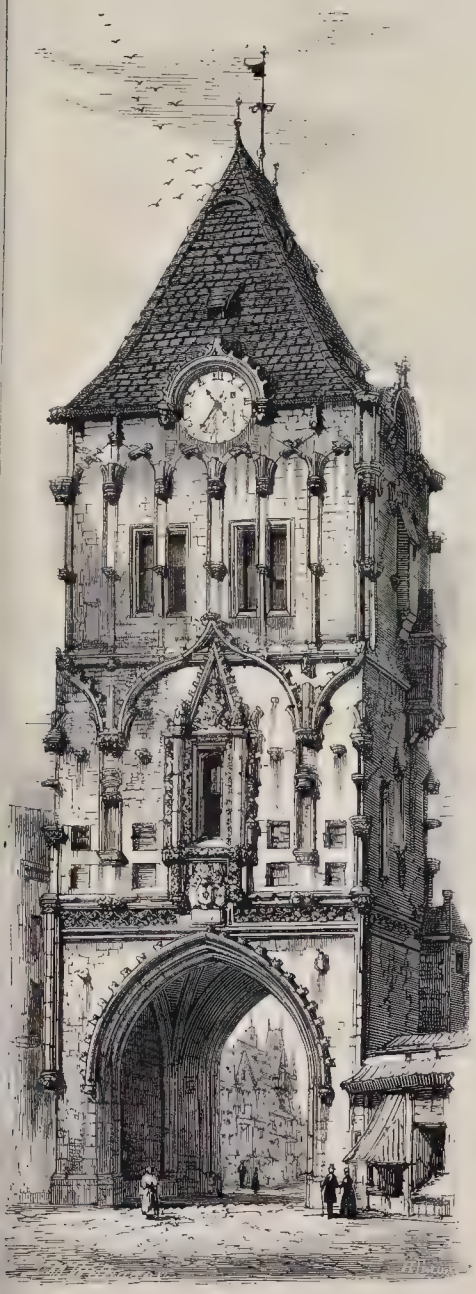
one of any interest is that attached to the Monastery of Strakoff. It is a large Romanesque building, but has been very much modernized; near it is a singular Late-pointed octagon chapel. A noble gateway, flanked by unequal towers, defends the entrance to the Klein Geit from the bridge. It was erected by the Emperor Charles IV., about the year 1550. The statues and other ornaments were destroyed by the Hussites.

The views of the town from the bridge are remarkably fine. At the opposite end of the bridge is the "Alt Stadt" Bridge Gate (see illustration): this consists of a lofty tower divided into three stories, and a steep roof crowning the whole; perhaps it is not too much to say, that this is the most perfect and elaborate specimen of ancient military architecture in existence. All the detail is most charmingly designed and carefully executed, and the whole is in a fine state of preservation except the side which faces the bridge, and that was mutilated by Gustavus Adolphus in revenge for its having kept his army at bay for nearly six weeks; this gateway was built by the Emperor Charles IV., whose figure is represented in the centre compartment, standing upon a model of part of the bridge, with scutcheons and seated figures of kings on either side. The "Alt Stadt" is by far the most picturesque part of Prague; most of the houses are built upon arcades, and are of considerable antiquity. The "Grosser Ring," or market-place, is a noble square; on one side is the Rathhaus, partly old and partly modern; of the ancient portions there is a fine lofty tower with overhanging turrets, a beautiful little chapel with the apse bracketed out from the wall; a most wonderful stone clock-case, about 30 ft. high, and ornamented with the most elaborate sculpture; two or three fine doorways; and the council chamber, all in a good state of preservation. On the opposite side of the square, above the houses, rises the lofty front of the "Thein" church, with its remarkable spires;* this church was built in the reign of Charles IV. It has a very noble appearance on account of its vast height, being 120 ft. to the vaulting. The plan consists simply of a nave and aisles of six bays, with three apses at the end, and two towers at the west; on the north side is a fine doorway, with the Last Judgment represented in bronze in the tympanum. Internally are several old altars, one with a most elaborate ciborium over it, a good fifteenth-century stone pulpit, and several old pictures and monuments. All the other churches in the "Alt Stadt" were destroyed or injured by the Hussites, and have been since restored in the bad taste of the seventeenth century. The gateway leading from the "Alt Stadt" at the end of the Zeitner gasse, called the "Pulver thor," is a very fine specimen of military architecture (see illustration). The detail is remarkably elaborate; it has been much injured by the Hussites, Gustavus Adolphus, and other iconoclasts, but still enough remains to restore the original design. This gateway is probably of rather late date, and may be fifteenth-century work. The old walls of the "Alt Stadt" have disappeared, and with the exception of the gateways described, none now remain. A few of the towers exist; they are generally square, and have been capped with modern bulbous spires.

We have other illustrations to give of this interesting old city.

* One of these was published in the *Builder*, September 30, 1865.

THE GATES OF PRAGUE.



The "Pulver" Gate.



The "Alt Stadt" Bridge-Gate.

THRUST OF GOTHIC VAULTING-RIBS.

IN a former paper (p. 228) I investigated a rmula for finding the thrust of a Gothic arch rrying a wall above. I now proceed to the nsideration of the ribs of Gothic vaulting hich have only their own weight to sustain, id have no surcharge. In determining the ickness of the wall or pier, we have to con-der not only the thrust of the transverse ribs cting perpendicularly on the wall, but also that the diagonal ribs which spring from the same rbel and are necessarily of a greater span an the transverse ribs.

Let fig. 1 represent the transverse section of

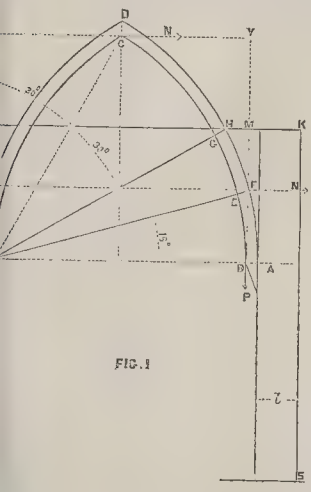


FIG. 1

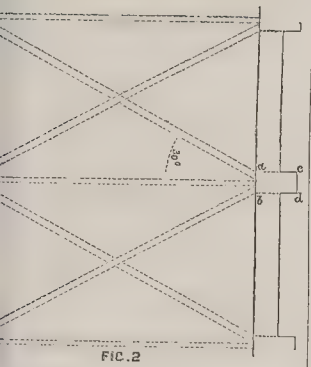


FIG. 2

vaulting and pier; fig. 2, the plan of two s; and let the diagonal ribs make an angle 0° with the transverse rib. I will suppose haunches of the arch to be filled up at the to the point H, and OH to make an angle 0° with OA; the pier being also carried up e same height. In this form of arch the lency is to break up by the falling in of the HF, and the rising of the crown CD; so the joint CD would tend to open at D, and joint EF (where the thrust is greatest) to at E. Hence we must suppose N (the st of the other half arch) to act at C, and ake our moments about the point F.

roceeding in the same manner as in my er paper, I take the area DCGH multiplied he perpendicular distance of its centre of ity from F; add to this the area MVTF ltiplied by the distance of its centre of gravity F; add to this the area of the triangle into the distance of its centre of gravity F; then deduct from the above the area of gle HVO into the distance of its centre of ity from F, and also deduct the area of the r GOE into the distance of its centre of ity from F. The remainder multiplied by breadth of the rib and by the weight of a cubic foot of masonry gives us Px, which divided by YF or y gives $\frac{Px}{y} = N$, the thrust of the opposite half of the arch.

In the rest of the investigation for the thrust of each rib we proceed as in the former paper, except that the forces P and N are supposed to act at F instead of E, as in the former case. Using the same notation as before and reducing, we find

$$Px = l\,\delta\left\{\cdot0003r^3 + \cdot1487r^2h + \cdot6509rh^2 + \cdot402h^3\right\}$$

$$y = \cdot5904r - \cdot2756h. \quad N = \frac{Px}{y}$$

$$N\,b\,\sigma = 2\,N\left(H + \cdot2756\,(r+h)\right)$$

b being the height NS; l is put for the *thickness* or *breadth* of each rib, h being the *depth* EF. KS = H.

Transposing P and N to F, and then taking moments of all the forces, about S,

$$P = l\,\delta\left\{\cdot0095\,r^2 + \cdot7869\,rh + \cdot682\,h^2\right\}$$

$$a = \cdot0387\,(r+h) + t.$$

The moment of the mass MFEBA is,

$$Rc = l.\,\delta\left\{\begin{array}{l} t\left(\cdot0122\,r^2 + \cdot304\,rh + \cdot152\,h^2\right) \\ \quad + \cdot0002\,r^3 + \cdot00424\,r^2\,h \\ \quad + \cdot1439\,rh^2 + \cdot048\,h^3 \end{array}\right\}$$

We have now to find similar expressions for the two diagonal ribs, and, adding all together, obtain an equation from which to find t, the thickness of the wall.

Putting N′, b′, P′, a′, R, c′, σ′, y′, and r_1 for the corresponding quantities in the diagonal ribs, we have

$$P'x' = l\delta\left\{\cdot0003r_1^3 + \cdot1487r_1^2h + \cdot6509r_1h^2 + \cdot402h^3\right\}$$

$$y' = \cdot5904\,r_1 - \cdot2756\,h. \quad N' = \frac{P'x'}{y'}$$

$$N'\,b'\,\sigma = 2\,N'\left(H + \cdot2756\,(r_1+h)\right) \times \cdot866$$

In this last we multiply N′ by ·866 or cos. 30° to resolve it perpendicularly to the wall; and if the diagonal ribs make any other angle than 30° with the transverse rib, we multiply N′ by the cosine of that angle. We have now to take the weights of the several portions of the diagonal ribs multiplied by their perpendicular distances from the outside of the wall.

$$P' = l\,\delta\left\{\cdot0095\,r_1^2 + \cdot7869\,r_1\,h + \cdot682\,h^2\right\}$$

$$a' = \cdot0387\,(r_1 + h) \times \cdot866 + t$$

$$R'\,c' = l\,\delta\left\{\begin{array}{l} t\left(\cdot01937\,(r_1+h)\,r - \cdot00715\,r_1^2\right. \\ \quad \left. + \cdot2843\,r_1\,h + \cdot1519\,h^2\right) \\ \quad - \cdot000143\,r_1^3 + \cdot000325\,r\,r_1^2 \\ \quad + \cdot003024\,r_1^2\,h + \cdot00065\,r\,r_1\,h \\ \quad + \cdot12427\,r_1\,h^2 + \cdot00033\,r\,h^2 \\ \quad + \cdot0415\,h^3 \end{array}\right\}$$

When the diagonal rib makes angle 30° with transverse rib, $r_1 = 1{\cdot}155\,r$.

We have now to find the moment about S of the pier KS, whose width, ab or cd, we will take as equal to three times the thickness l of the ribs, so that we have $\frac{1}{2}\,Q\,t = \frac{3\,l}{2}\,\delta\left(H + \frac{1}{2}(r+h)\right)t^2$

We now can form our equation from which to obtain t, multiplying each quantity by 2, that applies to the diagonals, so as to get the thrust of *both* ribs. The equation is,—

$$N\sigma + 2N'b'\sigma = Pa + 2P'a' + \tfrac{1}{2}Qt + Rc + 2R'c'$$

which becomes, when calculated, a quadratic equation with respect to t.

Example 1.—Let $r = 20$ ft., $r_1 = 23$ ft., $h = 1$ ft.
$l = \frac{1}{4}$ ft., H = 30 ft., $\delta = 150$ lb.
$Px = 5638{\cdot}4$, $y = 11{\cdot}5316$, N = 489
$P'x' = 7312{\cdot}7$, $y' = 13{\cdot}3026$, N′ = 550
$N\sigma = 35001$, $2N'b'\sigma = 69760$
$Pa = 1233{\cdot}5 + 1516t$
$2P'a' = 2874{\cdot}4 + 3570t$
$Rc = 472{\cdot}7 + 834t$
$2R'c' = 975{\cdot}4 + 1831t$
$\frac{1}{2}\,Qt = 4556t^2$

Hence our equation becomes,—

$$4556t^2 + 7751t + 5556 = 104761$$
or, $t^2 + 1{\cdot}7t - 21{\cdot}774 = 0$
$\therefore\ t = 3{\cdot}89$ ft.

Example 2.—Let $r = 30$ ft., $r_1 = 34{\cdot}65$ ft., $h = 1$ ft.
$l = \frac{3}{4}$ ft., $\delta = 150$ lbs. Then we find
N = 926, N′ = 1057, $N\sigma = 89905$,
$2N'b'\sigma = 182438$, $\frac{1}{2}Qt = 8325t^2$
$Pa = 3943 + 3283t$
$2P'a' = 9409 + 7868t$
$Rc = 1385 + 2026t$
$2R'c' = 2885 + 4428t$

The equation for finding t becomes

$$8325t^2 + 17605t + 17622 = 272343$$
or, $t^2 + 2{\cdot}115t - 30{\cdot}597 = 0$
$\therefore t = 4{\cdot}574$ ft.

Example 3.—Let $r = 40$ ft., $r_1 = 46{\cdot}2$ ft., $h = \frac{3}{4}$ ft.
$l = 1$ ft., H = 50 ft., $\delta = 150$ lb. Then we find
N = 2813, N′ = 3325, $N\sigma = 345456$
$2N'b'\sigma = 727328$, $\frac{1}{2}Qt = 15919t^2$
$Pa = 15417{\cdot}2 + 9589{\cdot}6t$
$2P'a' = 36486{\cdot}1 + 22904{\cdot}4t$
$Rc = 5509{\cdot}6 + 5718{\cdot}3t$
$2R'c' = 11591 + 12525{\cdot}2t$

And the equation for t becomes

$$15919t^2 + 50738t + 69004 = 1072784$$
or, $t^2 + 3{\cdot}187t - 63{\cdot}055 = 0$
$\therefore t = 6{\cdot}537$ ft.

In this investigation I have left out of consideration all the filling in of the vaulting, and also any smaller intermediate ribs or "liernes," as the introduction of these would very greatly complicate the formulæ, and would not materially affect the result, being made as light and thin as possible. Where their weight is considerable, it may be allowed for by increasing the value of δ in the equations for Px, Pa, $P'x'$, and $P'a'$ only.

E. WYNDHAM TARN, M.A.

OSWESTRY SEWERAGE & WATERWORKS.

THESE works, for which the Local Board obtained a special Act the session before last, were opened on Monday, the 16th instant, by the mayor and corporation.

The water is obtained from the springs of Pen-y-gwely, at a distance of six miles, and at an elevation of 700 ft. above the level of Oswestry. The supply is brought to the town by iron pipes, along the valley of the Morda, and over the top of the race-course, the dip between this point and the source being 350 ft. All the pipes have been tested by hydraulic pressure to twice the strain they will sustain in the works.

Duplicate reservoirs, to hold 3,000,000 gallons of water, are constructed opposite the Mount, about one mile from the town and at an elevation of 300 ft. above the level of the Cross.

New sewers and water-mains have been laid in every street of the town, and all the sewage is conveyed by one main outlet sewer to tanks at a distance, the tanks being kept at a sufficiently high level to utilize the sewage by gravitation on the large area of land below.

The outlay has been 16,500*l.*, and the works have been carried out by Mr. F. C. Bugbird, of London, contractor, under Messrs. Gotto & Beesley, engineers to the Board, and Mr. Shopland as clerk of works.

NORWICH ARCHÆOLOGICAL SOCIETY.

THE members of this society have made their excursion to Brandon and neighbourhood. The number of members and friends was about sixty. At Grime's Graves Mr. Manning read a paper on the Graves, in which he maintained that this irregularly-shaped cluster of holes were ancient British dwellings, forming the remains of an ancient town. Each hole had been lined with a layer of stones, and, when inhabited, had been roofed over with boughs or grass. The term "graves" meant a pit or hole, and the name "Grime's" was probably derived from "Graime," the Saxon for witch, or rather for anything supernatural. Thus the term "Grime's Graves" meant "Witches' Work." After leaving Grime's Graves, the party examined the Devil's Dyke, a long and extensive fosse and bank, supposed to have been made by the Ancient Britons for military purposes. Thence the party proceeded to Weeting, where Mr. Manning read another paper on the church and castle, and introduced general topics affecting the neighbourhood. Some light refreshments were provided in an adjacent marquee, through the kindness of Mr. Angerstein, of Weeting Hall. From Weeting the members proceeded to Cranwich Church, where the Rev. A. Sutton read a paper on the old tower. The church, which is very small, was nearly filled by the visitors. Mr. Sutton showed that the old round tower of the church must be of an age long anterior to that generally supposed. The next place on the programme was Didlington Hall, the seat of the high sheriff of Norfolk, which was not reached until an hour and a half after the appointed time. The com-

pany were received at the entrance by the high sheriff himself, who conducted them through the various rooms into the Egyptian museum, where he explained the chief objects, collected by himself during a long sojourn in Egypt. After the books, paintings, and antiquities had been examined, the party proceeded to a luncheon, presided over by the high sheriff. Having presented, through Sir John Boileau, the thanks of the society to their entertainer, the church adjoining was next visited. After leaving Didlington, the party proceeded to Northwold Church, where Mr. L'Estrange read a paper on the various archæological subjects connected with it. Time and weather did not allow of Methwold Church being visited, and the party proceeded thence to Brandon Station, which was reached in time for the 7·41 train for Norwich.

THE TRADES MOVEMENT.

Hereford.—The operatives on strike have held a meeting at which they have agreed to appoint a certain number of their body to meet an equal number of the master builders, in order to settle the question at issue between the parties. The masters had agreed to a reduction of an hour on the day's work, but refused to advance wages 6d. a day, as also required. The men now desire to decide the question by arbitration, if the masters will agree to the proposal, and also to the preparation of a code of rules for the future regulation of the trade.

Carlisle.—The operative joiners and masons are still out on strike. The employers held their adjourned meeting, after an interval of a month, but nothing was done.

The Iron Trade in the North of England.—Messrs. Bolckow, Vaughan, & Co. (Limited), of the Witton Park Iron Works, have issued notice of a general reduction of wages of not less than ten per cent. throughout the whole works. Messrs. Richardson, Duck, Denton, & Co., of South Stockton, have issued notice of an even greater reduction.

PROVINCIAL NEWS.

Market Lavington.—The Manor House is in course of erection as the future residence of the Right Hon. E. P. Bouverie, M.P. The main portion of the house was built last season, and the stabling and out-offices are now in course of erection. The buildings in all will cover nearly half an acre. The style is Old English of the Perpendicular period. The walls are of red brickwork, with black brick diamond patterns built in, and Bath stone dressings. The chimney stacks are built of bricks moulded to various designs. The contractor for the works is Mr. R. Fatcher, of Fisherton, Salisbury; the works being conducted by Mr. T. Jones as foreman. The bricks are supplied by Mr. W. Box, of Lavington. Mr. Ewan Christian, of London, is the architect; and Mr. W. H. Espenett, clerk of the works.

Congleton.—The new town-hall has been formally opened. We gave a view and plans of the edifice in 1864 (pp. 528-9). The foundation-stone was laid on the 4th of November, 1864. The building is of stone, and stands on the site of the old town-hall, its façade fronting to High-street. It is built on the plan of the old town-halls of England, that is to say, a covered market on the ground-floor open to the street, and entered by a series of arches, the upper portion of the building being appropriated to the magistrates' rooms, county-court room, committee-rooms, retiring rooms, and other municipal chambers. A row of eight windows stretching from one end of the façade to the other, affords light to the rooms to which they respectively belong. Over the central windows and also over the central arch on the ground-floor rises a tower, belfry, and clock chamber, with a machicolated parapet. In the roof are six dormer windows, lighting the chambers over the principal floor. On the first-floor are the municipal chambers. On emerging from the main staircase, is the library and news-room, looking to the front of the building, and on the corresponding side is the mayor's parlour, or magistrates' retiring-room. These apartments are light and lofty, and have wooden ceilings, carved stone brackets supporting moulded beams, in which are formed the joists which carry the floor above. The justices' room has two entrances from the principal landing, and will be used as the council chamber and the county-court room. It is lighted by a large semicircular window at each end of the room, surrounded by moulding. The roof of the court-room is boarded under the rafters, and is of an hexagonal form. The Assembly-room is 75 ft. long by 49 ft. wide, and designed after the style of the hall of San Marco, in Venice. The room is calculated to accommodate 1,000 persons at concerts, lectures, meetings, or any other public gathering. Half way up the principal wall a shallow gallery runs round three sides of the room, and on the fourth side or end opposite the entrance is a large semicircular window, moulded and carved, supported by decorated shafts, and containing three lancet lights. Below and forming part of the same composition is a Minstrels' Gallery, of Bath stone, in the Early English style, projecting like an oriel window into the hall. It consists of nine trefoliated arches, supported on enriched shafts, and flanked by full-length figures emblematical of the Muses, St. Cecilia, playing upon the organ, and a Welsh harper of the olden time. The sprandrels between the arches of the triplet window are filled with carving of birds and foliage. The roof and the method of lighting resemble the plan of the town-hall at Northampton. The roof may be briefly described as a hammer-beam roof, the light being obtained through fourteen circular windows, filled in with square panelling: the effect of the straight lines is somewhat broken by the projecting brackets supporting the roof. These circular windows are on a steep incline. The rest of the roof is kept at a very low pitch, the semicircular arches of the principals nearly filling it up. The gallery will hold about 200 persons, and the architect has provided exit to the ground floor at each end of the Assembly-room above and below. The town-hall has been erected after the designs of Mr. E. Godwin, architect; and has been built by Mr. Burkett, contractor, Wolverhampton. The stonework employed in its construction has been obtained in the neighbourhood, except the material required for the elaborations. The fittings in the court-room are by Mr. Brown, of Congleton. The contract was originally let for 5,600*l.*, excluding an allowance of 600*l.* for old material; but alterations and improvements since introduced, it is calculated, will increase the cost to between 7,000*l.* and 8,000*l.*

Bilston.—The three drinking-fountains presented to the town by Mr. Mason are to be fixed, one near the post-office, one near to St. Mary's Church, and the third by the Primitive Methodist Chapel.

Ilkeston.—The contract for the building of the townhall and public offices, at the cost of 2,650*l.* has just been let to Mr. W. Warner, of this town. The works have been commenced, and the foundation-stone will probably be laid in a short time.

WORCESTER.

THE foundation-stone of the new building for the Worcester Ophthalmic Institution has been laid on the old site, in Castle-street. The design was prepared by Mr. Perkins, the cathedral architect; and the new building will furnish the accommodation needed to make the institution thoroughly useful. The workmen employed in the erection of the new building were entertained at a dinner at the Three Tuns Inn, in honour of the foundation-stone being laid. Twenty-one sat down under the chairmanship of Mr. Pugh, the foreman, and a very pleasant evening was spent.

A new building is in course of erection in Pierpoint-street, opposite the future post-office, for the Worcester Chambers Company. When completed it will contain thirty offices, exclusive of cellarage, which will run underneath the whole building. Each floor or flat will be approached by a central staircase, and be fitted up with closets and fire-proof safes, and both water and gas will be laid on. It will have a frontage to Pierpoint-street of 72 ft., and will comprise basement, ground, and first and second floors, in the Italian style, constructed with brick, and having Bath stone dressings. Mr. H. Day is the architect. A new manufactory is being erected for Mr. Henry Willis, wholesale boot and shoe manufacturer, in Sidbury, by Messrs. Wood & Sons, of this city, on the site of the old Hare and Hounds Inn. It will consist of five floors, including the basement, each floor being 100 ft. in length by 35 ft. in width, and capable of accommodating over 800 *employés*. The whole of the rooms will be well ventilated, being 12 ft. in height, and lit by about 130 windows in all. The building will be of plain brick, relieved with different coloured bricks in line. Mr. Webb's horse-hair manufactory has been extended about 100 ft. at the back, the addition being a building of three stories, with sufficient space to accommodate ninety extra looms. Mr. Henry Rowe is the architect of both these buildings. Improvement is noticeable in Worcester, not only in the way in which public buildings are being erected, but also in villas and cottages, the increase of which has resulted from the extra amount of labour lately brought into the city. They are now extending themselves on all sides, and especially so towards the Tything and Barbourne, where within the last year or two a little town has sprung up.

SURVEYORS AT HALF-PAY.

SIR,—Your columns contain, from time to time, advertisements that are no credit to the authors, and it is desirable that the large and intelligent class of specially educated men to whom they are addressed should treat such derogatory announcements with indifference, if not with evident condemnation. Here, in your impression of the 14th instant., is one from Carnarvon:—

"The Borough of Carnarvon wants a Clerk, Surveyor, and Inspector of Nuisances, at a salary of 100*l.* per year. He must be a competent man, and give his whole time to the Board. Testimonials to be," &c.

Now, Carnarvon is a borough town, and the clerk is, of course, to be town clerk. Just look at the importance of the word "*competent*" in this precious advertisement, and consider what it implies. May I be allowed to shadow out an amplified advertisement, thus:—"Wanted, a Gentleman of education and mature years, to attend at all the Board meetings and Committee meetings of the Council of the Borough of Carnarvon. He must be well acquainted with the very numerous provisions of the Municipal Corporations, Local Board of Health, and Towns Improvement Clauses Acts, as also with the Lands Clauses Act, and the Commissioners' Clauses Acts, and any and every Act of Parliament having general or special reference to the duties, powers, and trusts of the Council of the Borough, and must be prepared to advise and direct the Council upon any legal point that may arise as to the construction of those Acts of Parliament, or relating thereto. He must be competent to keep full and proper minutes of all transactions of the Council, or of their various watch, water, paving, road, police, market, sewer, and general committees; he must make out the various general district, special district, and other rate books, and be responsible for their correctness; he must keep all records and accounts required by the Board, and make all returns required by the Council, the Secretary of State, the General Board of Health, or by any order of the House of Commons. He must draft and prepare all notices required to be given by the council, summon every council, and each respective committee thereof, and conduct the entire correspondence of the Board. He must have a practical and "*competent*" acquaintance with the manifold duties of a borough surveyor, must know the theory and practice of making common roads, must superintend the laying out of all new roads and footpaths in the borough, and must decide the level, width, and inclination of all roads, footpaths, and water-tables, and personally superintend their construction and repair. He must be acquainted with the various modes of sewage at present in use, the form and size of district, arterial, and house drains proper to every individual case, and must be prepared to take all necessary levels, set out all gradients and junctions, and draw all plans and make all general and working drawings that may be required for, and give personal superintendence to, the execution of the works. He must be acquainted with the strength of timber and iron, a judge of all manner and kind of building materials, competent to direct and superintend all necessary work and workmen,—such as bricklayers, excavators, carpenters, sewer contractors, iron-workers, painters, plumbers, stone-masons, and all other tradesmen engaged on any public work required in the borough. He must superintend all public and private building operations in the town, and be competent to advise the Board upon all plans submitted for their approval. He must draw all specifications, and prepare all drawings required for any contract undertaken by the Board. He must be acquainted with gas and water supply, and all the appliances connected therewith, and personally look after all such in the district. He must inspect all common lodging-houses, slaughter-houses, cesspools, pigstys, privies, drains, tallow-melters, soap and bone boilers in the borough, look closely to the execution of the scavengers' contract, and to the contractor for watering the streets, keep full and proper time-sheets for all the workmen employed, and be responsible for all the materials in the town-yard. He must be at the beck and call of every crotchety rate-payer whose neighbour keeps a pig, or whose landlord won't empty the cesspool; and at all times of the day (and night too) be civility itself to the magnates of the corporation—some of whom will, of course, be his inferiors in intellect, education, and manners, and seventeen-twentieths of whom will know all about his business a great deal better than he does himself—by whom he has the honour to be employed, and by whose fiat he may at any moment be dismissed. N.B.—The gentleman selected will be required to devote his whole time to the service of the council, will be expected to provide his own expensive instruments, and will receive the salary of 100*l.* a year."

I will not trespass on your space by any further comment than to say that surely 100*l.* a year must go very far in Carnarvon, or else the council of the borough will find that they have been advertising for sovereigns at five shillings apiece, for I do not think it would be unreasonable that they should pay three people to do three people's work, and setting the estimate thus—

Town Clerk's salary	£150
Surveyor's ditto	250
Inspector of nuisances' ditto	100
We should get a moderate sum of	£500

ope sincerely no *competent* brother is so straitened ircumstances as to offer himself as a candidate for the narrow 100*l.* a-year. The poor pittance offered is not th our notice, being less than the average wages of an inary foreman of carpenters. A man is better at the ch than in such a pseudo position as this. We shall

CYRIL WALDE.

ENGINEERS AND SURVEYORS.

R,—Since, by the insertion in your columns of two nt and forcible letters inveighing against professional latanry, you at least show a passive interest in the osition thereof, I would beg of you the like favour for communication upon a grievance so fraught with ern to the legitimate members of the professions of neer, surveyor, and architect.

he remarks of your correspondents, although bitter, no less just; and I agree with them that, for the er protection of the interests of the public, as well as interests and reputation of our profession, some dard or degree of qualification must be fixed by Act overnment, without which no man shall be permitted ractise in either of the above professions. The ex- ive surveys for the commutation of tithes, the bance surveys throughout the three kingdoms, ther with the delusive reputation for high remunce- on created by the railway fever of 1845, have com- d to flood the professions of civil engineer and sur- or with a swarm of illiterate pretenders, whose effect been to bring a worthy and promising calling into epute, however slight. Some of them, and these are most noxious of their species, multiply their kind stablishing "schools for engineering," where, for a trifle, which, mark you, "shall be repaid in books drawing implements, &c.," all the acquirements of engineer are to be bestowed upon the unlearned l. Thus we see, year after year, called in upon the encies of the moment, men who, having perchance red as tracers in the office of the one, or held a staff some assistant of the other, repute themselves as old nds" of Locke or Brunel, and continue, by dint of assertions, to imperil upon standing orders such mes as they may happen to be engaged upon.

the first of your correspondents states, and as the rience of most of your readers will endorse, the ferent judgment exercised by local Boards and divers es corporate, lays these greatly at the mercy of the k, whose pile of testimonials,—the joint production is friends,—and ready assumption, in too many cases, the day. Thus it happens that from time to time nd in authorized official documents expressions of slight esteem in which are held the knowledge and ty of the town surveyor. That it should be truly of a town like Leeds, in a late publication, that the ger's eye is shocked by the sight of *new* streets, whose es present their rears, with all their repulsive excre- ces, to the public thoroughfare, it may not be within cope of the Local Act to prevent; but who can doubt, with all our boroughs and considerable towns placed r the care of educated and competent surveyors, all local Acts might be amended so as to apply stringently e cleansing of the anatomy of our towns from every and blemish with which they are at present overrun? I may ask, what are the functions of an official such e town surveyor but to watch with the most jealous the growth and welfare of his charge; and if, instead eing led by the eye's gratification, and judging of an's capacity by the beauty or neatness of a few hes, or the inflated tone of his testimonials, a public d could see before them a man possessed of a deep esenting sterling intellectual and professional quali- ns, we should presently behold a noteworthy differ- in the *prestige* and prospects of our profession. stor would go to the wall, and his competent rival d have scope proportionate to his desert.

t whose is to be the work of purifying and reforming ession? Is it to be left to some single-hearted pion, whom fortune will some day raise up from ngst the private members of the House of Commons, ivocate with unceasing philanthropy the interests of profession, and establish an Act relating to degrees in? A Joseph Locke might so have helped us; but becomes so numerous and powerful a professional to wish for aid without doing that which alone can ve it. Would not an association of some of the ng engineers, surveyors, and architects, in the first nce, strengthened by the co-operation of every man is concerned in the matter, exert such a pressure as tain the desired result, and break down and cast the formidable barrier of quackery which threatens ershadow us? Then should we be placed on a footing the older professions.

M. P.

CHURCH-BUILDING NEWS.

rratt (Herts).—The church here has been pened after restoration. The work has been ried on after the plans, and under the direc- of, Mr. G. G. Scott. The contractor was Edward Young, late of St. Alban's. The of the restoration (exclusive of the new east low, a new organ, and the restoration of the) was about 1,300*l.* The additions to the rch consist of north and south aisles, partly ng up the corners between the nave and septs, though still preserving the ancient iform shape of the church. The sittings open, and are made of unvarnished oak, r the model of some remains of what are posed to be the original seats. Accommoda- is provided by the new seats for 250 persons, the gain, deducting the loss of the gallery, stimated at seventy-five sittings. The curious pulpit is retained, and placed on the north of the chancel. An east window, represent- the Crucifixion and Ascension of our Lord, been executed by Messrs. Clayton & Bell. The porch on the south side, which is new, is of open oak work with stone and flint basement. The aisles are laid with 4-in. black and red tiles, with black border. There are altogether six new arches, the nave opening into each aisle, and the aisles into the transepts by four arches. The west window of the church is Early English, and like those of the same date in Westminster Abbey. There are nine new windows. The plaster has been removed from the nave, chancel, and transepts, leaving the roof open to the ridge. The old beams of the roof have been varnished, and one of them has been cut in two and braced up, the better to show the east window. The whole of the roof has been covered with asphalte and tiled. During the progress of the works a large portion of the north transept fell in, carrying the roof with it. The walls were found to be very much decayed. A number of Roman bricks were brought to light in these walls, and remains of what appeared to be Roman cinerary urns were found in the churchyard, confirming the belief that a Roman cemetery once existed on or close to the site of this church. In examining portions of the wall of the south transept, the rector discovered the remains of some paintings of the thirteenth century. Over these were two coats of colouring with texts of Scripture and numerous devices. As far as can be ascertained, the paintings represented scenes in the life of Christ, from his Birth to his Ascension. There were also figures over the chancel arch. The whole of the church walls were painted over with red ochre, in festoon or scroll-work, and with pine-apples, thistles, roses, and leaves. These were found, from the nature of the walls, to be incapable of restoration.

Woodbridge.—It is proposed to build a new church at Melton. The site agreed upon is near the Horse and Groom Inn on the road towards Wilford Bridge, facing Mr. Bilby's, builder, the land belonging severally to Mr. J. C. Cobbold, M.P., Mr. R. Garrod, and Mr. John Garnham. The style of architecture is to be Early English, the edifice to be faced with Kentish rag, the interior to provide 400 sittings. A ground plan and elevation were received from Mr. F. Barnes, of Ipswich, architect, and were adopted, the estimated cost being 2,800*l.*; purchase of site, legal expenses, churchyard wall, architect's commission, &c., 600*l.*; making the total cost 3,400*l.* Of this sum subscriptions amounting to 2,986*l.* 13s. 10d. have been received.

Shawell.—The new church for the parish has been opened for divine service by the Bishop of Lichfield. The old church was in a very dilapidated state, with square pews, flat ceiling, and other disfigurements so often found in our village churches. The tower is a perpendicular building and in a tolerably good state of preservation; this portion of the old church has been retained. The new church consists of nave 40 ft. by 18 ft. 6 in., chancel 26 ft. by 16 ft. 6 in., and a north aisle 40 ft. by 7 ft. 6 in.: there is also a vestry at the east end of the north aisle. The church, which is after the style of work prevailing during the fourteenth century, is built of Stoney Stanton granite, laid in regular courses, with bands of Attleborough stone: the weatherings, plinths, &c., are of Box Bath stone, the arches, &c., of Attleborough, the tracery and most of the internal dressings of Ancaster stone. The east window has been presented by Mr. Thomas Gilbert, of Swinford Lodge, in memory of the late Mr. T. Gilbert, sen. It is said to be from designs by the architect, and made by Messrs. Ward & Hughes, of London. Another window has been presented by Mrs. Philip Gilbert, and Mr. Thomas Gilbert, of Shawell, in memory of the late Mr. Philip Gilbert. The architect employed was Mr. William Smith, of London; and the contracts were carried out by Messrs. Law & Son, of Lutterworth. The original contract was 1,565*l.*, exclusive of warming apparatus, new pinnacles, new west window to tower, &c. The stone carving was executed by Messrs. Poole & Son, of London.

Thornford.—The church here has been opened after restoration, or rebuilding, at a cost of 1,400*l.* The nave has been rebuilt, with a new north aisle, in which has been incorporated the old chantry, the east window and niches of which remain, and the external plinth moulding shows its original length. In the gable at the east end is a window, placed anglewise, and filled with tracery. An arcade of four arches divides the nave and aisles, the columns of which are clustered, and have carved capitals. In the aisle are four two-light windows, similar to the north window of the chantry, which is itself reused. The west window is of three lights. The windows of the nave have been reinserted in their old positions. The south and east walls of the chancel have not been re-built, and the moulded windows have been left untouched. The north wall is new, and a vestry and organ chamber have been added on the north side. The walling is of blue local stone, in even courses; the dressed stone is from Ham Hill. The whole of the new architectural features have been designed in harmony with the old examples of the fifteenth century. The nave seats are open, and of varnished deal. The east window is partially filled with stained glass by Messrs. Clayton & Bell, the central subject being the Crucifixion, with St. Mary and St. John, and below this is the Ascension. In the tracing above are angels bearing crowns. The north window will also be filled with stained glass as a memorial window. In the south windows are placed some old fragments of ancient glass which were found in the end and other windows. The architects employed have been Messrs. Slater & Carpenter, and the works have been superintended by Mr. Thomas Farrall, as clerk of works. The main works have been executed by Mr. Hellyar, of Thornford, and Mr. Chapman, of Montacute; and the carpenters' work by Mr. Hull, and the stone carving by Mr. S. Poole, of Westminster. The iron altar-rail standards were done by Mr. F. Skidmore, of Coventry.

Leominster.—The Norman nave of the Priory Church has been re-opened for divine service. This part of the church had been long disused as a place of worship, having fallen into a state of decay, and become so generally dilapidated as to render it unfit for that purpose. A thorough renovation of the interior has been effected under the direction of Mr. Gilbert Scott.

Wragby.—The church of Langton, after an extensive restoration, has been re-opened. The nave and chancel have been rebuilt, the tower only being retained, which a few years ago was repaired at a cost of about 100*l.* The style of the new structure is Early Decorated. The architect was Mr. Atkinson, of York; and the contractor Mr. Thomas Wallis, of Wragby. The materials employed are Dunford Bridge stone, with dressings of Ancaster stone, and grey roofing tiles. The east window, of three lights, is filled with stained glass, by Messrs. Ward & Hughes. The subjects are the Adoration of the Shepherds, the Crucifixion of our Lord, and the Women and the Angel at the Sepulchre. The seats are all open.

Gipsy Hill.—The chief stone of Christ Church has been laid by the Ven. J. S. Utterton, archdeacon of Surrey. The church is designed to accommodate 1,200 persons. The contract for the entire church was 7,193*l.*, exclusive of the upper portion of the tower, which, it is to be hoped, will be proceeded with on the completion of the present contract. The architect is Mr. John Giles, of Charing Cross; and the builders are Messrs. Aviss, of Putney. The honorary secretary, Mr. John Green, of Westwood Lodge, The Avenue, Gipsy Hill, receives donations towards this work.

St. Albans.—The church of St. Michael has been re-opened, after restoration by Mr. Scott. This, it will be recollected, is the church in which the remains of the great Lord Bacon were interred. St. Michael's, which is built within the limits of the ancient city of Verulam, consists of a square tower with an embattlement, a nave, a chancel, a north aisle, a sacristy on the north side, a chapel on the south side, and a south porch. The tower, which, though sadly in need of repair, has been left untouched for want of funds, Mr. Scott assigns to the early part of the sixteenth century. There was originally a larger tower than the present one, which was probably erected in the thirteenth century. The object of most absorbing interest in the church is, of course, the tomb and statue of him whom Pope called truly and falsely, "the wisest, brightest, meanest of mankind." Lord Bacon's monument has been carefully protected during the restoration of the church, and has not received the slightest injury. Before its restoration, St. Michael's Church had been long falling into ruinous decay; and Mr. Scott's report, after a careful survey, bore testimony to the urgent necessity for an immediate and thorough renovation. The Earl of Verulam headed the subscription list with 500*l.*, and this having been followed by other contributions, the restoration was begun. The contract was taken by Mr. E. Young, late of Hertford, builder, and was completed by assignees, under the superintendence of Mr. G.

Weller, of Bushey; Mr. Gilbert Scott being the architect, and Mr. Cook clerk of the works. The fabric has been carefully restored and rendered safe and sound in every part. The appearance of the interior especially has been greatly improved. The unsightly plaster ceilings have been removed, leaving the roofs open. The roof of the nave, which forms a feature in the restored church, was found to be in a good state of preservation. The old roof of the chancel, being rotten, has been replaced by a new vaulted roof. The original roof of the south chapel is retained after being repaired. The old gallery which stood against the tower arch, and the belfry wall, which intercepted the view of the west window, have been removed. The old family pews have been replaced by low and open oak sittings. The church will therefore accommodate about 430 persons—including children—whilst the old pews and gallery only accommodated 350. A rood-screen, dividing the nave from the chancel, has been erected after an Early English design by Mr. Scott. The floors have been restored with Godwin's tiles, and monumental slabs relaid in their places. The space within the rails has been relaid with encaustic tiles. The old south porch, which was of very late date and entirely unsuited to the architecture of the church, has been replaced by a porch in the Decorated style. A new east window, after the original design, has been inserted; and there is also a restored window on the south side of the chancel. A window at the east end of the north aisle, which for centuries had been blocked up, has been restored. New Early English buttresses have been added to strengthen the walls. The church has been drained, the soil around the exterior removed, and the churchyard levelled. A new warming apparatus for the interior of the church has been provided at a cost of about 65*l.*; and provision has been made for lighting with gas; but owing to the inadequacy of the funds, gas standards have not yet been supplied. The total cost of restoration will be about 2,300*l.* In addition to another contribution, Mr. H. J. Toulmin has made a donation of 200*l.* to defray the difference between the cost of deal and oak sittings; and the encaustic tiles within the altar rails are also the gift of that gentleman.

DISSENTING CHURCH-BUILDING NEWS.

Kettering.—The chief stones of a new Wesleyan Chapel have been laid here. The site is in Silver-street. The chapel is to be about 64 ft. long by 40 ft. wide, and the sittings will accommodate 630 persons. The architect is Mr. G. Woodhouse, of Bolton-le-Moors, and the builder is Mr. John Watkin, of Northampton. The cost of the chapel is estimated at 2,100*l.* exclusive of land and all conveyances.

Swindon.—The new Congregational Church has been opened for divine service. It is situated at the south-west corner of Victoria-street. The style is Lombardic. A wheel-window gives effect to the south front, which has three chief entrances. A tower in the south-east angle is also a prominent feature, and affords entrance to the gallery. The original design showed a spire on the tower. The church is 80 ft. long by 47 ft. wide, to seat about 500 persons, besides 100 in an end gallery, and provision for side-galleries hereafter. In the rear are a large school-room, vestries, and class-room, store and other rooms. Mr. Phillips, of Swindon, and Mr. Ponton, mason, of Warminster, were the contractors. The iron-work, including the wrought gates, were manufactured by Messrs. Edwards & Suter, of Swindon. The material of the building is Swindon stone, with dressings of freestone, and Mansfield stone pillars and pilasters at the entrances. The caps of the pillars to windows as well as doors were carved by Mr. Kemm, of Salisbury. The covering of the building is a tile invented, we hear, by the architect, and which, we are told, is effective. Mr. Stent, of Warminster, was the architect.

Barnsley.—The New Connexion Methodists of Barnsley are about to erect a new chapel on a site in Sheffield-road. Mr. William Hill, of Leeds, is the architect. The style is to be Gothic, with tower and spire, and accommodation will be provided for nearly 1,000 sitters. The estimated cost is about 4,000*l.*

Pudsey.—The new Congregational Church has been opened. The cost of the edifice, with the land, has been about 2,900*l.* Mr. J. P. Pritchett was the architect. The church is built in the form of a cross, with naves, side aisles, transepts, and organ gallery. The length is 75 ft., the width across the nave is 41 ft., and across the transepts, 60 ft. The aisles are divided from the nave by iron columns, with foliated capitals, from which spring wooden arcades, carrying a moulded curved brace roof, the ceiling of which at the collar bearing is 37 ft. high, the height from the ground to the apex of the roof being 48 ft. The spire at the junction of three roads rises to the height of 110 ft., and can be seen for many miles round. The seats are open, low, with slanting backs, and vary from 33 in. to 36 in. in width: the accommodation, allowing 20 in. for each adult, will be for 700 adults. All the windows are glazed with Hartley's orange-tinted rolled glass with purple borders. The whole of the walling is of local stone in quarry-faced irregular courses. The dressings are of ashlar, from quarries in the neighbourhood.

Crewe. — The foundation-stone of a new Wesleyan Chapel has been laid in Hightown, Crewe. The structure will be of white and red brick, in the Gothic style, and the cost will be about 2,000*l.* The architects are Messrs. Scrivener & Son, Hanley; and the builder, Mr. Ellson, of Wybunbury.

Books Received.

The Gas Consumers' Guide. By WM. RICHARDS, C.E. London: Spon.

THIS small volume contains information as to the management of gas; the means of economising it; and as to burners; a popular description of gas-meters, with full particulars for ascertaining the consumption by meter, *&c.*; and also remarks on ventilation. The different subjects are illustrated by woodcuts. To gas consumers it must form a very useful guide-book.

The Patentee's Manual: being a Treatise on the Law and Practice of Letters Patent. By JAMES JOHNSON, Barrister-at-law, and J. H. JOHNSON, C.E., Solicitor and Patent Agent. Third Edition, revised and enlarged. London: Longmans & Co. 1866.

PATENTEES and inventors will find this manual of great use in guiding them to a complete knowledge of the law and practice of letters patent. The authors are thoroughly competent, and the fact that the volume has now reached a third edition, shows that it is appreciated. Additions have been made to the Acts of Parliament connected with patents in the present edition, and abstracts of foreign patent laws placed in the appendix. The latest decisions of the Courts have been noticed, and the whole work has been carefully revised.

VARIORUM.

THE *Popular Science Review* for the July quarter contains a good practical paper on the exhaustion of our coal, by a coal viewer, Mr. L. Lemoran, M.E. The author regards the present excitement on the coal question as giving an undue importance to it, and thinks our coal-fields may suffice to supply all our wants for many centuries; but within one century, he remarks, it may be found that we are beaten in our manufactures by America, because with them coal will be cheap, while with us it will be dear; and already there has been, for several years, a slow but steady advance in the price of coal in the very centres of production. The causes and necessity of this advance ought to be looked into, and the writer of the paper desires an inquiry on the whole question. As to increased consumption, however, he thinks the increased cost will be a natural check upon that, as well as upon waste. The present issue of the *Popular Science Review* contains an excellent paper on Sun-force and Earth-force, by Dr. B. W. Richardson. There is also a specimen of engraving by photography, printed by Woodbury's relief process. The resemblance to a good photograph is very close. The specimen is a portrait of Professor Huxley.——In connexion with the coal question we may here notice the July issue of the *Scientific Review and Journal of the Inventors' Institute*, which contains an able leading article, with moderate views, on "Our Stores of Coal," by Mr. E. H. Birkenhead, D.S.C., F.G.S. This journal contains a good deal of well-selected scientific matter, of current interest, including a short paper by Sir David Brewster, the president of the Inventors' Institute.——*Fraser's Magazine* for July contains a paper titled "The Site of the National Gallery Reconsidered." The author suggests Kensington Gardens as the site for the new Gallery, making over, on equitable conditions, the whole of the present building to the Royal Academy, the pictures remaining where they are till the new Gallery be ready for their reception. Considering that the works of the old masters, judged by marketable value, have for some years been falling in public estimation, while the works of our modern painters have been rising enormously, the writer regards the public convenience as being especially concerned in retaining so highly popular an exhibition as that of the Royal Academy in its present central position. Whereas for pictures already old, and which once purchased, must remain as a fixture in the smoky atmosphere of London, the present site of the National Gallery is decidedly unsuitable; and, if the question be not settled in favour of their removal, the pictures will eventually disappear altogether, though the canvas and the frames remain. We should prefer to have the gallery at South Kensington.——The object of "A Letter to the Right Hon. the Lord Redesdale, Chairman of Committees of the House of Lords," will be best described by the remainder of the title, which is, "on the manifold Losses and Injuries sustained by the Owners of Riparian Rights and Water Privileges through the Incompleteness of the Standing Orders of Parliament; and on the extraordinary Assumption and Usage of the absolute Rights of Landed Proprietors to the Rain or Surface Water falling from the Clouds by Water Companies and others." The author is Mr. M. B. Jackson, C.E. He submits, amongst other propositions,—

"That, inasmuch as in many instances in this country, waterworks entirely dependent for their very existence upon the collecting and storing of rain, or surface or flood waters falling on the catchwater basins, have, at vast expense, been constructed without any express stipulation or proviso for insuring to the constructors of such waterworks in continuity or perpetuity the use of the water so falling; and that inasmuch as it is competent for the owners of the lands forming such catchwater basins at any moment to withhold and divert the surface-waters; and that inasmuch as by a bold assumption of rights which had no existence, the proprietors of mills and manufactories on streams have in many instances secured to themselves statutory privileges which ought rather to have been granted and secured to the great landed proprietors of the catchwater basins; it is essential that in future legislation the compensation to the Riparian proprietors should be placed on its true basis, and awarded to those parties who, notwithstanding all that has been done, can still claim and secure it. For it is an undeniable and indisputable fact, that there are large waterworks in this country which are entirely and absolutely at the mercy of several large landed proprietors; and notwithstanding that this is the case, the Standing Orders of Parliament do not even provide for giving any notice to the landowners from whose property a supply of water is to be derived, 'in the case of waterworks intended to be constructed for the storage of surface or flood waters,' saving only to the proprietors of mills and manufactories on the bed of the stream draining the district."

——"Routledge's Handbook of Cricket." By Edmund Routledge. London: Routledges, Ludgate-hill. The purpose of this little sixpenny handbook is to supply the want of a cheap work on cricket, and still further, if possible, to popularize this truly English game. It is illustrated by wood-cuts, and is in all respects well adapted to the object in view. The author is practically acquainted with the game, and the book is thus not a mere compilation.——The current number of the *Social Science Review* contains a reprint of a valuable paper on the "Mortality of Children," by Dr. Farr.

Miscellanea.

THE SUNDERLAND EXTENSION PARK.—An extension of 10 acres, added to the public park of Sunderland, has been formally opened. The extension comprises land purchased from the North-Eastern Railway Company. It adjoins the railway, which separates it from the old park. A piece of ground has been reserved for building purposes, probably corporation offices, borough museum, &c. The new park has been carefully laid out, with an artificial lake, balustraded terrace, winding walks, and shrubberies, from designs by Mr. James Lindsay, a councillor. The cost of the land was 10,000*l.* The laying out has added about 1,000*l.* more; and for another 1,000*l.* the Park Committee hope to complete an iron bridge over the railway, to join the new park with the old, and an ornamental railing round the whole.

A CLOCK FOR COVENTRY NEW MARKET-HALL.—The Town Council of Coventry have decided to have a public standard time-keeper erected in the tower of their new Market-hall. The clock is to be one of great accuracy, and its error is not intended to exceed one second a day in any week throughout the year. The work has been placed in the hands of Mr. E. T. Loseby.

THE EMBANKMENT ON THE SOUTH SIDE OF THE THAMES.—The Metropolitan Board of Works having been informed by Mr. W. Webster, the contractor of the southern embankment of the Thames, that the works were ready for the commencement of the river frontage opposite the Houses of Parliament, the Board have fixed Saturday, the 21st proximo, for laying the "first stone." Mr. William Tite, M.P., and the representative at the Board for the Chelsea district, has been named to perform the ceremony.

JOAN OF ARC'S TOWER.—Our readers are already aware that a subscription has been started for the purpose of purchasing the tower at Rouen, now in private hands, in which Joan of Arc was imprisoned. The scheme seems to have been very successful, and the Government has promised to give 25,000 francs. The list contains the names of several eminent Englishmen, amongst others those of Lord Brougham, Mr. John Stuart Mill, and Mr. Bright. The French papers take this as a great compliment. The idea of purchasing the tower and of making a public monument of it is, we believe, due to a young professor named Morin.

MUSICAL EDUCATION.—The Society of Arts Committee on Musical Education have made their first report on the subject. They consider that adequate Parliamentary funds, with ministerial responsibility for their expenditure, are essential to the establishment and maintenance of a National Academy of Music worthy of its object; that a National Academy should afford gratuitous education to a limited number of persons having great musical gifts, who would engage to devote their talents to the service of the public as professors of the art of music; and that the form in which Parliamentary assistance could be best afforded would be by scholarships given in open competition; that besides the training of free scholars, the Academy should be open to the public at large on the payment of adequate fees; and that the Society of Arts should establish a limited number of scholarships. The Committee consider that, before Parliament can be asked to increase its present vote to the Royal Academy of Music, the Academy should provide, through the voluntary aid of the public, permanent and suitable premises, possessing all requisite facilities for practice and study; and that a site might be applied for from the Kensington Gore estate. Every effort in the meantime, they suggest, should be made by the Academy to enlarge its basis of action and establish an effective system of responsible administration.

"'LORD DERBY'S WORKSHOPS.'—We hasten to rectify a remarkable omission in the account of these spacious premises in the *Builder*. No mention is made of the elaborate piece of Cabinet work, long in preparation, which the indefatigable proprietor has at last succeeded in completing; and although the 'Joiners' shop' is noticed, not a word is said about the curious specimen of inlay, known to have been designed, in which the initials of the principal operatives, B. Disraeli, E. H. Stanley, &c., were to have gracefully blended with those of some of the leading *employés* of a rival firm that has recently retired from business. We are authorised to state that the Derby Workshops are now removed to a more eligible situation in Downing-street, S.W., where the proprietor hopes, by a strict attention to business, the use of none but the best materials, and a due regard to economy, to merit a renewal of patronage and support. (Treasury) Benches re-covered and Woolsacks re-seated. Households supplied. Some novel designs in Secretaries. A stock of new Boards on hand. Cabinets turned out at the shortest notice. Experienced workmen sent to all parts of the kingdom to attend to Hustings. Plans for a Bankruptcy Court and an improved Pauper Infirmary will shortly be submitted to public inspection at the Offices close to Westminster Bridge. Estimates given. Accounts rendered quarterly. No connexion with any other firm. Clerk of the Works, J. Manners. The India Branch is carried on in Cranborne-alley. N.B. The Jobbing Business, formerly carried on by this party, will be discontinued. P.S. Some Seats wanted."—*Punch*.

THE NEW TOWNHALL, GUISELEY.—The first stone of a townhall has been laid at Guiseley. The site has a frontage of 108 ft., and a depth of 99 ft. The length of the building is 83 ft., the width 39 ft. The public hall will be 65 ft. long, 36 ft. wide, 27 ft. high, and will hold 800 persons. The principal staircase is to be 24 ft. long and 13 ft. wide, the steps 5 ft. 6 in. wide of stone. The ground floor comprises the public offices, consisting of a board-room, clerk's office, fire-engine-room, and a reading-room, 29 ft. long and 17 ft. wide; a library, a school-room, 32 ft. long by 18 ft. wide; a class-room, and lavatory. The cellaring contains boiler and lamp rooms. The ground-floor rooms are to be heated by hot-water piping. The masonry is to be executed in the sandstone of the district. The style is plain English Gothic. Messrs. Freeman, of Otley, are to do the masonry; Messrs. Jessop & Westmoreland, of Wortley, the joinery; Mr. A. R. Kenion, of Yeadon, the plumbing; Mr. A. Firth, of Rawdon, the plastering; Mr. E. Thornton, Shipley, the slating; Mr. E. Haley, of Bradford, the painting. The cost of the building will be about 3,000*l*. The designs have been made by Messrs. Knowles & Wilcock, of Bradford.

THEATRES AND MUSIC HALLS.—The committee on the licensing of theatres and music halls, in their report, state that the present system of double jurisdiction under which theatres are licensed by the Lord Chamberlain, and music halls, and other places of public entertainment, by the Magistrates, is inconvenient and unsatisfactory. They propose, therefore, that the department of the Lord Chamberlain shall be so organised as to be able to deal with licences to all such places of public entertainment within the metropolis. They recommend that any Act of Parliament connected with the licensing of theatres, music halls, and other places of entertainment, should render compulsory the inspection and survey of such places, as regards the stability of structure, due security against fire, ventilation, and facility of ingress and egress. They are of opinion that it is not desirable to prevent music halls from giving theatrical entertainments. They are of opinion that decisions of the Lord Chamberlain should be subject to an appeal to the Home Secretary, as far as the original granting of licences is concerned. In the country the licensing of a new theatre should be by the Lord Chamberlain instead of, as heretofore, by the Magistrates; but the powers now exercised by the Magistrates, both as regards the renewal of licences and as regards regulations, should continue in force.

THE ARTISANS' DWELLINGS AND PUBLIC HEALTH BILLS.—Mr. Walpole, the new Home Secretary, received a deputation recently in reference to these Bills, from the vestry of St. Marylebone. It was introduced by Mr. Harvey Lewis, M.P., and consisted of Mr. Chubb, Mr. Poland, Dr. Richardson, Mr. Tavener, Mr. Tyler, Mr. Harlowe, and Mr. Surridge, accompanied by Mr. W. E. Greenwell, vestry clerk, and Dr. Whitmore, medical officer of health. Mr. Chubb observed, with regard to the Artisans and Labourers' Dwellings Bill, there were several clauses which, if carried, would be very important to the metropolis generally. By these clauses the whole authority was vested in the Metropolitan Board of Works, while the vestries, who were called upon to incur the odium of raising the rates, were to have no authority in the matter whatever. By this Bill the medical officer's report would enable the Metropolitan Board to erect dwellings and pay the expense by taxing the ratepayers another 3d. in the pound. Although this Bill had been considered by a select committee, no time had been afforded the metropolis for considering the scheme. The object of the deputation was postponement of the Bills to next session. Dr. Richardson drew attention to the Public Health Bill, the general principles of which the vestry very much approved, and stated there were several most beneficial clauses introduced in it, but there were two to which the vestry took very strong exception—namely, the 20th and 27th clauses. Mr. Walpole said that, however well the present system had worked in some places in the metropolis, there were instances in which the local authorities were unable to cope with nuisances. It might, therefore, require some remedy, so that the nuisances might be dealt with where local authorities neglected to perform their duty. He would not be prepared, and the deputation would not expect him, to give any decided opinion on the subject that had been brought before him, but it should receive his best attention.

ON THE STABILITY OF DOMES.—A valuable paper on this subject, by Mr. E. W. Tarn, M.A., has been read at the Royal Society, and will be found printed in the octavo "Proceedings of the Royal Society," Nos. 84 and 85.

YOUTHS' CHRISTIAN ASSOCIATION AND HOME.—The sixth annual report of this Association has been issued. The object in view is to ameliorate the mental and spiritual condition of youths between the ages of thirteen and eighteen, engaged in houses of business; and, provided the conductors of such establishments do not overdo their work, much good may be effected by them, more particularly amongst youths from the country sent to London as apprentices in houses of business. The report states that 140 lads have been received into the Home, and that since last report seventeen youths have been admitted. Each youth pays 2s. per week for lodging, which charge includes admission into the reading-room, classes, lectures, addresses, library, and to other privileges of the institution. It is not necessary that those who lodge in the Home should board there, or that those who board there should do so altogether, lodging and partial board being furnished according to the requirements of the resident. Breakfast, 3d.; dinner, 7d.; tea, 3d.; supper, 1d. The indispensable requirement is a recommendatory letter from a minister, and the chief restriction enforced is, that the Home being closed daily at half-past ten o'clock p.m., no one is allowed to be absent after that hour (unless detained by business) without having obtained the sanction of the manager.

MONUMENTAL. — In addition to the Irish memorial to the late Earl of Carlisle in Dublin, and the one to be erected on the Welburn Banks, near Malton, certain admirers have resolved to subscribe privately for the erection of a Carlisle memorial chapel at the Castle Howard Reformatory, near Malton.——Mr. T. Thornycroft has been selected to execute the statue in honour of the Marquis of Westminster to be erected at Chester. At a meeting of the committee appointed for superintending the erection, Mr. Thornycroft uncovered a statuette as a miniature model, representing the figure of the Marquis in his robes as a Knight of the Garter. Mr. Thornycroft stated that the statue would be cut out of a block of Sicilian marble, from the Carrara quarries; in colour white, with a slight tinge of blue; that the height of the figure would be about 11 ft. Mr. Thornycroft asked for two years to complete the work.——A site at Liverpool for the Albert Statue has been at length decided upon. The spot selected is the south end of the carriage drive in front of St. George's Hall. When occasion shall arise, there will be a site at the north end of the drive for a corresponding statue of the Queen. A model of the Gladstone Statue has been placed in the hands of Mr. Adams, of Rome, for execution. Mr. Gladstone is in his robes of office as Chancellor of the Exchequer. The general expression of the countenance is older than the original.

METROPOLITAN FREE DRINKING FOUNTAINS ASSOCIATION.—The seventh annual meeting of this society has been held in St. James's Hall,—Earl Grosvenor in the chair. The necessity for this society may be judged from the fact that more than 300,000 people are estimated to drink daily in the summer at the 140 fountains already erected in London, many of whom are working men who would otherwise resort to the public-house to quench their thirst. The association thus prevents many of the industrial classes from contracting habits of intemperance. All the fountains which are under the care of the association are kept fully supplied with water, and qualified workmen are employed to visit and repair them. The committee have expended all their funds, and yet there are entire parishes densely populated without a single fountain. They are now compelled to delay responding to applications which have been received from various parts of London for want of funds, without which it will be impossible for them to sustain and extend the sanitary and benevolent objects of the association. The expense of maintaining the fountains at present under the charge of the society is 1,000*l*., which is provided for by annual subscriptions. All donations received in future will be devoted to the erection of new fountains. A lady and an Indian prince, whose names were withheld, have contributed 1,000*l*. each in aid of the objects of the society. The Indian prince wishes to have a drinking-fountain erected in Hyde Park.

CENTRAL HALL OF ARTS AND SCIENCES.—At a meeting of the committee, on the 12th instant, presided over by the Duke of Edinburgh, it was resolved that the designs of the late Captain Fowke should be carried out by Lieut.-Colonel Scott, R.E.; and the president of the Institution of Civil Engineers (Mr. J. Fowler), Mr. Hawkshaw, Mr. Tite, M.P., Mr. Redgrave, R.A.; Mr. Fergusson, and Mr. Digby Wyatt agreed to act as advisers for the building of the hall.

INSTITUTE OF ARCHITECTS.—It has been determined to appoint a secretary, who shall be paid such a salary (250*l.* per annum) as would command his entire and efficient services, to relieve the honorary secretaries of all burdensome routine duties; and in addition, to engage the services of a clerk, as an assistant to the above paid officer, at the salary of 50*l.* per annum. The duties of the librarian are to be confined strictly to the duties of the library and the collection, at a salary of 70*l.* per annum.

ITALIAN OPERA HOUSE, COVENT GARDEN.—The season is drawing fast to a close, next week being the last; nevertheless, the revival of Mozart's "Nozze di Figaro" is promised. Ricci's "Crispino e la Comare" has been produced with great success, Madlle. Patti, of course, taking the greater share of the applause. Madlle. Lucca delighted her public on Thursday night with parts of three of the operas in which she sings best, "Faust," "Fra Diavolo," and "Les Huguenots." "L'Étoile du Nord" will be performed on the 25th.

EMPLOYERS AND EMPLOYED.—The members of Messrs. Cox & Wyman's establishment dined together on Saturday last, at Highbury Barn Tavern. Mr. Wyman, the head of the firm, presided; and, with his sons, was supported by a number of gentlemen (authors, publishers, and others) connected with him, including Dr. Chas. Mackay, Colonel Ward, Mr. Routledge, Mr. Reddie, Dr. Tilbury Fox, Mr. Milton, Mr. Hardwicke, Mr. Day, Mr. Figgins, the editors of the *London Review*, *Public Opinion*, the *Builder*, &c. The dinner was admirably managed; some excellent speeches were made; and glees, songs, and recitations, all by members of the establishment, and some of them original compositions, were executed with great ability and effect. About 120 sat down to dinner, including several who had been engaged in the house nearly half a century.

MARYLEBONE.—Dr. Whitmore's monthly report shows that the average annual death-rate of the quarter, allowing for increase of population, was the same as the death-rate of the previous quarter, viz., 26·6 per thousand persons living in the parish, but it exceeded that of the corresponding quarter of last year to the extent of 3·6 per thousand. Since the 4th of June house-to-house inspection has been in operation, and the results so far are eminently satisfactory; first, because various nuisances are discovered and promptly removed, which otherwise would never have been brought to light; and next because the knowledge thus obtained of the localities where sanitary defects are greatest, will be of value in directing future sanitary efforts should an epidemic of any kind appear amongst us.

ATMOSPHERIC RESISTANCE TO RAILWAY CARRIAGES.—One of our American contemporaries states that, at a recent meeting of the Boston Society of Arts, Mr. S. R. Calthorp demonstrated by experiment the value of an invention by which atmospheric resistance to railway trains may be to a certain extent avoided. Bodies of various shapes were fastened to the end of a horizontal arm, which was made to revolve in a circle of 50 ft. circumference by a uniform motive power. A pendulum beating half-seconds with a strong tick gave the audience a measure of the rates of speed at which these bodies made ten revolutions. Two pasteboard models, the one representing a railway train of the usual shape, and the other representing a train of Mr. Calthorp's improved construction, made eighteen revolutions, the former in sixty beats and the latter in forty-eight beats, equivalent to the rates of 12·97 and 15·84 miles per hour. The members of the society were reminded that the atmospheric resistance increases as the square of the velocity, and the consumption of fuel as its cube; so that the importance of applying the principle illustrated is much greater at high than at low rates of speed.

CLAPHAM SURVEYORSHIP.—The Clapham Local Committee recommended Messrs. Lacey, H. Malcolm Ramsay, and Lynch to the Board for the appointment of the surveyorship of Clapham, and the first-named gentleman was unanimously elected. There were forty-five candidates.

THE NATIONAL GALLERY QUESTION.—Mr. Beresford Hope gave notice recently in the Commons that, upon the motion for going into committee of supply, he would move that, in the opinion of that House, it was desirable that a new National Gallery should be erected on the site of Burlington House Gardens.

VALUE OF A HOUSE IN EATON-SQUARE.—The house, No. 83, Eaton-square, the property of the late Dowager Lady Truro, a corner house, erected by Mr. T. Cubitt, on the north side of the square, together with coachhouse and stabling at the rear in Eaton-mews North, the whole held for nearly fifty-eight years, at a peppercorn rent, on the Marquis of Westminster's estate, was last week sold by auction, by Mr. W. Moxon, for the sum of 19,600*l.* The purchaser was required to take, by valuation, the chimney, pier, and other glasses, and reflecting panels, the large paintings, on the staircase and dining-room, and all usual tenant's fixtures.

INCORPORATED UNIVERSITY LIFE ASSURANCE SOCIETY.—The directors of this society report the retirement of Mr. Willich, who was secretary from the commencement of the society in 1825, and in 1835 was appointed actuary. The directors have granted to him a pension of 800*l.* a-year for life, and voted him a sum of 500*l.* They also state that Mr. Wray has resigned his appointment as resident director, and recommend that a pension of 1,000*l.* a-year be granted to him for life, with liberty, in lieu thereof, to continue to occupy the house, No. 6, Suffolk-place, Pall-mall, in which he now resides (so long as the society retains the same), with his present salary and allowances; such pension of 1,000*l.* a-year to commence from the time of his ceasing to reside in such house.

THE WEST LONDON SCHOOL OF ART.—With the permission of the Lords' Committee of Council on Education, a *conversazione* at the South Kensington Museum, in aid of the funds of the West London School of Art, in Great Portland-street, took place on Wednesday evening last, on which occasion an instrumental concert was given by the well-known "Wandering Minstrels." The Hon. Seymour Egerton acted as conductor, and also played a solo on the violin with great skill and feeling. The whole performance, including some songs by Mr. Bentham, was deservedly admired and applauded. The West London School of Art, with Mr. C. Macdonald Clarke as master, has been doing its work well, but falling gradually into debt. We may hope that something was done on Wednesday night to lessen this, and we would ask the inhabitants of the wealthy district in which it operates, to inquire into its working, and give their assistance for a time.

TENDERS

For a dwelling-house in Parker-street, Westminster, and alterations to house No. 11, Prince's-street, adjoining, for Mr. Hewitt. Mr. W. Budd, architect:—

Foster	£479	7	0
Carter & Son	346	0	0
Tyler	339	0	0
King & Son	331	0	0
Mills & Son	322	4	0

For the construction of sewers in the Earl's Court-road and Richmond-road, to be done for the Vestry of Kensington, under the supervision of their surveyor, Mr. James Broadbridge:—

Brewer & Steggles	£3,950	0	0
Wainwright	3,500	0	0
Williams	3,350	0	0
Thirst	2,800	0	0
Moxon & Co.	2,600	0	0
Carter	2,585	0	0
Walker	2,565	0	0
Whittick	2,556	0	0
Wigmore (accepted)	2,275	0	0

For alterations to the Red Lion Tavern, City-road, for Mr. J. T. Potter. Mr. W. F. Potter, architect:—

				Credit old materials.
Sabey & Son	£454	0	0	—
Steed	435	0	0	£11 0 0
Williams	425	0	0	25 0 0
Jenkin (accepted)	368	10	0	7 0 0

For erecting coach-house, stabling, and laundry for General Sir John Aitchison, K.C.B., Devonshire-place. Mr. W. F. Potter, architect:—

Perkins (accepted)	£473	0	0

For the painting at the Waterloo Barracks, Tower of London:—

Nightingale	£758	0	0

For new Infants' School, Orkney-street, Battersea Park, for Christ Church, Battersea. Mr. Bennett Hays, architect. Quantities supplied:—

Jackson & Shaw	£1,285	0	0
Nicholson & Sons	1,280	0	0
Forrest	1,271	0	0
Lathey, Brothers	1,184	0	0
Bass	1,088	0	0

For new church at Aughton, near Ormskirk. Messrs. Hay, architects:—

Rome	£7,050	0	0
Slathan	6,491	0	0
Wells	6,243	0	0
Mullins	6,180	0	0
Westmoreland	5,777	0	0
Yates	5,665	0	0
Harris	5,366	0	0

For works in restoration of St. John's Church, Grimstone. Mr. R. W. Johnson, architect:—

Morrison	£946	0	0
Blundell	938	0	0
Russell	902	0	0
Johnson	874	0	0
Weaver & Wintnell	859	0	0
Barnes	849	0	0
Fast	736	0	0

For works in six houses, &c., at Kettering, Northamptonshire. Mr. R. W. Johnson, architect:—

Houses.

Buswell & Henson	£1,680	0	0
Wilson & Bullin	1,499	0	0
Watkin	1,470	0	0

Sewerage and Roads.

Mash & Margetts	£417	0	0
Wilson & Bullin	355	0	0

For works at Somerby House, Leicestershire. Mr. R. W. Johnson, architect:—

Russell	£895	0	0
Johnson	836	0	0
Morrison	816	0	0
Barnes & Weaver	760	11	0
Fast	760	0	0
Halliday & Cane	749	0	0

For House at Hanworth, for Mr. G. F. Pollock. Mr. E. J. Kelly, architect. Quantities by Mr. J. Crawley:—

Wright	£2,774	0	0
Mansfield & Price	2,570	0	0
Patman & Fotheringham	2,510	0	0
Scrivener & White	2,435	0	0
Cowland	2,320	0	0
Simpson & Son	2,220	0	0

For house at Hanworth for General Harry Rivers. Mr. E. J. Kelly, architect. Quantities by Mr. J. Crawley:—

Mansfield & Price	£3,168	0	0
Cowland	2,914	0	0
Patman & Fotheringham	3,104	0	0
Scrivener & White	2,988	0	0
Simpson & Son	2,830	0	0

For the erection of premises, 21, Cornhill, for Messrs. Samuel Montague & Co. Mr. N. S. Joseph, architect:—

Hill & Keddell	£3,372	0	0
Conder	3,354	0	0
Axford	3,160	0	0
King & Sons	3,140	0	0
Lawrence & Sons	3,125	0	0
Piper & Wheeler	3,090	0	0
Brass	3,059	0	0
Browne & Robinson	2,944	0	0
Newman & Mann	2,797	0	0

For building six houses in Heygate-street, Walworth-road, Newington, and alterations to the Surrey Tabernacle. Mr. George Elkington, architect:—

	Houses.			Alterations.		
Wood & Munn	£3,480	0	0	£135	0	0
Kent	2,985	0	0	95	0	0
Tarrant	2,370	0	0	106	0	0
Eustace (accepted)	2,345	0	0	98	0	0

For work at Hackney-road, for Mr. Roberts, printer. Mr. Edward H. Burnell, architect:—

	Main Building.			Back Building.		
Wood	£1,959	0	0	£376	0	0
Masers	1,830	0	0	702	0	0
Perry	1,755	0	0	615	0	0
Scrivener & White	1,637	0	0	543	0	0
Garnham	1,497	0	0	496	0	0

For rebuilding house No. 14, west side Bethnal-green, for Mr. R. Brookes. Messrs. T. & W. Stone, architects:—

Hewett	£625	0	0
Sergeant	605	0	0
Forrest	597	0	0
Higgs	557	0	0

For sundry alterations, &c., to Horse Shoe and Magpie, Bedford-street, Red Lion-square. Mr. L. H. Isaacs, architect:—

Bishop & Co.	£667	0	0
Gadsby	628	0	0
Walker	599	0	0
Langmead & Way	587	0	0

For the erection of three shops, in Bermondsey New-road, for Mr. Hobbs. Messrs. Dean & Sheffield, architects. Quantities supplied by Mr. Shrubsole:—

Lott	£1,880	0	0
Shapley & Webster	1,755	0	0
Chutter	1,640	0	0
Wills (accepted)	1,617	0	0

For building residences at Sheen, for Messrs. Gadsden, Ellis, & Co.:—

Cubitt	£4,850	0	0
Seal	4,259	0	0
Godden & Webb	3,850	0	0
Dunkley	3,723	0	0
Smith	3,426	0	0
Nightingale	3,371	0	0
Sims	3,000	0	0
Carless	2,936	0	0

For the erection of a tavern at Stroud Green-lane, Hornsey, for Mr. Francis Ayson. Mr. Richard Gover, architect. Quantities supplied by Mr. Shrusole:—

Johnson	£1,700 0 0
Wilkinson & Co.	1,690 0 0
Kelly	1,627 0 0
Nightingale	1,575 0 0
Palmer	1,500 0 0
Jones (accepted)	1,254 0 0

For additions to Chertsey Union. Mr. H. Walker, architect.:—

	Building Works.	Plumbers' Works.
Nightingale	£571 0 0	£27 0 0
Hunt & Son	547 0 0	—
Oader & Son	541 0 0	69 0 0
Knight & Son	518 0 0	49 10 0
Tender by a local Plumber	—	48 15 6

For painting at the Wellington Barracks:—

Nightingale	£732 0 0

For building houses at Erith, for Mr. Herbert Ford:—

	Mr. Hall's House.	Mr. Hartridge's House.
Johnson	£2,545 0 0	£2,193 0 0
West	2,700 0 0	2,100 0 0
Rawlins	2,658 0 0	2,395 0 0
Henshaw	2,458 0 0	2,230 0 0
Francis	2,290 0 0	2,049 0 0
Blofield	—	2,200 0 0
Nightingale	2,147 0 0	1,937 0 0
Johnstone	2,100 0 0	1,900 0 0
Palmer	2,025 0 0	2,000 0 0

For the erection of a villa residence next 33, Carlton-road, Kilburn, for Mrs. Elizabeth Smith. Mr. Todd, architect. Quantities supplied by New & Cumings:—

Ireleigh	£2,367 19 0
Phillips & Son	2,168 0 0
Crasweller	2,172 0 0
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Ebbs & Sons	2,147 0 0

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We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

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IV. REYNOLDS AND HIS TIMES.—CONCLUSION.
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The Builder.

VOL. XXIV.—No. 1225.



London Congress of the Archæological Institute.

N the course of Sir John Lubbock's paper on Primæval Antiquities to which allusion was made in our last, the reader urged that the great antiquity of the stone period was evident from several considerations. The extinction of the large mammalia, he said, must have been a work of time; and neither in the earliest writings nor in the vaguest traditions do we find any indication of their presence in Western Europe. Still more conclusive evidence is afforded by the conditions of our valleys. The beds of gravel cannot have been deposited by any sudden cataclysm, both on account of their regularity, and also of the fact that the materials of one river system are never mixed ith those of another. At the close he made two ggestions. The first was, that, in the Authorized ersion of the Bible, we should in future omit e date 4004 B.C., which now stands before the st verse of Genesis. No geologist or archæoist believes this to be true; and it is wonrful that a truth-loving people as we are ould continue to print the Bible with that nich we all believe to be a mis-statement at e very commencement. Secondly, he could t but think that it would be well if the Governent would appoint a Royal Conservator of ational Antiquities. We cannot put Stonenge or the Wansdyke into a Museum; all the ore reason why we should watch over them here they are; and even if the destruction of r ancient monuments should under any cirmstances become necessary, careful drawings ght first to be made, and their removal ought take place under proper superintendence. e are apt to blame the Eastern peasants, who e the ancient buildings as stone-quarries, but e forget that even in our own country, Abury, e most magnificent of Druidical remains, was most destroyed for the sake of a few pounds, hile recently the Jockey Club has mutilated e remaining portion of the Devil's Dyke, on ewmarket-heath, in order to make a bank for e exclusion of scouts at trial races. In this se, also, the saving, if any, must have been ry small, and it may be thought that no ciety of English gentlemen would have comitted such an act of wanton barbarism if they ad given the subject a moment's consideration.

On the 19th, Thursday, Mr. Beresford Hope, .P., opened the architectural section with an ldress upon the architectural features of Lonon past and present, and the causes which had led their peculiarities. Tracing the appropriations of legendary and mythological lore in the early national tales and devices, he showed how London more peculiarly than the capital of any other country represented the interests and feelings of the entire nation, while in itself it had been the embodiment of civic dignity. Anything like its proper history had not yet been accomplished. Within the memory of many some parts had still retained their Mediæval aspect, but so rapid had been the changes that few isolated remnants now remained, and these were likely too soon to be obliterated, and not even a bare catalogue of its most notable relics of architecture had been made. Good books there were both old and new, from Stow to Scott, but not the slightest vestige of an approach had yet been made towards the grand general history the subject deserved. The size and extent of London were features that all foreigners remarked, and a good deal in this respect must be attributed to the independence and love of home, inherent in the hearts of the English people; another reason being the retention of so many large estates by landed proprietors, whose ancestors formerly had their noble mansions and extensive grounds in suburbs of the ancient city, and the consequent system of leases by which it became advantageous to cover the ground with buildings, as the more the bargains the greater the profits. In conclusion, Mr. Hope cited many instances of the notorious vandalism of the eighteenth century, as well as many unavoidable beneficial removals, in respect to which, however, it was much to be regretted that drawings and plans of the interesting objects demolished had not been preserved. He hoped that in the present meeting the foundation would be laid for a proper architectural survey of London.

Dr. Guest then read a paper, the result of much research, on the campaign of Aulus Plautius in Britain, which he prefaced with some remarks on the invasion of Cæsar, and on the disputed question at which point he had crossed the river Thames. Dr. Guest pointed out some of the mistakes which had been made by early historians in consequence of their having supposed the river to have been in the same condition at the time of Cæsar's invasion as at present. One of these mistakes was in the etymology of Teddington, which was conjectured to have been *Tide-end-town*, in consequence of the tide not rising farther up the river; but as the locks which now stop the tide there were, of course, not in existence in the time of Cæsar, the tide must have flowed far past that town. Another prevalent error was, that stakes were driven into the river by Cassivelaunus to obstruct the passage of the river near Kingston by Cæsar's army; but Dr. Guest explained that the stakes were in two parallel lines across the stream, and could not, therefore, have been intended to obstruct the passage. In his opinion, the ford at that place had been so narrowed to prevent persons crossing without paying toll, and that the stakes had been there long prior to Cæsar's invasion. The important result of Cæsar's conquests in Britain, Dr. Guest considered, was not the subjection of the Britons in general, but the diminution of the power of Cassivelaunus, who had previously exercised uncontrolled dominion over the midland districts. A large map of England, as it was supposed to have been at the period of Cæsar's invasion, was exhibited, showing a large portion of it to have been covered with forests, and the tracks of the Roman roads, which were supposed to have been constructed on previous trackways of the Britons.

The crossing of the Thames, Dr. Guest maintained, in spite of the opinions expressed in the second volume of the Emperor Napoleon's "Life of Cæsar" to have been at the Cowey Stakes, near Kingston, the position of which was the exact distance of 80 miles from the sea, as stated by Cæsar himself. Bede had noted their existence in his day, and had attributed to them the site of Cæsar's passage. A bank occurred where the double line of the Cowey stakes formed the defensible ford into the territory of Cassivelaunus. It was across this shallow ford, between the stakes, he suggested, that Cæsar directed the daring exploit of that rush of cavalry which contributed to the foundation of his victory. Between Wallingford and the mouth of the Thames this was the only fordable spot. In the narrative of Aulus Plautius he indicated the performance of a grand detour by the Roman troops, who, landing in three divisions at the three Roman ports of Kent, crossed the Thames at Wallingford, and coming down again upon that river within the tract now the county of Middlesex, attempted to pursue their enemy across the entrance of the Lea into the Thames; here they were repulsed, and making a castrum for their own security on the banks of the Thames, gave origin to the great city of London.

A meeting of the Section of Antiquities took place at the Museum of Geology, Jermyn-street, at which Dr. Birch, the president of the department, gave the opening address, wherein he discussed the antiquities of Egypt, Syria, Phœnicia, and Etruria, especially with reference to the remnants of their records left on coins and entablature. He alluded also to the discovery of a second tablet, more important and more ancient than the famous Rosetta stone, and by which it was hoped that many of the inscriptions hitherto unintelligible would be deciphered.

In the afternoon the members assembled in the Chapter House of Westminster Abbey, and three papers were read:—"The History of Westminster Abbey," by the Very Rev. Dean Stanley; "The Sculptures in Westminster Abbey," by Professor Westmacott; and "The Architecture of Westminster Abbey," by Professor Scott; who was to have accompanied the party in their examination of the structure, but found the numbers too large to be manageable.

The Dean on this occasion confined himself mainly to the burial and monuments of kings. In a previous lecture he had observed that it was a peculiar characteristic of the kings of England that they selected their place of burial within sight of their palace, of which practice Russia afforded the only similar example. Westminster Abbey had seldom been selected as a place for royal marriage, Henry I. and Richard II. having been the only English kings married there. It was, however, the only building in Europe in which the coronations and the burials of royal personages took place. Edward the Confessor was the first king who was positively stated to have been buried there, and it was some time before his successors followed his example, for it was natural that kings should like to be buried in the churches they had founded. After noticing the burial-places of several of the kings after Edward, and adverting to the fact that Westminster Abbey had been exclusively built by the Crown, the Dean proceeded to mention the great alterations that were made in the original building by Henry III., who expended such large sums of money on the building that it was one of the main causes of his quarrels with the Parliament. It was the custom at that time, when rebuilding a church, to sweep away the previous structure, and that had been done by Henry with Edward the Confessor's Abbey at Westminster. The shrine, however, of the Confessor was religiously preserved. Henry III. intended at one time to have been buried in the Temple Church; but as he grew older his attachment to the Abbey increased, and twenty years after his death his body was deposited on the spot where his tomb is to be seen; but his heart was sent to Fontenoy, the abbess of the convent there having laid claim to it because Henry had once promised that he should be buried there. That was the last trace of the connexion of English

kings with Normandy. Henry had made extensive arrangements for the burial of all the members of the Royal Family in Westminster Abbey, and he by that means so completely occupied the Confessor's Chapel, that it afterwards became difficult to find room for the kings who desired to be buried there. Edward III. brought into the Abbey the stone of Scoone, and from that time it became the place where all the kings of England were crowned. It had remained there ever since, with one remarkable exception. At the installation of Oliver Cromwell the stone was taken from the Abbey to Westminster Hall, that Cromwell might sit upon it while the ceremony was performed. The dean mentioned in succession the kings who had been buried in the Abbey, and noticed the arrangements that had been made for the placing of their coffins after the chapel of Edward the Confessor had been filled. Henry VI. was very anxious to find a place where he could be buried in the Abbey, and it was proposed to him by the abbot to remove the body of Henry V.; but to that he objected, saying, "He lies there like a noble prince: let him rest. I will not disturb him." Henry VII. built St. George's Chapel at Windsor, and a mausoleum for Henry VI.; but the Privy Council determined that, as that king had expressed a wish to be buried in the Abbey, his body should not rest at Windsor; consequently Henry VII. determined on building the chapel now known by his name, as a fitting burial-place for his predecessor. That was the object for which the chapel was built; but it is a doubtful question, after all, where Henry VI. was buried. For many years past no royal personage had been interred in the Abbey, until on a recent occasion, when it received the body of the Duke de Montpensier, who, though a Roman Catholic and a Frenchman, had desired to have his last resting-place with the kings of England.

The introductory portion of Professor Westmacott's observations we print in full. Intermediately an anthem was sung very well by the abbey choir.

This was a day of lectures. In the evening Mr. Hepworth Dixon read a very interesting paper on the "Historical Associations of the Tower of London;" and Mr. Geo. Scharf one on "The Historical Paintings at Windsor and Hampton Court."

These were preparatory to visits to the places in question. As we have not space for a complete outline of the proceedings of the week, we must confine ourselves to mention of the most interesting places visited, availing ourselves of the papers referring to them previously read. First, then, as to

The Tower,

visited on Friday.

"Whether we take the Tower," said Mr. Dixon, "as a state prison, as a royal palace, as a fortress, as a mint, as a court of justice, as an arsenal, as a military museum, as a strong jewel-box, it fills the mind with picture, poetry, and drama; and if we dwell upon it chiefly as a state prison, and only in a lesser degree as a royal palace, it is because the human interest in a place is always keener than the official interest. Even as to length of days, the Tower has no rivals among palaces and prisons,—being so old, that its origin, like that of the Iliad, that of the Sphinx, that of the Newton Stone, is lost in the nebulous ages, long before our definite history took shape. Old writers date it from the days of Cæsar,—a legend taken up by Shakespeare and the poets, and in favour of which the name of Cæsar's tower remains in popular use to this very day. A Roman wall is still visible near the ditch. The Tower is mentioned in the Saxon Chronicle, in a way not incompatible with the fact of there having been a Saxon stronghold on the spot. The actual buildings were commenced by William the Conqueror, and the series of apartments in Cæsar's Tower,—hall, gallery, council-chamber, and chapel,—were used as portions of the royal residence by all our Norman kings. What can Europe, what can Asia, show us to compare against such a story?

Set against the Tower of London, with its eight hundred years of historic life, its nineteen hundred years of traditional fame, all other palaces and prisons appear but of yesterday. The oldest bit of palace in Europe, that of the west front of the Burg, in Vienna, is of the time of Henry III. The Kremlin in Moscow, the Doge's Palazzo in Venice, are of the fourteenth century. The Seraglio in Stamboul was built by Mohammed II., and the oldest existing part of the Vatican by Pope Borgia, whose name it bears. The old Louvre was commenced in the reign of our Henry VIII., the Tuileries in that of his daughter Elizabeth. In the time of our Restoration, Versailles was yet a swamp. Sans Souci and the Escorial belong to the eighteenth century. The palaces of Cairo and Tehran are of modern date. Neither can the prisons which have earned any large celebrity in history and drama, with the one exception of St. Angelo in Rome, compare against the Tower. The Bastile is gone, with all its romance, all its crime; the Bargello is a museum of the peaceful arts; the Piombi are removed from the Doge's roof. Vincennes, Spandau, Spilberg, Magdeburg, are all modern in comparison with the jail in which Ralph Flambard, our unruly Bishop of Durham, was confined so long ago as the year 1100, in the time of the first Crusade."

Looking down from Tower-hill on the dark lines of wall, rising high above the green fringe and garden, picking out turret and terrace, bastion and ballium, chapel and belfry, the jewel-house, the armoury, the embrasures, the casemates, the open leads, the Bloody Tower, the Beauchamp Tower, the Martin Tower, the whole edifice seems to be alive with story—the story of a nation's splendour, misery, and shame. The very grass beneath the feet has been wet with blood; for out upon this sod has been poured, from generation to generation, a stream of the noblest life in our land.

The main body of the members were conducted round the Tower by Mr. G. T. Clark, who, stopping at prominent points, gave such particulars as occurred to him. The assemblage, after looking at the restored Traitor's Gate, from which the water has been shut out, passed through the gate of the Bloody Tower, and ascended by the "Cold Harbour" wall to the parade, formerly the garden of the royal palace. In the room over the portcullis of this tower, the ancient windlass and gear for raising and lowering it, and of which we gave an engraving some time ago, still remain. Here the Beauchamp Tower, the lower story of the Bell Tower, and the curious arcade extending the whole length of the west curtain wall, were inspected. On the parade, which was the place of execution of royal personages, the site of the beheadal of Anne Boleyn is now being marked out, by the wish of her Majesty. In the Norman chapel of the White Tower, Mr. Clark delivered a discourse on the fortress, in which he described the architecture of the building more fully than he had been able to do in the course of the ramble. He alluded, in commencing, to the great kindness and assistance he had experienced from the constable, the deputy-constable, and from the chief warden. The constable, with the greatest readiness, had offered to give every facility to the researches, and Lord de Ros, to whom he was referred, had even done more, and had literally "outrun the constable" in his efforts to gratify the members of the Institute.

At the conclusion of the discourse, Lord de Ros made some observations respecting the supposed murder of the princes in the Bloody Tower. He said that he had paid much attention to the subject, and examined it very minutely, with all the facilities which his position afforded him, and he had arrived at the conclusion that the princes had been murdered and buried in the place which tradition assigned. It seemed nearly certain that the bones of two children, of about the same age as the princes, had been discovered concealed at the bottom of the staircase, and, unless such a crime had been committed, there would have been no reason for burying the bodies in that place, for there were many spots fit for interment within the walls of the Tower.

A smaller party was conducted through the building, by Mr. Dixon, who spoke, and with good effect, rather of people than of place, the prisoners rather than the prison. Sir Henry Wyat, he reminded them, was a Lancastrian in politics, and under the reign of Richard III. he spent not a little of his time in the Tower. The Wyat papers say — "He was imprisoned often; once in a cold and narrow tower, where he had neither bed to lie on, nor clothes sufficient to warm him, nor meat for his mouth. He had starved there had not God, who sent a crow to feed his prophet, sent this his and his country's martyr a cat both to feed and warm him. It was his own relation unto them from whom I had it. A cat came one day down into the dungeon unto him, and as it were offered herself unto him. He was glad of her, laid her in his bosom to warm him, and, by making much of her, won her love. After this she would come every day unto him divers times, and, when she could get one, bring him a pigeon. He complained to his keeper of his cold and short fare. The answer was, "He durst not better it.'—'But,' said Sir Henry, 'if I can provide any, will you promise to dress it for me?'—'I may well enough,' said he, the keeper, 'you are safe for that matter;' and being urged again, promised him, and kept his promise, dressed for him, from time to time, such pigeons as his accator the cat provided for him. Sir Henry Wyat in his prosperity for this would ever make much of cats, as other men will of their spaniels or hounds; and perhaps you shall not find his picture anywhere but, like Sir Christopher Hatton with his dog, with a cat beside him." The prisoner had this faithful cat painted, with a pigeon in her paws, offering it through the grated window of his dungeon. That picture is in the collection of Historical Portraits now on view in South Kensington. Wyat was put to the torture,—a thing unknown to our law, but very well known to our lawyers.

Walter Raleigh had his home in the Bloody Tower; and here he wrote that magnificent fragment of a History of the World, into which he has poured so much of the daring genius, the wise experience, and the chastened sorrow, of his heroic life. Beauchamp Tower and the White Tower claim the glory of having been Raleigh's prison home; and as he was three times committed, each may have a genuine claim; but his twelve long years of imprisonment were passed in the Bloody Tower, the scene of his historical labours, of his chemical experiments, and of his political conversations. It was hither that Prince Henry came to spend his hours with the great prisoner; and where he one day said to his attendants, as he rode away, that no king save his father would keep such a bird in such a cage. It was to these narrow chambers that Lady Raleigh, the bright Bessie Throgmorton of his youth, leaving all the splendours of Sherborne Castle, came to reside with her hero. Here her son Carew was born. Into these rooms came Jonson and the poets, with whom Raleigh loved to converse about their art. In this dungeon he began a treatise on the art of conducting war by sea; made a new model of a ship; and invented the famous cordial which still bears his name. Having access to the little garden, which, though open now, is still green with trees, he converted a hen-roost into a laboratory, and spent his time in distilling waters from herbs and flowers, until he had perfected that drink of which Anne of Denmark and her grandson Charles the Second were so fond. But his main solace lay in writing; especially in composing that book of noble thought, his History of the World. Standing in the dark cell of the Bloody Tower in which he wrote, we can fancy the feelings which led him into saying of his book and its future critics,—"The general acceptance can yield me no other profit, at this time, than doth a fair sunshine day to a seaman after shipwreck; and the contrary no other harm than an outrageous tempest after the port attained."

The Council Chamber in the Lieutenant's Lodgings, seldom seen, was visited by the party. James I. came down to this Council Chamber to question Guy Faux. The fact is commemorated in a long Latin inscription over the fireplace; also by a bust of the king, in coarse stone, painted.

The upper room of the Beauchamp Tower, into which the public are not admitted, was the prison of Edmund Pole. Well might surprise be expressed that some interesting memorials left by him have been dug out of the wall, taken from their true locality, and inserted in the lower story, so as to enrich the show of inscriptions in the public room. Antiquaries have to be rather sharp with country churchwardens; but what are we to say when a restorer of the Tower of London is allowed to remove inscriptions,—to deface the work of ages, to obliterate romantic records, and to make the walls bear false witness as to what has occurred within them? It ought to be only needful to draw attention to this singular fact, in order that Edmund Pole's inscriptions may be restored to the places in which he made them. We equally agree with Mr. Dixon in condemning the ugly pile of warehouses erected in the midst of the ancient works (which might excuse a good-natured man for wishing, with Mr. Disraeli, that somebody would hang an architect!). At those warehouses it will be the duty of every antiquary,—indeed, of every man who can feel the poetry and romance of the Tower,—to cast a stone, until all their windows shall be, metaphorically, smashed.

To our surprise we heard nothing said of the National Armoury and its sad shortcomings. When will it have a proper keeper and be made to take the place it should? Forgeries and impertinences are still exhibited in it.

Silchester.

In the evening of Friday, we must interpolate, the Rev. Mr. Joyce read a paper at the Geological Museum, on the recent excavations made at Silchester, near Reading, at the cost of the Duke of Wellington. Unlike the other old Roman encampments, the site of Silchester, he said, had never been built upon by Britons or Saxons. Several discoveries had been made since last year, and many beautiful mosaics had been found,—among them one with the design of an urn, with border in tesseræ, and the other of perfect curves and ivy leaves. More than 1,000

coins in all had been found in Silchester, and as ate as a fortnight back a portion of a wall aitherto undetected had been brought to light. The lecturer regretted to add that the effects of our climate on the uncovered ruins had been decidedly detrimental.

The great majority of the members, however, attended the annual *conversazione* of the Institute of British Architects, at the house in Conduit-street, which was crowded with visitors. The walls were decorated with an interesting and extensive collection of architectural designs, many of them representing public buildings, either projected or in course of construction. There were also many drawings and prints illustrative of the topography of Ancient London. A number of excellent sketches from Egypt, by Mr. Phené Spiers, attracted deserved notice. An important contribution to the objects displayed consisted in a collection of paintings, intended to form part of an international exhibition about to be opened in the same building.

Saturday was given to

Windsor Castle and Eton College.

Mr. Parker received the members, and conducted them round the castle. We print, in a separate form, a digest of the information he gave on that occasion, and in a paper read by him on the previous day.

The Wolsey Chapel, or Royal Tomb House, of the decoration of which our readers have been often informed, was, of course, looked into by many. The brilliant roof is complete, and must be considered the finest piece of modern mosaic work extant. The west wall is being covered with mosaic pictures of the sovereigns, churchmen, and architects more intimately connected with the castle and its ancient and Royal Chapel of St. George. In the upper tiers are the portraits of Henry III., Edward III., Edward IV., Henry VI., Henry VII., and Henry VIII. Beneath these are pictures of Wolsey, Beauchamp, and William of Wykeham, skilfully executed in enamel mosaics. The east window has been filled with stained glass, by Clayton & Bell, the subject for its decoration being "The Passion." In the north side the windows are being filled with portraits of German princes, ancestors of his Royal Highness the Prince Consort. Mr. Salviati, jun., was present, and willingly gave interesting information.

Entering the castle, the apartments refurnished for the Emperor and Empress of the French, and since used by some other potentates, but not ordinarily shown to visitors, were seen this day. In the first of these entered, the exquisite window-hangings of green satin, set off by mauve, lined with primrose satin and bordered by a wide pattern of curious long-stitch needlework, in the natural colours of the flowers portrayed, with cords and tassels of the three colours and glittering gold thread, especially attracted the admiration of the lady visitors, the window-light blending and beautifying the colours. The bed corresponds; and here the mauve colour, with its border of needlework, forms the crown-like tester: the primrose is the lining throughout, and the green the outside of the curtains and valances. The counterpane is of primrose — or, perhaps, buff is the better term — and richly decorated with the same needlework of coloured flowers, in centre and corner groups. In another apartment, the beautiful hue of the green velvet drapery to a French bed won admiration: it is lined with white satin and edged with gold cord, fringe, tassels, and so forth. In this room there is a fine "Garofolo," small in size, but clear and rich in colouring,—a sort of Holy Family group, the Child standing at the knee of one of the seated figures—under a portico, with open sky beyond. The singular picture by Albert Durer attracted attention. It has a division in the centre; and to the spectator's right hand is seen a man at his ledger, counting up his gains. The white-bound ledger continues through into the other half of the picture, where Death, as a skeleton, sits grinning at the unconscious man. In the same chamber is one of the four or five repeated pictures, by Quintin Matsys, of which the current title, "The Misers," is now rightly questioned. There are also two portraits by Van Geef, portraits of himself and his wife, a fine head of a man by Rembrandt, and a "Holy Family" by Albert Durer, in which the green earthenware pot in the foreground, with lilies and flags, is a prominent portion.

The Brussels lace and white silk toilet-table and towel-horse (the towels being hung at the back out of sight) in the dressing-room adjoining, and the round toilet-cushion, with needlework of coloured flowers on white, sent some of the visitors into raptures. Some inlaid furniture, dark wood on maple or satin wood, is noticeable as are the chairs, of ebony, with seats and backs of green satin; the crown, in raised work of crimson and gold, in a gold wreath, upon the back. In the State rooms that are always shown, much of the furniture was uncovered, and some pale green satin seats, and others covered with Gobelins tapestry, were talked about. The inlaid cabinets, fine clocks, and the magnificent malachite vase which, till the marvellous malachite doors and other works in the Russian Court of the 1851 Exhibition were seen, was considered a wonder of richness and grandeur, were all duly examined.

In the plate-room the mass of gold plate is overpowering and fatiguing. The pieces must be looked at separately. Hidden almost in the corner of a doorway is a fine piece of modern artwork, a tall vase of oxydized silver, produced for the Prince Consort a short time previously to his death, at the cost of 1,000*l.*

In the inner chamber of the "Plate-room," a centre compartment, opposite the windows, contains some exquisite cups, and one small covered beaker of beautiful form, of rock crystal, the gold mounts studded with jewels, the cups engraved and otherwise ornamented, and on one (with a *lapis lazuli* stem and foot) a bouquet of flowers, in good and delicate silver filagree.

At Eton,

Professor Willis was in the ascendant: and spoke from the steps leading to the door of the chapel. He prefaced his account of Eton with some introductory remarks on the general history of colleges and their growth. The universities were first corporations of educated men, the teachers or doctors in which instructed by lectures in the public schools, the students being obliged to find lodgings for themselves. Soon, however, generous persons gave funds to assist poor boys from the grammar schools. After a time a more definite shape was assumed by these institutions; and lodgings were provided in the colleges that the morals and manners of the students might be brought under superintendence and control; but still the colleges have always remained distinct from the universities in this, that it is by the last only the degrees for attainments are conferred. In the early colleges the buildings were very simple, and the accommodation was generally little else than chambers to lodge in, these often being furnished by some hostelry bought for the occasion. The first college was that at Oxford, founded by Walter de Merton; one was founded at Cambridge soon after, and others followed at intervals up to 1379, when in the new college at Oxford William de Wykeham erected the first architectural building, complete in all its details, and so well organised as to serve as a basis for all subsequent erections. His plans also included the then new feature of a preparatory school for young boys. The Professor next proceeded to the consideration of King's College, Cambridge, and its appendage, Eton. After a touching account of the coincidences between the misfortunes of Henry VI. and the decadence of energy displayed in the carrying out of his educational schemes, and a just paralleling of the continual devising of plans for the education and elevation of his people by that monarch, and the constant efforts in the same directions by the late Prince Consort, Professor Willis detailed the original plans for Eton College as set forth in Henry's "will,"—this will being, however, not a "last will and testament," but in reality a building specification for his colleges, in which so clearly has he laid down his plans that the lecturer was able to transfer them to paper, and to exhibit a diagram of the ground-plan to his audience as a basis for comparison with the actual buildings subsequently erected, and forming the present pile. Henry, however, did not mature his plans at once, but modified them very considerably at a shortly subsequent period. He wanted to found a grammar school at Eton and a college at Cambridge, and to dedicate them to St. Nicholas, that saint's day having been his birthday. A site was purchased at Eton, north of the yard of the old parish church (now no more), and the king came down and laid the first stone, over which was to be the high altar of the new collegiate church. The king soon enlarged his plans, and amongst the valuable series of papers still preserved in the college the original draft with the dimensions erased, and enlarged dimensions inserted in the king's own writing, had been found. The choir of this larger collegiate church only was erected, the body never having been built, by reason of the king's misfortune. The old parish church was, however, previously transformed into a collegiate one, and so used for a number of years, as proved by a document in the Eton chest, containing many curious entries. The Provost's house was one of the first buildings erected, and Professor Willis commented at some length on the great enlargement of the accommodation provided for the provosts in later times. At first the provost had only a separate room, but when it became the practice for them to entertain princes and noblemen as their guests, it was requisite greatly to extend the residences of the provosts, and after the Reformation, when the clergy married and had families, still farther provision for their accommodation became necessary. Plans of King's College and of Eton, corresponding in general outline, showing the first designs and the subsequent extensions of them, were exhibited, and by reference to some ancient records, curious details were given of the cost of several parts of the building, and of the wages paid to the workmen. Three shillings per week were paid to artisans, and one bill for the manufacture of an image of the Virgin, to be placed on the altar, amounted to 16*l.* 13s. 4d. of the money of the time. The specifications given by Henry VI. for the execution of the works were very minute, describing the kind of materials to be used in different parts of the building, and the composition of the "mighty mortar" in which the stones were to be "couched."

In the cloisters, attention was directed to the arrangement of pairs of double doors for entrances into the respective residences into the cloisters, and to the very peculiar arrangement of six galleries on the upper stories, which are reached by staircases at each corner of the quadrangle, and in which galleries there are similar series of double doors for entrances into the residences above. By this means two staircases at present lead to all the surrounding suites of chambers, instead of having a common staircase for every two sets.

The lower school remains the same dark, dull, damp apartment it was when we commented on it on a previous occasion.

Entering the College Chapel, the effect of the stained glass, both at east and west, was particularly striking: the east end especially, with its coloured reredos and richly worked crimson velvet altar-cloth, made a gorgeous display. The lower part of the window represents the Crucifixion, and a singular and satisfying effect is produced by the solemn evening-lighted sky, given as the background to the cross. The peculiar form of the arch of the east window was pointed out: when commenced it was intended to be much more lofty than it now is, and the design was altered after the springing of the arch had been begun; when, instead of taking down the few stones placed, the arch was made to take a fresh spring, and was finished with a break in it on each side.

A float on the river while the Collegers' Pair Oar Race was run, a lovely sunset one way and a glorious view of the castle the other, gave a quieting end to a tiring day.

On Sunday, the Dean of Westminster preached in the Abbey, from the text—"One of His disciples saith unto Him, Master, see what manner of stones and what buildings are here." (Mark xiii.) In the course of his sermon he said it might be supposed from the language which was used thirty years ago, that Gothic architecture was one of the cardinal virtues, and that antiquity was the one single test of truth and excellence on all hands, but against this the Saviour's warning was decisive. It were well for the disciples to be reminded, even in Jerusalem, that there was something more enduring than the stones of the Temple, and it was well to be reminded now of the often-predicted prospect which future generations might take from the broken arches of our stately bridges over the ruins of our noblest churches. But having been thus forewarned they were forearmed. If archæology was not everything, it was at least something, and there were advantages which it might confer upon the world in a religious point of view. It awakened the love of the past, which was so necessary as a counterpoise to the excitement of the present and the future. It opened up a fresh world, enlarged our circle of acquaintances, and made us feel that we are not alone, but that we are what we are, under God, because of the thoughts and

deeds of those who lived before us. What a grasp of the ages that are dead and gone had God given us in His mercy by this new power, and what a pledge of the power of our race when they should be perfected!

Of Lambeth and other places visited, something hereafter.*

PROFESSOR WESTMACOTT, R.A., ON THE SCULPTURE IN WESTMINSTER ABBEY.

BEFORE entering in detail, upon the subject of this discourse, Mr. Westmacott made some remarks on Gothic sculpture in general. He said that usually the productions in this art were discussed by architects and antiquaries; and the sculpture, therefore, was only considered by them in relation to its connexion with architecture. He proposed to examine it as sculpture, and to judge it as a phase of that art. It happened that he was permitted by the kindness of the Dean to give his lecture in Henry VII.'s Chapel. There could be no more noble theatre for the purpose than such a monument of the skill and taste of our ancestors; while it also afforded some of the most admirable examples for illustrating his subject, in the numerous statues that so profusely decorated the different parts of the architecture. He proceeded to say,—In reviewing the sculpture in Westminster Abbey, it will be proper that our first remarks should be directed to that particular phase of the art, the Gothic, which is found in connexion with the older style of architecture of which the building is so fine an example. Though this sacred edifice has, for many generations, been made the resting-place and the receptacle of the monuments, of some of the most remarkable historical personages who have illustrated the annals of England, and thereby has claims to the attention of all who take pride in reflecting on the greatness and glory of our country, yet the interest of the intelligent visitor is chiefly and primarily drawn to those remains which can be associated with the earlier foundation. At a subsequent stage of our remarks, the sculpture of the later periods will be considered with relation to the state of art at their respective dates; but it is to the Gothic sculpture that attention will be directed in the first instance; and it will be right to show how this is to be judged and estimated.

The sculpture of the true Gothic period of architecture in this country, dating, that is, from the thirteenth century, and lasting till the middle of the sixteenth century of our era, is remarkable for a character exclusively its own. Generally speaking it exhibits,—like all the attempts at art by inexperienced workmen,—extreme rudeness in its execution; a disregard of rules of art, in proportion and anatomy, and, for the most part, want of beauty. The earliest attempts in sculpture, only a few centuries old, cannot, however, be placed in the same interesting category with the extremely archaic monuments of Assyria, Egypt, Greece, Etruria, Asia Minor, and other ancient nations, dating, it may be said, thousands of years since. Neither as monuments of fine art can Gothic works be allowed to take rank in illustrating the history of sculpture (proper); seeing that they throw no light whatever on the progress of imitative art, as a means of expressing ideas or sentiment by beautiful forms. Gothic sculpture never, at any time, achieved a development that placed it in the same high position that had been attained by the great schools of the art; for, though it had fallen into neglect and disuse, it must be remembered that sculpture had been brought to the highest state of perfection sixteen or seventeen hundred years before the so-called Gothic school had any existence.

Assuming the essential conditions of fine and good sculpture to be refined expression, the highest perfection of form and of physical beauty in all its parts, truth to nature in her boundless variety, and what is understood as *style* in treatment, with fine execution, it must be admitted, even by its warmest admirers, that Gothic or Mediæval sculpture must always occupy in these respects an inferior position. Any interest it possesses,—and this is very great,—must then be sought for in qualities quite distinct from that which attaches, in the first place, to primitive works of remote antiquity, or in the next, that is accorded to the excellence of the art exhibited; for it has, in fact, neither of these recommendations. That Gothic sculpture must be judged as an art *sui generis*, and not by the standard of progress and development, like other fine art, is seen in the curious fact of its maintaining, like the Egyptian and other prescriptive sculpture, its own marked and characteristic idiosyncracy as *Gothic*. So truly is this the case that it is remarkable that, in modern imitations of Gothic architecture, this peculiarity of a school of sculpture is always more or less attempted, as a *sine qua non* of character, though the progress of art and the advanced knowledge of the properties which constitute excellence must make it plain to those who adopt such peculiarities that the art so exercised is not truthful as an expression of the present age, and, therefore, in this respect, it is retrogressive and unreal. This does not apply to the form of Gothic sculpture; for this, it will be seen in the course of our remarks, was much modified, according to the comparative skill or increased practice of the workmen,—varieties especially observable at Wells, Lincoln, Salisbury, Exeter, and in other of the English ecclesiastical buildings. It refers rather, or entirely, to the *manner* of treatment. Here, with much that merits high praise, in its forms, it is constantly in antagonism to sound art principles, and exhibits an utter defiance of those rules of fitness and propriety which should essentially regulate an imitative art. If the human form is the object of imitation, it requires but little argument to show that the aim of the true artist should be to choose such conditions as will most correctly display that form, or, at any rate, that there should not be a studied effort to put it into distorted and impossible action.

Portions or parts of the figure, for instance, should not be made to perform functions for which they are unfitted, and of which they are incapable in nature; nor should the most perfect work of creation be represented truncated or in pieces, and so fulfilling, with the most complacent expression, ignoble and even repulsive and degrading offices. Yet, in true Gothic all this occurs, and is imitated as characteristic of the style. Figures represented as standing, kneeling, or sitting, are squeezed into the hollow mouldings of arched doorways, in *tiers*, one over the other; though in the apex of the arch the upper figures may by this arrangement be nearly if not quite horizontal. Again, the most distorted attitudes are given to others, in order to make them fit into angles or spandrels; figures, also, in parts or entire, are made to project suddenly at right angles from the walls, to support roof-timbers, or to act as brackets, while their draperies, clinging close, show no natural movement, but, instead of hanging or floating, are fixed horizontally in folds parallel to the figure. In like manner, heads of angels, saints, kings, bishops, and even females, are made to bear weights, as brackets under columns, or as ornamental terminations to dripstones, over windows and doorways, for draining off the rain-water. Now, in Gothic, these anomalies and the grotesques, and even indecency, that are seen in gargoyles, or draining-pipes on roofs, and in stall seats and other parts of ecclesiastical buildings, are distinctly intentional. They are not, like the crude attempts of the archaic sculptors, in consequence of entire ignorance, or of primitive rudeness of art; for they occasionally are found associated with a very advanced feeling for a certain kind of beauty, both of form and expression. In the heads of dripstone terminations, and occasionally in drapery, there is evidence of unquestionable power in these respects, sufficient, at any rate, to show that the strange, grotesque employment of these sculptured forms was a part of the system of the old true Gothic design, and belonged to it; herein contrasting unfavourably, and to itself fatally, with the perfect sculpture which decorated the architecture of the ancients—that of the Parthenon, at Athens, for instance, of which we possess the original examples.

It has been necessary to make these few preliminary observations on this peculiar feature in Gothic sculpture in order to explain much that appears anomalous in its practice. Ignorant of the true principles of sculpture, and rude and inexperienced in execution, as were the artists or carvers of the age, they yet were not so primitive, so blind, and so ignorant, as not to know that the human face was not intended to carry the weight of a column or a rafter; and, therefore, it is reasonable to assume that the fantastic uses to which the human figure was applied, formed an essential element in Gothic design. There will be enough to arrest attention in expression, pleasing forms, and, especially, in the graceful though peculiar treatment of drapery found in their works, to claim for some of the Gothic artists a large amount of our admiration; but we may not shut our eyes to the curious proofs that exhibit these, to us, contradictory and inconsistent features of their art-system; showing, beyond dispute, that they were considered as marks of the style, and proper to it. It is this which makes Gothic sculpture false and conventional, as a phase of art. Notwithstanding certain remarkable qualities it possesses, and to which it will be our pleasing duty to direct attention, it never can be classed as a branch of fine or perfect sculpture; and, for this reason, it never has been and never can be placed before students, like the remains of the great schools of Greece, as profitable guides for them to follow.

It must be a matter of surprise, even making every allowance for the very natural prejudice against using or imitating *heathen* types in the employment of sculpture for Christian purposes and illustration, why, in early times, the imitative arts in connexion with our purer religion should everywhere be found in so rude and barbarous a state. As before observed, it was no newly invented art; and, however neglected its practice had been, still monuments and remains of ancient and superior art abounded, especially in Italy. The missionaries, priests, and monks, who first spread the doctrines of Christianity, had all come from these southern countries where such remains were to be seen, on all sides; and it must ever seem strange that, when sculpture and painting were required in the service of the Faith, no higher or nobler ideas of the beauty and dignity appropriate to holy subjects and persons should have existed than such gaunt and uncomely productions as many of those that have reached us.

It is equally unintelligible that such poor art should be found associated in England with what has been called, by its admirers, the highest form of ecclesiastical architecture, the Pointed or Early English. It is difficult to conceive architects achieving excellence in their own art who were insensible to the glaring deficiencies of the arts employed in connexion with their productions. It is rather suggestive that all the arts, architecture as well as painting and sculpture, were, at that time, merely in a state of movement, and not practised on any fixed or recognized principles. The constant changes taking place in Gothic architecture itself during the short period of its existence (scarcely three hundred years), from the Romanesque to Pointed, from Pointed to Decorated, and from Decorated to Perpendicular, when, according to the best judges of Gothic, the style was fatally declining, point to this conclusion.

This, however, is a subject not now to be discussed. There can be no common ground of argument as between the two branches of art. Sculpture and painting, being strictly imitative, must be judged by an existing and admitted standard, Nature. In architecture there is no such sure guide, nor, indeed, any guide at all, of the kind. Judging by the varieties in the forms and mode of its outward presentation, the degree of popularity or admiration each has obtained, in different localities, may not improbably be mainly referred to fancy and fashion. This is not so with the imitative arts. Here there is a foundation, and a standard which is of all time, and it is also the highest as well as the safest that can be offered for our guidance.

The Professor said the sculpture in Westminster Abbey must be regarded under various aspects.

First, in its relation to the architecture, simply as accessorial decoration.

Secondly, for the subjects represented; when it is employed to illustrate Scripture, historical or legendary scenes and incidents.

Thirdly, as memorial sculpture; especially in its application to monuments to the dead, in tombs and similar erections.

He said he should leave the first of those divisions to the accomplished architect who was so competent to deal with a subject connected with his own studies. It would be his (Mr. Westmacott's) office to describe and comment on the two latter classes.

* Hull is selected as the next meeting-place.

COPPER.—A further reduction in the price of copper has been announced; the price of tough cake being 81*l.*, best selected, 84*l.*, per ton.

WINDSOR CASTLE.

THE castle stands on an outlying promontory of chalk commanding the winding shores of that part of the Thames, with a rich valley, which seems to have pointed it out as a natural position for a fortress in primitive times, when the natives wished to protect their country against invasion. The wide and deep entrenchments and the high artificial mounds indicate an early date. There were also roads at the bottom of the fosses, with a wide bank between them, on which buildings were erected, first of wood and afterwards of stone. A subterranean passage or postern, leading from the bottom of the outer foss, at a depth of 30 ft., to the bottom of the inner foss, at a depth of 15 ft., had been excavated for the occasion, by the express permission of her Majesty, and the visitors were led into the castle by Mr. Parker through this passage, which is cut in a very rude manner through the solid chalk, and has a vault of the time of Henry II., carried on chalk walls, built over a small part of it as far as the Norman buildings extended only: the doorways are of the same period, one of which is quite perfect and opens into the inner foss. After ascending the ladder and proceeding into the court of the upper ward, the visitors were received by the Dean and Mr. Beresford Hope, as chairman of the meeting; and then Mr. Parker gave in a concise form the history of the early buildings of the castle.

If Windsor Castle had been made in the fifth century by King Arthur, as was believed by Edward III. and the chronicler Froissart, the roads would have been on the level. They are more likely of the time of Caractacus or Julius Cæsar.

Edward the Confessor is believed to have resided chiefly at Old Windsor, and to have retained the castle for use in case of need. Some of the ancient earthworks of Old Windsor certainly belong to a period before the Norman Conquest. William himself is said to have built a castle at Windsor, but there is no evidence of it. The Domesday survey rather proves that there was one previously existing, which had been inhabited by Earl Harold in the time of the Confessor.

Henry I. is said by Stow, writing in the fifteenth century, to have built New Windsor. This building would, probably, have been chiefly of wood, but some of the fragments of stone carving found in the castle may be of his time.

Stephen built nothing here, but Windsor is mentioned in the treaty of Wallingford as a fortress of importance. In the time of Henry II. the first mention of the castle is made in the Pipe rolls of this period. The outer wall of the south front of the upper ward remains, with the lower part of the king's gate, its hinges, and portcullis groove; the upper part was destroyed, and the whole concealed in other buildings by Wyatville. In the reigns of Richard I. and John only necessary repairs were made.

With Henry III. the history of the existing castle may be said to begin. The whole of the lower ward was then first built of stone, and many portions of the existing walls are found to be of that period. The Clewer Tower—now known as the Curfew Tower—remains almost unaltered, and exhibits in good condition a prison of that period.

The King's Hall is now the chapter library, but the chambers of the King and Queen have been destroyed. Plans and drawings of them have, however, been preserved. Fragments of the chambers of Henry III. and his Queen were shown on the spot, where they were found by Mr. Bachelder when the remains of the buildings were removed a few years since. The measurements of this building agreed with the orders of the King as recorded in the public rolls.

Of the primitive chapel the north wall is still preserved; the galilee being now the east end (behind the altar) of St. George's Chapel. The doorways of the galilee are one of Henry III., the other of Edward III.; the west end of the chapel has been rebuilt several times. The arcade in the cloisters was protected by a wooden roof only. This chapel was completed by Edward III., and made into a lady-chapel, when the great St. George's Chapel was built. It was partly rebuilt by Henry VII. for the tomb of Lady Margaret, his mother, and afterwards was proposed for that of Henry VIII. It was much altered by James II., and partly restored by George IV. At the present time it is being made the object of devoted care, under the direction of Mr. Gilbert Scott. The roof has been vaulted in stone, the pattern of that of Henry VII., and is being inlaid with mosaic work, of exceedingly chaste pictorial design; the windows have been filled with superb stained glass; and the whole is being decorated and finished in a style of magnificence as a sepulchral chapel over the Royal vaults, befitting the intense affection of the Queen for her beloved husband, the late Prince Consort.

Mural paintings of kings' heads have been found of the date of Henry III. and Edward III., and are preserved in the cloister and galilee.

During the reign of Edward I. the accounts show that the great works begun by Henry III. were carried on and completed; but no new works appear to have been undertaken.

In the reign of Edward II. there were considerable sums expended on repairs of the walls, towers, and bridges, chiefly for timber and carpenters' work.

The reign of Edward III. is one of the most important in respect to the history of Windsor, a large part of the existing castle having been built at that period. The extent of survey of the castle in the first year of this reign is a very minute and important document, lately brought to light. Another equally important document is the builder's account for the Round Tower, which was entirely built from the ground in the eighteenth year of this reign, and still remains, though much altered in appearance, from the additional story superposed by Mr. Wyatville under George IV.

This building is sometimes called the Round Tower, and sometimes the Round Table; and, from other peculiarities in the same accounts, it is evident that the tower was built to hold the table. The galleries on which this round table was placed are still remaining, and the general disposition of the apartment where the knights dined on St. George's Day is well seen from the summit of the Round Tower. The tables of those days were seldom more than a few planks in width, and the guests sat round on one side, the other being open for the service of the attendants. The centre of this great round table, then, was designed for the latter purpose, and was open to the air, a passage communicating on a level from this central space to the kitchen on the top of the middle gate, which has thus acquired the title of the "Kitchen Tower." The tower and table were erected in ten months, the greatest haste being made in order that the new order of knights might dine at it on St. George's Day following its erection.

Holinshed, in his Chronicle, makes much of this round table as a great stroke of policy for attracting the free knights from all parts of Europe to take service under the English Crown; and the King of France, Philip de Valois, was so jealous of it that he would not allow the French knights to accept the invitation, and ordered another round table to be made in imitation of that of the King of England. Edward III. did not build a chapel at Windsor, but only completed the one which had been begun by Henry III., adding to it or rebuilding a cloister, a vestry, and other adjuncts. The cloister and buildings surrounding them are closely connected with the chapel, and were evidently considered by Edward III. as part of the works necessary for the completion of the chapel, which had been begun and left unfinished by his predecessors. The deanery, the vestry, and the treasury were built in the 24th, 25th, and 26th years of this reign.

After the thirteenth year, when William of Wykeham was appointed clerk of the works, an entirely new hall, with a new suite of apartments and offices, was built in the upper bailey, where the royal apartments now are, and the fine series of vaults under these apartments, forming ceilings to the servants' hall and other rooms and offices, still remain in perfect preservation, as built by Wykeham, who remained in this appointment only six years. The summary of his accounts during that time shows an expenditure of 5,658*l.*—equivalent to 120,000*l.* (?) of our money.

After the great works in the upper bailey which had been begun under his direction were drawn to a close under his successor, William de Mulsto, we have numerous entries relating to the new chambers for the King and Queen.

The small tower at the south-west angle of the Royal apartments near the library, now called erroneously King John's Tower, is an octagonal building, and the two chambers in it have very good vaults, with the ribs meeting in a central boss, which is in both cases carved into the form of a rose. This enables this rose-tower and the rose-vaults to be identified in a very remarkable manner. This tower was very richly painted, and the quantity of paint and other materials charged on the roll misled the late Mr. Hudson Turner, who had only seen a portion of these accounts, and made him think they belonged to the great Round Tower, and that it was painted on the outside. The dates do not agree with this, and there is no evidence of external painting.

The works which had been carried on during a great part of the long reign of Edward III. were not completed at the time of his death, and were continued under Richard II.; but with the exception of necessary repairs, the accounts for this reign relate chiefly to the offices and dependencies of the cattle, especially the mews for the falcons, which was evidently a large and important establishment not within the walls.

The celebrated Geoffrey Chaucer, "the father of English poetry," was appointed, in the fourteenth year of this reign, clerk of the works, but very little was done in his time. Further than this, Mr. Parker did not bring down the history in his discourse, for want of time, although in conducting over the castle and grounds he incidentally pointed out all the various dates of architecture and the circumstances under which additions and alterations had been made up to the present time.

BLACK-LEAD PENCILS.

THE BORROWDALE "WAD" MINE.

It seems to be allowed on all hands that we have reached an important crisis in our national prosperity. Our political position, according to Mr. Matthew Arnold, and the French journalists, has sunk to that of a third-rate power in Europe. Our coal measures have reached, or will soon reach, their productive limit; indeed, according to Mr. Jevons they are already verging towards the period of their decay and exhaustion. It remains, say some, that the working classes shall succeed in forcing up the price of labour to an abnormal and unprofitable level; and then we may betake ourselves to prognosticate, as best we may, the decline and fall of the British empire!

From this highly shaded and gloomy picture it is pleasant, and, perhaps, profitable, to turn for a moment to the obscure byways of English manufacture, and study the relations of a trade in which these prospective conditions with regard to coal are actually at this moment fulfilled: where the native stock of "mineral" has been exhausted, and where we are absolutely reduced to dependence on the "foreigner" for our supply of raw material; but where, nevertheless, the trade continues to flourish with undiminished vigour and prosperity! Such a trade, we have just discovered, exists in the manufacture of black-lead pencils, for which the picturesque little town of Keswick, in Cumberland, has long been celebrated.

And more than this. Not only does the Keswick pencil trade supply us with an actual case of the possible phenomena of the exhaustion of coal as a mineral—as a commodity of sale or exchange—but it also supplies us with a remarkable illustration of the method by which an important national manufacture may be carried on independent of coal altogether! In fact, this condition has, we may almost say, been a necessity of its existence. For had the pencil manufacture of Keswick depended upon its contiguity to a coal-pit, it could hardly have sprung into existence in the valley of Derwentwater, or in the very bosom of the middle slates of the Cumbrian mountains! But although there was no coal; there was plenty of water-power—in the Greta and the Derwent—there was timber in profusion on the slopes of Skiddaw and the Thornthwaite Fells—and finally, of course, there was black lead in the Borrowdale mountains. This singular mineral, it should seem, is at length exhausted—at least, it is thought so. But, at all events, there grew the trade of English pencils, which is known all over the civilized world, and there it continues to flourish! It has no tall chimneys, nor dense volumes of sulphureous smoke. The mills are, upon the whole, picturesque objects of the antique type which Berghem loved to paint. The little town of which it constitutes the staple manufacture, is one of the loveliest spots in all England; and thither we went the other day, our breast fired with patriotic zeal, and with Mr. John Stuart Mill's dolorous speech ringing in our ears, to study the whole subject and to report. We

shall devote this article to a consideration of the Borrowdale "wad" mine, and the next to an account of the manufacture of black-lead pencils in Keswick.

The ride from Keswick through the valley of Borrowdale is undoubtedly through one of the most singular and striking scenes in the country. No wonder that it has inspired the poets. Half a century ago it was described by a well-known topographer as "a dreary and mountainous waste of huge hill-tops—a savage region;" but Wordsworth's exquisite description redeemed it from this character; and Earl Russell—the earl, be it remembered, was a poet in his youth—not long ago pronounced it to be the most magnificent prospect in England. The fact is, that the great diversity of altitude and of physical conformation of the mountains, the consequent diversity of climate and of soil, the extensive and singular character of the aspect, and the multiplicity and variety of the hills and dales, impart to the valley of Borrowdale a character of rugged and magnificent grandeur, which, take it all and all, is unequalled in mountain scenery. Nor are the geological features of the rocks less varied and interesting. It would be difficult to see with greater advantage the traces—the footsteps, so to speak—of those ancient glaciers to which the scenery of the lake district owes so much of its variety and its beauty. It is comparatively easy to discover the green boulder mounds and knolls which mark the precise line where the ice of the valley had melted and deposited its burden. We may also detect the polished and striated track of the later glacial action as conspicuous and fresh as if it had been grooved out yesterday; and all around on the rough, precipitous, and mouldering cliffs we may trace with astonishment and awe the results of those silent and imperceptible, yet inexorable forces which, to use the language of the poet, makes "the mountains themselves decay with years!"

It is hard to picture to our minds the smiling valleys of Cumberland and Westmoreland once filled by ice, and the heath-clad hills clothed with a mantle of perennial snow; yet science tells us, in language too strongly pronounced to be mistaken, that such was the case at one stage of the glacial period.* At another period the country was lower than it is now by 1,200 ft. or 1,400 ft., and the deep waters of the Atlantic washed the flanks of Helvellyn, of Skiddaw, and of Scawfell. Still the island group ever and anon sent afloat messengers of ice laden with fragments torn from its own sides to remind other lands that it was not yet entirely submerged †

Turn now from this picture of eternal ice to the present aspect of this valley. "The western crags and hills," says Mrs. Linton, "are apparently solid black; but a black when looked into that is rich with purple and green and the finer tints of orange. The broad grey bed of pebbles fringed with larch is warmed to purple; and the quiet pools among the waste are like sheets of beryl; while Glaramara stands bathed in delicious radience as if the shadow of a rainbow was passing over it."

Out of the thousands of tourists who every year pay their devotions at the shrines of the English Lakes, there are few, we suspect, who think of making a pilgrimage to the village of Seathwaite; yet this obscure pretty little hamlet, which lies at the head of the Borrowdale valley, is, in one or two respects at least, the most remarkable place in England. From its picturesque position alone, as lying at the head of the great glen, it is really deserving of a visit; and, to do so, it does not require a long detour from the road by Honister Crag to Buttermere, the gloomy but magnificent grandeur of which has been sung in the immortal stanzas of many a lake poet. The celebrated paternal yew-trees which Wordsworth described in language and with metaphors such as Wordsworth could alone employ, may still be seen perched on the right-hand slope of the solitary vale. Again, Seathwaite is rendered famous in modern story from the circumstance that it supplies the meteorological disciples of poor Admiral Fitzroy with a register of the heaviest rainfall in all England. In the year 1861, for example, the figures were 182 inches, and in 1863, 172 inches, representing an enormous quantity of rain in Borrowdale, if we recollect that the average rainfall of London is only 24 inches! As our business, however, for the present is more related to mineralogy than meteorology,—more connected with the crust of the globe than with its atmosphere,—we shall at once proceed to our survey of the "Wad" mine, as it is called, which constitutes the last and most remarkable feature of the place.

Hard by the village of Seathwaite, on the face of a huge precipitous rock, and fronting the bluff weather-worn hill which still goes under its ancient and high-sounding but purely Celtic name of "Glaramara," we shall discover the outlet of the famous plumbago or wad mine, which has supplied English artists and schoolboys during many generations with the materials for their black-lead pencils. Very little indication of its former activity and of the enormous value of its produce now remains. There is an opening or two in the side of the hill which interrupts the regularity of the mountain slope and introduces an awkward-looking spot in the exuberant verdure. There is also the miniature mountain of *débris* which has formed the distinguishing mark of a mine from the Phœnician tin-mines down to the Northumbrian collieries; still there are none of the waterwheels and watersheets,—the stationary engines and the chimneys,—the drums, pulleys, and endless ropes with which we are accustomed to associate the appearance of a mine at its surface. The reason of this is partly due, no doubt, to the fact that it is at this moment out of working trim; but it is also due to the important circumstance that it is by means of a horizontal adit, and not a perpendicular shaft, that the mine is reached.

It was our intention, had the opportunity been favourable, to have explored this mine, at least in one of the shafts; for although not at present in operation, it was still, we were told, kept in order by a resident official known as the Captain (how is it, by the way, that the superintendent of a mine is always recognised by this honorary title? The fashion is the same, we believe, in Cornwall as in Cumberland). But the Captain of the mine in question is dead, and to his widow we were indebted for a good part of the information which we are enabled to supply. To this hospitable dame we were also indebted for some specimens of the mineral, as well as of the rock which constitutes its matrix; and last, though not least, for some bread and ewe-milk cheese, together with some excellent mountain milk.

But to proceed. This black-lead mine is the only one in England. There are indeed one or two places in Scotland where the mineral has been discovered; but the lead obtained there has been found of inferior quality. The mine is situated, as we have explained, on the slope of a mountain near the head of Borrowdale Valley, according to the best authorities about nine miles from Keswick. Of its history we know almost nothing. Some say that it was accidentally discovered during the reign of Queen Elizabeth; but the fact is, there is no authentic account of the discovery or primitive working of the Borrowdale Wad Mine. From a deed of conveyance, however, made in the beginning of the seventeeth century, it would appear to have been well known, and to have formed an element of the rent of land anterior to that period. The manor of Borrowdale is said to have belonged to the abbey of Furness; but having at the dissolution of that monastery reverted to the Crown, it was granted in process of time, by James I., to William Whitmore, conjointly with one Jonas Jerdon (on the 28th of November, 1614); who in their turn sold and conveyed it unto Sir Wilfred Lawson and thirty-six others therein designated. But an important exception occurs in this deed. They conveyed all and whole the said Manor of Borrowdale, "except all those wad-holes and wad commonly called black cawke, within the commons of Seatollar or elsewhere, within the commons and wastes of the Manor of Borrowdale aforesaid, *of the yearly rent or value of fifteen shillings and fourpence.*" Since this period it has been held and let as distinct from other royalties of the manor; and it is worth while recording that a family of the name of Banks were for some generations the principal proprietors. Whether this family was related, or is identical with the family of Keswick pencil-makers of that name, we have not been able to ascertain. At this moment the mine forms part of the Seatollar estate; but, even in the modern deeds of disposition, the lordship of the minerals has been reserved, and the present lessees are a company of joint-stock adventurers, under the principles of limited liability.

The mine has been excavated in a rock which Mr. Bakewill pronounced a grey felspar porphyry; but the mineral has elsewhere been found in various situations, chiefly in connexion with quartz, sometimes united to porphyritic green stone, and not unfrequently in masses of calcareous earth, the result of an older disintegration. The lodes are never found, we were told, in a continuous vein, but rather in what are locally termed "lops," or bellies of a kidney shape, or, to use more exact phraseology, in the form of irregular nodules. The connexion of the veins is traced only with great difficulty; but we need not describe the process of mining. The pieces produced are of various sizes, requiring no process of roasting or smelting to prepare it for the market. All that is necessary is to free the wad lumps from the matrices or the portions of rock to which they adhere, or from the contact of any extraneous earthy matters.

After this the mineral is then—or, perhaps, we ought to say was then—assorted in heaps according to the various degrees of purity and size, and thus packed in casks and sent off to the warehouse in London. The product of this mine has been very irregular.

In the year 1803, for example, after a tedious search in the Seatollar mine, one of the largest bellies was fallen in with, which produced five hundred casks, weighing about one hundred and a quarter each (worth thirty shillings a pound and upwards), besides a greater quantity of inferior sorts. Since that time several smaller sops have been met with. In the beginning of the year 1829 half a dozen casks were found, the best part of which was eagerly bought up at thirty-five shillings a pound. In 1833 they only succeeded in filling a few casks, which reached for the best part as high as forty-five shillings a pound. Since which time the mine got less and less productive, until about the year 1845 it died out as a profitable working. The best Cumberland lead is now worth forty shillings per pound; and it is gradually rising in value from the fact that the Borrowdale mine is now unproductive. Nor should this excite astonishment; for this mine, during one of those years we have mentioned, was so rich and productive that 90,000*l.* worth of the mineral was taken out!

When its commercial value at first began to be ascertained, the proprietors had the utmost difficulty to guard the mine from depredations. About a century ago a body of miners broke into the mine by main force, and held possession of it until they abstracted an enormous quantity of the lead, which they sold at so low a price as to glut the market; and it is said that the proprietors were forced to buy it up in order to restore the old rate of prices! To put a stop to this state of things, it was necessary to keep a strong guard at the mouth of the mine; and for its better protection an Act of Parliament was passed (25th George II., cap. 10), by which the following offences were made felony:—"The unlawful entering of any mine or wad-hole of wad, or black cawke, commonly called black-lead, or unlawfully taking or carrying away any wad, &c. therefrom; as, also, buying or receiving the same knowing it to be unlawfully taken." And felony at that period was punishable with death!

This Act would seem to have had the effect of rendering the mine more secure; but the carriage experienced greater risk. Indeed, so valuable was the wad, and so dangerous the transit through the Cumberland mountains, that it was long necessary to send a military escort with every cart-load that left the mine to the town of Kendal. It was, to be sure, a tempting morsel, every cart-load being worth probably 3,000*l.* or 4,000*l.* Some old Jacobite legends there are mixed up with these depredations, but they rest on no good authority, and we need not rake them up. The fact is, thieves were ever on the watch for it. It was stolen from the store, and from the mines; the very miners had to change their clothes on leaving the shaft; nevertheless they sometimes contrived to carry away pieces in their mouths, and otherwise to secrete it about their persons.

It is very remarkable, but not at all strange, to those who are acquainted with the customs of mineral produce, that, although resident in the vicinity of the mine, the pencil-makers were obliged to purchase all their black-lead in London. The proprietors would never allow it to be sold until every particle had been first of all lodged in their warehouse in London; just as we do about bullion at the Bank of England. The trade was for many years in the hands of the Jews: from the year 1760 to the

* The glacial phenomenon of the district has been ably treated by Dr. Robert Chambers, Rept. Brit. Assoc. 1854.

† Essay on the Geology of the Lake District, by Edward Hull, B.A., F.G.S., appended to Mrs. Linton's "Lake Country," p. 326.

year 1830. These astute merchantmen who are always the first to recognise a valuable article of commerce, either took a long lease of the mines, or by money advances or otherwise contrived to secure a monopoly of the solitary channel of supply. A depôt or storehouse was formed at Keswick under the especial surveillance of the authorities, to protect the stock at night, or during the relays on its perilous journey.

In the year 1804, the stock on hand was valued at 64,000*l.*, and the annual consumption at 3,500*l.* In 1814, this mine, which, 200 years before had been valued at 15*s.* 4*d.*, was assessed to the property-tax as worth 2,700*l.* a year. Since then, the stock on hand, the production, and consumption, have all greatly decreased. Although pencil-making is still carried on to a great extent, substitutes have been found, which in some measure, lessen the demand for the "real Borrowdale wad," and these we shall see are chiefly derived from the foreign supply of the mineral. Formerly the mine was worked only at intervals, and when a sufficient stock had been obtained to supply the market for a few years it was then carefully closed up. At length the yield got less and less regular, even although worked for several years successively; and towards the close of the year 1856 it was almost next to nothing. The late Jonathan Otley, the celebrated Cumberland naturalist, predicted in 1825 "that the most prolific part of the mountains had been already explored, and the principal body or trunk of the mine excavated; and that posterity must be contented with gleaning from the branches."

Some of the resident authorities are, however, of a different opinion. They hold that the Cumberland lead is not yet exhausted, although the mine has ceased working for the present. It is still supposed that the grand "pipe" of the mineral, as it is termed in Borrowdale, dips in a northward direction, and hence has escaped in an oblique downward stroke from the course of the old level shaft, which has a horizontal length of 300 ft. In the new adit, commenced about twenty years ago, and which is only partially executed, a line was struck at a lower level into the mountain, and being 500 yards in length, it is thought by the sanguine proprietors that it may still "strike ile," as our American cousins say. Of course, mining projects are proverbially uncertain; yet we see no reason to doubt at least a large measure of probability in their belief. It would not be astonishing if they came upon another vein in the neighbourhood of some unexplored dislocation. The geological structure of Cumberland is still, in a great, measure, an unknown territory. It has never, we understand, been laid down with any degree of certainty the mineralogical laws of the occurrence of this unique form of carbon. With other minerals it is different. We are tolerably certain of discovering copper in some lode or other in the shaft of a Cornish mine; and the occurrence of tin and lead has also been locally traced, mapped, and established with some approximation to absolute certainty. But it is not so with plumbago. No amount of mining skill, no divining-rod, and, we devoutly believe, no form of incantation can predict where this singular stuff is to be found, or how long it may last.

The Newlands mines, which yielded at once copper, gold, and silver, and were also discovered in Queen Elizabeth's time by a Dutchman from Augsburg, as old Fuller tells us, were for long abandoned; but they are again in full operation and full *yield*; while a new lead-mine has been opened at Salt-level bay, and a sufficiency of ore found to make the working profitable. Why not, therefore, entertain similar hopes of the Borrowdale wad mine?

The truth is, that this black-lead, or "wad" mine, as it is termed in Borrowdale, has been a sort of enigma to all classes of scientific men. So valuable a mineral, so rare in its distribution, so incomprehensible in its origin, and so uncertain in its produce, we shall not easily meet with, if we except the precious metals, or some of the recently discovered curiosities, such as molybdenum or tungsten.

How should its occurrence in England be confined to Cumberland? We cannot answer the question, but it is a very remarkable circumstance that the mineral wealth of this region of the middle slates is, according to Professor Philips, due to the nature and mode of occurrence of the syenitic rocks and the felspathic dykes, analogous in many respects to the "Elvan" dykes of Cornwall, which appear in the vicinity of the lead and copper veins. Carburets and sulphurets of copper (generally speaking, beautifully crystallised), carburets, phosphates, arseniates, and sulphurets of lead; arseniates of iron, wolfram, apatite, &c., will repay the mineralogist a visit to these hills. The "wad," or black-lead mine, in Borrowdale, may be added to this list; and it is still a subject of no small difficulty to geologists to determine the origin of this singular compound of carbon and iron, which here ramifies irregularly in the partially "metamorphic" slates. The supposition of a vegetable origin for this carbon seems altogether gratuitous, and there appears as much reason to admit mineral combinations containing carbon among the constituents of the globe previous to, or independent of, the existence of plants, as there is to admit phosphorus in such combinations previous to, or independent of, the existence of animals.*

Among the different kinds of matter that constitute the crust of the earth, which chemists have hitherto failed to resolve into other kinds of matter, and which, therefore, they designate elementary bodies, one of the most remarkable is unquestionably carbon. It occurs in definite geometrical figures, that is, crystallized; or without geometrical form, that is, amorphous. It crysallizes in what mineralogists term the cubical and the rhombohedral systems; when it appears respectively as the queen of gems, the diamond, and as the black opaque, greasy substance, which they term graphite or black-lead. In the amorphous state carbon is familiar to us as charcoal. The diamond is known only as a natural product, and chemists have been utterly baffled in their attempts to prepare it in the laboratory. As a few cubic feet of space would probably contain all the diamonds that have ever been collected, it may be inferred that the conditions necessary to its formation must have been exceedingly rare. Still on chemical grounds, its artificial production may be reasonably anticipated. Graphite or carbon, crystallized in the rhombohedral form, is daily generated in large quantity at our ironworks.†

We should not feel at all surprised, therefore, to discover one day that artificial graphite has been generated as a waste product in the slag of our iron furnaces; only we cannot suppose, reasoning *à posteriori*, that this artificial graphite would be of equal value with the native mineral, any more than we should be prepared to find a piece of fused and crystallised charcoal possessed of the gemlike qualities of the diamond. At the same time it would possess a certain value, and that of no mean order, as we have shown. It may be interesting to point out a fact which we believe is not generally known, that artificial graphite has also been obtained in another way,—by a combination, we suspect, of chemical and electrical action. There was a seven-pound iron weight on one occasion lost by falling into an ink-vat in a manufactory in the north of England. There it remained for some years. Upon repairing or clearing out the vat, this weight was discovered; but it was iron no longer. It had, by means of this process of accidental immersion, been converted into pure graphite, or, at all events, a carburet of iron closely analogous to graphite; and the transmuted weight is, we believe, still in the possession of an architect at Wolverhampton.

Graphite or plumbago, we need scarcely say, contains no lead whatever in its composition, but is in reality almost pure carbon. The following is an analysis of pure Cumberland lead, as found in the Borrowdale mine:—

Carbon	88·37
Water	1·23
Silica	5·10
Alumina	1·00
Oxides of iron and manganese	3·80
Total	99·30

The misnomer is probably owing to the fact that, previous to the employment of graphite for making pencils, common lead was used; and this was the case even within the present century. Consequently, as the plumbago, with its black streak, offered a contrast to the pale one of the lead, it was called, in contradistinction, black lead, or Cumberland lead, or, finally, plumbago. The proper mineralogical name, however, is graphite, which is at the same time the most commonly used by scientific men.

Undoubtedly the best graphite for drawing-pencils is found in the Cumberland mines. Within the last three years, however, vast deposits of this mineral, of a very fine quality, have been discovered in Siberia and other parts of the Russian empire. Inferior qualities are found in Austria and Prussia, in Ceylon, and various parts of North America; but they are rarely used in pencil-making, except for very inferior kinds. Scotch lead, as we have mentioned, is also found in some of the coal measures of the southern uplands; and we need not refer here to the extraordinary qualities of the celebrated *Mexican* black lead, particularly when it is found "absolutely free from grit."

Graphite, it is still popularly supposed, is of igneous origin. As a proof of this, we were told in Keswick that some of the stones, when taken from the mine, are seen to smoke perceptibly,—porphyritic green stones, for example, which may be associated with the mineral. But this, we believe, often occurs in other mineral veins; and those who have studied the chemistry of metamorphic action will be at no loss to account for the occurrence of graphite on other principles.

The specific gravity of the best black-lead is nearly twice the gravity of water.

With regard to the uses of plumbago, we may just indicate that these seem to be broadly divisible into four well-defined groups.

1. *Its infusibility.* Hence the manufacture of crucibles for brassfounders and goldsmiths, and its uses in assaying.

2. *Its antifriction properties.* Hence its uses in diminishing friction in some parts of timber machinery,—such as screw-presses, and even violin pins.

3. *Its value in cleaning and glossing cast iron.* Hence the enormously extensive application of the Mexican black lead.

4. *Its use in the form of pencils.* This undoubtedly constitutes its principal and most important use, its application to black-lead pencils, for which Keswick has long been famous, and of which we propose to give some account. Meantime, we may point out that other materials may and have been found for crucibles. Lubricators may be made of soap or glycerine. Even stoves may condescend to be varnished or polished with some other material. But where will we get a pencil should the blacklead mines become exhausted? As far as Cumberland is concerned this is already the case apparently. The question then arises,—the supply of the material having ceased,—will the trade, likewise come to a stand-still? The answer to this, when properly written, will constitute a curious chapter in political economy. We have partly anticipated it, and we may now add—certainly not; the trade will continue to flourish with undiminished vigour. It is, in point of fact, stronger than ever! "Successful production," says Mr. John Stuart Mill, "depends more on the qualities of the human agents than on the circumstances in which they work; and it is difficulties, not facilities, which nourish bodily and mental energy."* We shall show, in our next article, how this same principle has overcome certain difficulties in the pencil trade, which it is possible we may yet have to face in the coal trade, and which, at first sight, seemed even to the traders themselves to be totally insurmountable.

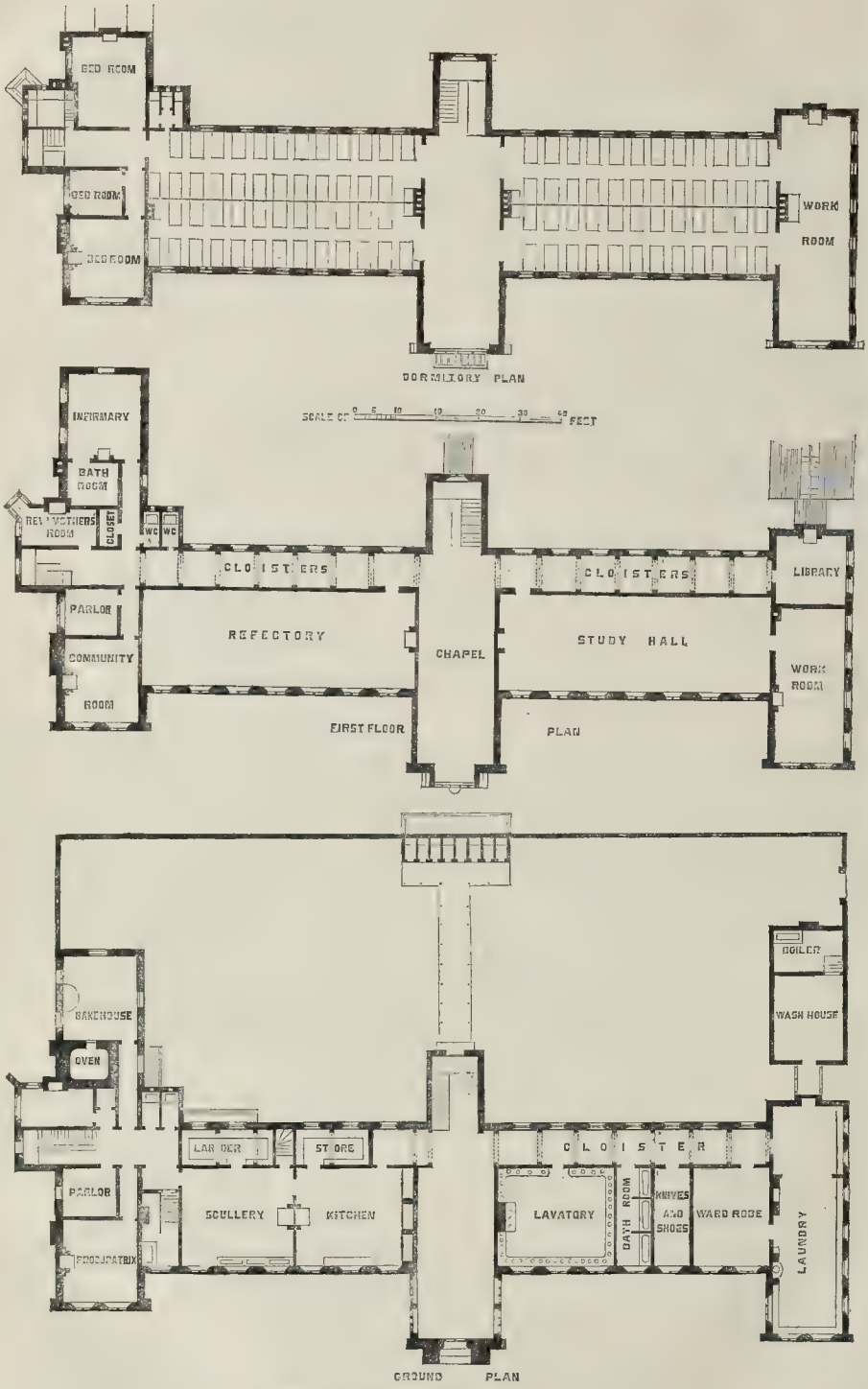
* "Essay on the Geology of the Lakes," p. 241.
† *Quarterly Review*, No. 238, p. 437.

* Elements of Political Economy, book I., chap. 7, § 3.

GIRLS' ORPHANAGE, BLETCHINGLEY, SUSSEX.

THIS building, erected near Mayfield, is planned to accommodate 120 girls, and a community of religious ladies, who have charge of them. It is constructed from the designs of Mr. Pugin, in red pressed Tunbridge Wells brick, with dressings of sandstone dug on the spot. Messrs. Smith & Son, of Ramsgate, are the builders. The costs are paid by her Grace the Duchess of Leeds. A similar building for boys is in course of construction at Hellingley, in the same neighbourhood, and is also due to the munificence of the same lady.

LONDON HOSPITAL. — The Committee have announced, that in consequence of the influx of cholera cases, they feel it right, with the concurrence of H.R.H. the Duke of Cambridge, to defer the intended ceremonial and *déjeûner* at the opening of the new Alexandra Wing.



GIRLS' ORPHANAGE, BLETCHINGLEY.



GIRLS' ORPHANAGE, ELETCHINGLEY, NEAR MAYFIELD, SUSSEX.—Mr. Pugin, Architect.

THE EPIDEMIC OF CHOLERA.

THERE is now, unfortunately, but little reason to doubt that 1866 will be marked in the annals of statistics as a cholera year; and it only remains for us to hope, that as the scourge of 1854 was less fatal than that of 1849, so the disease this year may again visit us less severely than it did in 1854. And it is not merely hope without any foundation; it is but too true that we really know little more about the disease, and the most successful methods of its treatment than we did, but surely all the improvements that have been made in the sanitary condition, more especially of the metropolis, cannot have been without effect. It is somewhat disheartening, however, to read in the morning papers the descriptions by "special correspondents" of the condition of too many of the localities in which cholera has broken out; a condition disclosing a negligence and apathy on the part of landowners, and local authorities, almost criminal, in the face of the continual warnings we have received since last autumn.

Newspaper paragraphs purporting to give information about the ravages of cholera in different localities, must more or less be founded upon hearsay, and with whatever care they are collected and put together, they are at the best of a vague and unreliable character. It is well, therefore, to be able to ascertain, from official sources, the actual devastations which the disease has committed in some of those places where it has appeared in an epidemic form. For this purpose we will take as examples the returns from London, Liverpool, and Southampton last week.

In the metropolis, within the limits of the Registrar-General's weekly return, 1,798 deaths were registered last week, showing an increase of 258 upon the previous week. This increase was almost entirely due to the fatal cases of cholera, which rose from 32 in the week ending 14th inst. to 346 during last week. The disease in its worst form is principally confined to the eastern portion of London: in these districts occurred 308 out of the 346 deaths from cholera last week. Bethnal-green, St. George-in-the-East, Stepney, Mile-end Old-town, and Poplar have suffered most. Of the remaining cases, 20 occurred in the South districts, 11 in the West, 5 in the north, and only 1 in the City.

In Liverpool, of the 398 deaths recorded in the week ending last Saturday (21st inst.), 45 were the result of cholera. In the previous week the deaths from this disease had been 19.

In Southampton the total deaths recorded within the borough last week were 59, of which 39 were fatal cholera cases: only 10 deaths had been referred to this disease in the previous week.

Regarded, therefore, in proportion to the total deaths, the fatal cases of cholera reported last week in these three towns were approximatively,—half in Southampton, a fifth in London, and a ninth in Liverpool. In the east districts of London, however, taken alone, the deaths from cholera were very nearly half those from all causes.

LONDON WORKHOUSE INFIRMARIES.

THE report of Mr. H. B. Farnall, C.B., on his recent inspection of the metropolitan workhouse infirmaries has been published. It is of considerable length. Mr. Farnall has, in conjunction with Dr. Edward Smith, inspected the infirmary wards of forty workhouses. These workhouses are stated to be capable of accommodating 28,550 inmates. Mr. Farnall visited 794 wards, containing 9,238 beds (97 of which were double beds) and occupied day and night by sick and bedridden poor.

Mr. Farnall directed his inquiries to ascertain the number of cubic feet of air allowed to each patient. Various authorities which he cites think this should be from 1,000 ft. to 2,000 ft.; but it appears that the infirmaries of the metropolitan workhouses give upon an average only 555 cubic feet to each patient, with a superficial area of 49 feet for each bed, the greatest cubic space of air given to a patient being 2,260 (at Chelsea), the lowest being 206 (Marylebone); while the greatest superficial area given to a bed is 251 ft., and the lowest 18 ft. The workhouse infirmary at Chelsea, belonging to the guardians of St. George, Hanover-square, is characterised as the best in London, giving an average of 829 cubic feet to each patient, and an average area of 70 superficial feet to each bed. The wards of many of the infirmaries were not originally constructed in such a manner as to secure either sufficient ventilation or light with the greatest facility, or so as to empty the wards of foul air with the greatest speed. The whole of the wards inspected were perfectly clean; though no notice of inspection was given to the workhouse authorities.

Mr. Farnall is of opinion that the Poor-Law Board should have power to order sufficient sick wards to be built for the poor, and to be paid for out of the rates in the metropolitan district, and to establish and maintain such sick wards. He thinks that hospitals should be built wholly apart from the metropolitan workhouses, for the reception of the sick poor, and that the cost of building and of maintaining these hospitals, and of supporting the sick poor in them, should be defrayed by a common rating of the metropolis, based on its rateable value.

THE NATIONAL GALLERY QUESTION.

MR. BERESFORD HOPE, M.P., on Monday last, moved, in the House of Commons, that it was desirable to have the new National Gallery erected on the site of Burlington Gardens. On this site, he said, they might have a gallery 280 ft. long by 215 ft. broad, leaving two ample roads east and west, and isolated from other buildings, which would prevent the risk of fire. If converted into a National Gallery, the Burlington House site would yield 42,000 square feet of flooring surface, and 67,000 ft. of wall surface. The present site of the National Gallery was blocked up with buildings the removal of which would require a long time and a great outlay. For 200,000*l.* we could be placed on an equality with the other nations of the world.

Mr. Seymour said, the real instigators of this motion were the members of the Royal Academy, who wanted to appropriate "the finest site in Europe."

Mr. Layard said, the question had nothing whatever to do with the Academy. The site just referred to was not the finest for the National Gallery, and this was the opinion of the majority of the trustees of the gallery. Sir William Russell, as well as himself, regarded the Burlington House site as more eligible. He therefore hoped the motion of the hon. member for Stoke would receive the sanction of the House.

Mr. Tite was in favour of the Burlington House site in preference to Trafalgar-square.

Mr. Cowper called attention to the fact that the House had already passed a vote for the purchase of the ground in the rear of the National Gallery, and made arrangements with the parish of St. Martin's for the sale of their rights. They had also given to the London University a site in Burlington House, and voted a sum of money for that purpose. If all those arrangements were stopped, a year's precious time must certainly be wasted.

Other members took part in the discussion and Mr. Hope's motion was rejected by a majority of 94 to 17.

Meantime the National Gallery enlargement bill has passed through committee.

SANITARY MATTERS.

AN order in council has been gazetted, establishing throughout the United Kingdom the exceptional provisions of the Prevention of Diseases Act of 1865. The local authorities have therefore a practical opportunity of proving the value of self-government under circumstances where too much consideration cannot be paid to the old saying that "a stitch in time saves nine." For several weeks the cholera has been flitting about some of our busiest seaports, in foul emigrant ships, which could not be prevented from communicating with the shore, and so the means of establishing "centres of infection" have been present, and the conditions that predispose people to this fatal disease have also been known to be in a state of activity. The appearance of it, however, in so many places simultaneously, not only in this country, but over almost all the world, gives us reason to hope that its intensity in any one locality may be diminished in something like the ratio of its universal diffusion. At all events, let us be thankful that the country is better prepared for it by the sanitary improvements effected since its first appearance in 1832, and more especially since its renewed but not by any means so deadly attack, in the interval which has since transpired.

In a case of death, at Westminster, from English cholera, which in truth is just cholera not so virulent as in its worst form, Dr. Lankester, the coroner and medical officer for the parish, inquired personally into the circumstances and found that bad food and bad water were the probable predisposing causes of the disease. The water was supplied from the closet cistern, and the two children who died had drunk largely of it on Sunday when the supply was lowest and its contamination greatest. The hot weather had also made the food they had eaten unwholesome.

In another case, one of fever, which lately occurred at York-place, Greenwich, a woman and three children who were attacked, were found to be living in a place not fit for human habitation, the street also being in a disgracefully dirty state, and emitting an unsufferable stench. The locality is densely populated, and the houses are mere hovels.

Of the sanitary state of another metropolitan district, in Whitechapel, great complaint is made by a medical resident. Deaths from cholera are said to be there numerous.

In consequence of the threatened approach of cholera, the Boston Local Board have been taking active sanitary measures. An inspection has been made by the medical officer, who reports the town generally to be in a clean and healthy condition. Proceedings have been taken before the magistrates for the closing of such houses as the Board considered unfit for habitation, and notices have been issued to occupiers in close and confined neighbourhoods to lime-wash their yards and premises. A sharp look-out has been kept for some time by the sanitary inspector for meat that is unfit for food: several seizures have been made, and convictions obtained. A circular has also been drawn up by the officers of the Board for distribution amongst the inhabitants, giving them plain and simple suggestions as to the necessity of cleanliness, good drainage, ventilation, &c.

ARBITRATION AT NOTTINGHAM.

AN inquiry under the Lands Clauses Act has been held at the George Hotel, in Nottingham, to determine the amount of compensation to be paid to Mr. F. G. Sharpe for the compulsory purchase by the Midland Railway Company of certain freehold and leasehold premises situated in Queen's-road, Nottingham, and for damage to the business of the claimant, who is a coal merchant. Mr. Whitehead, auctioneer, acted as arbitrator for the claimant; Mr. C. E. Cawley, of Manchester, for the railway company; and Mr. S. Martin, of Leeds, was the umpire.

The claimant gave evidence of his loss by the damage to the business, 1,500*l.*; freehold property, 4,136*l.*; leasehold property, 880*l.* Total claim, 6,516*l.* Other witnesses for Mr. Sharpe spoke to the value of the property, minus the trade, as follows:—

	Freehold.	Leasehold.	Total.
Mr. H. Goddard ...	£5,094	£1,083	£6,177
,, T. Simpson ...	4,815	1,080	5,895
,, F. Bakewell ...	5,050	980	6,030

The railway company produced the following evidence of the value of the properties *exclusive* of the trade compensation:—

	Freehold.	Leasehold.	Total.
Mr. J. S. Norris	£3,565	£700	£4,265
,, M. O. Tarbotton	3,799	763	4,536
,, S. F. Holmes.....	3,564	584	4,148

The umpire has awarded 5,950*l.* as the whole compensation to be paid for the property and the loss of trade.

COMPETITIONS.

Cemetery Chapels, Prestcign, Radnorshire.—Several designs having been submitted in competition for these chapels, the Board have selected one under the motto "Belmont," which, as soon as a satisfactory tender can be obtained, will be carried out under the superintendence of its author, Mr. E. H. L. Barber, of London and Hereford.

Accrington Market Designs.—The Board has given the first premium for the Market House designs, to Mr. James F. Doyle, architect, Wa-

son-buildings, Liverpool, whose motto was "A Crescent in Red;" and the second premium to Mr. James Brown, architect, Queen-street, Leeds, whose motto was "Spes." Fifteen plans were received; five were from London architects, two from Liverpool, two from Manchester, two from Blackburn, the other four from gentlemen in Sheffield, Bolton le Moors, Leeds, and Accrington. The approved plan (Mr. J. F. Doyle's) is of a Modern Italian style with sculptured figures, but no clock tower, and corresponds with the town-hall (Peel Institution) adjoining. Mr. Geo. Swainson, the clerk to the Board, has taken much pains in the matter.

St. Jude's Church, Brixton.—Eleven designs were submitted in private competition for this church, proposed to be erected in Water-lane, and to give accommodation for a thousand adults. The design marked "Domus Dei," by Mr. E. C. Robins, of Southampton-street, Strand, has been selected.

CONFERENCE OF TRADES DELEGATES.

A CONFERENCE of working-class delegates from a large number of towns throughout the country has been held in the Temperance Hall at Sheffield, for the purpose of discussing and resolving on various questions affecting their respective trades. The proceedings were conducted in a methodical and business-like manner; and it is believed that this is the beginning of a very extensive and powerful organization. The primary object in view related to lock-outs and the means of counteracting them; but other questions, in relation to wages and time, were also brought under consideration. About 140 delegates met, representing societies which numbered 187,771 members.

At the opening meeting on Tuesday in last week, a chairman and other officers were elected. The posts were filled as follow:—Chairman, Mr. Charles Bagshaw; vice-chairman, Mr. M. Laurence, of the London Operative Tailors' Association; joint-secretaries, Mr. W. Dronfield, and Mr. W. H. Wood, compositor, Manchester. The conference resolved to open their meetings to reporters; and then proceeded to settle the way in which the future meetings should be conducted. The drawing-up of the programme was entrusted to a committee, consisting of the chairman and the vice-chairman, the two secretaries, the treasurer (Mr. J. Dixon, Yorkshire Association of Miners), and Mr. George Newton, of Glasgow. The Conference then adjourned till Wednesday.

We do not propose to give any report of the several meetings which took place; but we may print the principal resolutions that were agreed to.

At the Conference on Thursday, Mr. Wood, assistant-secretary to the Conference, read the resolutions of the special committee, which had been prepared for discussion. They were considered *seriatim*, and, with some minor amendments, were all agreed to as follows:—

PREAMBLE.

The Conference having at great length considered the question of lock-outs, with the view of ascertaining the cause thereof, and providing such remedies as seem called for to obviate such in future, as far as possible, and in cases where they do occur, to make such provisions for the wants of the suffering workmen as will neutralise the hitherto painful effects thereof,

Find—That these social perturbations arise from a spirit of opposition engendered in employers by the efforts of workmen to obtain a greater share than hitherto has been granted them of the wealth and comfort accruing from the industrial pursuits of the mass of the people of this country.

That whilst occasionally the demands of the workmen have undoubtedly superinduced these lock-outs, it is painfully apparent that in a vast number of cases they are resorted to by the employers as a means of constraining workmen to act in such a manner in reference to trades' unions, rate of remuneration, hours of labour, and kindred questions, as they, the employers, choose to dictate.

That lock-outs are an outrage on the most clearly defined and generally accepted principle of social and political economy, and are calculated seriously and permanently to injure the trade and commerce of the country.

That the time has come when all classes of society should direct their earnest attention to the question, with the view of preventing the recurrence of these disastrous events, by the adoption of such wise and conciliatory measures as will obviate their necessity in future; and that it behoves all workmen to make special provisions for the support of such of their number as may still be exposed to the evil effects thereof, and that this can only be effectively accomplished by the amalgamation of all the trades of the United Kingdom.

That the Conference, therefore, agree to the following resolutions:—

1. "That it be a recommendation of this Conference that the principle of a national amalgamation be formed of the trades' societies of the United Kingdom, to be designated 'The National Alliance of Organised Trades.'"

2. "That the various trades' societies of the United Kingdom be invited to join such organisation, for the purpose of resisting lock-outs in any trade so connected, and in rendering pecuniary and moral support to such branches as are necessitated to seek the same."

3. "That all trades' societies connecting themselves with this alliance shall be required to pay an entrance fee of one halfpenny per member; and that an annual subscription of one penny be contributed by each member to meet the requirements thereof, such subscription to be paid half-yearly in advance."

4. "That in the event of the ordinary subscription failing to meet the requirements of the alliance, that the votes of the trades forming the same be taken as to the desirability of increasing the contributions to meet all necessary contingencies."

5. "That for the government of such alliance there be an annual deliberative Conference, a standing judicial council, and an executive committee."

6. "That a committee be appointed by this Conference to draw up a code of rules for the mangement of this association; and that the committee call a Conference as early in 1867 as possible, for the purpose of finally adopting such rules, and inaugurating the alliance."

On the fourth day of the Conference, the following, among other resolutions, were discussed and agreed to:—

1. "That any surplus funds over the expenses of management be reserved for the main objects of the society, viz., assistance in cases of lock-outs, and in the event of such reserve funds being insufficient to meet the requirements of cases voted worthy of support by the judicial council, they shall declare what amount should be paid to the same, and submit it to the trades for approval or rejection."

2. "That for the governing of this alliance there shall be,—An annual conference, deliberative and legislative, with power of reviewing the proceedings of the past year; also, a judicial council, to consider all lock-outs in trades in connexion with the alliance which may be submitted to the executive, and determine what action shall be taken in reference thereto, together with an executive committee to carry out the resolutions of the annual conference and of the judicial committee, and superintend the affairs of the society generally."

3. "That a committee be appointed by this conference to draw up a code of rules for the management of this association; and that the committee call a conference as early in 1867 as possible, for the purpose of finally adopting such rules, and inaugurating the alliance."

The delegates called a public meeting of the trades of Sheffield, in the Temperance Hall, on Wednesday night, for the purpose of bringing prominently before the working classes of the town the objects which the Conference had assembled to promote. There was a numerous attendance. The chair was occupied by Mr. Charles Bagshaw, chairman of the Organised Trades.

COMPENSATION CASES.

THE HOLBORN VALLEY IMPROVEMENTS.—BAINBRIDGE *v.* THE MAYOR AND CORPORATION OF LONDON.

THIS was a compensation claim (in Lord Mayor's Court) by Mr. Bainbridge, the confectioner on Holborn-hill, for his premises and business, required for the Holborn Valley improvements. The claim was a large one, and the profits on "sweets" were stated to be above "60 per cent."

Mr. Lloyd and Mr. Horace Lloyd were for the claimant, and Mr. Hawkins, Q.C., and the Hon. Mr. Thesiger for the Corporation.

Mr. Bainbridge rented part of the premises from Mr. Charles Meeking, the linendraper, at 160*l.* a year, on a lease granted in 1854, for fourteen years. The notice to treat by the Corporation was nearly two years ago, and there were only two years and a quarter of the lease unexpired. He had not been able to procure other premises from the great price demanded. The gross profits in three years were 5,324*l.*, and at "57 per cent." would be 906*l.* in each year as net profits. The premises were now worth 300*l.* a year.

Mr. Lloyd asked for two years' profits for the removal. The profits were large on "sweets," and as no other premises could be obtained, it was not too much to ask for two years' profits.

Mr. Bainbridge was called as the first witness, and examined at some length.

The case had the appearance of occupying the whole day, but it suddenly came to an end.

Counsel on both sides consulted, and a verdict for 2,000*l.* was agreed upon—200*l.* for the leasehold interest in the premises, and 1,800*l.* as a compensation for loss of business by the removal.

Verdict accordingly.

Forbes and Others v. The Midland Railway.—In this case some remarkable evidence was given. According to the evidence for the claimants the property for building purposes near Kilburn, partly in the Edgware-road, was worth upwards of 1,000*l.* per acre. About ten acres were required, and with the damage done by the severance the claim exceeded 20,000*l.* On the other side the surveyors put the value between 8,000*l.* and 9,000*l.*, with some 1,500*l.* for any supposed damage by the severance of the estate by the railway. All the surveyors for the company denied that land was injured by railways running through property. Mr. Vigers said he had purchased considerable property, and sold surplus property, and his opinion was that the severance of property by railways was not injurious to land. Mr. Clark estimated the damage done by the cutting of the railway at more than 13,000*l.* Mr. Lloyd complained of the great price demanded, particularly with reference to the damage occasioned by the cutting. His own opinion was that railways did not injure property in a commercial point of view. The assessor, in placing the case before the jury, thought the material question was as to the alleged depreciation by the severance of the land. In his opinion it was unreasonable to suppose that to cut through a large property like the present did not considerably depreciate it. The jury retired, and, on their return, gave a verdict for 13,400*l.*

General Auction Company.—A claim was made before the High Bailiff at Westminster, against the Metropolitan District Railway Company for 9,162*l.* 10*s.* by Mr. George Fuller, on behalf of the General Auction and Rent Guarantee Company (Limited) as lessees for an unexpired term of forty-eight years of No. 14a, Elizabeth-street, Pimlico, better known as "Eccleston Hall, Pimlico." It appeared in evidence that a lease was granted to the Auction Company by Mr. Peacock, a director, and the largest shareholder in that company, for a premium of 800*l.*, and at a rent of 250*l.* a year. It was alleged on behalf of the Auction Company that the property was capable of realising a very large improved rental. On the other hand, the railway company contended the annual value of the premises was grossly exaggerated. The valuers called on behalf of the claimants, however, failed to put the value of the lease higher than 2,000*l.*, whilst the witnesses for the company all agreed that the lease had no marketable value, inasmuch as the full rental value of the premises for any purpose could not exceed 150*l.* per annum. The jury returned a verdict that the lease was of no marketable value, and they could therefore award no compensation whatever to the claimants.

MASTERS AND OPERATIVES BILL.

LORD ST. LEONARDS, on moving, in the House of Lords, that the order for the second reading of this bill be discharged, said he had only been anxious to introduce a bill for the benefit of both masters and operatives, and which should meet with the approval of both parties. There had been many meetings of operatives, at which the desire had been expressed that this bill should become law, and delegates had been appointed, representing 100,000 operatives, to wait upon him. He had received the deputation, and they, in their representative capacity, expressed an entire approval of the bill. The masters, on the other hand, although having at first supported the bill, now stated that they did not desire it. The objects of the bill were to create courts of conciliation; and, if passed, it would only have been a permissive bill, binding no one who did not choose to abide by it. He believed, however, that if it had passed it would have worked admirably, and have effected a great deal of benefit. His lordship promised to lay the bill again on the table next session. Even then, however, he would not proceed further with it unless strongly supported by both employers and employed.

INDICTMENT FOR BUILDING A PORCH.

At the Summer Assizes of the Home Circuit at Lewes, William Nicholson, of King's Bence-walk and Brighton, a barrister, was arraigned in the Crown Court upon an indictment which charged him with violating the provisions of the Local Government Act by building a porch to 35, Oriental-place, Brighton, beyond the line of frontage.

Mr. Justice Willes, early in the trial, remarked that as it was a civil proceeding, he supposed the defendant had not been put in the dock.

Mr. Serjeant Parry said the authorities of the town of Brighton had not proceeded to that extremity.

It appeared that after the porch had been commenced the town council objected, and Mr. Nicholson wrote a very proper letter repudiating any desire to set that body at defiance, and expressing a hope that their consent would be given. The town council, however, insisted on the porch being removed, and preferred this indictment at the last Assizes for the purpose of enforcing its removal. In cross-examination it was insinuated that a member of the town council was a builder, that he had been in negotiation for the alterations at Mr. Nicholson's which some other builder was ultimately employed to effect, and that disappointment at losing the contract caused him to be very active in promoting the subsequent opposition. It was proved that the porch of an adjoining house belonging to Lady Abinger projected more than 3 ft. beyond the porch of No. 35, Oriental-place.

Mr. Justice Willes said he supposed it was an important question for the town council of Brighton, as they had proceeded by indictment, but all his sympathies were with Mr. Nicholson. His Lordship (in summing up to the jury) said he did not feel at all sure that Mr. Nicholson had been guilty of any breach of this Act of Parliament; and, although he did not in the least wish to pass a censure on the town council, he could not allow Mr. Nicholson to be found guilty for the mere purpose of getting a difficult question of law discussed and settled. Under his direction they would say that Mr. Nicholson was not guilty.

The jury returned a verdict accordingly.

LIGHT AND AIR CASES

Hynam v. Dunn.—This was a case (Vice-Chancellor's Court) of alleged interference with ancient lights occasioned by the rebuilding and alteration of the party-wall of a house in Prince's-square, Kensington.

Negotiations had been entered into for the purpose of arranging by agreement the mutual rights of the parties; and the defendant, considering that there was a concluded agreement, had, under that impression, proceeded with the works now complained of as an interference with the access of light and air to the plaintiff's windows.

The Vice-Chancellor held that there was no definite concluded agreement between the parties such as to justify the defendant in the course taken by him. In reference to the circumstance that the wall had been carried up to its present height before the bill was filed, it was to be

observed that the work had been pushed forward after notice intimation had been given to the defendant that the plaintiff would stand upon his strict legal rights. So much of the wall as caused an interference with the plaintiff's ancient lights must be pulled down before the 18th of September.

Prendergast v. *Earl Cadogan*.—This was a suit instituted by the plaintiff (Vice-Chancellor's Court) as occupier of 24, Lowndes-street, Belgravia, to obtain an injunction to restrain the Earl Cadogan from erecting stables in the rear of 24, Lowndes-street, so as to interfere with the light and air of the house, and to constitute a nuisance. The plaintiff is the lessee of the said house, at a rent of 150*l*., having also paid a premium of 500*l*. for the lease. It appears that the defendant is in the course of erecting on the site of two low buildings (one of which was about 12 ft. and the other 24 ft. high) stables considerably exceeding those buildings in height, and having windows two of which are not more than 9 ft. from the windows of the plaintiff's back drawing-room. In addition to the alleged injury to the back drawing-room and kitchen windows, and to the window of another small room, by the interception of light and air, it was alleged that the effluvia proceeding from the stables would be a nuisance aggravated beyond the common, by the fact, that the horses were to be lodged on the first-floor, and not on the ground-floor, as usual. On these allegations issue was joined, and a jury was empanelled to try the question before Vice-Chancellor Wood. Many witnesses were examined on both sides, and their evidence offered the bewildering discrepancy of judgment so invariably found in similar cases. The court sat till an unusually late hour, when the jury found a verdict for the defendant, Earl Cadogan, on all the material issues.

THE DECORATION OF PUBLIC WORKS, AND FOOTMEN'S CALVES.

SIR,—The somewhat peculiar combination which heads this essay is not an entirely original one on my part, for it is suggested by the recent revival of the old joke, I suppose made at the period when Stuart and Revett were in the ascendant, as compared with Palladio and Scammozzi, against balustrades. The reviver is the architectural critic of a literary journal, whose tone in regard to Gothic architecture I often see cause to admire, but whose remarks on the parapet of the Thames Embankment appear to me obnoxious to criticism.

The subject of the parapet seems to be naturally divisible into two heads,—one more extensive and general, the other a matter of detail. The first head involves the following question, "Shall the effect be one of plainness, amounting under some conditions of atmosphere and time of day to severity, and even poverty; or shall the effect be one of richness, architecturally produced?" The second head (somewhat too much mixed up with the first, I think, by the critic) is a thing to be subsequently discussed; viz.,—on the proviso that richness, rather than plainness, has been decided upon, by what means shall richness be obtained?

When the object is one of so great cost and extent as that under consideration, it may easily be conceived that some gentleman of influence, even if his time be as valuable as that of a member of Parliament, or of the Board of Works, would not object to give two or three hours towards the solution of a doubtful question attending it. May I be allowed to suggest the following mode of appropriating such two or three hours? The question is the general one, richness *versus* plainness. Let a small portion of parapet of a plain kind be executed, also one of an enriched kind, and let an intelligent draughtsman make a sketch of each in presence of the amateur who is to judge. Let the enriched parapet have its turn first. Let the draughtsman, as he gradually proceeds, point out the conditions on which the richness depends, the play of light and shade, the varied reflections, the symmetrical carving of rounded parts, &c. When the first sketch is finished, let the time it has occupied be noted. Suppose, for instance, it be one hour and thirty-five minutes. Let the judge and the draughtsman now make it their business to spend an equal time,—in the case supposed an hour and thirty-five minutes,—upon a sketch of the plain parapet. Let the new and scanty mouldings be worked up to a high finish; let the grain of the stone be elaborated, and other means resorted to of filling up the time without quitting the subject. Let no sense of tediousness hinder the amateur from seeing the work to the end.

I submit that, after the completion of such a process as this, many an influential member of society might return home with a very new light in his mind indeed on the distinction of architectural plainness from richness.

With regard to the means of producing a rich effect, should richness be determined upon, I submit that only a small proportion out of the numerous possible forms of fretted and pierced parapets are calculated to answer the purpose nearly as well as the often used balustrade. Nevertheless, let an effort be made; let premiums be offered for designs that shall combine richness with novelty; and let time be given to compare them, and expense incurred in executing short lengths of the most promising, and in sketching and photographing them from various points of view, both near and distant.

Now, having finished with the larger branches of our subject, let us consider the fancied analogy of balusters and footmen's calves. And, firstly, I know not what peculiarity attaches to the calves of a footman in the present day beyond being excellent developments of certain parts especially characteristic of that animal who stands in the highest place of dignity. I suppose the day is gone by, if it ever existed, when, through standing behind carriages without springs underfoot, the footman's muscles were shaken out of the middle of their legs down to their ancles almost; and until this day returns, the analogy of balusters to footmen's calves is not a very close one. Such remote analogy as still remains might equally be traced between, and employed in depreciation of, a very great number of forms of urns and vases, whether ugly or beautiful, equally with balusters.

G. M.

THE SCULPTOR OF THE STRATFORD BUST OF SHAKSPEARE.

TWO or three years ago Mr. Peter Cunningham communicated an interesting paper to your journal, in which he conjectured that Gerard Johnson, the sculptor of the Stratford bust of Shakspeare, lived in St. Thomas the Apostle's, Southwark, near the Globe Theatre, not in the parish of St. Thomas the Apostle in the Vintry Ward, as has been generally stated. As the question is one of some importance in estimating the probability of the bust having been executed by one who had often seen the great dramatist, it may interest some of your readers to know that I have lately obtained positive evidence that Gerard Johnson lived in Southwark, and that the sculptor of the bust *was his son*; the elder Gerard, named by Dugdale as "a Hollander," having predeceased Shakspeare.

J. O. HALLIWELL.

GOTHIC VAULTING.

Sir,—On looking over my paper on "Gothic Vaulting-ribs," in the *Builder* of 21st inst., I find that by an oversight H is put=KS (15th line from top, 2nd col.). It should be "H=height of pier from S to springing line AB," as all the calculations are based upon this value of H.

I also find that the value of "H" is omitted in example 2. It should be "H=40 ft." E. W. T.

ANTI-DISEASE.

SIR,—In yesterday's *Daily Telegraph*, under the heading "Cholera in Cheshire," it is stated that,—

"In a portion of Over, called Sandhole, the aids to cholera are,—
1st. Utter absence of drainage.
2nd. Scanty supply of bad water.
3rd. The prevalent custom of keeping pigs" (too close to the habitations of man).

It has occurred to me that "Over and Sandhole" are not the only places in England in which these evils are to be met with.

You will recollect I wrote to you last year about the drainage of Market Lavington; and since your notice of my communication I am happy to say the village authorities have done something towards its improvement. My landlord has also sunk me a new well, which is better than the former one, although, for safety's sake, I still send to a distant spring for drinking water. But in the matter of pig-keeping, close under one's nose, Market Lavington ranks high. My neighbours, "before and behind, on my right hand and on my left," study up this branch of trade, to the great annoyance of the neighbourhood; and I can assure you it is often a difficulty to get through one's meals in the daytime, or to sleep soundly at night (with windows open, as is my usual custom) in this atmosphere.

Last year I found the Nuisances Removal and Diseases Prevention Act a dead letter in this country district, the magistrate fearing to make a move in the matter; but lately I am rejoiced to see that "this Act has been amended, giving justices (before prohibited from acting) the power to carry out the law on the main subject throughout the whole of England."

Would you, therefore, be kind enough to take some notice of this letter, and to let me know what portion of the Act will help me, or where I may obtain a copy of the same at moderate cost.

W. H. ESPENETT.

CHURCH-BUILDING NEWS.

Brixworth.—The church here has been reopened after restoration. For years it had attracted attention, chiefly on account of the Roman bricks so conspicuous in the formation of its semicircular arches. The present vicar formed the opinion that the existing nave was part of a basilican structure, and that he should discover the foundations of an eastern apse of side aisles, and a triumphal arch between the choir and nave. By successive excavations, and the removal of large embankments of earth, he succeeded first in laying open the semicircular wall of the crypt, upon which the eastern apse was built, with the arched descent and steps from the east end of the choir; then the narrow aisles, north and south, with their apsidal terminations east and west; and finally the bases of the original piers of the triumphal arch, with its lateral walls across the church. Mr. Watkins then saw the possibility of restoring the church to its original form and dimensions, and, at the same time, of preserving all the original Saxon work still remaining, and of retaining a specimen of every successive insertion. This is now accomplished, with the exception of the aisles, and for them the difficulties are all removed and the plans made easy. 241 additional free seats have also hereby been secured.

Reading.—A vestry meeting of St. Lawrence's has been held to devise measures for the restoration of this old parish church. The necessity of prompt action had long been apparent; but, as to the mode and extent of the reparation several persons expressed different views, including some ultra-Protestant objections to "ornamentation." Eventually it was resolved to form a committee to obtain funds necessary to carry on the proposed work of restoration, which will cost from 2,000*l*. to 3,000*l*.

Lutterworth.—Several meetings of the committee appointed to carry out the restoration of Wicliffe Church have been held lately. Mr. G. G. Scott has made a survey of the building. The cost of restoration is estimated at about 7,000*l*. Subscription-lists have been opened at the bank and other places, and sums amounting to nearly 2,000*l*. have already been promised.

Nottingham.—A meeting was recently held at St. Mary's Vicarage, to receive tenders for the proposed restoration of St. Mary's Church, Earl Manvers in the chair. The tenders were prepared in six distinct divisions according to the following form:—First division, comprising the general repairs internally, including the removal of the stone screen and restoration of the porch. Second division, comprising the floors throughout. Third division, comprising the roof. Fourth division, comprising the organ chamber. Fifth division, comprising the chancel stalls. Sixth division, comprising the sittings in the nave, transept, and aisles. The estimates were as follows:—

Mr. Willimott	£11,515 0 0
Mr. Huddlestone	11,512 0 0
Mr. Dennett	11,199 0 0
Mr. Hall	11,055 0 0

As Mr. Hall's tender was the lowest, the committee decided that he should execute the work as far as it could be carried out. The amount promised is 4,120*l*. The whole of the subscriptions at present given will be expended in carrying out the three first divisions of the work. The committee have raised in less than a year, including three promised windows, nearly 6,000*l*. But they will need nearly 8,000*l*. more.

Salisbury.—St. Thomas's Church is, as far as the chancel is concerned, about to be restored. The works proposed to be done will cost about 1,300*l*., which sum it is intended to raise by voluntary contributions. The designs are by Mr. Street.

Stroud.—The arrangements for the rebuilding of the parish church have now been completed. The contract has been taken by Messrs. Wall & Hook, for 6,000*l*., and the new church is to be completed by the 31st of October next year.

Cleethorpes.—The new church here has been consecrated. The foundation-stone was laid on the 3rd of August, 1864. The contractor for the

building was Mr. Ryall, of Louth, and for the fixtures and fittings Mr. Maxey, also of Louth, the building being designed by Mr. Fowler, in the Flowing Decorated style of about the time of Edward III., the chancel being of a somewhat earlier date. The structure consists of a nave, about 66 ft. long, with north and south aisles, each about 10 ft. wide; the chancel 30 ft. by 19 ft. The tower is placed in the angle formed by the north aisle and the north wall of the chancel (the lower stage of which will form a vestry and organ chamber) and the south porch. The aisles are separated from the nave by arcades of four arches on each side, resting on plain circular shafts with carved capitals. Above the arcades the nave is lighted on both sides by a range of circular double-trefoil windows. The chancel is separated from the vestry by a triple arcade with coupled shafts. The dressings through the arches generally are of brick with stone voussoirs. The nave floor is laid to a uniform level throughout, the passages being laid with flags of Yorkshire stone, and the flooring under the seats being of wood. The body of the chancel is laid with stone in a diamond pattern, with bands of chocolate tile, with encaustic intersections. The church throughout is seated with low open benches, all moveable, and the pulpit is placed in the north-east angle of the nave. The church is covered in by an open framed timber roof. The original intention to complete the building with a spire has been abandoned. Upon carrying up the tower certain indications proved that the subsoil was too soft to sustain the weight of a spire, consequently a tower approaching 100 ft. in height will form the crowning feature of the exterior.

Landough.—The church of Landough, in the diocese of Llandaff, has been restored. The design was provided by Mr. Fripp, of Bristol, and the carrying of it out was given to Mr. David Jones, of Penarth. The total cost of the edifice is 2,600*l.* The east window is a memorial, having been placed there in memory of the Rev. James Evans, who was rector of the parish, and of his son, who was the curate. The pews are open, and the woodwork of the roof and pews is stained. The pulpit is of stone.

Irlam.—A new church has been consecrated at Irlam, in the parish of Eccles. In the new building there is present accommodation for somewhat over 300 persons, with means of enlargement so as to seat, if required, 100 more. The eastern end of the church is seen in the approach from Manchester, a circular-ended apsidal chancel, over the western end of which rises a low steeple, roofed with an octagonal slated spire, terminating with a revolving gilt metal vane. Beyond the steeple is the broad nave, its roof broken by dormer windows, which serve both for light and ventilation. There is a south porch, chiefly of timber, with outer and inner doors, and a series of small windows on either side. On the south side of the steeple there is a quasi-transept, gabled transversely, which forms the vestry. The walls are all of stone, lined with brick inside. The doors, windows, and such parts, are of white stone, from Stourton-hill. The walling is chiefly from Runcorn, banded with a lighter coloured stone, obtained from an old house in Salford, at the time being pulled down. The seats are low open benches. The floor of the chancel and all the passages are laid with Staffordshire tiles, in patterns. The chancel proper, in which are the choir-seats, is underneath the tower, only the apse projecting beyond it to the east. The inside walls are of red brick, relieved with white bricks in bands and patterns. The whole of the superstructure was let to the builder, Mr. James Bradburn, and cost about 1,480*l.* The architect was Mr. J. Medland Taylor, of Manchester.

DISSENTING CHURCH-BUILDING NEWS.

New Brompton.—The chief stone of a Scottish church for New Brompton has been laid on a site immediately opposite Saxton-street. The builders are Messrs. Watchurst & Sons.

Leicester.—The Victoria-road Nonconformist chapel has been opened for divine service. The style of the building is English Decorated. The walls are built of the Enderby and Attleborough stone; and the stonework to the doors, windows, pinnacles, and all ornamental works, is from the Box quarries at Bath. The inside of the building is of brick, finished with stucco. The entrances and passages are paved with ornamental tiles supplied by Mr. Whetstone, of the Coalville Works. All the joiner's work is of deal, stained and varnished. The roof is partly open, and the exposed timbers are wrought, stained, and varnished: the columns supporting the roof are finished with colours in relief, and the capitals are edged with gold. The back part of the apse is occupied by the baptistery, which is constructed of enamelled slate. On each side of the front of the apse, seats are arranged for the choir, and in a lofty chamber on the left hand is placed an organ. There are two vestries on each side of the apse. Below the nave of the chapel there is a large apartment, 60 ft. long by 38 ft. wide, and 13 ft. high, intended for a Sunday school; also, rooms for warming apparatus, &c. The principal front is towards the London-road, and has three entrances. The centre one has over it a five-light window filled with stained-glass, the gift of Mr. Richard Harris. In the centre light is represented "The Sower scattering the Seed." The window in the apse, of similar size, is also filled with stained glass, the gift of Mr. Thomas Sunderland, in the centre light of which is the figure representing the Good Shepherd. The chapel has seats for 1,150 adults (galleries included). The dimensions of the building are as follows:—Length from front to back of apse, 105 ft. 6 in.; width, 48 ft.; width across the transepts, 64 ft.; height from floor to ceiling, 39 ft. The height outside of the front gable, from the ground to the top of the finial, is 60 ft., and from the ground to the top of the spire, 150 ft. The works have been executed by Messrs. Neale & Son, of Leicester; the gas-fittings by Mr. Webb; the apparatus for warming the building, which is effected by hot water on the low pressure system, by Mr. Gimson. Messrs. Ward & Hughes, London, have executed the stained glass. Mr. H. Crocker has acted as clerk of the works. The architect was Mr. John Tarring, of London.

Crewe.—The new Wedgwood Chapel, Crewe, has been opened for Divine service. The edifice, which is built from designs by Mr. Shufflebottom, architect, is of red and buff bricks, blue brick plinth, with freestone facings. The front entrance is an open portico, 20 ft. wide, with a door opening in front of each aisle. The gallery is brought to the front, over the portico and side wings, so that the least possible space is lost. The front, or entablature, over the portico, is moulded, and is supported by two Ionic columns and pilasters. The front wall, to the height of the entablature, is of buff and blue bricks, every fifth course being blue, 1½ in. thick, receding 1 in. from the face. The windows have moulded stone facings and carved trusses. Most of the seats on the basement are free. The rostrum or pulpit platform will be of pitch pine, with open railing and balusters. The gallery, which extends entirely round the chapel, is fitted up with open stalls in Memel, the side passages, and between the stalls, having falling seats, to be used on special occasions as required. The building will seat 1,200 persons.

SCHOOL-BUILDING NEWS.

Mexbro'.—New National Schools have been opened at Mexbro', near Rotherham. The entire cost of the building—in round numbers 1,000*l.*—has been subscribed by gentlemen in Mexbro' and vicinity. The schools are built of stone from the local quarries, and are Early English in character. They consist of a large room, 60 ft. by 25 ft., for a mixed school of boys and girls, and a class-room, 12 ft. square, which projects from the main building in the centre of the principal elevation fronting the valley. On either side of the class-room is a lean-to porch, leading to the school-room. From the roof of one of these porches rises a slated bell-turret, square at the base, and gradually decreasing till it attains a height of 32 ft., where is an open framework of wood, in which is hung a bell, from the foundry of Messrs. Naylor & Vickers, of Sheffield. This is covered by a slated spirelet, the top of which is 46 ft. from the ground. The school is lighted at each end by a three-light window, with simple plate tracery in the head. The side windows are single and double lights. All the windows are glazed with cathedral glass, in diamond leaded quarries. The roof is hipped at each end with gablets over the large windows, and is open inside to the ridge, having curved and stop-chamfered principals, stained and varnished. The class-room roof is of equal height, and is hipped, having a gablet over a window of similar size and design to those in the school. Accommodation is provided for 250 children. The school is warmed by hot air, and is ventilated by means of air flues and grates, and wooden turrets in the roof. The cost of the schools is 571*l.*, and the boundary walls and bell about 100*l.* Messrs. Blackmoor & Withers are the architects.

Market Lavington.—The chief stone for schools at Easterton has been laid. The building, when completed, will comprise nave, with bell-turret at end, chancel, vestry, and porch, and is intended as a chapel-of-ease to Market Lavington Church, with accommodation for 178 adults and 72 children. At present only the nave, bell-turret, and porch will be erected, to be used as a school-house and for evening services, the Hon. Mrs. Hay incurring this outlay and the cost of site, for the benefit of the inhabitants of Easterton. The walls will be built with red bricks, and black bricks used as bands at the level of stone window-cills, and at the springing line of arches, and as labels above the red and white brick lancet-shaped arches to windows and doorways. The roof will be open-timbered, stained and varnished, covered with dun-coloured plain tiles, interspered with red and black ornamental ones. No plastering will be used on the walls inside: the brickwork is to show fair with coloured-faced bricks the same as on the outside. The architect is Mr. W. H. Espenett, of Market Lavington. The contractors are Messrs. James Sainsbury, joiner, &c., of Littleton, and James Pinchin, bricklayer, of Market Lavington.

Hartington.—A new school-house and master's residence have been erected and opened here on a site given by Mr. T. O. Bateman, of Breadsall Mount.

Hulme.—The chief stone of St. Wilfrid's Roman Catholic Schools, Rutland-street, has been laid. The main building will be 62 ft. long, 30 ft. wide, and about 48 ft. high; and will consist of two large rooms,—one to be used for infants and the other for girls. At one corner of the building there will be class-rooms, &c., for the sisters to teach in, and to which entrance will be gained from the yard, which is inclosed. The architect is Mr. Tijou. The cost of the building will be 1,200*l.*

Books Received.

Texts from the Holy Bible explained by the Help of the Ancient Monuments; with a few Plans and Views. By SAMUEL SHARPE. Containing 160 drawings on wood, chiefly by JOSEPH BONOMI. London: Day & Son. 1866.

A WORK of this kind, by the author of the "History of Egypt," and illustrated by Mr. Bonomi, was certain to be full of interest; and so it is. Much light is here shed upon obscure allusions in the Bible, by references to Egyptian, Assyrian, and other records; and the longer such a subject is studied the more instructive will it become, so that in future editions we may have still more numerous instances in which the monuments of Egypt and Assyria, and perhaps of India in addition, shall be made to throw light upon dark passages in the Bible. Amongst such instances as these, we would suggest one of distinguished importance, a fair opportunity for alluding to which has been missed in the present edition. On page 81, "The winged Sun of Thebes," and the analogous Assyrian Winged Guardian or Angel of the King, like the Ferocher of Persia, and called "The Assyrian God, Baal, the Sun," are given in illustration of 2nd Chronicles xxviii. 2,—"For he [Ahaz] walked in the ways of the Kings of Israel, and made also molten images for Baalim;" and the circumstance is alluded to that one portion of the Israelites called God [the Sun of Righteousness] Baal. Now, considering the distinguished importance of the Winged Sun, or Ferocher [Pharaoh?] of Egypt, as *the* symbol of symbols, which occupied the most prominent of all positions on the Egyptian Temples, like the "Noses teipsum" on the Temples of Rome; there is in this Egyptian, Assyrian, and Persian, symbol of the divine Sun of the Temple of the human body a clear reference to the "*Sun* of Righteousness," who shall "arise [on or in the elect] with healing in his *wings*," as spoken of in Malachi iv. 2, which might have been pointed out by Mr. Sharpe in connexion with "the Winged Sun of Thebes," and the Baal of Assyria.

Other suggestions occur to us, but we have no doubt these and many more will duly turn up in

the minds of the author and the illustrator while preparing a new edition of their very interesting and instructive volume.

VARIORUM.

The Fine Arts Quarterly Review, up to this time published but spasmodically, has been taken up by Messrs. Day & Son, Mr. B. B. Woodward remaining editor. The first number issued of the new series is a very good one: it contains a large number of excellent illustrations, illuminations, engravings, and lithographs, and some very good writing. If kept up to this standard, it ought to command success. Mere catalogues of objects should be avoided.——"Returns of the names of Streets in the Metropolis," regulated by order of the Metropolitan Board of Works, have been printed by authority of the Board. These returns include streets re-named and houses numbered, streets' names abolished, and new streets named; the whole forming a sort of useful supplement to the London Directory. The returns are prefaced by a memorandum prepared by Mr. George Vulliamy, the superintending architect to the Board. It appears from these returns that 46,879 houses have been re-numbered; 2,110 names of streets, &c., abolished; and 824 new names approved.

Miscellanea.

IMPROVED INDUSTRIAL DWELLINGS.—The Improved Industrial Dwellings Company have completed and formally opened a new block of buildings in City Garden-row, City-road. We must take an opportunity to look through them.

ROYAL GALLERY OF ILLUSTRATION.—The agreeable entertainment by Mr. and Mrs. German Reed and Mr. John Parry, at the Gallery of Illustration, continues a career of unabated success. They have seldom had a piece better adapted than the "Yachting Cruise" to show their skill. The season, we hear, will be brought to a close about the third week in August. The "Wedding Breakfast" is admirable.

THE WIMBLEDON CAMP.—We cannot allow the doings at Wimbledon this year to pass by without some record in the *Builder* of the attention paid to, and the improvements made in, sanitary appliances at the camp. Amongst other measures the council, Lords Elcho, Spencer, and Ducie, instructed Mr. George Jennings to fit up sanitary stations, which were accordingly erected on a plan sent in and highly approved of. There were fixed 150 latrines and 50 "lift-up" lavatories, the buildings in which they are fixed being also constructed by Mr. Jennings.

BRITISH ARCHÆOLOGICAL ASSOCIATION CONGRESS.—The twenty-third annual meeting will be held at Hastings, commencing August 20th. The programme stands thus:—Monday, Hastings. Reception by the Mayor and Inspection of the Castle and other Antiquities of the Town. Tuesday, Excursion to Rye and Winchelsea.—Brede Place and Camber Castle. Wednesday, Visit to Bayham Abbey and to the Palace of the Archbishops of Canterbury at Mayfield. Thursday, Visit to Bodiam Castle. — Etchingham Church. Robertsbridge Abbey and Battle Abbey and Church. Friday, Excursion to Hurstmonceux Castle and Church, and Visit to Pevensey Castle. Saturday, Reception at Lewes by the Sussex Archæological Society.—Inspection of Lewes Castle, Priory, and other Antiquities.

FREE PUBLIC LIBRARY FOR THE CITY.—The bankers, merchants, and traders of London are called upon, by a writer in Trübner's *Literary Record*, to initiate measures for the establishment of a free public library in the city, as an example to other towns. New York, Paris, and other great cities are far ahead of us in such respects; and the writer remarks that it is apathy, not opposition, that has to be overcome. "The aim of such a movement," he urges, "should be to induce the Corporation of the City of London to grant an eligible and central site for a building, and to contribute from its funds a sum towards the expenses of erection and endowment; such sum to be supplemented by voluntary contributions; and we have such confidence in our fellow-citizens," he adds, "that we believe individual subscriptions will be by hundreds and even thousands of pounds towards such an object."

CHATHAM.—The new buildings at the east end of the Royal Marine Barracks, intended for officers' quarters, and erected on a site hitherto forming part of the dockyard, are now approaching completion, and they will probably be occupied at the latter end of the year. The builders are Messrs. Foord & Sons, of Rochester, Government contractors.

THE PROPOSED LAW COURTS.—Mr. Burnet, the architectural clerk to the commission, has carefully examined all the plans as yet received from abroad, and has drawn up notes, by which it is seen that very little, if any, assistance can be gained from foreign experience, unless the plans of the French Courts, which have not yet been received, prove an exception. The drawings illustrate the courts at Elberfeld, Erfurt, Goerlitz, Baden, the Hague, and Toronto.

ZINC PAINT.—During the operation of smelting zinc, a large portion of the metal escapes in the form of vapour, consisting of finely-divided metallic zinc. This vapour is known by the workmen as "zinc fume." When it has cooled, it is deposited as fine dust on every projecting part of the smelting works. A continental manufacturer has recently proposed to utilise this substance, by grinding it with varnish, and applying it to iron as a preservative against rust. The principle of the operation, it will be seen, is the same as that of galvanising, but the coating of metallic zinc is applied in a different manner.

VAGRANT WARDS FOR THE HOLBORN UNION.—The guardians of the Holborn Union have commenced the erection of new wards for the vagrant poor in the union, on a piece of ground in Vine-street, at the east end of Liquorpond-street. The building is proposed to accommodate 92 persons, 48 males and 44 females and children, with receiving wards for both sexes, boiler-room, vermin-oven, oakum-room, stoneyard, and every accommodation absolutely necessary, together with residences for the superintendent and wife, and wardsman and wardswoman. The ground has been taken on lease for a term of thirty-five years, at a yearly rent of 60*l.*, and a premium of 200*l.* The architect is Mr. L. H. Isaacs, and Messrs. Simpson & Son, of Baker-street, W., have taken the contract at the sum of 2,662*l.*

PECKHAM.—A new church is about to be erected in the Old Kent-road, on the site of "Dick Turpin's house," to replace Christ Church, the present site of which has been acquired by the South Metropolitan Gas Company by special Act of Parliament. The new church will be a brick structure, and will seat 1,200 persons. The style adopted is described as nineteenth century Gothic, based on the thirteenth and fourteenth century French work. In plan it will consist of a wide nave, with south aisle with ridge roof, and chancel, vestry with organ-chamber over, and a bell-turret and east porch towards the Old Kent-road; there will also be a gallery, seating about 260 persons, about half the width, and nearly the whole height of the south aisles, and which will be approached by a semicircular staircase and angle porch, which will also form a feature of the view from the road. The church will be erected by Messrs. Dove, Brothers, at a cost of 5,000*l.*, from a design by Mr. Bassett Keeling, architect.

ZINC AND LEAD EXPORTS AND IMPORTS.—The annual return published by the Custom House of the imports and exports of metals shows that during 1865 the United Kingdom received 34,903 tons of pig and sheet lead, of which Spain contributed 27,474 tons; Holland, 2,446; Belgium, 2,240; France sent none, and Chili, to whom we are indebted for half our foreign copper, 2 tons only. The total quantity of lead ore imported amounted to 5,584 tons, of which 3,505 tons came from Sardinia; white lead 72 tons; red lead 29 tons. We exported 18,441 tons of British pig lead; 4,690 tons of rolled and sheet; 1,695 tons of piping; 3,423 tons of red lead, and 3,338 tons of white lead. Our largest customers for pig lead were the United States, who took 8,212 tons; France, 4,510; and China and Hong Kong, 2,088. Of foreign lead only 403 tons were reported. The imports of zinc amounted to 30,685 tons, and of zinc ore and oxide of zinc 6,664 tons, whilst the total exports of British and Foreign zinc were 8,232 tons. The principal supply of foreign zinc is shipped from Hamburg, which sends 12,339 tons; next comes Belgium with 7,580 tons; and then Prussia with 5,952 tons.

THE JUBBULPORE EXHIBITION OF 1867.—Jubbulpore, one of the prettiest and most picturesque stations of the Central Provinces, is to have an exhibition in 1867. The Supreme Government has sanctioned a grant of 15,000 rupees towards the expenses, and Mr. Le-Mesurier has placed at the disposal of the committee a large carriage shed and a goods shed, which will be connected together by a thatched and mat-covered verandah. The railway from Mirzapore to Meyhere, it is expected, will be partially opened in time for the exhibition. This line should have been finished more than three years ago.

THE MEAT MARKET IN SMITHFIELD.—At a Court of Common Council, held on Monday, Mr. Horace Jones, the City architect, brought up a report detailing the progress of the excavations in Smithfield Market, which was considered satisfactory. Mr. Lowman Taylor also brought up a report on the same subject, and he stated that, although the works were not going on so satisfactorily as could be wished, the differences between the Great Western and the Metropolitan Railway Companies had been adjusted. He had urged upon the engineers of both railways the necessity for proceeding as quickly as possible; and he believed that by November the works would be in such a state as to enable a roadway to be formed over a portion of the market that would assist the traffic that was diverted by the alterations that were being made at the Holborn Valley Improvement. Immediately after this, he said, the Improvement Committee would advertise for tenders to perform the work connected with the erection of the market. The proposed market is constantly spoken of as the *Dead* Meat Market, an unpleasant expression, wholly unnecessary. Meat-market is surely all that is necessary to distinguish it from the cattle-market.

THE SCOTTISH ART-UNION.—The annual meeting of the Royal Association for the Promotion of the Fine Arts in Scotland was held last week in Edinburgh. The chair was occupied by the Hon. Lord Neaves. Mr. Cornillon read the report, which stated that 26 paintings and 13 water-colour drawings had been purchased from the last exhibition of the Royal Scottish Academy in Edinburgh, value 1,596*l.* 9*s.*; and that there would be included in the present distribution six original sketches by eminent artists illustrative of Scott's novel of "Guy Mannering," value 25 guineas each, and 50 statuettes from Mr. Steell's statue of the late Professor Wilson, value two guineas each—the total value of the present drawing being 1,858*l.* 19*s.* Each subscriber would this year receive a volume containing six engravings illustrative of "Guy Mannering," similar to those of "Waverley," given last year, and next year would be given similar illustrations from Scott's "Antiquary." During the year just closed 5,202 members had been enrolled, being an increase over last year of 649. The subscriptions for the year amounted to 5,462*l.* The ballot took place under the usual conditions, when of the 95 prizes 12 fell to England, 3 to Ireland, and 10 to the colonies and India.

PERMEABILITY OF IRON.—The master of the mint, Mr. Graham, the well-known chemist, has made a very important discovery, which he has announced in a paper read at the closing meeting of the Royal Society's session. He has discovered that iron at a low red heat absorbs a considerable quantity of carbonic oxide; and that, contrary to long-standing belief, this gas does not act on the surface of the metal only, but permeates its entire substance. Having taken up the gas, the iron will retain it for any length of time, and in this condition it is best adapted for conversion into steel, as, by the permeation of the carbonic oxide, the subsequent process of carbonization is largely facilitated. Hence arises the suggestion that the process of acieration would be best accomplished by changes of temperature; a low red heat to fill the iron with carbonic oxide, after which it may be put away, if required, to await the final process, at a high temperature, of conversion into steel. Concerning another form of iron, Mr. Graham remarks that wrought iron, in the course of its preparation, "may be supposed to occlude six or eight times its volume of carbonic oxide gas, which is carried about ever after. How the qualities of iron," he asks, "are affected by the presence of such a substance, no way metallic in its characters, locked up in so strange a way, but capable of reappearing at any time with the elastic tension of a gas, is a subject which metallurgists may find worthy of investigation."

ROYAL ACADEMY CONVERSAZIONE.—The close of the season is marked by the fact that the Council of the Royal Academy have issued cards for their annual *soirée*. It will take place on Wednesday next, the 1st of August.

ACCIDENT.—A pillar supporting a new roof in course of erection at Messrs. Whitehead & Haynes's works, Tividale, fell the other day from its place, and a large portion of the roof came down on a man and killed him at once. Other persons received serious injury.

THE BRIGHTON NEW WORKHOUSE.—The seal of the Board has been ordered to be affixed to notices to be served on Mr. Jabez Reynolds and his sureties, relative to the non-performance of contract for the erection of the new workhouse within the specified time; and also to a charge on the poor-rates to secure the sum of 5,000*l.*, being the fifth instalment of a loan of 30,000*l.* for the erection of the new workhouse.

LLANDAFF CATHEDRAL RESTORATIONS. — A circular has been issued by the Dean of Llandaff, in which, after reviewing the restorations already effected, he proposes that a subscription list be opened for the purpose of rebuilding the south-western tower which fell in 1722. Detailed plans, estimates, and specifications have been obtained, and the work will be at once begun when funds are obtained. The estimated cost is not stated.

WINDOW GARDENING IN ST. ANDREW'S, WELLS-STREET.—The first annual show of window-grown flowers in this parish took place on the 18th, under the shade of the plane-trees in the garden of Middlesex Hospital, which was lent by the board of governors for this occasion. About 350 plants were exhibited, some of which were fine-grown specimens. The prizes were adjudged by the head gardener of Sir Percy Burrell, bart., M.P.

METROPOLITAN BOARD OF WORKS.—At the last weekly meeting, a report was brought up from the Thames Embankment Committee, recommending the payment of 2,500*l.* to Mr. Furness, on account of his contract. Some discussion took place as to the propriety of doing so, in course of which it appeared that the works on this contract are making more progress than heretofore, and that the money was to be expended in forwarding the contract. It was at last agreed that the money should be paid, without prejudice to the rights of the Board.

CLIFTON SUSPENSION BRIDGE. — The report shows a considerable diminution in the receipts from traffic. The receipts of the last half-year amount to 1,175*l.* 11s. 11d., out of which the directors have carried the sum of 70*l.* to the credit of the contingent fund. After paying working expenses and interest on mortgages, there will remain a balance of 394*l.* 14s. 3d. available for a dividend, which the directors recommend should be made after the rate of 2*l.* 5s. per cent. per annum, free of income-tax. This will require the sum of 371*l.* 14s. 4d., leaving a balance of 22*l.* 19s. 11d. to be carried to the credit of the next half-year.

OPENING OF THE OSWESTRY WATER-WORKS.—The ceremony of opening the Oswestry Water-works has been celebrated at Penygwelly, the source of the water supply, and at Oswestry. The engineers, Messrs. Gotto & Beesley, of London, invited the corporation of Oswestry, and other friends, to a champagne luncheon at Penygwelly on the occasion. These works have been brought to a successful termination by the contractor, Mr. T. C. Bugbird, of London, at a total cost of a little over 16,500*l.* There were 1,400,000 cubic feet of digging accomplished in the water and sewerage works; and 630,000 bricks used in making the sewers, tanks, &c. The entire length of the sewers is five miles; and eight miles of water-pipes have been laid down. The works have been in hand ten months. Mr. Shopland was clerk of the works.

TENDERS

For the erection of a farm-house at Farway, Devon, for the trustees of Tuckfield's Bread Charity at Exeter. Messrs. R. & W. Best, architects:—

Summerhayes	£607 10 0
Stephens & Son	438 0 0
Stafford (accepted)	347 0 0

For the erection of farm-buildings at Whitstone Cross, near Exeter, for the trustees of Atwill's Charity at Exeter. Messrs. R. & W. Best, architects:—

Easton	£468 0 0
Stafford	264 0 0
Stephens	245 0 0

For alterations and additions to No. 24 & 25, Castle-street, E.C. Mr. Herbert Ford, architect:—

Cooper	£2,090 0 0 !
Sims & Marten	1,930 0 0
Perry	1,570 0 0
Sabey	1,248 0 0
Palmer & Son	1,100 0 0
Johnson	1,025 0 0
Crane & Vaughan	996 0 0 !

For new buildings, Coleman-street, for Mr. R. J. Bates. Messrs. Wimble & Taylor, architects. Quantities supplied by Messrs. Birdseye & Stoner:—

Ashby & Son	£8,604 0 0
Piper & Wheeler	8,600 0 0
Ennor	8,510 0 0
Brass	8,452 0 0
Little	8,434 0 0
Hill & Son	8,406 0 0
Smith	8,300 0 0
Newman & Mann	8,276 0 0
Sewell	8,244 0 0
Killby	8,137 0 0

For the extension of the works of Martin, Hall & Co., limited, Sheffield. (First contract.) Messrs. M. E. Hadfield & Son, architects:—

Gomersall	£2,264 10 0
Milner (accepted)	2,027 0 0
Rodley	2,081 0 0

For St. Hilda's Catholic Church, Whitby. Messrs. M. E. Hadfield & Son, architects:—

For the whole (use of old materials and no fittings).

Robinson	£3,000 0 0

Separate work (accepted).

Scales (mason)	£1,740	0 0
White (carpenter)	487	0 0
Hardgraves (slater)	144	10 0
Blakeley (plasterer)	52	0 0
Readman (painter)	35	0 0
Brown (plumber, &c.)	108	0 0
	£2,566	10 0

For St. Thomas's Catholic Church and house, Gainsborough. Messrs. M. E. Hadfield & Son, architects:—

Huddleston (accepted)	£1,249 0 0

Accepted for St. Hedda's Catholic Church, Egton-bridge, exclusive of stone, lime, brick, and leading; no fittings. Messrs. M. E. Hadfield & Son, architects:—

Barton & Co. (mason)	£390 0 0
White (carpenter)	453 0 0
Hardgraves (slater)	114 10 0
Anderson (plumber, &c.)	79 18 0
Readman (painter)	25 0 0
Braithwell (plasterer)	40 10 0

For St. Peter's Catholic Church, Doncaster, with use of old materials; no fittings. Messrs. M. E. Hadfield & Son, architects:—

Anelay & Son	£2,100 0 0
Weddop	1,620 0 0
Rodley (accepted)	1,466 0 0

For house and offices to be erected at Fair Mile, Cobham, Surrey, for Mr. H. Poole. Messrs. Wadmore & Baker, architects. Quantities supplied by Mr. D. Campbell:—

	House.	Stables.	Lodge.	Fences.
Gammon & Sons	£4,569	£825	£111	£115
Holland & Hannen.	4,597	780	399	150
Browne & Robinson	4,520	797	397	141
Sawyer	4,363	717	394	175
Myers & Sons	4,327	745	366	149
Brass*	4,270	738	407	135

* Accepted, except for lodge.

For substantial and decorative repairs to the Wesleyan Chapel, St. John's-square, Clerkenwell. Quantities not supplied. Mr. Bassett Keeling, architect:—

Jameson & Hobson	£387 0 0
Reshaux	358 0 0
Bourne	336 10 0
Mitchell	335 0 0

For the erection of council chamber annexed to the Town Hall, Rochester, for the Mayor and Corporation. Mr. Henry Andrews, architect. Quantities supplied by Mr. John Young:—

Anscombe	£1,220 0 0
Norriss	1,150 0 0
Clements (accepted)	1,000 0 0

For alterations and additions to offices for Perpetual Investment and Building Society, 16, New Bridge-street, Blackfriars:—

Riches	£1,000 0 0
Wills	879 0 0
Terrey	795 0 0
Sawer	795 0 0
Groome & Co.	760 0 0
Nightingale	730 0 0
Wilkinson & Co.	718 0 0
Johnson (accepted)	690 0 0
Cubitt, Brothers	685 0 0

For proposed alterations and restoration to the parish Church of St. Andrew, Enfield. Mr. F. G. Widdows, architect:—

Ennor	£4,806 0 0
Colls & Son	4,730 0 0
Newman & Mann	4,676 0 0
Child & Son	4,624 0 0
Abrahams	4,187 0 0
Patman	4,068 0 0
Carter & Sons	3,989 0 0
Cushing	3,988 0 0
Dove, Brothers	3,860 0 0
Cooper	3,645 0 0
Field & Sons (accepted)	3,382 0 0

For sewer works for the British Land Company, Limited, at Friern Farm Estate, Dulwich. Mr. J. Blenkarn, surveyor for the company:—

	No. 1.	No. 2.
Wainwright	£2,500	£950
Mundy	3,548	1,183
Blackmore	3,745	1,230
Walton	4,100	1,531
Pearson	5,555	1,888

For the erection of a dwelling-house and shop in Queen-street, Exeter. Messrs. R. & W. Best, architects:—

Brealey	£749 0 0
Westlake	722 0 0
Stafford (accepted)	697 0 0

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We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

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The Builder.

VOL. XXIV.—No. 1226.

he Lesson of the Battle of Sadowa: Value of the Spade and Pick.

HEN, at the beginning of the year, we called the attention of our readers to the influence on human life of the great improvements that had taken place in artillery, there seemed little reason to suppose that within five months from that date an experiment would be made as to the value of some of those improvements on a scale of greater magnitude, all things considered, than the world had theretofore witnessed. The smouldering discontent of the German Governments, the fierce war fever of Italian people, the rapid parallel march of Prussian princes through the defiles of the ant Mountains, the hard-won and sanguinary counters terminating in the battle of Sadowa, fruitless rush of La Marmora to knock nself to pieces against the grim lines of the adrilateral, all these are events that have n told, and told freshly and vividly, in other ges than our own. It comes within our province, however, to point to the scientific lessons ich this rapid and brilliant campaign has cribed on the page of history, in letters as ge and as red as those that mark the biography of any past plunderer and murderer on rand scale, and of the worst scourges of the man race.

The first lesson that Englishmen should draw m the carnage and the misery that have ldened this summer solstice is the great ference that may exist between experiment d experience. And no expression of gratitude be too strong when we reflect that this rful lesson might have been taught us at our a cost, if only we make a proper use of the erience acquired. The turning point of the at Bohemian struggle has been the possession one belligerent of a better weapon than that the hands of the other. It is pretty evident n the full details given by the military correndents of the London press that the plan of rshal Benedek was to concentrate his large y in a carefully-chosen position, to tempt invaders to a struggle on a field of his own ction, and to crush them in a position ere retreat would have been so hampered the nature of the ground as to allow him to hihilate the invader when once he had overwn him. And up to two o'clock in the day the great battle, it looked as though the plan the veteran would succeed. It is not correct attribute the entire success of the Prussians, public opinion instantly and erroneously did, their needle gun alone; but neither rapid oaches, strategic skill, prompt daring, nor determined courage, would have made the fatal day what it was but for this arm. The field telegraph, which allowed the two armies, advancing by lines separated by the Giant Mountains, to keep in hourly communication with the minister of war at Berlin, and thus with one another, reduced that which would have otherwise been a most hazardous movement to great simplicity. The support that either army could render to the other might thus be timed almost to minutes, and the only wonder is that the arrival of the Crown Prince on the field of battle was so late, that the day was all but lost by the Prussians before he came into line. The Austrians had the advantage of position, and in artillery, the Prussians in numbers, but the struggle was determined by the rapid fire which the needle gun poured upon the troops that were not protected by any cover from its fury.

Experiments had been made on this heavy and imperfect breech-loader, both by the French and by the English War Office. Its defects had been readily perceived, and unsparingly pointed out, by the clever officers employed to report on it. And so this condemned weapon was left to a people whom we have been accustomed to regard as rather fitted for the parade than for the stricken field, and that, too, in spite of the direct and positive evidence afforded by the Danish war. We were told that the needle gun heated after six or eight discharges,—that it would tempt men to throw away their fire, and to waste their ammunition,—that the arm of the private would be too much tired and shaken after eight or ten discharges to leave him fitted for further effort for the time,—and, above all, that the combination of cap and cartridge, of fulminating and propelling power in one packet, the very life of the invention, was so unsafe as to be a fatal objection to the serviceable character of the needle gun.

All this might have been very true if the question had been one of the needle gun as compared to a more efficient weapon—of this particular arm as a breech-loader among breech-loaders. But the issue has not been tried on this ground: the actual test has been that of breech-loading against muzzle-loading, and the result has been that which any man of science might have foreseen, if the question had but been submitted to him in those terms. Give a man a weapon which, however far from perfect, will fire as straight and as far as that of his opponent, and which, moreover, will fire from three to eight times while the other fires once, and the result hardly needs the fatal arithmetic of the field of Sadowa to demonstrate its certainty.

In the face of this great lesson, it is the duty of every British journalist—of every one whose voice can reach the ears of the Government, or waken an echo in the expression of public opinion, to call in the loudest tones for the immediate equipment of our troops with breech-loading rifles. Until this is done, our army is no more available for our national defence than if it were mesmerised. We may say that we are in peace and amity with all mankind; that no one will attack us; that there is ample time for preparation, if a storm appears to be brooding; that the mere chance of seizing an advantage that would not be permanently maintained would never tempt the most grasping and insolent of powers to attack us. Let people derive what comfort they choose from such arguments, but the incontrovertible facts remain. If we need an army at all, that army should possess the best weapons. The assertion is a truism; but that truism has just been written in letters of blood.

Our neighbours are not slow in deciphering this handwriting of fire on the wall of the imperial palace. Two thousand breech-loaders a day, it is said, the Austrian arsenals are turning out. Two hundred thousand are said to have been ordered by the ruler of France. The new French pattern is said to be far superior to the Prussian. An American breech-loader is said to be able to fire twelve shots per minute.

Another lesson to be derived from the great Bohemian battles has been already indicated, if less forcibly, in the American war. If it be the aim of a general to destroy the forces of his adversary, it is no less his duty to protect his own. The great captain who most relentlessly hurls his battalions on the foe, is ever the leader who is most careful for his men at other times, and who, being prepared to take the utmost out of his troops when needful, will, to that very end, never waste a single man. Now, it is clear from the full details we have of the battle of Sadowa, that so much care had been taken in the selection and the preparation for defence of the Austrian position that it was impregnable until taken in flank. The wood and the labours of the engineers had given such cover to the troops that the superiority of the needle gun could not be devoloped. It was where the troops were uncovered and exposed to the annihilating fire of an arm that would discharge from six to eight bullets in return for one from the Austrian rifles, that defence was impossible, because no defender could live. Where the engineer had been at work, or where the engineering of Nature was available, the Austrians triumphed. Where no cover was given by the spade or the axe in face of a withering fire, it was not a fight, but a battue. A very strong light is thrown by this part of the contest on the subject of the great and unprecedented use of the spade in the American war. No such great disparity of arms then existed, but the war at one time seemed waged by the spade more than by the bayonet. In future engagements, when the destructive character of small arms may be expected to be more equalised between the contending parties, and when that equality will present an ability to deliver a rapid fire, that will at least not fall short of that possessed by the army of the Crown Prince of Prussia at Sadowa, the man who best protects his troops must win the day from the sheer destruction of his opponent. Two lines opposed to each other on unbroken ground, and armed with weapons that will discharge a bullet every five or six seconds, will simply destroy one another. Manœuvring for position, and gallantry in the use of the bayonet, will equally become impossible, line, and column, and squadron withering away beneath such a fire as we may shortly expect to see poured forth, even as the clouds of steam from the funnel of a locomotive disappear before they reach the earth. The pick and the shovel, then, must assume far more importance as weapons of defence than has ever yet been attached to those ancient and powerful implements. The number issued to each regiment ought to be very largely increased. We can hardly err in saying that some instrument for earthwork, or for service where timber is concerned, pick, or shovel, or bill-hook, or axe ought to be at the disposition of every foot soldier. It is hardly yet the time to see spears converted into pruning-hooks, although spears in the form in which they existed when the prediction was made, no longer form part of the soldier's equipment. But something like a very unexpected turning of the sword into the ploughshare may be traced in that marked substitution of the spade for the bayonet, which is certain to form a feature of future campaigns.

The application of the lesson to our own use is plain. No first-rate power of the day has an army so precious as our own. We do not speak of the purely military value of the units that compose our forces. If we hold our own opinion, and that a proud one, on this score, we must allow the patriotism of other countries to find its uncontradicted expression also. But we are safe in asserting that no soldier costs so much to

his country as does the British soldier, while the fund upon which our recruiting service is able to draw is low in *personnel* when compared to the resources of the continental depôts. The preservation of our troops, their protection from all needless risk, and their maintenance in the most efficient order, is therefore the imperative duty of our commanders. And whether or no we may overestimate the military character of the English soldier, as compared with that of the troops with whom he may be called on—God forbid the event—to cross fire, we have ample experience of the eminence of the British workmen. In all those crafts where the union of strength and skill is required, the skilled British workman can produce results at which we have often seen his continental fellow-craftsmen stand aghast. In nothing is that pre-eminence of our countrymen more pronounced than in that very description of labour for which the construction of our canals and railways has created a special class of operatives. The "navvy" is a typical Englishman. And the difference in amount and character of work which an English "navvy" will turn out of hand in a given time, as compared with that to be expected from the exertions of the best workmen of, at all events, any of the Latin races, must be known in order to be appreciated. Not much less striking is the comparison if made with an unskilled, unpractised English workman. Now the result of any future campaign will depend mainly on the performance of a large amount of work of the very description in which our railway labourers are so well skilled. It is work requiring to be performed in haste, and yet to be thoroughly as well as rapidly completed. With the exception of one distinguished corps, and of a very small proportion of the force of each regiment, our soldiers are totally unused to this work. We have, therefore, but two courses open, by either of which, or by a combination of the two, we may expect in some way to make up for limit in numbers, and to economize the precious *personnel* of our army. We must either attach skilled earthwork labourers—the very pick of our navvies—to our forces in time of war, or we must specially educate the soldier for the execution of earthwork in time of peace.

In the Crimean war a necessity of this kind became to a certain extent obvious; but arms of precision and of rapidity have made great progress since the Crimean war; and in any great battle now to be fought between troops nearly equal in numbers and in arms, the advantage will unquestionably be on the side of those who are best skilled and practised in earthwork, best able, in the field itself, to throw up some shelter from that storm of fire that will cease only when the harvest of death has been so thickly reaped on either side, that red, or white, or blue uniforms hide from the observer the field which they so thickly cover that he is unable to tell whether, on the day before, it was arable or pasture land.

The newspapers from day to day give assurances as to the steps taking for the efficient arming of our troops. The second, and scarcely less important lesson to be drawn from the war in Bohemia it has been left to ourselves to insist on. Yet, it cannot be too gravely considered that for engagements in open country, and in positions not protected by nature, the pick and the shovel are henceforth more necessary than the bayonet itself, and the skill to use them is as requisite as practice in marksmanship. In Sparta the preservation of the shield was the point of military honour. Of later years our ideas have been different; but a primary principle of the art of war underlaid this old Greek maxim. After a vast revolution in the character of weapons the truth of this principle is again becoming signally evident. Offence has become so deadly and so certain that defence is the point that needs improvement. The spade is the only shield against the repeating rifle; by the spade the great battles of the future will be decided. No hand can grasp the spade as a tool, and almost as a plaything, as can the hand of the skilled British workman. The advantage which, four hundred years ago, resulted to the English armies from the constant practice of our stalwart youth in the archery-grounds is not more marked than is the advantage which the skilled labour of the British operative would give over the labour of any other people in any question of earthwork or of intrenchment. To no subject connected with the drill and education of the soldier can the attention of the Horse Guards be directed with more profit than to this. To our old English marksmanship, to our old English courage, let our troops add our later experience of the tools and the work of the navigator, and we shall be safe from any of those sudden and partial advantages which now, as in earlier times, may alter in a few hours the destiny of great empires, and the course of human history.

THE LONDON CONGRESS OF THE ARCHÆOLOGICAL INSTITUTE.

Continuing our notes, the statements made as to the results of the Palestine Exploration Fund on the 23rd ult. (Monday) must be mentioned. The subject was opened by Mr. Cyril Graham's paper, "On the Recent Researches in Palestine," founded on Captain Wilson's report of the first expedition. In it the author gave a lucid account of the objects of the Palestine explorations and the discoveries already made. The most interesting remains, of which Captain Wilson has brought home drawings, photographs, and casts of details, are the inscriptions found at Kahr-el-Helb, Damascus, and other places, and especially those details of the remains of synagogues at Tel Hum, Irbid, Kefr Birim, and elsewhere, which have enabled ground plans of those edifices to be made for the first time. The general form appears to have been a parallelogram in direction north and south, with four rows of pillars arranged at the points of intersecting squares, dividing the building into five aisles. The style of decoration does not always appear to have been the same. At Tel Hum (the strongest claimant for the site of Capernaum), and Kerazeh (Chorazin), Corinthian capitals were found; at Irbid a mixture of Corinthian and Ionic; whilst Kefr Birim, Meiron, and Um-el-Amud were capitals of a peculiar character. The faces of the lintels over the gateways are usually ornamented with some device; at Nebartein there is an inscription and representation of the seven-branched candlestick, the only other representation known being that on Titus's column at Rome; at Kefr Birim the ornament appears to be intended for the Paschal. The position of Chorazin had been fixed with tolerable accuracy, and great light had been thrown on the site of Capernaum by tracing the ancient system of irrigating the plain of Gennesareth, while the valley where David and Goliath fought had been nearly ascertained. Excavations had been made, and most interesting remnants of synagogues and churches brought to light, and these diggings had been continued by her Majesty's Consul at Damascus. Whatever successes had been achieved were mainly owing to the energy, intelligence, and accuracy of Captain Wilson and the exertions of Mr. Grove, the indefatigable secretary, who had been the founder of the fund, and through whose efforts it had assumed, after the short space of a year, so important a character.

The Dean of Westminster, who was in the chair, said that there were some persons whose names had not been mentioned in connexion with the exploration of Palestine, and whom it would be unjust to pass over on such an occasion. Miss Burdett Coutts—whose name had become a synonym for munificence—had subscribed 500*l.* with the intention of ascertaining the best means of providing Jerusalem with water, which it very much needed. This could be done only by a complete survey, which was undertaken by Captain Wilson, and was the precursor of the great series of expeditions to promote which the Exploration Fund had been established. As it had been said, the discoveries in connexion with the synagogues had been extremely interesting, and had dissipated the opinion so commonly held that these structures were built rudely, and without any attention to beauty of form. Now, it had been ascertained that they possessed great architectural excellence. The gradual approach of the recognition of the site of Capernaum must possess very pleasurable anxiety for the student of Bible history, for there the Saviour spent the greater part of His life on earth.

Mr. Grove said that the expedition was constantly employed in the country from December, 1865, to May, 1866, and its results had been considerable. A series of detailed maps had been formed, on the scale of the English Ordnance Survey, of the whole backbone of the country, from north to south, including the Lake of Gennesareth, and all the watercourses descending to its western shores. Two debated questions had been definitely settled, the confluence of the Sabbok (Wady Zerka), with the Jordan, and the course of the Wady Surar. Materials had also been collected for making about fifty plans with detailed drawings of churches, synagogues, mosques, temples, tombs &c. Inscriptions had been found and copied and the Hebrew and Samaritan inscriptions had been referred to Mr. Deutsch, of the British Museum, who had kindly undertaken to report upon their contents. A series of photographs, 166 in number, had been taken, the majority for the first time. They comprised views of sites, details of architecture, inscriptions, the Samaritan Pentateuch, and a few natural objects. The committee propose to form, in connexion with the Department of Science and Art at South Kensington, a "Palestine Museum," to consist partly of objects obtained on loan, partly of those collected by the agents of the fund. It is hoped that the museum may be opened early in 1867. We understand that the receipts of the fund for the past year have amounted to 3,500*l.*, 2,000*l.* have been expended in expeditions in the East, thus leaving a balance to the credit of the fund of 1,500*l.* We look for some greater result on the spot than has yet been achieved.

Mr. Beresford Hope recommended the union of the Exploration Fund Committee with the Archæological Institute.

Mr. Layard remarked on the strong retention of traditions by the Arabs, who knew the ruins of former towns by their ancient names only. He said it was of great importance in making investigations in the country to be well acquainted with the language of the people; and he mentioned a curious mistake made by a traveller from his ignorance of Arabic. In a map of the country traced by that gentleman, several different places were called by the same Arabic name, which signified "I don't know." The traveller having inquired the name and received that answer, had set it down as the name of the place.

The first building visited was Lambeth Palace, with its large handsome brick gateway, rebuilt by Cardinal Morton about 1490; the *camera armigerorum*, or guard-room, with its fine open timber roof; the post-room, with an almost unique flat ceiling of wood; the Lollards' Prison built in the middle of the fifteenth century; the thirteenth-century chapel and crypt, and a series of portraits of archbishops. The chapel is cold and drab-by, but shows the good original forms. The heavy door of the Lollards' Prison, and the names and disjointed sentences cut in the oak lining of the walls, before now described, with sketches, in our pages, were, of course, objects of interest. Through entire want of arrangement, however, the journey up to this apartment and down again was tedious and troublesome. The number of visitors here, as at Eton, made the whole affair a scramble. As was said by one of the lady-visitors, more anxious than some to get profit from the week, the general instruction during the excursions seemed to be,—"As soon as you have not seen what you came to see, go and try to see something else." The hall, it may be remembered, Gothic in general form, but debased in the details, was built by that archbishop to whom Charles I. on the scaffold said "Remember!" and who never let out what it was that he was to keep in mind. Juxon left money by his will for the completion of the hall. His arms and the date 1663 appear in it, over the door. It cost him 10,500*l.* Holbein's famous picture of Archbishop Warham (he died 1532) was not seen, being now in the Kensington Portrait Gallery; but those of Cranmer, Cardinal Pole, Laud (by Vandyck), Tillotson, Herring (by Hogarth), Secker (by Reynolds), and some others, were looked at and commented on. The associations belonging to Lambeth Palace (the seat of the Archbishops of Canterbury from the twelfth century) are numerous and important: the long line of figures that flit through the rooms includes Saxon "Maude the Good," Cranmer, Wickliffe, Henry VII., Henry VIII., Queen Mary, Queen Elizabeth, James I., and Peter the Great. In the pleasant gardens, where the Houses of Parliament are better seen than from any other spot, descendants of Cardinal Pole's fig-trees still flourish.

The ill-used church of St. Mary Overy and the church of St. Mary at Cripplegate, resting place of, *inter alia*, three noted Johns,—John Milton, John Speed, and John Fox,—were visited, but must be passed by here.

Amongst the various papers read on Tuesday morning was one by Mr. G. Deutsch "On Semitic Palæography and Epigraphy." The lecturer traced back the formation of our modern handwriting through the Etruscan, Hellenic, and italic stages, to the rude scrawls of the Phœnician

hone-cutters. After having drawn particular attention to the fact that we had at last been convinced that the knowledge of the East must be derived, not, as has hitherto been the case, from classical sources, but from the East itself, Mr. Deutsch gave a brief outline of the ancient and modern history of the art and religion of the Phœnicians as the chief representatives of Semitism in early times, and continued to say that there was no more difficulty in understanding Phœnician writing than in deciphering Greek or Roman inscriptions. A sketch of Phœnician literature, which must have been most extensive, and completely in accordance with their high state of cultivation and refinement, was then given. This literature consisted, first, of a vast number of theological, or rather theogonical works, as their authors were reputed the gods themselves, and which were only accessible to the priests or to those initiated in the mysteries. From the allegorical explanation of these writings sprang a vast cosmogony, insignificant fragments of which only have come down to us, mutilated and misinterpreted by their Greek reporters. Next to this sacred literature stands their didactic poetry, somewhat related to the Orphic. We further know of their erotic works, of works on history, geography, navigation, agriculture, — in short, of almost every modern branch of science and *belles lettres*. But all this wealth of literature has perished, and the scanty extracts that may have survived in foreign literatures cannot be looked upon as really authentic. For genuine and unadulterated "literature" we must look to the original monuments themselves; to inscriptions on coins and weights, on votive tablets, on sacrificial stones, on tombstones, and on sarcophagi. Broken utterances, faintest echoes though they be, out of them there might once be reconstructed more of the life of that wonderful nation, that had so many things in common with the English than has hitherto been dreamt of. Speaking of these monuments, he said,—While up to the middle of the last century hardly anything was known of the existence of Phœnician inscriptions, there is scarcely a museum in Europe now which does not boast of one or two lapidary or numismatic monuments, that have to tell some tale or other in the aboriginal tongue of Canaan. The most extensive find lately made consists of nearly a hundred inscriptions, excavated on the site of ancient Carthage,—all votive tablets, with but two exceptions. One of these exceptions is a precious sacrificial tariff, which complements in the happiest way a similar sacred document, found some years ago at Marseilles. The other is probably a tombstone, erected by a father to his son. Another highly-interesting monument was excavated about three years ago in Sardinia, and consists of the base of an altar, inscribed with a trilingual (Latin-Greek-Phœnician) legend. A comparison of these translations, or rather paraphrases, among themselves, leads to most interesting results in many branches of Greek, Roman, and Phœnician antiquities, and chiefly in comparative hierology; while the Phœnician inscription itself, the largest of the three, is perhaps one of the most serious ever discovered, yielding a number of new linguistic, mythological, and orthographical forms.

Mr. Foss, in a paper "On Westminster Hall," said,—The hall was ornamented with "images," and various payments on account of them are recorded in the earlier part of the reign of Richard II.; but in the latter part the ruinous effects of time, and perhaps of a fire that destroyed one of the adjoining houses, in 1386, had become so visible, that about 200 years after the construction it was considered necessary to undertake substantial repairs. The opportunity was taken to introduce various alterations, and greatly to enlarge the edifice. The contract for part of the works is preserved in Rymer; and the restoration was completed in 1399, the last year of Richard's reign, whose deposition was the first public Act for which it was used in the Parliament there assembled. It is not improbable that at this time the old marble chair and table were covered over, and the two Courts of Chancery and King's Bench erected above them. Shops and hawkers were still allowed in the new hall, as in the old, but with higher prices. By a "rental" of 38 Henry VI., the rents of shops varied from 2s. to 3s. 4d. a term; and the "goers in the Halle," as they were called, where charged from 4d. to 12d. for the same period, the larger sum being paid by "Robynet Frenshwoman."

About this time there were certain places in Westminster Hall, designated Hell, Purgatory, and Paradise, names that seem to indicate that they were appropriated, as two of them certainly were, to the confinement of delinquents, according to the varied degrees of punishment for their respective offences. We see from the illuminations of the Courts lately published in the 39th volume of the "Archæologia," which are attributed to the reign of Henry the Sixth, that at the bars of the three Courts of King's Bench, Common Pleas, and Exchequer, certain prisoners are represented, and their place of incarceration might probably be in one or the other of these cells. Some have thought that these extraordinary names were suggested by the titles of the three parts of Dante's "Divina Commedia;" and if it could be shown that Dante's work was familiar to the English world before those names were given to these three repositories, it might fairly be contended, from their succession and order, that Dante was their godfather. The occurrence, however, of at least one of the names in the reign of Edward the Third, before Dante was born, tends to destroy the ingenious conceit. In the list of rooms and buildings in the palace of Westminster, extracted from the original accounts of the expenses of erecting St. Stephen's Chapel in that reign, the following entry occurs:—"Door of Hell, in the Exchequer." This is followed by another, to which the former probably applies:—"House called Holle under the Exchequer." A third place named in the list may perhaps be the same which afterwards went by the name of Paradise or Heaven:—"Le Godeshouse, in the receipt of the Exchequer."

Whatever were the uses to which these places were originally applied, it plainly appears that the custody of them was made a source of emolument, and was granted to the "squires of the king's body," and other favourites. Hell, Purgatory, and Paradise, and another building called "Heaven," were subsequently converted from cells of confinement to places of recreation and refreshment, still possessing their graceless names, and were frequented by lawyers and others attending the courts; and many are the allusions made to them in that character by dramatic and other authors so early as the reign of James the First.

The majority of the members, notwithstanding the reading of papers, got early away to

Hampton Court,

where Mr. Parker gave some particulars of the structure. The general character of the building, as every one knows, remains for the most part in the same condition as at the time it was the palace of Wolsey. Mr. Parker contrasted the style of Domestic architecture at that period with modern buildings. In the former, he said, comfort and appropriate adaptation were the chief points attended to; and the result was the construction of a building well adapted to its purpose, and which looked well also; but in modern buildings appearance was principally considered, and the houses constructed on that principle were uncomfortable to live in, and they were the opposite of beautiful. Speaking of the great hall, he said it did not stand alone. There were a few of these baronial halls still existing, but it was one of the best of them, and gave a good idea of the baronial residences and domestic life of the Middle Ages. There was no difference between the colleges of the Middle Ages and the houses of the Middle Ages. Those who knew the colleges of Oxford and Cambridge knew the domestic life of the Middle Ages. Whenever we wanted to build a hall now, we could do no other than copy these old halls. At the higher end was a raised dais, on which was the chief table. The dais in this hall was probably a step higher originally than it now is. The bay window was for placing the sideboard in. In some of the halls, such as those of the London guilds, there were two bay windows, the second one being at the lower end of the hall, and in this was placed the sideboard for the lower table. It was not always wanted; yet the fifteenth-century halls frequently had two bay windows. Beyond the dais were usually two stories, the lower being called the cellar, the upper one the solar. The cellar also came to be called the parlour, and was the room in which persons were received and in which conversation took place. The solar was the ladies' withdrawing-room, and from this there was generally a look-out, from which the dependents, who often made a noise outside, could be told to keep order. To this hall there was but one room; there was the solar but not the cellar. The roof was just the style of the old halls, and so were the windows, excepting that the stained glass would be better: here they had been renewed—on the whole very fairly renewed. The old windows were usually filled with the shields of families connected with that to whom the hall belonged. At the lower end of the hall was usually a music gallery; on one side the stairs leading to it, and on the other, behind the screen, were the back stairs leading to the kitchen; frequently behind the screen was the butler's pantry. All the arrangements of this palace were complete. The kitchen remained in all things as of yore, save the hospitable uses to which it was put. The chambers, of which there were a great many, were formerly both bed and sitting rooms. This custom had gone out in England, though it still existed in most parts of the continent; there they had not adopted our fashion of separating the two, though he would not say that their plan was the best. Many old customs were kept up on the continent, which we had lost. Rome was still a mediæval place, to all intents and purposes. Behind the screen was a lavatory, where, according to the ancient custom, people washed their hands before going in to dinner, instead of having to go to their own chambers to do so. In France, the lavatory is at the present time placed at the entrance of the kitchen, and is called *la fontaine*. The hall was heated anciently by means of a fire in the centre, and the smoke escaped through a *louvre* in the roof; there had been one no doubt here, but probably the roof had been restored, and it had been done away with. The smoke escaping at that height blackened the timbers near it a little, but did little damage. In this way the heat, instead of being in great part lost up the chimney, as is now the case, was diffused over the whole apartment, and the smoke ascending above the heads of the persons in the apartment, they did not suffer from the evils which would attend a modern smoky chimney. On the whole, Wolsey's hall afforded one of the best examples remaining of the later Tudor style of English architecture and domestic life.

The pictures and tapestry in the palace were commented on by Mr. G. Scharf. Notes of what he said will be found under a separate head.

We hasten on to the palace at

Fulham,

Where the Bishop of London and Mrs. Tait were waiting to receive the members and visitors. The grounds about the building would be well worthy of praise anywhere, but so near London they are not only admirable, but are quite astonishing. It is almost startling to be transplanted in a short half-hour's drive from the heart of a great town to such a rural paradise. Unfortunately Phœbus did not smile upon the gathering, or the effect of sunshine and shade among the splendid trees and across the rich grassy stretches would have been enchanting; but as it was, the grounds looked admirably well, dotted over by large clusters and small groups of gaily-dressed visitors and residents. Of the trees we must specify some fine old elms, oaks, and hickory, one of the latter being, apparently, the pride of the intelligent and good-natured head-gardener: it is, he reckons, upwards of 200 years old, and is 17 ft. in girth. To Bishop Compton, tutor to Queen Anne, are due our thanks for having planted most of the trees in these grounds; but this particular hickory must have been growing there when he commenced his useful labours. The estate consists of about thirty acres. The moat all round it is still preserved (but looks somewhat green and impure just now), and the land was made over to the see in the seventh century; since which time there has been a continued succession of bishops, about whom the present admirable representative told many interesting particulars. Portraits of them hang around some of the apartments; amongst others those of Bishop King, a fine painting by Jansen, dated 1611; Bishop Aylmer, who sacrificed his last tooth—glad to be rid of it one would think—to encourage Queen Elizabeth to have one of hers extracted when suffering from toothache; and Bishop Porteus, who left, with a sum money, his books to the see—thus taking the initiative in forming the library. Some of his money was expended upon alterations (by Cockerell), which have rendered the palace a very agreeable dwelling, but have damaged its monastic and picturesquely ancient appearance. Then there is Bishop Juxon's portrait, dated 1633 (his portrait at Lambeth is dated 1660); and Bishop Fletcher's; he was the handsomestman of his time, and offended Queen Elizabeth by his

excessive use of tobacco. In the drawing-room are charming likenesses in coloured chalks, of the children of the present Bishop, by an Italian artist. A large flower-basket, or tub, of wood, filled with plants of variegated foliage, and others with blue-grey blossoms, such as the agapanthe, is a striking object there. When the party had pretty well assembled, the Bishop led the way to the entrance courtyard or quadrangle, where, big book in hand, or rather resting on the rim of the handsome old carved stone fountain, he gave a short account of what they were about to see. The new chapel, it may be whispered, did not excite much admiration.

We must add to our note of the visit, as hospitality was not the vice of the week, that long tables were spread with snowy napery, round by the far corner of the palace, and laid with very welcome and refreshing tea and cakes; the white floating table-cloths, and the crimson covers to various easy-chairs, contrasting agreeably with the dark trees and green grass; further, that the attendants everywhere were extremely civil and obliging; in which small matter lies all the difference between comfort and discomfort on such occasions. This visit terminated, in fact, the proceedings of the Congress, Wednesday morning being appropriated as usual to votes of thanks, and the choice of the next place of meeting. It was not ill arranged that the social part of the week should commence with the Dean of Westminster's very agreeable *soirée*, and conclude with the Bishop's pleasant garden reception.

THE PICTURES & TAPESTRY IN HAMPTON COURT PALACE.

Mr. George Scharf, first alluding to his recent lecture on the pictures belonging to the Crown, wherein he had spoken of the changes of their locality, and of the great uncertainty as to the positions they occupied at an early period, went on to say that these paintings dated as far back as the time of Edward III. and Richard II. The first record we had of these Royal possessions was in a curious old inventory of pictures belonging to Henry VIII., date 1542. In this certain pictures were so specifically described that there was no difficulty in identifying them with pictures now existing. A copy of this inventory was preserved in the Record Office, and another in the British Museum. Valuable pictures were anciently protected by curtains, and thus in the inventory in connexion with the picture, when we found an item that it was covered with a curtain of white and yellow sarsnet, it was an indication that importance was attached to it. Paul Hentzner, a German traveller who visited England in 1598, had also described the pictures at Hampton Court. Prince Henry, son of James I., was a great collector of works of art. A curious record of pictures in the possession of Charles I. was made by his directions by one Van der Doort in 1638-9. The original manuscript was in the Ashmolean library at Oxford. A copy of this manuscript, published from a transcript by George Vertue, the engraver, 1757, was of much value, but unfortunately he had made some deliberate and wilful changes. The value of this manuscript was that it specially stated on which side of the painting the light is admitted; but when Van der Doort wants to say that it is admitted on the side opposite to the right, he quaintly calls it a "wrong light." Similarly, whenever any figure is shown in armour, he says it is in "harness," and again he quaintly speaks of a character as having his "head-piece" by his side,—meaning his helmet. James II. had a catalogue of the Royal pictures made by Chiffinch, a copy of which is in the Harleian collection. Queen Caroline, wife of George II., had a catalogue made by the industrious, but mischievous, George Vertue, who had unfortunately tampered with some of the dimensions. A great many of the pictures preserved at this time were clearly to be identified by means of this catalogue. Speaking of the locality of the pictures, Mr. Scharf said that in the time of Henry VIII. the Royal pictures were chiefly deposited at Whitehall and Windsor. They were moved by Charles I., who purchased the fine collection of the Duke of Mantua, and assembled in a gallery prepared for them at Whitehall. At the time of the fall of the monarchy, this collection was dispersed. Many of these works of art were purchased by foreign potentates; some by the Duke of Alva, and went to Spain; some by the Government of the Netherlands, and went to Brussels; others to Vienna, where they might still be traced. Many were bought by private merchants. At the Restoration, the Dutch States, wishing to "do the civil thing," actually re-purchased several of these pictures from the merchants, and made a present of them to Charles II. in 1660. Many of the finest of these works thus restored were now to be found in the Hampton Court gallery, particularly those of Van Reynst, which had been engraved by Vorstermann. Many other pictures passed into the private possession of the Earl of Arundel and others. As an instance of the vicissitudes of Crown property, he might mention a picture by Rubens, who, when sent as ambassador by the Court of Spain to Charles I., in order to propitiate the king in favour of peace, painted a picture emblematical of the blessings of peace, which he presented to Charles. This picture was afterwards sold, and sent abroad. Eventually it was brought back to England, and found its way through the Doria family, at Genoa, to Lord Stafford, who generously presented it to the nation, and it is now one of the greatest attractions in the National Gallery. The Cartoons of Raffaelle, which were formerly hung in a gallery at this palace, were now removed to South Kensington, where he must maintain that they were better seen and much more generally useful. These were designs to be executed in tapestry for the Sistine Chapel at Rome, and the designs were taken to Arras, to be copied for the decoration of the chapel of the Vatican. They lay long neglected in the workshops at Arras, until, at the suggestion of Rubens, Charles I. sent and purchased them, intending to have them copied at the tapestry manufactory which he had established at Mortlake; but his purpose was not carried out. At the Revolution, Oliver Cromwell had the good sense not to allow these designs to be sold out of the country, but bought them for the nation for 300*l.*; there being nothing objectionable in them—nothing savouring of Papacy—but being matter-of-fact narrations of the Acts of the Apostles. William III. continued the good work, and in making a new front to the Palace, built a grand room expressly for their reception.

Mr. Scharf now spoke of the *tapestry* in the *Great Hall*. The designs for this tapestry were made by Bernard Van Orley, a Flemish pupil of Raffaelle, of the time of Francis I. As far as the execution went, they were the counterpart of Raffaelle's own tapestry for the Vatican. For the most part they represented scenes in the history of Abraham and Tobit. The lighter parts, on the shoulders of the figures, were originally of pure gold, being worked with threads of gold, and some of the parts now turned black were worked with brilliant silver. Originally this tapestry must have been most magnificent. In point of workmanship it was equal to any that could be pointed out. When the Pope ordered his tapestry to be made for the Vatican, he had a duplicate set made for his "good friend" Henry VIII., who had just written a book in defence of the faith. This equally beautiful set was sent to England. When Charles the First's collection was sold, these were bought by the Duke of Alva, and carried to Spain. Within the last twenty years they were bought by a Liverpool merchant, exhibited in London, and offered to the Government of the day, who, unfortunately, did nothing to save them, and they were bought for the Berlin Gallery for 300*l.* through Dr. Waagen. In connexion with these he would mention a circumstance of the effect of light upon colour. They had been in the chests of the merchant for some time, and the colours had much faded; but being exposed to the light for some time in a large warehouse at Liverpool, the colours had been restored. Light, which destroys water-colour paintings, has a contrary effect upon tapestry and upon oil-colours. Light is essential to oil-paintings. The tapestry at the entrance of the hall and that in the inner room was of much older date,—the period of Albert Durer; on it various allegorical personages were represented, whose names were given above them.

In the *Guard Chamber*, Mr. Scharf said there were but few pictures of importance; before them, however, was a great picture of a great man—Queen Elizabeth's porter, according to tradition, painted by Zucchero, date 1680. In the charming novel of *Kenilworth*, it would be remembered that the Queen was received, at the entertainment given by the Earl of Leicester, by a giant porter. This entertainment took place in 1575, and Zucchero, who was known to us as the painter attached to Queen Elizabeth's Court, as Holbein was to that of Henry VIII., only came to England in 1574, and staid here but a short time. Federigo Zucchero was chiefly associated as a painter with his brother Taddeo, whose assistant he was. Federigo was especially celebrated for painting the dome of the cathedral at Florence, in which there were no less than 300 figures, none less than 40 ft. high. He offended the Papal Court, with which he had quarrelled, by painting an allegorical picture, in which the Pope and Cardinals were represented with asses' ears. Apelles, the ancient Grecian painter, had painted the contest between Truth and Calumny, and after this design Zucchero had painted his: this picture was now in the room before them, and there was no reason to doubt that it was a genuine work of Zucchero. It was dated 1580, probably the extreme period of Zucchero's remaining in England. He afterwards went to Spain, where he offended Philip II. by his extreme "bumptiousness." (The picture above referred to is numbered 71 in the Hampton Court catalogue, with the name "T." Zucchero against it. It is usually hung in the Second Presence-chamber; but had been allowed to be removed for this occasion, by the kindness of the Chief Commissioner of Works, into a larger room, that it might be better seen by the company. On the upper part of the painting are the words "*In Pavidum Ferient.*")

In the *King's First Presence-chamber*, Mr. Scharf called attention to a great change in point of art, especially as shown in the works of Kneller, the Court artist of William III. and Queen Anne. The large picture (No. 25) was a curious allegorical representation of the Landing of William III. at Torbay, and being received by Britannia. The figure of Plenty, with the cornucopia, was a portrait of Mrs. Barry, the famous actress. This painting showed much ability and that Kneller had studied Guido in certain points. It was worthy of remark that Kneller was the only English artist who had attained the distinction of being created a baronet, and he was so proud of his distinction that he often signed his pictures "G. Kneller, eques et baronetus," and this circumstance, in the absence of other information, gives a clue to the period when his pictures were painted. The portrait of Queen Mary II. was by Wissing, a contemporary of Kneller, but who only lived two years in England, where he was brought to the notice of the Court by Dr. Monmouth.

Here was also a series of the Hampton Court beauties, painted by Kneller for the Queen of William III., who took it into her head to have portraits of all the most beautiful and clever women of her Court. This was put a stop to by the Countess of Dorset asking the queen "Is not your having all the *clever* ladies painted as good as calling the rest of them fools?" These were very statuesque and artificial, and very cold: but were the real Hampton Court beauties, and he should presently contrast them with another series painted by Sir Peter Lely, commonly known as the Hampton Court beauties, but which were really the Windsor beauties, and formerly were arranged in a room at Windsor Castle. A notable portrait of Peter the Great, by Kneller, with a background by Vandervelde, was also spoken of by the lecturer.

In the *Second Presence-chamber* attention was directed to a picture of great interest,—the reception of Sir H. Wotton, the English Ambassador, by the Doge of Venice, by Fialetti. This picture was made great use of by Mr. Charles Kean, at the time of his reproduction of "The Merchant of Venice," when he actually reproduced the scene depicted in this painting on the stage of the Princess's Theatre. The fine portrait, No. 68, had been engraved by Charles Knight as being that of Boccacio, but it was rightly described in the catalogue as being that of the unfortunate Alessandro de Medici. The portrait, with a piece of statuary (No. 72), described as being that of Baccio Bandinelli, the sculptor, by Correggio, was neither the one nor the other; it was the portrait of an Italian gentleman, painted by Lorenzo Lotto. When Dr. Waagen was in England, he remarked that it was absurd to consider this as a work of Correggio's, and some time after, in cleaning the picture, the name of Lorenzo Lotto was found on the back of it.

In the *King's Drawing-room* are two fine works of Tintoretto,—the Story of Esther, and Apollo and the Muses. The St. John Baptizing Christ in the River Jordan was alluded to as being one of the finest Francias in existence.

Francia was a goldsmith before he was a painter, and it might be seen that this picture was inscribed, according to his custom, "*Francia, aurifex.*" The lecturer spoke of the series of pictures in the apartment, — the beauties of Windsor, ladies of the Court of Charles II., painted by Sir Peter Lely, some of the choicest of which had been removed to the Kensington Museum of Portraits. His hearers would be struck with the contrast between these pictures and the series by Kneller,—their free, bold, spirited style: he spoke not of the subjects, but of the mode of painting.

Passing on to the *Queen's Drawing-room*, the lecturer noticed that it contained the works of Sir Benjamin West, the Court painter to George III., known as a painter of Scripture historical works, covering acres of canvas. He could not praise him highly, but he was a good honest portrait painter. Certain of the family groups here were extremely well painted. The swearing of young Hannibal (490), and the departure of Regulus for Carthage (501) were pointed out for attention. They were "academic" in their execution; but, remembering the style of art in vogue at the time they were painted, they have great merit. The picture of the Death of General Wolfe (497) marked a great change in art. When Barry was employed to paint a picture commemorating this event, he thought it necessary, in accordance with the prevailing ideas of art, to put the figures in Roman costume. West, on the contrary, said that these events ought to be painted, if at all, as they occurred, and, to the horror and consternation of his brother artists, produced this fine picture, which was now accepted as one of the most important of the period. He need not tell the company, as antiquaries, that at another time it was the custom to represent the figures in the costume of the period; and at the back of one of the stoves in this palace was a bas-relief of the Sacrifice of Isaac, in which the figures were clothed in the costume of the Dutch soldiers of William III., at the time of this palace being built.

Two or three of the pictures in the *Queen's audience-chamber*, by Holbein, are of very great and sterling interest, dating from Henry VIII., when the events they represent actually occurred. The Embarkation of Henry from Dover (515) for Calais, showing the *Great Harry* with its golden sails; the Field of the Cloth of Gold (520),—the meeting of Francis I. and Henry VIII. in 1520. These curious old pictures (attributed to Holbein) were a combination of descriptive historical painting with the common map principle. The Field of the Cloth of Gold was especially full of interest. Flying in the air was the "salamander," which was borne by Francis as his especial mark. Henry VIII. was depicted with Wolsey by his side. At the time of the League between England and France and the Emperor, Wolsey had made a great entertainment for the French ambassadors at Hampton Court, which was described by his gentleman usher, Mr. Cavendish, whose interesting account could be found in the catalogue, and this description had been embodied by Mr. Charles Kean in his revival of Shakspeare's play of "Henry VIII." In the picture the Marquis of Dorset was holding the sword of state, with the Duke of Norfolk preceding him; the procession was winding through the town of Ardres to the tournament field. In another part of the picture the two kings were seen embracing: on the old Egyptian principle they were represented as three times as high as any other people in the picture, as they were so very great personages. In another part were shown the kitchen and tents, and the tent-house run up in a single night; there were also the conduits running wine, and the people about them, some very jolly and some very ill. This picture was formerly at Windsor Castle; a description of it had been published by the Society of Antiquaries in *Archæologia*. If they looked sideways at the head of Henry VIII. they would see a black circle round it. Charles was going to sell the picture to the French ambassador, who, on looking at it, found that the head of the king was wanting, and refused to conclude the bargain. Some time afterwards, when King Charles had had time to become ashamed of what he had intended to do, the Earl of Pembroke who had purposely cut the head from the picture to prevent its sale, drew it from his pocket and restored it to the king, and it was skilfully reinserted in its proper place.

In the *Public Dining-room*, Ciro Ferri's picture (933), Bacchus and his Revellers meeting Ariadne, was remarked on as full of interest to the antiquary. Also Breughel's Massacre of the Innocents (904), in which there was the singular feature of its being represented as taking place in a snow storm. This accords with Milton's description in his "Hymn on the Nativity,"—

> "It was the winter wild,
> While the heaven-born child
> All meanly wrapt, in the rude manger lies."

Andrea Mantegna's masterpiece, The Triumphs of Julius Cæsar, was mentioned for admiration. This is in nine compartments, and put together in an unbroken line would be of the length of 81 ft. It was painted as a frieze for one end of the dining-hall of the Marquis Ludovico Gonzaga's palace of San Sebastiano at Mantua. Of the one in which the elephants were—which were African, as shown by their large ears—a copy was made by Rubens, which was in the possession of the poet Rogers. In the Portrait Gallery, where Mr. Scharf paused in conclusion, there was an extremely valuable collection of portraits, some of them of the oldest times. Two curious portraits of babies, absurdly described in the catalogue as those of Queen Elizabeth (281) and Queen Mary (282) when children, were neither more nor less than two children of the House of Austria. Elizabeth came to the throne in 1558, and these pictures are dated 1574. A curious medallion of Henry VIII. (348), by Torrigiano, in high relief, and originally richly painted and gilded, had been moved, by permission of the First Commissioner, to this room, that it might be better seen by the archæological visitors. Similarly, a portrait of Mary Queen of Scots (667), at the age of thirty-eight, was temporarily placed in this gallery, on an easel. This Mr. Scharf described as perhaps the most valuable and most satisfactory portrait of Queen Mary extant. It was a posthumous picture, painted by Mytens for James I., from a genuine old picture done by P. Oudry from the life, at Sheffield, in 1578, which appears in Van der Doort's catalogue of Charles I.'s pictures: it is still at Hardwick Hall. Another rare work was that of the King's Carver, by Nicholas of Modena.

ARCHITECTURE AND LANDSCAPE GARDENING.*

A JOURNAL like ours, approaching towards a period of a quarter of a century's not unsuccessful existence, must sometimes meet with what it deems a development, at other hands, from its statements of principle, and may be excused for what is indeed a necessity of the position, and a condition of its ability to give support, namely the referring to what it has already said, and the reiteration thereof. Such observations were suggested as necessary after the first glance at a volume now before us, a very clever, literary, and artistic, whilst unpretentious, performance on the theme — Architecture and Landscape Gardening. The work treats directly of "the architectural embellishment of gardens;" but it has a suggestiveness, if not a real utility, extending—as does the subject essentially—to and into the entire art and practical exemplification of architecture.

The alliance of architectural forms with the earthwork, and the trees, shrubs, flowers, and water, which are the chief materials in the hands of the "landscape gardener," as he is generally regarded, is not more important for *his* art, than is the presence of Nature to the highest effect of the art which is of the profession of "architects." Indeed in no treatise, even including that which is now on our table, have we met with the precise recognition, for which we contend, of the essentiality of contributions from Nature to *architectural* effect of whatever kind, and wherever it may be. Some treatment of natural foreground and base, with accessories that are architectural in detail, may indeed be deemed not unnecessary, by the qualified designer of a house in the country: though, occasionally, we have seen fit to dwell upon an importance of the elements of effect referred to, as inadequately recognized. Not every architect is a Sir Charles Barry, perfect in the details of balustrades and steps, and aware of what may be done by terraces and sunk areas; whilst the necessity for space and foreground, to the buildings of towns, and for natural forms and effects, no less than those which are architecturally accessorial and tributary, requires still to be urged upon those who have to deal with sites provided, or who have to purchase the ground wherewith, along with the structure, the architect is to produce the effect expected of his art. The truth is that Nature is important for architecture, not merely as the magazine out of which principles of art can be directly taken, and forms adapted or conventionalized. The lesson from the spreading roots of the tree, so often adverted to by us as to be recollected in the art-treatment of buildings even in the street where ground is valuable to the inch, represents not the only sort of contribution that Nature should be allowed to make to effect produced through the structural vehicle. Architectural effect, to be realized, requires the operation of Nature in the production of shadows, and variations of shade and tint on surfaces, and in the infinite combinations of light and perspective; and even where there are no trees, grass, or flowers, it feels the aid from contrast with them, afforded by the recollection, and from the actual presence of the sky and clouds in the scene. Architecture, in towns, is not absolutely dependent upon the presence of *trees* and *shrubs* in the foreground; but its effect must, indeed, other things being equal, be directly proportionate, within certain limits, to the area of space about the building, or rather to the sky-background, and to the non-obscuration of the light which produces the shades and shadows, and to the clearness of the atmosphere through which the work is seen. In short, the chief reason why the appreciation of architectural *art*,—that quality which is irrespective of such attribute as quantity of work, or of such other as the antiquity or curiosity,—is so trifling, in this country, is the existence of the smoke-nuisance. The climate is more abused than it deserves to be: in gardening we are so far not behind the rest of Europe, that the *jardin anglais* has been adopted from us; and where we have not trees and flowers in our towns, the reason is that we prevent their growth. The state of the case is, that not only does architecture, as regards the exteriors of buildings, require everywhere, in town or country, clear atmosphere, and some amount of sky-background, but that it may be much served by grass-esplanade, and by a skilful introduction or disposition of shrubs and flowers, where space permits. Note the value, to the architecture that is, of the few well-arranged flowers on a window-sill of an ordinary London house. But, on the larger scale, note the value of grass-foreground, soot-blackened though it be, as in the sunk area near the clock-tower of the Houses of Parliament, between the end of the building and the approach of the bridge, or the value to the neighbouring buildings of the foliaged patch of ground known as St. Margaret's-square; or recollect the added effect to any cathedral where the close has some trees within it,—not sufficient to conceal the building,—and where the ground is kept in order. The illustration, however, which is next to hand, of our precise meaning, is the garden of Bridgewater House, since it exhibits at once the treatment of foreground to a building, and in itself the combination of architectural members with such gardening as there may be in limited space in London, and under the disadvantages of the destructive soot. In Paris, beautiful effects of combined architecture and gardening, in public places, or seen through a *porte-cochère*, are not uncommon. In London, space is often thrown away, being merely railed in to preserve the property on the ground. The large flagged spaces between the two lines of railing that there are to the front of the National Gallery, and the similar spaces in Great Russell-street, at the British Museum, may be mentioned. Laid out as gardens, or even as well-kept grass-plots, the spaces at the National Gallery would impart value to the building, whatever it may be now as art-work.

We shall scarcely state too strongly the case, in saying, that the competent architect will be a man of much ability in landscape-gardening, and that the landscape-gardener who is capable of producing the finest effects by his art will be one possessed of an ability in architectural detail, such as there are many architects who do not possess. The forms dealt with are for situations where they may be seen from a distance, or when closely approached; therefore, whilst the outlines should be telling, the mouldings and ornamentation should not be calculated to disappoint

* "Garden Architecture and Landscape Gardening: illustrating the Architectural Embellishment of Gardens, with remarks on Landscape Gardening in its relation to Architecture. By John Arthur Hughes. London: Longmans, Green, & Co. 1866." 8vo., pp. xiii: & 179; 189 cuts.

expectation. Still, if the earthworks, or walks and grass, be well managed, on plan, and by the introduction of slight differences of level of grass or beds,—the spaces themselves being each edged or bordered architecturally,—even the productions of the New-road may be turned to good use.

It is to supply the want of a work treating especially of the connexion between the architectural embellishment of gardens, and landscape-gardening proper, that Mr. Hughes,—an architect by early training, and by his qualifications for use of the pencil, and a landscape gardener by later practice,—offers to us his volume. The "absolute point of contact" between the two arts, he says, is "where the regular or geometrical arrangement of the garden has to be designed so as to accord with the prominent architectural features of the house, the centres of walks and objects being determined with reference to the principal doors and windows, more particularly when terraces, balustrades, and steps are used." To illustrate his meaning, he quotes passages in the letters of Vanbrugh to the Earl of Manchester, as given in the volumes edited by the Duke of Manchester, from the Kimbolton Papers,—"Court and Society from Elizabeth to Anne." As may be supposed, the book does not treat of conservatories, any more than of farm-buildings; but bridges, lakes, and some other accessories of parks are comprised in it. The numerous illustrations are nearly all of them original designs. Many of them are very effective, and all are well drawn.

The author first sets forth leading principles of design, and then tenders suggestions concerning "preliminary steps" on visiting an estate professionally; and he next considers the divisions of the subject, "Entrance Road," "Site of House," "Style of the House, and Appropriate Garden," "Styles of Gardens," and "Terraces." He explains that the proper method of forming a terrace is either with a grass-slope, or a retaining-wall, to the level top, and never with both combined, and that a perpendicular descent is necessary where a balustrade is used; whilst at the same time he shows that the balustrade cannot be quite properly placed on a ha-ha. In the same division of the work, the author treats of the separation necessary between the "*kept* ground," or that which is immediately connected with the house and the park, and of the character that should obtain in each. Steps, balustrades, copings, and basemouldings, are then considered; and some common mistakes in their design, and in the jointing of the stone composing them, are exhibited. In a following division of the contents, "the Garden" is considered under sections "Flower Beds," "Garden Decoration," "Vases," "Architectural Centres and Kerbs," "Wall Fountain," "Central or Terminal Object," "Garden Buildings," and "Winter Garden;" and the volume concludes with the divisions on "Bridges" and "Lakes." Throughout the volume, the architect's training, and habitual recognition of use and structural sufficiency, crop out, so as to give the work the special value which it aims at possessing; whilst all that is said of terraces and steps might be usefully studied by architects, even without reference to landscape-gardening. A somewhat different recognition of imitation, or a higher view of *art* than appears when styles are mentioned, indeed, might have enhanced the value of the book in our eyes; but it may be conceded that the architect-gardener will often have to plan a garden to accord with the style of an old house, as well as that any number of small buildings in parks, and entirely unconnected with one another, and with the house, may be built as so many imitations of Greek temples, Swiss cottages, and so on, without the anachronism that there is when a building for occupation in this day is made so exactly like one of some long-past period, as to have the chance of being mistaken for a work of such period.

The author states "the principles governing all design" as "UNITY, that is to say, *breadth*," and "INTRICACY, that is to say, *variety*, including *contrast*,"—the former governing the whole scope of the design, the latter supplying the details,—and the influence of the one being seen in works distinguished by their GRANDEUR and REPOSE, and the charm of the latter in the combinations producing PICTURESQUENESS and CHEERFULNESS. He here omits the quality that is so important in the particular art, architecture, with which he is concerned, namely, the expression decoratively of Utility; which utility includes structural sufficiency as well as convenience. But his form of statement may be sufficient for the purpose, as in the volume. The author rightly remarks that, as between *breadth* and *variety*, there must be *a proportion, and yet a preponderance*,—"enough *breadth* to secure repose, enough *variety* to ensure interest without creating *confusion*." He says, "In short, breadth must be so produced as to allow the aid of variety, while variety itself to be pleasing should be treated in a broad manner." He adduces Greenwich Hospital, *viewed from a central station*, either on the river or in the park, as an illustration of the destruction of breadth by the want of a central dominant object. For the production of breadth, there should be an uneven number of objects: a view should not be cut into halves, as the avenue of the Tuileries gardens and the Champs Elysées is, by the obelisk,—an object that is not of sufficient importance to fill the vista. Obelisks originally stood in pairs, as accessories to a centre. He illustrates the expression of unity with the help of diagrams. Thus, one illustration shows, in perspective, the effect of a long grass-plot, with walks and trees at the sides, and an object in the centre in the distance. As he says,—"We should either look at one object of sufficient importance, or *between* two at a third more distant." Applying the principles to balustrades, he shows the ill effect of placing a pier in the centre, instead of a void, especially where a walk would lead up to the centre; but he also shows how it might be quite allowable to have an object of superior importance in the place.

Mr. Hughes's hints on matters which may be attended to on the preliminary survey, are some of them amusing. He says,—

". . . happy the employer, and fortunate the professor, when the former goes abroad for a time till his house or grounds are completed. It takes much technical knowledge, and certainly as much philosophy, to view with satisfaction the progress of architectural or landscape-gardening works. It is difficult to imagine a saloon—destined to be finished in gold and white, with a parqueted floor, and a thousand pounds worth of plaster-decoration in the ceiling—in a rough carcass, with a scratch-coat of plaster of a bad brown. When the employer is constantly seeing these things he is apt to be simply disgusted with the mess, and cannot see anything satisfactory which is to emerge from this chaos. If anything strikes his eye, so that he recognises it, he is almost sure to say, and indeed feel, most truly, that it is not what he intended, and in its present aspect no doubt it is not; but he sees the present appearance, and cannot imagine the future result."

He says you may carry your point and lose a patroness; for, that it is "astonishing how fond ladies are of dabbling in landscape-gardening,"—whilst often it is with considerable success,—so that it is of importance to "enlist them on the side of the professor."

"They are, as a rule, possessed of taste in a more marked degree than are men, and it is only when they become *entêtées* of a particular object or effect that their usual powers of discrimination fail them, and they cease to be valuable allies of the landscape gardener. Yield in trifles, but in important cases present a firm but respectful opposition at the proper time, and at no other."

In treating of the Entrance Road, the author first speaks of the wing-walls to the gates. He prefers, to the concave form, a convex-sweep on plan. The latter form corresponds to the track taken by carriages; and the quantity of gravel requiring weeding is lessened. As to the approach-road, this is required to be easy and reasonably direct. The curves should be continuous, so as to be easily kept by horses; and the house should be screened. Many of the illustrations in the volume are well introduced for the purpose of explaining what are defects. Thus there is a plan showing how, in one badly-devised approach, bays would grow up in weeds, and projections would be shaved off. The author prefers that roads should be narrow rather than wide.

"Everything depends on the size of the place; but as no entrance road need be wider than enough to let two carriages pass, 14 ft. is sufficient for the largest place; and as the width of the road pre-eminently gives scale, it should never be made, in a small place, more than 9 ft. or at most 10 ft., *enough for one carriage to drive handsomely*. It is thus kept in order by the traffic, and the weeds kept down, which will not be the case where the road is double the width of the travel. If two carriages meet, it is easy enough to take the grass with one wheel for a few yards, and, even if the turf should be injured, it is cheaper to repair it now and then than to keep down the weeds in a 14-ft. road permanently. The refuse lime from gas-works is excellent for killing weeds, but it must be used with care, as it will kill anything it comes near, and it spreads its influence laterally farther than is generally supposed."

He would not take the road through trees that would be so thick as to make the road dark. Should the principal drive within the grounds be long, there should be a private road for use by the proprietor without his meeting visitors.

As to the house itself and the site, the author urges that if the ground slope from back to front, it will be advisable to contrast the slope by raising the building on the down-hill side. This will be better for prospect from the rooms of the highest part of the building; whilst it will also prevent an appearance of the house slipping down the slope.

On the matter of style, the author remarks that,—"Pure Gothic domestic architecture does not lend itself to garden-decoration as readily as the classical styles;" but he mentions what features might be introduced,—as slopes in place of balustrades, crenelated copings, yew and box hedges, a well-shaven bowling-green, and the ivy-bed, ivy-mound, or ivied wall; raised beds, troughs and kerbed mounds, and steps, but "no vases." He gives some designs for Gothic vases, however, in the work; but they are the least successful of his designs. When treating of the Anglo-Italian style, he has a word in favour of stucco. But though he is quite right as to the value of stucco in keeping out moisture, and even as to its durability, compared with stone, he overlooks, like so many others, the fact that the blackness of Portland cement after a couple of years' exposure to London soot, is even worse than the appearance of stone.

The styles of gardening are divided by our author into "the *ancient* or *geometric*" and "the *modern* or *natural*,"—the former including the Italian, Dutch, and French styles, and the latter "the rural," "gardenesque," and "picturesque."

"The *Italian* style is distinguished by stone terraces, parapets, or balustrades, steps, basins, terrace gardens, architectural flower gardens, choice trees and shrubs, statues, vases, fountains, and sculptured ornaments; in short, much architecture.

The *Italian* style is adapted to classical residences and grounds in the immediate vicinity. It is the handsomest style we have.

The *Dutch* style, once prevalent throughout nearly all the most enlightened portions of Europe, consists, when on a large scale, of straight avenues radiating from a common centre, geometric groves, large basins of water, canals surrounding different compartments, broad level lawns, &c. The gardens are distinguished by grass terraces, turf mounds, fountains, and basins. There are, besides, vegetable sculptures, for which see the 'Spectator,' such as trees and shrubs cut into various shapes; arcades, pyramids, arbours, parterres in box, and very ornamental they can be made—witness the Shrewsbury S at Alton Towers—bulbous flowers in geometrical forms, &c.

It is not very difficult. Use plenty of gravel, much box, yew, and juniper, particularly juniper; see that the lines be straight, the yew, box, and juniper trimmed, the water as ugly as possible; plant a few tulips and bulbs, and there is no great danger of going far wrong.

The *French* style of landscape gardening is a modification of the Dutch with an addition of the Italian. It is less severe than the latter, and admits of many of the fancies of the former with an addition of grottos, *allées vertes*, &c. As compared with the Dutch, there is an entire absence of canals, and a greater breadth of lawns; compared with the Italian, it is inferior in its terraces and fountains. There are many places where a French garden would suit the architecture or peculiar locality, or aid in keeping up the historical character of a residence in a manner that no other style would accomplish: for instance, the gardens of a house of the later Stuart period, when the influence of France was dominant. It is well fitted for the introduction of pavilions, summer houses, and irregular architecture generally; besides, less breadth is required in this style, and the hedges of juniper, yew, privet, box, arbor vitæ, or whatever else, may be, and and indeed frequently are, allowed to grow to such a height as to form a screen completely separating one part of the garden from the rest. Of course, in passing into, as it were, another region, great changes in the way of episode may be made.

In cases where great severity seems desirable the unities are better preserved by adopting the Italian style, which also admits of its episodes.

The writer imagines that in the Italian style that end was gained by masonry, walls, balustrade, terraces, &c., which in the French is sought by evergreen hedges, slopes, and formal planting."

In the *Natural* or *irregular* style, there are flowing lines imitating nature, indigenous trees and flowers, but showing the hand of man in detailed arrangement. In the *Gardenesque* style, the trees and shrubs are so placed that each is seen distinctly, and does not touch another tree or shrub, though there may be groups. Rounded undulations in the grounds, and freedom from irregularity,—grace rather than grandeur,—are the characteristics. The *Picturesque* style is characterized by broken and rugged features and bold outlines, irregularity in plantations of the trees and shrubs, cascades, rapid streams, and rocks. Natural roughness of ground is indispensable.

Mr. Hughes says as to steps,—"The treatment of steps shows, as much as anything, the skill of the designer. That it is very difficult, is manifest from the very small number of satisfactory examples." The best steps, with balustrades, that he remembers are in the garden-front of Bridgewater House. A common mistake is to allow the "rail," or cornice of balustrade, to run raking into the die of the pedestal. Sometimes the steps, returned, are divided into flights of a very unequal number of steps, and a space is left between the terrace and the ramping-balustrade parallel with it, that is too narrow for anything to grow there, even grass. Numerous

illustrations are given of modes of stopping the ends of steps. Some of them are in order to show defects. Of the more pleasing subjects in the volume, illustrating the arrangement of steps with terraces, and garden-beds, we are able to reproduce several.* In the smallest of the subjects where the terrace is balustraded, the treatment resembles nearly that which Sir Charles Barry adopted in the terrace of Bridgewater House. In two of the subjects, there is a raised bed in the centre between the flights. A cascade might be substituted for the bed.

Mr. Hughes well says,—

"If architects would give a little more study to garden architecture, there is no reason why there should continue to be such a marked difference between the average architecture of gentlemen's houses and the adornment of their gardens. We should not then see a handsome house disfigured by a mean thin balustrade in the wrong place, terraces on the wrong level, flights of steps and paths leading from no whither to no whither; little copies of the Warwick vase set on the grass, or in the middle of a large bed, nearly hidden by the first plant that reaches the height of 18 in.; and, above all, we should not see cockneyism rampant in diminutive waterworks and preposterous rockeries. Not only should we *not* see these things, but we *should* see appropriateness, harmony, repose: a work entire in its conception and complete in its finish."

We have said enough to show we are much of the same opinion as Mr. Hughes, that the subject requires the attention of architects. Some years ago we endeavoured to point out what great improvements might be effected in the appearance of the parks, by the introduction of features such as form the chief subjects of illustration in the volume before us. Since that time Mr. Cowper has been at work, but either without call upon architecture to enhance the effect of the flower-beds which he placed in the principal parks, or with results in the use made of the art, that are not agreeable to architects. Generally, in the profession, and amongst those who call forth the labours of architects, there is room for appreciation of the value of the architectural embellishment of gardens, and for information as to the means by which the effects may be produced; and Mr. Hughes's book has certainly addressed itself well to meeting the deficiency in either quarter.

THE EPIDEMIC.

The weather during last week was fortunately cool; indeed, the mean temperature of the week was 2·5° Fahrenheit below the average of the same week in fifty years, and, therefore, unfavourable to the development of cholera; and yet the numbers of fatal cases returned in London and Liverpool show a terrible increase upon those of the previous weeks. The total deaths registered last week in London (ending Saturday, 28th ult.) were 2,600, showing an increase of 802 upon those of the previous week. These included 904 from cholera, and 349 from diarrhœa, leaving the deaths from other causes at about the average number for the time of year. The disease was last week much more fatal than it was in the corresponding weeks of either of the last two cholera years, 1849 or 1854; and in the past three weeks, during which it has been epidemic, has rapidly risen from 32 to 346, and last week to 904. It is still almost confined to the east districts of London,—comprising Bethnal-green, Whitechapel, St. George-in-the-East, Stepney, Mile-end Old-town, and Poplar, including Bow. These six districts include about a seventh of the population of London; and 818 of the 904 deaths from cholera were there registered last week; also 123 of the 349 from diarrhœa. Of the 86 remaining cases of cholera, 39 occurred in the south districts, 10 in the north, 15 in the city, and 12 in the west districts. The returns show symptoms of an outbreak in Camberwell, Rotherhithe, and Greenwich. The weekly return of the Registrar-General points out that nearly all those districts in the east of London, which have suffered most severely from cholera, drink the water of the East London Water Company, drawing its supply from the river Lea, which has proved a nuisance to some of the neighbourhoods through which it passes by its fetid condition. The important bearing of the quality of the water supply upon the fatality of cholera in 1849, was then so fully proved, and led to so many important changes in the sources of supply of many of our water companies, that we shall watch with interest for any further information upon the subject of the water supply of the now suffering east districts of London. It is true that in the periodical analyses of the waters of the different London companies, the East London water has stood the chemical tests very fairly; but the cholera poison may well be too insidious to be affected by the most complete filtering, or to be detected by the chemist. Above half of the 904 deaths from cholera in London last week (455) occurred among adults in the prime of life; 100 among persons aged sixty years and upwards; and the remainder among infants and young persons under the age of twenty. It will be seen that the deaths from cholera rather exceeded a third of the deaths from all causes.

In Liverpool, of the 440 deaths returned last week, 87 were the result of cholera,—being not quite a fifth of the total. In the three past weeks the deaths from this disease have been 19, 45, and 87. Considering the high rate of mortality which has prevailed for some time in Liverpool, the fatality of cholera is less than might have been expected, and leads one to hope that the type of the disease is not so bad in that town as in the east of London. In Southampton the disease somewhat declined last week, 24 of the 45 deaths being referred to it, against 29 in the previous week. Fortunately at present cholera has not appeared in an epidemic form in any other of our large towns; eight cases were returned in Manchester and Salford last week, and one or two in each of the other towns furnishing weekly returns (except in Birmingham, which is enjoying a remarkably low death-rate); but most of these are only cases of English cholera, or choleraic diarrhœa. We hear of cholera being fatal to a greater or less extent in many parts of England; but, in the absence of official information, the reports are necessarily vague, and the various accounts often contradictory.

Our object, of course, in making these announcements is to induce the adoption, by local boards and others, of proper precautionary measures. We are glad to hear that the committee appointed by the Vestry of Marylebone to carry out the orders of council in reference to the cholera have, as a preliminary, directed their chief surveyor to remove the handles from all public pumps in the parish. They have also ordered him to engage an extra gang of flushers to flush and deoderize the sewers and gullies, and all the most densely populated streets are to be watered with water containing carbolic acid, in the proportion of one gallon of acid to one hundred gallons of water.

THE SOUTHERN EMBANKMENT OF THE THAMES.

On Saturday last, Mr. William Tite, M.P., had the honour of laying the first stone of the Southern or Lambeth Embankment, just opposite the Houses of Parliament. He had been concerned, as he told the large assemblage present, often enough in such ceremonies, but had never before laid a first stone himself. We need scarcely say he ably acquitted himself. In the course of his address, Mr. Tite spoke of the site as an extent of marsh granted by Saxon and Norman kings to the see of Rochester, and afterwards granted, in 1180, to the see of Canterbury, which has possessed it to the present time. The place was, and is still, called Stangate, a name not generally intelligible at the present day. It means, however, a stone-way; and no doubt this stone way or road was made along this side of the river, on its southern shore, to communicate with the palace of the Archbishop of Canterbury, built in the beginning of the twelfth century. It has remained to this day a not very creditable adornment to the waterside. The work will extend to a great length, and will redeem six acres from the river at this spot; but higher up it will regulate what the French call the *régime* of the river. We give up to the river itself two acres of land which now extend in a very undesirable line for its navigation; therefore, in every sense of the word, this is a national work, and in carrying it out we have in view national objects. We are happy to find that we are in the hands of an energetic and able contractor, Mr. Webster. His contract will expire in two years from this time; and, judging from what has already been done, I feel certain that we shall raise the top stone with shouting within that time. So much for the work itself. The amount of the contract is between 300,000*l.* and 400,000*l.* There will be a wall upon the line on which I am now standing, which will be about 4 ft. above the level of high water. Above that there will be a terrace executed like the one on the opposite side of the river, and which will be entered by an approach by a flight of stairs from the bridge 20 ft. wide, and of the easiest gradients. That will be given up entirely to the public, differing in this respect from the terrace which has been reserved for the use of the Houses of Parliament on the other side of the river. Immediately above this will come a second terrace, which will be 8 or 9 ft. wide, and form the platform of the great hospital.

Mr. Tite then spoke at some length of the intended St. Thomas's hospital. The contract, he said, is taken for the foundation of the hospital, without our waiting for the embankment to be finished. Seeing that the sick poor are not deriving all those advantages which they deserve, and should have, from the hospital of St. Thomas, we have commenced the work, and by the kind co-operation of the Metropolitan Board of Works, and their engineer, have been enabled to make arrangements with the Board of Almoners by which the two works—the embankment and the hospital—will go on simultaneously. In two years you will see the embankment finished, and in three, I believe, you will see the hospital brought to a completion.

Lord John Manners, called on to speak, quoted happily Pope's not altogether unknown lines:—

> "Bid the broad arch the dangerous flood contain,
> The mole projecting break the roaring main,
> Back to his bounds the subject sea command,
> And roll obedient rivers through the land;
> These honours Peace to happy Britain brings,
> These are imperial acts, and worthy kings."

Without ascribing to Sir J. Thwaites and his forty-five colleagues any imperial or regal attributes, he thought he might fairly congratulate them on that occasion in inaugurating, and in a very short time completing, one of those great imperial works described by our immortal English poet. At his call some hearty cheers were given for the success of the great work; and, after the Lord Mayor had said a few words, other cheers were raised for Mr. Tite, Mr. Bazalgette, and Mr. Webster, the contractor for the works.

ARCHÆOLOGY IN BELGIUM.

The International Archæological Congress, of which we have already spoken, will be opened in Antwerp, on the 12th inst., under the presidency of the Minister of the Interior. The King of the Belgians will be present at one of the meetings. Several English archæologists have accepted invitations to attend.

The Belgian authorities exhibit a praiseworthy regard for their public works of art and monuments. A central commission is entrusted with their keeping, and also with the consideration of all questions, theoretical as well as practical, touching their preservation. The report of the proceedings of this commission, embracing rather more than twelve months' labour, has recently appeared, and deserves attention. We get the following notice of it from the *Society of Arts' Journal*.

It appears that the commission has more than 1,200 subjects before them; that the project for the restoration of public works presented to them included nearly 200; and that the works undertaken in consequence absorbed nearly 120,000*l.* In addition to this, the commission had to examine more than 200 other projects for new buildings, and a still larger sum was expended on that account. The funds to meet these expenses were contributed partly by the Government and partly by local authorities.

The report refers to the efforts made by the commission to clear away all buildings abutting on churches, as a precautionary measure, as well as in the interest of art. It was found on inspection that the inhabitants were in the habit of cutting away buttresses, undermining walls, and injuring foundations by the sinking of wells.

Under the head of the decoration of religious edifices, the report mentions the discovery in many churches of old mural paintings, covered up for long years beneath coats of paint or whitewash. Extensive decorations are proposed to be executed in old buildings; and amongst others, the Church of St. Jacques-sur-Caudenberg is to be commenced next year. Amongst other useful services done or proposed to be done, are the creation of a special atelier, under the auspices of the Government, for the restora-

* See p. 578.

tion of ancient paintings, the formation of a complete catalogue of the works of art existing in public buildings, and the repair of the old gates of the town of Antwerp.

An interesting portion of the report is that which records the discussion by the members of the commission of several important questions submitted to it by provincial committees in communication with the central body. The Committee of Brabant proposed, first, that every artist submitting a plan for the restoration of a public monument, should be required at the same time to furnish a memoir in support of his proposal; and, secondly, that in the case of new buildings the commission should confine itself solely to the consideration of the estimates, and the solidity of the construction, leaving the entire responsibility, in an artistic point of view, with the artist himself. It is not surprising that the novelty of the propositions should have met with considerable opposition, and that the opinion of the majority was averse to both, it being argued against the latter that the commission, in renouncing all control over the æsthetic value of the plan submitted to it, would be giving up its most important prerogative. It should be mentioned that the commission is only empowered to discuss the subjects submitted to it, the decision being left to the Government.

Another proposition was that a series of general instructions should be drawn up on the restoration and preservation of public monuments, and transmitted to all the administrations charged with such duties. This subject was discussed at length. One member considered that the reproduction of the very complete instructions published in France by the Committee of Monuments would be all sufficient. In opposition to this it was argued that Belgium was in a peculiar archæological position; that she was, as it were, at the confluence of various styles, and the restoration of many of her monuments would present various points which had not been provided for in the French instructions; that many excellent architects were not archæologists; and it would be useful therefore to establish certain general rules for the restoration of monuments in different styles: the architect who planned a new building should be left absolutely free, but it was not so when the restoration of an ancient monument was in question; in such a case his duty was to conform rigorously to the idea of the author of the work. The opponents of the proposition argued that architects were already far too much trammelled, and that, with the exception of the material parts of the construction, no general rules could be laid down. The only useful instructions would be such as were given to the architect in each individual case. On the other hand it was urged that the intention of the proposal was not to interfere with the independence of architects. The instructions would not be for them alone but for local administrations, for ecclesiastical authorities, and for all those who are occupied, directly or indirectly, with the preservation and restoration of public monuments.

A proposal was made for the establishment of a central school of architecture at Brussels, but it was opposed upon the ground that such a measure would tend to diminish the attention paid to architecture in the academies, and to centralize the study. Other members of the commission, on the contrary, agreed with what had recently been done in France on this head, and supported the proposition as tending to strengthen architectural teaching, which in the academies was very incomplete.

Several questions set down for discussion on the programme of the commission itself were of general interest. The first was:—Whether, in order to preserve archæological traditions in all their purity, a distinction should be drawn in certain cases between ancient monuments and additions which had been made to them at various times. It was stated, in a memorandum attached to the question, that the new portions of buildings erected in past ages, were distinguished from the older parts, in consequence of the general practice of completing an edifice in the style in use at the time of such additions, without consideration of the original style of the building. This statement was contested, and instances were quoted in which the new portions of ancient buildings had been built in the style of the original epoch. The result of the discussion was to draw forth an admission that the statement appended to the question had been couched in terms too absolute, and that certainly if, in past times, architects entrusted with the completion or extension of buildings conformed to the original style, such practice was quite exceptional; in far the greater number of cases, the new constructor took no heed of the older parts.

Another question set down for consideration was—In what case may an artist, in decorating a mediæval edifice, either by painting or sculpture, give to his figures costumes differing from those of the epoch to which the edifice belonged? It was asserted, on the one hand, that the figures might be dressed in the costumes which they really wore; and, on the other, that the costumes should be those of the time of the erection of the edifice, no matter when the persons represented may have lived. The commission, however, adopted the following view of the case:—That there were distinctions to be made as to the course to be taken, which could not be stated in absolute terms; when the work to be done was the addition of new to ancient statues, in order to complete the sculptural decoration of an edifice, it was the duty of the artist to reproduce even the anachronisms committed by the ancient artists; but that in the case of edifices having no sculpture, or of new buildings, the costumes adopted should be those of the time in which the personages lived.

The fourth question set down for consideration had reference to the duty of the Government as regards the preservation of private houses presenting a public interest, either in an artistic or historical point of view; but as the Belgian Government had already taken the initiative in this matter, the subject was allowed to drop.

The remaining question was whether an architect entrusted with the restoration of a building should be specially remunerated for drawings of the building in its former condition, in order that the State might become possessed of such drawings, which might be engraved and published on a uniform plan. This interesting subject was, however, adjourned to next year.

The discussion of subjects touching so intimately the preservation of the edifices and works of art of past ages shows how lively is the archæological sentiment in Belgium.

OPENING OF THE YORKSHIRE FINE ART AND INDUSTRIAL EXHIBITION.

The building, commenced some few months ago in Bootham Field, for the Yorkshire Fine Art and Industrial Exhibition, was so far completed on Tuesday, in last week, as to admit of the performance of the opening ceremony, which passed off with an *éclat* which could scarcely have been anticipated by its most ardent and enthusiastic supporters. Amongst those present were the Archbishop of York, Lords Neville, Herries, Teignmouth, Muncaster, Feversham, Houghton, and other gentlemen, with many ladies.

The Exhibition building occupies about an acre and a half of ground, standing back from the palisades in front of Bootham, with a frontage of 300 ft. or thereabouts, in what is known as Bootham Field. Its style approaches the character of the Swiss chalet. The principal internal feature of the building is a central hall about 200 ft. long by 80 ft. wide, divided into a nave 50 ft. wide, and a couple of aisles 15 ft. in width. Above these aisles an overhanging gallery runs round the hall, the flooring of which, by corbelling over the columns which support the roof, is 18 ft. in width. The nave of the central hall is divided into thirteen bays by pillars or columns which run up in front of the galleries on the side, and are surrounded by light longitudinal trusses thrown into compartments, with uprights, and timbers framed in the form of St. Andrew's crosses. By these means a foundation is secured for the curved rib of the nave and the general roof timbers. Light is given by skylights inserted into the roof of the nave, and also by windows in each end of the building. The glass in the former is frosted to subdue the glare, and several of the end windows are filled in by coloured and engraved glass. Two wings of large proportions extend transversely from the sides of the entrance hall, each of these being divided into two divisions, one being 40 ft. by 30 ft., and the other 60 ft. by 30 ft. Both these are used as picture galleries. An annexe, occupying a space of 12,000 ft. on one side of the hall is devoted to machinery. A number of smaller rooms are attached to the rear of the building, amongst which are separate gentlemen and ladies' retiring rooms, and all the necessary conveniences for such an edifice. Amongst the rest is also a lecture theatre, 30 ft. by 25 ft.; a committee room, 25 ft. by 15 ft.; first and second class refreshment rooms, one 25 ft. square, and the other 40 ft. by 25 ft.; and a smoke room detached from the building, 44 ft. by 22 ft. Beyond this the committee have secured the use of a large portion of the field extending towards the asylum for a promenade, with bands of music. Provision for the ventilation of the building has been made throughout, both at the level of the floor and at the eaves, by means of perforated boarding; and the upright parts of the skylights in the picture galleries are made to open. In the front of the building a carriage drive constructed to run from one of the entrance gates of the field to the other, affords accomodation for vehicles reaching and leaving the building: and in the front there is an arrangement of flower beds, in the centre of which is a terra-cotta fountain, which it is intended to surround with grotto work and ferns.

The decoration of the interior has been made quite subservient to the architectural features of the building, and to a display of the paintings and works of art contained therein. The picture galleries are a subdued sage-green, with a maroon dado, plinth, and border. In the great hall, the constructing of the roof is displayed by the boards being coloured light-blue or grey, showing the ribs, joists, and arches of slightly-stained deal, picked out with zig-zag lines in vermilion, and with a conventional white rose on a blue ground at the intersections. All round the top of the walls and the front of the galleries are ornamental borders, in blue and red, on the stained deal. The whole of the pillars are painted maroon 5 ft. high, finishing with *fleur-de-lis* ornament. The upper parts are slightly picked out. Adding to the effect is the inscription, in white letters on a red ground, of the names of the different departments, and a trio of small flags and banners at the springing of each arch from the top of the pillars in the galleries. These, with the stained-glass windows, various decorative cases and compartments, and a vast variety of ornamental goods displayed, make a fine *coup d'œil*.

The outside of the building is of an ornamental wood construction, filled in with plaster panels (the centre being surmounted with a turret and finial); and the decoration of it is carried out without disguising the materials employed. All the woodwork is stained two tints, to give it a richer tone, picked out with maroon and vermilion, and the plaster panels are coloured grey.

After the opening ceremonial a large number of members of the executive committee and their friends partook of a dinner, at the White Horse Hotel, in Coppergate.

THE SANITARY CONDITION OF BAKEHOUSES.

Our readers will probably recollect that, in consequence of repeated complaints of the sufferings of journeymen bakers, caused by the filthy state of the shops in which they were compelled to work, an Act was passed in July, 1863, for the regulation of bakehouses. A copy of the "Reports made to the Secretary of State by Mr. Tremenheere, on the operation of the Bakehouses Regulation Act," is now before us. It was issued about a fortnight ago, and contains the results of the operation of the Act up to the present time, the last report being dated June 18. It may be remembered that the Act is only permissive, and merely declares "that it shall be the duty" of the local authorities to enforce, within their district, the provisions of the Act. It imposes no penalty for the neglect of that duty, but it empowers any officer of health, inspector of nuisances, or other officer appointed by the local authority to enter any bakehouse at all times during the hours of baking, and imposes a penalty on any person who refuses admission to the inspector.

In the report of 1864, Mr. Tremenheere stated that, of the forty-six districts formed under the Metropolis Local Management Act, sixteen were either entirely or almost wholly suburban, and comparatively unimportant. The remaining thirty sent returns, and twenty-three of the thirty have again done so this year. The seven which sent no answer are the Marylebone, Strand, St. Martin-in-the-Fields, St. Margaret's and St. John's Westminster, Limehouse, St. Luke's, and

Poplar, south district. In nine out of the twenty-three districts which have answered the inquiries, periodical inspections have been continued with a very satisfactory result. In Islington, Bethnal-green, St. Mary's Rotherhithe, and St. Luke's Chelsea, no inspection has taken place, or no report been made since the 1st of March, 1865. In the City, Dr. Letheby reports that eighteen are "in a filthy condition," and that seven "require further proceedings, on account of orders issued and not complied with." In the Newington district it is reported, "in the nineteen that are underground, ventilation often bad, but impeded by the men themselves." Dr. Puckle says of Lambeth, that seventy-two of the 193 bakehouses in the district are "in a more or less dirty state."

Particular attention is directed to the case of Islington, which is the largest district in the metropolis, and contains a population of 185,000. Probably in no district is a regular and strict inspection more necessary than in this one. The bakehouses were last inspected in August, 1864, by an inspector temporarily appointed for the purpose. Seventy-two of the 192 bakehouses in the district were found to be in a dirty, some in a very dirty, state. In one, besides an accumulation of rubbish, a horse was kept in the bakehouse. In fifty-one the paving was broken, or in bad condition. In one, a defective drain ran beneath the bakehouse, at the spot where the man stood to work at the trough, and the soil rose between the stones as they were stepped upon. In three the floor was undermined by rats, a pretty sure indication of foul effluvia. In one the walls were damp from a neighbouring defective drain. In three a privy was on the same level with, and close to, the bakehouse, and in three others the privy was positively within the bakehouse itself. In one of these there was neither pan nor trap, the privy consisting of a bar of wood over an opening in the drain. We need not go any further; the idea of human food being prepared in such places is sickening enough, but so long as the "local authority" gets its hot-rolls at the proper time, and succeeds in "keeping down the rates," the "local authority" seems to care very little about it.

Mr. Tremenheere next deals with the inspection of bakehouses in the large provincial towns. Four only, viz., Liverpool, Birmingham, Bristol, and Plymouth sent any reply to the circular, which was issued to twenty large towns. Judging from the report, the Act has been carried out very strictly. Liverpool sends a list of convictions obtained for non-fulfilment of the provisions of the Act. They amount to twenty-seven, for which 28*l.* 5*s.* and costs were levied. Scotland sends reports from eleven towns, and in seven the Act has been enforced with good effects. The Edinburgh report brings to light a very disgusting practice in the "Modern Athens." Of the 200 bakehouses which it contains, seventy-nine have privies in them. In the four remaining towns no steps had been taken for inspection.

In Ireland the results are very unsatisfactory. Of the twenty large towns to which the circular was addressed, seven only returned an answer; and of these Dublin is the only town which has done anything in the matter. Under the zealous inspection of Dr. Mapother, who, besides being thoroughly master of his subject, seems to possess a genuine liking for what is really a thankless and uninviting work, the Dublin bakehouses have been brought into a very satisfactory state. The absence of returns from other towns is to be accounted for by the want of a system of sanitary legislation for Ireland similar to that which exists for this country. We recently noticed a pamphlet by Dr. Mapother on this very subject.

In spite of all drawbacks, the labour market is never without a superabundant supply of journeymen bakers. "A young man can enter [a] without tools," says Mr. Tremenheere, "without anything but the clothes that cover him—without almost any instruction: he is not liable to the accidents of weather; his earnings do not vary; and they are above what his physical or mental capacity can procure for him in any other calling." The excessive labour to which the men are subjected, he considers to be due to the great competition in the trade, which is carried on almost exclusively by small employers, and also by the demand of the public for hot rolls and hot bread at an early hour. The leading master-bakers of London have long been willing and anxious to arrange with their men a system of twelve hours' work; and, with a little sacrifice on the part of the public, it is asserted that this might easily be carried out.

Considering that the Act is not compulsory, but only of a "permissive" nature, it is satisfactory to find that so much has been done. The subject is not an unimportant one, since there are in the metropolis alone about 2,500 bakehouses, and according to the census of 1861, 14,000 journeymen bakers.

SANITARY MATTERS.

A DEBATE "On Cholera; its Nature and Treatment," which took place "in the Harveian Medical Society of London," has been published by Hardwicke, of Piccadilly, in the form of a pamphlet, edited by Dr. C. Drysdale, hon. sec. of the society, with a preface, in which Dr. Drysdale ably sums up the results of the debate in a practical form, as a mode of treatment for cholera, deduced from the leading opinions expressed in the course of the debate. On the question of contagion or non-contagion, as Dr. Greenhow remarked, there seems to be a general inclination to reverse the heretofore prevalent dictum of the non-contagious nature of cholera, as at all events the safest doctrine to hold. In regard to treatment it does not appear as if any great advancement were yet made by the faculty. One recommends bleeding in cholera cases; another seems to rely on no treatment at all during the collapse. The president recommended camphor, which is in accordance with the extensive experience of Dr. Rubini, of Naples, who, according to the *Lancet*, treated 377 cases of terrible severity with it, *curing all*, by means of a small teaspoonful every five minutes or so, without the loss of a single patient. Rubini, however, used only saturated spirits of camphor,—a compound, we may observe, which is easily prepared with spirit of wine and camphor, or with camphor added to and saturating the ordinary camphorated spirit. Solid camphor he found to be of little or no use. It may be recollected that a saturated solution of camphor in clove oil was recommended in the *Builder* by one who had experience of its benefit in diarrhœal cases; and we may here add that in 1848-9 a case of choleraic collapse was cured by the suggester of this prescription with dissolved camphor and opium.

Bad State of the River Lea.—With a view of inducing the authorities to some prompt action in this matter a preliminary meeting was held at the Bromley Arms, Fairfield-road, Bow, on Saturday, when it was resolved to forward a requisition to the churchwardens of the united parishes of Bow and Bromley (sub-district of Bow), requesting them to convene a public meeting of the parishioners at as early a period as possible, to consider the propriety of memorialising the Privy Council promptly to adopt such precautionary measures as may tend to check the progress of cholera on the borders of the Lea. The chairman (Mr. T. Johnson) said, the appearance of cholera in the eastern section of London had led to various inquiries as to the causes of its attaching itself to this particular part of the metropolis; and it seemed to have found congenial ground; for amongst other things nothing would be found to have aided it in its terrible work of death more than the filthy and polluted state of the River Lea and Limehouse Cut. The sad proof was, unfortunately, too plain to those residing in the neighbourhood through which the river ran; for the greatest number of fatal cases of cholera had occurred adjacent to its banks. As for deodorising the cut, the quantity of disinfectants requisite would be tantamount to stopping the navigation, which the River Lea Trust seemed so anxious to avoid, by keeping the water pent up in its present abominable condition. As with the cattle plague, so with cholera—all private interests should be waived in favour of the public good. One needed only to stretch his imagination for a moment, and picture the Limehouse Cut in its present state transferred to Belgravia. What would be the consequence? The state of things would not be allowed to exist a single day. Then why in this locality, where, from crowded dwellings and probably bad drainage and water supply, they already had enough to contend with.

The Drainage of Sheffield.—A report has been made by Mr. John Fowler, of Sheffield, C.E., and Mr. Bazalgette, as to the feasibility and cost of a scheme for conveying the sewage of Sheffield, Rotherham, and Doncaster to a point below the latter town, and there applying it to the improvement of the land. The idea is that a large sewer shall run down the valley to a point below Doncaster, and that thence open conduits shall convey the sewage to the land which it is meant to fertilize. There are below Doncaster, as remarked by the *Sheffield Independent*, large tracts of land almost wholly uncultivated, which might be made fruitful by this town sewage as pour land has been at Croydon, near Edinburgh, and with the sewage of London on Maplin sands. The estimate is that the cost of the necessary works would be about 300,000*l.*, and that there are 5,000 acres of poor land below Doncaster which might receive an increased value of 3*l.* an acre. Serious opposition, however, is anticipated. The proprietors of the River Don Navigation showed themselves very jealous, it seems, in the committee on the Sheffield Water Bill, of any measure that would abstract even sewage from the river.

State of Yorkshire Streams.—The *Leeds Mercury* states that the Rivers Commission is beginning to inspect the streams of the manufacturing parts of Yorkshire, and that the result of the inspection is anything but satisfactory. The entire sewage of Leeds, Huddersfield, and Bradford is emptied into the rivers, and the consequence is that all the cattle grazing on the meadows below the main sewer outlet of Leeds were swept away by the cattle plague. But in addition to the sewage of towns, the refuse of tanneries, woollen manufactories, dyeworks, the cinders of steam-engine furnaces, and the carcases of dogs and other animals are turned into the rivers. In and near Leeds alone two millions and a half of skins are dressed and tanned, both the fluid and solid refuse of which is sent into the river by means of the sewers and intersecting streams. It will be the duty of her Majesty's commission to devise a practical remedy for these and for other forms of river abuses.

SANITARY ADVICE TO WORKING MEN'S CLUBS.

MR. EDWARD HALL, architect, assisted by Dr. Aldis, medical officer of health, has prepared, and the Ladies' Sanitary Association have printed, an elaborate and most useful "bill of health," in the form of instructions, to working men's clubs, how to promote healthy homes and workshops. It takes the form of a well-arranged and readable bill, on the face of a sheet of paper, and is full of practical and easily-understandable instructions as to the means of promoting health, and the powers of the law for the rooting out of nuisances, and so forth. Mr. Hall is a member of the Council of the Working Men's Club and Institute Union; and it is with the sanction and in the name of the Union that working men's clubs are provided with copies of this excellent bill of health, which ought not only to be hung up in every workman's club, but in every private dwelling. It is sold at the office of the Union (150, Strand), and by the Ladies' Sanitary Association (8 Pont-street, Belgrave-square), price one penny, or sixpence per dozen copies. Now is the time to distribute it largely amongst all classes.

COMPETITIONS.

Liverpool Infirmary for Children.—The committee of this institution, who, at the time when the first stone was laid by H.R.H. the Duke of Edinburgh, had under consideration six designs for the new building offered on their invitation by local architects, have, after submitting the plans to architectural criticism, selected for execution those sent in under the motto "*Sic igitur*," by Mr. H. P. Horner.

COLOGNE CATHEDRAL.

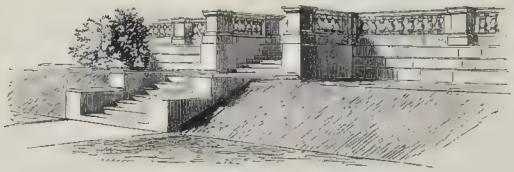
WITH the obliging assistance of M. Voigtel, the architect engaged, we have been enabled to engrave a view of the interior of Cologne Cathedral, looking east, and including the whole length of the building as restored.

At present there is a small altar between the transept arches, left out, in the view engraved, at the architect's request, as it is now being removed, so as to let nothing interfere with the view from west to east.

GARDEN ARCHITECTURE.



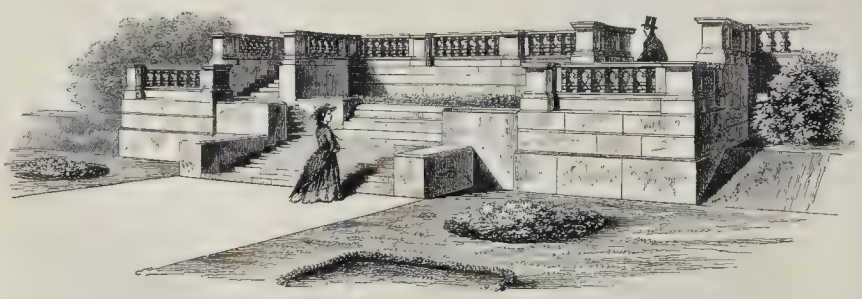
Finish of Plateau formed on Slope.



Single Flight of Steps.



Double Flight of Steps from a Terrace.



Flight of Steps of higher character.

[See p. 573.



COLOGNE CATHEDRAL.—INTERIOR LOOKING EAST: AS RESTORED

HOW THE DOCKYARDS ARE PAVED.

In a recent article we drew attention to the fact that it has been the custom for many years past to pave the dockyards with iron ballast, and that on the 31st of March last the enormous quantity of 31,011 tons was so used, at a cost of about 5*l.* 12*s.* per square yard. The subject was brought before the House of Commons last week by Mr. Seely, who moved "that the course pursued in paving the roadways, workshops, and other places in the dockyards with iron ballast was inexpedient." Mr. Seely stated that this iron was worth 6*l.* a ton, but there appears to be some difference of opinion on the point. It is cold-blast iron, and has been in store for the last forty years, having originally cost 5*l.* 8*s.* and 5*l.* 9*s.* per ton. In justification, Sir John Pakington stated that the ballast "was thus disposed of in order that it might be ready if required again." If it be necessary to keep a large stock of ballast ready for immediate use, which we very much doubt, let it be kept so as to be accessible. Imagine the inconvenience and expense of removing the pavement of a chain-cable store, smithery, or tramway, at a busy time. Common sense would have suggested that proper flooring-plates, weighing a little less than a ton to the square yard, should have been laid down in the first instance. The "intentions" of the dockyard authorities seem to have been good, but "good intentions," we are told, also supply the pavement in a place we won't mention. We do not attach much importance to this particular case, except that it shows the system which prevails in the Royal yards. Mr. Seely's motion referred also to the supply of anchors, and to the general management of the dockyards; and he stated that articles which cost 3,016*l.* at Portsmouth could be obtained for 889*l.* elsewhere. He complained that, owing to the manner in which the accounts were kept, it was almost impossible to know the cost of any particular article. It was admitted that the accounts were imperfect, but for some time past they had been kept on a better principle. There seems no reason why the plan of book-keeping followed in engineering shops should not be adopted in the dockyards. By providing every job with a number, and posting the "time" and "materials" to their proper folio, the cost may be obtained at once without any difficulty. Mr. T. G. Baring said, that "the object of the Royal dockyards was not merely to build ships cheaply but to build them well." As tax payers, we are of opinion that their object is to build ships cheaply *and* well.

It appears that the parliamentary return relating to Whitworth guns, upon which we founded some remarks in our article previously referred to, has been discovered to be incorrect. An amended return will shortly be issued.

PARLIAMENTARY.

The following subjects have been before the Commons since our last issue:—

Dwellings for the Labouring Classes. — Mr. Lusk asked the Secretary to the Treasury when he would lay upon the table of the House the rules and regulations under which, by virtue of an Act passed this session, loans were to be granted towards extending the provision of improved dwellings for the labouring classes. Mr. W. Hunt stated in reply that the rules and regulations, he believed, would be prepared in a few days.

The Lions for the Nelson Column.—In reply to Admiral Walcott, Lord J. Manners stated that two of the bronze lions had been already completed; a third was nearly ready; and it was expected that before the end of the autumn the four lions would be established at the base of the Nelson column.

The Widening of Park-lane. — Lord John Manners, as First Commissioner of Works, states, in reply to a question from Mr. D. Griffith, that before the railings of the park are replaced in Park-lane, it will be taken into consideration whether it would be desirable to take advantage of the present opportunity for widening any part of Park-lane. He had observed the very defective quality of the brickwork supporting the railing, and care will be taken that the new railing shall be of an improved and stronger construction.

The proposed University Building.—Mr. A. B. Hope asked the First Commissioner of Works whether he would have any objection to exhibit for the benefit of the members the design of Mr. Penuethorne for the new University building to be erected in Burlington Gardens: and was told no such design exists.

Waterloo Bridge.—Mr. Alderman Lawrence asked the First Commissioner of Works whether, in consequence of the large number of persons who would be turned out of their homes in the neighbourhood of Temple-bar and the Strand by the clearing of that site for the new Courts of Justice, he would bring in a Bill in the next session of Parliament for the purchase of Waterloo Bridge, and the opening of the same to the public free, there being no free bridge between Blackfriars and Westminster Bridges, a distance of nearly two miles. Lord John Manners said he would not.

Regulations of Theatres.—In reply to Lord E. Bruce, Mr. Walpole, as Home Secretary, said the subject should undergo consideration during the recess. He was strongly inclined to think that a Bill should be introduced next session, but whether framed in exact accordance with the recommendations of the committee he could not undertake to say.

The Artizans and Labourers' Dwellings Bill.—On the motion for going into committee, Mr. Powell and Mr. Alderman Salomons suggested that it was too late in the session to pass this measure, as there was some opposition to it. Mr. M. Torrens said that, as he could not hope to carry the measure, he would withdraw the bill. The order was discharged and the bill withdrawn.

THE LILLE FINE ARTS EXHIBITION.

On Sunday, the 22nd July, in presence of M. de Nieuwerkerke, senator and superintendent of Fine Arts, &c., at Paris, and the members of the Commission, the first Exhibition of Fine Arts, in Lille, France, was opened to the public. The absence of all official ceremony may account, to a certain extent, for the absence of all crush; it was, nevertheless, well attended, and from the interest shown, it is evident the exhibition will become a place of favourite resort. The pictures, sculptures, and bronzes, &c., form a collection of 1,566 objects of art, highly deserving attention, and will greatly improve upon acquaintance. Besides works by students of the Lille Academy, many of whom, through the liberality of the town council, have been enabled to pursue their studies at Rome, may be added others by Diaz, G. Doré, Robert-Fleury, Ingres, Nieuwerkerke; some works also of Delecroix, Descamps, &c. Belgium is represented by some very agreeable productions; the school of Düsseldorf has also sent samples of their style of painting. There are a few by English artists, but it is to be hoped that this school, so little known will, at the next Lille Exhibition, be more numerously represented; that painters of the higher class may be induced to come forward, and tend, by their works, to dissipate the ignorant impression entertained in the provinces of France, concerning the capabilities of Englishmen in works of art. Respecting the preservation of works sent there is every guarantee given. Many of the paintings have already found purchasers. A large number will be disposed of and distributed by lot, on the 15th of August. The town council has voted 40,000 francs for that object, which sum will be considerably increased by subscriptions, varying from 20 francs to 200 francs. A proportionate number of tickets for the lottery are given to the subscribers, who have free entrance. On some days the exhibition is open gratis; on other days the price is half a franc and one franc. The latter gives a right to a chance in the distribution.

EAST COWES: SEA-WALL.

The British Land Company have recently completed a work of some sanitary importance at East Cowes, Isle of Wight, in connexion with the Slatwoods Estate adjoining the town, by the construction of a sea-wall 1,000 ft. in length, making a reclamation of several acres of land, which were at spring tides covered with water and decaying sea-weed. Formerly the smell from the decaying animal and vegetable matters was most offensive, and could be perceived at a great distance. The land is now laid high and dry, and principally covered with vegetation.

The wall has been constructed entirely of concrete, formed of the shingle on the beach and Portland (Medina) cement. As the work progressed, it was found advantageous to use but little sand, as the shingle was small. Sea-water was used in mixing the concrete. The foundation of the wall has been carried below the shingle, and two feet into the Bembridge clay, which here prevails.

The height of the wall from the foundation to the top is, in many places, thirteen feet, but gradually less as it approaches Spring-hill Estate. The average slope from the sea of the wall face, is 1 in. to 3 ft. The finished thickness is 1 ft. 9 in., increasing downwards to 3 ft. 6 in. in the highest portions. The whole was tide work. Groins are put out at intervals, formed of stone and Medina cement, for the purpose of collecting and retaining the shingle, and preventing the sea from washing the clay at the foot of the wall. Inside the wall a space of 18 in. in thickness is made of loose ballast or shingle, so as to hold the land water as the tide rises; as it falls the water is voided through small drain pipes laid through the wall at different heights for this purpose. The soil is filled up to the level of the top of the wall, and as an additional precaution, an apron 5 ft. wide, formed of concrete, has been made the whole length of the wall, which affords a pleasant promenade. The slope of this apron is 3 in. towards the sea, so that in rough weather the wash, which is sometimes carried over the wall, is returned harmless, without cutting the made land adjoining.

Mr. J. Chinchen was the contractor, and the work was planned by and carried out under the supervision of Mr. J. Blenkarn, surveyor for the company.

RAILWAY MATTERS.

The Metropolitan Railway directors have issued a report, in which they say:—The receipts during the past half year (after deducting all expenses and interest chargeable against revenue) leave a net available balance of 87,699*l.* 4*s.* 6*d.* They recommend that a dividend be paid upon the preference stock at the rate of 5 per cent. per annum, and upon the ordinary stock and new ordinary shares respectively at the rate of 7 per cent. per annum, and that the balance of 11,814*l.* 11*s.* 7*d.* be carried forward to the credit of the next account. The weekly returns show a continuous and steady increase in the traffic. With a view to meet the requirements of the traffic of the Metropolitan and St. John's-wood Railway (which is now approaching completion), as well as to improve the general accommodation and the ventilation of the railway, the directors have ordered the necessary alterations at the Baker-street Station, and an intermediate signal station between Gower-street and King's-cross. The works upon the western extension between Paddington and Brompton have, during the half year, made great progress. The works of the Metropolitan District Railway between Brompton and Westminster Bridge are also making progress; and this section will be ready for opening about the same time as the western extension.

Colonel Yolland, an officer appointed by the Board of Trade, having made his formal inspection of the city branch and terminus of the South-Eastern Railway, and his report to the Board having been satisfactory, it has been decided to open the line to Cannon-street on the 1st of September next.

A system of communication between passengers and guards, and between guards and drivers, devised by Mr. S. M. Martin, electrician to the London and North-Western Railway Company has been put into practical operation on that railway. It only now remains to be seen, therefore, how such a power of stopping trains, put into the hands of passengers, will work. The actual stopping of the train, however, is to be in the hands of the guard, who, when signalled to from any carriage, is to use his discretion, whether in stopping the train at once or at the next station. On what basis any thing like *discretion*, in such a case, can stand, when a signal from an unseen interior of a carriage is made to a guard boxed up in another carriage, whence he cannot stir, it is hard to conceive. The lives of the public must still be left to the tender mercies of the blind goddess, Miss *Fortune*. In the absence of means for the guard to traverse the train, however, and see for himself what is the matter, any of the thousand

and one electric and other plans that have been proposed during the last ten or fifteen years cannot but tend to reduce the chances of peril to life, although the unnecessary stopping of trains in transit may itself open the way for new perils.

A railway is about to be constructed between Clonmel, the chief town of Tipperary, and the town of Dungarvan, in the county of Waterford, passing through Lismore. The Duke of Devonshire has consented to take 60,000*l.* worth of shares, and also to advance out of his own private purse a further sum of 60,000*l.* towards the immediate completion of the work, while arrangements have been made for obtaining a loan of 100,000*l.*

A Florence letter in the *Moniteur* says: "An interesting experiment has lately been made on Mount Cenis, in presence of M. Behic, French Minister of Public Works, accompanied by several engineers. The portion of the railway already completed on the slopes along the carriage-road of the mountain was gone over by a train consisting of several carriages at a rate of 11 miles an hour in ascending, and 9½ miles in coming down. The incline sometimes attains 8½ ft. in the 100 ft., and some of the turnings have a radius of only 40 mètres (133 ft.). The works of the Italian side are to be completed by the end of October next, so that there is reason to hope that, by November, Italy and France may be united by an uninterrupted line of railway. The system is that of Mr. Fell."

Railway Progress in India. — The annual report of Mr. Juland Danvers, the Government director of Indian railways, has just been issued. From this it appears that the length of line open was increased during the past twelve months from 2,945 to 3,332 miles by the addition of 116 miles to the Great Indian Peninsular Railway, 40 miles to the Madras, and 24½ miles to the East Indian, and the opening of the Punjab line between Lahore and Mooltan, 208 miles. The year will be memorable in the railway history of India as that in which an uninterrupted traffic was first established between Calcutta and Delhi—a distance of 1,020 miles, which can now be traversed in thirty-seven hours, and which, only ten years ago, usually occupied as many days. The communication between Calcutta and Bombay, and between Bombay and Madras, is not expected to be completed till about the beginning of 1869. Of the whole extent of 4,944 miles of railway authorised in India, 3,332, or about two-thirds, have been opened for traffic. The total number of shareholders in Indian railways is 32,109, of whom 31,347 are in England, and only 762 in India. Measures are taken to train the natives and Indian-born so as to become qualified for situations which hitherto have been filled almost exclusively by European mechanics. The total expenditure on Indian railways has been 60,645,000*l.*, and the estimated expenditure for the current year is 6,800,000*l.*—a larger sum than for several years past.

PURIFICATION OF DRINKING-WATER.

A feasible process has been patented by Mr. Alfred Bird, of Birmingham, experimental chemist. This process is based upon the known affinity of hydrated alumina for organic matters, which it not only combines with, but renders insoluble, so as to precipitate them along with itself from the water in which these organic contaminations may be dissolved. The well-known power of earth or common soil, also, we may add, to deodorize decomposing organic matters probably depends more upon the alumina or clay than on anything else in the soil. Mr. Bird's process consists simply in dissolving a few drops of a solution of neutral tersulphate of alumina in the water to be purified—twenty drops to each gallon, he says, at a cost of one penny for thirty gallons, or very much cheaper in large quantities. In six to eight hours a precipitate falls, which Mr. Bird explains as consisting of the organic matter contained in the water, combined with the alumina and with any lime which the water may also contain, and which falls in the form of sulphate of lime. The carbonic-acid gas liberated from the lime carbonate goes to sweeten the water, and give it that refreshing and sparkling effect which carbonic acid gas is well known to give to water. We have tried Mr. Bird's solution, and find that, as he says, a precipitate falls; but, as a troublesome analysis would be requisite to prove that this precipitate is of the nature indicated, of course we cannot testify that such is its nature. We may remark, however, that water repeatedly treated by Mr. Bird's process yielded a precipitate of the same colour, or nearly so, each time; and if the first precipitation carried down all the organic matter and all the lime, we should like to have Mr. Bird's explanation of the nature of the second and third precipitations. On the fourth occasion, when a double quantity of the solution was used, there was, at last, no precipitation. The water, we may add, was quite clear to appearance when first used, but was taken from a pond, overshadowed by trees, and used by ducks, so that we felt certain it must contain organic matter in solution. Of course we can understand that this water may have contained so much organic matter and so much lime that it required repeated applications of the aluminous salt, but we applied, at each time, the full quantity which Mr. Bird says will suffice at once to clear Thames water from organic matter. If the quantities stated by Mr. Bird be not sufficient in all cases, this should be prominently pointed out.

PROPOSED CHAMBERS NEAR THE LAW COURTS.

Mr. T. B. Horsfall, M.P., two of his brothers, Mr. Bouch, Mr. Cunliffe, and a few friends, have associated themselves together as a limited company, for the purpose of erecting, on an extensive scale, in juxta-position with the New Law Courts, first-class buildings, to be used as chambers for the legal profession, and to be so arranged as to combine the utmost accommodation with every modern improvement. The company has only recently been incorporated, but the scheme which it proposes to carry out has for some time been maturing. The site chosen is bounded on the south and west by Carey-street, on the east by Serle-street, and on the north by Portugal-street, and is now covered by fifty-six houses of inferior description. During the last twelve months, they have been buying up as many of these houses as they could acquire on reasonable terms, and they have now succeeded in purchasing altogether thirty-eight houses in fee simple, leaving only eighteen to complete the entire block, of which it is expected that at least six or eight may be acquired before the end of this year. The Society of Lincoln's Inn are about to erect chambers on the north side of their gardens, with the backs towards Holborn, and their scheme includes a roadway along the back of these new chambers into Lincoln's-Inn-fields. It may be hoped that this will lead to a carriage way through Great Turnstile.

THE ATLANTIC TELEGRAPH LAID.

All doubts as to the successful laying of this wonderful cable are at an end. The cable is not only safely laid but works admirably, and is even improving in its action. Messages are transmitted in great numbers, and at the rate of 34 letters or 6½ words per minute, and at a cost in the mean time of 20*l.* for 100 letters or 20 words. A curious circumstance which has sometimes been noticed, but never carefully recorded till now, is that between twelve and two in the day, and only at those hours, the Atlantic cable is always at its worst conductive power. With regard to the portion of the cable submerged last year, it is found that exactly in proportion as the barometer rises the resistance of the current increases, and *vice versâ*. In plain terms, a low barometer means a good cable, and a high barometer a bad one. As an endeavour is to be made to recover the last lost cable, it is to be hoped no damage will be done to the new one in the attempt to grapple with the old one.

Although the cable has fairly crossed the Atlantic to Newfoundland, that from Newfoundland to the continent of America, a length of about seventy miles, is not yet placed, but the *Great Eastern* is proceeding to lay this line also, when London will be united with New York. A message, however, has already been sent by her Majesty the Queen to the President of the States at Washington, in which—

"The Queen congratulates the President on the successful completion of an undertaking which she hopes may serve as an additional bond of union between the United States and England."

And a reply has since been sent by the President, who says—

"The President of the United States acknowledges with profound gratification the receipt of her Majesty's despatch, and cordially reciprocates the hope that the cable that now unites the eastern and western hemispheres may serve to strengthen and perpetuate peace and amity between the Government of England and the Republic of the United States."

Her Majesty has also congratulated the Governor-General of Canada on the completion of the telegraph.

It appears that "the ordinary way of denoting success in telegraphic communication," is to signal the two letters "O. K.", which, somewhat on the principle of the three R's,—Reading, Riting, and Rithmetic,—is said to denote "all correct." This was the short code arranged between Mr. Canning, on board the *Great Eastern*, and Mr. Glass, at Valentia.

All concerned in the laying of the cable merit the best thanks of the public for the pluck, care, and assiduity with which the arduous and extraordinary work has been done.

IRELAND.

His Grace the Archbishop of Dublin, on the 3rd inst., consecrated the new parish church of Howth. This edifice is near to the railway station, and occupies the site of the old church, now almost entirely removed, a part of the tower only being incorporated in the new building. It consists of the usual nave, aisles, and chancel, with a vestry and porch, and is in style of the Early Decorated period of English Gothic, with the slightest sympathy for French details evident. The nave arches are pointed, and constructed in red and yellow brick, springing from polished marble columns, with well-carved capitals and moulded bases. The tower, which is surmounted by a spire 80 ft. high from ground to finial, stands at the north-west angle, and contains the stairs leading to the organ-gallery. The principal entrance is at the west end, and is a deeply-recessed Pointed doorway, the capitals to the jamb, shafts, and the arch mouldings being elaborately carved. The pulpit is in Caen stone. The church will accommodate 450 persons; the total cost being about 2,600*l.* The church has been erected by Mr. W. Doolin, builder, from designs by Mr. J. Rogers, architect.

It is a matter for congratulation that the workmen's dwellings movement is fairly underweigh; and already some substantial blocks, well designed and appointed, and built of sound honest materials, show signs of the vigour with which it is taken up. These have been erected by the Industrial Tenements' Company (Limited), under the superintendence of their architect, Mr. Charles Geoghegan. A block is in course of erection in Meath-street, another in Bray, and one has recently been erected at the ship-building yard of Messrs. Walpole, Webb, & Bewley.

FROM MELBOURNE, VICTORIA.

As some indication of the value of property in the centre of the Victorian metropolis, it may be stated that at a recent sale by Messrs. Fraser & Co. of property in Collins-street, the land facing Collins-street averaged from 195*l.* to 200*l.* per foot, whilst that fronting Flinders-lane was sold privately for 105*l.* a foot. The sale excited considerable interest, and attracted a very large and influential attendance and a spirited competition. The depths of the allotments fronting Collins-street were 141 ft., and of those fronting Flinders-lane 142½ ft.——The anticipated commencement of the Coliban Waterworks is giving an impetus to Malmesbury, several new buildings being now in course of erection. It is calculated by the department that about 1,500 men will be employed in the neighbourhood of Malmesbury for nearly two years, bringing a probable increase of population of between 4,000 and 5,000 people. Tenders were recently opened at the Board of Land and Works, for the construction of a tunnel with tunnel fronts, and portion of a main aqueduct in the cutting between Malmsbury and Taradale, in connexion with the Government water-supply scheme. There were six tenders, the lowest and accepted one being that of Messrs. Moonie & Robertson for 10,669*l.* 11*s.*

THE BRISTOL ASSIZE COURTS COMPETITION.

At the last meeting of the town council it was resolved, after considerable discussion, that,—

"As it is evident the city will have to expend a considerable sum of money in the adaptation of the present Guildhall and the erection of an additional court on the site selected by the council in March last, and as it is desirable that those alterations and additions should be effected on the best and most approved plans—Resolved, That the report of the finance committee now read be confirmed so far as regards the purchase of the house and premises belonging to the feoffees of the Christ Church lands, provided the same can be obtained on fair and equitable terms; and that, when the agreement for the purchase of such property shall have been entered into, the finance committee be directed to offer such premiums as they may think desirable to those parties who have already submitted plans for competition for the same, or amended plans for a second competition."

It was thought that only one design should be accepted from each competitor. Three of the architects who had sent in designs in the previous competition had presented the following memorial to the town council, "to show cause why the designs selected by Mr. Waterhouse should not be adopted without further investigation:—

1. Because the premiums have been awarded to those designs for their supposed adherence to a prescribed boundary, and for their professing to restore and utilize the ancient Norman hall, and other parts of 'Colston's House.'

Mr. Waterhouse has reported that the elevations do not represent the true frontage to Small-street; and we affirm that the plans exhibit a general excess in the whole width of the ground, of about 3 ft. beyond the prescribed dimensions, as shown on the site plan coloured red. Also that the plan which professes to incorporate the ancient buildings, and distinguishes them in black ink, is not true, because the new line of frontage will alter the line and the parallelism of the old walls, so that they cannot be rebuilt upon their old foundations.

2. Because it is now sought to include the property of the parish of Christ Church for the completion of the plan.

3. Because the authors of ten out of the thirteen designs sent in (the remaining three being by one firm) found it necessary, for the purpose of making a satisfactory plan, to include some property of the corporation, or some of the property of the parish of Christ Church, and because Mr. Waterhouse was restricted from adjudicating upon any of such plans, either for premiums or for execution.

Your memorialists, therefore, submit that Mr. Waterhouse, or, if he refuse, another qualified architect, should report to you the merits of every plan and the accuracy of the estimates for each design sent to you before the execution of any one plan is determined upon, as we do not believe the premiated design can be carried out for the sum stated."

COMPENSATION CASES.

Holborn-hill.—At the Lord Mayor's Court, on Saturday, the 28th ult., a compensation case of 40,000*l.*, The Rev. H. Blount and Others *v.* The Corporation of London, occupied the Recorder and a special jury the whole day, in respect of freehold property on Holborn-hill, known as The Thaive's Charity, bequeathed in the year 1348 by a Mr. Thaive, for Church purposes. The property consisted of the house rented by Mr. Charles Meeking, the linendraper, on Holborn-hill, and other property, for the Holborn-valley improvements, and the question was the sum to be awarded, in order that the same might be invested in other property by an order of the Court of Chancery; and until such investment could be made the same was to be invested in Consols. The present income from the property was 1,265*l.* a-year, and of that sum 500*l.* had by the Court of Chancery been appropriated to two other district churches—Saffron-hill and Trinity. Surveyors were called on both sides. The estimate for the trustees was from 38,000*l.* to 40,000*l.* Mr. Young, Mr. Clarke (Favebrother, Clark, & Co.), and Mr. Edwin Fox (Fox & Bousfield), were the surveyors to the claimants. The lease to Mr. Meeking in 1864, for which negotiations had been pending before, and a short term surrendered, was 900*l.* a-year, and the present value was put at 1,500*l.* Another house, leased at 150*l.* at the same period, was put at 300*l.* a-year. On the part of the Corporation four surveyors were called—Mr. George Fownes, Mr. Shaw, Mr. Vigers, and Mr. Tress. Their estimate was from 31,808*l.* to 32,802*l.* On account of the large claim made, the customary allowance of 10 per cent. for compulsory sale exceeded 3,000*l.* It appeared that negotiations to treat had been pending, and a sum of 35,000*l.* was agreed upon, but the matter went off on the ground of costs. Mr. Pontifex, the solicitor, was for the claimants, and 500*l.* was asked to cover costs, and the City was determined to submit the whole matter to a jury. Mr. Hawkins complained of the course pursued on the other side on the question of costs. He submitted that from 32,000*l.* to 33,000*l.* was the full value of the property. Mr. Lloyd complained of the manner in which the trustees of the charity had been treated by the City. They only wanted that a clear 35,000*l.* should be invested in Consols until other property could be procured for investment, and did not want to make costs. The jury had heard some evidence as to investments. Mr. Clark had declared that money awarded in compensation cases could not be closely invested in land. The learned Recorder, in placing the case before the jury, said the question was what was the value of the property. They had heard the evidence of the surveyors on both sides. All he could say was, that they were biassed in their opinions by the side they represented. It certainly did seem strange that property which was leased in 1864 should in two years have gone up from 900*l.* to 1,500*l.*, and in another instance from 150*l.* to 300*l.* The jury retired, and, on their return, assessed the compensation to be awarded by the Corporation at 36,000*l.*

The Midland Railway.—On Monday, at the Sheriff's Court, in Red Lion-square, a compensation claim, brought by Forbes and Others against the Midland Railway Company, was under consideration. The claim was for some ten acres of land suitable for building purposes, situated near Kilburn, and required by the company; and in addition to the direct value of the land, compensation was claimed for the damage which would be done to the property in the vicinity. The sum of 1,000*l.* per acre was demanded for the land, and the total compensation was set down at 20,000*l.* The company were willing to pay about half that amount. Ultimately the jury gave the plaintiffs 13,400*l.* compensation.

THE BUILDERS' BENEVOLENT INSTITUTION.

The nineteenth annual meeting of the friends and subscribers of this charity was held on Thursday afternoon (20th ult.), at the London Tavern, Bishopsgate-street, when Mr. George Plucknett, in the absence of Mr. Joseph Rigby (president of the institution), occupied the chair. The business before the meeting was to receive the report for the past year; to elect the president, auditors, treasurer, and directors for the year ensuing; and other matters connected with the welfare of the Institution.

Among the gentlemen present were Mr. George Bird, Mr. Joseph Bird, Mr. T. Cozens, Mr. B. D. Dove, Mr. F. J. Dove, Mr. T. Stirling, Mr. Hutchons, Mr. Robert Yeo, Mr. M. Hall, Mr. W. S. Simkin, &c.

Mr. A. G. Harris (the secretary) then read the report, which concluded thus:—

The purchased amount of Stock Three per Cent. Consols during the past year is 447*l.* 0s. 5d.; 33¾*l.* 14s. 6d. for the Relief Fund, and 112*l.* 5s. 11d. for the Building Fund; making a total of 11,163*l.* 18s. 5d. Stock, divided as follows:—For the Relief Fund, 8,437*l.* 12s. 1d., and for the Building Fund, 2,732*l.* 6s. 4d.

The directors earnestly appeal to the generous sympathies of their kind friends and supporters, and would mention, as an incentive to still further exertion on their part, that at the last election there were five unsuccessful candidates, besides others who have applied since, all of whom are aged and necessitous, and anxiously looking forward to the next elections for an alleviation of their poverty and distress by being placed as pensioners upon the funds of the institution.

The directors take this opportunity of again thanking Mr. Joseph Bird, the honorary secretary of the ball held at Willis's Rooms, St. James's, in January last (for his energetic kindness), and the ball stewards, which produced a profit of 81*l.* 18s., and donations 9*l.* 9s., being a total of 91*l.* 7s.

They have also the pleasure of announcing that Mr. Benjamin Hannen has kindly consented to become the president of the institution for the ensuing year.

The Chairman moved the adoption of the report, which was seconded by Mr. Joseph Bird, and unanimously carried.

The Secretary next read the balance-sheet, which showed that from June to June the donations and subscriptions amounted to 2,358*l.* 6s. 6d.; and that after all expenses were defrayed 540*l.* 4s. 5d. remained at the bankers.

The various officers were then, after suitable expressions for past services, re-instated; after which a cordial vote of thanks to the Chairman concluded the proceedings.

THE PREVENTION OF ACCIDENTS.

I have read with great pleasure your remarks in the *Builder* under the head of "A Chapter of Accidents." If you have no objection I shall assist you to supplement the painful catalogue by bringing under your notice one or two additional classes of accidents which I am sure you will at once regard as preventible. I have not, unfortunately, retained any reference to my authorities; but I am convinced they will be fresh in your recollection.

Not long ago, within a week or two, I think, I read somewhere an account of some other sort of accidents I shall recall to your recollection, which exist in the barbarous exhibitions of men and women who are hired to show themselves with wild beasts. In particular I read some account of a leopard making a desperate attack on the "lion king," or whatever the poor mountebank was called who is hired to run the risk of his life,—smashing the bones of his forearm, and nearly tearing the entire scalp from his head. Do you think this is a form of exhibition that should be tolerated much longer? For one thing, I am sure that the effect on the gaping clowns who patronise such shows must be demoralizing in the extreme. And pray just remember, sir, for a single moment, the horrible fate of the female Blondin at Birmingham; and you will at once agree that all such barbarous exhibitions ought to be made illegal if not criminal.

I also read the other day an account of a young boy who was attacked by a couple of bloodhounds, near Chesterfield, and almost torn to death. I am no sportsman, and, from that cause probably, I felt quite indignant,—a feeling, I am sure, in which you will share,—when I thought of this shocking occurrence. What, in the name of common sense and humanity, are we doing with bloodhounds in Derbyshire in the middle of the nineteenth century? Of course, there will probably lie a very good case of civil action against the proprietor of the dogs; but what of that? The boy might have been killed outright, and, as it is, he is probably severely maimed and disfigured.

I was particularly well pleased to observe your reference to the death of a boy who fell over a cliff in Scotland and was dashed to pieces. The subject of juvenile death is decidedly one of the saddest and most growing evils of the present day. My attention, I confess, was first directed to the subject by some startling revelations in your own columns,—notably with regard to the poor girls who work at artificial flowers, and such poisoning trades,—and I have at length come to the honest conviction that it imperatively demands a new form of legislation altogether. What I mean is that I should not regard a juvenile death of this sort as an accident, but as a crime, for which I should hold parents, guardians, employers, and parish authorities responsible, and make them liable to severe penalties, more especially if it could be shown that they were guilty of culpable neglect. It seems perfectly obvious that our present mode of poor-law supervision is totally inadequate to deal with the cruel and culpable maladministration of which we have recently had such thorough exposures. But I need not carry coals to Newcastle, or try to enlighten the editor of the *Builder* with information derived from his own words. My only excuse for trespassing on your space at all is the urgent necessity for action of some sort that will add to the safety of human life in circumstances where it is too palpably evident that the people are disqualified for the duty themselves.

Alpha.

MANAGEMENT OF THE PUBLIC WORKS DEPARTMENT IN INDIA.

We have received from the Assistant-Secretary to the Government of India (P.W. Department), a long reply, in print, to a letter in our issue of the 21st October, 1865. It is dated so long ago as January 9, and has probably, therefore, been published elsewhere. Under these circumstances we cannot afford space for the whole of it, but give the principal portions:—

"Since the letter in question was written some important changes have been made in the pay of the higher grades of the civil element. The former and present salaries are as follows:—

Appointment.	Per Annum. Former Pay.	Present Pay.
Chief Engineer. 1st Class	£2,700	£3,000
,, ,, 2nd ,,	1,920	2,400
,, ,, 3rd ,,	1,680	2,100
Supg. Engineers of all grades	1,080 to 1,680	1,200 to 1,920

All these appointments are open to both the military and civil members of the department. 'C. E.' in his letter says that chief engineerships of the 1st class cannot be taken into account in estimating the prospects of a civilian, *as they are invariably held by military men.* If 'C. E.' had turned to the classified list of the officers of the department, he would at once have seen why these appointments have hitherto been held by military men, or rather by Royal Engineer officers. There is not one civilian in the whole department of sufficient standing upon whom the appointments could be conferred. Thus, the Royal Engineer officers permanently holding the chief engineerships of Bengal, the North-western Provinces, and the Punjab, are all of more than two-and-twenty years' standing in the department. Will 'C. E.' pick out from amongst the 1st grade of Executive Engineers any one of greater length of service, or of service anything like as long? If he cannot, then his argument about these appointments simply falls to the ground.

But even supposing that these appointments will always be held by military officers—an idea which has never been entertained, as far as I am aware, by any one,—good reason can be found for such an arrangement. At present the chief engineers are, to a certain extent, the military advisers of the local governments, and under their supervision military works projects are prepared. The Indian Public Works Department deals not only with the construction of canals and roads and buildings, but also with the construction of all the military works and defences throughout the country. Strategetical questions constantly arise which can only be be discussed and determined by officers trained for the purpose. It is clear that such questions could hardly be dealt with by a chief engineer possessing only the training of a civil engineer, and it is equally clear that they can only be dealt with by military men.

'C. E.' states the length of service in the executive

grades of the department to be, on the average, twenty years. In other words, a civilian will have to serve that period before he obtains a superintending engineership on 1,200*l.* a year. Is this statement borne out by the classified list? On referring to that for May, 1865, it will be seen that, out of a total of thirty-one superintending engineers, five are civilians, the senior of whom has served for fourteeen and a half years. Of the 1st grade Executive Engineers (next to superintending engineers in the departmental rank) not one can count twenty years' service, although one of them has been in that grade for nearly four years.

'C. E.' compares the pay obtainable after five or six years' service with the pay of railway engineers, of the army staff, of the medical service, and the civil service, and finds it exceedingly small. Railway engineers, he says, begin with 400*l.* or 500*l.* a year,* the medical and civil services with about the same sum, and a lieutenant in the army draws 300*l.* a year. Now, it is quite certain that the only method of judging of the smallness or otherwise of pay, is by the effect such a rate of pay has upon inducing men to join the department. That the pay cannot be so very small may be judged by 'C. E.'s' own statement. He says that, of the whole department, two-thirds are composed of the civilian element; or, in other words, the pay has proved sufficient to attract about 220 men. Of these, a few have entered in the higher grades, but the number is so small as not to affect the general statement. In one sense the pay on entering may be small. It may not be sufficient to attract the best class of men for the department, but this is a point to be determined, not by the servant, but by the master.

He says that on 100*l.* in England a man can live as well as another in India drawing 300*l.* a year, and also that 1,000*l.* a year will go no farther than 500*l.* in England. Is this the case? I cannot possibly imagine that part of England in which 100*l.* a year will bring as much as 300*l.* in India. Such a statement as this cannot be supported by facts, and certainly my own experience (I have never lived in England on 100*l.* a year, it is true) would lead me to doubt entirely the accuracy of it. Assertions such as these, unsupported by any evidence, are of little or no value, and tend only to mislead. But at the same time it may be admitted that, generally speaking, Rs. 100 in India are worth less than 10*l.* in England.

A little further on, and 'C. E.' warns young men against coming to India 'for less than Rs. 500 (480*l.* a year).' He says this is the lowest salary upon which a gentleman can live with comfort, and 'will not admit of many luxuries.' As these statements are qualified to deter young men from commencing life in the Public Works Department in India, I must give them unqualified denial. After an experience of twelve years in the country, I can safely state that one-half of the amount named is sufficient for any youngster commencing life in the department (not gifted with extravagant notions) to commence his Indian career upon. It would be pleasanter to have more, undoubtedly; but, as I have shown before, it is the pay upon which all officers of the army commence their career, and upon which they very often have to live for many years. It can only be supposed that 'C. E.' means that such a sum is necessary to procure such comforts and luxuries as hardly any man in India out of the civil service can hope to commence life upon.

'C. E.' states that one very grave cause of dissatisfaction amongst the civil members of the department is the inequality between their pay and that of the military members.' This so-called inequality has doubtless caused much dissatisfaction, but simply from the fact of those dissatisfied never having carefully examined the rates of pay drawn by civil and military officers.

A military officer employed in the department draws pay for performing two different kinds of service. First, he is paid by the State for being a military servant of that State, and liable to be called upon at any moment to perform military duties. Secondly, he is paid by the State for performing duties in the Public Works Department, during the time his services may not be required for military purposes. Thus it may be said that he is both a military and civil servant of the State.

Now, whether he be employed in the Public Works Department or not, he must be paid by Government in his military capacity. But as there is not military employment for all military officers in time of peace, the Government offer those who are willing employment in the Public Works Department, for which they receive what is technically called 'staff pay.' This 'staff pay,' specifically given for performing departmental duties, is *much less* than that paid to civil engineers for performing exactly similar duties.

The following table, based on 'C. E.'s' classification, shows the rates of pay drawn under the new rules by military and civil officers in the department:—

Military Rank and Rank in the Department.	Pay Drawn by Military Officers.		Monthly Total.	Monthly Pay Drawn by Civil Engineers.
	Military Allowance.	Staff Pay.		
	£ s.	£ s.	£ s.	£ s.
Asst. Engr., 3rd grade (Lieut.)	26 12	15 0	41 12	20 0
,, 2nd ,,	26 12	20 0	46 12	30 0
,, 1st ,,	26 12	25 0	51 12	40 0
,, ,, (Capt.)	43 8	20 12	64 0	40 0
Exe. Engr. 4th grade ,,	43 8	30 0	73 8	50 0
,, 3rd ,,	43 8	40 0	83 8	60 0
,, 2nd (Major)	75 18	52 6	128 4	75 0
,, 1st ,,	75 18	60 0	135 18	90 0
Supdg. Engineers of all grades (Lieut.-Col.)	100 4	59 2 to 80 0	159 6 to 180 4	100 0 to 160 0
Chf. Engr. 3rd class ,,	100 4	100 0	200 4	175 0
,, 2nd ,,	100 4	120 0	220 4	200 0
,, 1st (Col.)	250 0	...	250 0	250 0

The military pay and allowances here set down are those drawn by officers of the Royal Engineers. Officers of the other arms draw nearly the same sums.

If we compare the 'staff pay' or the pay drawn for performing departmental duties with the pay drawn by civil engineers for performing precisely similar duties, we shall see that, in every instance, the excess of departmental pay is on the side of the latter. The fact is, military officers enter the department with the view of supplementing their army pay, whilst civilians enter it to gain a livelihood. If the foregoing explanation commends itself to the readers of this, then it follows that 'C. E.'s' remark, 'Military men receive departmental pay *in addition* to the pay of their army rank, thus they are always paid more than,—sometimes twice as much as,—civilians holding the same appointments and doing the same duties,' falls entirely to the ground. In short, 'C. E.'s' mistake is simply this—he imagines military officers receive their military pay and allowances for performing non-military duties.

A few paragraphs further on, and, 'C. E.' thus writes:—'Recommendation rolls are submitted every half-year by the superintending engineers to the local governments, and the senior officer (*i.e.*, military or civil) recommended is usually promoted, unless there is something against him. *The promotions are generally fair, &c. &c.*' The italics are mine. If the promotions are generally fair, how is it that the promotion of military men is faster than that of civilians? Surely there is a contradiction here.

But at the same time I willingly allow, as before, 'C. E.' to be right to a certain extent. The military officers serving in the senior grades have, many of them, entered the department at a time when the civil element was not distinctly recognized by the Governments. Before the department was placed in its present organized footing, its *employés* consisted almost entirely of military officers. The number of civilians bore no proportion to the number of military men, and they entered the department with very uncertain prospects before them. Since the reorganization of the department, inequalities in promotion have been constantly diminishing. It is quite certain that at the present time, of two men entering the department in the same grade, one civil and the other military, their chances of promotion would be equal, their conduct and professional knowledge being also equal.

Objection is taken to the action of the Government in 'bringing in "outsiders"—railway engineers and others—as executive engineers of any grade, and as assistants of the first grade.' Appointments so made are exceedingly few in number, and are, as a rule, made on some special ground. Thus, it sometimes happens that engineers possessing experience of the country, or in some special branch of their profession, apply for appointments in the Government service. If their testimonials are good, and if it should appear that men are wanted, the Government is generally prepared to avail itself of the services of such men.

Before closing this letter, I would venture to make some remarks on the present position and constitution of the department. There can be no question but that the position of civilians in it has been enormously improved within the last ten years. With the growth of the empire at large, came the necessity for public works on an increased scale. The army was unable to supply the increased demand that then arose for effective constructive skill and supervision. Gradually, a few non-military men found their way into the department on production of satisfactory certificates. But their position was not clearly defined, either with regard to the department or with regard to the military officers employed therein. But as new works increased in number and extent, the necessity for placing the establishment of the department on a proper footing was at last distinctly recognized. This was done in 1855, and in that year it was laid down that *all* appointments in the department were open to *all* the members of the engineer establishment. From that year to this, the principle has been fairly and honestly adhered to, and in proof of this, I need only to refer to earlier portions of this letter.

The improvement in the position of the civil members of the department has, in consequence, been so great that no comparison can be instituted between the position of to-day, and the position of some ten or twelve years back. At the present time, there is not the slightest desire on the part of the Government to unduly favour one class of its *employés* at the expense of any other class. It may be safely stated that, provided a civilian shows himself to be well informed in the duties of his profession, to be active and honest, he will succeed in the department, as well as his military *confrères*.

Calcutta. W. B. Macone,"

* 'C. E.' is not quite accurate here. On some lines of railway 360*l.* is the amount of the yearly pay on entrance.—W. B. M.

THE "SORCERY-HALL" THEORY. IS IT A FACT?

Sir,—I perceive by your article at p. 522, &c. *supra*, that Mr. Dove now asserts the "sorcery-hall" notion as applied to our rock built chambers to be a *fact* not a *theory*. How does he seek to prove this? By citing Professor Rafn's reading of the most uncertain and disputed of the Maeshowe Runes. Now, laying at one side the pregnant *fact* that such able Runic scholars as Professor Stephens, Professor Munch, Mr. Mitchell, Principal Barclay, Dr. Charlton, and Dr. Wilson, all ignore the "sorcery-hall" translation, as may be seen in their readings of this inscription given in the "Proceedings of the Society of Antiquaries of Scotland," vol. v. pp. 265–278—and granting that Professor Rafn's unsupported interpretation is correct—I would simply direct your attention to the well-ascertained fact that these Runes are confessedly much more modern than the chamber on the stones of which they are cut. Nay, that it is the deliberate opinion of Professor Munch (one of the greatest of Runic scholars) that "Runes of this kind are *never* older than 1,100 at the earliest" (Id. p. 278). Hence the "sorcery-hall" theory can in no case be traced back to the builders of the chamber in the far past, and rests solely its very moderate, even if genuine, antiquity of 766 years, on the unsupported reading of Rafn, opposed by a host of abler men, who simply render the same Runes, "tumulus," or "howe." When, therefore, Mr. Dove generalises from this single doubtful instance, and applies the "sorcery-hall" theory to all other structures of a similar nature, I think I am quite warranted in terming that theory *baseless;* and I adhere to that term, being quite content to leave the *facts* of the case to the judgments of those who, like myself, having no *pet theory* to support, merely try to guess after any truth which these primæval structures may dimly indicate.

As to Governor Pownall's New Grange "inscription," I do not see how the case can be altered by taking his word that it is *Phœnician*. I gave him the benefit of a supposition that he looked on it as "an Ogham," because I was aware that it looked like an Ogham, and because I knew that the school of antiquaries to which he belonged considered the Ogham character to be of great antiquity, and, therefore, to have been introduced probably by their *Dei ex Machinâ* the Phœnicians. Anyhow, if it be an inscription, *it has never been read;* neither have the cognate "scribings" discovered by Mr. Conwell. I am justified, therefore, in upholding my former assertion that our Irish Pyramids belong to the "speechless past,"—as yet, at least.

I am not surprised by the irascible tone of Mr. Dove's rejoinder. I have always found that theory builders are much more impatient of contradiction than the humble-minded "hod men" of facts, one of whom I am quite willing, nay proud, to be counted.

Kilkenny. James Graves.

We have shown this letter to Mr. Dove and append his reply:—

What Mr. Graves indicated in his note was, that *I* had given the name of sorcery-hall to the chambered barrows, whereas he now admits that he knew it to be a fact that this name is a translation—whether right or wrong, is not here the question—read by Professor Rafn, from a Rune, in which, the Professor believed, the barrow referred to was called a sorcery-hall. As to the truth or error involved in Professor Rafn's translation, I do not mean to enter on any discussion with Mr. Graves; all I shall now say is, that I think it is probably correct that the chambered barrows *were* sorcery chambers; and that so far from being baseless, the probability of this idea can be strongly corroborated, apart altogether from the fact of Professor Rafn having so translated the Rune in Maeshowe. It is not from the name of sorcery-hall that I have generalized; but because I have generalized that I have adopted Professor Rafn's translation; and Mr. Graves is *not* warranted, either on this ground or on any other, in turning my ideas upside down, and then declaring that he *is* warranted in terming them baseless, merely that he may put them out of the way of his own "pet theory" of solely *sepulchral* uses.

The reasons given for knowingly and deliberately misstating what Governor Pownall said, I cannot at all appreciate. Mr. Graves might have even now admitted that it was an inadvertent mistake, if it were so; but to endeavour to justify and defend such a misstatement is most decidedly both reckless and wrong.

PROPOSED DECORATION OF ST. PANCRAS NEW CHURCH.

Sir,—Having failed in prevailing upon the trustees of St. Pancras Church to review a recent decision, I write to you as the last resource, hoping that you may be able to institute some inquiry into the matter before it has gone too far. The facts are as follows:—The trustees of St. Pancras Church decided upon spending some 600*l.* for *painting* the church, and advantage was sought to be taken of the opportunity of appropriately decorating it, *i. e.*, as a building of Greek architecture.

A sub-committee was appointed, of which Mr. Ghinn is treasurer. Before this was done, however, one of our trustees placed upon the table (*uninvited*) a design of his own, and the committee began its labours with only one design to sit in judgment upon.

Upon my application they were induced to invite four others to send in designs and estimates, and amongst them (at my request) was the firm of Jackson & Graham, because I knew their designs would have the advantage of Mr. Owen Jones's authority. When this sub-committee met, they decided upon the *lowest* estimate without seeing any design at all. Messrs. Jackson & Graham attended with their designs and estimate (prepared at some considerable expense), but were not even asked to open them. This sub-committee have since

signed the contract, and we do not know to this date what our church may be like when it is done.

My interest in this matter is, that such a church should not fall into incompetent hands. I suppose there is no authority in this or any other country for the decorating in colour of a Greek temple, and if there is it requires a man of some authority on the subject to do it as it should be. As I consider our church entitled, from its architecture, to much consideration from those who reverence Greek art, I am most anxious that it be not made one of the blunders of the day. Well done, it might be made one of the sights of the metropolis, and badly done, a standing eyesore. I hope you will step in to our rescue. G. M. Hicks.

THE DRAINAGE OF PORTSMOUTH.

Sir, — In the leader lately given in the *Builder* upon Portsmouth you state, incidentally, that "at Southsea a new main sewer is in course of construction, which is to discharge into the sea! Let us hope that before it is finished the authorities may get more light, and find themselves able to apply the sewage more usefully."

Will you allow me to state that the "main sewer" thus casually referred to, forms a portion of one of the largest systems of sewerage out of London, the construction of which is costing this borough 100,000*l*. It is true that we have an outfall into the sea; but, with the *best* system of utilisation, a population of 100,000 covering so large an area would, to say the least, find it very inconvenient at times, particularly after storms, to be without such outfall.

The "authorities" of this borough have not lost sight of the utilisation of the sewage, but, on the contrary, possess *all* the little "light" which other "authorities," scientific, parliamentary, or municipal, have been able to throw upon this vexed and debateable subject. Our outfall has been fixed with a view to the *ultimate* utilisation of the sewage; but, as we *pollute no river*, and discharge our sewage "outward bound" into a rapid current, on the top of high water, at a point some four miles east of Portsmouth, we can afford to wait for *more* "light," as well as the experience of other places whose necessities are more urgent than our own.

You have done Southsea justice in the glowing description you have given of the scene from its beach. It should also be known that this attractive watering-place, naturally so healthy, has the good fortune to be governed by "authorities" who are wise enough to appreciate and apply the latest teachings of sanitary and engineering science to increase the comfort and salubrity of the borough. Lewis Angell,

Engineer to the Corporation of Portsmouth.

"SURVEYORS."

A good deal has been written lately about the payment of surveyors in reference to the advertisements which have appeared from time to time for town and road surveyors. The very term *surveyor*, as used, is an anomaly; it means anything, or nothing. I do not think *surveyors proper* are usually badly remunerated; there may be isolated cases, but it is not a general *system*.

Town surveyors are often architects in good practice; in these cases they are not dependent on the salaries that are paid. Sometimes, as in sea-coast towns and fen districts, the surveyors are local civil engineers, as better fitted to carry out certain works in such places.

In cases of very large towns, such as Liverpool, Manchester, Birmingham, &c., the town or city surveyor has as much work as he and a competent staff of assistants can well get through; in such cases, private practice is usually proscribed, and this circumstance is taken into account in fixing his remuneration. Surveyors under the Local Management Act are generally fairly if not handsomely paid, and they have many opportunities for private work, and use them too.

I have, so far, spoken of competent surveyors, well-educated gentlemen, who have been properly articled to the profession; but there is a swarm of another class, who are the grumblers; uneducated men who assume the title of *surveyor* without any proper qualification; men who themselves know their proper employment would be in the carpenter's shop, or as foremen and overlookers.

I perused a letter quite recently in a journal, from a man who signs himself a "Foreman of Excavators" (and one who evidently does not undervalue his acquirements). He complains of the small amount of salary that was offered for a surveyor in a country town where he was employed, evidently piqued because he could not accept, and so add to his dignity by appending the assumed title of surveyor to his name. He submitted to become foreman of excavators, because he was better paid than by taking the appointment if he could have had it.

Such men rail at the lowness of salaries offered by local Boards for small towns, but why should more be offered when such men are as plentiful as blackberries, and when numbers are ready to catch at the smallest bait? If others, however, of his class would act with the same wise discretion that he has done, and be content to remain *foremen of excavators*, we should find a change for the better, and Boards of Health would offer better salaries, and so induce young but properly qualified men to seek situations under them,—men who never think of answering such advertisements as "Foreman of Excavators" complains about. A progressive improvement would take place, and many comfortable, if not very lucrative appointments given to those who have the best right to expect them.

He says the "bone and muscle" of the country is emigrating to America from such causes as he relates. Certainly I believe that if a few cargoes of the "bone and muscle" comprised in "sham surveyors" would emigrate, it would be a decided advantage to the *real ones* left behind. Alecto.

PARK LANE.

Changes effected within the last twenty years in the general system of intercommunication by railways, as well as the enormous increase of the outlying W., N.W., and S.W. quarters, have poured a traffic into this tiny thoroughfare for which it is quite inadequate, and which continues daily to increase; not on account of its aptitude, but solely because it is the nearest route from N.W. to S.W., and the direct line between the Great Western and Victoria Stations, and also between Oxford-street and Piccadilly.

Private vehicles and equestrians, as well as the walking public, provided they carry nothing beyond an umbrella or cane, may go through the Park, by daylight; but the torrent of omnibuses, cabs, vans, and wains daily increases, until at last the issue of the Lane into Piccadilly has become the most dangerous and fatal of London crossings.

At the point of issue into Piccadilly, on this ever-crowded pavement, the total width of *the Lane* is, as we before described in the *Builder*, but 31 ft., with a carriage-way between the curbs of only 20 ft.! Some years back we pointed out, that this end of Park-lane crooked off eastward about 300 ft. from the right line, which would strike out straight through Hamilton-place; and thus, without interference with numerous inhabited and valuable houses, would afford at the cheapest rate, the greatest amount of public advantage; but it seems that *five or six aristocratic residents* of this fashionable park angle could not brook the vulgar cavalcade of 'buses, and so some 200,000*l*. are to be drawn from the public purse to buy out a royal duke, together with twelve or fourteen tenements of minor importance, in order to form a less direct route, at the cost of a larger violation of private rights.

The length of Park-lane is approximately three-quarters of a mile, which, bounding the Park, ought to form a noble causeway, with a wide pathway on the Park side; and the line of young trees which now stands 9 ft. within the fence should be preserved, as in Piccadilly and in all the Parisian Boulevarts. If enlarged by a strip of only 12 ft. from the Park border, the addition would ennoble the Lane; and, as in St. James's Park, the widening of the roadway would give apparent extent to the Park inclosure also: as reference to, and inspection of, any of the borders and adjacent roads which have been so treated, will verify this otherwise apparently inconsistent problem.

There are portions, as between Brook-street and Grosvenor-street, and opposite to Dorchester House, where the lane is 20 ft. or 30 ft. wider; but it has only a width of 27 ft., between the curbs, in the whole length from the Oxford-street end to Brook-street, the Grosvenor gate and lodge standing a little inward and withdrawn from the line of rail; therefore, without disturbing the gate or lodge, the fence might be graduated inwards from that point, and continued to Oxford-street, giving out the strip of 10 ft. or 12 ft., with the forest trees, to the road, and the flower-borders, so beautiful before the late disturbance, need be in no degree interfered with.

The late untoward commotion having demolished the rails, makes it essential now to erect some new fence, perhaps more permanent than the last. Our late Chief Commissioner embellished the parks and distinguished himself. Could it have been that popular gratitude, and the humanising influence of flowers, saved from spoliation that gorgeous and incomparable display of bloom which still adorns the space between Grosvenor-gate and Stanhope-gate? along this whole line, too, the railing was prostrated, but not a single leaf, nor bud, nor petal was disturbed. Most certain it is that people of all classes habitually crowded the *parterres*; they admired, they enjoyed the floral repast so bountifully provided for them, and guarded them as their own.

In whatever way the grand conduit of Park-lane is to be improved, no time should now be lost in making it wide, splendid, and suitable to the importance of the position, and the necessities of the community. Quondam.

ASPHALTE.

Sir,—Noticing that a great many buildings are being erected upon wet swampy land, I would, through the medium of your valuable journal, earnestly call the attention of all architects and builders to the advisability of having the foundations and ground-flooring laid with good asphalte, from 1 in. to 1½ in. thick, and also to have the outside walls coated with the same composition from the foundations to a little over the level of the ground. I need hardly refer to the well-known fact that damp houses are very prejudicial to health.

By the process I have named, damp would be effectually prevented, and much after-trouble, annoyance, and expense saved, as water cannot penetrate through asphalte when properly laid, and by this means the property would be rendered more valuable both in a monetary and sanitary point of view. This would be particularly the case with public-houses, where dry cellars for the storage of beer, &c., are so much needed. R. J.

NAIL-MAKING MACHINE.

Mr. R. C. Robinson has patented a nail-making machine on a new principle. He claims that besides making nails with good points and heads, it turns them out much more quickly than the machines hitherto used, these latter producing of 1½-inch nails 180 per minute, while the new machine makes with ease 380 in the same time. The old machines are fed by hand, requiring a person to each machine, but this is self-feeding, and one person can easily tend two machines. The old machines are fed with a strip of the same width as the length of the nails to be cut from it; thus 1½-inch nails require strips of 1½-inch wide to be fed by hand into the machine; but the new machine, for the same length of nails, feeds itself with a strip 6 inches wide, detaching four nails from the strip at each cut.

There is no reason why strips of 12 inches wide, or more, should not be cut up into nails in a machine of proportionate strength, and so save a deal of labour in cutting or preparing strips. The nails now used require annealing after they are made, but those produced in this machine are not hardened in the process of cutting, and so do not require any annealing.

CHURCH-BUILDING NEWS.

Norwich. — St. Giles's Church has been reopened. The style chosen by Mr. R. M. Phipson, the architect, for the new chancel, is the Late Decorated Gothic, such as prevailed during the time of the three Edwards, the unity of the entire building being thus secured. The east window is of four lights. The three bays on the south side of the chancel are filled with three-light windows in keeping with the large east

window. The north side of the chancel is appropriated to a vestry, with an entry from the exterior, and an organ-chamber which opens by arches into the chancel and the north aisle. The windows in the south aisle have been all removed, and new lights inserted, corresponding in style and design with the windows of the north aisle. The west arch, which was filled with the organ and a heavy gallery for school children, is now seen to advantage, while the whole west door has been replaced by one in carved oak, and the west window has been restored, stone tracery and mullions taking the place of the old woodwork. The mullions and tracery of all the windows of the north aisle, and the clerestory windows of the south, have been cleaned, and, together with the new windows, all have been glazed with tinted cathedral glass. The tower has been restored and strengthened by the erection of new buttresses. The buttresses to the aisles have also been restored. The roofs of the nave and aisles have been restored and newly covered with lead, while the roof of the chancel has been covered in like manner. Internally the church has been improved. The walls have been refaced, the stonework cleaned, open oak benches with traceried ends have taken the place of the old lofty churchwarden pews, a traceried and carved oak pulpit, and a reading-desk to correspond, have replaced the massive erection of the old time, and the chancel has been paved with encaustic tiles. The work has been done, under the direction of the architect, by Messrs. Atkins & Dawes, and Mr. Lacey, the expense being over 3,000*l*., of which sum the incumbent has given 1,000*l*.

Caldwell.—St. Mary's Church, Caldwell, which is likewise used by the adjoining hamlet of Wykeham, has been re-opened after undergoing a restoration. The nave roof has been restored to its original pitch, and the chancel has been re-roofed. The fittings were in a very dilapidated condition, and there was no division wall between nave and chancel, which gave the junction of the roofs a very ugly appearance: new piers and arch now form the division. The benches are of deal varnished. The pulpit is of oak, with a stone base. The aisles are paved with stone, and the chancel is paved with encaustic tiles from Whitstone's manufactory at Coalville. The east windows have been filled with stained glass from Mr. Wailes's, of Newcastle. The south porch has been restored, and new windows have been inserted on the north and south sides of church. The bell framing has been repaired and a new belfry floor has been put in. The chancel has been restored by the Duke of Rutland, to whom it belongs. The works have been carried out by Messrs. Weaver & Wentnall, of Melton and Goadly, under the superintendence of Mr. R. W. Johnson, of Melton Mowbray and Leicester, architect.

Bicester.—Chesterton Church, which has been undergoing a repair during the past twelvemonth, has been re-opened for divine worship. The restoration has cost about 1,000*l*. The benches are of oak, and were made by Mr. Finch, of Finmere. The carpenter's work to the building was done by Mr. John Renn, of Chesterton village, and the stonework by Mr. Jas. Bates, of Kidlington. The architect was Mr. Penrose.

Tydd St. Giles.—The chapel of ease at Foul Anchor hamlet, on the Nene, between Sutton Bridge and Wisbech, has been opened for divine service. It has been erected by Messrs. Girling, of Wisbech, and Bateman, of Tydd St. Mary. The edifice is plain and in the Gothic style, from a design by Mr. W. Adams, architect, Wisbech. It is built on a piece of land on the western side of the new line, with red brick, having a slated roof, with a cross upon the western end. The dimensions of the interior are 58 ft. by 20 ft. The windows are lancet-headed. The roof is an open one.

Greenhill (*Harrow-on-the-Hill*).—A church is in course of erection here, which will, when finished, form a chapel of ease to Harrow parish church. It is a brick building, consisting of nave, chancel, vestry under tower, and organ-chamber, and north-east entrance on the other side of chancel. It has also at the north-west angle a porch and bell-turret (for present use, as the tower will not be completed at first). The whole of the roofs will be plastered to the under side of rafters, and decorated in water-glass or encaustic painting. The design is of a simple and severe character, based upon the early French Gothic, and the building will, when completed, seat about 430 adults. The cost for the complete church will be abont 2,100*l*. The works are being executed by Messrs. Dove, Brothers, and the architect is Mr. Bassett Keeling.

Reigate.—St. Matthew's Church has been consecrated. The edifice is in the Early Gothic style, slightly decorated. The architect was Mr. Hähn, of London; and the builder Mr. Carruthers, of Reigate.

Thornbury.—The parish church has been re-opened. It had been in an exceedingly dilapidated condition for many years, and has been considerably curtailed in consequence. Up to the present restoration it was encumbered with the old-fashioned pews, the walls being covered with the usual accumulation of successive coats of whitewash. The works which have just been carried out consist of a general restoration rather than a rebuilding of the fabric, though it has been found necessary to reinstate many portions of the old work, which is of considerable antiquity. A new south porch, and a new vestry and organ chamber have been added on the north side of the chancel. A new chancel arch and new east window have been inserted. The tower has also been surmounted by a new pyramidal roof, covered with shingle. The roof of the nave has been repaired, and the remainder of the roof re-constructed, and the whole has been covered with Broseley tiles. The interior of the church has been fitted throughout with oak stalls. The floor of the lower nave, chancel, and porch has been laid with red, black, green, and figured encaustic tiles, from the manufactory of Messrs. Godwin, Withington. The sacrarium has also been inlaid with tiles of the same description as the body of the church. The stone used in the present restoration is a red sandstone, which can be obtained in the district. The total expenses of restoration are about 850*l*.

Seaton (*Devon*).—The parish church, which has been closed for more than six months, has been re-opened, after reseating and other improvements. The church is peculiar. Two arches remain, with mouldings continuous from the piers of Decorated date, forming part of an arcade to the north aisle; adjacent to these is a chancel arch of the same style. The chancel inclines from the line of the nave 2 ft. to the southward, in a length of 25 ft. It opens to the chancel aisle by a segment pointed arch of two chamfered orders, the inner springing from corbel heads; but the bulk of the church is Perpendicular. The works consist in the removal of high square pews, and reseating the whole church in low open seats of red deal, having tracery in the bench ends; a new red deal pulpit; a new roof of Decorated character in the chancel, in place of a decayed one of Late Perpendicular; and a new east window, in place of a debased one of 1764. The west gallery of necessity remains, as the enlarging the church could not be effected with good taste in aisle or transept. The outlay is about 600*l*. Much repair to free-stone-work has yet to be done, and further works of restoration are needed. Mr. Ashworth was the architect employed, and the work was carried out by Messrs. Major & Gollop, local builders.

Liverpool. — St. Simon's Church, which has been removed and rebuilt at the corner of St. Vincent-street East, by the London and North-Western Railway Company, in consequence of the latter extending the Lime-street Station eastward, has been opened for divine service. During the progress of rebuilding the church on the new site, there has been some misunderstanding between the railway company and the trustees of the church, it being alleged that, in reconstructing the edifice, the company had sacrificed fifty seats in the galleries and thirty in the body; in addition to which it was stated that in several other respects they had failed to restore the building to its original condition, and under these circumstances the trustees had resolved not to receive the church from the company. The fifty seats in the gallery having, however, been replaced, and other concessions made, the church was received.

Padiham (*Lancashire*). — The old parish church of St. Leonard's has been pulled down, and a more commodious edifice is being erected to meet the requirements of the parish, and to stand as a monument to the memory of the late Mr. Le Gendre N. Starkie, of Huntroyde Hall. The foundation stone was laid with Masonic honours by Captain Starkie, the patron, on the 28th ult. The new church will be in the style which prevailed in the middle of the fifteenth century. The plan comprises nave and side aisles, north and south transepts, chancel, with chapel on south side, and organ chamber and vestry on the north, with a porch on the south side. The tower is situated at the south-west angle of the building. The total internal length from east to west, is 98½ ft.; the width across the nave and aisles, 54 ft.; the chancel is 21½ ft. wide; the height from the floor to the ridge of nave roof is 52 ft., and the height of the tower to the top of the pinnacles, is 96 ft. An arcade of six bays of moulded arches, resting on octagonal and moulded pillars and responds, divides the nave and chancel from aisles, transepts, and chapel, on either side. The principal entrances are through the porch and transept on the south side, the doorways being moulded and carved. The windows have all moulded jambs and mullions, with tracery in the head of each. The tower opens into the south aisle and nave, through moulded piers and arches. The roof will consist of framed hammer-beamed principals, with carved and moulded brackets (with tracery in the spandrels), supported by stone shafts and corbels. All the roofs will be boarded, and the whole stained and varnished. The slating will be in bands of two colours, and the ridging surmounted by ornamental cresting, that of the chancel being foliated in wrought iron. The internal walling will be of finely-dressed stone throughout. The aisle floors will be laid with Staffordshire tiles, those for the chancel being encaustic in patterns. The benches will be open, and the ends framed with tracery heads to panels. The windows will be glazed in tinted cathedral diamond quarries, set in lead, with white borders. The stone for the external dressings is to come from Steton, in Yorkshire, and the internal stone from local quarries. The church will be warmed by hot water, and lighted by gas, on ornamental brass standards. The accommodation is for 1,000 persons, and the entire cost will be about 6,000*l*. The architect is Mr. William Waddington, of Burnley and Padiham, under whose superintendence the whole will be executed by the following contractors,—Messrs. C. Anderton, for the masonry; J. & L. Bertwistle, for the joinery; J. Harrison, for the slating, all of Padiham; and J. Bradshaw, of Burnley, for the plumbing and glazing.

Killingworth, Northumberland.—A new church is shortly to be commenced at this place, which is about six miles north of Newcastle-on-Tyne, and the scene of the early life of George Stephenson, the great engineer, who was "breaksman" at the Killingworth Pit, and in front of whose house in the village there still exists the sun-dial, in the making of which he displayed the first indications of his mechanical genius. The church will be built of two varieties of local stone, with some of the finer portions of the internal dressings of Bath stone. In plan it will consist of nave and side aisles, chancel with apsidal end, and vestry and organ chamber at the east end of the church; and a tower and spire, forming a ground porch entrance, at the south-west corner. There will also be a north porch, which, together with the north aisle and organ-chamber, will not be erected at present. The style is French Gothic of the thirteenth and fourteenth centuries. The accommodation when completed will be for about 520 adults, and the outlay when completed will be a little over 3,000*l*. The design was selected in limited competition with a few local architects, and is by Mr. Bassett Keeling, under whose superintendence the works will be carried out by local tradesmen.

Postwick. — The church of Postwick next Norwich has undergone a restoration. The work, which was commenced about a year ago, has been carried out, according to the plans of the architect, Mr. Morant, by Mr. Foyson, builder; Mr. J. W. Lacy, bricklayer; and Mr. Rust, stonemason—all of Norwich. The nave and chancel are supplied with a new open-timbered roof, and the chancel is connected with the church by an arch. A vestry with an organ chamber is appended to the north side of the chancel. The chancel is fitted with oak stalls and a prayer desk, and the floor is laid with Minton's encaustic tiles. The reredos has been re-painted, and a new Communion cloth and fauld stools have been worked and presented by some lady parishioners. A brass corona, made by Messrs. Jones & Willis, of Birmingham, and bearing the words, "Let us walk in the light of the Lord," depends from the ceiling. A new window has been inserted at the east end by Messrs. Ward & Hughes, of London. It represents six events in the passion of the Saviour—the entry into Jerusalem, the agony in the garden, bearing the Cross, the Crucifixion, and Christ and Mary in the garden after the Resurrection. The tracing is filled with the

figures of the four Evangelists, and beneath each medallion is an inscription appropriate to the subject depicted. The organ chamber is filled with a new organ, enclosed in a Gothic deal case: Mr. W. C. Mack, of Yarmouth, was the builder. The pulpit, which is new, is of Caen stone, and was carved by a young lady related to the rector. The centre panel represents the Saviour bearing the Cross, with a "daughter of Jerusalem" kneeling in the foreground. Beneath it is the inscription—"We preach Christ Crucified." Over the figures is an arch supported by columns of French marble, and the spandrels are inlaid with marbles. The roof of both chancel and nave has been re-tiled with red tiling relieved by black bands running in a horizontal direction. The completion of the restoration has been celebrated.

Books Received.

Society of Engineers: Transactions for 1865. London: Spon. 1866.

This is a volume of nearly 300 pages, with numerous plates. It contains, besides an inaugural address by the president for 1865, Mr. W. T. Carrington, papers On the Patent Laws, by Mr. C. D. Abel; On Strength and Rigidity, by Mr. W. E. Kochs; On certain Methods of treating Cast-iron in the Foundry, by Mr. Zerah Colburn, the president of the present year; On Irrigation with Town Sewage, by Mr. George King; On Circular Tables, by Mr. H. Hakewill; On Sugar-making Machinery, by Mr. P. F. Nursey; On the Adhesion of Locomotives and certain Expedients, by Mr. Vaughan Pendred; and On Giffard's Injector, by Mr. Lewis Olrick. To the papers are also appended the discussions to which they respectively gave rise; the whole forming a volume of some value to the engineering and architectural professions.

VARIORUM.

Half a dozen pamphlets on the *Treatment* of Cholera have reached us, but this is a part of the subject to which we can only refer incidentally. We deal with endeavours for prevention rather than means of cure.——The *Quarterly* has a second article on the Life of Sir Joshua Reynolds, taking greatly the shape of a defence of the admirable painter as against the statements of Allan Cunningham. "Iron and Steel" is the subject of an interesting article in the same number.

Miscellanea.

Value of Land at Cirencester. — On Wednesday, Messrs. Moore & Hill sold by auction, at the Bull Inn, two lots of land in the Nursery, having frontages to the New-road and to Carpenter's-lane. The pieces of land in question, with others previously sold by private contract, until a few years ago formed part of a pasture field. The prices realised, we believe, exceed 9*l.* per perch, or 1,440*l.* per acre!

Prize Essays on Commons near London.—The Commons Preservation Society announce that Mr. Henry W. Peek, of Wimbledon House, has offered four prizes for essays on the preservation of commons in the neighbourhood of the metropolis. Two prizes will be given for essays dealing with the sanitary and moral aspects of the question, namely, 50*l.* for the best and 25*l.* for the second best essay. The competitors are expected to discuss the necessity of preserving these open spaces for purposes of health and recreation, their importance for the volunteer movement, for athletic sports, and for the study of natural history; explaining their present condition, and whether it is desirable that anything, and what, should be done to improve it. Two prizes will be given for an essay dealing with the legal and historical aspects of the question, 100*l.* for the best and 50*l.* for the second best essay. Very great uncertainty prevails as to the legal rights of commoners and lords of the manor, and it is believed that the latter have been considerably exaggerated. The Right Hon. W. Cowper, M.P., Mr. George Shaw Lefevre, M.P., Mr. Charles Buxton, M.P., Mr. Joseph Burrell, and Mr. John Murray, will act as judges of the essays, and award the prizes.

A New Cairn at Balmoral.—The tenants, servants, and others on the estates of Balmoral and Abergeldie, in order to testify their loyalty and devotion, mustered in great force the other day for the purpose of raising a Highland cairn, commemorative of the marriage of the Princess Helena and Prince Christian of Holstein. Having fixed upon one of the peaks of Craig Gowan, a little south from Balmoral, for the site, they set to work in good earnest; and in a few hours a cairn was raised of imposing dimensions and artistic finish. The work was relieved by dancing Highland reels to the strains of the bagpipe.

Frightful Occurrence at the Slough Drainage Works.—A slip of earth has taken place in the excavation near Sussex-place, and some labourers engaged upon the work were buried beneath the soil. Two of the men, though partly imbedded in the mass of gravel were rescued alive, but one, it was found, had been suffocated. When alarmed at the first moving of the soil, in his bewilderment he must actually have rushed into the danger instead of from it. The coroner's jury found a verdict of accidental death.

Wholesale Lead Poisoning.—During the past two months the people of a portion of the western part of Orange county, New York, have been attacked with a malady exhibiting the most positive symptoms of lead poisoning. Many cases resulted in death, and hundreds are still suffering from its effects. Physicians were sorely perplexed, but they established the fact of the presence of lead in the systems of patients. After considerable research, it was found that the lead was taken by the sufferers in bread manufactured at a mill in Philipsburg, and it was discovered that an old mill-stone, which required continual repair, always had the holes in it filled up with lead. Of course, the attrition of the grinding detached minute particles of lead from the stone, and mingled them with the flour. The lead thus communicated, when fermented and subjected to baking with the flour, was immediately transformed into carbonate of lead, one of the deadliest of poisons.

Telegraphic Progress: One Wire Typo-Telegraph.—A pair of experimental instruments embodying improvements have now been nearly completed, for Mr. J. H. Simpson, the patentee, by the well-known instrument-makers, Messrs. Elliot Brothers. The two instruments, says *Engineering*, are similar, and either of them may be used for receiving or transmitting a message, the only variation required being, that the sending instrument should be supplied with type, and the receiving one with prepared paper. They each consist principally of a wooden wheel, 42 in. in diameter, having disposed heliacally round its circumference eighteen styles, which are each pressed outwards by a spring. The wheel is placed so as to revolve at a short distance from a desk, the face of which is curved to suit the circumference of the wheel, this desk carrying either the type or the prepared paper, as required. As the wheel revolves, the styles successively traverse the type or paper placed upon this desk in a series of parallel lines; and the desk being of less length than the interval between the following styles, one only is passing over it at one time. Either the styles of the two instruments are connected to a single line wire and the desks to "earth," or *vice versâ*, and the usual battery connexions being also made, it follows that, as each style of the sending instrument passes over the type, it will transmit a series of currents through the line wire to the receiving instrument, and cause the style of that instrument, in passing over the prepared paper, to record a series of marks corresponding to the type. The synchronous motion of the two wheels will be ensured by the employment of a governor—we believe a modification of that patented by Professor Thomson and Mr. Fleeming Jenkin—and they will be driven by falling weights. Perfect means of adjustment are supplied for instantaneously correcting any variation in the speed of the two instruments. The advantages of this system appear to be principally these: that the instruments can be kept at work incessantly, there being no occasion to stop them even for the insertion of a fresh message; that either clear Roman characters or a cypher can be employed at pleasure; and that, from the way in which the messages are developed by the passage of successive styles, it would be impossible to obtain information by "tapping" the line.

Petroleum, or Mineral Oil.—There appears to be good reason for supposing that an abundant supply of petroleum exists in the rocks of England. It is stated that the surface "indications" of various parts of Shropshire lead to this inference. Experimental borings are in progress.

Society of British Artists.—At one of the recent meetings of the Society of British Artists, held at the Gallery, Suffolk-street, Pall Mall, Mr. F. Y. Hurlstone, the President, in a very complimentary speech, presented to Mr. Henry Hawkins a well-filled purse, to mark the respect the Society feels for him as being one of its founders, and its oldest member.

Hydraulic Bung.—Dr. Weber has recently brought before the Industrial Society of Mulhouse a bung of his invention, which allows of the escape of carbonic acid gas during fermentation, but prevents loss by the evaporation of alcoholic vapours. It is sometimes difficult to know whether fermentation has ceased or not, and if the cask be closed before it has done so there is a risk of the cask being burst. With the improved bung, which is similar in principle to an ordinary stench trap, there is no danger of this, as the carbonic acid gas can escape whenever it has attained sufficient pressure to force itself under the edge of the inverted trap. The bung is constructed of pottery-ware, and is not, we presume, intended for permanent use.

Newspaper Press Fund.—The annual meeting of the members of this society was held at Willis's Rooms, King-street, St. James's; Mr. J. H. Doyle in the chair. The report of the committee of management stated that the society had continued to make satisfactory progress. The number of members enrolled on the 1st of July was 214, of whom 43 were London life members, 10 country life members, 108 London annual members, 21 country annual members subscribing one guinea a-year, and 32 country annual members subscribing half-a-guinea. Since the last annual meeting the committee had purchased 700*l.* more in the New Three per Cents., making a total investment of 2,000*l.* in that stock. To this they had added 700*l.* in debentures of the Great Indian Peninsula Railway Company, bearing interest at the rate of 5 per cent. per annum, and guranteed, as respects payment both of the principal and interest, by her Majesty's Secretary of State for India in Council. Mr. J. H. Doyle, Mr. J. Mould, Mr. F. Leger, Mr. W. Saunders, Mr. J. W. Ellesdon, Mr. J. N. Lee, and Mr. Callaghan were elected members of the committee.

Something like a Mansion.—A Paris correspondent thus writes:—"An invitation to visit Ferrieres, the property of Baron James de Rothschild, is, you will admit, one of the few which are seldom declined. To convey a fair idea of the magnificence of this princely dwelling, I feel inclined to refer you to the most glowing page in the 'Arabian Nights' tales. You enter, by a flight of marble steps, a vestibule, which opens on one of the most spacious halls in Europe, furnished, however, as a reception-room, and lighted from the roof, which is of muffled glass, from behind which, at night, a system of gas illumines the vast space, somewhat as has been so successfully carried out at the Châtelet. A gallery runs round the upper part of the hall, on which suites of party rooms open; while on the ground-floor the reception and family apartments open on the hall. Purple velvet *portiéres* have an admirable effect at each end of this splendid *salle*, which has been constructed on the most perfect acoustic principles, the result of which is, that the effect of music executed here is marvellous. Each room is hung with tapestry, velvet, or silk. Every single visitor finds at his disposal a suite, consisting of a splendid drawing-room, boudoir, bed-room, and dressing-room. On every dressing-room table are the ordinary contents of a gorgeous dressing-case,—ivory brushes, surmounted by a baron's coronet; silver boxes, containing every species of *cosmetique, poudre de riz*, &c.; exquisite hand-mirrors, mounted in sculptured ivory, sandal-wood, or silver. A scent-bottle of rare workmanship attracted my attention. As the spring flew back, lo! a jewelled watch, by Breguet, was revealed encased in the top. To mention that hot and cold water pipes are laid on to supply each room is superfluous. To describe the thrones taken from the Summer Palace at Pekin, the jewelled cups from Cellini's chisel, the ceramic from Faenza or Lucca, the crystal beakers from Venice, the hangings of broidered satin, is verily beyond my intellect."

Fall of a Suspension-bridge.—French suspension-bridges seem to be very liable to fall. The Rotonde Bridge at Nantes, gave way the other day while a herd of forty bullocks was passing over it. The cattle had been divided into two portions, of which the first, with two men, got safely across; but the second lot, with the drover, were precipitated into the water. The man lost his life from the animals falling on him. Several of these latter also perished. The bridge was an old one.

Rebuilding Chapels.—Where property is held by trustees to be employed in the repairs of a chapel, and any surplus is to be distributed among the poor of the parish, the trustees are not authorised to rebuild the chapel, instead of merely repairing it, although it is in a very dilapidated condition and unequal to the wants of the inhabitants, and the trust estate has increased very largely since its first institution. This was the decision of Vice-Chancellor Wood upon a question raised under "The Booth's Charities Act, 1846," containing provisions for the repairs and maintenance of Trinity Chapel, Salford.

The Needle Gun a Huddersfield Invention.—It has been stated that the principle of firing a gun by means of a needle suddenly penetrating an explosive substance fixed in the cartridge, was invented by Mr. John Hanson, of Folley Hall Lead Works, Huddersfield, who completed his invention by constructing a breech-loader for his own amusement and service in rook shooting. Mr. Hanson had a friend, a gunsmith,—Mr. Golden, of Huddersfield,—to whom, it is said, he gave his invention, which was patented by him in 1843, in the name of Golden & Hanson,—five years before it was made public by the Prussian Government. Mr. Golden, at the request of the King of Prussia, forwarded two of Mr. Hanson's guns to him so far back as 1846, two years before it became public.

Vendor and Purchaser: Eight per cent. Interest on Purchase Money.—The suit *Lady Herbert* v. *The Salisbury and Yeovil Railway Company*, was where the company having contracted to purchase certain lands, agreed, after a fixed day, to pay 4*l*. per cent. interest on unpaid purchase-money, and after another fixed period to pay 8*l*. per cent. The plaintiff claimed specific performance of the agreement, and that interest might be paid on the purchase-money at the rate of 8*l*. per cent. The Master of the Rolls said—"The question here is not whether interest shall be paid at all, but whether 8*l*. per cent. is a penal rate of interest such as this Court will relieve against. If a man enters into a contract with his eyes open to pay a high rate of interest definitely and unconditionally, he cannot afterwards complain of the hardness of the contract; nor does it matter whether there is, as in this case, an ascending scale of interest. This is quite different from a covenant to pay a higher rate of interest if the lower rate is not paid punctually. The stipulation to pay 8*l*. per cent. was an essential term of the contract, and not in the nature of a penalty, and no fraud having been proved, there must be decree for specific performance according to the terms of the contract."

Diamonds.—M. Chancourtois has presented an interesting memoir to the French Academy of Sciences on the production of diamonds in nature. M. Chancourtois thinks that diamonds have resulted from an incomplete oxidation of carbides of hydrogen, just as the sulphur of the *Solfatara* results from an incomplete oxidation of sulphuretted hydrogen, all of whose hydrogen is converted into water, while only a part of the sulphur is changed into sulphurous acid. It is by a similar process that petroleum has given rise to bitumen, and this again to graphite. "If, then (said the author) a mixture of hydrocarbon gases and vapour of water be submitted to slow oxidation, diamonds may possibly be obtained." It is even possible, he observes, that "the tubes which convey common coal gas along the streets may contain such artificial diamonds in abundance." Let us take another view of the matter. Diamonds, as we have before said, could readily be produced if we had a solvent of carbon. Might not that very interesting and curious fluid from two solids,—sulphide of carbon,—under galvanic influence, dissolve a certain additional quantity of carbon, which, on the gradual withdrawal of the galvanic action, might be deposited from the sulphide in a crystallized or diamond state? Chemists and electricians are welcome to this idea for what it may be worth. All we shall ask in return is a good thumping big diamond before they become as cheap as "black diamonds."

Looking Forward.—A Brighton paper says,—We believe we are correct in stating that the building operatives in the neighbourhood have resolved not to accept work in connexion with the new Workhouse here while they can obtain employment upon other works which are going on in the town, in order to reserve the Workhouse for a "stock job for the winter."

Extraordinary Increase of Building Societies in Sunderland.—The borough of Sunderland, with 103,000 inhabitants, possesses sixty building societies, of 13,401 members, and 45,604 shares. The capital of these societies when realized will amount to 1,768,025*l*. The capital has trebled since 1859, when it was 532,001*l*., with 3,822 members and 9,432 shares. Since 1859, 24 societies have terminated and 36 been established.

Bath School of Art.—A public meeting has been held in the Council Chamber for the purpose of receiving the report of the Committee of the School of Art, recommending the purchase of the house, No. 33, Paragon, now occupied for the purposes of the school. There was but a very small attendance. The report having been adopted, the Chairman distributed prizes consisting of boxes of mathematical instruments, water colours and crayons, books and certificates, to the pupils.

Proposed Oxfordshire Fine-Art Exhibition. We understand, says the *Oxford Times*, that there is a desire intimated by several influential parties in this county, university, and city, to hold next year in the townhall and city buildings at Oxford, an exhibition under the title of "The Oxfordshire Fine Art and Industrial Exhibition." Few counties possess such treasures of art, while the industrial department could be so well and ably represented by Witney, Woodstock, Chipping Norton, Banbury, and other towns, as to satisfy the world that Oxfordshire, though ranking high as an agricultural county, can also hold its position with respect to manufactures.

Improvements in Lighting at Railway Stations.—Mr. John Parkes, the gas engineer of the Metropolitan Railway, has recently introduced an improvement into the lamps with which stations on the line are furnished. The lamps are globe-shaped, and the framework is so light that the lamps appear as if they were entirely made of glass; yet their strength is great. The lamps at Moorgate-street and Aldersgate-street Stations have been further improved by the addition of a sliding-door, held in its place by a ring within an upper band of the lamp, and a clip which grasps the central band: the door is all but invisible.

A New Museum in Paris.—The Prefect of the Seine, M. Haussmann, had long conceived the idea of forming a Municipal Museum of Fine Arts, and for this purpose he some time ago bought two collections, those of M. Legras and M. Gailhabeaud. By a prefectorial decision just issued, according to *Galignani*, this museum is now to be established forthwith. It will consist of the pictures bought at various times by the municipality, of the collections above-mentioned, and of the library of the city, which, though seldom talked of, is one of the most interesting of the capital. The Municipal Museum will comprise public reading-rooms, picture-galleries, collections of engravings, medals, seals, &c., all relating to the history of Paris from its origin to the present day. The municipality have not yet made up their minds as to the locality best adapted for the museum.

The Midland Hardware Trades.—The reports from the manufacturers of Birmingham and other towns are unanimous as to the unusual depression which characterizes all branches of industry. The continental war has, of course, virtually closed such markets as Germany, Italy, and Austria to our merchants and manufacturers. In the East Indies the alarming distress and ruin caused by the failure of the Agra Bank will for a time paralyse commerce in all its branches. Orders from the United States are already checked in some degree by the proposed tariff, which has passed the House of Representatives by a majority of forty-one, and is now being considered by the Senate. A few Australian orders of moderate extent have been given out, and a little is being done for the China market, both in heavy hardware and shelf goods. The home trade is quieter. There have been some heavy shipments of machinery from Liverpool.

TENDERS

For alterations and additions to No. 6, Castle-street, E.C. Mr. Herbert Ford, architect:—

Cooper	£970 0 0 !
Sims & Marten	880 0 0
Perry	660 0 0
Sabey	550 0 0
Johnson	525 0 0
Crane & Vaughan	510 0 0
Palmer & Son	480 0 0 !

For finishing five houses, in St. Paul's-road, Bow. Mr. W. E. Williams, architect:—

Rollinson	£1,525 0 0
Davis	1,505 0 0
Hutchison	1,200 0 0
Clemmans	1,180 0 0
Ladd	960 0 0

For alterations, &c., to premises, Northgate-street, Gloucester, for Messrs. Davies & Son. Mr. H. James, architect:—

Clutterbuck (accepted)	324 0 0

For building a house and offices, at Hartham Gate, Hertford, for Messrs. B. Young & Co. Mr. W. Wilds, architect:—

Norris	£530 0 0
Castle	495 11 0
Collins	495 0 0
Buit	439 7 6

For rebuilding two malt-houses, recently destroyed by fire, at The Wharf, Hertford, for Mr. Jasper Gripper. Mr. Wilds, architect:—

Ekins	£2,735 0 0
Allen	2,620 0 0
Andrews	2,579 7 0

For new parochial infant schools, Liverpool. Messrs. J. A. Picton & Son, architects. Quantities furnished:—

Messrs. Witter	£23,350 0 0
Tomkinson	22,880 0 0
Jones & Sons	22,300 0 0
Campbell	22,121 0 0
Hughes	21,999 0 0
Rome	21,940 0 0
Ray	21,776 0 0
Urmson	21,540 0 0
Westmorland	20,782 0 0

For Jesus-lane Sunday Schools, Cambridge. Mr. W. M. Fawcett, M.A., architect:—

Jackson & Shaw	£2,195 0 0
Bell & Son	2,103 0 0
Thoday & Clayton	2,000 0 0
Bullock	1,995 0 0
Gray & Son	1,980 0 0
Quinser & Attack	1,840 0 0

For taking down and re-erecting No. 55, Cheapside. Mr. Gordon Stanham, architect:—

Turner & Sons	£2,465 0 0
Brass	2,399 0 0
Adamson & Sons	1,965 0 0
Newman & Mann	1,640 0 0

Accepted for alterations, &c., at The Grapes public-house, Upper Thames-street. Mr. Arthur Harston, architect:—

General Alterations, Fittings, &c.	
Hearle	£348 10 0
Counter and Pewterers' Work.	
Rogers	95 0 0
Plate Glass.	
Collins	42 16 0

For the erection of warehouse, offices, &c., Hanover-street, Liverpool, belonging to Mr. John Ravenscroft. Mr. T. Mercer, architect:—

Roberts & Robinson	£7,470 0 0
Jones & Co.	7,418 0 0
Rome	6,934 0 0
Urmson	6,853 0 0
Lyon & Son	6,806 0 0
Martin	6,488 18 0
Tomkinson & Sons (accepted)	6,475 0 0
Ironfounder and Smith's Work.	
Moore	1,328 10 0
Tessimond & Kissack	1,240 0 0
Bennett, jun. (accepted)	1,235 0 0

For additions to convent, Bermondsey. Mr. Hanson, architect. Quantities supplied:—

Trayt, Brothers	£577 0 0
Bishop	480 0 0
Hulcomb	440 0 0
Wright	410 0 0
West	398 0 0
Pearce	387 0 0
Cooper	383 0 0
Nightingale	382 0 0
Wilkinson & Co.	299 0 0

For villa, at Croydon, Mr. Ernest Bates, architect. Quantities supplied:—

Crouch	£863 14 7
Johnson	809 0 0
Prescott	764 0 0
Nightingale	743 0 0
Dover	741 0 0

For warehouse, Southwark-street, for Messrs. Joseph Causton & Sons. Mr. J. Ebenezer Saunders, architect. Quantities supplied by Mr. W. M. Broomfield:—

Downs	£15,880 0 0
Little	15,398 0 0
Hill & Keddell	15,200 0 0
Sawyer	14,950 0 0
Carter & Sons	14,698 0 0
Brass	14,402 0 0
Foster	14,200 0 0
Lawrence	13,972 0 0
Ashby & Horner	13,750 0 0
Ryder	13,690 0 0
Conder	13,650 0 0
Gammon & Sons (accepted)	13,527 0 0

The Builder.

VOL. XXIV.—No. 1227.

The So called Arabic Numerals.



FRENCH *savant*, M. Pharaon, has recently made a very curious and ingenious suggestion, if not discovery, touching the origin of the numerals now in use. First, however, a few words of reminder as to these numerals and their predecessors. The first numeral characters, it has been thought, were simply strokes or straight lines III. A dash across the last stroke, when ten had been made, would give this mark X, and the half of it V. The introduction of the C for a hundred, the D, and the M is explained in a similar way, and these figures are preserved in the Roman notation with very little difference. The simplest calculations with such figures as the Romans used were scarcely possible. Contemplate, for example, the operation of multiplying MMDCCCCLXXIX by MDCCCLXVI, or even of subtracting one of these sums from the other, and the difficulty is obvious. The Greeks had a more convenient system, using the letters of their alphabet under certain arrangements to signify units, tens, and hundreds, but still needed an instrument of calculation. This instrument was what we know as an "abacus" (perhaps from the Greek *abax*, a slab or table), which took numerous forms amongst the Greeks, the Romans, and the men of the Middle Ages, and is still used by the Chinese. One of its forms may be described as a board divided into six parts by parallel partitions, the first space on the right hand being intended for units, the next space for tens, the third for hundreds, and so on. Stone after stone would be put into the right-hand partition until they amounted to ten, when they would be taken out and in their stead one stone or *counter* would be put into the next space. In like manner, when the stones in this division amounted to ten, they would give way to a single stone placed in the third division, and signifying one hundred.

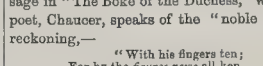
The abacus was used in Europe during the Middle Ages, as already said, but instead of such a board, as we have described, or a square frame, with parallel wires across it on which counters were strung, a bench or bank was covered with chequered cloth, on which the counters were placed. From this some have derived the words exchequer and *bankrupt*. The "chequers" may still be seen as a sign, or on the doorposts of inns.

The so-called Arabic characters have been thought to be of Indian origin, and to have been brought into Europe by the Moors of Spain, in the thirteenth century. Of this, however, there is little proof. The present system of notation, which depends on giving to each symbol a *local*, as well as an *absolute* value, has been traced to the Hindoos, amongst whom it was in use, it is asserted, 2,000 years ago.

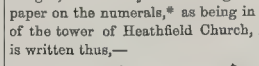
Gerbert, subsequently Pope Sylvester II., is generally credited with having introduced the abacus to modern times, at the end of the tenth century, and is said to have used pieces of horn bearing figures of the *nine numerical symbols* (wherever these may have come from), each of which had a local power, according to the column in which it was placed. These characters of the abacus, of which representations exist, have been viewed as arbitrary, and they show considerable similarity to the so-called Indian or Arabic numerals. The abacus system appears to have been used till late in the twelfth century, when the columns were got rid of, and the *siphos* or *ciphos*, represented by a circle ordinarily crossed, and resembling the Greek *theta*, Θ, was invented to show what in the tabular process was represented by leaving the place blank. All these signs had names, such as *Igin*, one, *Andras*, two, and so on: these, however, disappeared, the *ciphos*, now cipher, alone remaining, and actually giving a name to the art of casting accounts. Whether or not the modern numerals came to us through the Arabs, the earliest MS. in the British Museum, that has yet been pointed to in which they appear, belongs to the latter part of the thirteenth century; and they were not generally used in books until a hundred years afterwards. This opinion is confirmed by a passage in "The Boke of the Duchess," wherein the poet, Chaucer, speaks of the "noble countour" reckoning,—

> "With his fingers ten;
> For by the *figures newe* all ken,
> If they be craftie, recken and number."

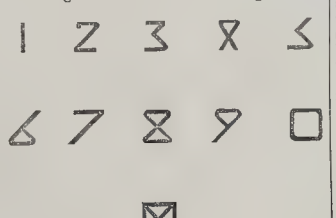
The first inscriptions on a building of these numerals that we know of belongs to the year 1445. This date is given by Mr. Thomas Wright, in a very interesting and valuable paper on the numerals,* as being in the interior of the tower of Heathfield Church, Sussex, and is written thus,—



The earliest we have ourselves found is three years younger, and may be seen on one of the timbers of the lych-gate formed beneath a residence at the entrance to the churchyard of Bray, in Berkshire. This, depending on memory, is its appearance,—



We now return to the very curious suggestion of M. Pharaon, who formerly acted as interpreter with the French army in Algeria. This gentleman has recently issued a handsome volume, descriptive of the Emperor's journey in that country, and in it speaks of the mathematical science of the Arabs. In the course of his observations under this head he finds the origin of the numerals in what he terms Solomon's seal. The form known amongst Freemasons as Solomon's seal, if we mistake not, is the double triangle  , but our author gives it as simply a square, or nearly so, crossed diagonally from both sides, as shown in the diagram below. Above it we give a set



of the numerals, altered slightly from those in M. Pharaon's book,—made indeed to represent more nearly figures to be found in early inscriptions,—and it will be seen that the whole of them may be taken from the aforesaid crossed parallelogram. The absence of the horizontal line at the top of the 5 is not a weakness in the theory, for this line was only occasionally present in that figure as early used, in consequence of which numerous mistakes as to dates have been made by antiquaries in our own time. The difference between a 5 and a 1, especially in MSS. and inscriptions on buildings of the sixteenth century, is sometimes scarcely distinguishable, and that is the case in French bills as hastily written, even at the present moment. To pursue this, however, would lead us into another road. Our immediate object is but to induce further attention to M. Pharaon's statement. We do not know all the grounds he has for making it: we must not overlook the resemblance of the Indian numerals to the characters of the abacus, which latter are less like the figures produced by the diagram than the numerals themselves are: but we think it must nevertheless be admitted that the coincidence is very curious and very interesting.

* "Journal of the British Archæological Association," vol. ii.

THE SANITARY ACT OF THIS WEEK.

THE Bill to Amend the Law relating to the Public Health has passed the Lords at a moment when it is much wanted, and has become an Act. The Royal assent was given on Tuesday last, and by Commission specially appointed,—so urgent seemed the need. The present Ministry deserve credit for their ready acceptance of the bill in the Commons, which had been prepared and brought in by Mr. Bruce, Mr. Chichester Fortescue, and Sir George Grey, and had been "amended by the Select Committee and on Re-commitment." It received, however, some alterations in the Committee of the House. The Act is published this, Thursday, morning; and whilst the mortality of London is at the annual rate of 45 deaths per thousand of the population, and that of Liverpool is 53, for last week, we shall serve the interests of the public in giving an immediate statement of the scope of the Act, and the tenour of the sections.

The measure, of which the short title is "the Sanitary Act, 1866," is directed to the Amendment of "the Sewage Utilization Act, 1865," the Amendment of the Nuisances Removal Acts, and sundry other objects, such as the better regulation of lodging-houses, the provision of hospitals, and the diminution of danger from contagious disease; the prevention of overcrowding, and the regular removal of refuse. The fourth Part of the Act deals with the application to Ireland, of the sections in the three previous Parts. The measure repeals certain portions of the Health Acts of George III., 1818 and 1819, relating to Ireland, and also the "Nuisance Removal and Disease Prevention Act, 1848," and the Act with similar title of 1849. The present Act is to be construed as one with the Act of 1865, and with the "Nuisances Removal Acts" of the two Sessions 18 & 19 Vict. and 23 & 24 Vict. The "Authorities" entrusted with the enforcement of the present Act are those named in the Sewage Utilization and Nuisances Removal Acts, that is, the "Sewer Authority" and the "Nuisance Authority," and other authorities for Ireland.

First, as to the sections dealing with sewerage and drainage, in the present Act, Part I.,—with which are to be found sections relating to water supply also,—the Sewer Authority (which may be a vestry, select vestry, or other body acting by virtue of an Act of Parliament, or by prescription, custom, or otherwise, in place of a vestry), is empowered to constitute committees and delegate its powers, and to form special drainage districts for the purposes of the Sewage Utilization Act. Then, such special district, for the purposes of the Act of 1865, and the powers conferred, is to be "deemed to be a parish in which a rate is levied for the maintenance of the poor, and of which a vestry is the Sewer Authority,—subject, as respects any meeting of the inhabitants thereof in vestry" to a certain Act of the 58th of George III. and its amendments; and any officer appointed within the constituted district, is to have all the powers of levying a rate, as in the case of a parish poor's-rate. Any number of the inhabitants not less than twenty, however, may appeal against the constitution of the special drainage district, to the Secretary of State; and the latter may

annul the formation, or modify the boundaries, of the district. The district is to be taken as duly formed, on the expiration of three months after the resolution has been made, provided certain formalities have been attended to—such as affixing notice to the church-door, and advertising in a newspaper.

Then follow the sections immediately pertaining to the formation of sewers and house-drains. By the 8th section of the Act,—"Any owner or occupier of premises within the district of a Sewer Authority" is to be "entitled to cause his drains to empty into the sewers of that Authority on condition of his giving such notice as may be required by that Authority of his intention so to do, and of complying with the regulations of that Authority in respect of the mode in which the communications between such drains and sewers are to be made," and subject to the control of any person (the surveyor or engineer) duly appointed. For connecting a drain with the sewer, and not complying with the provisions, a penalty will be incurred not exceeding 20*l.*; and the Authority may close any communication made in contravention of the section, and recover expenses incurred. Sewers or drains for premises beyond the limits of the district may be joined with any sewer of the Sewer Authority, upon terms agreed upon; or cases of dispute may, at the option of the owner or occupier, be settled by two justices, or by arbitration in similar manner to matters provided for in the Public Health Act, 1848.

Next as to compelling the owner of a house to execute drainage works: if a house be without a sufficient drain, the Authority may require the owner within a reasonable time, specified in their notice, to make such drain emptying into any sewer which the Authority is entitled to use, and with which the owner is entitled to make a communication, so that such sewer be not more than 100 ft. from the site of the house: or if there be no such means of drainage within the distance, then the drainage is to be made emptying into "such covered cesspool or other place not being under any house, as the Sewer Authority directs;" or on failure of compliance by the person served with the notice, the authority may at the expiration of the time do the work and recover the expenses.

The remaining sections of Part I., relate to supply of water to the district. A Sewer Authority, within its district, is to have the same powers in relation to the supply of water that a Local Board has, that is to say, as given by the sections 75 to 80, both inclusive, of the Public Health Act, 1848, and the sections 51, 52, and 53, of the Local Government Act, 1858, and of the Amendment Act, 1861, of the Act of 1858. The Authority may provide a supply of water by digging wells, or making and maintaining reservoirs, or otherwise, or may contract with companies or persons; provided always that no land is to be purchased, or taken, under the section, except by agreement, or in manner provided by the Local Government Act, 1858. Expenses of the Sewer Authority in the supplying water to its district are to be deemed to be expenses in carrying into effect the Act of 1865. All property in wells, fountains, and pumps, and the powers in relation thereto, vested in the "Nuisance Authority," by the Act 23 & 24 Vict. c. 77, s. 7, are to vest in the Sewer Authority, where that Authority supplies water to the district.

We now come to the amendment of the Nuisances Removal Acts, forming the matter of Part II. of the Act just passed. The expression "Nuisances Removal Acts," is defined to mean those already mentioned, 18 & 19 Vict. c. 121, and 23 & 24 Vict., c. 77, as amended by the part of the present Act; which is to be construed as one with those Acts. "Nuisance Authority" is to mean any authority empowered to execute the Nuisances Removal Acts. The sixteenth section of the Act is a very important one. It gives to the Chief Officer of Police, in any place within the jurisdiction of a Nuisance Authority, by and under the direction of the Secretary of State on its being proved to his satisfaction that the Nuisance Authority has made default in doing its duty, power to institute any proceeding which the Authority of the place might institute with respect to the removal of nuisances; provided always, that no such officer is to enter any place of residence without the occupant's consent, or without a magistrate's warrant. The following section repeals section 3 of the Act 23 & 24, Vict., c. 77, and does away with all powers vested in any Highway Board, or Nuisance Removal Committee, under the Nuisances Removal Acts, and vests their property in the Nuisance Authority; but the section is not to extend to the vestries or district-boards under the "Act for the better Local Management of the Metropolis," or to committees appointed by those bodies for carrying into effect the Nuisances Removal Acts.

The 18th section is so important, that we give its exact words. They are:—

"A requisition in writing under the hands of any ten inhabitants of a place shall for the purposes of the 27th section of 'The Nuisances Removal Act for England, 1855,' be deemed to be equivalent to the certificate of the medical officer or medical practitioners therein mentioned, and the said section shall be enforced accordingly."

This section should put an end to the negligence which had characterized local authorities generally up to the period of commencement of the present epidemic; and it should afford means of relieving medical officers from apprehension of dismissal on the score of a particular line of action, such as has been no more than the right performance of their duties. It should also relieve individual sufferers from any consequences of acting by themselves, as loss of place of abode, or employment. Working Men's Clubs have now a new line of usefulness cleared for them; which, we may say, was contemplated by "The Working Men's Club and Institute Union" in the issue of the hand-bill noticed in our last number.

The 19th section makes some greatly needed additions to the definition of *Nuisance*. The word "Nuisances" under the Nuisances Removal Acts is to include:—

"1. Any house or part of a house so overcrowded as to be dangerous or prejudicial to the health of the inmates;

2. Any factory, workshop, or workplace not already under the operation of any general Act for the regulation of factories or bakehouses, not kept in a cleanly state, or not ventilated in such a manner as to render harmless, as far as practicable, any gases, vapours, dust, or other impurities generated in the course of the work carried on therein, that are a nuisance, or injurious or dangerous to health, or so overcrowded while work is carried on as to be dangerous or prejudicial to the health of those employed therein:

3. Any fireplace or furnace which does not, as far as practicable, consume the smoke arising from the combustible used in such fireplace or furnace, and is used within the district of a Nuisance Authority for working engines by steam, or in any mill, factory, dye-house, brewery, bakehouse, or gaswork or in any manufactory or trade process whatsoever;

4. Any chimney (not being the chimney of a private dwelling-house) sending forth black smoke in such quantity as to be a nuisance."

In the same section, however, it is provided, as to smoke-nuisance, that in places where no Act is now in force compelling the consumption of smoke, the foregoing requirements shall not come into operation for a year hence; and it is also provided that where a person is summoned, the magistrates "may hold that no nuisance is created within the meaning of this Act, and dismiss the complaint," if they are satisfied that the "fireplace or furnace is constructed in such manner as to consume, as far as practicable, having regard to the nature of the manufacture or trade, all smoke arising therefrom, and that such fireplace or furnace has been carefully attended to by the person having the charge thereof."

It is to be regretted that no suggestion of a mode of dealing with the chief authors of the nuisance in London, the private houses, the taverns, and the club-houses, could be conclusively brought to the mind of the Select Committee of the House of Commons. There are facts of the remarkable difference in the appearance of London in summer and in winter, which seem to be more than can be accounted for by mere difference of temperature and humidity of the air out of doors; and the contrast, at any time of the year, between the early morning effects and the appearance by day, often alluded to by us, is very great: so that altogether we would regard this 19th section of the Act as open to amendment at some time.

The 20th section enjoins as a duty of the Nuisance Authority, or its officers, the periodic inspection of the district, with a view to the discovery of nuisances, calling for abatement under the Acts, and also for the enforcement of any Act relating to smoke-consumption. The following section directs the service of notices by the Nuisance Authority, or officer of police, previous to taking proceedings. The service is to be on the person "by whose act, default, or sufferance" the nuisance exists; or if he cannot be found, then the service is to be on the owner or occupier of the premises on which the nuisance arises, who is to execute the necessary works within the time specified: but where the nuisance arises from something structural, existing or required, or where there is no occupier, notice is to be served on the owner; and where the person causing the nuisance cannot be found, and it is clear that the owner or occupier is not in fault, then the Authority may abate the nuisance, and the cost is to be part of the costs of executing the Acts.

There are thirteen more sections of this second Part of the Act; and most of them relate to the dealing with infectious disorders. It is the duty of the Nuisance Authority to require the owner or occupier of a house which, on the certificate of a medical practitioner, may appear to be infected, to cleanse and disinfect it, or articles in it, or both, under liability of a penalty of from one shilling to ten shillings per day for neglect, and with the power given to the Authority in such case to do the work and recover the cost,—excepting that where the owner or occupier is "from poverty or otherwise unable" to carry out the requirements of the section, the Authority may with his consent cleanse and disinfect at its own expense. A proper place with apparatus and attendance may be provided in each district, for the disinfection of woollen articles, clothing, or bedding; and the Authority may cause such things brought, to be disinfected free of charge. For conveyance of infected persons, special carriages may be provided; and there is a penalty on persons suffering from infectious disorders entering public conveyances without notifying to the driver the fact of the suffering. Where a place for reception of the sick is provided, a magistrate may, with the consent of the superintending body of the hospital, and on a medical certificate, direct the removal at the cost of the Authority of any person suffering from any contagious disorder, and being without proper accommodation, or lodged in a room occupied by more than one family, or being on board a vessel. By the section 27:—

"Any Nuisance Authority may provide a proper place for the reception of dead bodies; and where any such place has been provided, and any dead body of one who has died of any infectious disease is retained in a room in which persons live or sleep, or any dead body which is in such a state as to endanger the health of the inmates of the same house or room, is retained in such house or room, any justice may, on a certificate signed by a legally qualified medical practitioner, order the body to be removed to such proper place of reception, at the cost of the Nuisance Authority, and direct the same to be buried within a time to be limited in such order; and unless the friends or relations of the deceased undertake to bury the body within the time so limited, and do bury the same, it shall be the duty of the relieving officer to bury such body at the expense of the poor-rate; but any expense so incurred may be recovered by the relieving officer in a summary manner from any person legally liable to pay the expense of such burial."

There may farther be provided places for reception of dead bodies during time required for *post-mortem* examination.

The Authority is empowered to lay down rules, with the sanction of the Privy Council, for the removal to hospitals, of infected persons from ships; and there is a provision as to extension of the district to places where ships are lying in British waters. Power of entry is given. Provision is made for raising the money for the purposes of the Act, in divided parishes. In any case, either the owner or the occupier of premises may be required to pay to the Authority costs or expenses incurred, the occupier being allowed reimbursement by deduction from his rent, and there being a provision to meet the case where the occupier might have been required to pay a sum larger than that of his rent.

Of the sections in Part III. called *Miscellaneous*, the first (section 35 of the Act) refers to lodging-houses, but not applying to those within the provisions of the Common Lodging-houses Act 1851, or any amendment of it. On application to the Secretary of State by the Nuisance Authority of the City of London, or any district or parish under the Act for the better Local Government of the Metropolis, of any municipal borough, or of any place under the Local Government Act 1858, or any Local Improvement Act, or of a town containing 5,000 inhabitants, the Secretary of State may declare the following enactment to be in force, and after publication of the notice in the *Gazette*, the Nuisance Authority will be empowered to make regulations:—

"1. For fixing the number of persons who may occupy a house or part of a house which is let in lodgings or occupied by members of more than one family:
2. For the registration of houses thus let or occupied in lodgings:
3. For the inspection of such houses, and the keeping the same in a cleanly and wholesome state:
4. For enforcing therein the provision of privy accommodation and other appliances and means of cleanliness in proportion to the number of lodgings and occupiers, and the cleansing and ventilation of the common passages and staircases:
5. For the cleansing and lime-whiting at stated times of such premises."

The particular regulations must be confirmed by the Secretary of State. Penalties, not exceeding forty shillings for one offence, and twenty shillings for each day's default in obeying the regulations, may be enforced by the Nuisance Authority.

The 36th section says:—

"Where two convictions against the provisions of any Act relating to the overcrowding of a house, or the occupation of a cellar as a separate dwelling-place, shall have taken place within the period of three months, whether the persons so convicted were or were not the same, it shall be lawful for any two justices to direct the closing of such premises for such time as they may deem necessary, and, in the case of cellars occupied as aforesaid, to empower the Nuisance Authority to permanently close the same, in such manner as they may deem fit, at their own cost."

By a subsequent section, 41, if in any proceedings under the Common Lodging Houses Act, 1851, inmates of any house, or part of a house, allege that they are members of the same family, the burden of proving the allegation is to lie on the persons making it.

Power to provide hospitals is given to the Sewer Authority; or in the metropolis, to the Nuisance Authority. The Authority may build such places of reception, or make contracts for temporary use; or two sets of Authorities may combine in providing a common hospital.

Exposure of any person with an infectious disorder, without precaution against the spreading; the omission of any owner or driver of a public carriage to disinfect the same after conveyance, with his knowledge, of a person suffering; or the giving, lending, or selling, of bedding, clothing, rags, or other articles that have become infected, or the transmission of them except for disinfection, involves liability to a penalty of 5*l*. Knowingly letting any house, or room, where a person has been suffering from an infectious disorder, without such place having been disinfected to the satisfaction of a qualified medical practitioner, as testified by his certificate, will entail liability to a penalty which is not to exceed 20*l*.

Where there are two or more Boards of Guardians, or local authorities, the Privy Council may prescribe the mode of joint action.

The 67th section of the Public Health Act, 1848, relating to cellar dwellings, is to apply to every place in England and Ireland where such dwellings are not regulated by any other Act of Parliament; but "Nuisance Authority" is to be substituted for the *Local Board*. Local boards, acting in execution of the Local Government Act, 1858, may adopt the Baths and Washhouses Act. Burial Boards, in certain cases, may transfer their powers and estate to the Local Board of Health.

Section 45 provides for a penalty for damage to any works or property.

Local Boards, Sewer Authorities, and Nuisance Authorities, respectively, are to be bodies corporate; and there are sections relating to the authority of the Secretary of State to make provisional orders as to lands under the Local Government Act, and the power of recovery by a Local Board or Sanitary Authority, of certain expenses of water-supply to premises, to the reduction of penalties imposed by an Act of George IV., as regards quarantine and the description of vessels; to the infliction of a penalty for non-removal of manure after notice given; and to other matters. The arrangement of the sections does not seem the best for reference, and for general comprehension of the Act. We have left one of the sections, 49, for concluding notice. The more prominent attention in the Act to the important object of this section, cannot but have suggested itself to the reader as necessary. The words run thus:—

"Where complaint is made to one of her Majesty's principal Secretaries of State that a Sewer Authority, or Local Board of Health, has made default in providing its district with sufficient sewers, or in the maintenance of existing sewers, or in providing its district with a supply of water in cases where danger arises to the health of the inhabitants from the insufficiency or unwholesomeness of the existing supply of water, and a proper supply can be got at a reasonable cost, or that a Nuisance Authority has made default in enforcing the provisions of the Nuisance Removal Acts, or that a Local Board has made default in enforcing the provisions of the Local Government Act, the said Secretary of State, if satisfied, after due inquiry made by him, that the Authority has been guilty of the alleged default, shall make an order limiting a time for the performance of its duty in the matter of such complaint; and if such duty is not performed by the time limited in the order, the said Secretary of State shall appoint some person to perform the same, and shall by order direct that the expenses of performing the same, together with a reasonable remuneration to the person appointed for superintending such performance, and amounting to a sum specified in the order, together with the costs of the proceedings, shall be paid by the Authority in default; and any order made for the payment of such costs and expenses may be removed into the Court of Queen's Bench, and be enforced in the same manner as if the same were an order of such Court."

Experience has shown that whatever ground there may be for dread of centralization, and whatever argument for the educational training that should accompany the performance of the duties of citizens in local or self government, there are apt to be flagrant cases of neglect of the duties, besides instances of gross subordination of them to private gains. As to the present Act, there is somewhat more than we expected to find in it, of the merely "enabling" provisions: though it is stringent enough in many parts. The Act however has been passed at a time when its provisions will be tested,—we fear, only too well. The modifications in the Parts that we have noticed, of the Act, for the application to Ireland, which form the matter of Part IV., relate chiefly to the Authorities, and need not here be given. A good digest of the whole sanitary law of the United Kingdom, is now required, and should be proceeded with at once.

ON THE SCULPTURE IN WESTMINSTER ABBEY.

Having, in the introduction to this discourse (see *Builder*, July 28), shown the peculiar and distinctive character of Gothic or Mediæval sculpture, in its relation to fine art, and to the beautiful in nature,—the true standard of perfection in the imitative arts,—Mr. Westmacott said, it will now be desirable to refer more particularly to some of those productions which claim attention for such art qualities as they exhibit when they are employed for a higher purpose than mere architectural ornament. This is in illustrating scenes in Scripture or other history, and it then comes under the class of "subject" sculpture. Though there are works in the Abbey of an earlier date than those now to be brought under notice, there are none of greater interest, in their way, than the series of stone *relievi* which decorate the screen on the west side of the chapel of Edward the Confessor. They comprise a variety of subjects, real and imaginary, in the life of that pious monarch, derived from a chronicle written by Ailred, an ecclesiastic of the time of Henry II. This record was presented by its author to that prince in the year 1163, when, after his canonization, the remains of the Confessor were removed into a new shrine. The subjects are fourteen in number, and they are separated from each other by trefoils, rudely formed by a running ribbon. The whole length of the sculpture is 38 ft. 6 in., by 3 ft. in height. The principal figures are about 1 ft. high. The relief is very bold, the irregular concave ground being much hollowed out behind.

There is no evidence to assist in settling the disputed question of the date of this curious work; and it is from circumstances only, connected with other erections in this part of the Abbey, that any probable conclusion can be arrived at. It is now generally attributed to some time in the reign of Henry VI. in the fifteenth century. It was not later than this, and reasons might be adduced for giving it a somewhat earlier date. This, however, is not a matter of any great importance; for the few years only, of less or greater antiquity, would not materially affect the interest that attaches to the work; and this consists rather in its being "subject," or illustrative, sculpture than in any merit it possesses as a work of art. The execution is extremely rude. The figures are short and thick, ill proportioned, and utterly deficient in anatomical correctness. Of course it is impossible to judge of the expression, as the surface is everywhere greatly injured, but the stories or incidents are told in the most primitive and clumsy manner. (Our limits will not admit of our following Professor Westmacott in the detailed description he gave of the subjects represented in this remarkable work.) This frieze, which, in its time, must have been considered a production of no slight pretension, both from the position it occupies, and the subject treated, shows the very low condition of art in England, at fourteen hundred years after Christ. So far from exhibiting anything like progress or development, it literally is suggestive of retrogression; for it is, in every respect, inferior in art-qualities to sculpture near it, of a much earlier date. It is curious to see how little care was paid to what may be called *keeping* in these designs. In two of the subjects a church is represented; one refers to a miracle operated on an occasion of the king receiving the sacrament, when, it is recorded, the wafer was converted into the figure of a boy, who gave his benediction to the Confessor and his attendant. The other is said to represent the dedication, by himself, of Edward the Confessor's church. In both instances the church is in a style of very advanced Gothic unknown till at least three centuries after the Confessor's death. Although these works can take no rank as good art they have an interest of another kind. They are valuable as illustrations of the condition of art; but they have a further claim to attention as exhibiting the tone of feeling of the time. The traditions of the holy life and experiences of the Confessor were thoroughly believed in; and here art is exercising its true mission in giving expression to ideas that were familiar and dear to popular feeling. Without entering into the measure of truth attaching to Abbot Ailred's chronicle, sculpture is here employed in one of its most legitimate functions, especially, as in this case, in association with a sacred edifice. Rude and incomplete as it is, this work may justly be referred to as a mode in which subjects of similar importance and character might be effectively and advantageously presented in the decoration of Christian churches.

In another part of the Abbey, between this (Henry VII.'s) chapel, and the chapel of the kings, as it is called, is another very interesting work of a somewhat similar character, though the subjects in it are fewer. This is the screen of the shrine of Henry V. The decoration consists chiefly of statues in niches, but there are groups of figures in two compartments, which come legimately within the category of subjects. One is a coronation, comprising several figures, with the king seated in the centre. It is right that attention should be directed to their treatment. That on the north side is by far the best; but here again the sculpture is extremely rude, and exhibits no true feeling for art. In other parts of the church—for instance, in some spandrels in the chapel of St. John—there are also examples of what may be classed as subject-sculpture (as distinguished from mere architectural decoration), which fully bear out the above remarks as to the rudeness of the art of the time. The more important one may, probably, be a representation of our Lord giving judgment at the Resurrection. The centre figure of the Saviour, if this interpretation be allowed, is represented seated, and is of larger proportions than those near him. The left hand appears to be raised; the right is broken off. The figures behind him are variously employed. One seems to have a pastoral staff; another, as far as it can be distinguished, is supplicating: there are three on each side. Another spandrel exhibits a draped female standing on a dragon: the hands are placed together on the breast, as if in prayer. Behind her appears to be a cross. She is surrounded by foliage, and on one side is a second dragon. This design may be intended to represent the Virgin treading the dragon under her feet. The arches of the spandrels spring from human heads. From what remains of the figures, draperies, and composition of these designs, the art exhibited is of a very rude quality. The figures want proportion, and they are rather packed than arranged in the space they are made to occupy. Two of them in the larger composition are falling on their backs, evidently to accommodate them, in the usual Gothic mode of treatment, to the curve of the arched moulding against which they are placed. Of the details it is impossible to give any opinion, owing to the injury to the surface of the work; but beyond their use in filling in and enriching the space occupied by them, they evidently have but little claim to attention.

There is a class of subject-sculpture especially associated with what may be called ecclesiastical decoration, which may not be entirely overlooked in this paper. Strange to say, it is only found in religious buildings; and yet it is usually of a character that renders it quite unfitted for such application. This is in the incidents chosen for the ornaments of stall-seats, and brackets, and especially in gargoyles and dripstones, where the jealousy that existed between the regular and the secular clergy was shown in the grotesque and often highly indelicate carvings in which one body satirized the other. It is difficult to understand how the representation of such coarse buffoonery, and even of the most scandalous subjects could be permitted by those who controlled church decoration; at a

time, too, when some ardent admirers of mediævalism insist that the most exemplary religious and pious impulse directed all art. It is thus briefly referred to in this place as a part of our subject, and because Westminster Abbey is not without examples of this strange and lamentable offence against propriety and good taste. It may be added, however, that, with very few exceptions, the instances found here are rather of the broadly humourous than of the indecent type.

Before closing this subject, the attention of the meeting may be directed to the very remarkable series of statues that are found in the chapel of Henry VII. Here, indeed, may be seen works that, in certain qualities, may challenge comparison with the productions of any school. They are of unequal merit; but the best of them are fine examples of the success of the mediæval artists in treating drapery, and in the impressive simplicity of *pose*, in single figures. At the same time, they preserve all the distinctive characteristics of the Gothic school, so carefully and so curiously maintained during the whole period of its existence.

The works referred to constitute a portion of the decoration of this exquisite architectural triumph of the sixteenth century. The nave of the chapel is divided from the aisles by four arches on each side, and similar arches divide it from five small chapels at the east end. Immediately under the arches, and extending entirely round the chapel, is a range of demi-angels, crowned, in high relief. They are rather grotesquely treated: some are draped, some are represented with their bodies feathered; and, generally, they have rich, curly hair. Their function is to support, on shields, the royal devices of Henry VII.—the rose, portcullis, *fleur de lis*, &c. Over these angels are octangular pedestals and niches, enriched with tracery and foliage, containing statues about 3 ft. high of saints, martyrs, and other venerable persons. There is here great variety of action and a fine feeling for art. The draperies especially are largely and grandly arranged. In the heads, also, there will be observed a remarkable attention to the proper expression, as well as to character and form. The action of the hands is, generally well studied. When the naked form is introduced, as in the St. Sebastian, it is conventional, and as usual shows no intimate acquaintance with the study of nature; but in all other respects these works possess merits of a very high class, and have justly been noticed by all the best judges of sculpture as examples, of their kind, thoroughly deserving careful study and imitation. It may be noticed that though the statues in the nave average about 3 ft. in height, those in the chapels are nearly life size. They are arranged in threes, over five demi-angels. It is to be lamented that some of these interesting works have been injured, while some have been removed, and the niches and panelling destroyed to make way for monuments; as, for instance, those of two ducal houses of Buckingham; of the respective families of Villiers and Sheffield. The statues, of all sizes, employed in the enrichment of the chapel of Henry VII., are said to have amounted, originally, to nearly three thousand. Many of the smaller ones, especially those of gilt metal, have, no doubt, been stolen.

The Monuments.

The earliest examples of sculpture in the Abbey Church of Westminster — and they are believed to be the oldest monuments in England — are seen on some tomb or grave stones in the east cloister. They are of abbots of the church. One of these is said to be of Vitalis, who died about 1082. Two others are of Crispinus, about 1114, and Laurentius, who died towards the end of that century. The effigies of these dignitaries, carved on grave-stones, are represented in their robes. That of Vitalis has a mitre on his head, and in one hand are the remains of a pastoral staff. The execution of these works is extremely rude, and the relief very flat. They possess considerable antiquarian interest, but they offer no peculiarities to arrest the attention of the lover of art.

It may be observed here, that all the earlier monuments in which effigies appear are of ecclesiastics. This may, at first, appear strange, when it would seem to be so much more natural and fitting that crowned heads, kings and queens, princes, or great nobles and knights, warriors and statesmen, should be so honoured, and not that such distinction should have been exclusively conferred on the clergy. But here is seen one of the great uses of monumental art, when it is exercised under a real and true impulse: it shows the character of its age. The earliest Christian art, resembling in this impulse all the early monumental sculpture that exists, was employed exclusively in illustrating subjects of religious interest; and when applied as decoration on the tombs of holy persons or martyrs—prior to the representation of the deceased in an effigy — the subjects of the designs, whether paintings or sculpture, were always taken from Scripture or from some sacred tradition. The character of the art was rude, and examples often occur of the pagan subjects of the debased Roman schools being adapted to Christian illustration,—a new meaning being given them to fit them for this appropriation; but, however expressed, the *motive* was undoubtedly religious, and such decoration was felt to be the only proper accessory on the tombs of departed Christians. At first no personal or secular element was prominently put forth in such works.

The cause of a change in this treatment as applied to monuments is not difficult of explanation.

In the eleventh century, the period when the effigy of the deceased was first introduced, the Church exercised very great power, not only spiritual, but political. Its dignitaries held many of the highest offices of State, and the clergy generally occupied the influential position to which their education and attainments—great indeed, compared with the universal ignorance of the laity of all ranks—justly entitled them. It is not, therefore, to be wondered at, that the most eminent of its members should, on their decease, receive marks of honour at the hands of their brethren, especially, too, when these could be conferred upon them in the very edifices in which they had held the highest offices. There was, also, a great *esprit de corps* in the members of each foundation. Such memorials testified, in the first place, to the importance of the religious house, while the tomb of its bishop or abbot attracted attention, invited the devotion of the pious, and procured for the church itself many substantial advantages in the way of privileges and offerings from all classes of persons who frequented them, according to their position and means. It must also be borne in mind that all religious edifices were entirely and exclusively under the guardianship of the clergy. Ecclesiastics alone controlled everything connected with the arrangements within the building. In some societies, it is well known, their own members were competent to act as architects, painters, and carvers, and often were the sole artists employed in the design and the decoration of the church, or monastery, or whatever it might be. It follows from this that, in erecting monuments of especial honour, the members or chapter of a religious house would, naturally, first pay this mark of distinction to one of their own body; and thus the bishop or abbot, or other high dignitary connected with the particular church would, when the practice of personal representation came into fashion, have his effigy placed over his grave. For a hundred years and more this character of tomb-monument seems to have prevailed. There is not an instance of even a royal effigy during this period, the first regal monument which is found in England so treated, being that of King John, in Worcester Cathedral. Its date is probably early in the thirteenth century, as John died in 1216.

Though the previous strictly religious character of monumental sculpture, admitting only Scripture or sacred subjects in the accessories, was, as has been shown, invaded when the effigy of the deceased was represented, there still was a solemnity and repose in the design of such works peculiarly appropriate to their place in a church, and to the intention of the memorial. The figure was represented recumbent, as though extended on his deathbed. Habited usually in the full costume of his rank, with his crozier or pastoral staff by his side, the chalice in his hand, or sometimes with the hands in the action of prayer, the bishop or abbot, or whatever his title, appeared simply as the dead or dying Christian priest. It was a record, a memorial of the individual—no more. There was no ostentatious display of worldly distinction and titles; no vain, boasting epitaph. The name only—and sometimes not even that—with a date, was inscribed round the margin of the stone, and this was followed, occasionally, by a simple petition for divine mercy, or asking the prayers of the passers by.

The principle which is so conspicuously exhibited in these earlier works continued to influence monumental design when, subsequently, such memorials ceased to be confined to the clergy, and were erected to the noble and distinguished among the laity. The recumbent effigy of the deceased surmounted the tomb. The attitude was still extremely simple, and in perfect repose, excepting when the slight action of the hands, raised on the breast in prayer, showed how the departing spirit was occupied in its last earthly moments. Whether the figure was that of a prince, knight, or lady, it was dressed in the costume of the day; and it gives great antiquarian interest to these monuments to have the assurance that the effigies on them really represent the individuals whom they record in the dresses worn at their respective dates. In a number of instances in which tombs have been opened, the costume in which the deceased was buried has been found to correspond with that given to the sculptured figure. The monument before alluded to of King John, at Worcester, was examined late in the last century, and, allowing for the changes consequent upon its great age, the dress in which the body was entombed was clearly identical in its forms with that sculptured in the effigy.

The first regal monument in Westminster Abbey, in point of date, and having an effigy on it, is that of the founder of the present edifice, Henry III., who died in 1272-3. The tomb was erected a few years later by his son and successor, King Edward I. The king is represented recumbent, crowned, habited in royal costume, with a mantle reaching to the feet. The head, with its crown of *fleur de lis*, rests on two small pillows. Two long curls of hair fall from under this coronet; and the face, which appears small and delicate, and is, no doubt, a portrait, has a beard and moustaches. The action of the hands suggests that the figure may originally have held some object, probably sceptres, no longer remaining. The feet have shoes on them, enriched with a running pattern of diaper gilt. As late as 1681 there was a lion against which the feet rested. This has disappeared, as well as some architectural decoration over the tomb. The material of this extremely interesting statue is bronze; and it is said, by Walpole, who does not, however, mention his authority, that it was considered the first example of metal casting in England. Both the statue and the table beneath are richly gilt, but the hard coating of dirt that has been suffered to accumulate over it entirely conceals this decoration. The latter is diapered with lozenges, each inclosing a lion *passant guardant*: this design may be plainly distinguished near the pillows. There is great dignity in the simple *pose* of this statue, and the drapery is very gracefully composed. The workmanship and materials throughout are remarkable. The panels at the sides of the tomb are of polished porphyry, surrounded by a border or framework of mosaic, with gilding and coloured stones. At each corner there are twisted columns, similarly enriched with variously coloured marbles. The lower portion, or base of the monument, still exhibits the signs of its former lavish enrichment, in its lozenges of green jasper, and the remains of elaborate ornamental carving. It is said that Edward had the precious stones employed in its decoration brought from France in 1281.

There is a peculiarity in the base of this tomb, which is worthy of remark. On the south side—that within the chapel—there are three sunk compartments. The centre one has a pediment supported by pilasters, with an architrave. The side recesses have trefoil heads. It is supposed that these recesses were used as "ambries" or lockers, in which sacred vestments or other objects, and possibly relics, were kept. At the back of each is a cross in mosaic. It will be observed that the style of architecture exhibited in this work is of a very mixed character, and is highly suggestive of a foreign origin. It is known that one Pietro Cavalini was employed in the execution of this tomb, as well as that of Queen Eleanor, and it is not improbable that this may fully account for the non-Gothic treatment of the architectural portions of the design.

The immediately adjoining tomb, also, in the Chapel of the Confessor merits attention for the extraordinary elegance and beauty displayed in some of its details. It is that of Eleanor, the wife of Edward I. She died in 1291. The figure is recumbent, habited in the royal costume. The hands are designed with the utmost grace, and there is a calm, gentle expression in the face, which is extremely touching. There has been a question as to the authorship of this very beautiful work, as well as the monument and statue of Henry III., and a patriotic desire has been shown to attribute them to native

artists; but others, and Flaxman among the number, think that foreign sculptors were employed here on many of the works, and that the name of Torell, goldsmith, which occurs in a document of the time, should be Torelli. It may be so, but the expression "goldsmith" may refer to the gilding of the bronze figure, and this may have been done by an Englishman. The best argument for believing that foreign artists were employed in the more important parts of these designs, especially in the figures, is in the general inferiority of those decorative portions which would necessarily be executed by such workmen as could commonly and easily be found in this country; and the mention of Pietro Cavalini in a contemporary work gives strength to this opinion. This is a subject of very great interest to Englishmen, but it is not possible at this time to give it the consideration due to it. The occurrence of unquestionably English names in the documents connected with public works proves the existence of native artists; and it is natural that art-historians should endeavour to show that some of the most interesting works of art were produced by native sculptors. In some of these, as at Wells, there certainly is no appearance of foreign interference. They are as original in style as they are rude in execution.

The next monuments especially worthy of remark for their sculpture, are in memory of King Edward III., his Queen Philippa, and two of their children. This king died in 1377. The royal effigy, of bronze, lies on a table of the same metal, and the whole has been richly gilt. In this statue there is evidence of great care in the portraiture of the deceased monarch. The face is long, and there is a remarkable fall in the lower lip. The hair is also, doubtless, represented as worn by the king. It is long and slightly curling, and the beard is ample and flowing. Altogether it is an interesting example of attention to nature, in transmitting the likeness to posterity of one of England's greatest sovereigns. There are at the same time those conventionalisms of treatment which, while they give its character to Gothic art, remove the works out of the category of really good sculpture. The long drapery in which the king is habited, though extending to the feet, shows a want of truthfulness in the disposition or fall of the folds. They are composed, in straight parallel lines, as if the figure were standing. Among the careful details the shoes are "rights and lefts," erroneously believed to be a very modern fashion of shoemaking. This tomb has suffered greatly from age, neglect, and no doubt intentional illusage. Much of its enrichment has disappeared, and many of the numerous small statues that decorated the tomb have been stolen. Some of these representing the sons and daughters of Edward were in solid brass gilt.

The tomb of Queen Philippa, the consort of Edward III., still shows proofs of its former magnificence, though it is one of the most injured of the monuments in the Abbey. The effigy of this princess happily remains in a condition to afford a good idea of her person, as well as of the art of the day. The portrait is evidently carefully studied, and the sculptor who was able to give so much natural character in the treatment of the details was no mean practitioner. Such a work proves that there were artists of widely different schools employed in these productions, though it will be seen they were still under the influence of a peculiar mode or style which makes all, even the best, of Gothic sculpture. The costume of this effigy gives great antiquarian value to this monument of Queen Philippa. There is a small tomb of Petworth marble in the chapel of St. Edmund which may here be noticed, on which repose two very small alabaster figures of children of the above king and queen. They represent William of Windsor and Blanche. This interesting memorial of these young persons stands near the fine monument of John of Eltham. It has been much damaged, and the feet cut off. The costume of both is characteristic. The prince had flowing hair, with a fillet; the princess, who died in 1340, a raised or horn head-dress, now broken. In these personal monuments, if they may be so called, from having the figure of the deceased upon the tomb, the effigy constitutes the chief interest of the sculpture. But small accessorial figures were introduced, either as attendant angels or statues of the apostles, saints, or other persons to enrich the sides of the tomb or the architecture connected with it. The angels appear ministering, sometimes at the head of the figure, on each side of the pillow, sometimes at the feet. They usually are represented kneeling, and holding the chalice, or as *thuriferi*, throwing incense from censers. They are less frequently seen at the feet, where either a lion or a dog, sometimes both, *couchant*, are made to support the feet of the effigy. With respect to technical treatment, considerable improvement will here be observed in the graceful manner in which certain details are represented. The hands of the figures are frequently of great beauty, and the draperies are most carefully studied. They are large and broad in their masses, varied in design, yet remarkable for simplicity; and where action or movement is to be shown, as in flying or floating angels, the proper character is most admirably expressed. Of course there is no display of the nude figure; and where any indication of it appears, there is evidence of the usual absence of knowledge of the human form. We shall continue the subject next week.

ADDITIONS TO THE FLORENCE GALLERY.

For six days towards the end of June, the Galleries of Florence were all closed for the annual cleansing process; on account of which such suspense of publicity is ordered about this period during the summer. On the reopening of the Uffizi, was, for the first time, made public, henceforth to remain so, the corridor that connects the Palazzo Vecchio with the Pitti, as some time since promised among agreeable novelties; that corridor being, through its entire extent, decorated with art-works, so as to form, as we might describe, five distinct museums—of Etruscan antiquity, of historic portraits, of sketches by great masters, of tapestries, and of coloured drawings. Vasari says, speaking of this construction, his own work (1560-74), "The great corridor which, traversing the river, passes from the Ducal Palace to the palace and garden of the Pitti, was brought to completion in five months, with my design and direction, though a work which one might suppose could not be finished in less than five years." From below, this building is only seen at intervals, alternately projecting and retreating among more modern things, like an old adherent of the past unwilling to show himself in a new world. From the rooms previously appropriated to Etruscan objects, which had been closed for several months prior to this new arrangement, we descend by a spacious staircase into the first section of this corridor, which was built under Cosmo I. for communication between his two palaces, and which, first making an acute angle from the point where it adjoins the western wing of the Uffizi, thence strikes off in the direction of a narrow street parallel with the Arno, crosses that river by the Ponte Vecchio, near the arcades so picturesquly rising from that bridge, and extends through a labyrinth of back streets till it reaches the north-eastern wing of the Pitti Palace, above the Boboli Gardens, entering that royal residence at the landing-place of a staircase, which ascends to the picture-gallery, and descends to the level of the same pleasant gardens, the extent of the whole being indeed immense, the plan irregular and zig-zag, the dimensions various, in some parts becoming narrower and lower than in others; the lighting, for the greater part, by small ox-eye windows on one side, and larger quadrate ones on the other; but elsewhere by high old-fashioned windows placed at different intervals, and leaving much of the interior quite too dim for satisfactory examination of contents. The walk along this aërial way and back to the point of departure is no trifling expedition, indeed enough for many a man's afternoon exercise, at least in such hot weather as we are now experiencing; and no small advantage is secured to Florentine residents by the daily accessibility (Sundays not excepted) of such a promenade under shelter from sun and rain, whilst at the same time providing such varied entertainment. The objects here on view are, indeed, so numerous, and spread over such immense space, that a first visit suffices but for general impressions; such, however, as are subsequently confirmed in respect to general merits, to the inestimable value of one classification,—the sketches, namely, by great masters; the curious and bizarre character of many other things seen here, and the utter insignificance of the rest, a modicum of what really is not worth looking at.

We first find ourselves, after turning a sharp angle, in a long narrow gallery filled with Etruscan antiques, small sarcophagi in dark grey stone or terra cotta, fretted with reliefs, some of which bear traces of colour, and for the most part are surmounted by quaint recumbent figures of the dead; some in the fantastic form of obese vases, with movable heads, and even arms, toy-like and grotesque to look upon, opposite being ranged a vast collection of epitaphs cut on large terra-cotta slabs, many of these objects having been formerly classed together with the other Etruscan specimens, bronzes, vases, idols, &c., now ranged apart in the rooms traversed before we enter this grand-ducal corridor. Leaving this gallery, its first compartment, we reach an ampler and better-lighted one, rather like a great hall than a gallery, which has been judiciously appropriated to the most precious contents, the original sketches by almost all the great Italian artists of the fifteenth, sixteenth, and seventeenth centuries, formerly in the most part displayed in three rooms off the extremity of one wing in the Uffizi buildings, but now considerably augmented by the addition of first-rate treasures, of numerous drawings, before which art-students might kneel in rapture, from the hands of Titian, Buonarotti, Raffaelle, Fra Bartolommeo, Andrea del Sarto, Baraccio, Guido, Cellini, Tintoretto, Annibale Caracci, Cigoli, Giordano, Giulio Romano, and others; also by the lords of art in other lands, Albert Durer, Murillo, Velasquez. In chronologic order, this priceless series begins with Taddeo and Angiolo Gaddi (a few small slight sketches by the two), next to whom come Fra Angelico, Lippi, Ghirlandajo, Rotticelli, Benozzo Masaccio, Masolino. Among drawings now for the first time made public, not having been seen in the Uffizi rooms, are original sketches for several world-renowned pictures in the collections of Rome, Florence, and other Italian cities; some of Raffaelle's for the cartoons intended to be copied in tapestry, and a group for his "Disputa" at the Vatican, besides several for the Biblical series in the loggia of that palace; Titian's, for the "Assassination of St. Peter Martyr;" Tintoretto's, for the "Miracle of St. Mark;" Baraccio's, for the "Crucifixion" and "Last Supper;" Cigoli's, for the "Martyrdom of St. Stephen" (his masterpiece at the Uffizi)); and most finely characteristic is a set of large drawings by Del Sarto, on dark-tinted paper, representing the story of St. John the Baptist, the Passion, and personified Virtues. The collection formerly on view, without these valuable additions, is said by guide-books to have contained no fewer than 28,000 pieces; and the new acquisitions that now so enhance its interest are more numerous than we have been able to count. As to arrangement we may report most favourably; as well as to those in glazed cabinets as those in frames hung to walls, being sufficiently in sight and appreciable.

After such a feast, the rest may be an insipid after-course. One curiously zigzag range has been appropriated to portraits of the Medici and some mythologic pictures; the former series including copies from Raffaelle's "Leo the Tenth" and Titian's "Cardinal Ippolito;" altogether a mediocre aggregate, and with some specimens that are wretched, the general impression made being such as confirms our notion of the marked ugliness of that family. The tapestries that come next, in immense variety, and apparently of various dates, are valuable in their way, and for the most part of brilliant tints quite untarnished; the first series illustrating all the chief scenes of the Gospel history, indeed, quite below the height of such solemn themes; the next, flaunting and stage-like mythological groups, better in their way; most commendable, and, indeed, of some historic interest, the set representing the pageants and festivals, amusements, and groupings of court life in olden times, where we recognize the costumes of three centuries; besides many others of domestic and familiar character, the chase, the vintage, the harvest, agriculture, gardening, and household occupations. It has been so well disposed that the least noticeable of the tapestries cover the walls of compartments in the corridor where lighting is most deficient, and where these large figures gain in effect, acquire a sort of spectral dignity from the dimness in which they reveal themselves; and that one mysterious passage, where the visitor has to grope almost in darkness, is turned to account as the deposit of some woven heraldic devices, with other fantasies of decoration, whose character we can just distinguish in the gloom, nor care to examine further. A smaller com-

partment, at an angle with that of the tapestries, contains another collection of sketches by Italian masters, but an off-shoot of the great series elsewhere seen, and all of minor scale; among them, however, being specimens of great value and beauty, by Passignano, Guido, Cigoli, and Salvator Rosa,—some wild rocky landscapes, by the last-named, fraught with the characteristics of his genius. A flight of steps from this locality leads us into the last section, where the aërial way passes over the Boboli Gardens, suddenly becoming much narrower and lower; and here its walls are made and serve for a series of coloured drawings, illustrative of natural history, animals and birds, which we need not dwell upon. Before reaching this point, the level of pavement slopes considerably downwards, so that we approach the Pitti Palace along a declining plane. As a piece of construction, indeed, this corridor is curious,—has an air of mystery that reminds us of Medicean despotism; and is unlike anything else in Florence. On the occasion of its opening was also made accessible to the public the new addition to the Uffizi Gallery formed of the Feroni collection, lately purchased by Government, consisting of about 100 pictures, all placed in the same well-lighted room. There is no one work here to class among stars of first magnitude in such a horizon; and the most noticeable are some extatic heads by Carlo Dolce, particularly an Ecce Homo and Madonna, besides landscapes by Salvator Rosa, and others of Flemish schools.

The king has shown himself a good Mecœnas in allowing the artist Ademollo, considered first in the present historio school of Florence, to accompany the army on the campaign in Lombardy for the illustration of battles to be fought and victories we are hoping for. By this master were painted the best pictures of the great conflicts in which Italy triumphed seven years ago.

ON SOME OF THE ARTISTIC FEATURES OF THE ESSEX COTTAGES.*

This title is not only too ambitious, but not strictly accurate, as I shall embrace in my remarks not cottages only, but farm-houses, in fact, any dwelling-house, under the rank of the mansion of the squire or nobleman. *These* have been often well described and illustrated in works easily accessible to all; but the cottages and farm-houses left us by our forefathers in past ages have not received the attention which I think they deserve. I cannot but think that it would be well worth the while for some one really capable to undertake this subject and work it out; to illustrate the principle of design which these old houses exhibit; to endeavour to classify them as to date; and to publish careful illustrations of good examples. I have not the knowledge or skill for anything of the sort, and only venture to skim the surface of the subject, and direct the attention of some abler hand towards it.

I do not allude now in any way to the *ground* plan of these old homesteads—their arrangement of rooms—their appliances for the comfort and decency of their inhabitants at the time of their erection—or their capabilities for meeting the necessities of our modern life; I speak simply of their external form and design.

Nor is it impossible to deny that this is generally one full of beauty throughout the whole of our country. Our poets have sung the beauty and quiet of our English cottages. Travellers from other lands speak of them with unvarying admiration. Painters love to represent their picturesque gables, and shadowing eaves, and latticed windows, and broad chimneys. It is some few features of this beauty we would wish to point out.

And first, I would bid you remark how entirely they are designed to harmonise with their particular sites, and with the prevailing features of our quiet English landscape. This implies in their builders a perception of artistic propriety and fitness which is now little understood, and seldom attained, by our modern architects, even in great works. How often in these days do we see a building, placed in a city, crowded up in narrow streets, yet framed on a design requiring it to be seen from a distance, and fitted for some commanding position in the country. On the other hand we have buildings, like the façade of the new museum of Oxford, fitted for the continuous line of street, standing isolated and alone. Now, this fact of apportioning the character of a design not only to the object of the building, but to the nature of its site; to make it thus appear to belong to the landscape around it; to grow out of it instead of being an extraneous thing, put down, as it were, haphazard, where it is; this, I say, is a mark of subtile and true artistic feeling. It was possessed in an eminent degree by the builders of old time; it is seen in their greatest works. The house of the noble in the city was a different type from that of his mansion in the country. Their churches varied according to the nature of the scenery around them and the materials to be used. Some had spires, some towers,—the towers themselves varying in form and size, and yet all so exactly suited to their several situations that, to a practised eye and cultivated taste, no small portion of effect could be lost were any two different types interchanged in site. A Pembrokeshire church, with its severe and simple pyramidal tower, would be out of place in the wooded or cultivated plains of Essex. An elaborate tower like that under whose shadow we are sitting, or one of beautiful brickwork like that we shall see at Hedingham, would lose half its beauty among the wild hills and rugged valleys of the west. Now just this very principle which the old architects adopted in these their great works, they successfully imparted even to their smallest. All that we have said of mansions and churches applies equally to their cottages and farms. To a Mediæval builder nothing was too small for care. The same air of grace and fitness that marked the mansion of the squire or the noble was thrown round the humbler dwelling of the farmer or the peasant. If one looked grand and noble, with its wide sweep of lawn and far-reaching avennes, the other equally became its knot of shadowing elms, and its little garden by the village green. The one as well as the other was fitted for its special site, and seemed equally a part and parcel of the general landscape around. In Herefordshire we have the homesteads formed with the black beams, showing oftentimes in beautiful and varied patterns through the white plaster between. In Gloucestershire the rich yellow stone, with stone mullions and quoins, and roof of slabs, give an air of solidity and comfort, fitting the rich gardens and orchards in which they stand. In Wales the grey cottages, low and nestling in some hollow of the hills, give an air of shelter from the wild winds of the mountain; all these, fit and beautiful in their several positions, we feel would be out of place in Essex, where the long stretch of roof, varied by projecting gables, and covered with thatch or tile, the white walls, with their quaint varieties of pargetting, seem at once the natural outgrowth of our quiet, undulating county, and lend to it one of its greatest charms.

I know, indeed, it may be said that all this is purely accidental—that this grace and fitness result simply of themselves from the accident of material, or what not. But the objection is a shallow one. Things do not grow of themselves into forms of beauty. To make them do so requires knowledge, and thought, and skill. Nay, the objection itself only proves the more what we are stating, for it is the very height of art to conceal itself, and appear actually what it is not—the mere natural outgrowth of utility, of necessity, of material.

Take another view of these homesteads of our country, and observe the fitness with which their mere outward form expresses the kind of life for which they are constructed. There is thrown around them an air of quiet, calm repose—they seem to breathe an atmosphere of simplicity and content, harmonising completely with the quiet, unambitious tenor of a country life. Those, indeed, who know the country best, know that this appearance is but too fallacious—that amid those quiet scenes breathe the same wild human passions; there are yet the same troubles, miseries, the same wayward errors and sins, that beset life everywhere. Yet, as we look upon some country village, we feel the thought of all this runs counter to the outward show of things, and this very feeling of incongruity shows how deep a hold upon our mind have the ideas of peace and repose that the old builders have impressed upon their buildings.

Yet a third matter to which I would call your attention in these old domestic buildings is their infinite *variety*. The type, indeed, is the same; there is always the high-pitched roof, the wooden-framed or mullioned windows, the genial stack of brick chimneys, suggesting the warm ingle within. But at the same time there is an almost endless variety. Sometimes the roof is unbroken from end to end, sometimes a central gable breaks its line, sometimes there is a gable at one end of the front, sometimes at both. When several houses are placed in a row, under one roof, the windows are sometimes dormers, sometimes carried up from the wall in small gables, grouping beautifully with the larger gables which in such cases usually flank on one end or the other; sometimes the upper story projects over the lower, throwing at once a dark mass of shadow, which adds greatly to beauty. The walls, as I have already said, though often simply rough cast, yet frequently present a great number of patterns in pargetting, quaint and simple, and eminently constructive in design. All these and other matters we might mention alone, or in combination, produce an infinite change and variety of form, and this alone is enough to claim for them a high artistic excellence. *Sameness of type* with *individual variety* is the law of nature's works; it regulates the growth of the trees of the forest, and the leaves of each individual tree; it marks no less these old cottages and homesteads of our native county.

This, then, is a high artistic feature—it is more, it is a great moral influence. It tends to gather the affections of the indwellers of these houses around them, to separate them from others, to intensify the idea expressed by our sweet English word *Home*.

Contrast these ancient houses with those which we erect to-day. Take an ordinary modern cottage, four square brick walls, a door at one side and a window at the other, and two windows above, a slate roof, low in pitch, with no eaves; it is a *dissight*—a blot upon the landscape around it. It is impossible to love a base, mean thing like that. Or take a modern row of cottages—each one exactly like the others—each a repetition of the type I have distressed you by describing: without a single thing to distinguish it from its neighbours but the number of the door, how can any affectionate associations gather round such a dwelling as this? It seems almost a profanation to apply to it the sacred name of home. There is certainly nothing in it to attract, and everything to repel. But being constituted as we are, with body as well as spirit, susceptible as is our nature, and especially in its uneducated state, to external influences, it is, to say the least, *unwise* to render our homes outwardly unlovely and repelling. Our fathers acted *wisely* as well as tastefully when they sought to render a man's house itself attractive, to give it an individual peculiarity distinct from any other, and to make it outwardly a fitting type of those fair and gentle influences which should dwell within.

Such are a few of the artistic features of an old homestead—it is a poor and meagre outline, but it may serve, I think, at least to call attention to them, and gain for them an interest which they well merit, and which they but seldom excite. The more you really look at them the more you will be struck with their picturesque beauty. They are, moreover, very precious as memorials of the past of our people, still existing among us, and which if once lost could never be replaced.

And it is a fact that they are, slowly indeed, but surely, fading away from us. The mere process of inevitable decay must rob us of them in time, and of the oldest and of the best first; but besides this every year, in every village, one and another of them is falling often before the march of what is called improvement; either altogether pulled down to make room for some vulgar, tasteless erection, deficient in every point in which they excelled, or else mutilated or added to, and all their native beauty destroyed. Now, surely it is to be lamented that these buildings should pass away without some record and memorial. If the things themselves must cease from among us, surely, at least, their *forms* may be preserved. Now this is the real object I have had in choosing the subject of this paper. I would venture to press upon you the importance and interest of securing some memorial of these old buildings. In every neighbourhood there is some one or other who has the power of making some sort of sketch, however rough. Will it not, then, be well to keep an eye upon these old buildings? whenever a house or cottage is to be pulled down, or *improved*, as the term is, let some one or other make it his business to take a sketch of it from one or two different points of view; a simple outline would be enough, just catching its leading features,

* By the Rev. E. S. Corrie; read at meeting of the Essex Archæological Society, at Earls Colne.

the distribution of its shape, and the arrangement of its parts. Nay, more—there are many of you in these days who are *photographers*. I can conceive nothing more interesting than that some one who possesses this valuable art should go round his own particular neighbourhood and take photographs of the best and most picturesque of these ancient homesteads. A collection of such photographs would have an interest and value almost impossible to over-estimate. They would form at once interesting memorials of the past, and be precious guides to our architects for the buildings of the future. We are never likely to have a type of building so fitted for our climate and our scenery as these, and it is surely possible to combine with the increased comforts and greater requirements of modern life these time-honoured forms which add so much of beauty to the hills and plains of our native land.

WATER SUPPLY AND OTHER SANITARY MATTERS.

The authorities of St. George-the-Martyr, Southwark, have given currency, in a separate form, to the report of a committee of the vestry on the subject of water supply, which presents an important collection of facts bearing upon the public health. The subject was brought up for consideration by the vestry on a communication and report of a committee being received from the vestry of Bermondsey. The document is, we believe, the production, for the most part, of Mr. William Rendle, the former medical officer of health of the parish. It contains an expression of regret that the sources of supply have not been discussed with a view to the provision of better ones by Parliament, and strongly urges the abolition of the intermittent, in favour of the constant, supply system, the latter being the only effectual means of ensuring that cleanliness shall at all times be practicable among the poor. To refute the erroneous and absurd allegation made by Mr. Quick, the engineer of the Southwark and Vauxhall Company, that the constant supply has always been found impracticable, it is submitted that, besides the success which has obtained in many of the chief cities in the provinces, sixteen houses belonging to that gentleman in York-place are, and have been for nine or ten years, served with water by this plan.

The sanitary improvements in Bermondsey since the last attack of cholera, when it had so bad a pre-eminence, appear to have been effectual in preventing it from being the first and weakest point of attack on the present occasion; and it is precisely where sanitary pioneers have been urging the great necessity of sanitary measures—as in Bethnal-green and elsewhere in the East of London—that the new attack of the epidemic has been made.

In accordance with the new regulations adopted by the special Sanitary Committee of the City Sewers Commissioners, the several inspectors appointed by that body under the provisions of the Nuisances Removal Act, were on duty in their several districts on Sunday morning at an early hour to meet the promised supply of water by the New River Company to the dwellings of the poor, cleansing the courts and drains to destroy the prevailing epidemic. At eight o'clock a.m. the supply was turned on, the water being kept running for half an hour in the poor localities.

In the South of London cholera has not appeared to any alarming extent. The local authorities are making earnest efforts to prevent its obtaining hold, and, where it may appear, to deal with it as effectually as possible. Committees have been appointed by every one of the vestries and district boards. Action was taken first in St. Saviour's, where for about a year there has been energetic examination into nuisances and supply of water, and a free distribution of chloride of lime. Dr. Frankland urges, for the purification of the water supply of London, the use of filters of animal charcoal by the water companies, or failing that, of permanganate of potash, or Condy's fluid; and the Kensington parish authorities, in a useful circular as to the prevention of cholera, advise its use and that of chloride of lime and carbolic acid after flushing closets, sinks, and drains with water. In the parish of Camberwell some cases have ended fatally. Directions have been given by the vestry for the most complete fulfilment of every suggestion contained in the Orders in Council. The Newington vestry have locked up the street pumps, the wells beneath which are tainted by sewage percolations; and required from the water companies an additional supply of water during four months. In St. Olave's, Southwark, chloride of lime, water, and carbolic acid, have been freely applied to the narrow courts which abound in the district, and thrown down the sewers, &c.; and special meetings of the board are to be summoned whenever anything shall require attention. In Lambeth, the whole of the medical practitioners have been communicated with by circular; vigorous inspection and cleansing operations are in progress; and the free and liberal distribution and use of disinfectants, besides the printing and circulation of simple rules and particulars, have been recommended. In St. George's, Southwark, the sanitary committee have been invested with all the authority of the vestry, to carry instantly into effect whatever steps shall be requisite.

In St. James's, Westminster, some cases of cholera have occurred in overcrowded localities, with dirty cisterns, choked dust-bins, and bad drainage.

Dr. Lankester has stated, in reply to a question—as to the discretion, we presume of alarmist proceedings—that he never knew of people having been frightened into cholera, and did not believe it possible. There cannot be a doubt, however, that fear and even mere anxiety can bring on diarrhœal symptoms; and since cholera is frequently preceded by such symptoms,—if, indeed, the connexion be not that of the milder and the more severe symptoms of one and the same disease,—it seems to us to be dangerous to act indiscriminately upon an opinion such as that of Dr. Lankester under present circumstances. There is no occasion for fear.

A deputation has waited on the Duke of Buckingham from Southwark, as to the bone-boiling and catgut nuisances in Southwark. After a very long discussion, his Grace said that the powers of the Privy Council went only so far as to order speedy interments, institute house-to-house visitation, establish dispensaries, and take precautions to guard against the spread of disease. He doubted whether the latter clause could be construed so far as to suppress a nuisance, so to speak, licensed by Act of Parliament, but an inspector should visit the spot, and then, if memorialised by the vestry, he would lay the case before the legal adviser of the crown.

The Liverpool town council have unanimously resolved to increase the salary of Dr. Trench, their medical officer of health, from 750*l.* to 1,000*l.* per annum. The council have also agreed to give 5,000*l.* towards the erection of an hospital for infectious and contagious diseases. It was stated that the public had subscribed 8,000*l.* for the same purpose. It was likewise resolved to take the management of the scavenging and removal of refuse and night-soil into their own hands. In Manchester and other large towns such a step, it was stated, had worked well, both in an economical and sanitary point of view. The water committee are enforcing their power to require all plans for dwellings to show that due provision had been made for a supply of water and a cistern to each house to hold a supply. They have also been debating on a new scheme for supplying Liverpool with water from Bala Lake, in Wales, at a cost of a million and a half sterling. Rivington Pike, it seems, only supplies six to ten million gallons a day, whereas the borough requires eighteen million gallons. Bala is at the head of the River Dee, amongst the slate mountains of Merionethshire, and is nearly four miles long by three-quarters of a mile wide, with an average depth of 40 ft. It has a water-shed of about 35,400 acres, and Mr. Duncan, the engineer who proposes the scheme, calculates that on an average 50 million gallons of water flow into and through the lake each day. Mr. Rawlinson, who first suggested Bala Lake as a source of supply for Liverpool, proposed that the pipe-line, instead of being carried to the lake itself, should bring the water from the Dee, at Llantisilio, a small hamlet about 2½ miles above Llangollen. Mr. Duncan, however, recommends that the lake itself should be drawn upon, considering that purer water can there be obtained, and a more certain supply ensured. He proposes that the embankment at the lower end of the lake should be raised high enough to impound all the flood water; and he calculates that if this can be effected to the extent of 5 ft., and works constructed to permit 2 ft. to be drawn off below the ordinary water-level, a quantity of water equal to a supply of 20 million gallons a day for 104 days would be available. This, he adds, would be altogether independent of any water flowing into the lake; but as, even without rain, at least 9 million gallons flow in every day, the supply of 20 million gallons could be carried over 130 days. For the conveyance of the water to Liverpool, Mr. Duncan proposes that a large conduit should be constructed from Bala to Llangollen, of sufficient capacity to convey 60 million gallons per day. At Llangollen there would be a reservoir, which would be connected with Liverpool by lines of pipes, crossing the Dee, Weaver, and Mersey by special aqueducts. Each line of pipes would be capable of conveying 15 million gallons of water per day, and additional lines might be laid. There are no difficulties, it seems, of an engineering character.

COMPASSES IN IRON SHIPS.

It is a well-known fact that all the methods for preventing the deviation of compasses in iron ships are more or less unsatisfactory. The latest scheme in the field is that proposed by Mr. Evan Hopkins, which was first brought before the public, in a somewhat imperfect form, however, in the spring of the present year. The principal cause of the deviation in iron ships is known to be the polarity which the hull acquires whilst being built. It becomes, in fact, a large bar magnet, the magnetism being induced by the action of the earth, and rendered permanent by the hammering which the hull receives during building. In order to get rid of this polarity, Mr. Hopkins proposes to prepare powerful electro-magnets, which are to be swung from the bulwarks, and slidden rapidly along the plates towards the stern, the magnet being lowered at every repetition of the traverse motion, so as to pass over and depolarize a fresh line of plates. It will be seen that the process is nothing more than an adaptation on a large scale of the ordinary method of demagnetising a magnetic bar. Mr. Hopkins has taken out a patent for his invention, but the details, as given in his final specification, filed a few days back, do not appear to give much promise of success. The idea is, however, a bold one.

CAVENDISH HOTEL, EASTBOURNE.

Eastbourne is a very charming watering-place, and is justly rising in public estimation. To supply an increasing want a new hotel is being erected there, and of this we now give a perspective view and the ground plan. The site is opposite the sea, with a frontage of 230 ft., and it is flanked right and left by fine roads. About two-thirds of the entire building has been commenced, and this is indicated on the plan.

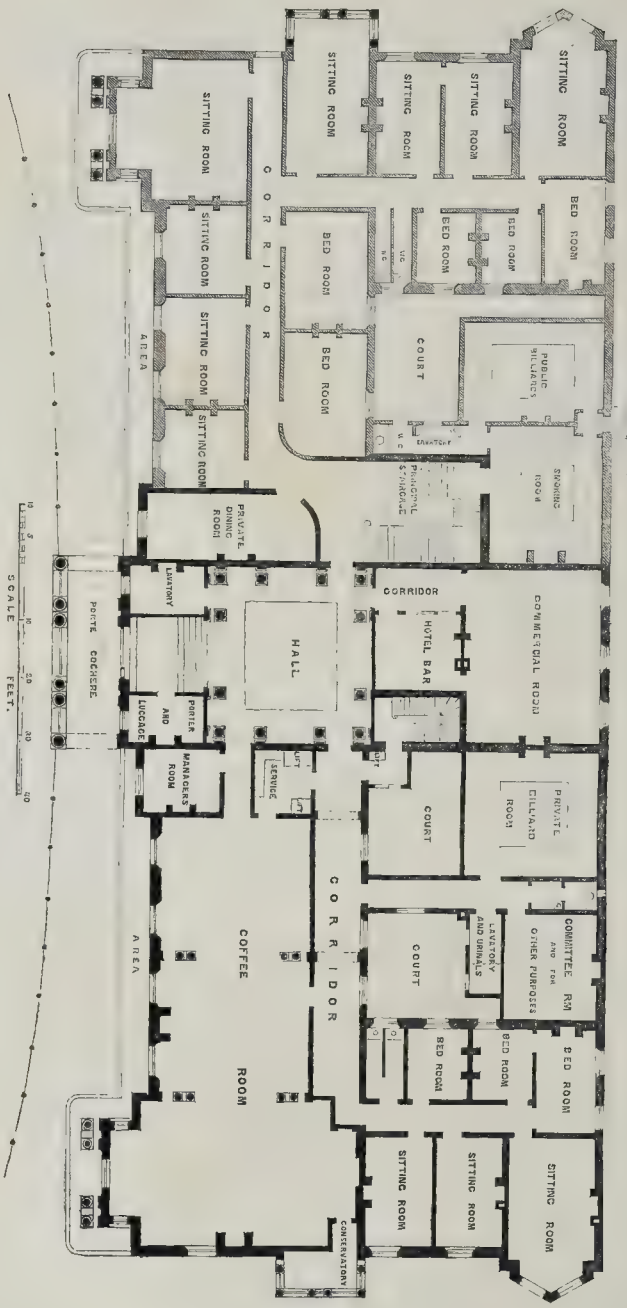
When finished, the *porte-cochère* will stand in the centre of the building, which rises to a height of five stories above the basement. The wings and flank elevations are four stories above the basement only. Each main angle is marked by a belvidere and bay window of several stories.

Passing through the chief entrance, the vestibule, with a porters' room on one side and a lavatory on the other, is entered. A flight of steps from this leads to the hall, a spacious apartment two stories in height, surrounded by a gallery. Opposite the entrance to the hall is the bar; on its right the coffee-room, 74 ft. long and 42 ft. wide in its broadest part. At one end are the manager's room and serving-room, and at the other is a conservatory. Behind the coffee-room is a corridor leading to the wing in which are bed and sitting rooms expressly designed for invalids. To the left of the hall are a private dining or large sitting room, and the chief staircase. Beyond these, when the building is fully carried out, will be a number of bed and sitting rooms.

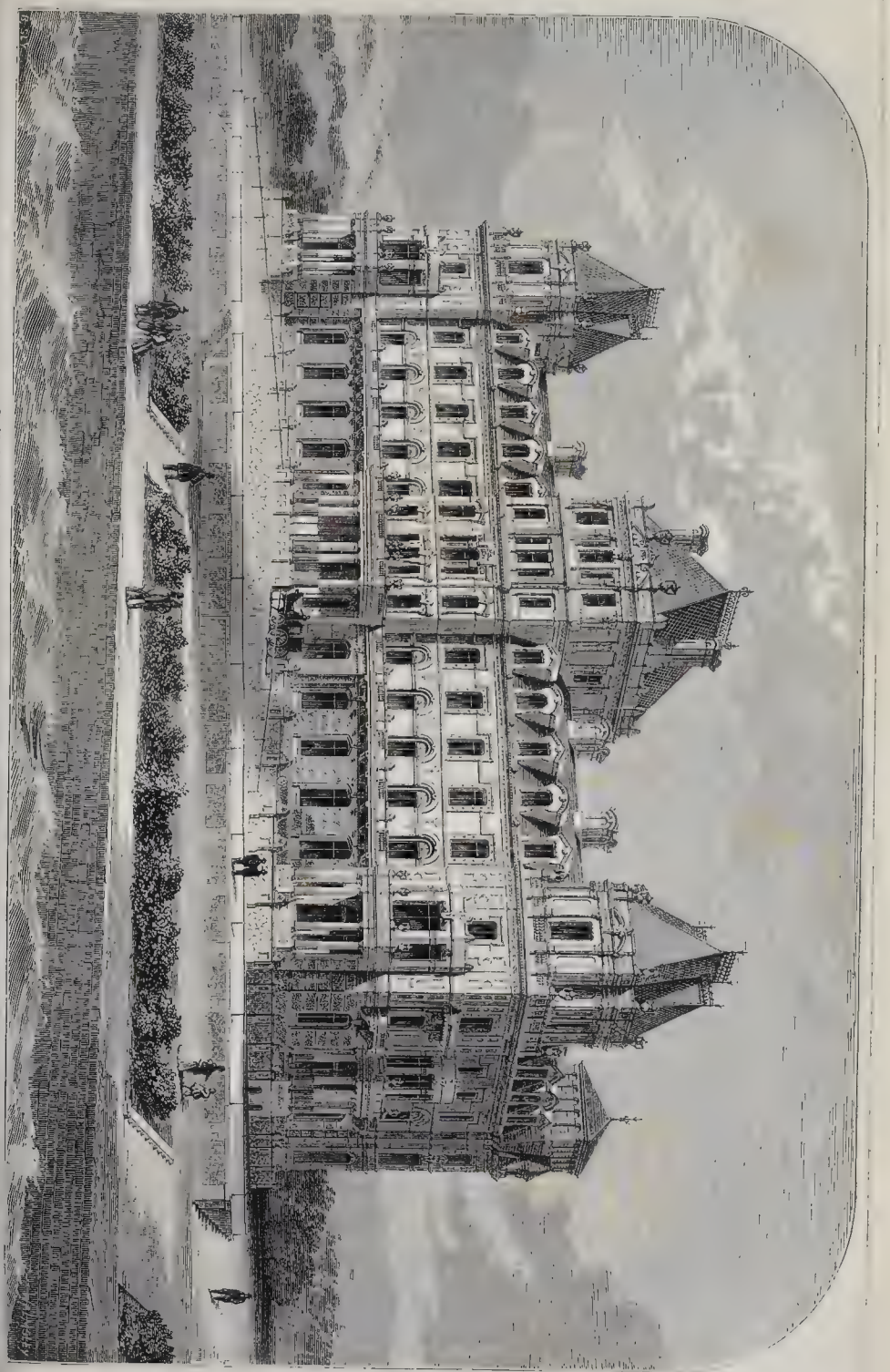
On the first-floor a corridor extends centrally from end to end of the building, with sitting and bed rooms opening from it, the angle being taken up by a ladies' coffee-room, with windows commanding Pevensey Bay and St. Leonard's. With this one exception, the same arrangement is repeated on each floor.

In the part now about three-fourths finished there are seventy bed-rooms and sitting-rooms, exclusive of house and visitors' servants' accommodation. There are also billiard, smoking, and commercial rooms. The latter are on the ground-floor level, and are included at back between the grand staircase and wing.

The architect is Mr. Knightley, of Cannon-street, London; and the builder Mr. C. N. Foster, of New Wharf, Whitefriars.



CAVENDISH HOTEL, EASTBOURNE.—*Ground Plan.*



CAVENDISH HOTEL, EASTBOURNE, SUSSEX.—Mr. Knightley, Architect.

METROPOLITAN BOARD OF WORKS.

In reference to the state of the River Lea in connexion with the fear of the public about the cholera, Mr. J. W. Bazalgette, the chief engineer, reported at the last weekly meeting of the Board, that he had considered the subject of the Lea and the Limehouse-cut. Diverting the Wick-lane branch of the Eastern Counties Railway sewer and the overflow of the Limekilns Dock sewer into the low-level sewer, and by a temporary pumping-station, raising the sewer at Abbey Mills into the northern outfall sewers, might be accomplished in about three weeks, at a cost of about 1,850*l.*, and a further cost of 60*l.* per week for pumping, assuming two 20-horse power engines were hired for that purpose. The Board expended in deodorising this sewer 250*l.* per week in addition to the expenditure of the district Board in deodorising the sewers. The cost would be considerably reduced. The main source of pollution of the Lea and Limehouse-cut were the drains, local sewers, and fractures upon the banks, and until the district Board should alter those from the open channels into the low level sewer, much benefit would not be derived from the proposed temporary pumping station. On Sunday week, the locks at Four Mills, in the River Lea, and in the adjoining lock in Limehouse-cut, and the lock at its outlet into the River Thames, were all opened, and a further supply of water thus obtained from the Thames, and a vast improvement in this channel was thereby effected. If this operation could be repeated twice in a week, there would not be much reason for complaint. He (Mr. Bazalgette) was in communication with Mr. Beardmore, the engineer of the River Lea trustees, with a view, if possible, to accomplish the improvement.

Upon the motion that the report of the engineer be approved, Mr. E. R. Cook, the member for the district, moved as a rider to the motion that the engineer's report be approved, "That as the low-level sewer is now complete under the River Lea, and the engineer has reported that it is possible to intercept the sewage which flows from the board sewers into the river, and by means of the temporary station at the Abbey Mills, pump it into the northern outfall sewer, the engineer be authorised immediately to carry this into effect."

This resolution was carried unanimously.

It was resolved that by Thursday in the present week some definite arrangement should be come to with Messrs. Brassey, the contractors, who are about to take Mr. Furness's contract (No. 2), for the Thames Embankment works, and if such arrangement were not come to, the Board would act upon their powers.

THE EPIDEMIC DISEASE.

The official publications of the Registrar-General's Office, which appeared in the daily papers on Wednesday, although not showing any decrease in the fatality of cholera, but, on the contrary, an increase in both London and Liverpool, may on the whole be considered more encouraging than might have been expected. In the first place, we are confirmed in the previous intelligence, that the disease in a severe epidemic form has to the present time been confined to three of our large towns, London, Liverpool, and Southampton. Secondly, the increase in the fatal cases in the first two of these towns is very much smaller than that shown by the returns of the previous week; while in Southampton a further decrease took place, the deaths from cholera in the three last weeks having been respectively 29, 24, and 17. The very suddenness with which the disease this year came upon the East of London in its worst form, and the rapidity of its increasing fatality, have so thoroughly awakened, not only in the metropolis, but in all our large towns, a conviction of the necessity for united and energetic action, as much to stop its increase where it already exists, as to be prepared for its appearance in towns that have already escaped, that even now it is fair to hope that the cholera of 1866 will, in its total ravages, be as much less fatal than that of 1854, as the latter was than that of 1849.

During the week ending last Saturday (4th inst.), of the 2,661 deaths registered in London, which exceeded the average number in the corresponding week of the previous years, corrected for increase of population, by 1,274, 1,053 were referred to cholera, and 354 to diarrhœa. During the four last weeks the deaths from cholera in London have been 32, 346, 904, and 1,053; those for last week showing an increase of 149 upon those returned in the previous week. Of the 1,053, the East districts contributed 916; the South, 47; the North, 46; the Central, 32; and the West, 12, the same number as in the previous week; while the numbers from each of the other divisions show an increase.

In Liverpool, to the present time, the proportion of fatal cholera cases to total deaths has been much smaller than in London, but the mortality from other causes is so much heavier in Liverpool, that whereas, in London, the annual death-rate in the past four weeks has not (with the cholera) exceeded 36·5 per 1,000; in Liverpool it has been 46·6. It is terrible to think that in this large town, of nearly half a million of inhabitants, with a birth-rate considerably higher than that of London during the thirty-one weeks of the present year, which ended last Saturday, there has been an actual decrease of population, by excess of deaths over births, equal to nearly 500 persons.

Manchester, by last week's returns, appears to have more reason to fear an outbreak of cholera than any of the other large towns furnishing weekly returns. The mortality has been very great from diarrhœa for some weeks, and eleven cases of cholera were reported last week, of which two were certified as Asiatic. When we say that there is cause for alarm in Manchester, we would rather have said that this town is called upon for the most prompt and strenuous efforts to secure the early and proper treatment of every case of diarrhœa, which it is well known frequently prevents the development of cholera. The few isolated cases which appear from time to time in the other towns, are not on the increase; and even in Leeds, where the death-rate has long been so high, no cases of a bad type have appeared.

There is little doubt but that the question of water supply is at the bottom of these cholera epidemics, with which we have been periodically visited. The visitation of 1866, it may be fairly hoped, will give the deathblow to that form of our boasted civilization which, necessary at one time, has, during the past thirty years, transformed our beautiful rivers into foul sewers, from which we still, after a more or less imperfect filtration, draw our water-supply, not only for manufacturing and ablutionary purposes, but to drink. A few years hence it will scarcely be believed that it was allowed to go on so long. Because a satisfactory system of utilizing our town sewage has not yet been discovered, there is no reason to fear that what should be a source of wealth, will long remain the curse of our water-courses. The cost will be great to purify all our rivers, but no expense can be put against a cholera visitation; and shall we not be further rewarded by an immense increase in the food resources of the country, and by the reappearance of fresh-water fish, which used to form so important a part of the food of the country.

THE DON VALLEY DRAINAGE.

The Doncaster Board of Health in committee have had under consideration the scheme proposed by Mr. J. Fowler and Mr. J. W. Bazalgette for intercepting and diverting the sewage from Sheffield, Rotherham, Doncaster, and the surrounding villages, and applying it as manure to land suitable for the purpose by means of works of irrigation. The remedy suggested by these gentlemen is to construct a sewer along the valley of the Don from Sheffield through Rotherham to Doncaster, which would not only receive the sewage of those towns now flowing into the river, but would act also as an outfall for sewers, which may be hereafter constructed to meet the future requirements of the valley. From Doncaster they are of opinion that an open channel may be formed through the purely agricultural districts lying to the east and to the north. This district is flat, and might, they state, be much improved in value by irrigating it with sewage; and there are large tracts of land almost wholly uncultivated which might be made of considerable value. Messrs. Fowler and Bazalgette assume that for this purpose the construction of about thirty miles of conduit from Sheffield to Doncaster, and thence east and north, would cost 300,000*l.*; and the project appeared to afford reasonable expectation not only that it would pay its own cost, but that ultimately it would remunerate its promoters. The cost could be defrayed by a rate of less than 6d. from the several towns benefited. This, moreover, is on the assumption that no return from improved lands is received in diminution of the rates; but from the result in other towns, and the favourable circumstances of the valley of the Don, they are of opinion that under judicious management the project may probably be made not only self-paying but ultimately even remunerative.

PARLIAMENTARY ITEMS.

In the House of Lords, the Earl of Shaftesbury has given notice that next session he will bring under the notice of the House the whole subject of the water supply for the metropolis. His lordship, in relation to dwellings for the poor, and to the fact that a short time since an Act was passed empowering the Government to advance money to companies for the purpose of improving the dwellings of the poor, and that by that Act it was provided that rules and regulations for the purpose should be drawn up by the Treasury, said he wished to ask when these rules would be published, as many persons were anxious upon the subject.

The Earl of Derby, in reply, said the rules had been drawn up, and he expected that they would have been printed and laid on the table of the House that evening. These have since appeared.

The Earl of Shaftesbury, in moving the second reading of the Public Libraries Act Amendment Bill, explained that its object was to extend the operation of the Act introduced by Mr. W. Ewart, which had worked well and given great satisfaction. Through its means no less than twenty-seven libraries had been established in different parts of the country, and to every one of these institutions was attached a lending library, which was very advantageous to the working classes. This Bill proposed to assimilate the law regulating these libraries in Scotland to the law existing in England and Ireland. The bill was read a second time.

THE WINDSOR BUILDING TRADE.

On Saturday last, a deputation from Windsor, consisting of Mr. R. Eykyn, M.P., Mr. C. Edwards, M.P., Mr. J. Jones (Mayor), and Messrs. T. Cleave, Holden, Wellman, George, Cooper, Goddard, H. Darvill (Town Clerk), and C. T. Phillips, had an interview with Lord John Manners, at the Office of her Majesty's Works, Whitehall-place. The deputation represented that in next September a new arrangement was anticipated with respect to the contracts for the works at Windsor Castle. Contracts at present are issued for local competition among the various branches of the building trade, and each contractor is paid by the Government. It is now understood that it is contemplated to consolidate the several branches, and to allow London masters to compete for the various branches in one contract. This was objected to by the deputation, who insisted that such a course of competition would be injudicious, injurious, and most unjust to the Windsor building trade. It was further urged that there were many grounds on which Windsor claimed to be a place in an exceptional position, one of them being that the people of Windsor are required to make very extensive demonstrations of loyalty, which could not be supported if the contracts were taken out of the hands of the local tradesmen. Lord John Manners informed the deputation that the subject should receive his careful consideration.

RAILWAY MATTERS.

The great engineering work of throwing a railway bridge across the Solway Firth, between Annan and Bo'ness, Cumberland, is making considerable progress, and the works upon the Solway Junction railway, of which it forms a part, and which is to shorten the route from West Cumberland to Scotland by railway about twenty miles, are also being rapidly constructed.

A railway bridge has fallen on the Great Northern railway, about half a mile from Batley station. The single line from Batley to Wakefield, at the distance named, runs on a high embankment, and under this embankment a bridge was in course of construction. A gang of men were employed on the bridge, the earth being

supported by wooden props. Owing to continuous heavy rain, the earthwork became loosened and suddenly gave way, burying one of the labourers; the wooden supports had fallen over him in such a manner as to prevent his being crushed or injured.

Pulman's sleeping-car, the "Omaha," now being used in America, is 70 ft. long, runs on sixteen wheels, and on the inside is 10 ft. wide, and 10 ft. high, affording couches for sixty-four persons. In the interior the woodwork is of artistically carved black walnut, and carpeted: the seats are all covered with velvet: a cabinet organ is in the centre of the car, and fragrant bouquets are suspended from the roof. The proprietors are now building twenty more of them, at a cost of 20,000 dollars each.

THE TRADES MOVEMENT.

The strike of the operative stone-masons and flaggers and slaters at Blackburn has been amicably settled, the masters conceding the nine hours' system.

The chairman of the stonemasons of Carlisle has addressed a letter to the editor of the local *Journal*, in which he says:—

"To show that our demands are not excessive, but the contrary, we append a list of towns where the wages have been advanced and the hours of labour shortened since April 1st, 1866, up to July 31st, 1866:—

Scarborough	from	27s. to 30s.
Bradford	,,	27s. to 30s.
Southport	,,	30s. to 33s.
Newport (Salop)	,,	27s. to 29s.
Whitby	,,	26s. to 30s.
Cambridge	,,	30s. to 32s.
Malton	,,	27s. to 30s.
Sheffield	,,	30s. to 32s.
Bristol	,,	27s. to 30s.
Bath	,,	27s. to 30s.
Barrow-in-Furness	,,	30s. to 33s.
Leamington	,,	27s. to 30s.
Hyde	,,	30s. to 32s.
Weston-super-Mare	,,	24s. to 27s.
Warrington	,,	30s. to 33s.
Derby	,,	28s. to 30s.
Newark	,,	27s. to 30s.
Cardiff	,,	27s. to 30s.
Whitehaven	,,	27s. to 30s.

The hours of labour have been reduced in the following:—

Barnsley	from	58½	hours to 52½	per week.
Bury	,,	53½	,, 49½	,,
Halifax	,,	57	,, 50½	,,
Dewsbury	,,	52½	,, 49½	,,
Preston	,,	54½	,, 49½	,,
Bingley	,,	55½	,, 51½	,,
Barnard Castle	,,	57½	,, 53½	,,
Scarborough	,,	57½	,, 54½	,,
Sheffield	,,	57½	,, 55½	,,
Oldham	,,	56	,, 49½	,,

Our wages in Carlisle previous to striking were 26s. per week, and our hours of labour 58 per week; we ask for 28s. and 55½ hours per week."

In a letter to the Minister of State, as to aids to workmen in France, the Emperor of the French proposes to establish a workmen's benevolent society. His Majesty says:—

"I should consider it useful, in the first place, to call for the assistance of the persons themselves interested, whom it is not proper to discharge from the care of every foresight. From them might be asked a voluntary and moderate contribution. To the produce of that subscription would be added the sums arising from the payment of 1 per cent. effected on the public works executed by the State, the departments, and the communes. That would be a sort of assurance fund, receiving a subvention. It would be administered by the Government, and might take the name of *Caisse des Incalides du Travail*.

Its object would be to aid,—1. Workmen of the towns and country districts, who, after having assured themselves, should receive, in the exercise of their labours, wounds entailing a continuous incapacity for work; 2. The widows of those who, in similar conditions, should have lost their lives."

A TOWN-HALL FOR GUISELEY, YORKSHIRE.

The first stone of a town-hall was laid in the increasing town of Guiseley, on Saturday last, by Miss Thompson, eldest daughter of Mr. M. W. Thompson, Park-gate, to whom the township is already under many obligations. The ancient parish church having been restored, and many other improvements having been effected by Mr. Thompson, he has now directed his munificence towards the construction of a hall for the general uses of the township. The Rev. T. B. Ferris, the rector, on behalf of the committee, presented Miss Thompson with a mallet carved in ebony, and a massive silver trowel, the handle of which is adorned with stones, and bears the inscription, engraved by Mr. M. Rhodes, Bradford:—"Presented by the Committee to Miss Thompson, Park-gate, Guiseley, on the occasion of her laying the foundation-stone of the Guisely town-hall, July 7th, 1866."

Mr. Thompson, addressing the company, said he had long seen the need of a public building in Guiseley, and had wished to remedy it. He thought it necessary to have a building which would be considered common ground by all denominations, containing a large room where concerts and lectures might be given. There would also be a news-room, schoolroom, and class-rooms, and offices for the local Board. He hoped to see in connexion with that building a flourishing Mechanics' Institution or Literary Society.

The length of the building is 83 ft., the width 39 ft. The public hall will be 65 ft. long, 36 ft. wide, 27 ft. high, and will hold 800 persons. The principal staircase is to be 24 ft. long and 13 feet wide; the steps 5 ft. 6 in. wide, of stone. The ground floor comprises the public offices, consisting of a board-room, clerk's office, fire-engine-room, and a reading-room, 29 ft. long, 17 ft. wide; a library, a schoolroom, 32 ft. long, 18 ft. wide; a class-room and lavatory. The cellaring contains boiler and lamp room. The ground-floor rooms are to be heated by hot-water piping. The masonry is to be executed in the sandstone of the district. The style is plain English Gothic. Messrs. Freeman, of Otley, are to do the masonry; Messrs. Jessop & Westmoreland, of Wortley, the joinery. The cost of the building is about 3,000*l*.

Messrs. Knowles & Wilcock, of Bradford, are the architects.

THE PASTORAL STAFF.

At the last Committee Meeting of the Ecclesiological Society photographs were exhibited of Mr. R. H. Carpenter's Pastoral Staff, executed for the Bishop of Chichester. In this design the figure of an angel, supported on the chased knop of the crook, stands below the crook itself, and inside the latter there is a pelican in her piety. A pastoral staff for the Bishop of Calcutta, designed by Mr. Arthur W. Blomfield, and executed by Messrs. Peard & Jackson for Messrs. Frank Smith & Co., was exhibited. A trilingual inscription is engraved on the staff. The following description accompanied it:—

The metal work of the staff is silver parcel gilt. Care has been taken in the design to preserve the legitimate treatment of metal throughout.

The staff itself is of ash ebonized: this has been used as combining strength with lightness. The lamb in the centre of the crook has been made (by the Bishop's desire) moveable, and to be replaced with a jewel, because in some parts of his diocese the meaning of the emblem is liable to be entirely misunderstood.

The following ancient lines on the form and meaning of the pastoral staff are usually quoted in a shortened or mutilated form.

"In baculi formâ, præsul datur hæc tibi norma,
Attrahe per primum, medio rege, punge per imum,
Attrahe peccantes, rege justos, punge vagantes,
Attrahe, sustenta, pulsa, vaga, morbida, lenta."

THAMES SOUTHERN EMBANKMENT.

The following particulars, the correctness of which is vouched for officially, will be found interesting. The work consists of river-wall and embankment, for a length of 4,300 ft. run from Westminster Bridge to Gun House-alley; landing-stairs at Westminster Bridge; and a carriage and footway, forming a direct thoroughfare, 60 ft. wide, from Westminster Bridge to Vauxhall. The amount of the contract is 309,000*l*. The work was commenced by the contractor, Mr. Webster, in the autumn of last year. The dam was formed at the rate of about fifty piles a day, and is now 2,300 ft. in length. At a point, 1,200 ft. south of Westminster Bridge, there is a cross-dam, which was completed and the water finally shut out, on the 10th of May last, when the permanent work, *i. e.* the river-wall, was commenced.

The coffer-dam is formed of two rows of piles, from 35 ft. to 40 ft. in length, and 6 ft. apart, driven to a depth of about 6 ft. into the London clay. The river-bed between the two rows is dredged of gravel, &c., down to the clay, and the space filled in with clay puddle to a height of 3 ft. above Trinity high-water. The piles were nearly all driven by Sisson & White's patent steam pile-engine.

The line of the river-wall will be about 20 ft. inside the line of the coffer-dam, and, above Lambeth Bridge, will be about 100 ft. inside the existing wharf walls, thereby considerably increasing the width of the river opposite Millbank, to a minimum of 700 ft. The foundation is taken out to a depth of 29 ft. 6 in. below Trinity high-water, or about 14 ft. below the bed of the river, and to a width of 16 ft. 6 in.; the trench is then filled in with Portland cement concrete, to a height of 7 ft., at which level the brickwork commences. This is 7 ft. thick in the front of the wall, and counterforts, or buttresses, run out for 6 ft. more at the back, every 6 ft. in length, the intermediate spaces being filled in with Portland cement concrete. The brickwork is carried up 2 ft. higher (or 9 ft. above the lowest level of foundation), and then forms a bed to receive the first course of granite facing. It is to this level that the wall is at present built, with its concrete foundation, for a length of about 1,000 ft. The granite to be used is from Jersey, Guernsey, Dartmoor, Cornwall, &c., and there are now about 58,600 cubic feet, or 4,500 tons, on the ground.

The construction of the coffer-dam is still being continued beyond the cross-dam, or end of the first section, and is completed for a further length of 1,100 ft. to Ferry-street Dock, about 100 ft. south of Lambeth Bridge, where another cross-dam will be made, and the water shut out of this second section in a short time. Under Lambeth Bridge, cast-iron caissons were used instead of piling, to avoid any risk to the foundations of the abutment of the bridge.

The foreshore inclosed by the first section of dam, and as far back as Palace-road and Bishop's-walk, is the site of the new St. Thomas's Hospital, which will consist of seven distinct blocks, and of which the foundations for the third block have been commenced by the same contractor.

When completed the embankment wall and works will consist of,—195,000 cubic yards of excavation, 175,000 cubic yards of filling in, 37,000 cubic yards of concrete, 28,000 cubic yards of brickwork in Portland cement, 426,000 cubic feet of granite, 56,000 cubic feet of Yorkshire stone.

A paved promenade, 20 ft. wide, for foot passengers, will be constructed along the top of the wall and in front of the new Hospital. This will be approached from Westminster Bridge by a handsome flight of steps, and extend to Lambeth Palace, being 2,000 ft. The roadway for carriages from Stangate will be along the line of the present Palace-road and Bishop's-walk thence alongside the river to Gun House-alley and High-street, Vauxhall.

COMPENSATION CASE.

Viscount Galway v. *The London, Chatham, and Dover Railway Company.*—This was a compensation claim, (Lord Mayor's Court, Aug. 4,) of between 30,000*l*. and 40,000*l*., by Lord Galway and others, made under the will of the late viscount in respect of property on Snow-hill and Fox and Knot-court, taken by the London, Chatham, and Dover Railway to make the new line across Snow-hill in connexion with the Metropolitan Railway. Several surveyors were examined in support of the claim. It appeared that property on the spot in question had become very valuable, and all City lands had greatly increased in the market, land in the City now being difficult to obtain. There had been very inferior houses on the property, and to make the land available it could be utilised for warehouses and other commercial purposes, and would realize a considerable annual rental. There had been two public houses, which might be rebuilt if the land was to be made available. Some part was valued at 3s. per foot, another at 2s. 6d., and another part at 1s. 6d. per foot. The estimated price was 32,104*l*. 16s., and the customary 10 per cent. on a compulsory sale was 3,210*l*. 9s.

After the case had occupied some time, and several witnesses speaking to the great value of the property taken by the railway, a verdict of 28,000*l*. was agreed upon.

STOCKPORT AND CHEADLE RAILWAY.

This new branch of the London and North Western Railway, by which a new *route* to Liverpool, *viâ* Stockport and Altrincham, is made, was opened for passenger and goods traffic on Wednesday, the 1st August.

This railway branches from the London and Manchester "main line" near the junction of the Buxton branch, at Edgeley, and proceeding for a short distance on a curve to the right enters a deep cutting, on leaving which it is carried on a long and heavy embankment averaging 20 ft. high for a distance of two miles; and, after passing through another cutting half a mile long, is again carried on an embankment to its junction with the Stockport, Altrincham, and Timperley

ilway, a Northenden, which line was opened public traffic a few months ago.
The through communication to Liverpool is Altrincham and Warrington by the previously isting lines of railway.
The length of the new branch is about three d three-quarter miles, and it is a double line roughout. In making it, eighteen bridges have en constructed; the largest of which is a ought iron box-girder bridge, 80 ft. skew span, r the Stockport and Warrington turnpike d, at Cheadle Heath. A commodious station s been built at Cheadle, from the designs of . Stansby.
The works were carried out by Messrs. Garside Stead, railway contractors, under the direction Mr. E. Angell, the resident engineer; Mr. n. Baker, of Euston Station, being the gineer-in-chief.

VALUE OF LAND IN LANCASHIRE.

N investigation has taken place in the Liverpool riff's Court and Nisi Prius Court, before Mr. J. Aston, ssor, and a special jury, as to the value of a piece of , the property of the Earl of Sefton, situated in the nship of Tarbock, and about to be compulsorily taken he Manchester, Sheffield, and Lincolnshire Railway pany, for the purposes of the new line of railway rmined upon between Liverpool and Manchester. The in question amounts to 10 a. 1 r. 1 p. statute mea-, and forms part of the Tarbock estate, which com-es nearly the whole of the township of Tarbock; in , the quantity about to be taken by the railway com-y represents an actual dimension of seven-eighths of a in extent. The question the court had to try was, t amount of damage would be sustained by Lord Sef-as the owner of the property, by reason of the execu-of the works of the company. His lordship claimed per acre for the land, 50*l.* additional per acre for the pulsory taking, 1,000*l.* for compensation for the inter-on of the estate, and between 1,000*l.* and 1,300*l.* for ral damage to the estate, making in all about 4,500*l.* ter hearing counsel and evidence, the assessor summed nd the jury awarded the claimant 2,250*l.* The offer e railway company was, it is said, 2,500*l.*

SANITARY ENFORCEMENTS IN PADDINGTON.

the Marylebone Police Court, before Mr. Mansfield, strate, Mrs. Irons was summoned on the complaint r. W. H. Sullivan, sanitary inspector for the parish addington, under the "Nuisance Removal Act for and, 1855," for having on the premises, No. 56, ket-street, of which she is the owner, "a water-closet, , and dust-bin, so foul as to be a nuisance or in-us to health." The inspector, on being sworn, led the nuisance, and explained that everything had done to induce the defendant to abate the same, was of the foulest description, but without effect. . B. Sanderson, the medical officer of health for the h, on being sworn, stated, that the description of the nce by the inspector was in every particular correct, that the nuisance complained of was injurious to h. The defendant, who affected deafness, was then ned by the magistrate, that he (the magistrate) grant an immediate order for the inspector to carry he sanitary improvements necessary to make the ses wholesome, the defendant to pay all costs and ses of the proceedings, also the cost of constructing ecessary works.
. Baily next appeared to a summons, on the com- of the inspector, under the same Act, for having on remises in Elm's-lane, and known as "Mrs. Baily's house," of which she is the owner, a water-closet ain so foul as to be a nuisance or injurious to health, eneral filthiness of the said premises. The inspector d the nuisance, and was fully corroborated by Dr. rson. The magistrate granted a similar order as in t case.
James Leaver and Sir Mathew Wyatt were severally for non-compliance within the time stated in a order of the vestry with various sanitary require-

HE ORDNANCE SURVEY AND PROFESSIONAL MEN.

some time past a portion of your journal been devoted to the discussion and expo- of a very serious grievance affecting the eering and surveying professions, and attention being aroused, it is possible that may result from the uncovering of a defect ejudicial to the well-being of those con-d. I have now, craving your indulgence, ect your attention and that of your readers, econd grievance, which, although of para-t interest to the professions referred to, and hich has beyond all others afforded food for itterest reflections, has yet been strangely cted in public advocacy. The subject is d one which, sooner or later, must arrest tention of the people at large.
llude, sir, to the system upon which the Ordnance Survey of Great Britain is being cted. And when I have said thus much I rtain that I have secured the eager interest of a large number of your readers. I believe that in this land the fallacy of paternal government is fully recognized. I ask, therefore, by what right does the Executive presume to enter, *at the public cost and risk*, into competition with a body of professional men? That I am justified in so putting it, will be seen from the following statement of facts, of recent occurrence, and I doubt not fresh in the memory of many who will see it in these columns.

About six weeks ago, I received a circular letter from a local board of health in an important colliery district in South Wales, stating that a plan of the said district was wanted, drawn to a certain scale, showing thereon contour lines at certain intervals of altitude, the whole being required for main drainage purposes. The enterprise appeared of importance, especially with an ulterior chance of being appointed to carry out the drainage, so that, acting in conjunction with another gentleman, we took the matter into consideration, and resolved to compete for the undertaking.

A journey of 400 miles was necessary, including, amongst other items of expense, the loss of two or three days spent in reconnoitring the features of the district. Our tender was duly forwarded, and we awaited the result. Three weeks elapsed and nothing was heard. We wrote a letter, of inquiry, and received the following reply:—

"Sir,—This matter has been referred to a committee of the Board, who have not yet made their report, but it is probable they will recommend that the survey be entrusted to the Ordnance authorities."

Sir, the unjust and costly interference of the Ordnance authorities has long formed a bitter grievance to the numerous class of civil engineers and surveyors, of whose body I form one; how justly, I need not tell you. That it should be the work of Government officials to execute enormous and costly surveys, extravagantly in excess for the purposes for which Government surveys are required, and at the same time to drain the public purse for the especial benefit of local corporations and influential landed proprietors, is a matter so pregnant with the grossest injustice, as to need little comment from me. In the case quoted, we have Colonel James, with the public exchequer to fall back upon, throwing out every possible competition, and expending for the sole and peculiar benefit of the said district several hundred pounds by executing the survey at some such utterly inadequate sum as the Board of Ordnance usually put upon the services of the skilled body of engineers and civil assistants under their control, of which many instances may be cited from Colonel James's own report.

In that of 1855-56, he says, "that a special survey has been made and engraved of Devonport, Stonehouse, and Plymouth, for the use of Government, *and* for the local Board of Health, which latter has paid the sum of 500*l.* towards the expense." Now, I will venture to say, without fear of contradiction, that the additional work required beyond the Government purposes, and undertaken solely on account of the Board of Health, in these three towns—containing, perhaps, a population of not less than 120,000—could not have been done for thrice the amount specified. In like manner has the Government of this country, in its capacity as surveyor for hire, competed at every turn with the private practitioner, who, to his further mortification, knows that by indirect taxation he must contribute towards the working of a system which is silently, but surely, becoming converted into a vast monopoly of his own proper calling. It cannot be doubted that sooner or later the means of subsistence will be taken absolutely from a very considerable portion of the above professions: every year the encroachments of the Ordnance Survey are being more severely felt, and it is now surely time that those more immediately concerned should give forth a protest against an abuse so wantonly unjust. It is surely impossible that the public, or even their representatives in Parliament, can be possessed of the fact that every year a large sum is devoted to the carrying out of a gigantic survey in Scotland, drawn to a scale of 25·344 inches to a mile, a scale enormously enhancing the cost of operation, and many times exceeding the wants of the nation. This survey, according to Col. James's own report before mentioned, was commenced, not at the free requisition of Government, but for the especial benefit of "many influential people" in Scotland, who, not approving of the six inch to the mile survey ordered by Lord Derby's administration (Treasury Letter, August 28, 1852), procured the adoption of the larger scale (Treasury Min., April 15, 1853). So that, now, the nobility and gentry of that favoured country are being provided, *at the public cost*, with exact plans of their broad estates, from which accurate quantities may be cast, throughout the length and breadth of the land. A pointed instance of the mal-expenditure of the public revenue, as also of the griping selfishness of those who, possessed of the soil and the wealth, use the power gifted by their high station to an ignoble purpose, and accomplish their private ends through the medium of the public purse. Truly, to him that hath shall be given.

From the same report we learn that the cost of the larger scale survey exceeds that of the smaller by 100 per cent., and as the cost of the latter is not less than 900,000*l.*, that is 30,000 square miles, at 30*l.* per square mile (surveying, contouring, and engraving), we have a drain upon the national funds amounting to nearly 1,000,000*l.* sterling; with the farther drawback that by such mis-expenditure is painfully narrowed the sphere of action of a profession containing many thousands of skilful and intellectual members.

Such is the grievance under which I, your correspondent, individually, and my profession, collectively, are sufferers. I wonder, if the Executive were to establish a department for the sale of law, how long it would be suffered to exist; or, if such a project were mooted, whether it would ever arrive at maturity.

Surveyor.

THE BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

Mr. Peto Ward writes,—Some few months since, I troubled your columns with a suggestion for the formation of a Builders' Clerks' Benevolent Society. It has been acted upon, as you will perceive by the rules which I have the pleasure of inclosing to you. The committee, whose names appear in the front page, represent some of the principal leading firms, and they decided upon holding a meeting, to which employers, merchants, and the class specially interested should be earnestly invited to attend.

Subscriptions and handsome donations have been received, principally from merchants, and the future bids fair. In the hope of monetary matters improving, and acting upon the advice of an influential employer, the meeting has, from time to time, been deferred. The necessity of such an institution is already felt, and I have before me the application of an estimating clerk's widow for even temporary relief for herself and children.

Our funds do not yet permit us to assist. To be obliged to refuse to aid, the committee must feel a great check to their humane exertions. With the dreadful visitation now in our land, will it be the only one? I fear not; without the generous public, architects, builders, merchants, the managing down to the junior clerk, come forward to assist (in sums be they ever so small) and aid in alleviating the old man's sorrows or the desolation of many a widowed home. Our offices are, 14, Bedford-row.

We anxiously endorse this appeal.

TOUCHING THE CATTLE-PLAGUE AND CHOLERA PRAYER.

Sir,—I want some one to suggest to the ecclesiastical authorities that it is time the prayer which has been read every Sunday throughout England for so many months past, were withdrawn, since the wording of it is no longer suited to our exigencies. It is an insult to thinking people to be asked to join in, or even to listen to such phrases as these,—"The pestilence with which many foreign lands are visited. Keep it far from our borders, and shield our homes from its ravages," when each weekly sanitary report bears terrible evidence that cholera is actually within our own borders,—nay, in our very midst, and that hundreds of our fellow-townsmen have already sunk under its "visitation."

In the little seaside retreat, from which I, an escaped Londoner, am writing, we made rather a mess of this prayer last Sunday at the morning service. As in duty bound, we read it after the collects, in its appointed place; and then, not feeling *that* satisfactory, I suppose, we read the

prayer "in the time of any common plague or sickness," which is printed in the Book of Common Prayer; thus, you see, first praying to be saved *from the arrival* of the very sickness which we afterwards owned *had* arrived.

In the name of sheer consistency, what is the good of this? If we choose to ignore the presence of cholera, we may pray that it may not arrive; but, if we immediately afterwards turn round and own it has arrived, do not then let us,—with all reverence be it said,—mock God by asking Him to keep it away!

To return to the "cattle plague" prayer. The spirit in which it is written has always seemed to me rather questionable. Surely, religion should teach us to bend our own will into submission to God's will, and not to strive to bend His will to suit our wishes. We are not to dictate to Him how He is to help us; and what is it but dictating when we say, "Stay, we pray thee, this plague by thy word of power, and save that provision which thou hadst in thy goodness granted for our sustenance."

This is, simply, asking God to work a miracle for our benefit, although everything around us teaches that "the age of miracles is past." How can we suppose such prayers can be pleasing to God? or can cause Him to alter His inevitable decree, that when men act in opposition to the laws of Nature, which He has laid down, they *must* suffer?

The cruelty man has inflicted on the poor patient animals—given to him for his food, but not to be tortured—for so many years past: their long, weary marches through hot dusty country roads, and crowded bewildering city streets; the days and nights of misery they have endured pent up in railway vans, without space to move or water to drink; herein man has contravened the laws of Nature as laid down by God, and, as a natural consequence, the poor dumb sufferers have fallen a prey to disease, and have died out of their misery by hundreds, while man has become the sufferer in their stead. It is the Almighty law of cause and effect.

And while thus paying the penalty of our own deeds, it seems to me it would have been more becoming in us, instead of asking God to avert that penalty by his "word of power," to have prayed Him to enlighten our minds to perceive wherein we had trangressed His laws; and to give wisdom and discrimination to those on whom the duty fell to discover and properly apply the right remedy for this fearful scourge, which, doubtless, he *has* given to us, but we have not yet been wise enough, or, perhaps, humble enough, to recognize it. This would have been a legitimate subject for prayer, which I cannot think asking God to work a miracle for our benefit is; and it *might* have brought down the blessing we desired, which the authorized petition certainly has not done, or why is it still repeated? Although we are taught in it to say "we humbly pray thee," the words savour little of that true humility of heart which Christ commended in the publican, who would not so much as lift up his eyes unto heaven, but smote upon his breast, saying, "God be merciful to me a sinner."

CIVIS AD LITUS.

PATHS.

SIR,—I shall feel obliged if any of your correspondents will inform me, through your journal, of a cheap material suitable for public paths. INQUIRER.

GARDEN DECORATION.

A CORRESPONDENT, writing from Paris, says,—"As to Mr. Hughes's book on garden architecture, he has omitted the filled *flower-vases* that crown the parapets in so many gardens of all countries. In passing by the Champs Elysées to-day, I made a point of examining every garden *wall decoration*, and there are many at the back of the Elysées. One (No. 44, Avenue des Champs Elysées) is surmounted by vases in which I counted nine different shades of colour, from the white and the scarlet geraniums to shades of violet and purple. The effect is charming, especially when they are external, and flanked by gilt railings."

"The terraces you illustrated last week would be much improved by the addition of vases on the pedestals. A pedestal, to my mind, always calls for something to be placed on it. This addition would break the disagreeable straightness of the balustrade, and add greatly to its beauty. Vases filled with aloes or flowers are the most beautiful ornaments a garden can have. In the first design solid terminals are shown on the pedestals; such would be fit for the top of a house, but are not nearly so appropriate for a terrace as would be vases. The low block pedestals in these designs should have groups of figures or crouching animals on them. *Pedestals* should bear *something*. P. E. M."

THE THEATRE.

The Haymarket.—While Mr. Buckstone and his company are paying their annual visit to Manchester and a few of the other large towns, and Mr. Sothern is endeavouring to find health in a little rest, Miss Amy Sedgwick occupies the Haymarket Theatre, and treats her admirers to a repetition of Mr. Tom Taylor's excellent comedy, "The Unequal Match," written for her, and never acted, so far as we know, excepting with herself as the heroine. Miss Sedgwick plays it with all her accustomed spirit and *finesse*, and is fairly supported by Mr. John Nelson, formerly of the Princess's Theatre, and Miss Marshall. An actor new to London, Mr. J. Irving, who plays Mr. Compton's part in the comedy, and the principal character in "The Dancing Barber," promises to be an acquisition. He shows considerable versatility, sings very fairly, and with his imitations of the grotesque French dancers now at the Princess's Theatre, convulsed the house.

Mr. Mellon's Concerts.—Mr. Mellon has commenced his promenade concerts in Covent Garden Opera House with much spirit, Mr. Wieniawski, the Polish violinist, Mdlle. Liebhart as solo singer, and Miss Krebs at the pianoforte, forming some of the chief attractions. The band is excellent, as usual.

CHURCH-BUILDING NEWS.

West Ham.—The ancient church of All Saints, West Ham, has been restored. The organ and loft, which concealed the chief architectural features of the building, have been removed out of the tower, and a new organ has been built by Mr. Walker, and placed in the chancel. The cost of it was chiefly borne by the vicar, the Rev. A. J. Ram. Paint and plaster have been cleared off the masonry. The present alterations have been limited by the means at the disposal of the vicar and the committee. Among other things done has been the erection of a new reredos, from the design of Mr. G. G. Scott. A new window, situated above the communion table, has been contributed by Colonel Capper, M.P. The lower tier, which is half concealed by the reredos, owing to the depression of the chancel roof, illustrates the Annunciation, the Salutation, the Nativity, and the Presentation of our Lord in the Temple. In the lower tier the principal subjects are the Disputation with the Doctors in the Temple, the Baptism in Jordan, the Sermon on the Mount, and the Last Supper. The tracery, which is of the Perpendicular period, is filled with angels in adoration, carrying musical instruments placed over canopies, with features corresponding to the architectural and inscription records. The four window openings in the south side of the chancel have been remodelled and assimilated in character to the windows of the original buildings as they remain in the tower. New stone jambs, mullions, sills, and tracery have been inserted in them, and two single-light windows have been filled with quarries glazed with pale green cathedral glass. One of the two double-light windows has been filled with stained glass by Major Birt. It illustrates the scenes of our Saviour bearing his Cross, and also his Resurrection, with four small figures of the major prophets in the lower panels. The other is the gift of Mr. Edward Hileary. The subjects are our Lord's charge to Peter,—"Feed my Sheep;" together with the Ascension and the Four Evangelists in small panels. The stained glass is all more or less commemorative, and has been designed and executed by Messrs. Lavers & Barraud of London. It is considered very desirable that the other windows, especially those on the south side of the nave, should be glazed with quarries or stained glass. The window in the tower is to be treated with suitable subjects. One lady residing in Stratford has contributed 100 guineas towards the cost of this window. The general alterations and cleaning of the ancient work have been executed by Mr. W. H. Smith, of Plaistow, builder, under the supervision of M Marshall, the district surveyor, who has act gratuitously in concert with the vicar and t committee.

Norwood.—St. Paul's Church, Annerley-ro has been consecrated by the Bishop of Winch ter. It has been built for the congregati which has for some years past worshipped in t iron church in the Hamlet-road. It is a br structure, relieved with dressings in blue a yellow Bath stone, and with a west front a tower in Kentish rag, with blue and yell Bath and red Mansfield stone dressings. T style is Early French Gothic, freely treated, a in plan consists of nave, side aisles, transe apse, vestry, organ chamber, tower, and sc octagonal staircase to a *present* west galle with provision for side galleries when requir The present accommodation is for a little o eleven hundred, including children. The m arcades are supported by cast-iron colum which are coloured in blue, green, and bla the two former of a neutral tone. The to outlay as at present, is 5,200*l.*, which cludes boundaries, bell, chancel decorations, There is no stain or varnish used in the r decorations, the timber being treated in li and stencil patterns in oil polychromy from architect's designs, those on the apse roof, also the encaustic decoration at back of a being executed by Messrs. Harland & Fish the gaswork and fittings are by Messrs. Har Son, and the heating is by Mr. Pringle, of N wood, under the superintendence of Mr Roberts, one of the building committee. Mes Dove, Brothers, were the general contract and the architect was Mr. Bassett Keeling, Gray's-inn.

Devizes.—St. Peter's Church, near the Mil Stores, Devizes, which has been building dur the last twelve months, has now been consecra by the bishop of the diocese. It is a building o great pretension in an architectural point view. The purpose for which it was especi erected was to accommodate the militia s with their wives and families, and the l population which has grown up in what is ca "The Nursery." The church will hold a 300, and the sittings will be free.

Richmond.—St. Mary's Church has rece been under extensive alterations and additi under the superintendence of Mr. A. W. Bl field, architect. The north aisle has been reb and lengthened to form an organ-chamber. galleries are enlarged, the old pews entirely moved, and open sittings substituted through All vaults beneath are now permanently cl Two new entrance-porches have been erec the old ceiling of the nave has been cle away, and the roof cased with match-board ornamented in panels. The works have l executed by Mr. James Long, and the cost be about 4,500*l.*

DISSENTING CHURCH-BUILDING NE

Driffield. — The foundation-stone of a Congregational Church, at Driffield, has laid, on the site of Providence Indepen Chapel, erected in 1803. This chapel has taken down for the purpose of building enlarged and improved place of worship. architect is Mr. H. J. Paull, of Manchester; the contractors are Messrs. G. Shepherds Son, joiners; Mr. W. Clark, bricklayer; Mr Smith, stonemason; Mr. G. Baron, painter; Mr. T. Pickering, ironmonger. The edifice be in the Byzantine style. It will accommo upwards of 600 persons. The whole of the w will cost 1,400*l.*

Saltash. — The new Baptist Chapel at Sa has been opened. The cost was about 2,000*l.* the building has been erected on the site of th one, which had to be demolished in consequ of its decayed state. The architecture is E English, with open roof and lancet windows stained-glass margins. The roof is inter with gray and purple slate. The front o building is of Pomphlete stone, with Por stone dressings, and the windows and doors Portland stone columns and carved caps. chapel is entered by a flight of granite steps the size of the building is 60 ft. by 40 ft. seats are open, and the building is capa accommodating 450 persons. There are m columns between the windows, given by M Ambrose, of Plymouth. Underneath the c is a school-room, which will hold 300 chil and there are two vestries. Mr. J. Ambros

rchitect, gave his professional services gratuiously. The builder was Mr. Shaddock, of Saltash, nd the gas-fittings were supplied by Mr. Plimsul, of Plymouth.

Willing'on Quay.—The foundation stone of a nited Presbyterian Church has been laid at illington Quay, on an eminence at the west d of the village, near Palmer's-terrace. The ructure will be in the Gothic style, built of rick, and faced with red brick and stone ressings. It will be divided into nave and sles by means of iron columns, which are rried up to support the roof. On either side the principal entrance are to be windows ghting the vestibule, and in the centre of the nt gable a four-light window, the head of hich will be pierced with three circular cusped ghts. At the south-east corner will be a tower d slated spire—the tower being 50 ft. and the ire 42 ft., giving a total of 92 ft. The interior mensions of the church will be 61 ft. 6 in. ng by 39 ft. wide. The nave will be 28 ft. ide by 34 ft. high to the crown of the ceiling, hich is to be waggon-headed. The building ill be lighted by means of five double-light ndows in each flank, by lights in the front and ck gables, and by six lozenge-shaped skylights each side of the nave roof. At the back are e vestry and offices, and provision is also to be ade for building a school at some future time. he church, when completed, will accommodate 8 persons, but it is only intended at present pew the nave and east aisle, which together ill seat 347 persons. The heating will be by ans of a Gill stove. The contracts are not t let. Mr. Thomas Oliver, of Newcastle, is e architect. The total cost of the building is timated to be about 1,600*l.*

SCHOOL-BUILDING NEWS.

Liverpool.—The chief stone of St. Alban's man Catholic schools has been laid in undary-street. The new schools will be rallel with Boundary-street, with the front vards Hawkshaw-street, and situated in the ntre of a piece of land purchased from Mr. hn Shaw Leigh, the portions at each side not cupied by the building being intended for yygrounds. The edifice will be three stories gh, the ground-floor being intended for infants, st above it for girls, and the upper one for ys, the two latter having class-rooms. The ernal measurement will be 90 ft. by 30 ft., and re will be accommodation for 800 children. e building has been designed by Mr. F. W. gin in a free adaptation of the Gothic style. is altogether in brickwork, and quite devoid ornament. At the corner between Boundary-eet and Hawkshaw-street, will be a tower ncrease to the top floor, which, if the funds for building allow, will be carried to a height of feet, so as to serve for a bell tower; but if re should not be sufficient funds for this, it then have a low roof, just below the main f of the school. The cost of the building and necessary fittings will be nearly 4,000*l.* To is to be added the price of the ground, about 00*l.* The designs for the schools having been roved of by the Privy Council, they made a nt of 1,000*l.* towards the building. The lder is Mr. Edward Hughes, of Liverpool.

Stockport.—The increasing population of the ghbourhood of Heaton Chapel has suggested propriety of erecting schools and a master's se. The schools will be erected on land adjing the present chapel, the site of which has n given, together with a donation, by Lord rton, of Tatton, and the scheme embraces mmodation for about 220 boys and girls, h class-rooms and library, and a master's dence attached. They will be built in the hic style, and the external construction is to f stock bricks, with red, white, and black k arches, string-courses, &c. The principal rance porch, which is in the centre of the ding, forms a prominent feature, with a bell-et, spire, and finial above, the entrance to ch turret is approached from the turnpike l. The school will be lighted by coupled dows, and three-light dormers in the roof, ch will be slated with coloured ornamental es. The building has been designed by, and be carried out under the inspection of, Thomas H. Allen, of Stockport, architect. cost, exclusive of the fixtures, will be about

Barnsley.—The foundation-stone of a branch ool about to be erected at Kingston-place, a hamlet situated in St. George's parish, near the Locke Park, Barnsley, has been laid. The building is to be used as a mixed day-school for infants, and for evening classes on week-days, also as Sunday-school and preaching-room on Sundays. The estimated cost of the school and mistress's house is 800*l.*; and in connexion with the same enterprise a fund has been opened for defraying the cost of class-rooms and residence for the existing schools. The school-room will be a plain Gothic building, measuring 40 ft. by 18 ft. The architect is Mr. John Wade, of Barnsley; and Messrs. Robinson, Dyson, & Brown are the contractors.

Books Received.

VARIORUM.

Under the title of "An Old French City," Miss Bessie Parkes describes graphically and pleasantly in *The Argosy* the city of Bourges, with its noble cathedral and numerous associations. Jacques Cœur and his house are not forgotten, and several engraved views illustrate her recitals. "Griffith Gaunt," in the same well-conducted periodical, is coming to a deadly close.——"Nature and Art" (Day and Son) has reached No. 3, and well maintains its place. Mr. Aaron Penley continues his sketching lessons. A paragraph at the close of the number says that some of the pictures in the gallery at the Crystal Palace are suffering from the heat there and need attention.——Le Chev. de Chatelain has translated Shakspeare's *Julius Cæsar* into French verse (Rolandi, Berners-street). The task was one of no common difficulty, and it has been overcome with remarkable success.

Miscellanea.

The Atmosphere of Large Towns.—A paper "On the Causes of the Vitiation of the Atmosphere of Manchester and other large Towns," prepared by Mr. John Leigh, registrar of the sub-district of Deansgate, Manchester, has been printed in the "Registrar's Notes," quarter ending June 30th, 1866. The paper enters fully into the subject of the various vapours, &c., both organic and mineral, which pervade the atmospheres of Manchester and other large towns, and injure health or produce diseases, and increase the mortality. Such vapours, he remarks, are not subject to the law of the diffusion of gases; so that wherever a confined district is in a bad sanitary condition, where zymotic or infectious diseases prevail, where bad smells are evident, and there are indications that matters not properly belonging to a pure atmosphere are floating or suspended in it, after removal, as far as practicable of the causes producing the emanations; effectual currents of air should be drawn through the courts, alleys, houses, &c., that are the seats of contamination.

Suggested Improvement of Carlisle Bridge, Dublin.—The crowded condition of the traffic over the chief bridge in Dublin has led to various proposals, and amongst others to a suggestion that there be constructed on each side of the present bridge a flat iron bridge, supported by ornamental metal pillars. The traffic over the present bridge can be carried on while the side bridges are being built; and when these shall have been completed and opened for traffic the top of the old bridge can be removed, the crown of the arches replaced by metal key-stones, and the level reduced to complete flatness, so as to correspond with the flat side bridges. The project is Mr. Geoghegan's. The up and down river sides of the new metal bridges present on the drawings curved arches, corresponding in number with the existing stone arches. These are produced by metal screens or façades which spring from the ornamental pillars, and present all the appearance of an arched and not a flat girder bridge. The proposal is to extend these metal side bridges to the full breadth of the thoroughfares, and thus construct a "Bridge," one of the broadest and most ornamental in Europe. Messrs. Courtney & Stephens express their readiness to take the contract for the whole at 29,000*l.*, including all incidental costs—a sum not equal to one-third the cost of a new bridge of the same dimensions, and quite as ornamental and useful. A rate of a penny in the pound for a series of years would pay the cost.

The Antwerp International Archæological Congress.—At the last moment it has been determined, in consequence of political events and the prevalence of cholera in Belgium, not to hold this congress until next year.

Testimonial to an Employer.—A centre-piece, or épergne, in frosted and burnished silver, has been presented to Mr. William Glover, of Basingstoke, by fifty-six of his painters and other decorative workmen, on the occurrence of the centenary of the firm of which he is the head. Mr. Glover, on the other hand, celebrated the occasion by a dinner to upwards of sixty of his men, and a large circle of personal friends. This gentleman, we also see from the local papers, has just been elected a town councillor of Basingstoke.

"Dead" Meat Market.—The *Athenæum*, endorsing our observation against the use of this term, says,—"Objection is made by the *Builder* to the term 'Dead Meat Market,' as 'an unpleasant expression, wholly unnecessary. *Meat* Market,' adds our contemporary, 'is surely all that is required to distinguish it from the Cattle Market.' The suggestion is worthy of being adopted. The subject reminds us that near Kensal Green a house of entertainment strangely seeks to allure customers by calling itself the 'Cemetery Eating House,'—a term very suggestive indeed of a 'dead meat market' and a company of ghouls."

The "Great Anline Colour Case."—The important case of Simpson and Others *v.* Holliday was recently brought up to the House of Lords from the Court of Chancery, on appeal from the decision of the Lord Chancellor, who has given judgment against the plaintiffs, Messrs. Simpson, Maule, and Nicholson, of London, and in favour of the defendant, Mr. T. Holliday, of Huddersfield; thus confirming the Lord Chancellor's decision on the main issue, that the patent is void and bad in law; and so throwing open to the trade those beautiful magenta and purple dyes on which so many actions have been instituted and compromised during the past four years.

Gas Explosion from Carelessness at the Holborn Valley Improvement Works.—In taking down some of the premises at Skinner-street, two workmen went into a cellar with a light, when an explosion took place, blowing bricks, mortar, and pieces of timber in all directions, severely injuring two persons, one a reporter for the *City Press*, and the other a man who had just been at St. Bartholomew's Hospital assisting at the funeral of a cholera patient. Both were taken to St. Bartholomew's Hospital. The two men who went into the cellar escaped with a few superficial burns, but suffered from the shock of the explosion. It is believed that the gas-pipes had been carelessly cut or broken while the premises were being pulled down, as there were complaints in the neighbourhood of a constant smell of gas.

Institution of Mechanical Engineers.—The annual meeting of the members of this institution has been held, under the presidency of Mr. Joseph Whitworth. There were about 100 gentlemen present. The first paper read was contributed by the President, and related to the "proof of guns by measurement, accompanied by a description of the instrument employed." The other papers read were entitled, "Description of an improved reversing rolling mill," by Mr. John Ramsbottom, of Crewe; "On machinery for the preparing and spinning of cotton," by Mr. John Platt, M.P., Oldham; "On the manufacture of steel tyres," by Mr. J. Ramsbottom; "On the Manchester Waterworks at Woodhead," by Mr. J. F. Bateman, of London. It was stated, in Mr. Bateman's paper, that the Manchester drainage ground extended over 19,000 acres, and in parts had an elevation of 1,800 ft. above the level of the sea, and supplied some of the purest water in the world. The average rain-fall was 50 in., and the amount collectable 40 in. per annum, There was an available supply of 26 million gallons. In times of flood the water became turbid; but this water, by an ingenious self-acting contrivance invented by Mr. Moore, an assistant to Mr. Bateman, was separated and stored, while the pure water was conveyed direct to Manchester. When there was a flood, and the water was consequently turbid, its velocity caused it to shoot over a narrow aperture, into which it would at other times fall. After the reading of the papers, it was stated that the institution contemplated holding its next meeting in Paris.

Otley Waterworks.—At the ordinary meeting of the Local Board, held on Wednesday evening last, the various plans for the extension of the waterworks were considered, and it was resolved unanimously to award the premium of 20*l.* for the best scheme to Mr. Charles Fowler, C.E., Leeds. All the plans recommended a large storage reservoir in Danfield.

Fall of a Tower.—A tower 100 ft. high, connected with the ruins of an ancient fort destroyed by the English in 1400, has just fallen down at Lagene-en-Brie (Seine-et-Oise). The children of the neighbouring schools had the habit of playing under its shade. Happily they were not there when the tower fell, thanks to an organ-grinder, around whom they were grouped at some distance.

Railway Omnibuses. — The Underground Railway authorities have set agoing a series of three-horse omnibuses, with first, second, and third class seats, to convey their passengers to and fro between their Portland-road station and the Oxford-street-circus. We have not yet seen them; but we hear that they are handsomely fitted out, and much more commodious than the London omnibuses generally.

King's Lynn, Norfolk, Borough Treasurer. For this post, which is the same as in some towns is called town surveyor, there were sixteen applicants, and after looking over the testimonials, the committee, to whom this matter was referred, selected three as appearing the most eligible. Mr. Permewan, late agent to Lord Lytton; Mr. Chas. Wm. Harding, of Lynn; Mr. Thos. Burton, of Lynn. At the day of election Mr. C. W. Harding had twelve votes, and Mr. Thos. Burton four votes; the former was therefore elected.

The Society of Engineers.—On Friday, the 3rd inst., the Society of Engineers visited the works of the new Blackfriars Bridge, by the permission of Mr. Joseph Cubitt, the engineer of the bridge. The visitors, who mustered strongly, were received by Mr. Penrice (who represented Mr. Cubitt), Messrs. P. & A. Thorn (the contractors for the works), and Mr. F. W. Bryant (their engineer). They were conducted over the works, and the various details of the construction explained. The works are progressing rapidly, the masonry of the south abutment pier being above the level of high water, and that of the north abutment within 4 ft. of that level. In some of the intermediate piers the permanent caissons have been sunk and filled in with concrete and brickwork, whilst in others the masonry of the piers has been commenced. In other parts the divers are still at work clearing away the foundations of the old bridge piers, which, in most instances, do not interfere with the new ones. The old bridge was 44 ft. in width; the new one will be 75 ft. between the parapet walls. The new bridge is expected to be opened to the public in about a year from the present time.

Curiosities of the Atlantic Telegraph.—The *Courrier du Havre* sets forth one of the well-known curious results of the laying of the Transatlantic telegraph. It says:—"New York is situated nearly 76 degrees of longitude west of Paris. The earth in its daily rotation travels through 360 degrees in 24 hours, from which it results that every 15 degrees to the west of the first meridian placed at Paris is one hour later. When it is noon at Paris it is only eleven o'clock at 15 degrees to the west of that city. And as New York is 76 degrees to the west of Paris, it follows that it is only seven o'clock in the evening at New York when it is midnight at Paris. Suppose then, that a great edifice in Paris, the Opera for example, takes fire at a quarter past twelve a.m. on the 1st of September next, the event is immediately telegraphed from Paris to New York, and is dated: 'Paris, a quarter past twelve a.m., 1st September.' The news arrives at New York, let us say in two hours, to make ample allowance for interruptions, &c.; the despatch, dated Paris, 1st September, arrives at New York at a quarter past nine in the evening of the 31st August, so that a New York manager could appear on the stage, and after the three customary bows could thus express himself:—'Ladies and gentlemen,—I am sorry to have to inform you that the Opera at Paris has been destroyed by fire three hours after the present time. Our director has just transmitted to his Paris *confrère* his condolence on the disaster which is going to happen to him.'"

Gas.—The Banbury Gas Company have declared a dividend of 7½ per cent. for the past year, and the following resolution has also been carried unanimously:—"That the amount of 1,000*l.*, set apart for a compensation bonus to the original shareholders, be now divided between such shareholders, paying to them a compensation bonus of 10 per cent.——The Newcastle Gas Company have resolved to create a reserved fund, in accordance with the provisions of the Consolidated Act of Parliament, not to exceed 2,500*l.* The usual dividend of 10 per cent. on the paid-up shares has also been declared.

Saint Lawrence, Ramsgate.—The foundation stone of a parsonage house for the district of Holy Trinity was laid by the Rev. John Gilmore, M.A., the incumbent of the district, on Saturday, the 28th ult. The building is situated on a part of the original grounds of Mount Albion House. The style of the design is a modern adaptation of the Gothic, and the materials to be employed are yellow brick facings, decorated with bands and patterns of red and blue bricks. Mr. William E. Smith, of London, is the architect, and Mr. James W. Smith, of Ramsgate, is the builder. The cost of the house will be about 1,600*l.*

Edward Alleyne.—A curious and little-known fact is noted by our "Roving Correspondent," says the *South London Press*. The gravestone which stood over the last resting-place of Edward Alleyne, the founder of Dulwich College, now stands in the tea-gardens adjoining the Half Moon public-house, Dulwich. When a mausoleum replaced the tombstone, the latter was taken possession of by the parish authorities, and was first used to cover a sewer, and then employed as a breakwater in the same ignoble service. The ancient relic was rescued from destruction by the father of the present landlord of the Half Moon.

Nitroleum, or Nitro-Glycerine, the New Substitute for Gunpowder. — An official report has just been made by Colonel Shaffner, of a series of experiments conducted by him at Washington, for demonstrating the use of nitroleum in the explosion of mines. The results, it is reported, fully confirm the fact that the explosive qualities of nitroleum are far in advance of gunpowder. The experiments are said to demonstrate that nitroleum can, with ordinary precautions, be handled and employed without greater danger than is common to gunpowder, and for blasting operations, at least, presents undoubted advantages.

The Suez Canal. — The annual general meeting of the shareholders of the Suez Canal Company has just taken place at Paris, M. de Lesseps presiding. The report gave an account of the condition of the works, which were stated to be going on satisfactorily. The expenses during the last year have been a little over 40,000,000 francs, and the total of the sums expended, to the 30th of June, 1866, nearly 168,000,000 francs. The resources which the company may reckon on for the completion of the works are estimated at 150,000,000 francs, a sum considered quite sufficient to support the outlay still to be made.

Electric and International Telegraph Company.—The directors of this company have issued their report, in which they say:—During the last month of the half-year just concluded, the financial condition of the country, coupled with the war, have materially checked the traffic, especially with the Continent, where the routes have had to be constantly varied, and circuitous channels employed for the transmission of messages. Under these circumstances it is gratifying to report that the general revenue of the company continues to advance, and that the receipts for the six months ending the 30th of June are in excess of those of the corresponding period of 1865. The balance-sheet shows an income of 163,748*l.*, against 145,736*l.* The directors recommended a dividend of 5 per cent. for the half year, free of income-tax, on the stock of the company now all paid up. Eighteen months ago the directors reported their intention of connecting the north of Ireland with Scotland, thus opening out a new field of traffic, and securing, in connexion with their Wexford cable, a double communication with the sister country. The cable has been laid, and the necessary land lines having been constructed, the whole is now at work.

Help Yourselves.—The *Medical Times* re peats what we have often said:—The Registrar General's report vividly sets before us th squalor of a large part of the East London popu lation; we have seen the same with our ow eyes this week in a Bethnal-green street, wher a patient had died in almost every house. I one such house the yard was a pool of dirt soapy water, *in which* the water-butt was stand ing; the butt itself uncovered, dirty, green wit mould, containing a host of "foreign bodies" a the bottom—the privy foul and stinking—th yard strewed with rubbish. Now this is a stat of things common amongst the poor from east t west; but why? It is of no use to blame ves tries, or medical officers of health, or landlords granting that they may fail in their duty, wh do not the people—the victims—help themselves Surely any man might in ten minutes raise water-butt out of a puddle of filth and put it o a few bricks; he might contrive a cover for it he might sweep up a yard, and pour a bucket water down a closet and brush it out; and in th present panic he might get gratis from an vestry enough carbolic acid or chloride of lim to disinfect a street! But the poor will not st a finger to help themselves. They may be on th look-out for district visitors with money, sou and tracts, or they may trust to luck or to Pr vidence, or may console themselves by sayin that they cannot die till their time is come; bu they will not stir a finger to help themselve This cholera is a severe test of our sanitary an hygienic arrangements; it is a still severer or of our social and moral condition.

TENDERS

For building eight houses in Moss-side, for Mr. B. Finegan. Mr. Thos. Tully, architect:—

Cochrane	£4,813	0	0
Foggett	4,750	0	0
Thompson	4,677	0	0
Ledger (accepted)	4,438	0	0
Excavator.			
Hewett	128	0	0

For building new church, at Ive Gill, Cumberland, f Rev. A. E. Hutton, incumbent. Mr. Withers, architect:

Hope	£1,609	10	0

For partially rebuilding parish church, Moylgro Pembrokeshire. Mr. Withers, architect:—

Morgan	£792	8	6
Jones	690	0	0

For building chapel school, Howe Bridge, Lancashi Mr. Withers, architect:—

Ward	£2,031	0	0
Farrel	1,493	0	0
Davies	1,484	0	0
Skinner & Young	1,380	0	0

For erecting refreshment-rooms, at Dovercourt. M Horace Darken, architect:—

Holland	£625	0	0
Wilding	475	0	0
Newton	465	0	0
Butcher (accepted)	460	0	0

For alterations at Braiswick, for Mr. C. Josselyn. Horace Darken, architect:—

Boyden	£215	0	0
Lee & Baker	195	0	0
Everitt (accepted)	192	10	0

For erecting factory, at Colchester, for Messrs. Hy Mr. Horace Darken, architect:—

Cannold	£2,993	0	0
Lee & Baker	2,975	0	0
Shepherd	2,795	0	0
Elsden & Owin	2,780	0	0
Everitt	2,588	10	0
Ende (accepted)	2,583	10	0

For warehouse and show-room, for Mr. T. Aldridge Brompton-row:—

Whittick (accepted)	£423	0	0

For three houses and two shops, in Church-street, Paulton-street, Chelsea, for Mr. Johnson. Mr. Mu architect:—

Eborall	£2,760	0	0
Whittick	2,379	0	0
Godbolt	2,245	0	0
Butt	2,235	0	0

For alterations to 57, Marsham-street, Westminster Mr. J. H. Machu. Mr. Parris, architect. Quant supplied by Mr. Shrubsole:—

Foster	£460	0	0
Richards	460	0	0
Johnson	445	0	0
Riches & Martin	439	0	0
Dover	399	0	0
Cubitt, Brothers	396	0	0
Terrey	395	0	0
Spearing	395	0	0
Wilkinson & Co.	390	0	0
Caleb & Troughton	381	0	0
Eborall	378	0	0
West	375	0	0
Roffey	370	0	0
Warren	367	0	0
Trayt, Brothers	350	0	0

The Builder.

VOL. XXIV.—No. 1228.



The Fellowship between Rich and Poor, when inhabiting the same Town.

AFFLICTIONS are God's messengers," says an old proverb, "and we should never be quiet until we know their errand." We express no opinion as to the theology of the maxim, but as to its truth in reference to social life there can be little doubt. Those wise who learn the errand of the ctions that arrive at their neighbours' s; those are woefully the reverse who idly ignore or helplessly suffer them when reach their own. In the history of civilion progress usually dates from calamity. unfrequently do we trace the recurrence of fortune, each time, it may be, more grave, l at last some overwhelming disaster stirs up to seek for that remedy which, if wise ime, they would have applied at the first . Thus, in London, during the earlier part he reign of the Stuart dynasty, and in the s preceding, attack after attack of the gue, unheeded in their warning as to the d of sanitary measures, was followed by the ible year so graphically described by De . Men were still helpless in presence of this isible enemy when another of the great rges of society, destructive fire, was loosed n the devoted city. London was burnt, but seeds of the plague were consumed in the e fire, and in the better ordered and venti- d city that arose from the ashes, the Orien- pestilence, although cases are said to occur it every year, has never again secured a ding.

The laws of health, in all that regards human bitation, are so plain and simple, that the re speculative thinker might suppose that, as le, they received due attention. It is toler- y certain that they are so far self-acting as y surely to avenge their infraction or neg- t. And as such penalty, besides the destruc- n of personal comfort, may generally be esti- ated in a pecuniary form, as the doctor's bill, hough, perhaps, the least part of our real loss an attack of illness, is a very tangible and preciable evil; one might be pardoned for rmising that it was only necessary to indicate s leading principles that regulate the health icities, in order to induce their inhabitants to e due heed to that which so intimately con- rns them. But the hygienic reformer is found t to preach to the winds until, perhaps, o late, some terrible sanction is given to his at.

We have called attention, in repeated num- rs, and repeated volumes, of the *Builder*, to e question of the purity, or the purification, f the water supply of the metropolis. We ave spoken as plainly on the subject as men ould do who wish to avoid what is called ensation writing. At last the cholera is de- eared to be in London, and the daily journals are n once full of letters on the same subject. The great reform and relief to the poor of taking the handles off certain infected pumps appear to be the contribution paid by some parish authorities in abatement of the terror of the public: chloride of lime and other disinfectants meet a ready sale and a frequent use; but no organised and efficient means of taking the bull by the horns and grappling with a question of which the magnitude increases every year, are yet brought before the public. Of the hundred millions of gallons of water daily supplied to London for domestic purposes during the past month, about a quarter contained only ·58 per 100,000 parts of organic matter, being that of the New River, while the remainder of the supply contained from 1·96 to 1·26 per 100,000, and but a small quantity at the lower figure. Our readers must be aware of what this one-and-a-half per 100,000 parts of traceable organic matter in drinking water means, and whence it comes. It is the proportion that is driven off by incineration from the solid matter deposited from the water in the course of chemical test. How far this represents the actual taint chemistry is not able to inform us.

The supply of water—important as it is—must be regarded only as one among the many requisites to safety in City life. Where the population attains the density of 3,400 persons to the square mile, the death-rate is doubled, as compared with rural districts where the population is only about one-fortieth of the density in question. We cannot with propriety attribute the fact that the City mortality is double that of the country to the impurity of the water alone, since in many sparsely peopled country districts the drainage is of the worst description, or of no description at all, and wells are not unfrequently poisoned by the vicinity of evil matter. The ventilation of houses containing many inmates is a question of the gravest importance; and that not to the inmates alone, but to their neighbours. Irrespective of the danger that always exists of the sudden outbreak of violent contagious disease in ill-ventilated and crowded houses and neighbourhoods, there is a positive contamination of the atmosphere that silently but surely spreads from alley to square, and from hovel to palace. Those who have not investigated the subject may be startled to be told that 500 cubic feet of air pass through the human lungs in twenty-four hours. Two persons, shut up in a room of 10 ft. in each dimension, would have passed all its aërial contents through their lungs in twenty-four hours; and even that gives no notion of the rapidity with which a roomful of air is deteriorated, and rendered unfit for breathing. What must be the state of the air in a densely-crowded lodging-house from the process of breathing alone, irrespective of any other source of impurity! When a high wind sweeps through the streets, the heavy vapour of a crowded neighbourhood may be swept away with comparative ease; but, in a dull, calm day, when the canopy of smoke hangs low over London, and when the dome of St. Paul's is barely visible from Hampstead Heath, how heavily does the produce of the respiration of St. Giles's weigh on the lungs of Belgravia. The more densely the miasma is formed in any locality, the further will it travel undiluted, and the longer will it weigh upon the health and energy of those who inhale the vapour.

It is not, therefore, only in the prevention of the outbreak of fierce contagious disease that the wealthier inhabitants of great cities have a direct personal interest. The permanent vitiation of the atmosphere, a great cause, it would seem, of the doubled death-rate, is a more constant and more fatal danger than the occasional visitation of cholera or of typhus. The citizen, whatever be his grade, whether he dwell in more humble or more luxurious home, so that he lives, or spends much of his time, in town or city, is directly affected by the condition of the worst and most crowded dwellings in the same locality. The laws of health, less capricious than those of fashion, will allow no trenchant lines of demarcation to be drawn without the intervention of broad acres of vegetable-producing country. It is true that the closer you dwell to the centre of an over-crowded and ill-ventilated neighbourhood, the more likely you are to suffer from its effects; but it is no less true that in whatever part of a great congeries of buildings you dwell, you will more or less, at one time or another, when the wind sets in certain directions, or when there is no wind at all, breathe an atmosphere more or less vitiated by the condition of your unseen, unknown, unthought of poor, and more vitiated in the exact proportion in which they are uncared for, unclean, and unventilated. And the present penalty that you pay, the punishment of your present ignorance or neglect of the condition of your indigent neighbours, is, that, together with them, in proportions, perhaps, not exactly determined as between you and them, but on the average of you all as compared with those who breathe the pure air of heaven, you die twice as fast as you otherwise would,—two of your family die when only one would die in the country. You may not believe the assertion, but the Registrar-General will confirm it, if you consult the Supplement to his Twenty-fifth Annual Report.

We are most of us familiar with a certain ancient contrast drawn between a rich man and a poor one. The moralists of the Middle Ages were fond of insisting on the lesson, and in carved wood or illuminated manuscript they quaintly commented on the same pointed text that was wont to appear in the broad-sheet Christmas carols of the last century, in verse that baffles modern scanning, and adorned by woodcuts as savage as the verse. But since the time when "as it fell out on a day Lazarus sickened and died" society has made great progress in civilization. The art of gaining wealth has been organized into a science. Dives has extended his affairs so widely that he has had to take in many partners; and though they have discarded purple attire, except for the liveries of their footmen, and are, perhaps, not so particular about fine linen as great people used to be some time ago, they are wont to fare sumptuously every day, and often to feast with one another. As the number of these favoured sons of fortune has increased, so, or even more rapidly, has increased that of their indigent neighbours. With such increase has sprung up a new institution, called police. It would be intolerable for men full of sores to be allowed to lie at the gate of a modern villa, even of modest dimensions, and modern medical science assures us that there would be much risk to the health of the dogs if the Syrian practice were permitted among us. So Lazarus has been improved away somewhere out of sight. It is perfectly true that a greater character of mildness towards those who offend society by their misfortunes has been developed during the past eighteen centuries; that private charity is more prevalent and better organized; that hospitals are provided by subscription; and that, the worst come to the worst, there is the parish and the union. But while we would on no account undervalue that which may be called the charity of the cheque-book; while we would point with satisfaction to some institutions,—such, for instance, as the hospital for sick children,—which are an honour to their founders and supporters, we cannot disguise the fact that the effect, whether as giver or as receiver, of old-fashioned alms is wanting in this organised system. The intercourse that softened the heart of the rich and warmed the gratitude of the poor was a leaven to society, the want of which is often too surely indicated now-a-days. And in this question of the state of the habitations of the poor this view

of the case is enforced by the inexorable logic of a doubled death-rate. Keep your poor and needy in the back streets, subscribe handsomely to hospitals, drop your sovereign in the plate for the City Mission, pay your poor-rate without grudging, and you still find that there was, after all, much wisdom in the hint not to hide yourself from your own flesh. The wretched have a great alacrity in sinking. Political economy does not help them, for it comes in with its preventive check, or its removal of surplus population by natural causes, or its maxim that great riches mean great profits, so that the landlord of very poor tenants must in justice to himself demand high proportionate rent; and the result of this is, that the poor are crowded together in tenements in which the health-giving rays of the sun and the pure air of heaven are as unknown as the visit of noble landlord or gentle charitable mistress. The result comes in cries for more hospitals, for more missionaries, more police, more gaols, and—disguise it as you will—more costly tombs and marble tablets; the tombs and tablets required by the doubled death-rate.

A man who has undergone no slight amount of labour, and even of personal risk, in investigating the state of the atmosphere; who has converted the baloon into a scientific instrument, and has hung and swept over the face of the country in nightly aërial flight, telling us of the strange effect of the fiery lines of the gas-lit streets, where the starry points of fire that indicate the post-lamps twinkle amid the fringes of softer light thrown by reflexion from the shops, and kept in endless flow and movement by the shadows of the passers by,—this eminent observer has lately told us of the existence of a visible blue vapour, a cholera mist, denoting, in his opinion, the presence of that mysterious malady. Mist, indeed, in the ordinary sense of the word, it cannot be, as any clinging vapour or travelling fog would have been swept away by a wind of a twentieth part the force of those storms of last week, which seemed in no way to disturb the ominous tint shed over the trees in Greenwich Park. Such a persistence in the phenomenon, under such circumstances, seems to point to a telluric origin, of a character akin to electrical agency. The same observer tells us of a yellow mist, denoting fever. The imagination of men is most powerfully affected through their vision; and we can think of few things more likely to strike terror into many minds than the announcement of the detection of Mr. Glaisher's cholera mist in the vicinity. But danger is not, in reality, the greater for being visible. Except in so far as it may tend to paralyse through fear, it is less formidable when evident to the senses than when silent, invisible, and unnoticed. The fatal choke-damp, or the more violently calamitous fire-damp, comes with a power that it is the less possible to resist from its invisible nature. There are circumstances under which it would be of the greatest advantage to the public health for poisonous atmosphere to reveal its presence by its tint, or by any physical attribute that should compel the attention to recognise its presence. We have shown again and again men and women living where the allowance of space is not one hundred cubic feet each. Thus the small uncleansed rooms of the poor become the abode of fever and disease, they are sickening to the medical men who have occasion to visit them. Dr. Southwood Smith states that the exhalations in such rooms "consist chiefly of animal matter: such exhalations contain a poison which produces fever of the typhoid character." He adds, "there are instances in which this poison is so intense and deadly that a single inspiration of it is capable of producing instantaneous death."

If the present visitation of cholera, whether accompanied or not by the blue haze pointed out by Mr. Glaisher, and the existence of which has been confirmed by the testimony of other observers in this country, in the Crimea during the prevalence of the pestilence in the army, and at St. Christopher on a similar occasion, serve to draw the full attention of the more comfortably housed inhabitants of our cities and towns to the condition of the homes of the poor, the affliction may indeed be said to have come on a divine errand. It is under no impulse less powerful than the dread of present personal risk that charity, as it was understood by our forefathers, is likely to be awakened from the self-contented slumber into which she has been lulled by the luxury of an over-wrought civilisation. The conscience may be satisfied—that faculty it is so easy, under ordinary circumstances, to satisfy—by the emptying of the charity purse, by easy and vicarious contributions, dropped into silver plate or velvet *aumonière*. But people are wont to be less readily contented if they feel that their own safety is at stake. In our times and in our country we have but little cause to fear any gross misdirection of the funds so freely administered by private charity. We have no fear that the clergy of our great cities will expend the contributions placed at their disposal for the poor in the ornamentation of their churches, or follow the example of the Neapolitan priests, who absorbed by far the greater part of the sum entrusted to them for the relief of the sufferers by the earthquake in 1857, in paying for masses. But notwithstanding a well-grounded confidence in those who for the most part stand between the givers and the receivers of charity, it is impossible not to feel that they may be overworked; that they may have more experience, belike, of their spiritual than of their temporal duties; that it is unwise to expect the same individual to combine the qualifications of the pastor, the doctor, the engineer, the architect, and the social economist. It is some of the taste and energy that are now rebuilding, in palatial style, so much of the metropolis, and covering the country with the evidence of increasing wealth, that we desire to see directed to the no less important question of providing the homes of the poor. When the rich merchant, the member of Parliament, the man of any rank or calling whose income affords him a comfortable or a luxurious home, but who requires that home to be in London, or in one of our great cities, is once fully penetrated with the conviction that his want of appetite for breakfast, or his discomfort after dinner, is caused by the neglect of the laws of health involved by the poverty of his less fortunate fellow-townsman, then, and then only, will he feel that to set his house in order he must inspect cellar, and mews, and attic, as well as the apartments occupied by himself and his family, and that it is only when all are cared for that any is safe.

ON THE SCULPTURE IN WESTMINSTER ABBEY.*

Amongst the older monuments to be especially noticed are three in the choir—namely, those of Edmund Crouchback, earl of Lancaster, son of Edward II.; of Aveline, his wife (died 1275); and that of Aymer de Valence, earl of Pembroke (died 1323). They are admirable illustrations of the elegant and yet rich style of monument of their time. The precise date of their erection is not known, but from the general treatment, the costume, and the architectural details, they may probably all be placed at between the middle of the reign of Edward I. and the beginning of that of Edward III. There is also so much similarity in the general design, that it might be fairly imagined that the same artists were employed on all the three works.

Crouchback died in 1296. His effigy lies on an altar-tomb. He is clad in chain-mail, and wears a close round helmet. The figure is slightly turned to the right,—a movement that may have been intended to convey the idea of looking towards the altar. This monument exhibits the peculiar sculptured enrichment that began at this period to characterize these designs. The sides of the tomb are filled with small figures in niches, under canopies; and the different portions of the lofty canopy which surmounts the whole work abound with decorative details. In the large trefoils, in the apex or pediment, are figures of the earl on horseback, armed in mail. The whole was gorgeously coloured and gilt, and remains of this may still be discovered in some parts of the monument.

The monument of Aveline, his wife, the daughter and heiress of William de Fortibus, earl of Albemarle, consists of an altar-tomb, upon which, under an elevated canopy, reposes a recumbent figure of this lady. The head rests on two cushions, supported by angels. The dress and drapery of this monument are remarkable for the elegant taste displayed in their composition and execution. She is represented in a hood and coif, which fall over her arms, her hands being raised in the act of prayer. The other part of her costume consists of a loose robe and long flowing mantle, reaching to the feet; and in the graceful arrangement of these the sculptor has shown himself a consu
mate artist. With carefully studied form, the
is a character of quiet repose quite in harmo
with the subject.

The third monument referred to, of Aym
or Andomar, of Valence, resembles in
general features that of the Countess Avelin
but its dimensions are greater: it is more lof
and the enrichments appear to have been mo
elaborate. As in the other examples, the figu
is recumbent on an altar-tomb. The earl is
chain armour, with a surcoat of his arms. T
hands, which no longer exist, were evident
raised on the breast as if in prayer. There is
interesting passage in the introduction of t
small half-kneeling angels at the head of t
earl, supporting on their hands a third figu
draped. This is too much injured and brok
to afford any details, but it has been thought
represent the soul of the deceased being th
held up by angels on its ascent to heaven. T
mere description would do entire justice to th
very remarkable work. In its details it exhibi
the peculiarities of the Gothic style, in i
fanciful and elaborate accumulation of crocket
foliated cusps, varied trefoils, and similar e
richment; but if the purpose of the artist w
to produce a striking effect, and to impress th
spectator with a solemn yet pleasing train
thought while contemplating this noble ar
beautiful memorial of the great earl, there ca
be no question that this monument deserves t
be considered, of its class, a most valuable wor
of art. The sides of the tomb are filled wit
statues, now, alas! much mutilated, and in
large trefoil panel in the pediment of the canop
appears a knight fully armed, on horseback
The whole of the monument has been richly gil
and painted, and, like the works previously de
scribed, was studded, in every part that woul
allow of it, with shields with heraldic bearing
painted or emblazoned. These tombs are su
mounted by lofty, enriched canopies, taperin
upwards with every variety of accessorial dec
ration. Crockets run along the exterior line
while foliage, diapered grounds, trefoils, quatre
foils, enriched cusps, gilding, enamelling, an
colour, now much dilapidated and defaced
formed the costly details of these memorials o
rank and greatness. An altar-tomb monument
in the chapel of St. Edmund, having on it
recumbent effigy of William de Valence, earl o
Pembroke, whose death occurred in France in
1296, deserves especial notice here. The body o
the earl is believed, from an expression in the old
inscription, now no longer existing, to be de
posited in the stone tomb which forms the lowe
part of the monument, but the effigy is placed
above this, on a long wooden chest. The figure
is in chain armour, with a surcoat extending to
the knees. An enamelled emblazoned shield
suspended by a richly-decorated belt, is on the
left side. The head, dressed in a close skull cap
surrounded by a flowered fillet in which are
sockets which formerly held precious stones,
rests on an enamelled pillow, and a lion, much
mutilated, supports the feet. The hands are
raised as in prayer, and the portions of the dress
that can be examined closely are diapered.
There is also much gilding and enamelling still
perceptible in the enrichment of this interesting
work. But the circumstance that calls more
particularly for notice is, that the statue itself
is made of wood (oak), covered with plates of
metal (copper), richly gilt, while the effect of
the chain mail is given by engraving on the
metal. It is said this monument was erected
by Aymer de Valence to his father's memory.

The much-injured monument of John of
Eltham, earl of Cornwall (son of Edward II.),
who died in 1334, merits attention as a good
specimen of the treatment of such works. The
effigy is made of alabaster; and the details, of
plate-armour, surcoat, gorget, coronetted helmet,
with the other proper accessories, give great
antiquarian interest to this work. The coronet
is of the ducal form, having alternately small
and large trefoil leaves; and it is thought
that this is the earliest authority for its being
so represented. There is nothing unusual in
the style of art exhibited in the sculpture;
but with the small attendant angels at the head,
and the figures in niches on the side of the tomb,
it affords another of the numerous valuable ex-
amples of the monumental style of the fourteenth
century. There was formerly a very beautiful
canopy over this tomb, but there are now no
remains of it. The accessorial statues are much
broken, and many portions of the monument
have doubtless been stolen.

The introduction of knights fully armed and

* By Professor Westmacott, R.A.: see p. 591, *ante*.

ounted, representing no doubt the noble per-
s whose larger effigies are placed on the
nbs, in the decoration of the canopies of the
numents to the two Earls of Pembroke, is the
ly instance in this church of a reference to
e worldly deeds or occupation of the subjects
the memorial. There are examples in equally
rly works in other places of a deviation from
s rule of confining the accessories to religious
jects only, as angels and attendants, sometimes
ations, but more frequently ecclesiastics, but
ne occur here except in the slight degree
ferred to. Nor is there any example of the
uble representation of the subject; first, in
e figure on the tomb, habited in the usual
stume; and, secondly, showing the corruption
d decay of the body in death; either with the
in shrivelled on the bones, or the bare skeleton
d out.

These characteristic examples, selected from
e large number of interesting monuments of
e Gothic or Mediæval school of art, are suf-
ient to convey a notion of the best monumental
ulpture prevailing in what has been thought
many the best period of Gothic architecture.
dged as productions of *fine art*, it need scarcely
said they fall far short of the excellence that
e remains of sculpture of a much older date
ow the art was capable of attaining. They
ve, however, their own peculiar merit, arising
t of the sentiment which pervades them, and
e propriety of their design; as expressive of
rtain feelings, and for its appropriateness,
th to place and object. There is a truly
rious and religious character in the *motive* of
ese works, which subdues and tranquillizes the
elings of those who contemplate them, carry-
g the reflections of the thoughtful to objects
yond the present. In this respect, however
fficient they may be in technical qualities, they
ulfil a great purpose, and they stamp the monu-
ental design of the fourteenth and fifteenth
nturies with a principle which must be ad-
itted to be one of high value, and worthy of
raise and imitation. It will not be desirable
ere to multiply the specimens of the imme-
iately following dates after those already par-
cularised; but it may be observed, in support
f remarks already made, that the subsequent
numents were not proofs of progress in
ulpture. The technical deficiencies of the
orks of the two centuries just surveyed were
ot replaced by any valuable development of
tyle or beauty of form, even where a wider
ractice may have induced some greater readi-
ess and facility of mere execution. The monu-
ental form, of recumbent dead or dying and
raying figures was still preserved. Either by
rescription, habit, or feeling this style of treat-
ng the subject was happily and properly main-
ained; but, it will be seen that a new and not
n improved feature was admitted into these
esigns, which interfered disadvantageously with
he spirit of the old types.

The tomb of the royal founder of the chapel,
pon which are placed the effigies in bronze
ilt of Henry VII. and his Queen Elizabeth, is
o well known, that it would unnecessarily in-
rude upon our limited time to describe it in
letail. The statues, as well as the accessories,
were designed by a celebrated sculptor of Italy,
Pietro Torreggiano, the contemporary and rival
of Michelangelo. These figures, in royal cos-
tume, are placed on a tomb of black marble, at
the corners of which, somewhat uneasily
balanced or sitting, are four nude cherubs or
angels. The monument is inclosed within an
elaborately enriched screen or "closure," also of
bronze gilt, but now, like the statues, blackened
by the rust of ages.

This might properly conclude our necessarily
brief notice of this marvellous chapel; but as
the name of Torreggiano has been mentioned,
it will be right to direct attention to one other
work, said to be by him, in connection with this
chapel. In the south aisle is the effigy, in
bronze gilt, of Margaret, countess of Richmond,
the mother of Henry VII. The aged and noble
lady is represented in the dress of a nun, with
a mantle over all. The details of this figure
deserve careful examination. The hands, in the
act of prayer, are very true in character and
form, and give the idea of having been cast from
moulds taken from nature.

It need scarcely be said that the accessories
of Torreggiano's works exhibit much of the
bastard Italian style of his school as opposed to
true Gothic; and there can be little doubt that
the fusion of styles, as the mixture of the
classical orders with certain Gothic traditions,
are to be traced to the employment of foreign
artists on the more important monuments
erected in the churches of this country. The
recumbent effigy was still insisted on, but the
accessories were not strictly required to har-
monize with any particular style of architec-
ture; and thus, especially in the designs of the
period succeeding the Perpendicular phase of
Gothic, are found the most capricious introduc-
tions of Corinthian and other architecture of the
debased forms of the classical orders,—precisely
as they occur in continental design of the time.
As this corrupt style was introduced in this
country about the time of the Reformation, it
has been said, without any reason, that the
Reformation was the cause of the change and
fall of religious or ecclesiastical art; when the
fact is, the same bad and even worse taste is
found in Italy, from whence it reached England.
The sixteenth century gives a date to this false
style of design; but the corruption of taste is to
be sought for, as numerous monuments show,
in the productions of those countries which, at
that time, were much more advanced in art
than England.

The period of true Gothic sculpture may be
considered to be completed at this date, the
middle of the sixteenth century. Already
sculptured monuments of a more mixed style
were executed, and it will be seen that this, in a
very short time, entirely superseded the old
simple character of Mediæval and ecclesiastical
art.

It has already been seen that lofty, highly-
enriched canopies formed a striking feature in
the early monuments of the Gothic period.
The same protecting roof or shrine is found
in the monumental design of the post-Mediæval
time, and equally exhibiting a great quantity
and variety of decoration. Colour, gilding,
inlaid marbles, armorial emblazonment, scrolls,
were profusely employed, as in the same class
of design in the fourteenth and fifteenth cen-
turies; but though there is quite as much
meaning in the introduction of lozenges, twisted
columns, urns, and other ornaments in these
cumbrous monuments as in crockets, finials,
cusps, trefoils, and the other fanciful devices
of the Gothic canopies, the latter were part of,
and in harmony with, the architecture with
which they were associated, which the ponderous
vagaries of the sixteenth and seventeenth cen-
turies were not. This, independently of other
circumstances, constitutes the great difference
between the two; and it must be admitted that,
in an art point of view, the latter offer no com-
pensating qualities. Two monuments in West-
minster Abbey, of great historical interest, at
once offer themselves in illustration of these
remarks. They are the tombs of Mary Queen
of Scots, and of Elizabeth Queen of England.
The former stands in the centre of the south
aisle of Henry VII.'s Chapel: that of the English
queen in the north aisle. As in the monu-
ments of the earlier style, the effigies of these
princesses form the main subject of the de-
sign. The inferior character of the sculp-
ture, generally, is at once evident. Mary is
represented in full dress, with her hands raised
and pressed together, as if in prayer. The
dress is elaborately worked, but is wanting
in true artistic treatment; the folds not falling
gracefully, but composed in heavy and straight
lines, as in a standing figure, and then gathered
in unseemly confusion at the feet. The hands
have suffered injury, some of the fingers being
broken off; but they are small and elegant in
form; and the face, young, and having a gentle
expression, is of a pleasing character. The
architectural portions are cumbrous; and every
species of decoration that could be crowded into
the design is lavishly introduced.

The monument of Queen Elizabeth is not on
quite so large a scale as that of Queen Mary, but
it is composed on the same principle, exhibiting
profuse and cumbrous ornamentation totally de-
void of taste. The effigy surmounts an elevated
table tomb. The Queen is in royal costume, with
a small crown on her head. In her left hand she
holds a globe, in the right a sceptre. The dra-
pery is in large quantity, ill designed, and, like
that of Queen Mary, stands up stiffly, instead
of falling over to the ground. The order, if it
can be so called, of the architecture of these
two monuments is Corinthian; and therefore en-
tirely out of harmony with this beautiful chapel
of a most enriched character of Perpendicular
Gothic.

This, however, must be a difficulty with re-
gard to all works of later date that are to be
placed in older erections. Unless the style of
the architecture be imitated, the more modern
works must always appear anomalous. Yet the
mere copying, in part, of an older style deprives
works of anything like a character consistent
with their own date. They lose all contemporary
distinction, while they are no trustworthy autho-
rity of the style they imitate.

A modern statue represented recumbent and
in prayer is as fitting a type of a Christian in
the present day as it was five centuries ago; but
placing such a figure under a Gothic canopy,
with all the accessories that mark the peculiar
art of a particular and past age of architecture,
though it may be very like the older work and very
pretty, is, after all, incongruous. The statue ex-
presses a sentiment, and a beautiful because a true
one; but copying the architecture of another age
is an anachronism. Every work of art should
be truthful; and one of the most valuable
recommendations of art is its power to illustrate
its own age. If the age has no distinctive ex-
pression in its architecture, the difficulty is only
increased; for then there can be no real or
original design. It must be factitious, and
borrowed.

Two of the most important and, to English-
men, interesting monuments in the abbey, have
been selected to illustrate the unfortunate taste
that was now introduced. So long as the re-
cumbent figure of the deceased was made the
first object, a principle was preserved which
gave character and interest to the design; but,
soon after the introduction of this style, allegory
was resorted to, and the monuments not only
exhibit the effigy of the principal subject of
the monument, and occasionally the figures of
descendants, as sons and daughters of all ages,
but semi-classical figures of the virtues, as Tem-
perance, Prudence, and the personification of
warlike or learned attainments, in statues of
Mars, Minerva, and other heathen images, over-
load the design, and deprive it of all character
of repose.

Three very remarkable examples of this
mixed character offer themselves to notice in
this (Henry VII.'s) chapel. They are the monu-
ments of Villiers, Duke of Buckingham, and his
family; of Sheffield, Duke of Buckingham; and
of the Duke and Duchess of Lenox, in three of
the chapels at the east end of the nave. These
fully illustrate all the peculiarities referred to,
and they are, also, very good specimens of the
state of art of the time. In the large composi-
tion of the Lenox monument there is much to
arrest attention in the superior quality of the
sculpture.

The Gothic monuments exhibit attendant
angels at the head and foot of the effigies,
ministering in various ways; and small figures
of holy persons, and even of relations, intro-
duced as mere accessories, are seen arranged
in niches in the lower part of the tomb. In
the later monuments these accompaniments
assume a much more pronounced character.
Big, naked, chubby boys, winged and flutter-
ing about, or sitting or standing in different
parts of the monument, take the place of
the small, draped, kneeling figures that sup-
port the pillow of the deceased in the Gothic
monuments; while lines of sons and daughters,
sometimes life-size, are placed in the base, or in
the background of the design, kneeling, or pray-
ing against a lectern. The males usually are
arranged on one side, the females on the other.
Another peculiarity is often seen in these family
tombs; and that is the introduction of deceased
children, wrapped in swaddling or grave clothes,
lying horizontally, on the side of the sex to which
they belong. The monuments of this style,—
like the older works, again, in this respect,—
are usually richly gilt and painted; and a variety
of materials is used in their composition, as
coloured marbles, alabaster, and brass, which, at
least, produce a gorgeous effect, if they cannot
be reconciled with good taste.

The Abbey possesses many examples of these
designs, in which, notwithstanding the indifferent
art exhibited in the sculpture, we still recognize
a respect for the old religious traditions. The
recumbent effigies, with uplifted hands and
serious expression, arrest attention and are aids
to reflection; but the time came when the more
personal honour or glorification of the subject of
the monument was to be illustrated, and the
quiet tomb character of the design was super-
seded by the endeavour to give prominence to the
worldly dignity of the deceased. The figures
are now turned on their sides; some lean on their
elbow, looking out from their resting-place, as if
inviting the notice and admiration of the passers
by. The various chapels, to be visited after this
lecture, offer many examples of this class of

monument. It will be remarked that, almost universally, the sculpture is bad. The dresses seldom are designed to suit the recumbent attitude of the wearer, the folds usually running, as if stiffly starched, in parallel and horizontal lines, instead of falling with their own weight. In this respect they are curiously similar to the stiffness of Gothic art. There are some remarkable examples of designs of the kind in the chapel of St. Nicholas; they are, however, of various degrees of artistic merit. Many of these tombs are in memory of persons eminent in history, and have great interest apart from the illustration they afford of the monumental art of the period. The neighbouring chapel of St. Edmund also contains some examples worthy of notice.

Before noticing a few other works of the sixteenth and seventeenth centuries, it will be proper to make particular reference to two striking monuments in the united chapels of St. John Evangelist, St. Michael, and St. Andrew. The first is that in memory of Lord and Lady Norris, early in 1600. The effigies of both, in alabaster, lie recumbent on a raised tomb. A canopy is above them; on each side of the composition, at the base, are three kneeling figures, life size, dressed in the armour of the day, representing the six sons of the above. This monument is very striking, not merely on account of its great size, but for the sentiment expressed in it. Although the sculpture is not fine, *quoad* style and technical value, the motive of the design is good and appropriate. The effigies of the heads of the family reposing in death, with their sons kneeling and praying around them, is a touching and beautiful subject, well fitted for a mortuary chapel.

The next monument in this chapel to which attention may be called in a few words, is that of Sir Francis Vere, one of the eminent worthies and warriors of the Elizabethan era. Sir Francis, habited in a loose gown, is recumbent on a low bed or table tomb. At each corner is a knight, in full armour, kneeling. They support on their shoulders a large table, which forms a canopy over the principal figure. On this are placed various pieces of armour, supposed to be that of the great soldier lying beneath. The treatment of this design, in which the accessorial figures are made to contribute so prominently to the expression, is as rare as it is effective. They evidently are secondary to the main object, and though the figures are life-size, they take their proper place simply as attendants of honour on the great general who reposes in the centre of the composition.

This chapel contains a monument by Roubiliac, which always is pointed out by the guides as one of the wonders of the Abbey. It is in memory of Mrs. Nightingale. In the lower part of the pyramidal composition, a skeleton, partially draped, issues from a dark recess or tomb, in the act of hurling a dart at a female above, who, fainting, is supported by her husband. He endeavours to ward off the fatal stroke, leaning forward and extending his hand as a shield or guard between the sinking lady and the weapon of death. The execution of this work is well worthy the great reputation of its author, and there are many points of excellence in the details of this remarkable work. The expression of the dying figure, and the action and form of the falling hand, deserve the highest praise. The poetry of this conception makes its instant appeal to the feelings. It is full of pathos and touching sentiment. But here is seen the danger of not observing the proper limits between the ideal and the real. A mere skeleton, which could not by any means be held together, is here represented with life, power, and expression, grasping an ordinary spear, with which he intends to slay his victim. The dying wife and her protector are supposed to see all this impossibility, and the husband endeavours, by a common action, to ward off the threatened evil. But a skeleton is not that broad, mysterious visitation called Death; it is simply a distressing and repulsive result of dissolution. The allegory, therefore, is both extravagant and false. With all its excellence in point of intention, and especially in its marvellous execution as a piece of marble-carving, this monument offends against artistic propriety and good taste. Roubiliac is the author of another remarkable and, in many respects, superior work, in the monument to the Duke of Argyll, who died in 1743. The duke is represented falling at the base of a pyramid. Around him are statues of Minerva, History, and Eloquence. The latter is full of action and expression; and, with extended arms, appears to be addressing the spectators. It is a characteristic work of the time, and shows the great powers of Roubiliac in invention and execution; but, like almost all his works, it is utterly deficient in the repose so essential to give the proper effect to monumental works designed for a place of worship. The same criticism applies to a composition by the same master, near the Argyll monument, in the south transept, in memory of Handel, the eminent composer. The expression of rapt attention with which the great master appears to be listening to celestial music is admirably rendered, and the execution of the work is, as usual, wonderful; but the whole design is too theatrical for its destination. It is a composition more adapted to a music-hall than a church.

Scarcely any of the works after this time, however remarkable for other qualities, preserve the characteristics appropriate to church monuments. It is rare that allusion is made to death, a future state, or to the prayerful last moments of the Christian. The statues have a mere portrait character. The action of the figures have reference only to their worldly business and occupation, and the inscriptions record the virtues, the abilities, the prowess, and the accidents of life. The compositions are crowded with allegorical figures, more or less good, as they are founded on or copied from the *antique*. There is nothing to arrest the attention of the ordinary passer-by; and the recondite classical allusions can only be understood by the few. Such designs as those representing Mr. Thynne attacked and murdered in his carriage; of Admiral Tyrrell ascending out of the sea to heaven, while on all sides are the most preposterous accessories, including several life-size allegorical figures,—only require to be alluded to as being totally unfitted for church monuments; while they have little or no recommendations as works of sculpture.

It scarcely is necessary to multiply examples of the art that now characterised monumental sculpture. Prominent illustrations have been pointed out, by which the intelligent visitor will be able to realize for himself the leading peculiarities of the styles of the different ages. Hitherto, it is to be observed, the motive or purpose of the generality of works, however strangely expressed in some cases, has had reference to the repose of death; with suggestions of prayer and resignation; and with such accessories as are fitting in memorials, of the kind, placed in a Christian church. Less simple, indeed, than the early Mediæval monuments, still, the later monuments continued to show the religious impulse, and invite serious reflection. In the eighteenth century this principle began to be lost sight of, and, in the end, utterly disregarded. Truthfulness and individuality were, as has been shown, first sacrificed to the absurd fancy of introducing classical details in the monuments. From ornamental the artist proceeded to personal *pseudo*-classical decoration; and we find the deceased English nobleman, statesman, or soldier, dressed in a Roman cuirass, or toga, or paludamentum, mixed up with modern costume. The large monument of Sheffield Duke of Buckingham, before alluded to, in the chapel of Henry VII.; that of Sir Cloudesley Shovel, in a Roman cuirass, sandals, and a full-bottomed wig, in the south aisle of the nave; and many others, will show the extent to which this absurd fancy was carried. It may not be amiss to notice another class of monumental design, in which it is difficult to trace any motive. One example of this utterly unmeaning application of art,—if, indeed, it can come into the category of art at all,—is the huge monument in the Chapel of St. Paul, in memory of Lord and Lady Hunsdon. The date is about 1600. This composition, measuring between 30 ft. and 40 ft. in height, and occupying one end of the chapel, consists of various stages of merely architectural details over and around a sarcophagus; while obelisks, columns, with capitals, architraves, and a variety of details, crowd the work from the pavement upwards; the most striking object being the large shield with the emblazoned coat of arms of the family. The whole has been profusely decorated and enriched with colour; now, in the course of time, sobered down to a most sombre blackness. Another unmeaning work of the kind is a military monument in the north aisle of the nave. It consists entirely of various arms used in military life, and has more the appearance of an advertising card of an army accoutrement maker than a memorial or record of a deceased soldier. These works are simply referred to as belonging to our general subject. It will neither be necessary nor profitable to continue the review of such trifling and unmeaning art.

Having now rapidly reviewed the monuments preserved in Westminster Abbey from the earliest regal monument,—that of Henry III., of the thirteenth century, down to the end of the eighteenth century,—it is not necessary to make particular remarks upon the monumental productions of a more recent time. It may merely be observed, generally, that while they often exhibit very advanced knowledge and technical power in sculpture, highly creditable to the authors, they are usually simply personal memorials, and have no serious ecclesiastical character or treatment to make them fitting objects to occupy places in a church. The more ambitious designs are made up of classically draped and even of nude statues, imitations of the antique. Others, expressing the views of the realistic or naturalistic school, appear dressed in the ordinary coats, waistcoats, and breeches of their day. Some are represented in the full vigour of life, making speeches, brandishing swords, or calling up their troops. Some are standing, in attitudes more or less graceful, doing nothing. Some are sitting comfortably in their arm-chairs, unoccupied, or, it may be, thinking. In none of these is there the slightest idea of fitness or propriety, with reference to place. Indeed, there are instances in which the extreme want of harmony with surrounding monuments and associations makes such productions not merely inappropriate, but positively offensive to good taste and feeling. They ought never to have been placed in the positions they occupy; and it is even now much to be desired that the more prominent of these statues, especially the single ones,—the most easily dealt with,—should be removed to other sites where while the deserts of their originals may be honourably recognized, and the statues raised to their memory be seen by their admiring countrymen, they should no longer be permitted to crowd the floor of a place of worship; where the mind should be occupied with other thoughts than those likely to be suggested by such incongruous associations.

It is not intended, nor is it desirable, that works once admitted into the Abbey should be removed with anything like contumely and disrespect, simply because they do not harmonize with religious sentiment, or are out of *keeping* with the architecture of the church. Honourable sites might still be found for them within the sanctuary, as it were. A cloister, for example, might easily be erected, fitted to receive them, or they might be arranged within the restored Chapter-house. Many of the detached statues, especially, might so be placed with great propriety, and with distinguished effect. Many of the larger compositions, which interfere fatally with the architecture of the church, cannot, it may be feared, be removed; but the floor of pavement of the church itself would thus be freed, in a great measure, from the crowding of works as inappropriate as they are obstructive.

EXHIBITION OF PRIZES OF THE ART UNION OF LONDON.

It is a pity that the flight from London of the members of the House of Commons, consequent on the close of the session, prevented those of the late Committee on Art-Unions from attending the private view of this collection on Saturday last, as it offers an antidote to the injurious opinion expressed by some of the witnesses examined by the Committee, that the Art-Union encourages the production of works exclusively of a low class of art. It was the general verdict of those competent to form an opinion on the subject, that this year's collection is a very good one; and it may be confidently stated that the proportion of indifferent works to the whole number is less than was to be found in either of the great exhibitions of the year.

The general character of the works selected by the prizeholders proves what we have always upheld, that the opportunity of seeing and comparing works of art year by year, with the interest excited in the members of the society, who have either had the opportunity of choosing pictures for themselves, or of criticising the selection of other members, has gradually but surely fostered the power of discriminating and estimating the relative qualities of different works.

"Drawing Timber in Picardy," by Beavis. The height at which this picture was hung in the Academy made the selection of it, in some degree, a hazardous decision; but a nearer view proves that the prizeholder's trust is well rewarded; it is a work full of life and vigour, with a good deal of Rosa Bonheur feeling. The shadow of the wheel on the ground shows that the team has come to a stand at the turn of the road, while the horses, urged by the voice and action of the driver, are just commencing a fresh effort to get round the corner. "Eventide," E. N. Downard. The setting sun comes through the opposite hedge, and just touches the tops of the leecy flock, with much truth and natural effect. "A Berkshire Mill-race," C. J. Lewis. This, and No. 59, by the same artist, are both exceedingly meritorious works. In the river scene there is sparkle, life, and motion—a good deal of the feeling of Constable, without his pottiness—much careful work and evident study of nature. "Evening on Beech-hill Common," by Slater Warren (30*l.*). We are very glad that this picture found a purchaser; in the face of the prices put on their works by some artists, this is marvellously cheap at 30*l.* It is full of work, and the effect of the sun reflected from the post and foliage in the foreground is admirably rendered. Its merits were lost in the high position it occupied in Suffolk-street. "Luzern from the Lake," G. Stanfield, is a faithful portrait, but rather lacking atmospheric effect, in producing which this artist wants a little of his father's craft. "Happy Idleness," a graceful and loving group, by Mrs. Robbinson, showing much skill and effect in the treatment of the drapery. "Whitby Harbour," E. J. Niemann. The warm sky behind the hill throws up the foreground admirably, and the usually unmanageable line of the railway is made quite picturesque. "Louis XI. and Mary de Commines." The king's figure seems to show that the artist has seen Mr. Charles Kean in this his best character,—he has caught much of the half-tottering gait and crafty action: the lady's figure is somewhat stiff. Nos. 48, 89, and 108, by W. S. Rose, are charming little bits of nature with that keen appreciation of harmonious colouring which this artist's works always exhibit.

Turning to the water-colours, the costliest, but not one of the smallest, is a girl with peacocks by Birket Foster; a remarkable piece of minute work. "Deborah sitting in Judgment," an ambitious picture, by Mr. Henry Warren, was mentioned in our notice of the collection from which it was taken. Two glowing landscapes, by Vacher, and a view of Tenby, by Wolfe, are charming works, any one of which would light up a north room in gloomy weather. We could go on to notice many more pictures with commendation, would space permit; and we can confidently promise a treat to any who may visit this gallery, not having had an opportunity of seeing these works in the previous exhibitions. We must not omit calling attention to the proof of the plate of "Pity," a subject full of feeling, very well rendered by Lemon from the picture by Le Jeune.

COTTAGERS' EXHIBITION OF FRUITS AND FLOWERS OF SOMERSET.

Amongst the Mendip Hills, "famous in history," about eight miles from the Clevedon junction of the Bristol and Exeter railway, and within a pleasant hour's ride of Weston-super-Mare, lies the valley and parish of Winscombe, with its picturesque village and church, one of those fine specimens of Gothic architecture for which Somersetshire is noted. In this remote spot, still nearly six miles from any railway, was held, on the 1st inst., a Cottagers' Horticultural and Industrial Exhibition, to which we wish to call our readers' attention, as an example of what may be done in a rural district of the "Far West," where mutual goodwill and confidence exist. The show, we are informed, was got up by a gentleman who is a member of the Society of Friends, but is on the most cordial terms with the vicar, and other gentry of the parish, with whose hearty co-operation this and other kindred efforts for the benefit of the neighbourhood have been successfully conducted. The recent exhibition was held in the parish schoolroom, which was tastefully and richly decorated with garlands, evergreens, and pictures. A platform occupied the centre of the room, and was covered with the cottagers' contributions of plants, in pots, bouquets of flowers, vegetables, and fruits, with a bunch of teazels in the centre, a plant grown in the district, and forming a link between this completely rural spot and the manufacturing towns of the West Riding. In close and appropriate neighbourhood to the teazels, were placed two magnificent loaves of cottage-made bread, a Cheddar cheese, the glory of Somersetshire, and Stilton's greatest rival; a splendid specimen of well-filled honeycomb; and a vessel of rich cream, in which the largest spoon might almost stand upright. These creature comforts would have tempted the dying anchorite to eat. The appearance of the table with every interstice filled with moss was remarkably rich and finished,—quite a contrast to the slovenly look of many shows in more populous places. Another table of considerable length was also covered with cottagers' vegetables and flowers, set off by large and various bouquets and floral devices, both in cottage-garden plants and wild-flowers. Rustic seats, flower-stands, and other mechanical works attested the skill and ingenuity of the villagers, while their talents were further displayed on a screen at the end of the room, inscribed "Winscombe School of Art." The drawings on this screen would not disgrace any school in the kingdom. The best were by young people not in the class of cottagers; but there were many of more elementary kind by villagers, doing justice to the pains bestowed upon them. We understand that one of these rustic art-students is a lad who breaks stones all day at a quarry, and who is an eager student, not only of drawing, but of mathematics, Greek and Latin, and the natural sciences. We may possibly hear more of this lad some day.

Time and space will not admit of a more detailed account of this unique exhibition, but we must not omit to mention that amongst the prizes awarded were one of five shillings to an old woman, aged 86, for knitted stockings; another to a child, aged 8, for the best knitted pair of socks; another to a bright girl of 16, for the best sample of darning (good credentials for a little housewife). A larger prize was offered to the domestic servant who had been longest in one place, with a good character for all domestic virtues; but this prize was not applied for, though it was reported that one servant was still in the parish in her fiftieth year of service in the same family.

To crown this happy gathering of rich and poor, young and old, the Axbridge Union schoolboys, headed by their genial master, arrived in time to take part in the action, and with drum and fife made glad the hearts of the lookers on. Altogether the affair was a rural triumph, which might be advantageously introduced into almost every parish.

THE FISHING INN AT HARTINGTON, DERBYSHIRE.

The new buildings at the Charles Cotton Hotel, from designs of Messrs. Slater & Carpenter, have been recently completed, and add much to the comfort and convenience of this ancient hostelrie. They comprise a dining-hall, 40 ft. long, 20 ft. wide, and 14 ft. high; butler's pantry, three bedrooms and bath-room, new stables, &c.; the whole fronted with durable free sand-stone from Mr. Beresford Hope's Sheen quarries. This hotel is within a mile of the well-known "Izaak Walton's Fishing-house" ("Piscatoribus Sacrum, 1674,") on the Dove, one of the prettiest of little rivers. The mention of Dove Dale will bring before all who know it visions of its tree-covered hills and craggy masses; of the Stepping-Stones, the Sugar-Loaves, and Thorpe Cloud, the mountain-monarch of the district. Some notes of this charming neighbourhood will be found in our last volume.*

A TRIP TO NORTH WALES.

About two years ago you were good enough to insert in your *Builder* a few notes on the Mountain Homes of North Wales; and having been induced to pay another visit, I beg to forward you some further observations jotted down whilst journeying.

Starting from Corwen per rail through cuttings to Gwyddelwern, which lies in a valley,—and although the month of August, the corn is still green, and the hay harvest not completed,—the picturesque appearance of the valley increases, studded with small fields and many hedges to Bryn or Derwen, and thence the scenery is varied in romantic beauty by woods, water-mills, and other objects, to Egarth, where the view opens with diverging hills to Ruthin, the hill on the right being Moel Famman, or the mother of hills, the loftiest of the Clwyddian range.

Ruthin, with the exception of its uncomfortable pebble paving, is much modernised: the church has been what is termed restored, and the tower rebuilt with a broach spire. Architects fond of colour would like the red sandstone labels, and quoins to window and door openings, which are preferable to red bricks and terra-cotta. The church consists of nave and south aisle, chancel and south aisle (used as a vestry). The nave is divided from aisle by octagonal columns, with moulded capitals. The nave windows are in three five-foiled lights, with flamboyant tracery in their heads. The font is modern, at the west end of nave, octagonal, with eight-foiled panels, and a marble basin, raised on steps with inscription on top step, stating that the font was erected in memory of Robert Humphreys Jones, of Clan Conway, near Pentrefoelas, who died the 15th of May, 1858; also his wife, who died the 5th of January, 1854. The stone is the same as that employed in Menai Bridge. There are but few brasses; in south wall of south aisle are two, with Old English inscriptions, date 1560. There are marble tablets, with English inscriptions. The chancel window is filled with modern painted and stained glass, scriptural subjects. The roof of aisle is of oak, and interesting, low span,* tie-beams (resting on plain stone corbels) are panelled, and the rafters moulded. The roof is panelled, each panel of a different design. The bosses also are much varied. The date of the roof is the reign of Henry VII. The roofs of the nave and chancel are similar, but plain. The pulpit and seats are modern. The church in former times was conventual, and of greater extent, and interesting. The market-house was pulled down about two years ago. There are several houses remaining of the time of Elizabeth. The castle is very interesting and well known. The county hall is a modern building, in the prevailing style, having windows without labels, and nearly all the ornamentation limited to the ground story, the capitals being adorned with birds, animals, and the siege of *Rhyddin* Castle in 1646.

From Ruthin, through Rhewl and Llanrhaiadr, per rail to Denbigh, the Vale of Clwyd is displayed, a beautiful cultivated valley, bounded by the hills at a distance.

A visit to Denbigh Castle is interesting and instructive. The castle has been in former times much neglected; it is now rented by a committee of the town, who take great care of the remains. The castle stands on an eminence, from which a beautiful view is obtained all around. Considerable excavations, clearing of rubbish, &c., have been made in the towers, dungeons, &c., and there is consequently much to contemplate,—remains of stone staircases, doorways, chamfers, corbel heads, underground passages, &c.; some antiquities discovered on the spot, such as human remains, shells, stone cannon-balls, iron spurs, &c., which are preserved and shown in what is termed a waiting-room; there is also a visitors' book, now entirely filled with names, and the sooner it is put by, and a new one substituted, the better. In the castle grounds are swings, dumb bells, croquet, bowling greens, &c., for the amusement of the people, curiously contrasting with the grandeur of the castle remains. Over the entrance gateway is a niche, containing a mutilated figure, apparently of the fourteenth century, the ball flower being a prominent feature in the labels and cornices, jambs, &c. From the castle can be seen the seat of the Myddelton family, where there is a monument to Dr. Samuel Johnson.

What is termed the ancient chapel of the castle has been altered and added to; the chancel is Early English, the ceilings all plastered, the font a modern baluster, the columns between nave and aisles are octagonal, with moulded capitals. The tower is square and embattled. There are few memorials. The church, begun by the Earl of Leicester, is still a ruin.

The "guide-books" of North Wales omit to notice many of the old churches: among the latter may be mentioned the church at Cerrig-y-Druidion: it is small, but not without interest; its

* "Out and About," vol. xxiii., p. 617, &c.

* Called in "Hand Book of English Ecclesiology," a much-enriched *flat* panelled *ceiling*.

plan a parallelogram 64 ft. by 17 ft., the distinction between the chancel and nave being principally shown by the roof. It is an Early English church, with late insertions and additions: there are a nave, south porch, chancel with south aisle. The nave roof is open, with foliations in the interstices of the trusses; the roof of the chancel is truncated, panelled, and with rosettes at the intersections. The church has for its foundation the natural rock; the stones used in the building are large, and with flat surfaces, as obtained from the neighbouring mountain. In the porch is the usual seat on each side, but of one stone, 9 ft. 1 in. long, and said to have been from the stones of the Druids. Camden alludes to these remains. In the chancel, the north window (perpendicular) has small portions of stained glass remaining. In the nave, by the chancel, are two low side windows. The altar rails were put up in 1707, and the table dates from 1755. In the churchyard, at the east end by the gate pier, are steps in the wall, on which the clerk used formerly to mount on Sunday and announce the fairs to be held.

Opposite the church are the almshouses founded by Robert Price, date 1717. Old churches, however small, are, like old books, full of history; in North Wales, the old churches still have to be visited, and their contents recorded. W. P. Griffith.

THE LATE M. GODIN, PAPER-MAKER.

The inhabitants of Huy, Belgium, are just now regretting the loss of M. Godin, an eminent paper manufacturer of the town, and the first introducer of paper machines into Belgium. In 1836, MM. Godin were the owners of a small paper-mill at Huy, but M. Alexis Godin, hearing of the success of Fourdrinier's machine in this country, immediately foresaw its importance and introduced it in his manufactory. The Belgian journal *La Meuse* states that he was able to compete successfully with English makers, and that for some years he supplied the paper for printing the *Times* newspaper. This is, perhaps, an error. The same journal states, on the authority of M. Godin himself, that when he first commenced business, some time before 1830, a day's manufacture was only worth 8 francs, but now the quantity produced daily at his mills is worth 20,000 francs. He accumulated a very large fortune, and, being of an extremely benevolent disposition, spent a considerable portion of his income in charitable objects. He founded and endowed an orphanage at Huy. His death took place on the 31st ult., his age being 68. It seems to have been looked upon as a public calamity at his native town, and his funeral was attended by all the principal inhabitants.

CONCRETE FOUNDATION.

A somewhat novel application of concrete as a foundation has been recently made at the Straits of Bonifacio, between Corsica and Sardinia. At the entrance of the straits is situated a dangerous sunken rock, known as the "Monachi," upon which it is intended to erect a lighthouse. The surface of the rock is about 7 ft. below the water-line. A large coffer-dam about 20 ft. square was made, and, having been floated into position, was secured to the rock by iron bolts. The coffer-dam was then filled with concrete, and the dangerous rock is now surmounted by a massive foundation above the level of the highest tides. The lighthouse is intended to replace a bell-buoy which was placed on the rock after the disastrous wreck of the *Sans Pareille*.

GOVERNMENT BUILDINGS, INDIA.

The Calcutta University, under the superintendence of Mr. Walter L. Granville, architect, is being proceeded with. The authorities determined to adhere in this instance to rigid classicality. Its style may be judged of from the fact that Messrs. Ransome & Co. have been commissioned to produce for it thirty-eight large Ionic capitals in their patent concrete stone, which will be sent out to Calcutta.

Mr. Granville, who will be agreeably remembered by some of our readers, went out to India in 1858 as architect to the Eastern Bengal Railway; and at the completion of the railway works was appointed by the Government to the post of consulting architect to the Government of India, and special architect to the Government of Bengal, for the express purpose of designing and carrying out some important buildings in Calcutta. Civil engineers are sent out annually, but no architect has as yet been sent out. It is repeating a twice-told tale to say that the Department as regards architecture is not in a satisfactory state.

IRON PAVEMENT AND THE DOCKYARDS.

The alleged reckless extravagance in the dockyards was again brought before the House of Commons just before it adjourned, by Sir John Pakington, who gave some explanations, which appear to remove a portion of the blame heaped upon the unfortunate Board of Admiralty. The subject has been taken up by some of our contemporaries, with more haste than discretion. Some of them have evidently never heard of iron being used as pavement in any form whatever, and look upon the idea as a monstrous piece of extravagance. Our own experience, however, has led us to the opinion that for rolling mills and similar localities, iron is the best, and, in the long run, the cheapest kind of pavement. Cast-iron flooring plates, even when broken into several pieces, are still of value, and may be recast, an advantage not possessed by brick or stone pavement. With reference to the value of the iron ballast, Sir John Pakington stated that experiments were now being made, which "show that the iron varies very greatly in quality." The estimate of the value appears to have been based on the fact that the iron, having been bought before the date of Neilson's invention, must be "cold blast," and therefore of very good quality. The proposition that "all cold-blast iron is better than any hot-blast iron," is hardly logical. It has also been stated that the price paid for the material (5*l.* 8s. and 5*l.* 9s. per ton), was that of the very best iron. According to the present state of the market, the prices paid by the Admiralty were certainly enormous. We cannot, however, form an opinion as to the quality of the iron (supposing it to have been supplied at a fair price), without knowing the state of the markets at the time of purchase. We find, on referring to Tooke's "History of Prices," that from 1804 to 1818 the price of pig-iron was never lower than 7*l.* per ton. The returns of the price of iron from 1813 to 1819, published by the "Office for Trade" in the latter year, differ slightly from the figures above quoted. It appears from this document, which was reprinted in the eighteenth volume of the "Sessional Papers" for 1844, p. 390, that between 1813 and 1816 English pig iron was worth from 7*l.* to 9*l.* per ton. During the three following years the prices were:—

	£. s.		£. s.	
1817	6 15	.....	8 0	January.
	6 10	.....	8 0	July.
1818	8 0	.....	9 10	January.
	6 10	.....	8 0	July.
1819	8 0	.....	9 0	January.
	8 0	.....	9 10	July.

If contractors were to be found willing to supply the Government at more than 30s. below the lowest market prices, we can only say that their descendants have sadly degenerated. Supposing, however, that 5*l.* 8s. was a fair price for the best iron in 1815, when the last contract was made, we fear that the contractors, who would probably know the use to which the iron was to be applied, would take care not to supply the best quality.

Some new light was thrown upon the subject by Mr. Childers, who let out (whether unconsciously or not we will not pretend to say) that some of this ballast was bought during the Crimean war; thus flatly contradicting the Parliamentary return, which states that "not any purchase in the last forty years can be traced." Mr. Childers went on to say, that the Government paid the price demanded for the worst kind of iron—iron worthless for purposes of manufacture; and if those from whom it was purchased chose to supply a much superior kind of iron to the kind paid for, they could scarcely be regarded as exercising much sagacity. But in their three principal dockyards, they had, he believed, three of the best mechanical engineers in the country; and in the reports furnished by those gentlemen separately, it was distinctly stated, that the iron used in this way was perfectly useless for all purposes of manufacture. We trust that these reports will be publishe Mr. Childers's explanation looks satisfactor but if it be correct, the Parliamentary return then incorrect, and *vice versâ*. Adopting t former view, the Admiralty book-keeping mu be very bad, for we cannot impute to the auth rities the wilful suppression of all mention the purchases made during the Crimean war.

We by no means wish to become the apologis of the Admiralty. Indeed, we rejoice to see well-directed attack on the abuses of a pub department. Before passing judgment on t offenders in the present case, we will wait f the result of the experiments, and we shou also like to hear what "three of the best mech nical engineers in the country" have to say.

WATER FOR LONDON.

When will the Londoners begin to do som thing more than talk about their future wat supply and what must be done about it so time or other? An entirely new supply of wat must be had, and the sooner the better; so th we may as well set about it at once. Wherev the water is to come from, the work will ta some years to do, and time will be spent in ev beginning the actual work. Various proposa have already been before the public, and esp cially one by Mr. Bateman, C.E., to bring t water from the Welsh hills. Another, and a st more herculean work, has now been proposed another well-known engineer, Mr. George Hemans, in association with Mr. Richa Hassard, C.E. These gentlemen, with Mr. Bat man's project, to which they make graceful allusion, before them, advisedly prefer a st more vast scheme of water supply, not only London, but to various towns in the heart England, between London and the propos sources of supply in the lake district of We morcland and Cumberland. Now, suppose th the more enterprising minds of the pub seriously at work just now on the project of tunnel across the British Channel, were to dr that idea for the present, and take up the c tainly less hazardous, but assuredly more usef one of maturing and realising some adequ scheme of pure and abundant water supply the metropolis. Let the schemes of Mr. Ba man, Messrs. Hemans & Hassard, and as ma more as they like, be well ventilated, and t one that is preferred and formally chosen be about in earnest, so that the present generati may reap the benefit of it long before anoth recurrence of the fell epidemic which has n seized hold of the public throat. The work, we have said, has got to be done, and it m as well be done at once. Liverpool and Glasg have already accomplished relatively great works of a similar kind; and Liverpool, n satisfied with what it has yet effected, is n thinking of expending an additional million a a half of money in still further improving water supply. Mr. Bateman's project, or ev Messrs. Hemans & Hassard's, which will co some twelve millions, is not a relatively great work for the metropolitan three millions people than what has already been done, n only in this country, but in America; as witne the splendid New York supply, compared wi which, or with that of Glasgow, the wat supply of London is a disgrace, not only to t metropolis, but to the nation, in the eyes of oth countries.

The aqueduct for Mr. Bateman's scher would be 183 miles long; that for Messr Hemans & Hassard's, 240 miles long; but co sidering the anticipated intermediate town su ply and the absolute certainty of the rainfall, well as the extraordinary purity and abundan of the water, the latter think they are justifi in still urging their own scheme as preferable every other. The only work of unusual magn tude, they say, would be a tunnel 7½ miles lo under Kirkstone Pass to Patterdale Lake, whic would be tapped at its south end. This tunn they calculate, would be done by boring m chines, as at Mont Cenis, in less than thr years after the shafts were sunk. They calc late that 50,000,000 gallons a day would be so on the way to London, leaving 200,000,000 ga lions for London, on the completion of the pr ject, at the estimated cost of 12,200,000*l.*; ar they estimate that the rate requisite for th Londoners to pay would not exceed 11½d. in th pound, on the highest and most unfavourab view of the whole question, but might n exceed 7½d. or 8d., according to circumstances.

If this project be not very soon decided on, it is possible that the less comprehensive project of Mr. Dale, C.E., of Hull, for the supply of some towns in the north from the same lake district may supersede it, or throw additional obstacles in its way, by the previous utilization of the best of the lake supply.*

DEATH OF M. MUESELER.

We have to announce the death of M. Mueseler, a celebrated Belgian engineer, and inventor of the safety-lamp which bears his name. He was first employed in a very subordinate capacity at the Beaujone Colliery, celebrated as being the scene of a terrible accident in 1811, and at length rose to the position of Chief Engineer in the Department of Mines. He is the inventor of several contrivances for rendering the collier's work less dangerous, and his safety-lamp is now the only one allowed to be used in the Belgian collieries. A model of the Mueseler-lamp may be seen in the Museum of Practical Geology in Jermyn-street. It appears to be safer than the Davy-lamp; it gives nearly three times the amount of light, and burns less oil. When the flame is brought into contact with carburetted hydrogen, it goes out, thereby giving warning of the danger. On the other hand, it is heavier than the Davy-lamp, weighing about two pounds, and is apt to go out when placed on a slant, or carried out of the perpendicular, and is extinguished in an up current of air. For some months past subscriptions have been collected for the purpose of presenting M. Mueseler with a handsome testimonial. His sudden death has unfortunately prevented him from receiving it.

PARIS.

The monument in the middle of the square of the Conservatoire des Arts et Métiers, is just finished. It consists of a column of Jura granite, resting on a pedestal of white Echaillon stone, and is to be surmounted by a statue in bronze of Victory, due to the work of M. Crauk, statuary. The four sides of the pedestal will bear inscriptions, recording the feats of arms accomplished by the French troops during the Crimean campaign. In a few days the monument is to be unveiled.

At the Hotel de Ville the reconstruction of the Lampanile has been quite terminated, after a year's work, and the scaffolding has been removed. The general appearance of this belfry is that of lightness and good outline, but the base seems rather heavy. Still, as this latter is partly hid by the pediment of the clock, the fault is not much noticed. It is the work of Mr. Ballard, architect to the Ville de Paris.

The levelling of the Butte de Trocadéro is finished, and the place is being laid out temporarily. It is to be arranged for the usual display on the Emperor's fête, the 15th August; consequently relays of workmen have wrought day and night, in the later hours by three electric lamps, which rendered the *coup d'œil* most interesting at midnight. Trees *ten years old* are being planted.

For some days past the Rue Casimir Perier, near the Eglise Saint Clothilde, has been opened up in numerous deep trenches for joining the house drainages, with the central sewer of that street. At the end of the street, in front of No. 27, several skeletons have been found imbedded in the sand, of which the subsoil is composed.

Near Paris, a public building of great importance is on the verge of completion; we mean the Ceramic Museum and the new Porcelain Factory of Sèvres, of which we gave a notice in the last volume of the *Builder*. It is situated in the lower park of Saint-Cloud, on the left, on entering by the Pont de Sèvres, and the principal block of the building destined to contain the ancient and modern rich collections, is a veritable palace, measuring 492 ft. on the façade, with two stories on the ground-floor, having each twenty-seven windows on the same level.

On account of the completion of the construction of the new Ministère in the Rue Saint Dominique, for the concentration of the services of the department of agriculture, commerce and public works, the minister has taken possession of the new hotel in the Rue Saint Dominique, which had been temporarily occupied, since the month of August, 1863, by the Minister President of the Council of State, who, in his turn, is to remove to the hotel in the Rue de Varennes, No. 78, where the patent office was established, and where the Minister of Public Works resided since 1863.

The new street leading from the Pont Neuf to the Halles Centrales being quite pierced, the sewers on each side are being constructed. They have already commenced to build on two points: at the angle of the Quai de la Magisserie, for the establishment of La Belle Jardinière, and at the angle of the Rue de Rivoli, which cuts the new street diagonally.

It is stated in one of the French papers that under No. 146 of the catalogue of sale by M. Jacques Charavay is described an original letter of Emile Souvestre, dated May 20th, 1850. The Rue de Poitiers had succeeded in causing the suppression of the evening lectures instituted in 1848 for the benefit of the labouring classes; Souvestre complained bitterly of this unintelligent measure: "they have extinguished our lamps," said he, "when people used to come from the distance of a league, at least, to get instructed: *one hour more for the public-house.*"

THE LIVERPOOL DOCK WORKS.

The report of the dock engineer, Mr. Lyster, for the year ending the 22nd of June last, has been submitted to the dock board. It appears from this report that there were expended last year on the Liverpool Docks in new works 260,226*l.*; and on repairs and maintenance, 85,900*l.* On the Birkenhead side there were expended on new works under the Act, 138,895*l.*; on additional new works, 64,133*l.*; on repairs and maintenance and stock, 29,430*l.*—total, 231,959*l.* Of the works on the Liverpool side, the engineer states that the extension of the north river wall has progressed satisfactorily and uninterruptedly during the past year, and has now reached the point at its northernmost extremity, adjoining which the Government propose to construct a heavy casemated fort. The face masonry from the level of 7 ft. above Old Dock Sill, as well as the whole of the parapet wall, is built of Cyclopean blocks of granite of the strongest and most massive description; and the lower portion of the work, as well as the body of the wall, is of the red sandstone of the district.

The river wall, North of Canada Basin, has now been raised throughout its length of 3,267 ft. from the level of high water, or 20 ft. above Old Dock Sill, at which it had stood for some years, to 26 ft. above Old Dock Sill, and is farther surmounted, for a length of 3,164 ft., by a massive granite parapet and coping carried to a height of 34 ft. above the same level, the remaining portion being in course of construction. A granite retaining wall has also been built for a length of 2,687 ft., and a terrace, 20 ft. in width, formed for the same distance.

Considerable progress has been made in the excavations for the Waterloo Docks, and in the masonry of the surrounding walls, notwithstanding the short supply of stone during the past year. The Corn Warehouse Dock with its entrance is completed, and the West Waterloo Dock is only suspended while the other and not less important portions of the works are further advanced.

The Observatory, Bidston-hill, is drawing towards completion. Arrangements have been made with Messrs. H. C. Price & Co., of London, for the warming and ventilating of the building; and steps have been taken towards a supply of gas and water. Extensive use has been made of the excellent quarry which has been opened here, by working it for the supply of stone to the corn warehouses at Birkenhead, and other constructions on the dock estate.

The works at Herculaneum and at other points on the estate are also mentioned in detail.

An exemplary Patentee.—Elias Howe, the patentee of the sewing-machine needle, announces that he does not intend to apply for a renewal of his patent, on the ground that he has already made by it a million and a half dollars, which he regards as fortune enough for one man.

FREEMASONS' HALL, LONDON.

The building now called Freemasons' Hall, Great Queen-street, Holborn, occupies the site of a row of small houses called Queen's-place, and a portion of the site of the building formerly called Freemasons' Tavern. The part devoted to the use of the Craft embraces, besides a space equal in width to half the front and extending back 200 ft., the old hall and the rooms immediately adjoining the other half of the front. The tavern, of which the name will be changed, is not yet completed. It will embrace a frontage of 44 ft. by a depth of 200 ft., and also the portion of the old building between the rooms adjoining the front and the old hall. The whole is the property of the body of Freemasons; but the tavern is let to a company.

The entrance to the Masonic portion, a shown in the accompanying plan, is in the centre, and leads to a hall and spacious staircase, lighted by a dome light. The corridor leading from the hall gives access to the offices for the general business of the Craft, and also to those of the three charities, and the board-room, waiting-rooms, &c. The front rooms are a library or club-room, and a coffee-room for the use of the Craft, which will be served by the tavern. On the first-floor are two rooms in front, for the use of the Grand Master and grand officers; two large lodge-rooms, with ante-rooms; and the great hall, which, when the tavern is completed, will be devoted entirely to the use of the Craft, for the meetings of the Grand Lodge, and other purposes. The third room on the front, together with the room above it, will be attached to the tavern as dining-rooms, for the use of the Craft only. On the second-floor are lodge-rooms, similar to those on the first-floor, but plainer. The third-floor is devoted to bed-room accommodation for the servants of the Grand Lodge, and also for those of the tavern. In the basement are rooms for the Grand Tyler, store-rooms, and so on.

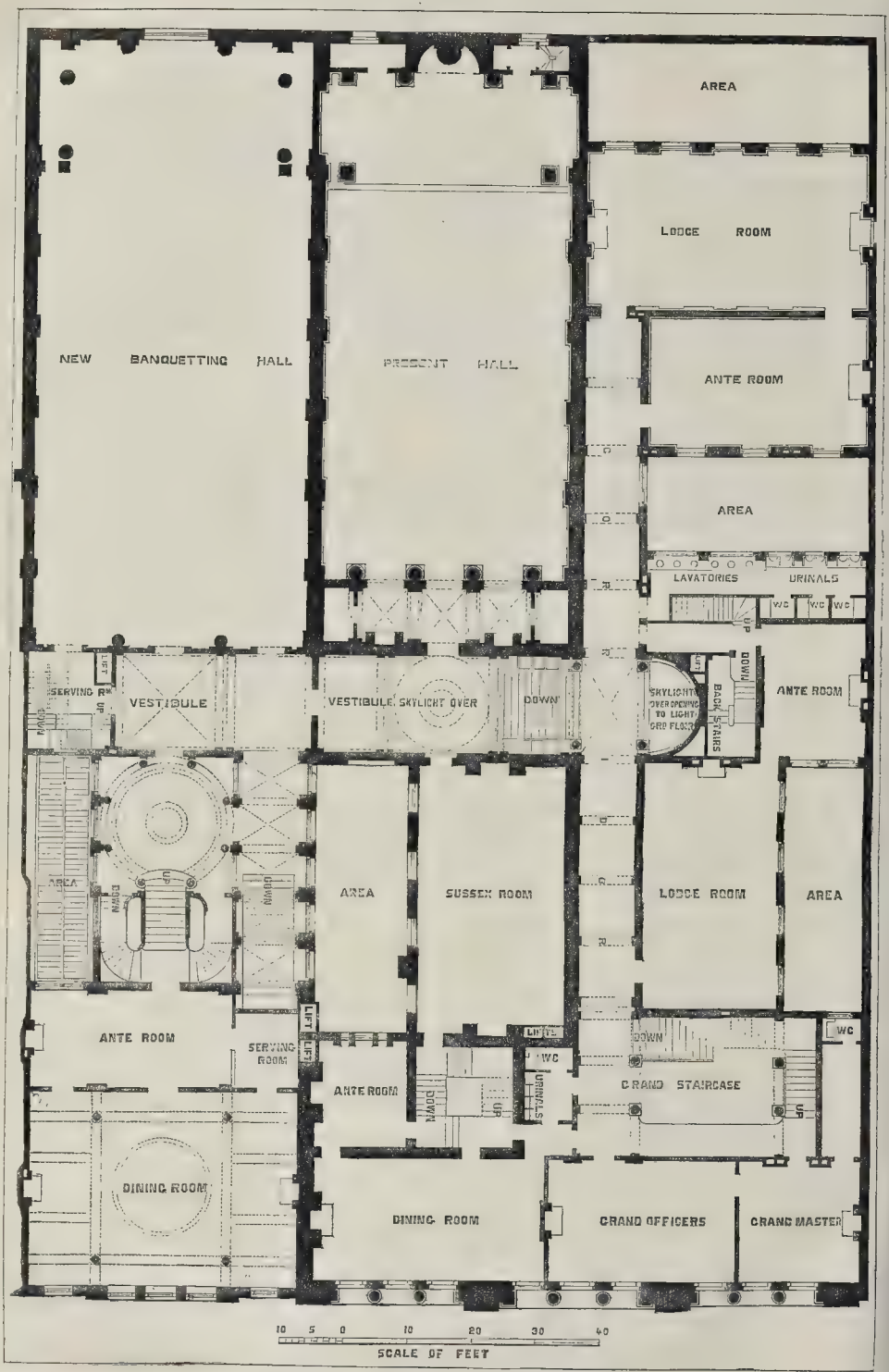
The Tavern will consist of a great hall, 96 ft. by 43 ft., and 45 ft. high, with a kitchen of the same area below it. The level of the hall floor being only 9 ft. above the ground-floor, there are only one dining-room and ante-room besides the staircase on this floor, the space between these and the hall being given to the servants' hall in the basement, which is, therefore, very lofty. The flight of steps leading from the entrance gives access to an ante-room or hall, with eight columns and a domed ceiling, and thence to a lobby, which embraces the ends of the two great halls. From this ante-room a staircase leads to a large dining-room and ante-room on the first-floor, and to another dining-room, 45 ft. by 43 ft., and 23 ft. high, exclusive of the dome in the centre. It also leads to an ante-room, and thence to the ladies' gallery. It is believed that no building in London will offer such large accommodation for public entertainments.*

Our engraving represents the fronts both of Freemasons' Hall and of the tavern. The former is entirely of Portland stone; the latter will be of red brick, with Portland stone dressings. The main lines will run through the two fronts, but the difference of material has been adopted as a distinction. The necessity of providing for the continuance of the tavern business has occasioned considerable delay in the progress of the work, which has been of necessity carried out in sections. The contractor is Mr. Rider, of Union-street, Borough. The carving, including the figures, was executed by Mr. W. G. Nicholl, the sculptor of the pediment of St. George's Hall, at Liverpool. The figures represent the Masonic attributes of Wisdom, Fidelity, Charity, and Strength or Union. Upon the archivolt of the arch are the signs of the Zodiac. The heads between the column caps represent the sun, the moon, and the five stars, upon a background of corn and vine and olive. Over the entrance doorway are seen the words, *Audi. Vide. Tace.* The initiated will discover a few Masonic emblems in other parts. Mr. F. P. Cockerell is the architect. The contract for the Masonic portion was 24,170*l.*; that for the tavern was 19,918*l.* 12s. 5d. The design was selected in open competition.

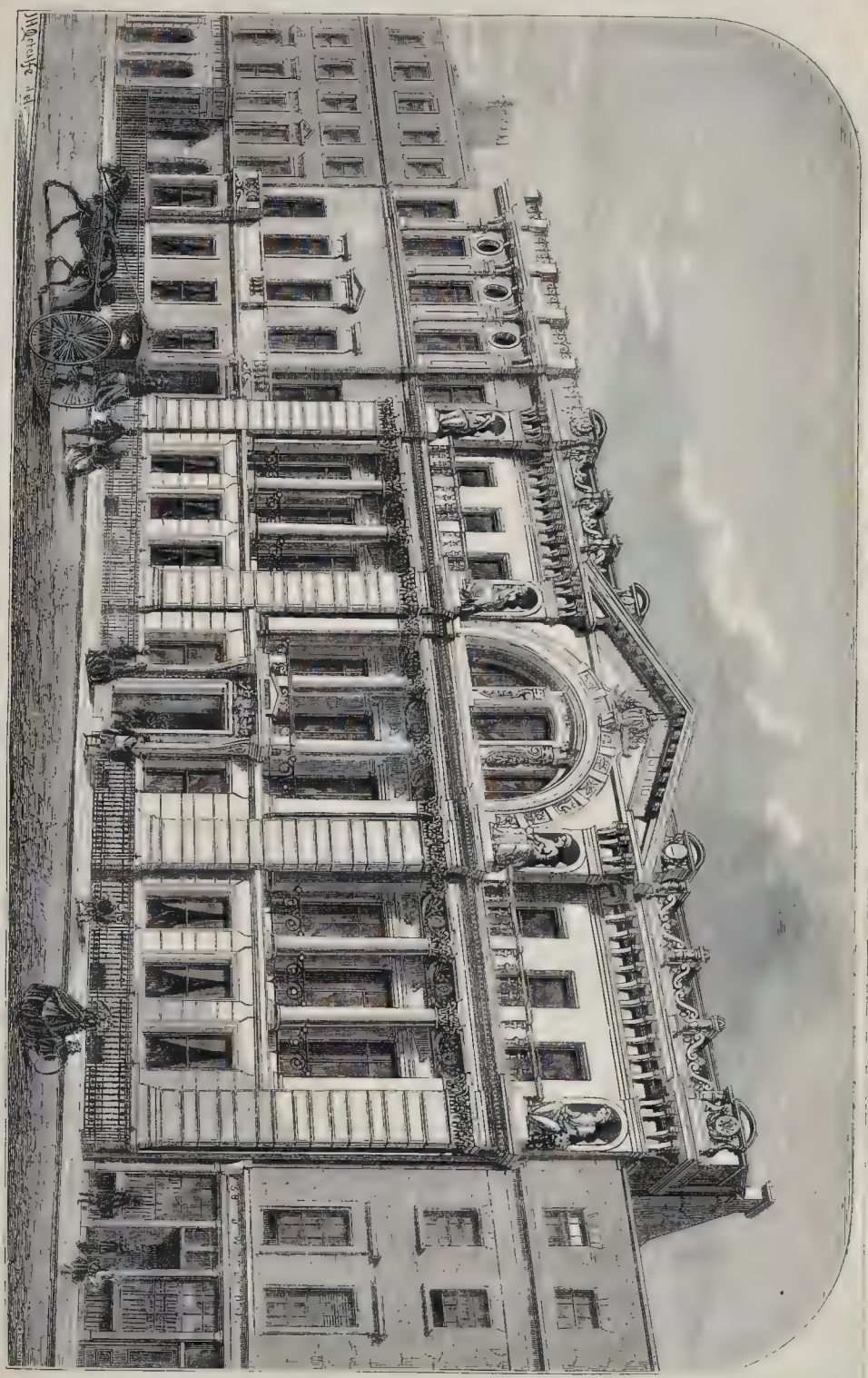
The front displays considerable originality, and there is much elegance in the details. We must congratulate Mr. Cockerell on his achievement.

* For particulars of the project we must refer to a pamphlet just published by Stanford, of Charing-cross, "On the future Water Supply of London." By G. W. Hemans, C.E., and R. Hassard, C.E.

* The want of a dining-hall in London where, say, 1,000 or 1,500 persons could dine together still remains unsupplied.



FREEMASONS' HALL, LONDON.—*Plan of Principal Floor.*



FREEMASONS' HALL, GREAT QUEEN STREET, LONDON.—MR. F. P. COCKERELL, ARCHITECT.

THE IMPROVEMENT IN NEW STREET, BIRMINGHAM.

A DIFFERENCE of opinion between the Town Council and Mr. W. Phillips as to the value of his property at the corner of New-street, about to be purchased by the Council under the powers given by the local Act, has led to an arbitration of the claim for compensation. The difference, by mutual consent, is being settled in a somewhat unusual way. Instead of the ordinary tiresome and expensive process, by which long examinations of numerous witnesses are followed by lengthy arguments from the legal representatives of the opposing parties, it was agreed that only two witnesses on each side should be examined. Those for Mr. Phillips—Messrs. E. Robins and J. E. Hornblower, both of London, surveyors—gave it as their opinion that 22¼ years' purchase, with one-third added on account of the sale being forced, in all 24,000*l.*, would be a fair price. They both said 50 per cent. was a common addition in railway purchases for forced sale. Mr. Wm. Fowler, examined for the Corporation, estimated the total amount to be paid as compensation, including one-third for the forced sale, at 13,600*l.*, whilst Mr. Thompson Plevins put it at 13,400*l.* For forced sale Mr. Plevins gave 10 per cent. as sufficient, but Mr. Fowler allowed one-third, or 33 per cent. The arbitrators are Mr. Richard Clarke, for the Corporation, and Mr. Jeremiah Mathews, for the claimant; whilst Mr. Chesshire, of the firm of Chesshire & Gibson, was appointed to act as umpire. The decision has not yet been published.

MONUMENTAL.

Statue of the late Lord Herbert.—A successful casting in bronze of Mr. Foley's statue of the late Lord Herbert of Lea, better known as Sidney Herbert, was recently made at the works of Messrs. Prince & Co., the "Phœnix" Foundry, Southwark. The figure is of colossal size, and is intended to be placed in the inclosure opposite the entrance to the War Office in Pall-mall. The statue was cast in one piece, and it took but 15 seconds to pour in the metal.

Monument to the late Mr. Sheridan Knowles.—A monument has been placed over the remains of the late Sheridan Knowles, in the Glasgow Necropolis. It has been erected by friends and former pupils of Mr. Knowles, who was at one time a teacher of elocution in Glasgow. The monument is situated on the highest part of the north end of the hill, and is in the form of a cenotaph. It is in the Italian style of architecture, and is built of fine durable sandstone, surmounted by a sarcophagus of grey polished Aberdeen granite. The entire height of the monument is upwards of 15 ft. It is about the same length at the base, which is 12 ft. broad. The cenotaph has 8 pilasters, 2 at each corner. These are decorated, and contain, surmounted by floral ornaments, heads of the principal characters of Mr. Knowles's dramas. These comprise William Tell and Emma, Virginius and his daughter Virginia, Master Walter and Julia, Caius Gracchus and his mother Cornelia. It is proposed to place a bronze medallion of the deceased in the princial part of the sarcophagus.

The Oastler Monument for Bradford.—This monument is progressing satisfactorily. It consists of a statue of the "Factory King," 10 ft. high, with a group of two factory children a boy and a girl, on the left of Mr. Oastler, looking up to their benefactor, who is in the attitude of addressing an audience, with the right hand outstretched and the left resting on the two factory children, as the representatives of the objects of his solicitude.

Monument to the late Duke of Wellington.—A monument has been erected by the Duke of Wellington and the tenantry of Strathfieldsaye, to the late duke, at a point on the estate some seven or eight miles from Reading. The monument at its base consists of three courses of steps, each 18 in. high, the bottom course being 30 ft. square. Next comes a plinth of dressed granite, also formed of three courses, 12 ft. square and 6 ft. high. Upon this plinth rests a moulded base, from which rises a square block of granite 9 ft. 6 in. high, and 7 ft. square, weighing 40 tons. This stone bears the inscriptions and is surmounted by a moulded cornice, from which springs a monolith column 30 ft. high and 3 ft. 6 in. in diameter, having a bronze base, and weighing 21 tons. Resting on this column, a composite capital of bronze, topped by four polished pieces of granite, forms the pedestal of the statue, which is 8 ft. 9 in. in height. The late duke is represented as wearing the uniform of a field-marshal, holding in his left hand the hat belonging to that rank, while his right rests on his hip. The monument, which is altogether 82 ft. high, has been erected by the Messrs. Freeman, proprietors of extensive granite quarries in Cornwall, in accordance with the designs of Baron Marochetti, under whose immediate supervision all the bronze work has been cast.

Monument to the late King of the Belgians.—The Queen having determined to erect a monument in St. George's Chapel, to the memory of the late King of the Belgians, the execution of the work has been intrusted to Miss Durant, who is already known to the public by various statues and busts. The clay model is completed. The king is represented as stretched on the bed of death, by the side of which lies crouched, but with head erect, the Belgian lion, on whose shaggy mane the right hand of the departing king has dropped and rests in quiet strength. On the other side of the couch stand two guardian angels, presenting two shields emblazoned with the arms of England and Belgium.

Memorial of the late Earl of Carlisle.—A meeting of subscribers to the fund for erecting this memorial has been held at York. The chair was occupied by the Earl of Zetland, lord-lieutenant of the North Riding. The subscriptions received were stated in the report to amount to about 2,450*l.* The most suitable site to be found was on an eminence known as Bulmer-hill, from whence a monument would be visible from the whole vale of York. Five architects were asked to send in designs, and the design of Mr. Cockerell, of London, having a large majority in its favour, was accordingly selected. This design, which was submitted to the meeting, is a large Doric column, decorated at the top with wreaths, and having at the base a flight of steps and four smaller columns, which will contain the arms of the late earl. On the motion of Sir D. Cayley, seconded by Mr. G. Baines, the report was adopted.

NEW MILITARY AND NAVAL INVENTIONS.

THE progress of warlike invention has already reduced a seven years' war to a seven days' one, and shortly, we hope, war will be impracticable even for seven hours, for by that time all the combatants on both sides will be dead. Another step or two has just been made towards this most desirable end of all war. Mr. Gale has been at the Royal Marine Barracks, Plymouth, displaying and explaining his new repeating firearm. He was introduced by Mr. W. Eastlake, deputy-judge-advocate of the fleet. The firearm was minutely examined and tested, and was the subject of unqualified approbation. It was shown to be possible to fire it eighty times a minute! and that this speed could be kept up for a period limited only by the industry (and the vitality) of the firer, and the extent of his supply of steel breech cases, into which the cartridge is placed. The arm is very simple in construction, and the barrel remarkably easy to clean, being open at both ends. The officers present warmly congratulated Mr. Gale on his invention. Mr. Gale also referred to his latest invention,—a grenade for use in naval actions, causing for half an hour or more an impenetrable fog in any desired locality.

ACCIDENTS.

AT Whitbread's Brewery, Chiswell-street, Finsbury, an accident has occurred, where a portion of their premises are being pulled down for re-building. Whilst the workmen were thus engaged, some of the walls were observed tottering to and fro; and when the brickwork fell it partially buried one man, both feet and legs being embedded in the rubbish. He was taken to St. Bartholomew's Hospital, where he lies in a very precarious state.

In Queen's Square, Hinckley, a ceiling has fallen in. Had this occurred a few hours earlier, when a man was in bed, he must have been crushed to death. We may here state that since a good trade has existed in Hinckley there seems a want of untenanted house property fit for people to live in. There is plenty of building land in the place, and those who hold it would do well to set the example of building new houses. Leicester-terrace is nearly completed.

At Shrewsbury, as some men were employed in pulling down the old King's Arms building, in Claremont-street, an accident occurred which nearly proved fatal to four men. It appears that the whole of the brickwork and plastering had been removed from the timber sheel-work, and the principal beams had been sawn asunder, and it was intended to attach ropes to the building, so as to pull it over, as has been the practice through the principal part of the demolitions now going on. Four men ascended to the top of the building, for the purpose of fastening the ropes, and were in the act of doing so, when the whole structure gave way beneath them, and swerved over, burying the poor fellows amongst the *débris*. One or two of them were found to be badly cut and pierced by the splinters, and were conveyed to the Infirmary.

At the Rotherham glass-works, whilst a joiner in the employ of Mr. John Gardner, joiner, Thornhill, was engaged along with his master, doing some work on the roof of the works, he fell through a door in the roof and broke his neck. An inquest was held, when the jury returned a verdict of "Accidental death."

At Campsey Ash, some bricks had fallen down a well, and Mr. Fulcher, of Wickham Market, builder, was employed to repair it. Fearing that the well was in a dangerous state, he did not proceed at once to put down his well tackle, but put down a 40 and a 20 staved ladder lashed together, for the purpose of proving the well. Whilst in the act of putting down these ladders and testing the sides of the well on which there was a projection, the feet of the ladder came in collision with this projection, and the brickwork all at once gave way in a vermicular form, and piled up the well to within 9 ft. of the surface. The 40 ft. ladder was pinned with the falling brickwork. The top ladder was unlashed, and about 11 staves of the 40-staved one recovered. The well was open, with buckets under a lean-to roof, and is about 40 ft. deep.

At Dambach, France, five new bells had just been christened preparatory to being placed in the tower of the new church, and one weighing about two tons was already hoisted to its place, when two iron bearers, to which it was attached, gave way, and it was precipitated from a height of 100 ft. to the ground. In its descent it broke through two floors in the building, on each of which a number of persons were assembled, and then fell on another bell, which was about to be hoisted, and both were shivered into pieces. Seven persons were injured, either by the fragments, or by being thrown from the floors in the tower, and one is in a dying state.

"THE DANGERS OF THE STREETS."

A RAILWAY traffic superintendent has forwarded to us a printed copy of "Suggestions in regard to the Regulation and Arrangement of the Street Traffic of the Metropolis" (McCorquodale & Co., printers, "The Armoury," Southwark). The chief points to which the superintendent calls attention are the crossing of streets by foot passengers, and the closing or blocking of streets for repairs. He makes some suggestions on these subjects which it would be well for the authorities to consider. The author, we believe, is Mr. J. P. Knight, traffic superintendent on the South-Eastern railway; and he brings his great experience on the subject of railway traffic to bear in a sensible and useful way upon that of street traffic. He recommends the establishment of semaphore signals at appointed and authorized crossing-places, and also at closed or partially blocked streets, to be under police management, and under certain regulations for the facilitation both of foot and wheel traffic.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE opening meeting of the Hastings Congress will be held there on Monday next, when the Earl of Chichester, as president, will deliver an address. An inspection of the Castle and other antiquities of the town, under the guidance of Mr. T. H. Cole, M.A., will follow, with a dinner, and evening meeting for papers and discussion. Papers have already been promised by Mr. J. R. Planché, "On the Bayeux Tapestry," also "On the Earls of Sussex;" by Mr. F. H.

Appach, M.A., "On the Landing of Julius Cæsar in Great Britain;" Mr. Thomas Wright, M.A., F.S.A., "On the Excavations of Pevensey Castle;" Mr. Edward Levien, M.A., F.S.A., "On the History of St. Mary's Collegiate Church in Hastings Castle;" Mr. M. A. Lower, M.A., F.S.A., "On the Battle-field of Hastings;" Mr. T. H. Cole, M.A., "On Hurstmonceux Castle," also "On some Antiquities of Hastings;" Mr. George R. Wright, F.S.A., "On Sir Anthony Brown, Standard-bearer to Henry VIII.;" Mr. Edward Roberts, F.S.A., "On Mayfield Palace," also "On Bayham Abbey;" Mr Gordon M. Hills, "On Battle Abbey;" Rev. F. A. Arnold, "On the Nine Months of Harold's Reign;" Mr. J. C. Savery, "On Bodiam Castle," also "On the Ironworks of Sussex;" Mr. W. J. Gant, "On Hastings Castle;" and Rev. Mackenzie Walcott, M.A., "A Day in a Cistercian Abbey, illustrative of Robertsbridge Abbey."

WORKMEN'S DWELLINGS AT LIÉGE.

The *Journal de Liége* states that the Society for Improving Artisans' Dwellings organised in that town has now in course of construction a row of twenty-one houses, and that a plot of ground containing 3,000 square mètres has recently been acquired for the erection of thirty more houses. Each house is detached, and has been built after a different design. Two of the houses contain two rooms on the ground floor, three on the first, and a similar number on the second floor. Five have two rooms on the ground floor, and two on the first floor; and the remaining fourteen have one on the ground floor and two on each story. Each house is furnished with a cellar, and has its own water supply, closet, cesspool, and a patch of garden. The buildings are stated to be everything that is desirable from a sanitary point of view; but the average cost is 170*l.* for each house.

A CONTRACTOR'S RIGHT ON THE PREMISES.

At the petty sessions in Aberystwith, Mr. T. W. Chester, builder of the new Congregational Chapel recently opened in this town, and who was one of the contractors for the extensive gaol works at Monigomery, was charged with assaulting one of his men employed on the chapel works. It appeared from the evidence that Mr. Chester ordered the complainant to do certain work, which he neglected doing, but, on the contrary, did something that one of the chapel committee ordered him. As the man persisted in his disobedience, Chester ordered him off, and when he did not comply, threw his tools over the wall, and, on the workman holding up his mallet in defiance, collared him and ejected him from the premises by force.

The Mayor said that, if a man trespassed on his premises and refused to leave, he believed he had an unquestionable right to use reasonable force in ejecting him. The case must therefore be dismissed.

PURIFICATION OF DRINKING-WATER.

In a reply to our remarks on his process, Mr. Bird says:—

"Bearing in mind that the liberation of the hydrated alumina from the tersulphate of aluminium is due to the presence of carbonate of lime in the water, the answer is that all terrestrial waters contain in a gallon *more* of this carbonate of lime than is necessary to set free the hydrated alumina contained in the twenty drops of the patent precipitant.

Hence, in your experiment, the first precipitate would contain all the defilement, and *would look brown or coloured more or less*; on adding another quantity, a fresh precipitate would fall, *which would then be a pearly white*, showing that the first operation had purified the water.

. . . . I may add, that the patent precipitant is an admirable test for any defilement which is of a carbonaceous character in drinking-water.* If the precipitate looks brown, or not quite white, the water requires purification; if, on the other hand, the precipitate is quite white, then is the water, *as a rule*, fit for drinking without further purification.

As it is probable that some of your readers would like to try the 'Patent Precipitant,' I have sent to your publisher an advertisemant, announcing where it can be obtained in London."

What we said was to the effect that the foul water used by us was not entirely cleared from its *brownish* precipitate till we had applied three times the quantity of the solution of tersulphate of alumina prescribed for the clearing of the Thames water from its organic contamination. Doubtless, in ordinary cases, the quantity prescribed may be sufficient, but in our case it was not so. Had the second precipitate been pearly white, we should have known that the first had sufficed to clear the water of its organic taint. Even the third precipitate, though whiter, was still slightly tinged with brown. The inference we draw from our experiment and Mr. Bird's explanation is, that though "as a rule" the quantity he prescribes may be sufficient, there are exceptional cases, and ours was one of these, in which more of the precipitant is required to clear water of its organic foulness than what is stated by Mr. Bird, and this should be pointed out in the instructions for its use.

* Another correspondent says much the same thing of permanganate of potash, or Condy's fluid.

ENGLISH PROTESTANT CHURCH, WILDBAD, WURTEMBERG.

The English church here was formally opened on the 6th of July, by the Bishop Coadjutor of Edinburgh. The church is built from the designs of Mr. Withers, architect, and is a simple parallelogram, under one roof, 64 ft. long, 18 ft. wide, the east end terminating in an apse. The nave proper contains seats for 100 adults, in low open benches. The ritual chancel is formed by a low stone screen, elevated upon two steps, a portion of the northern half of screen being raised to form a simple pulpit; the prayer-desk and lectern are eastward of the screen on the south side. The sanctuary is raised two more steps, and the altar stands on a footpace, with a carved reredos at back. The north-west doorway is planned to admit the entrance of invalid chairs to the west end of nave.

The walls and all dressings are of local stone, the roof covered with slate. Internally the roof is wagon-headed, boarded to soffit of rafters, with moulded ribs and tie-beam trusses. The passages are paved with local marbles, in patterns. The church is lighted by nine windows, of various forms and sizes, all having carved tracery in their heads. Two bells are hung in a western bell-gable, which is surmounted by a weathercook and cross. The style adopted is English Geometrical Decorated, and the cost will be nearly 1,560*l.*

STRIKE OF CARPENTERS AND JOINERS IN MANCHESTER.

A movement has taken place among the carpenters and joiners, which is likely to lead to a stoppage of the building trade of Manchester. A meeting of employers was held at the Clarence Hotel, Spring-gardens. Forty gentlemen were present, representing nearly every firm in the trade in this neighbourhood, when a resolution was unanimously passed approving of a circular which was drawn up, and which it was decided should be sent round to the men. It appears that the workmen on Saturday struck at the largest shop in the town, that of Messrs. Neill & Sons. The following is the circular:—

"*Clarence Hotel, Manchester, August* 13, 1866.

To the Operative Carpenters and Joiners of Manchester and Salford.

Gentlemen,—By a resolution of your body in public meeting assembled, you ordered and have carried into effect a strike against Mr. Joseph Thompson, and subsequently on Messrs. Robert Neill & Sons, to compel those gentlemen to raise their men's wages 2*s.* per week. This demand has been refused by every master in the town and neighbourhood, and a strike against the before-mentioned firms for such advance is virtually a strike against the whole, and is regarded as such by the Association of Master Builders. You are hereby informed and requested to take notice that, unless Messrs. Neill's and Mr. Thompson's men return to work on or before the 17th instant, the whole of the employers in this association will make common cause with them, and close their shops on the next pay-day until the dispute is settled. This association repeats the offer already made, to pay the advance next March, and submits the same to your serious re-consideration, in the hope that a general strike may yet be prevented.

Signed on behalf of the Master Builders' Association, William Edwards, chairman; Robert Neill, vice-chairman; David Cochran, vice-chairman; William Southern, treasurer; Edward Johnson, hon. sec."

NATIONAL MUSICAL EDUCATION.

At a meeting of the Society of Arts' Musical Education Committee, held on the 1st instant, the following minute was passed, and it has been received by the council:—

1. It appears from the evidence that the Royal Academies of Music of Paris, Brussels, and Naples furnish instances of highly successful institutions on an extensive scale, and present especially useful suggestions for the re-organization of the Royal Academy of Music. At Paris above 600 out-door students, selected from all parts of France, are educated; and at Naples between 200 and 300 students are trained. In both cases the education is gratuitous to the students, the expenses being paid by the State. At Brussels there are about 500 students whose expenses are defrayed partly by the State and partly by the municipalities.

2. The committee are of opinion that a National Academy for the United Kingdom, its colonies, and dependencies, should provide for the instruction of a certain number of students, supported by public funds, and a certain other number paying adequate fees. They consider that, at present, about 200 students might be fixed as a proper number to receive gratuitous training, and that of this number 100, selected by public competition, should be supported by public funds, disbursed under ministerial responsibility, the remainder, if possible, by colonial, municipal, or other corporate funds, and by private endowments and subscriptions. Arrangements should then be made to allow about 100 private students, in addition, to enter and pay adequate fees for their instruction; but this number ought not to be allowed to outgrow the number of students in training without very careful consideration of the responsible managers.

3. The committee are of opinion that, as our colonies and India send many young persons to this country for general education, it might reasonably be expected that they would be induced to send persons having musical gifts for musical education, if the training were as efficient as it might be.

4. So far as the committee are enabled to judge from the evidence, they consider that the cost of properly training 200 free students would be about 15,000*l.* sterling a year, being at an average rate of 75*l.* a year for each student. Out of this sum grants for maintenance, at varying rates, might be allowed to the students, in accordance with the system which is found to work so successfully in the Art Training Schools at South Kensington. Some students might hold scholarships without receiving any maintenance allowance; and the committee have reason to hope that private individuals will come forward and endow scholarships.

THE LEDBURY TOWN HALL.

Sir,—Permit me to request you to take notice of very suspicious proceedings either begun or about to begin at Ledbury. This town-hall is an exquisite specimen of old English half-timbered building. It is to be "restored" by a local architect. The windows are to be enlarged, the glazing is to be modernised,—both these will entirely destroy the proportions of the building, as conceived and intended by the old architect, who, of course, settled all such points as parts of his whole.

If you do not take care, we shall have more blundering here. I trust you will keep a sharp look out.

A. B. C.

ENGINEERING COMPETITIONS.

Sir,—In 1862 a corporation about to sewer a town of considerable size and difficulties to be contended with, request plans to be forwarded to them, and afterwards appoint an engineer to select.

This gentleman selects parts, and makes use of these plans and sections, and dodges the main outfall of mine a few yards to make one he called his own.

The plans, maps, and sections (specially prepared) *have never been returned*, although applied for at their offices. *Are not the corporation liable* for the value of these plans, *or what* seeing that they were expensively got up and finished. Has any similar case been tried?

N.B.—The works have not been proceeded with, and the line may not be adopted; but are the corporation not liable for *a sum* as the value of the plans used and not returned?

Victim.

CUMBERLAND BLACK LEAD.

Sir,—In your number of July 28th, you have an article headed, "Black Lead Pencils: the Borrowdale Wad Mine," wherein, it is presumed the mine is exhausted, and no lead or wad to be had. Such not being the fact, and having a property of many thousand pounds invested in the very article presumed to be out of existence, I respectfully request the insertion in your pages of the following facts:—

At the present time we hold something like twenty tons of pure Cumberland lead; and by the patented process, well known by all the pencil-makers as Brockedon's, and for which he obtained the Council Medal at the Exhibition, 1851, and for the exhibition of which we have space granted at the coming Exhibition in Paris, we have here been supplying it to the trade, and to the present hour, in its original strength, specific gravity, and free from grit. The genuine Cumberland lead may always be known by its silvery lustre and purity of colour, its peculiarly pleasant working, as well as its easy erasure with India rubber, qualities all wanting in the German and other imitations. The original mine has yet many chances, and will probably be worked again when the stock of pure Cumberland lead in hand is exhausted.

Your insertion of the above will oblige, as our attention was called to the article by several of our customers.

R. Edwards (for Messrs. Brockedon).

** We did not speak of the mine as being positively exhausted: on the contrary, we expressed a strong and favourable hope of its speedy resumption; and we certainly did not intimate that the stock of Cumberland lead was used up.

PROPOSED DECORATION OF ST. PANCRAS CHURCH.

Sir,—Judging by your correspondent's letter, the intended decoration of St. Pancras Church has not been decided in the most satisfactory manner. We shall feel obliged by your inserting the following letter, explaining the reason we declined competing.

We were of the "few" who had the pleasure of receiving an application desiring estimates for the work, which expressly desired the contractor to see the drawings showing the intended decoration, which we supposed had been prepared by a competent authorized person. We carefully measured the church, and, before making the estimate, applied at the office of the surveyor for the drawings. We were told we could not have them, and we did not see them; and that other competitors were preparing their estimates without.

We should have been much interested in decorating the

church in pure taste, and would willingly have submitted competitive designs if we had been asked; for, as the church is correct in proportion and in constructive detail, it is of the greatest consequence it should be so also in surface decoration. And as we, if successful, should have had to carry out designs we could not see, either to judge of the style of ornament or the quantity of the work, we declined competing for the same.

We hope it is placed under the superintendence of a competent person, and that the present opportunity of decorating one of the finest churches of its class will not terminate in failure. HAYWARD & PITMAN.

COMPETITION IN SHEFFIELD.

SIR,—The Sheffield Church Extension Society ask four local architects, whom they consider competent to carry out the work, to compete for a church at Harrow, near Sheffield.

It is supposed that they have already settled whom to give it to; but some of the committee, for a joke, want to see how many more pictures they can get, and so they advertise to "Architects," as if they were not already pledged.

How many will answer it? CANTAB.

WIDEN CHANCERY LANE.

AT the back of the houses in Old-square, Lincoln's-inn, Chancery-lane, is an iron railing standing out from the houses about 3 ft. Could not this railing be thrown back that space and added to the pavement? As it is, only one person can walk on that side of the road. The space now is sunk in some 3 ft., and is a receptacle of refuse. T. M.

FOOTPATHS.

A VERY good and economical footpath can be made, by first levelling the surface of the ground, and then laying a bed of concrete, made with shingle and Portland cement, finishing the surface with about half an inch of the best Portland cement and clean washed river sand. R. N.

IN answer to "Inquirer," I beg to say that asphalte and gravel make the best, and, in the end, cheapest path. It is hard, clean, dry, free from weeds, and durable. I wonder it is not more used. I suppose it is the common difficulty of getting people out of a groove. There is a specimen at Upper Norwood, and another near South Kensington Museum. P. E. M.

THE BORROWDALE LEAD MINE.

SIR,—I have read with much pleasure your article on the Borrowdale "wad mine;" and being a native here, and therefore knowing something of the subject, perhaps you will kindly accept from me the following additional facts respecting it:—

This wealthy black-lead mine excited the greedy to acts of dishonesty. One or two families in Keswick, indeed, were always accused of having increased their gains by receiving wad either pilfered from the rubbish-heap or by dishonest miners, who contrived to secrete pieces from time to time, although the greatest attention was paid to searching the men as they left the works.

Jews, you correctly state, used to come down from London periodically to buy up any plumbago which might be had. Very scrupulous were these people on points of ceremonial. They brought their own pans and domestic cooking utensils; and, in order that no Gentile should use them during their absence, they wrote in chalk on the inside certain words in Hebrew to hinder pollution. They were not so scrupulous, I regret to say, in buying up the wad.

When a wagon-load of lead was sent to London, within my remembrance, it was a great event. A great clumsy wagon, with four or six horses, used then to go from Keswick, owned by a well-known respectable carrier called Bill Jackson. Men from the mine walked on each side of the wagon, and with blunderbusses: of these I saw four at Mrs. Dixon's (the late agent's widow) yesterday, at Leathwaite. A curious story on this point is worth repeating:—While the black-lead was on the wagon in the Keswick warehouse, the men slept fully armed in order to guard the precious mineral. In the next house was a Dutch clock, which at every stroke deliberately sung out "Cuckoo." You know the Borrowdale people have been immortalized by Miss Martineau and other writers for their attempt to wall in the cuckoo, in order to ensure eternal spring. In those days they used to resent the repetition of the silly story, and would sometimes thrash the impertinent people who ventured to repeat it. On this occasion, one of the men on guard hearing the clock, supposed that some rude Keswickian was purposely insulting him, and threatened the supposed person that he would shoot him if he said that again. The clock very deliberately continued the obnoxious word, till Johnny, no longer able to restrain his indignation, fired his blunderbuss in the direction from which the sound proceeded. This being full against a brick partition, did no more damage than alarming the inmates. It is, I believe, from these and similar stories, that the Borrowdale men are celebrated in the traditionary lore of the Lake district, somewhat after the fashion of the wise men of Gotham.

J. F. C.

ST. JAMES'S PARK AND THE FOREIGN OFFICE.

SIR,—The *Builder* contains a view of the Park Front of the new Foreign Office, and it reminds me to call the attention of the proper authorities, through the medium of your extensively circulated journal, to the very clumsy, inartistic shape of the eastern enclosure of St. James's Park, in front of this imposing structure and the parade, the iron railing of which seems to have been put up so as to follow, without any attempt at improvement, the devious line of the posts and rails which formerly bounded the pathway.

I would suggest that the railing, from the south-east corner, where it joins the Birdcage-walk, to near the north-east corner, by the Admiralty-gardens, should be made a straight line parallel with and at a suitable distance from the west front of the new Foreign Office. This would make the exchange of quantity between the enclosure and the Parade-ground about equal, and give a more artistic feature to the whole. Government officials appear to me to sit much too lightly on the advantage of attending to such details (so much appreciated in Continental works), as evinced at Pimlico and Buckingham-gate, where, though the entire range of houses on the south side was removed, so as to give every possible facility to the forming a road from Grosvenor-place to Buckingham-gate, parallel with the Queen's stables and riding-house, until it met the line parallel to the south front of the palace; and though the line was made by a new substantial, handsome, expensive wall, it (the line) was most needlessly curved so as not to be parallel with the front of the riding-house, at a greater cost, and so as entirely to spoil the best features of the arrangement. X. Y. Z.

DEFENCE ASSOCIATION OF MASTER ENGINEERS, MILLWRIGHTS, MACHINE-MAKERS, AND IRONFOUNDERS.

SIR,—I dare say you will not object to mention that this Association has existed in Manchester for the last six months. The objects aimed at are, to enable the members to defend themselves when any unwarrantable demands are urged by the workmen in combination, and to secure unity of action when it becomes advisable for the employers to act together for the general benefit. This is effected by the adoption of a mutual agreement and engagement of the members to abstain from giving employment to workmen who are on strike against such employers as are members of the Association.

The system of sending "Inquiry of character notes" to the last employer of a workman immediately on engaging him, has been found very advantageous. The intention of the Association is "Defence, not Aggression," the rules having been framed primarily to protect against arbitrary demands originated by the trades unions.

Similar societies are being formed in the principal towns and localities of Lancashire, Cheshire, and Yorkshire, and the various branches will be organised into one great Association, working in concert.

LANCASHIRE.

ENGINEERS' ACTIONS.

Hogarth v. *Carrick*.—This was an action (at Guildford) by one civil engineer against another, to recover the balance of a sum claimed for certain plans, &c., furnished with a view to the support of a railway Bill before Parliament.

The claim was for making by the plaintiff, at the defendant's request, the usual Parliamentary surveys, drawings, and estimates of the projected lines of railway and branches running from the North Kent Railway to Erith, in the county of Kent, to the Tunbridge line of the South-Eastern Railway near Orpington, in the same county. The amount of charge was, as agreed, 200*l.*; deduct cash received on account, 135*l.*—balance, 65*l.*

The defence in substance was, that there was an error in the plans with reference to the "levels," which it was said would have been fatal had the Bill been proceeded with. In point of fact it was not proceeded with, and so the question as to the effect of the error did not arise. The Bill was opposed by the London, Chatham, and Dover Company, and upon other and broader grounds of opposition, and in the result the Bill was withdrawn. Nevertheless, as will have been seen, the greater part of the money had been paid for the plans, and the case for the plaintiff was that the error was only made an excuse for not paying the residue.

The Judge (Willes), in summing up the case to the jury, said the law was, beyond all doubt, that if an error made the work wholly useless the party could not recover for it. And there was no doubt that it was the duty of the plaintiff to have made the plans correctly, and in compliance with the standing orders. In other words, the plaintiff was bound to do the work in such a way that it should be fit for the only purpose for which it was required. His case, in effect, was that the circumstances of the present case took it out of the operation of the general rule of law, and that the error was of no practical importance, and had been waived, so that it did not preclude him from recovering. Whether this was so or not was for the jury.

Verdict for the plaintiff—65*l.*

PROVINCIAL NEWS.

Wellington.—The new covered markets have been formally opened. They have been erected from plans furnished by Mr. Bidlake, of Wolverhampton, architect; and the work has been done by Messrs. Trow & Sons, of Wednesbury. The buildings occupy an area of 110 ft. frontage towards Butcher's-lane, now Market-street, by a depth of 186 ft. towards New roads, on the sides laid out by the company, and entirely covered in by a series of span roofs, running from east to west, whereby a northern light is secured, and the strong rays of the sun prevented from penetrating the market. Sky-lights, glazed with rough plate-glass, are carried quite across the market, and louvre ventilators, for a free current of air, are placed immediately under. A free drinking-fountain is fixed in the centre of the market. The style of the building is Italian, and the materials red Donnington brick, with dressings of Hollington stone. The total cost, when completed, will amount to about 10,000*l.* The new Town-hall, not yet completed, will be 60 ft. long by 41 ft. 6 in. wide, with ante-rooms. It is also projected to erect a corn exchange, for the use of farmers, corn-dealers, and others, of the district.

Preston.—The corner-stone of a new infirmary has been laid by the mayor of the borough. It is estimated, says the *Manchester Courier*, that the building will cost 12,000*l.*, and it is intended to raise 10,000*l.* as an endowment fund; and all the recent improvements in hospital construction have been embodied in the plans including, it is stated, "recommendations from Miss Nightingale, Mr. Roberton, of Manchester, and Mr. Godwin." The building, adds our authority, is to be styled the Preston and County of Lancaster Royal Infirmary.

Oxford.—A wrought-iron lattice girder bridge for foot passengers has been placed across the river at Medley, for the convenience of persons crossing from the strip of land running from the centre of the stream to the Botley Turnpike, and also for those in Port Meadow. It spans the whole of the navigable portion of the river, above the lock. It consists of one span, 69 ft. in length, and 5 ft. in width. It rises in the centre to a height of nearly 10 ft. above the low water line, so as to enable house boats to pass beneath. The navigation on that part of the river is now confined to pleasure boats. The structure was designed by Mr. James Castle, Engineer of the Upper Thames, and has been carried out by Mr. John Pinchbeck, of the Reading Iron Works Company.

Clifton.—The new almshouses about to be erected and endowed at Berkeley-place, by Mr. T. W. Hill, of Stoneleigh House, Clifton Park, are to be built in the Gothic style of the latter end of the sixteenth century. The plans, drawn by Mr. Hansom, give accommodation for twelve inmates, there being six rooms on the ground-floor and six upstairs.

Warrington.—The town council have recently leased land for the erection of a new town-hall in Rylands-street (the centre of the town). The structure is to contain the session-room, bridewell, public offices, &c.

CHURCH-BUILDING NEWS.

Feckenham.—The church is undergoing a restoration. Mr. Day, of Worcester, furnished plans and superintends the work; and Mr. Nelson, of the same city, is the builder engaged on the building. The most important alterations have been made in the nave. At the west end, and underneath the belfry, the vestry formerly stood. A gallery, in which was the organ, occupied the west end, and extended round the north side. This gallery has been removed, and the old vestry thrown into the church, thus exposing to view a large window at the west end, which it is hoped to fill with stained glass. The gallery on the north side still remains, but this will also be taken down when a district church or chapel of ease is built, as is projected, either at Astwood-bank or Hunt-end. The roof of the nave now corresponds in design with that of the chancel, comprising open timber-work of stained oak, resting on carved corbels, each representing an angel holding some musical instrument. The walls have been renovated, and the windows furnished with new tracery, &c. A vestry has been built on the north side of the tower. Before the work can be said to be completed, the church must be repewed. The vicar, in addition to his taking the lead in the restorations, presented to the church a short time since a new organ. The old tower is square, large, and low, with a pinnacle at each corner. This part of the building is also marked for restoration. The principal, and in fact only, doorway to the nave has a new archway of stone and wood, and new double doors have been added. The church is to be heated with pipes. The entrance to the belfry passes by the new vestry, and access to the bells is obtained by several steep ascents, instead of, as is now the case in many churches, by winding stairs. Externally, the renovated nave has now an improved appearance. The roofs and main portion of the walls are new, and the tiling parti-coloured but subdued. Large spouts are added, and drains cut to carry off the water, and thus keep the walls dry. About 700*l.* have been already expended in the restorations, and it is intended to spend some 300*l.* more, a portion of which is still required.

Hanley.—The chief stone of a new church has been laid at Shelton Church. The new chancel, which forms a portion of certain alterations undertaken by the parishioners, will be erected at the cost of the rector. The pews in the church are to be replaced by open benches of appropriate design: the floor is to be relaid with stone and red and black Staffordshire tiles, with borders of encaustic tiles; the whole of the stone work of the interior will be cleared of the plaster which now covers it; the pulpit will be removed, and a new pulpit and reading-desk of oak will be placed in their proper positions; the galleries in the first two bays from the chancel on either side will be removed, and the seats of the next bays turned towards the chancel; the organ will be removed from the west gallery to a chamber in the chancel arch; the choir will be placed in the chancel; the roof will be decorated in colour and white diaper; and appropriate texts of Scripture on labels will be inserted over the arches and piers of the nave. The rebuilding of the chancel is the principal work. This part will be brought out to the extent of 22 ft., and the new chancel will be 36 ft. long by 28 ft. wide. A low screen wall of stone, prepared for a future metal or wooden screen, will divide the chancel from the main body of the church. The form of the additional building is apsidal or semi-decagon, with a banded shaft at each angle and carved capitals, from which spring moulded principals, meeting in a central carved boss, which, together with the purlins and rafters, will be of English oak. The heads of the windows will be filled with geometric tracery in two orders of moulding, alternately circles and triangles, foliated with pierced cuspings; each shaft, as proposed, being glazed with stained glass. On the exterior will be pinnacled buttresses to each bay, with open pierced parapets, and between the windows will be shafted columns, with moulded caps and bases, and the apex of the roof will be surmounted by a wrought-iron foliated cross. The whole of the alterations are designed by Messrs. Scrivener & Son, architects, Hanley, who will superintend their execution. The contracts for the building of the chancel and the reseating of the church, the cost of the former being 1,500*l.*, and that of the latter 1,045*l.*, have been let to Mr. J. Steele, of Hanley; the decoration of the interior, the contract for which is 155*l.*, is placed in the hands of Mr. Jos. Scarratt, of Hanley; and the fittings of the chancel, with the pulpit and reading-desk, all of oak, are being executed by Messrs. Rattee & Kett, of Cambridge. The cost of the whole of the alterations will be about 3,000*l.*, one half of which is borne by the rector, and the remainder will be paid for by public subscription.

Stowe.—The chancel of Stowe church, situated near Chartley Castle, having been restored at the sole cost of Mr. J. P. Fitz-Gerald, the lay rector, the church has been re-opened for divine service. The north wall has been partially rebuilt, and the whole repaired. The flat plastered ceiling has been replaced by an open timbered roof. The principals have tie beams at the wall-plate line, curved rafters springing from plain stone corbels, octagonal king-posts and curved struts. The roof is covered with tiles laid on diagonal boarding wrought on the under side, the whole of the roof timber being stained and varnished. The old fittings have been replaced by oak stalls, the ends of which are surmounted by carved poppy-heads. The pulpit, which is placed in the north-east angle of the nave, has a moulded Caen stone base, the upper portion being of oak. The windows have been re-leaded and re-glazed with cathedral glass, excepting a small semicircular-headed window on the south side, which is filled in with stained glass, containing a figure of John the Baptist. The chancel is laid with red and black, and the communion space with encaustic tiles. The small stained glass window alluded to is the gift of the architect, Mr. W. G. Habershon, of the firm of Habershon & Pite, of London, under whose direction the work has been carried out by Mr. C. Espley, of Stafford, builder, at the cost of about 500*l.*

Handsworth. — The spire of St. Michael's Church has been completed, together with alterations in the interior. The tower and spire have been built from the designs of Mr. W. Bourne, of Dudley, by Mr. Wilson, of Handsworth; and the total height from the ground is 165 ft. The work has cost 1,500*l.* In the interior an east window has been erected, by Messrs. Hardman, at a cost of 270*l.* This window consists of five lights, with tracery. The passion and death of our Saviour are the subjects chosen for illustration. Other alterations have been made in the church. The panels of the stone reredos have been filled with slabs of alabaster, separated by pillars of red Devonshire marble; and the emblems of the passion of our Saviour have been painted and gilt thereon. The pulpit has also been decorated.

Books Received.

Description and Defence of the Restorations of the Exterior of Lincoln Cathedral, with a Comparative Examination of the Restoration of other Cathedrals, Parish Churches, &c. By J. C. Buckler, Architect. London: Rivingtons. 1866.

A few years ago, when it was asserted that the exterior of Lincoln Cathedral was being improperly treated by those to whom its restoration was confided, we printed in our columns some letters objecting to the proceedings. The correctness of the statements was denied, and it being made evident that the works were under the direction of a well-known architect and antiquary, Mr. Buckler, who asserted positively that the necessary repairs were being done with scrupulous care, we declined on a more recent occasion to insert a reiteration of the charges. It was assertion against assertion, and it is evident that outsiders cannot have so complete a knowledge of the circumstances as the architect actually employed, and giving constant attention to the matter. Members of the medical profession in this country are endeavouring, and pretty successfully, too, to prove each other ignoramuses, and to show that they know nothing of what they profess to teach. We are not at all anxious to aid in a similar exhibition of architects. It is, at any rate, very desirable that architects, before they interfere between other architects and their clients, should be thoroughly well informed of all the circumstances of the case, and, even then, move with the greatest consideration.

Mr. Buckler, in the octavo volume he has published, of 286 pages, can only, so far as Lincoln is concerned, do as he had previously done, namely, deny in the strongest terms the truth of the injurious assertions:—

"Fidelity, honesty, and precision [he says] are enforced in the execution of the restorations at Lincoln. These, within and without, are unostentatious: they seek not applause. They are doing good to the fabric; making it, as far as they extend, such as it once was, and fitting to be acknowledged by future generations as an unalloyed monument of antiquity. Its glories will still be those of its founders: its exquisite architecture will have nothing to frown upon as surreptitious and intrusive. The pride of the mason is to do his duty in his work to the satisfaction of his employers, and for the benefit of the cathedral. That he is unlettered is not his fault: it is his praise that he is conscientious in the fulfilment of the obligations of his rightful calling.

The statements in the preceding extracts from his written reports are borne out and fully justified by the evidence which has been given by intelligent and candid observers for years past. The success of the system is too well confirmed to be disparaged, or faith in its value shaken by the feeble and indirect assaults of meddling querists."

But as this is not sufficient to appease his displeasure, he turns on Professor Scott, to whom mainly he attributes the attack upon himself, and upbraids him, in unqualified terms, through the greater part of his book as a destroyer:—

"Mr. G. G. Scott is not the right sort of friend to ancient churches; their walls groan under his prescriptions and his operations; death and destruction to antiquities follow his footsteps in many more instances than can be enumerated on the present occasion. He is not unaware of this fact, and while he is lecturing youth upon the sin of injuring a 'bemossed' stone, rushing from place to place, writing up the value of fifteenth century scraps of architecture, and telling the *Times* of his zeal, his prowess, and his power, he meditates havoc among the churches in other quarters, as shall be proved by his sign manual."

The removal of the chapel on Wakefield Bridge, of Doncaster church tower, the clerestory of St. Mary's, Stafford, and of other remains, is thrown at him right and left, with many choice epithets; he does not "understand his subject;" "his first operation in restoring is to sweep away everything," "crowbars and pickaxes are his instruments," and "he cannot endure that Lincoln Minster should be treated more considerately," at least so says Mr. Buckler. With another architect who published a condemnatory letter he is shorter, but not less decisive. Part of the charge was with reference to the capitals of the north entrance in the west front of the minster, and Mr. Buckler thus writes,—

"The sculptures are valuable, and Mr. G. G. Scott made a point of bringing them into notice with great ceremony, terminating with a prophecy which has signally failed. Of these admirable objects of the sculptor's chisel, Mr. G. G. Scott says, '*the capitals are sufficiently sound if left to themselves, but I see plainly that their substance is clinkered and softened below the surface, so that if the scraping process is applied their value will be utterly destroyed.*' The writer's observations, more close and attentive, led him to a different conclusion; and now that the sculptures are released from their defilements, Mr. G. E. Street daringly asserts that they have been *re-cut*: these are his words—'*The capitals of this door have been to a large extent recut, and not by skilful hands, so that their architectural value is entirely destroyed.*' If there were a syllable of truth in this statement, Mr. Street ought to have proved it by reference to the signs of reworked capitals,—signs which could not be effaced from any of the members above and below connected with them. This, among many other shameless assertions, has placed Mr. Street out of court, and no farther notice will be taken of his sweeping invectives. He who tosses ancient architecture to the right and to the left, and maltreats and disfigures with architectural coxcombery the remains he states, must needs exhibit his ecclesiological veracity at Lincoln."

The tone of the dispute is anything but agreeable.

Some Account of the Mediæval Organ Case still existing at Old Radnor, South Wales. By F. Heathcote Sutton, M.A., Vicar of Theddingworth. London: Hatchard & Co. 1866.

Organs of the Gothic period are very rare things; that at Old Radnor, here illustrated by the Rev. F. H. Sutton, can scarcely be called one of them. It belongs apparently to the seventeenth century, though the lowest portion of it, with openings that show purely Gothic tracery, may be earlier. Altogether it appears to be the earliest known in this country, and Mr. Sutton has done good service by making it known. It is doubtless arranged after the Mediæval manner, and is formed and decorated on the right principle. As Mr. Sutton points out, there is an excellent arrangement at the back of the instrument, which would always be found useful in cased organs. This consists of large folding shutters, which open so as to allow the pipes to be tuned,

and any needful repairs to be done, without unscrewing, or taking any part of the case to pieces. It is hardly necessary to remind the reader what a great advantage such an arrangement must be. Any one who has seen an organ tuned must have noticed what a troublesome process it often is; the difficulty of getting at the pipes being frequently an almost insuperable obstacle to putting them properly in tune.

There is also another arrangement, in the plan of this organ, which might be adopted where needful and possible with great advantage, by which ample space is secured for the bellows (a very important point in organ building). For this purpose the lower part of the case is made to project into the aisle, at the back of the organ, 2 ft. or 3 ft. This allows of any room that may be required for the lungs of the instrument, without in any way spoiling its appearance in the chancel of the church. It is a mere wreck at present, without its pipes and machinery.

As an Appendix, Mr. Sutton gives some suggestions, and fifteen etchings illustrative of the construction of Gothic organs. We recommend the book to the consideration of architects and organ builders.

VARIORUM.

The *Bombay Builder* is to be continued, and the No. for July has been issued.——The (Calcutta) *Engineer's Journal* for May last contains two long articles reprinted from our pages without the slightest acknowledgment in either case. We make no objection to the reproduction of our articles,—quite the reverse,—we never have objected to our contemporaries all over the world taking "for nothing" articles that cost us much money;—all we ask for, and indeed must insist on, is an acknowledgment of the source.

Miscellanea.

The Mont Cenis Railway.—The shareholders of the limited company for carrying this line over the Mont Cenis Pass have held their first general meeting. From the report of the directors it appears that the works are in active progress, and will probably be completed on the 1st of May, 1867. There are nearly 2,000 men at work on the line.

Bursting of a Water-conduit at Stoke Newington.—On Wednesday, the main conduit which leads from the New River Company's Water Works, Green Lanes, Stoke Newington, to their reservoir at Pentonville-hill, burst close to the engine-house at the former place. At a distance of some 50 yards from the works, the main is laid in the garden fronting the residence of the manager of the company, and it is here where it is embedded but a few feet in the earth that the accident occurred. The water flooded several houses and gardens, broke down a wall, and stripped the road of gravel for at least an eighth of a mile. An opening was made into the main sewer, and this materially checked the force of the current till the water was turned off. It is stated that a defect in the metal was the cause of the accident. A new length of main was soon inserted, so that no public inconvenience might be felt from any temporary short supply of water.

Accident with a Race Stand at Wolverhampton.—While the chief stakes were being run for at the Wolverhampton races, a temporary stand, near the jail, gave way, with 500 persons standing on it, seriously maiming several of them, and more or less injuring others. The two galleries that fell were made to accommodate about 600 persons. They were formed of five bearers, 15 ft. long and 3 in. in thickness, by 9 in. in width, fastened at a high elevation to uprights of the same dimensions, and resting principally on barrels at the lower end. Across these seven rows of seats were placed. Between the higher and lower elevation the beams had no support, and they are supposed to have given way in the centre. The beams were fastened to the uprights with nails and by ropes. In consequence of there being no centre support a police-officer declared to the chief proprietor while it was being put up that it was not safe without such supports, upon which it was promised that supports would be added. The occurrence shows the necessity of supervision in the erection of such stands, as we have before often urged.

Scottish Vandalism.—Excursionists from Glasgow to Burns's monument at Ayr have carried away the back of one of the monument chairs, on which are a series of paintings illustrative of the poet's works, by Stevens. On Monday week, after a large party had left the grounds, it was found that an attempt had been made to enter the glass case containing the few relics of Burns that are in the monument.—*Glasgow Daily Herald.*

Testimonial to Mr. Newton, of the Metropolitan Board of Works.—A number of gentlemen connected with the Metropolitan Board and the vestries of Mile End and adjoining parishes have presented to Mr. Newton an epergne in silver, a complete dinner service of plate, and a purse containing 500 guineas. The centre piece of plate bore upon it the inscription,—"This testimonial was presented to William Newton, Esq., by a large circle of friends, as a sterling proof of their appreciation of his three years' consecutive service as churchwarden of Stepney, and their gratitude for improvements in the east of London, which, as representative of Mile-end Old Town at the Metropolitan Board of Works, he, by his ability, energy, and perseverance, effectually promoted." Sir J. Thwaites, who represented the Board at the presentation dinner, referred to the value of the local improvements which Mr. Newton had aided in carrying into effect, particularising the new street from Whitechapel to the Commercial-road.

Opening of a New Theatre in Stockton.—The Stockton new theatre has been opened. The building, which is of oblong shape, stands in Yarm-lane, at the south end of the town, and is easy of access. The length from back to front is 110 ft.; breadth, 76 ft.; and care has been taken to have the edifice easy of egress in case of fire or other casualty. No definite style of architecture has been adopted. The edifice is built of red brick, with freestone dressings. There will be sitting room for 1,700 persons. The fronts of the boxes and the gallery are ornamented in *cartonpierre*, variously coloured. The ceiling is divided into eight panels in *cartonpierre*, and coloured in peach blossom and straw. The sunlight in the centre, surrounded by glass pendants, has 117 jets. The proscenium arch from the floor to the stage is 24 ft. The stage is 50 ft. in breadth, and 38 feet in depth. The edifice is expected to cost between 5,000*l.* and 6,000*l.*, and is built by a company on the limited liability principle, in shares of 10*l.* each. The architects were Messrs. J. Potts & Sons, of Sunderland; contractor for the building, Mr. T. Bowdon, of Stockton; the decorations were by Messrs. Jackson & Son, of London; the stage and its appliances, by Mr. W. Jones, of London; decorative painting, Mr. G. F. Allan, Stockton; stage gas-fittings, by Messrs. J. Jones & Co.; sunlight, by Messrs. Strodes & Co., London; the whole under the superintendence of Mr. William Clephan, of Stockton, architect.

Trades Movement.—The great strike in the iron trade still continues. In addition to 12,000 men out of employment on the Tees and throughout Durham and Northumberland, by a strike in the manufactured iron trade, 2,000 or 3,000 more have just turned out, in connexion with smelting or blasting, against the proposed reduction of 10 per cent. in their wages.——There has been a collision between French and English navvies, in the neighbourhood of Cowden, near the Edenbridge Station, East Sussex. It appears that the French engineers employed by the contractors, Messrs. Waring, Brothers, have engaged some 500 French navvies, to compete with the English navvies (about the same number), who were earning 6*s.* per day, the Frenchmen engaging to work for 4*s.* per day, and some even as low as 2*s.* 4*d.* This led to the Englishmen attacking a farmhouse in which the French were lodged, and turning them, and their wives and children, out of the house in their bedclothes. One poor woman, who had been confined about a fortnight previously, pleaded hard that she should remain in the house, but they turned her out with the rest. The Frenchmen fled to the Edenbridge Station, where they were protected by the police, and where they will remain until orders are received from the Home Secretary how they are to be disposed of. One English navvy was taken up at the Petty Sessions, Tonbridge, charged with unlawfully assaulting and beating a French navvy, name unknown, who did not appear to prosecute. Prisoner was remanded.

Restoration of an Ancient Abbey.—The ceremony of reconsecrating the ancient abbey of St. Michel, on the coast of Brittany, has just taken place, and was attended by a large number of high ecclesiastics.

A Panoramic Photograph.—A mode of getting a correct representation of an actual battle, landscape, &c., in a panoramic form, has been suggested in Paris. The main feature of the arrangement is a revolving cylinder, with a vertical slit in it, through which the images enter, and are thrown on a photographic medium properly sensitised.

The Reading Drainage.—The local Board of Health have appointed the borough surveyor, Mr. W. H. Woodman, to act as their surveyor in preparing a scheme of sewerage for the district, to be submitted to some eminent engineer. The surveyor is also to see whether a supply of pure water could not be combined with the drainage system.

Bronze Coin for Italy.—The government of Italy have just given Messrs. Ralph and Heaton & Sons, of the Mint, Birmingham, orders to proceed with a further supply of bronze coin for that country. Part is to be coined at Birmingham, and the remainder at the mint of Milan and Naples. This additional quantity of about 1,200 tons is to be delivered as quickly as possible.

Astley's Theatre.—Mr. Ryder, one of our best actors, seems to have a special aptitude for producing young actresses. Miss Sophie Young, under whose management Astley's is now open for a short season, is evidently one of these, and plays a long and arduous part in a new version of "Lady Audley's Secret," with much intelligence and grace. The piece is altogether very well acted, and Mr. Brew has painted for it some effective scenery.

Drinking Fountains for the Poor.—The committee of the association for providing free drinking-fountains have within the last ten days set up seven new fountains in the metropolis; of these five are in Mile-end, one in Clerkenwell, and one in Brompton. They have also made a proposal to the parochial authorities to erect a fountain in Broad-street, Golden-square, in lieu of the pump which now exists there, and the water of which has been condemned as unfit for drinking purposes.

Utilization of the Cheltenham Sewage.—In reply to an advertisement of the Local Board of Commissioners, Mr. Latham, C.E., of Croydon, has offered to take the town sewage, and to relieve the commissioners of all responsibility respecting it, provided he can find land on suitable terms, and that the Board in consideration of a payment of 300*l.* a year for the sewage should exercise their powers to enable the contractor to carry the pipes to any given point at the expense of the latter; and that the contractor should have the power of abandoning the contract at the end of seven, fourteen, twenty-one, or twenty-eight years. To negotiate with Mr. Latham, a select committee was appointed.

The Prince of Wales's Norfolk Seat.—Sandringham House is at length to be made more worthy and more compatible with the wants of the household of the Prince of Wales; the erection of the first wing of the new building, with which the present house will be incorporated, having been commenced by the Messrs. Goggs. An altar tomb, in white marble, has been placed in the churchyard in the park by order of his Royal Highness the Prince of Wales, in memory of the late rector. The inscription is in letters of solid lead, and is as follows:—"M. S. George Browne Moxon, 39 years rector of Sandringham and Babingley; died, Jan. 28, 1866, in the 72nd year of his age.—Albertus Edouardus, P. In memoriam possuit."

The New Waterworks for Malton.—The ceremony of turning the first sod of the reservoir on Castle Howard road, which is to hold the future supply of water for Malton and Norton, has been performed by Mr. J. Hopkins, the borough bailiff of Malton. Mr. Easton, C.E., of London, has prepared a scheme by which Malton and Norton are to be supplied by pumping the water from the Lady Spring, near Malton. The works have been let as follows:—Reservoir and mains, Messrs. Naylor & Company, Cleckheaton; well and buildings, Mr. Baron, Norton; engines, Messrs. Carret & Co., Leeds; rails, pipes, &c., Messrs. Hopkin, Gilkes, & Co., Middlesbrough, &c. The contracts amount to 4,000*l.*, a considerable amount within the estimated cost.

South Kensington Museum. — The visitors during the week ending 11th August were on Monday, Tuesday, and Saturday, 11,581 in number; to the National Portrait Exhibition, by payment, 6,259; schools at 1s. per 30, 1,199.

Reclamation of Land and the Scour of Rivers.—A correspondent says: I understand a company has been organized for the purpose of reclaiming the great area of mud, many thousand acres in extent, which lies within the limits of Foaty Bay, Cork harbour. Is a waste of slob beneficial to the scour of a river? If so, would the benefit to the scour be so great as to be a serious obstacle to the reclamation of the waste?

The New Law Courts.—An Act of Parliament has just been issued, to amend the Acts relating to the intended Courts of Justice. The object of the statute (desirability of which we had mentioned) is to enable the commissioners to apply the public money to the purchase of land adjacent to lands described, for the widening of Carey-street, for improving the access of light and air to the intended building for the Courts of Justice, and other purposes.

The "Prix Mathilde" for Architecture. Princess Mathilde has just established a prize for the Central School of Architecture, in which she takes interest. It is to be called the "Prix Mathilde," and was announced in the following letter:—

"Wishing to encourage the efforts of the young men who form a part of the establishment under your direction, I have resolved to found an annual prize, to be given to the pupil of the school who shall have gained the most credit in the different examinations during the whole period of his studies. The prize is to be awarded on the judgment of your council of direction, and is to consist of a gold medal. I am happy in thus associating myself with the persons who, by their initiative, contributed to found in France a school so useful to the progress of art."

Cholera Hospitals. — A report of the Council of the Epidemiological Society on cholera hospitals has been printed, by authority of the society. From this report it appears that the council have consulted many eminent physicians and others as to the subject of cholera hospitals; and from the replies received the council conclude that it is not advisable to admit cholera patients into the ordinary wards of general hospitals or infirmaries; but that they can be safely admitted into special wards, due precautions being taken; and that special hospitals ought to be also provided, as well as places of refuge for the unattacked inmates of unwholesome dwellings and localities where the disease has appeared.

Hyaline Bricks.—Sir,—The refuse of dust-yards could with facility be converted into durable bricks, by utilizing broken bricks, tiles, pottery, clinkers, flints, chalk, stone chips, coke, &c. A portion thrown into an iron mould (usual size), then dipped into a caldron of molten glass (broken bottles, &c.), it would interseminate and combine, thus forming a valuable brick out of rubbish. They would be ready for use in a few moments. The abundance of "stuff" in every town where bricks are required, removes the expense of carriage. No drying, stacking, burning, or waiting for the weather.—R. T. *** These would be expensive products, nevertheless. A proposition for making bricks of slag from iron furnaces has been often mooted in our pages.

The New National Gallery Act.—On Saturday the new Act to "enlarge and improve" the National Gallery was printed. A site has been acquired in St. Martin's-place, and part of the workhouse of St. Martin's-in-the-Fields. The property in St. Martin's-place, including the Provident Institution, belongs to the Crown, and the same is to be valued, and the amount paid to the Commissioners of Woods and Forests. The Commissioners of Public Works are to carry out the Act, and a plan of the lands to be taken is to be opened at their office to inspection on the payment of one shilling. A sum of 67,000*l.* has been agreed upon for the workhouse, and one-third of the amount is to be paid within one month of the passing of the Act, and the guardians are to have the use of the place until October, 1868. The compulsory purchases are to be made within five years, and should, in the execution of the works, any human remains be discovered or tombstones, they are to be decently removed under the directions of the Bishop of London. After the payment of one-third of the purchase-money for the workhouse the same is to vest in the Crown.

Louth.—The foundation stone of the new town-hall has been laid by the Mayor with some ceremonial, wound up by an entertainment given by the Mayor to the Aldermen and Councilmen, and shared in by the public at so much a-head.

The Locomotive Manufacture at Newcastle-upon-Tyne.—It is estimated that since the commencement of the manufacture of locomotives in Newcastle nearly 3,000 of them have been made in that district, and of these upwards of 1,000 have been exported. Taking the average cost at 2,000*l.* each, it would result that the value of this branch of manufacture to Newcastle alone has been not less than 6,000,000*l.*

Value of Property at the West-end.—The mansion, No. 15, Portman-square, with the wing building, forming part of the house, and the building in the rear, with spacious stabling, the gates opening into Portman-mews North, the residence and property of the late Lord Rivers, held of the Portman estate for a term of which only eighteen years will be unexpired at Michaelmas next — at ground rents amounting to 59*l.* 18s. 6d. per annum—was sold, by Messrs. Foster, of Pall-mall, for the sum of 10,800*l.*, the fixtures to be taken by valuation. The Duke of Leeds was the purchaser.

The Scheme for the Drainage of the Don Valley. — A conference has taken place at Masborough, of representatives of the municipal bodies of Sheffield, Rotherham, and Doncaster, on the proposed scheme for the drainage of the Don valley. The report of Messrs. Fowler and Bazalgette was discussed at great length, and from Doncaster one or two objections were stated. It was considered by the deputation from that town, that the proposed sewer ought not to be an open but a covered one below Doncaster, as they feared that the effluvia from the sewage would create a nuisance in the neighbourhood, and injure the property of the corporation, through which it will pass for some distance. A second proposition was that Sheffield should pay the greater part of the cost. A suggestion was thrown out that if Barnsley continued to send its sewage into the Don, that river would be to a considerable extent still foul; and great importance was attached to securing the co-operation of that town. Reference was also made to Chesterfield, but it was remarked that the sewage of that town might be very properly utilised "at home." It was finally resolved, "That this meeting entertains a very favourable opinion of the scheme of drainage as laid down in the report of Messrs. Fowler and Bazalgette, and expresses a hope that all parties interested may be willing to co-operate in carrying out the scheme."

New Buildings at South Kensington. — A correspondence which has taken place between the Treasury and the Science and Art Department in regard to new buildings at South Kensington has been issued. In a letter dated 5th of December last, the Vice-President of the Privy Council submits to the Secretary of the Treasury plans and estimates of buildings, to cost altogether, including those erected since 1860, 481,027*l.* This sum will include all exterior sculptures and decorations, but not pictures and mosaics. He points out that the museum, if completed according to the present plan, will probably be the cheapest building of architectural pretensions ever erected in this country. It will cost only about 9d. per cubic foot; the British Museum having cost 1s. 6d., the Royal Exchange 11d., and the New Houses of Parliament between 2s. and 3s. per cubic foot. The sums which have been voted since 1860 for the new buildings at South Kensington already amount to 99,000*l.*, leaving a balance of 382,070*l.* To this sum should be added 10 per cent. for contingencies, say 38,000*l.*, making a total estimate of 420,070*l.* for completing the works as proposed. A modified plan, however, had been proposed, which would provide for the probable wants of the Department for a considerable time, omitting certain portions which are among the most decorated, and therefore the most costly parts of the building. The portions in this modified plan which it was proposed should be proceeded with were estimated to cost 220,000*l.* On the 20th the Treasury intimated their approval of the scheme, but requesting further modifications, and ultimately by a letter, dated 24th May, gave their formal sanction to a proposal to expend 195,000*l.* during the ensuing six years.

The New Railway Bridge at Battersea.—The great railway bridge across the Thames at Battersea has been officially tested by Captain Tyler, on the part of the Board of Trade, and is ready to be opened for public traffic.

Sugar from Coal.—We have heard of sugar from saw-dust before, but now it is said that a chemist has extracted from coal a substance chemically undistinguishable from sugar. He has named it "phenoze."

TENDERS

For two villa residences proposed to be erected for Mr. Double, at Wimbledon, Surrey. Mr. C. Foster, architect:—

Waters	£1,200 0 0
Batchelor	1,156 0 0
Crouch	990 0 0
Thring	945 0 0
Nichol	910 0 0
Starkie	907 0 0
Newberry	900 0 0
Wicks	899 0 0
Davy	875 0 0

For alterations and repairs to the Free Methodist Church, Charlotte-street, Islington. Mr. S. C. Rogers, architect:—

Williams & Son	£1,017 0 0
Dove, Brothers	955 0 0
Carter & Sons	892 0 0
Sargeant	878 0 0

For building vicarage-house, Llanfihangel-y-Croyddin, Cardiganshire. Mr. Withers, architect:—

T. Davies	£1,760 0 0
James	1,708 10 4
Edwards	1,696 0 6
Williams	1,652 10 0
Lumley	1,648 2 5
Chester	1,488 0 0
C. J. Davies	1,485 10 7

For building vicarage-house, Llanfihangel-y-Croyddin, Cardiganshire. Mr. Withers, architect:—

Chester	£1,649 0 0
Williams	1,541 10 0
Davies	1,212 2 2
Jones	1,090 0 0

For building vicarage-house, Nantcwulle, Cardiganshire. Mr. Withers, architect:—

Jones	£1,076 10 0
Davies	1,049 8 0
Jones	985 0 0

For addition of bell-turret to Blakedown Church. Mr. Smalman Smith, architect:—

Haffner	£178 0 0
Binnian (accepted)	168 0 0

For the Junior Carlton Club-house, Pall-mall. Mr. David Brandon, architect. Quantities supplied by Mr. Jas. Schofield and Messrs. Gardiner & Bell:—

Cubitt & Co.	£37,561 0 0
Smith & Co.	37,346 0 0
Mansfield, Price, & Co.	36,878 0 0
I'Anson, Brothers	36,333 0 0
Trollope & Sons	35,743 0 0
Lucas, Brothers	35,646 0 0

For the erection of three houses, Kent-street, Borough, for the Rev. J. C. Clark. Mr. R. Parris, architect:—

West (accepted)	£646 0 0

For the erection of a music-hall at the Star and Garter, Neckinger-road, Bermondsey, for Mr. Marks. Mr. Stewart, architect:—

West (accepted)	£393 0 0

For house and shop in Kingsland-road. Mr. G. Nice, architect. Quantities by Mr. Ladds:—

Browne & Robinson	£1,718 0 0
Piper & Wheeler	1,706 0 0
Henshaw	1,695 0 0
Simms & Marten	1,677 0 0
Conder	1,670 0 0

For alterations at 103, Westminster-bridge-road, for Mr. Beacham. Mr. R. Parris, architect:—

Bottomly	£498 0 0
George	431 0 0
West (accepted)	412 0 0

For the erection of seven cottages, Jamaica Level, Rotherhithe, and alterations of others, for Mr. J. Cornick. Mr. D. Gylby, architect:—

	Cottages.	Alterations.
Gillett & Wisbey	£1,045 0 0	£105 0 0
Clarke	970 0 0	70 0 0
Allen	910 0 0	73 7 0
West (accepted)	893 0 0	69 0 0

For the erection of a villa residence at Seven-oaks-road, Tonbridge, for Mr. George Lachlan. Messrs. Wimble & Taylor, architects:—

	House.	Stables, &c.
Chalklin & Son	£2,147 0 0	£320 0 0
Killby	2,050 0 0	345 0 0
Hart	2,029 0 0	350 0 0
Simms & Marten	1,962 0 0	329 0 0
Punnett & Son	1,930 0 0	289 0 0
Grinstead	1,931 9 3	332 18 0
Anscomb	1,880 0 0	327 0 0

For house at Dulwich Wood Park, for Mr. A. G. Findlay. Mr. H. Blackwell, architect:—

Tunewell (accepted)	£1,173 0 0

For the erection of a pair of villa residences at Bromley, Kent, for Mr. J. Wilks. Mr. W. Barret, architect:—

Roffey (accepted)	£1,733 0 0

The Builder.

VOL. XXIV.—No. 1229.

Hastings Congress of British Archæological Association

ON Monday last, the Mayor of Hastings and the Corporation of the Borough received the members of the British Archæological Association in the Town-hall, if such a hole as it is deserve the name, and the Mayor, in a few hearty words, welcomed them to the town, the more so as it was the eighth centenary of the great battle in this neighbourhood which changed the ruling power in England.

The Earl of Chichester, as president of the congress, then addressed the meeting. He had no intention, he said, to occupy much of the time of the Association, which would be better employed in listening to the interesting information to be given by gentlemen learned in archæology who were to favour them with papers. It would have been a pleasure to him, not only as president of the Association, but as owner of the ancient castle of Hastings, to have entertained the congress there; but unfortunately it was not in a condition fitted for dispensing hospitality; there was not even a kitchen left. He did not profess to be a working bee in the archæological hive, but he had always taken a great interest in it, and valued much the honey which the working bees (for whom he entertained a great respect) brought home. Every one who studied history must value such labours, for they gave us insight into the inner life and character of our ancestors; and this was the real object of history, for it improved our knowledge of human nature. His lordship alluded to some prominent points of interest in the neighbourhood, especially to the battle-field of eight centuries since, and said that the Dowager Lady Webster had a large collection of interesting relics of the field, which she would be happy to allow any of the members to see.

Mr. Godwin, in proposing, as a vice-president of the Association, a vote of thanks to Lord Chichester, referred to the series of works to be found in Sussex from the camps of the Britons to the marvellous watering-places of the present day; eulogised the Sussex Archæological Society; and said he looked to see some county histories more worthy of the name than many of those that existed, grow out of the labours of the various cognate societies.

Mr. Planché, Somerset Herald, having seconded the motion, it was carried with acclamation. So, too, was a vote of thanks to the Mayor, proposed by Mr. A. Goldsmid; and this being done, the members went round the town to view its antiquities. Hastings, though an ancient place (the terminating *Ing* marks it as a Saxon settlement), has few remains, besides the Castle, that possess much interest. Some few of the old houses, half-timbered, with brick chimney stacks, are picturesque. On the front of one is a date oddly expressed, which may mean 1610, and has the Pelham buckle above and between two I's or two I's. The tower of St. Clement's Church retains two balls left in it by the combined French and Dutch fleet in 1720. All Saints', as many of our readers know, is capitally placed, and forms a considerable ornament to the outskirt of the town. It is in a miserable state of dilapidation and disfigurement, and ought to receive immediate attention. If the parish to which it belongs be too poor to set this building properly in order, the other parishes should aid it. The whole town is interested in keeping up its antiquities. This and a decent town-hall should be amongst the first works of the borough. Mr. W. J. Gant gave a few particulars of the Church; and Dr. Greenhill spoke of the parish registers. These date from 1527, if we remember the figures rightly,—at any rate, from the first half of the sixteenth century. The scoundrel Titus Oates was christened here. The house in which he was born had been previously looked at. Infamy and fame get jumbled up by time.

The East Cliff was visited, together with the embankment, that has been thought, erroneously we should say, to mark the place of William's camp before his army left for Battle,—which word, by the way, may be read with two meanings. On this hill, and near the sea, is a plot of ground which belongs to All Saints' Church; and to the west of this place, on the extreme south-west point of the hill, Mr. Ross, some years since, made excavations which resulted in his unearthing the remains of a wall and tower, and a number of human skeletons, at two different elevations, those at the lower lying on charcoal, and with each skull resting on an oyster-shell. Large nails were also found with them. After looking at the "Mercers' Bank," and the "Lady's Parlour," the band of inquirers reached the Castle, and were received by Lord Chichester. Mr. Gant gave a few particulars, and seemed to suggest that some of the remains were Roman. This, however, was properly demurred to by Mr. Edward Roberts, F.S.A., and others. There was a "castle" there before William came, but this might have been only earthworks. Mr. Godwin added, that he had examined the whole of the walls pretty carefully, and had not found the slightest evidence of Roman work. He had seen one or two masons' marks on the earliest parts some time ago, and these were Norman. Mr. T. H. Cole, M.A., and Mr. Levien, M.A., also took part in the conversation. The remains of the chapel excited, as usual, much discussion. The chancel arch was built up some years ago, exceedingly well as a matter of masonry, under the direction of the late Mr. Kay, architect, out of remains found on the spot. The piers, *in situ*, would seem to be Transition Norman; the arch above of somewhat later date.

At the dinner afterwards Lord Chichester presided, and one or two speeches were made. In the evening, Mr. Robertson, M.P., presiding,

Mr. Planché, Somerset Herald, read a paper on "The Bayeux Tapestry," which was illustrated by a full-sized drawing of the tapestry, and afforded extreme gratification. We shall print it in full in our next number. A discussion ensued, in which the chairman, the Mayor of Hastings, Mr. Roberts, Mr. Godwin, and others took part.

The party were well received on Tuesday by the Mayor at Rye and the Mayor at Winchelsea. Mr. Slade Butler, F.S.A., at the former place, and Captain Curteis Stileman at the latter, acted as *ciceroni*, and showed all the antiquities. Some discussions occurred at the Church in Winchelsea, as a record gives 1460 as the date of the north aisle, while the windows are late Geometric Decorated, and the same as in the south aisle. The tombs, the canopies of which it was pointed out were like those at Aldworth, in Berks, were, of course, much admired. The Mayor of Winchelsea gave refreshment, as did also Captain Stileman, at his charming residence the "Friary." Some notes of both these most interesting towns, Rye and Winchelsea, will be found in earlier volumes of our journal.

Papers were read at night, after returning to Hastings, Sir S. Scott in the chair, and to which we may return.

Wednesday was devoted to Mayfield Palace, where Mr. Roberts was guide; and we shall best use the space at our disposal by giving the pith of his discourse.

Mayfield.

The publications of the Sussex Archæological Society which contain not merely a documentary history, as far as at present has been ascertained, of this palace of the Archbishops of Canterbury, but, scattered throughout the many excellent volumes of the "Collections," many collateral notices of the place and persons, leave little to be done in that direction; but there are still some points not cleared up which I hope, by further search amongst other records, to ascertain.

There are besides no complete drawings nor any detailed notices of the remains except incidental to other subjects, and the Sussex Society has not yet made a visit to the spot. Under these circumstances I have undertaken an investigation, and trust that, although I may advance little that is new as regards one of the most interesting of dwellings, and one so well known, you will be gratified with an inspection made under more favourable circumstances than persons have enjoyed previously, and with accurate plans before you.

It may be stated generally that all residences, whether purely castles or purely domestic, partook very much of the same character during all the period known as Mediæval; indeed, the earlier domestic buildings were necessarily defensible. In this palace, however, there is an absence of every appearance of defence, except in the strong, though not lofty, inclosing wall, parts of which are still as good and perfect as when first built, and in the somewhat more castellated appearance of the gate-house. Even churches and monasteries were not unlikely to undergo sieges,—the towers of the former in early times being probably a refuge for the inhabitants, and in the latter the manorial powers were more peacefully exercised than by the warlike secular lords. This palace, as I have said, exhibits none of these characteristics, and shows the peacefulness of the times and security of this part of the country in the days of the Edwards. That it was not wholly defenceless may be gathered from the fact, that a piece of ordnance now lies in the forecourt which was taken from the tower; and although this is of the seventeenth century, yet it may be argued that some previous kind of defensive arrangement was deemed necessary. There were, however, other enemies than warlike ones, for a serious fire occurred in the town in 1389, by which the church and great part of the town were destroyed. It does not appear, however to have extended to the palace.

Of the history as given by Mr. Henry Rosehurst Hoare, to which I must refer, I need only give some leading points, and I need not here discuss it: some small matters occur in which I draw different conclusions. It appears from that paper and some others that nothing is known about the builders of the structure which now exists. Some inferences are drawn from certain accounts of large expenditures of money; and it will be seen that, by induction from the stones themselves, I come to the conclusion nearly identical with Mr. Hoare's,—thus, reasoning from opposite bases, we meet at the same point.

It is shown that as far back as 988 there was a palace of St. Dunstan's here, called Maghefield-place, and from that time until the reign of Henry VIII. there was an ecclesiastical palace. There were councils held here many times in the

early part of the fourteenth century before the era of the present hall. There were also regal guests repeatedly in the thirteenth century, with considerable preparations for the entertainment of these guests and their retainers, of whom a modern prelate or nobleman, or even the Queen herself, would be heartily ashamed now-a-days if they allowed either themselves or their hosts to be troubled with them. There appear, however, occasionally to have been some scruples, for we find recorded some items in the royal expenditure such as this:—"*Pro damno in domibus suis et curtilagio suo.*"

This occurs in the time when King Edward I. was guest at Mayfield of one Arnold de Uckfield, to whom the compensation was paid. It is quite clear, however, from the same entry, that the king did not on that occasion lodge at the old palace, and that there were other important houses near.

The place is said to have been a favourite residence of the archbishops, and, viewing the beautiful country around and through which we pass, this cannot surprise us,—though we must make allowance, also, for the change of the face of the country by reason of the clearing of the forest and the increased acreage of cultivated land. It also would appear that they were not unfavourable to dying there, for three are recorded to have ended their lives in the palace, including Simon Islip, who was Archbishop of Canterbury from 1349 to 1366, and to whom we owe the present hall, as well as some other buildings which, until I made the discovery a few days ago, were not known to exist: these I will point out as we go round the palace. It appears that he resided here in 1350, when he must have made arrangements for the alteration and rebuilding; the hall dating from 1350 to 1360.

There are, moreover, some still earlier portions and remnants dating from about 1200 to 1300; and these are the earliest signs I have been able to discover.

I may here mention the present mode of spelling the name, Mayfield. This is merely a phonetic mode of rendering that which has always been pronounced so, though spelt Maghefield. Without giving you instances, it will be clear that there are many similar examples of the silent *g*. We get an explanation in No. 6,344 of the additional MSS. British Museum, where it is said to correspond with also Welsh and Irish. The same thing occurs at Bayham, which was originally spelt Begham. As regards the descriptions of the buildings which have preceded mine, I must, kindly I hope, protest against the indiscriminate adoption of still earlier accounts which are not trustworthy, without any verification, thus perpetuating errors which the slightest examination would prevent; and this occurs even in that otherwise excellent paper the most recent on the subject.

Before, however, I proceed to give you a detailed description, which will be, as we proceed, over the buildings, I will refer to some recent changes and royal visits.

Archbishop Cranmer, in 1545, exchanged the palace with Henry VIII. By him it was granted to Sir Ewart North, and by sales it came to the hands of Sir Thomas Gresham. A date carved on the chimney-piece in the room which is popularly known as Queen Elizabeth's room, 1371, has been supposed to be intended for 1571. I think the grasshoppers in medallions on the same chimney-piece point to the fact that it was fitted up by Sir Thomas, and probably in 1571, as he was then occupying the mansion, and two years after received a visit from Queen Elizabeth.

The buildings may, in general terms, be said to consist of a great hall lying nearly east and west, with the retainers' department on the west, and the archbishop's on the east, with the culinary offices and cellars beneath. There is, of course, an imputation of an underground passage, though in this instance it is said to be to the church adjacent. I assume that as usual some system of sewerage has given rise to the statement. I cannot do more than point to some masonry underground, beyond which is a modern brick vault, which I am told extends to a considerable length outside the wall under the churchyard.

There has not been a chapel discovered, but on an examination, and perhaps with a predetermination to find one,—for I am persuaded no mansion of this character was without it,—I have fixed on a spot towards the north-east of the ruins. My reasons for fixing on that as the chapel are, that it is accessible by three different ways, and that the window is slightly more ornate, and placed much too high from the floor of the apartment for any other purpose than placing an altar beneath it.

The buildings have been, as usual, made use of as a quarry: many portions were standing within a century. The modern house next to the Gatehouse, on the west, was erected from the materials, and the master builder received as a payment the Gatehouse itself in lieu of money.

Commencing with the Great Hall, which is about 70 ft. by 39 ft., I must point out to you the differences there are between the present roof and that which must have been originally placed over it. There is, no doubt, great difficulty in determining what that roof was, because the form of the walling surmounting the stone ribs points either to a clerestory on the same principle as is adopted in modern railway sheds, or the ceiling was boarded, giving a slope on each side, and a flat centre part. That there was some kind of floor or joisting at one end is certain, for photographs and drawings, going back for a century, show a series of holes for timber at the west end. My own opinion is that there could not have been a room over the middle part, and therefore that there was a kind of dormer or clerestory, instead of what was called a funorel for the escape of smoke; a cone, perhaps, for light; for it is certain, too, that all the windows were furnished with shutters, and their lower parts were without glass, there being no grooves, and there are special appliances for preventing the rain from penetrating below the shutters when closed. Glass was a valuable commodity, and was packed away, when the owner was away, with as great care as is exercised in modern houses with regard to valuables.

The dais had an unusual feature—namely, a throne attached to the wall; the diaper work of the back remains. There are two ways to the offices, one to the kitchen, and another to the cellars: the latter has always been called a cupboard, but I will show you that the end of it is a modern wall, and that there was a continuation beyond, so that the cellarer could enter without passing through or near the archbishop's own door.

There was formerly a north door as well as a south or main door: this led to buildings which extended to some distance for the retinue. Probably there were two galleries at the west end of the hall.

The changes which have been made at the west end and tower prevent my giving any opinion, as I was not previously acquainted with the ruins. There are some cupboards which probably were used for putting away some of the table appliances below the salt. It has been called the buttery, but it is not likely that that office would be detached from both cellar and kitchen. I am not, however, prepared to say that it might not have been so used in connexion with the destroyed part northwards. I will point out the great kitchen, buttery, and offices, the grand staircase, the presence chamber, a great parlour, and the withdrawing room, with the newly-discovered early window, which has been concealed for a century. The partition is modern, and I have omitted it, as well as all modern walls from my plans. The whole of the chambers and rooms communicate, and may be said to encircle an inner court. Some additions have been made for private use, and for additional facilities of getting about. All these buildings, except the early portion named, are of the fifteenth century (Tudor).

There was a large and handsome park to the north, and we can see the inevitable fish-ponds still.

The buildings have been recently restored, and Mr. Roberts was complimentary to the architect employed. Thursday was to be given to Battle Abbey—Mr. Gordon M. Hills conducting,—and to Robertsbridge Abbey. Amongst the members and visitors attending the meeting, in addition to those already named, are Sir Sibbald Scott, Sir Charles Broughton, Professor and Mrs. Willis, Mr. E. M. Ward, R.A., Mr. and Mrs. S. C. Hall, Mr. Hannah, Mr. G. G. Adams, Mr. Habershon, Mr. T. Hare, Mr. Teniswood, Mr. H. Godwin, F.S.A. (of Newbury), Mr. W. Poole King (of Bristol), Mr. Lang (of Bristol), Mr. C. Whiting, Alderman Ross, the Vicar of All Saints, and many others: Mr. G. R. Wright, F.S.A., conducting the excursions, efficiently as usual.

The London, Brighton, and South Coast Railway Company, or rather the directors thereof, have not won golden opinions of the Association. When asked to allow return tickets to last a week, as always given on such occasions by other companies, they declined to do more than grant tickets for four days,—an absurd offer, which was, of course, declined, as it would have broken up the congress before its time. Later in the week, too, the directors withdrew the permission they had previously given, that the Association might have a special train, to be paid for, of course, for the excursion to Lewes and back.

VISIT TO A KESWICK PENCIL-MILL.*

We must tell our readers, if they have never taken a tour through the English lakes, and stayed to admire the beauties of the town of Keswick, that there is still a pleasure in store for them — a green spot which is still fresh and unoccupied. They will see a charming and romantic stretch of mountain and lake scenery; a picturesque yet quaint old English market-town; a modern railway hotel of great excellence in its resources, and, what is more, of rare moderation in its charges: these material circumstances, enhanced by the pure and salubrious mountain atmosphere, will give their spiritual nature an invigorating impulse, and render them more in love with their species and with their country.

Situated in the beautiful valley of Derwentwater, and under the very shadow of Skiddaw who rears his snowy peaks to an elevation of more than 3,000 ft., watered by the gentle Greta, where Southey loved to dwell, and cheered by the murmuring ripples of the silver lake there is no place, perhaps, in England, where a pure lover of the picturesque in nature can be so fully gratified. To the painter and the poet such a luxuriant feast is not often vouchsafed—even under Italian skies.

Whatever there is of beauty special to the other districts is here in ripest fullness. Crag and fell; the evidence of the mountain top and the secrets of the dale; gentle river and bawling stream; the turbulent ghyll and the grander force; the lake hiding itself away in bays, starred with water-lilies and blue with lobelia, or dashing round rocky promontories, where it beats up in waves that are almost billows in the heavy winds of winter, or bossed with islands endowed by legends and beautified by poems: distant prospects leading down to the dark blue sea and over to Cumberland's old enemy, Scotland, beyond; and home-views across one's own garden that touch the heart like the face of a fair child: nothing is wanting, and nothing is left unfinished, as where the hills rise up only as a kind of hood at the head but wander off into undeveloped fells at the foot—here they are set all round the vale in equal majesty—a rampart or a crown, as one's mood would phrase it.†

Our intention, however, is not at present to describe the lovely landscape nor to chronicle its associations. This duty we must consign to the charge of Eliza Lynn Linton — who, we believe, is native there, and to the manner born. For the present our business is more of a utilitarian character.

In a previous article we described the circumstances which contributed to make Keswick the seat of the pencil trade.‡ We now propose to describe that trade itself from the point of view with which we set out.

Pencils, we should explain, however, did not always constitute the staple manufacture of Keswick. During the principal part of last century the woollen manufacture was the chief occupation of the place. Keswick, indeed, was at one time the emporium of the woollen trade for Cumberland; and its yarns and cloths also formed a considerable item of exportation to the neighbouring towns of Westmoreland. It was, we suppose, with the pious intention of securing this trade to the town that the following legend was composed, which is cut in large clear letters in a flagstone, and is built into the wall over the entrance to the Greta pencil-mill:—

"May God Almighty grant his aid
To Keswick and its woollen trade!"

It is a delicate subject in these days of cattle plague and cholera morbus—when the highest authorities are at variance with respect to the reasonableness and duty of intercessory prayers for the averting of calamity—but it is our duty

* See p. 657, *ante*.
† "The Lake Country," by E. Lynn Linton, London, 4to, 1864, p. 19.
‡ See p. 657, *ante*.

as honest chroniclers to tell the truth. During the early part of the present century the woollen trade began to decline; it was undersold, in fact, by Yorkshire and Lancashire manufacturers; the construction of railways gave it a fatal and irrecoverable blow; and now at the period of our visit it is almost, if not altogether extinguished. So true is the proverb "*L'homme propose, mais Dieu dispose!*"

But another trade of at least equal importance sprang up to succeed it—the trade of manufacturing black-lead pencils from the plumbago of the Borrowdale mine. As we have stated, this trade originally took root under the fostering care of the Jews in London; and it was conducted after the manner of the tribes of Israel. They set up a sort of rialto, or public market, for plumbago, in Essex-street, Strand, where on stated days, once in a month, the commodity was sold by auction to the pencil-makers. There was at that time a host of small makers in London, each subordinate, perhaps, to one wholesale dealer. But about the year 1820 the Keswick people, under the honest Cumbrian conviction that they had some right to the craft, took up the trade themselves; improvements were made in the manufacture; machinery was invented and applied; and the production everyway increased. The consequence is, that since then it has continued to be the seat of the manufacture in England, and the staple product of the place, even when the mineral on which it was founded is no longer wrought with advantage at the native mines. Indeed, at this moment, with formidable competition in London and on the Continent, the principal part of the black-lead pencil manufacture of England, is concentrated in Keswick.

Although more than 100 years had elapsed since the mineral, which we term graphite, had been wrought in the Cumberland mountains and had been applied to the purpose of making pencils, we are not to suppose for a moment that this curious manufacture reached its present high state of perfection all at once. Up to a period within the last forty years, the few pencils in use were produced by hand labour, and were sold at a price of 1s. and 1s. 6d. each! a sum for which it is now possible to purchase a gross, or twelve dozen, of certain qualities. These hand-made pencils consisted exclusively of the kind which are still manufactured here, and are known in the trade as "pure Borrowdale lead." Some of our older readers will also remember the cylindrical sticks of solid plumbago which were much in vogue with schoolboys,

"In our hot youth, when George the Fourth was king,"

and which resembled nothing so much as the cylindrical slate-pencil of modern days, all the more that they were often encased in a common reed. This was obviously a prodigious waste of matter, inasmuch as the point of the pencil being only required for all practical purposes, the surrounding cylinder had to be pared away. The first great step, therefore, in the economical history of the pencil was the utilisation of this waste matter by substituting for it an exterior cylinder of cedar or other suitable timber. Like all great economical appliances, this was also attended with collateral benefits. For not only does the cheap timber replace the valuable mineral, and therefore make the pencil *cheaper*, but it makes it *stronger*, by the law of trussed beams, and it makes it *cleaner*, on the principle that cedar does not soil the hands. We have no means of discovering who was the author of this invention, or whether, like most great inventions, it had several authors. But this simple idea has been productive of much fine gold in England in our time, particularly in Keswick, as we shall proceed to show.

There are now altogether five pencil-mills at work in Keswick. The old-established firm of Banks & Co., which is still the largest, has recently passed into the hands of Mr. Gibson, of the *Cumberland Pacquet*. Next in importance is the Greta Bridge, Mill, which gives, we believe, the greatest facilities for inspection. It is the property of Mr. Robert Wilson, who, we believe, was a principal shareholder in the Wad mine, and to whom we confess our obligation for the information we have been able to supply. As far as we could discover there is little or no jealousy between the Keswick pencil-makers. They are something like the Sheffield file-makers, or the Aberdeen comb-workers—at peace with each other: arising from the fact probably that there is plenty of room for them all in the market, which is of the largest, we must own, since it consists of the civilized world.

We must now take a glance at the process of production; and to this end we must ask the reader to accompany us in a walk through the Greta Bridge Mill which lies opposite that memorable house where Southey lived and died. All the mills, we may mention, consist of houses with several floors, and are situated on the banks of the Greta, the water-power of which picturesque river furnishes the motive power for the whole of them. This water supply, we accidentally learnt, is much in want of regulation; for the Greta, like all mountain streams, occasionally turns into a mountain torrent; in other words, there is a flood on the river, and during this flood the mills must stop. The Greta Mill has a curious, quaint, old-fashioned appearance; having originally been built and devoutly consecrated for a woollen mill under the circumstances we have mentioned. The interior is equally curious—something of a compound between a country saw-mill and a paint manufactory. On entering the workshop the senses are variously affected by the different objects, — the eye by the machinery and the dull black lustre of the objects,—the ear by the hum of endless belts and the skurr of circular saws; and the nostrils get irritated by the flood of fine cedar dust which pervades the whole atmosphere. Indeed the whole process of manufacturing pencils may be reduced to four radical types or root processes,—the grinding and pressing of lead; and the sawing and turning of wood.

But in order to make our description somewhat clear,—which cannot be adequately performed without diagrams,—we subjoin a sort of compendium or *vidimus* of the manufacture, in which the figures represent the order of the processes. The manufacture of a black-lead pencil then consists in—

1. Cutting the cedar logs to the proper lengths.
2. Cutting these lengths into thin planks.
3. Dividing those planks into strips—oblong on section—and of the length of three or four pencils.
4. Simultaneously with 3. Cutting the groove for reception of the lead.
5. Preparing the lead.
   - (*a.*) *Simple.* Cutting parallelopipeds of lead from mineral.
   - (*b.*) *Complex.* Mixing, crushing, grinding, solidifying under pressure, baking, and cutting of lead from block.
   - (*c.*) *Inferior mixtures.*
6. Selecting or sorting of wood (knots rejected).
7. Selecting or sorting of lead (for uniformity of colour and hardness).
8. Fitting lead into grooves of wood (shutting).
9. Glueing on outside piece over lead (fastening).
10. Rounding the lengths of cedar (gouging).
11. Polishing surfaces.
12. Varnishing (when necessary).
13. Cutting ends clean.
14. Stamping maker's name.
15. Gilding ditto (over varnish only).

It will of course be impossible within our limits to discuss these processes in their order; but indeed that is unnecessary. We shall just take a glance at the most important circumstances, beginning with the timber that is used.

For every black-lead pencil, except the large and coarse pencils used by artisans, in which case yellow pine is substituted, the timber covering usually employed is formed of Florida or South American Cedar. The logs of this timber, which are stored in Keswick after their voyage, amount to a considerable quantity of cubic feet in the year. Cutting the logs and planks needs no illustration, but the next process, that of dividing the planks into strips, is very curious. It consists of cutting the wood with two circular saws with their planes at right angles, which perform at the same time the double operation of cutting the square pencil from the block of cedar and grooving it ready to receive the lead. By means of this machine, the planks are cut into straight square sticks, each having a groove on one surface for the reception of the lead. The saws turn on the lathe at the rate of 2,000 revolutions in a minute; and 1,200 pencils can be thus cut out by one man in an hour.

The next step is to fill these grooves with the small pieces or parallelopipeds of black lead, which really constitute the pencil, or at least its most essential part—its heart and soul a poet would say. But we must explain how this lead is prepared. In pure Cumberland lead it requires only to be cut to the requisite scantlings. This is in fact the finest drawing pencils for artists and engineers. The lead used for commercial purposes generally is prepared lead, and goes through the following variety of processes, which correspond with our "complex" subdivision under article five.

1. *Grinding.*—This is what we may term the basic process of the manufacture, and is undoubtedly the most laborious.

This process is effected by means of granite mills, which revolve at a slow speed. The lead is ground in water, and the operation is repeated over and over again until it acquires the consistency of a complete pulp. This grinding is a difficult and protracted business, the mills sometimes revolving twenty-eight days at a stretch, the lead being run in, and turned over twice a day. It is so fine at length after such a lengthened levigation, that you cannot distinguish the smallest particle with your tongue; in other words, it is now a pulp of plumbago, absolutely free from extraneous matter or gritty particles.

2. *Mixing.*—The amalgam, which is added during this process, consists of antimony and other fusible metals. The object of this is to give additional cohesion to the mass, and greater capacity of standing a point. Such a method of hardening plumbago, was for long a desideratum; and it is, we could see, the only part of the process which the manufacturers affect to keep a secret. There is great variety in the colour of different qualities of black lead; and it has been alleged that by a judicious mixture of these alone almost any shade of black may be procured. But an inferior black may also be obtained either by the use of sulphur itself, or by sulphuret of antimony. These were points, however, upon which we did not press for information.

3. *Baking.*—This finely ground pulp is then dried, and put into a massive crucible, which is transferred to a furnace, and heated to a white heat nearly. The object of this is to restore, as far as we could understand, that molecular cohesion which the process of grinding had destroyed; and to bring about a more intimate union of the particles of amalgamated matter. The chemical reaction, however, here must be very obscure.

5. *Pressing.*—After coming out from the crucible the mass of black lead is subjected to an enormous pressure by means of a hydraulic press. It may appear a very simple process to press the powdered, or rather pulpy, graphite into hard blocks; but it is found very difficult in practice, so much so as almost to prevent the employment of this method, which has led to immense improvement in pencil making. It was found at first that the difficulty of pressing out the contained air was so great that the presses were broken under the weight required. Pressure in a vacuum was then tried, but the difficulty of applying it was found almost insurmountable, and it was certainly unprofitable. The late Mr. Brockedon, a London manufacturer, who was famous for his pencils, is said to have surmounted the difficulty by a process of compressing the black lead into blocks two or three inches square, with only moderate pressure. These blocks are then coated over with paper well glued, so that, when dry, the covering is air-tight. A small hole is now made through this coating on one side, and several of these cubes of black lead are put under the receiver of an air-pump, and the air being exhausted completely from them, the orifice in each is closed by an adhesive wafer, which prevents the return of the air when they are taken out of the receiver. They are next placed under the hydraulic press, and a well-sustained and regular pressure is brought to bear upon them for twenty-four hours, after which they are found to be so completely consolidated that, in cutting them, the substance is equal in density to the best specimens of unprepared graphite.

This account of the process of pressing we take nearly as it stands upon the authority of a writer in "Chambers's Encyclopædia." But we ought to say that it is not in operation in Keswick, as far as we could ascertain. These blocks—which turn out about 6 × 6 × 3 in.—after suffering a pressure of several tons to the square inch, are now ready for the last process, which is that of—

6. *Cutting the Lead*, which is done by means of a fine hand-saw, first in the form of thin plates about sixteenth of an inch in thickness, and then by cutting these plates across to form small square sticks one-sixteenth of an inch in

section, and usually about three inches long. Here we at last arrive at the pencil leads.

Considerable judgment has now to be exercised in selecting leads of an equal degree of hardness and of colour; and the same may be said of the timber sticks which pass through the hands of a sorter, who rejects all pieces full of knots or other irregularities.

In order to study the process of combination, we must next visit the benches at which the lead is fitted into the grooves in the strips of cedar. The men here at work present a peculiar appearance. They are dressed in dark blue smocks—this being the general costume of the place—with loose sleeves fitted tight at the wrist, and are sitting at very black shining tables. The men's hands, and the tools with which they are engaged, as well as most of the furniture of the apartment, look as if they had been freshly polished every morning, after the same fashion in which the servant-girls polish our grates and stoves,—only their faces often exhibit tints and streaks of different colours. Even when the workmen have knocked off, and have had their faces washed, we could not but distinguish them from their peculiar swarthiness and greasiness of physiognomy. Each workman has a number of the sticks of cedar in which the grooves have been cut, and a number of slices of lead, just as they appear after the sawing. He then takes one of the slices, and having seen that it is not too thick to enter the groove—for if this be the case he rubs it down to its proper dimensions on a rough stone, which lies in front of him—he dips it in a pot of glue, which is kept hot just beside him, and then presses it into the grooves. He then gives a scratch to the lead on a level with the surface of the wood, and breaks it off, so as to leave the groove properly filled.

In the making of a single pencil two or three slice lengths are required; but however many there may be, each slice is fitted exactly endwise to the other, so as to leave no intervals. Should any of the lead afterwards project above the grooves in the cedar it is scraped off with a knife; this is called *shutting*. The rods being thus filled are conveyed to the fastener-up. This operation is carried on with surprising dexterity. The workman glues the cedar covers or slips over the rods filled with lead, and having got a certain number arranged alongside of each other, he fixes them tightly together by means of a wedge and framework, and then lays them aside to dry.

The pencil now presents the appearance of an oblong cedar stick, very rough and long, and it is removed downstairs, to be rounded. The "rounding-machine," by which this is accomplished, is very curious. A man takes in each hand one of the long sticks, and places them between the pairs of small wheels, which are situated just far enough apart to admit the pencil. By these means they are brought under the action of a revolving cutter, which is made so as to act with a gouge and a chisel-blade; and in a moment we see the end of the pencil passing out rounded to a nicety. By this simple and efficient machine a man will round from 1,000 to 1,200 dozens of pencils a day. This process being completed, the long sticks are taken to the floor from which they were brought, in order to be finally smoothed with a plane, and polished. We may add here that the sexagon or octagon shape of pencils which are now so fashionable in some quarters, are produced either by the hand-plane, or more speedily and accurately by machinery such as that we have just described.

We need not stay to describe the process of varnishing, nor to express our admiration of the highly ingenious machinery by which the ultimate processes are effected. The last process to which we will allude is that of stamping the maker's name, which is done almost with the speed of lightning, by a curious revolving die; and the singular letters and combination of letters which represent the quality of the pencil are impressed at the same time. These letters are H, HH, HHH, B, BB, BBB, HB, FS. H signifies *hard*, repeated twice and thrice it means *harder*, and *very hard*; B means *black*; HB, *hard* and *black*; and so on; FS signifies *fine stroke*.

The best drawing-pencils, as we have mentioned, are manufactured exclusively from the purest lead. We are rather puzzled at the distinction which most artists make between "plumbago" and "Cumberland lead." It must be a purely empirical difference, or more probably, a trade technicality. The substances are identical, and the proper mineralogical term is graphite. Should this distinction always hold good between an HB and a BB, for example, then we should be inclined to suppose that it is owing to the alloy or amalgam with which the graphite is always more or less mixed in the manufacture. In other words, a pure plumbago pencil is soft, and a mixed pencil is hard. With regard to the quality, we believe that the best can only be obtained from the Borrowdale lead. Indeed, Borrowdale lead, otherwise Keswick pencils, otherwise "crayons d'Angleterre," are held in the highest esteem by artists all over the world. When the name of a Keswick maker is stamped on a pencil, it may generally be depended on, which is more than we can say of certain well-known names in London. For very inferior pencils the worst quality of black lead is mixed with black chalk and size, or gum and water, and from this paste a pencil is made.

Great quantities of pencils are now made of a composition formed of sawdust and small pieces of black lead, which being ground to an impalpable powder, is mixed with some cohesive medium; for this purpose different substances are employed, some of which make a very inferior pencil; but others being united at a proper degree of heat, and consolidated by a strong pressure, make a pencil to answer for many purposes (especially where the writing is intended to be permanent), almost as well as the genuine black lead.

German pencils of a trashy quality but gaudy exterior, at one time threatened to occupy the market. But the Keswick people met them on their own grounds, and applying colour and varnish of equal quality to the sticks, beat them hollow by superiority of lead. Indeed, a German pencil, in our opinion, is something like a German violin—admirably varnished, and that is all.

Black lead, as well as being employed in the form we have been describing, is also reduced to little cylinders, and used in the form of ever-pointed pencils. Large quantities of these cylindrical leads are now produced at Keswick. This is entirely a fancy branch of the business; and as for the French artificial pencils, which consist, we believe, of finely-prepared clay, mixed in due proportion with black lead reduced to powder, and with various sorts of coloured earths, by which the variety and hardness of tint are produced, these cannot be said to belong to our present subject.

The first attempt at artificial pencils was that of a French gentleman named Conté. We may mention that they have always been very popular on the Continent, and have yielded the inventor and his family a large fortune.

The number of black lead pencils made in Keswick was computed for us at about 250,000 per week, that is about thirteen millions per annum. At an average length of seven inches, this would give us 1,436¼ miles of black lead and cedar—an original form of statistics, but quite admissible we suppose. Some of these pencils are worth 48s. per gross, and some are sold as low as eightcenpence per gross, a sum we have mentioned at which they were sold for each before the era of machinery. The cedar annually consumed amounts to something like 12,000 cubic feet, and the yellow pine in due proportion. We could not ascertain the value of the plumbago that is annually consumed; but it is partly the produce of the Borrowdale mine and partly from Mexico and Peru. The number of hands employed, including men, girls, and boys, in all, amounts to 200, and their highest wages vary from 15s. to 20s. per week. The gross sum of wages actually paid amounts to about 4,000*l.* per annum.

The trade has doubled, or nearly so, within the last twenty years; and, strange to say, it began to rise just at the very time we might have supposed it would begin to fall,—that is, when the Borrowdale mine was exhausted, and the local supply of the material had stopped. But the causes of this economical paradox are not far to seek; indeed they lie on the surface. In the first place, the manufacturers, although resident in the neighbourhood of the mine, had been accustomed to the mineral being supplied from London, and, as the foreign lead began to come into the market at about the same ratio in which the Borrowdale lead began to disappear, they really never felt the loss. From Borrowdale to London and back again must have cost as much, if not more, in land carriage than a shipment of lead from Mexico or the Brazils: and what did it matter to the Keswick manufacturers—supposing fair quality—where they obtained their supply of raw material. Since the cedar must come from Florida, they might as well bring the lead at the same time! The second cause must undoubtedly be ascribed to the improvement of the processes of manufacture by the introduction of machinery. Upon this we need not stay to insist after what we have tried to describe. A third cause,—although not of the same degree of importance,—may possibly be found in the increase of communication by means of railway with the north of England. But the primary cause, let us add, must be sought for in those genuine old English qualities of pluck and endurance,—the courage in facing difficulties, and the skill in surmounting them, which characterised the people of Cumberland before they discovered plumbago, and which we need hardly say still belongs to them after their plumbago has been exhausted. It is no light praise to say of these Keswick men that they have carried their produce into the very front ranks of European manufacture; but this praise they assuredly deserve.

Although not within our present limit, we cannot help adding a word as to the good effect the trade has exercised on the town of Keswick. Above all other towns in England, this little market-town is endeared to the people who visit it, from its picturesque seclusion and its romantic beauty. A coal-field in the neighbourhood would have ruined it. A cotton manufacture would have been absolute perdition. Observe, then, the singular correlation—the principle of natural selection—which must exist between the town and its staple commodity. It has outlived all the other trades of the place—even though threatened itself with extinction. It employs the surplus population without demoralising and degrading them; and finally it contrives to exist without the aid of the tall chimneys and the sulphureous vapours which disfigure the beauty and destroy the health of our principal manufacturing towns.

THE ALKALI WORKS NUISANCE.

A public document of considerable importance from a sanitary point of view has just been printed by order of the House of Commons. We refer to the Report of Proceedings under the Alkali Act, by the inspector, Dr. Angus Smith, of Manchester. Our readers will probably remember that an Act was passed in 1863 to compel the proprietors of alkali works to condense the hydrochloric acid vapours instead of allowing them, as hitherto, to pass into the atmosphere, to the injury of the health of the surrounding inhabitants and the destruction of the vegetation. We may state that it is in the preliminary operation of making soda-ash from common-salt, and which is carried out on an enormous scale in this country, that the hydrochloric acid vapours are given off. The first step consists in mixing the salt with sulphuric acid, by which sulphate of soda is formed, and hydrochloric acid is given off. So far back as 1836, Mr. Gossage, of Stoke Prior, near Worcester, and afterwards of Widnes, in Lancashire, a well known proprietor of chemical works, patented a method of condensing these vapours, by causing them to pass up a tower filled with silicious pebbles, fragments of brick, or coke, down which a stream of water was allowed to trickle. When the water arrived at the bottom, it was found to have absorbed the whole, or nearly the whole of the gas which it met with in its descent. The acid thus obtained is of course of some commercial value. In spite, however, of the success of Mr. Gossage's invention, and of the reminders which were continually administered to the proprietors of chemical works in the shape of costly actions for damage to crops, they continued, until the Alkali Act was passed, to vomit thousands of tons of acid from their chimneys.

The document now under notice deals with the results during 1865, and is the second of its kind. It shows a slight but decided improvement upon the first year. During 1864, the condensation of hydrochloric acid gas amounted to 98·72 per cent. over the kingdom, being equal to an escape of 1·28 per cent. In 1865, the average condensation was 99·1111, the average escape being 0·8889. Allowing 0·2 for an error, the inspector puts the figures at 98·9111 and 1·0889. Stated in this way, the escape appears perfectly insignificant; but when we remember that no less than 315,000 tons of salt are decomposed yearly, we shall not be surprised to learn that, even now, five tons of dry acid (equal to about three times that weight of acid as usually sold) pass off into the atmosphere. These facts are of some interest in connexion with the decay

of stone, but, as Dr. Smith has formerly shown, the rain water of all large coal-burning towns is very acid, about a thousand tons of vitriol being showered down on Manchester yearly. We had occasion to refer to his experiments a short time back in an article on the decay of stone.* The details will be found in the Report of the British Association for 1851.

The Alkali Act provides that in case 95 per cent., at least, of the hydrochloric acid gas be not condensed, the owner of the works shall be liable to a penalty of 50*l.* for the first offence, and 100*l.* for each succeeding infraction of the law. Although the escape has, in one or two cases, exceeded the permitted amount, the inspector wisely decided to take no action in the matter, as he was convinced that there was no intention to trangress, and that every effort was being made to bring the condensation up to the required standard. The Act has had one effect which was hardly anticipated by the manufacturers—the inspector has actually become a witness for the defence in cases of actions for damages brought by occupiers of land in the vicinity against the owners of alkali works. This has occurred in two cases, in both of which the plaintiff failed to obtain a verdict, mainly in consequence of the evidence of the inspector as to the perfection of the condensing apparatus.

On the whole the Act has been more successful than was anticipated, and we have got rid of one great nuisance. The system of condensation was in use in some works before the passing of the Act, so that it is not easy to say what quantity of hydrochloric acid was allowed to escape. We shall, however, be on the safe side if we assume that, of the 495 tons of acid which is now condensed every day, at least one half was formerly sent up the chimney-shaft. The Act, then, has prevented the daily pollution of the atmosphere with, say, 250 tons of a poisonous gas. Unfortunately, the law only will continue in force until the 1st of July, 1868, the duration being limited by a special clause in the Act. It is to be hoped, however, that it will be renewed.

Before quitting the subject, we desire to say a few words upon another manufacturing nuisance of gigantic proportions. The Alkali Act refers solely to works "for the manufacture of alkali, sulphate of soda, or sulphate of potash, in which muriatic acid gas is evolved." We beg to suggest that the Legislature should take copper-smelting works in hand next, and put a stop to the clouds of "copper smoke" which have converted the country round Swansea into a desert. Leplay, who wrote a valuable memoir on the copper-smelting processes of South Wales in 1848, calculated that 200,000 tons of ore were annually smelted in that district, 46,000 tons of sulphur being volatilized. The sulphur, combining with an equal weight of atmospheric oxygen forms sulphurous acid, so that in round numbers 100,000 tons of that compound were annually allowed to pass into the atmosphere. The value of the sulphur thus wasted was estimated by him at 200,000*l.* per annum. So far as we are aware, the copper trade of South Wales has not diminished since Leplay wrote, and Swansea imported last year, of *foreign* ore and regulus alone, the enormous quantity of 78,656 tons.

It must, however, be admitted, that the smelters have made several attempts to get rid of the nuisance. About forty or fifty years ago, Messrs. Vivian, the proprietors of the Hafod Works, expended about 6,000*l.* in this manner, but they were not successful. Mr. Greenfell, in 1848, spent about 2,000*l.* in the erection of condensing apparatus, which he placed under the direction of Schafhäutl, a distinguished German chemist, now professor at Munich.† This, too, appears to have been a failure. A few years ago, Mr. Bell took out a patent for the purpose of utilizing copper smoke, which he showed to Mr. John Williams, then head of a large copper-smelting firm at Swansea. He raised no practical objection to the process, but "concluded by saying that the copper-smelters' business was so profitable that they did not want any improvement in the trade, and as to the nuisance, they must do the best they could with it." He also applied to another large company at the time, "and was told the same story, that they did not wish to introduce anything new into the copper process." Within the last year or two, however, the subject has been revived by Messrs. Vivian, and, we believe, with some success. A patent was taken out in 1863, by Moritz Gerstenhöfer, for an improved furnace for roasting ores, which the inventor states has been used with much success at the Royal Saxon Sulphuric Acid Works. This patent was purchased, last year, by Messrs. Vivian, for 4,000*l.* and we understand that it has been very successful, a large quantity of sulphuric acid being now manufactured from the otherwise wasted sulphur vapours. The acid thus obtained unfortunately contains a large quantity of arsenic, which it is very difficult to remove profitably. There is, indeed, a large local demand for oil of vitriol, by the manufacturers of tin plate, but it is probable that the amount of impurity would be too great to allow of acid obtained from copper ores being used for such purpose. It admits, however of being employed for the manufacture of manure, and we believe that Messrs. Vivian are now erecting premises with this or a similar object in view.

In spite of all the evidence to the contrary, there are persons who believe, or who profess to believe, that copper smoke is not injurious. Dr. Percy, in his *Metallurgy*, quotes a Dr. Thomas Williams, who published a report on the subject in 1848, in which he attempts to show that the smoke is almost harmless. Against these views we may place the opinion of the men who are most interested in the question—the smelters themselves. Those who are acquainted with Swansea and the neighbourhood, will, we think, not need much in the way of argument.

The new Sanitary Act contains the following additions to "nuisances," as defined under the Nuisances Removal Acts:—"Any factory, workshop, or workplace, not already under the operation of any general Act for the regulation of factories or bakehouses, not kept in a cleanly state, or not ventilated in such a manner as to render harmless, as far as practicable, any gases, vapours, dust, or other impurities generated in the course of the work carried on therein, that are a nuisance injurious to health . . . . . any fireplace or furnace which does not, as far as practicable, consume the smoke arising from the combustible used in such fireplace or furnace, and is used, within the district of a nuisance authority, for working engines by steam, or in any mill, factory, dyehouse, brewery, bakehouse, or gas-work, or in any manufactory or trade process whatsoever." Mr. Cowan, the member for Newcastle, proposed to insert after "workplace" the words, "not being a smelting-house." The amendment was negatived, Mr. Bruce, who assisted to draw up the bill, stating that it was never the intention of the Government to interfere with copper-smelting works. When it was shown that any effectual means existed for the suppression of the noxious vapours from such works, it would be time enough to legislate upon the subject. The Bill also contains a saving clause, which provides that the magistrate may dismiss a summons if he be satisfied that "such fireplace or furnace is constructed in such manner as to consume, as far as practicable, having regard to the nature of the manufacture or trade, all smoke arising therefrom." Taking into consideration the careful wording of the Bill, it would be difficult to make it include copper smoke, which is, after all, not "smoke," in the ordinary acceptation of the word.

In conclusion, if Messrs. Vivian's experiments have been as successful as we have been led to believe, there seems no reason why the Legislature should not step in and compel other copper smelters to adopt a similar process. Not only will a large saving of valuable material be effected, but the health of the district will be improved, and the earth will again bring forth her increase.

* See p. 421, *ante*.

† Professor Schafhäutl has recently published a paper in the "Journal of the Munich Polytechnic Institution," describing his endeavours to introduce puddling machinery, which has been spoken of several times lately as a new invention. So far back as 1836, he took out a patent for a machine of this kind, which was tried at the Tividale Iron Works, near Dudley, then belonging to Mr. N. H. Solly, and with a considerable amount of success. Professor Schafhäutl states that Messrs. Dumény and Lemut's mechanical puddler is only an imitation of part of his machine.

ITALIAN NOTES.

Life in Florence is now so full of excitements, so varied by picturesque demonstrations and signs of generous public feeling, that it seems natural that all should be forgotten, save what connects itself in some way with the absorbing interests that affect a nation's destinies. Yet we are satisfied in being able to report of proofs given that Italy, whatever the effervescence and onward movement of the time, does not forget her past, nor intend to renounce the vocation by which she has won such honours; and that in her capital the local questions of improvement and embellishment are still thought of. If, in this respect, delays have been caused by great events, and means necessarily withheld for a period, none need be surprised; the fact reported (though not officially) being, that the accomplishment of all projects for enlarging this city is now suspended; that, at least, as far as authorities are responsible, nothing is to go on till present obstacles have been removed. The merely negative undertaking of what is to demolish, not create, indeed continues: the old walls along the northern side are fast disappearing, leaving the open prospect of villa-studded slopes, woods, gardens, and mountain scenery beyond; and the long line, now overstrewn with *débris*, enormous masses of rubble-work, &c., is destined eventually to become a pleasant boulevard, shaded by avenues, and no doubt one of the most attractive rendezvous for citizens on fine evenings. In a few days we are to see erect in the Loggia of Orcagna, where the requisite basement has been thrown up, the much-admired colossal group by Fedi, *Il Ratto di Polissina*, or "Pyrrhus and Polyxena," and another sculpture by the same artist, now become public property, thanks to the Prince di Carignano, who ordered it for himself some years ago, but has lately presented it to this city's magistrates, is the statue of "Tuscan Civilization:" a female attended by a little winged genius, with an oaken wreath and wings on her head; another wreath as well as a lyre in one hand, and in the other hand a stylus with which she has been writing on a scroll pendent over her lyre, this twofold historic record,—*Contegno del Popolo Fiorentino* 27 *Aprile*, 1859 (date of the deposition and flight of the last Grand Duke); 15 *Marzo*, 1860, *Voti per l'Unione alla Monarchia Costituzionale*, 366,571 (act of annexation to the Italian kingdom by universal suffrage with that immense majority). As to conception, this figure is accordant with the ideal and abstract nature of its subject, full and matronly in form, the countenance fine in type and serenely serious, the greater part in the nude, and, what drapery there is, very well treated. The municipal council, after voting thanks in proper form to the royal donor, ordered that competent persons should be appointed to decide as to the choice of a suitable *locale* for this statue—one of Fedi's happiest. Dupré has not yet begun the Cavour monument,—at least in any form visitors are allowed to see; and among his newest finished works the only one not noticed by us is a statuette of Giotto as a young man, so far superior to his *old* Giotto in the series under the Uffizi porticoes, that we may regret, both for the artist's and the public's sake, that the former cannot be raised to the place of the latter, presupposing, of course, its enlargement to the same size. Among the drawings by Italian masters in the corridor lately added to the Uffizi, we notice several with the indication, "From the collection of Santarelli," the well-known Florentine sculptor, who, at his own cost, and by dint of much exertion, procured this inestimable series illustrative of a highest period in this country's art, and has generously presented the whole to Government (or rather to the nation), with the sole condition that it should have a permanent place in that classic museum. The Belle Arti Academy has published its annual competition for Tuscan students. Only those under eighteen years are to compete in the school of the nude; those under twenty in that of architecture and ornates. The premium for all alike is to consist of a pension at 30 francs per month for three years.

Though the public works for the enlargement of the city are suspended, two great buildings that possess a certain claim to that character are still in course of completion; the one the Royal Stables, with immense front, rising beyond the walls at the side of the Boboli Gardens, and to have communication with them by private gateway; the other the Corsi Palace, or rather its façade, rebuilt, at the cost of 500,000 francs, after demolition of the former because of its very inconvenient projection into the line of a much-frequented street,—the latter, indeed, an imposing example of the modern palatial style.

Almost the last measure of the Parliament, on the eve of the great struggle, was that which condemned the monastic system for ever, and without exception; and on the 11th of July was published the decree to that effect, with the signature of the Royal Lieutenant, at the head of the Government during the absence of the King.

The first article is as follows:—"Religious orders, corporations, and congregations, regular or secular, as also conservatories and asylums, which impart the community-life, and have the ecclesiastical character, are no longer recognised in the State; the houses and establishments pertaining to such orders, corporations, &c., are suppressed." Then follow the terms of the provision made for individuals to be thus ejected from cloisters. All the staple property of the suppressed orders devolves to the State; but places of worship, together with all works of art, vestments, and sacred furniture contained in them, will be left intact, to be applied to the same uses as formerly. Books, MSS., scientific documents, archives, all objects valuable for artistic or antiquarian character, found in the monastic buildings, and not pertaining to their churches, will be transferred to the public libraries or museums in their several provinces by decree of the Ministry of Worship in accord with that of Public Instruction. One article that particularly refers to the more renowned establishments as to whose fate interest may be felt, and has lately been expressed, in distant countries, is as follows: "The Government will make provision for the preservation, with their premises, libraries, archives, objects of art, scientific and all similar instruments of the edifices of the Monte Cassino Abbey, of La Cavas,* of San Martino della Scala,† of Monreale, and the Certosa, near Pavia; also of other similar ecclesiastical establishments distinguished for monumental importance or for any aggregate of artistic and literary treasures." For the rest, the vacated buildings will be conceded to the magistracies of the provinces they are placed in, if demand be made before the end of a year, to be appropriated as public schools, hospitals, poor-houses, infant asylums, or for other purposes of beneficence and utility; those premises already destined for the care of the infirm or for public tuition to be assigned to the several communes in whose territory they stand. Under these regulations, therefore, will the ancient system, the instittions, so many of which had birth in this island, be swept away throughout the Italian kingdom before the last day of the year 1866!

AGGLOMERATED CONCRETES AND HYDRAULIC CEMENTS.

Coignet's agglomerated concrete, of which we have before now spoken, consists of a proportion of sand, a smaller quantity, perhaps a fourth, of lime, and a minimum quantity of Portland cement, say 1-15th, 1-20th, or 1-30th. Instead of mixing these ingredients with water, so as to form a mortar of ordinary consistency, a very small quantity only of water is added, and the mass is made to undergo a trituration of greater or less duration by means of special apparatus. By this trituration, notwithstanding the feeble quantity of water, a pulverulent mass is obtained which acquires by a more prolonged trituration the consistency of a firm plastic paste. It is then ready for the mould, into which it is introduced in successive and very thin layers, which are submitted to a powerful ramming process. This operation of compression effects such a complete agglomeration, that each cubic mètre and a half of sand and lime is made to occupy the space of only one mètre; and the lime, whose particles are thus mechanically brought into contact, becomes indurated with astonishing rapidity and intensity. A few days, in some cases hours, suffice for the mass to acquire the character of hard stone.

As the work of one day, with this concrete, unites perfectly with that of the preceding, it is plain that a mass of this species of masonry can be augmented indefinitely, so that a house, bridge, reservoir, or any other construction, can be made to form a monolith.

The most important building executed in agglomerated concrete is the church of Vesinet, situated in a park of the same name, near Paris.‡ It is of Gothic style, and the entire masonry forms a single block. The division of the naves is formed by piers of grouped colonnettes in cast iron; these, together with the cast-iron responds against the lateral walls, support the weight of the roof, which is of wrought iron. The concrete of which the walling is composed contains: river sand, 3 parts; earthy and ferruginous sand from Vesinet, 1 part; slacked lime, in powder, from Argenteuil, 1 part; heavy cement (*ciment lourde*), from Paris, ½ part; cement forming 1-21st part of the whole.

Another advantage arising from the suppression of water, the energetic trituration, and the forced aggregation of the particles of lime, in these concretes, is, that a slight difference in quality of the lime effects but little the result obtained; therefore the nearest hydraulic lime at hand will serve the purpose; whereas, in other concretes, the best lime must be obtained, in order to secure a good mortar. In fact, M. Coignet presented to the Society of Civil Engineers in Paris specimens, capable of receiving a high polish, composed of the worst description of lime, even ordinary quick-lime, bad and marly sands, fine sea sand in impalpable powder unfit for common mortar.

With regard to the fact that, in masonry, mortars and concretes, when well made, are progressively and continually becoming harder, while cements do not acquire an increasing induration proportional to the energy of their original hardening or setting;—this may be explained by considering that cements contain very little free lime or oxide of calcium, being almost entirely composed of silicates formed by torrification at a high degree of temperature. Now, as pure lime has the property of absorbing, in order to pass into the state of carbonate, a quantity, nearly equal in weight to its own, of carbonic acid, it is plain that the more perfect a cement is—its perfection consisting in having but a trace of free lime—the less it will have the power of absorbing carbonic acid gas; whilst on the other hand the more a mortar contains of free lime, the more powerful and energetic will be the absorption, and the more the weight will be increased—that is to say, a cubic mètre of mortar containing 400 lb. to 600 lb. of free lime can absorb nearly 400 lb. to 600 lb. of carbonic acid, while a cement will absorb little or none.

This action of the carbonic acid of the air has a more striking effect upon agglomerated mortars and concretes than upon ordinary ones. In fact, it is easily understood that if to a compressed concrete like Coignet's, so dense that a cubic mètre contains 15 hectolitres of ingredients, with the particles so intimately blended by trituration, we add a new substance, carbonic acid, of equal weight with that of the pure lime, the increase of density of the whole mass will be enormous. Thus, the *bétons* agglomerated composed of 5 parts of lime in powder, weighing 55 kilogrammes the hectolitre, and ½ part or 1-12th of cement, yield in a few days an artificial stone resisting more than 20 kilogrammes of crushing force per square centimetre, while substances, composed of 1 part of the best cement and 2 parts of sand, cannot withstand 10 kilogrammes of the same applied force. For lime mortars or concretes to harden into the state of artificial stone, it requires much time.

Among the latest theories put forth by French engineers as to the cause of the setting (*prise*) of hydraulic cements, we may mention those laid before the Academy of Sciences in Paris, by M. Fremy last June. Vicat established beyond all doubt that the hydraulicity of a cement is due to a composition formed when limestone is calcined in presence of argil. He states that this composition is a double silicate of alumina and lime, which, in hydrating, causes the setting of hydraulic cements. MM. Rivot and Chatonay, in their important work on cements, state that the calcination of an argillaceous limestone produces aluminate of lime, the formula for which is Al^2O^3, 3 CaO, and also a silicate of lime, represented by SiO^3,CaO; these two salts, in contact with water, produce the two hydrates,

Al^2O^3, 3 CaO, 6 HO,
SiO^3, 3 CaO, 6 HO,

which become the cause of the hardening in question.

In both these two theories the hydraulicity of the cements is ascribed to a simple action of hydration, like the setting of plaster of Paris; but by M. Fremy another cause is assigned. This learned *savant* made extensive experimental researches on the properties and mutual action of four substances which, according to Vicat, Rivot, and Chatonay, constitute hydraulic cements. 1. silicate of lime; 2. silicate of alumina and lime; 3. aluminate of lime; 4. caustic lime, or oxide of calcium. The experiments are detailed in the memoir, which concludes with the following statement:—That the hardening of hydraulic cements is not due to the hydration of the silicate of lime, or that of the double silicate of alumina and lime; these salts *do not form any combination with the water*; that the setting of hydraulic cement is the result of two different chemical actions; 1. the hydration of the aluminates of lime; 2. the reaction of the hydrate of lime upon the silicate of lime, and upon the silicate of alumina and lime, which act in this case as pozzolana. The calcination of an argillaceous limestone cannot yield a good cement except when the proportions of argil and lime are such that these can be formed. In the first place, an aluminate of lime represented by one of these formulæ,—Al^2O^3, CaO; Al^2O^3, 2 CaO; Al^2O^3, 3 CaO: in the second place a simple or multiple silicate of lime, represented approximately by one of these formulæ,—SiO^3, 2 CaO; SiO^3, 3 CaO; and in the third place, pure lime capable of acting on the preceding pozzolanic silicates.

In the course of the memoir, M. Fremy states that when aluminates of lime represented by Al^2O^3,CaO; Al^2O^3,2 CaO; Al^2O^3, 3 CaO are reduced to a fine powder, and slightly wetted, they solidify almost instantaneously, and produce hydrates which acquire in water a considerable degree of hardness. They have, moreover, the property of agglomerating inert substances, such as quartz, sand, &c.

M. Fremy mixed aluminate Al^2O^3, 2 CaO, with 50, 60, and even 80 per cent. of sand, and obtained a pulverulent mass which in water acquired the hardness and solidity of the best stone. The interest attached to these mixtures of aluminates of lime and silicious substances is the more important in a practical point of view when we consider that blocks are required to be produced capable of resisting atmospheric influences and the powerful effects of sea water. M. Fremy considers that the solution of the problem of constructions resisting the ravages of the sea, lies probably in the employment of concretes which are formed nearly wholly of silicious substances united together by a feeble proportion of aluminate of lime. On this point M. Fremy cites the excellent indications given by M. Coignet on the subject of agglomeration of cements, saying that he has himself borne witness to their importance and correctness.

Portland cements, according to M. Fremy, have no good quality unless they are produced at a very high temperature. The aluminates of lime have this character, also of not being able to solidify under water unless they have been exposed to an intense heat; thus they seem to be the principal agent in hydraulic cements of rapid setting.

Perhaps the inferiority of some of the Portland cements of commerce may be traced to want of sufficient intensity of heat in burning. M. Fremy made the aluminates of lime, for his experiments, with a blast furnace.

ARTERIAL DRAINAGE.

The two great questions of the day undoubtedly are, our water supplies and our means of drainage.

Touching the first, the only serious problem requiring solution appears to be the one of expense; for although the engineering difficulties in some cases are many and great, they are by no means insurmountable. The necessary supplies can invariably be obtained, where limits as to distance are not imposed. The water question, then, I venture to think, may fairly be considered healthy. The imperative necessity in all places of a copious and pure supply is rapidly over-riding all other considerations.

Not so with the sewerage question. That it has not yet sufficiently impressed itself upon the people at large, and even our professional men, as a stern necessity, may be inferred, I think, from the fact, that when any extensive and consequently costly scheme of drainage is proposed, a half apology is invariably implied, in the suggestions so often made, for the utilization of the sewage.

Here, I think, lurks a great error; and I cannot but earnestly wish that the press, and all our engineers, would exercise their skill and influence in pointing out the necessity merely, leaving the pecuniary part of the question to take care of itself. In all cases let us have the best scheme, irrespective of cost.

All who take an interest in this great question must have felt gratified when perusing, in your last week's issue, the paragraph entitled, "The

* Otherwise La Trinita, between Naples and Salerno.
† Near Palermo.
‡ For notice of this church, see *Builder* of November 26, 1864.

Don Valley Drainage." The proposition is comprehensive, and so replete with sound engineering and good sense, that sooner or later it must be carried out. I believe it is the first occasion upon which a well-defined scheme, combining the drainage of more than one town, has ever been proposed.

The valley of the Don, however, it appears to me, is not the only one, by scores, where a similar scheme could, and should, be carried out. The valley of the Trent I believe to be well adapted for such a proposition; and the necessity for the realisation of such will sooner or later force itself upon public attention.

All who are acquainted with the geography of our little island know, that the river Trent has its source at the foot of a hill in Cheshire, called "Mow Cop," a few miles to the north-east of the Staffordshire potteries, and that it flows through the populous town of Stoke, to which converges the whole of the drainage of the pottery towns; from thence, passing to the east of Trentham Hall (formerly it ran through the Pool), it flows onward in a rapidly increasing volume, past the small and not over-cleanly town of Stone, and, of course, receiving all the sewage the inhabitants do not elect to keep under their noses. We next find it at Rugeley, having previously received the waters of the Sow and the Penk, and into which flows the sewage of Stafford and Penkridge; it then flows onward to the great beer-mart, Burton, having previously absorbed the waters of the Tame, into which the refuse of Tamworth is discharged, and which, some time ago, was attempted to be made the channel for carrying off a portion of the drainage of Birmingham. Leaving Derby a few miles to the north, it then receives, at a place called Sawley, the waters of the Derwent, into which falls the sewage of Buxton, Matlock, Matlock Bath, Belper, Duffield, and Derby.

About one mile south-east of the Trent Station on the Midland Railway it is joined by the Soar, the receptacle for the sewage of Leicester (deodorized at an annual loss), Barrow, of hydraulic lime notoriety, Loughborough, and the extensive village of Kegworth. About one mile to the east of the said Trent Station it receives the Erewash, which carries off the drainage of a large and populous valley, containing the manufacturing towns and villages of Long Eaton, Toton, Sandiacre, Ilkeston, and Codnor Park, where are the celebrated Butterley ironworks. Our river next passes about one mile to the east of Nottingham, receiving, of course, the whole of its sewage, together with that of the valley of the Leen,—a valley as extensive and as densely populated as that of the Erewash.

From Nottingham the Trent flows to Newark, having been augmented by the Greet,—the outlet for the drainage of the pretty little ecclesiastical town of Southwell, immortalized by its minster. After leaving Newark, it receives (with the exception of the Idle from Retford) no stream containing sewage contributions until it reaches Gainsborough: and here, becoming broad, deep, and tidal, I will leave it.

Turning back, I should wish to point out, that from Newark to Lincoln, and from thence to Boston, there exists one almost dead level, of exceedingly light, sandy (and in some places, peaty) soil; with absorbing powers almost unlimited, and without one stream of water, excepting those of an artificial nature, for drainage purposes. This area is exceedingly favourable for a scheme of drainage, particularly as to its levels; for, whilst the Trent flows with a rapid current down to Torksey, there exist but a few feet of fall between Lincoln and Torksey. From Lincoln to Boston there is, I believe, a fall of 18 ft.

My scheme, in a few words, is to make one grand arterial drain or sewer, into which all the towns and valleys I have enumerated shall discharge their refuse.

In the vicinity of each town and village I would make it a covered drain; but in all other places an open one. Through its entire length, however, I would have it smoothly and substantially paved with terro-metallic blue brick, of the best quality. At suitable intervals, and as the districts rendered it desirable, I would provide flood-gates, and means for carting away the sediment. The details would, of course, be worked out upon exact engineering data.

Once in the valley of the Trent, there would be no lack of flushing power. Each spring and autumn, in their recurring courses, bring floods; and these would do the necessary work, and whilst cleaning the great artery add to the fertilizing power of these waters, where it might be considered advisable to render them available.

To those who know the valley of the Trent as well as I do, the scheme I propose will at once commend itself, as feasible and free from engineering difficulties.

The cost would be mainly incurred in the immediate neighbourhood of each town; deducting, however, the cost of pumping power, or settling tanks, and deodorising works, necessary in all isolated cases. I am confidently inclined to think that the scheme I propose would but little exceed in cost the aggregate of works contemplated for the towns I have mentioned, should they be executed independently of each other.

Were it advisable to point out, and make a prominent feature of, the application of the sewage, I can confidently affirm that few valleys offer greater facilities and advantages than the valley of the Trent. The soil throughout would profit by the sewage, and in some places peculiarly so. At intervals occur large areas and stretches of land containing many thousand acres each of gravel and sand-drift, thinly covered with mould. For such districts sewage could be applied without stint, and would be accepted and paid for as a great boon. So porous are these gravel and sand beds or drifts, that although immediately bordering the Trent, they are often in dry weather burnt up and comparatively valueless.

The wants of the tract of land lying between Newark and Lincoln I have previously alluded to.

To those who object to my scheme as visionary and Utopian, I would put the question, show us a way out of our difficulties? Birmingham, Nottingham, and Lincoln are already in a fix. We cannot continue to discharge our refuse into the Trent; that will not be tolerated much longer. The supply of water at Nottingham drawn from the Trent, at the Trent Bridge, has been this week unanimously condemned as impure and dangerous, and this in a great measure from sewage discharged into the Trent a little above what is known as the "Wilford Boat." Besides, the thing is monstrous, and a gigantic commercial blunder, to throw away so much valuable manure.

The difficulty is an increasing one, and overwhelmingly alarming to all thinking minds: already the population of the midland towns I have alluded to approaches very nearly to one million of souls, and undoubtedly will in a short time exceed those figures.

I will here leave my proposition, commending it to the consideration of all those who, like myself, are impressed with the unsatisfactory position of the drainage question, and who esteem human life of more value than gain.

Ignorant and selfish men, no doubt, will laugh and sneer, deriding my idea, and, shrugging their shoulders, congratulate themselves that they are not likely to be called upon to pay towards such a scheme. To such (viewing it as a life question) I venture in conclusion to suggest, that our gracious Lord and Master has unmistakably manifested His estimation of the value of humanity over all earthly things; and delayed as the serious consideration of this great question may be by the many, the time will come when human beings and human life will be esteemed of more value than silver or gold.

FREDERICK BAKEWELL.

MEETINGS OF COUNTY ARCHÆOLOGICAL SOCIETIES.

THE Kent Archæological Society held their annual meeting at Ashford. The proceedings commenced by a meeting in the Corn Exchange, under the presidency of Marquis Camden, K.G., who has since suddenly died. The Rev. J. P. Alcock, vicar of Ashford, commenced the proceedings by addressing a few words of welcome to the president, and the other members present. The report of the council was then read and adopted. The party afterwards proceeded to the church, of which a description and history were read by the Rev. A. J. Pearman.

The college was next visited, and Mr. Pearman also gave a short history of that building. An excursion was then made to Godinton, the ancient seat of the Toke family, and thence to the church of Great Chart. The weather unfortunately was unpropitious.

Dinner was partaken of in the old Corn Exchange. At the conclusion, the company adjourned to the new Corn Exchange, where a temporary museum was exhibited. Sir Walter Stirling presided at the evening meeting in the new Corn Exchange, at which a paper "On the History and Antiquities of Ashford" was read by the Rev. A. J. Pearman.

The evening concluded with a paper "On the Pilgrim path," which runs through this county, read by Mr. T. Thurston.

The programme for next day comprised an excursion by way of Boughton Aluph, visiting its church and the old vicarage house, past Godmersham Church, to the ancient fortress of Chilham Castle, which Mr. Charles Hardy had thrown open to the society for inspection. The Rev. R. C. Jenkins undertook to conduct the society over the remains of the castle.

On leaving Tremworth House, the company visited Olanteigh Towers, and the owner accompanied the visitors over his picture galleries.

The attendance on both days was very large, and facilities were afforded by the South-Eastern railway.

The Surrey Archæological Society's excursion took place on Saturday before last, under the presidency of Mr. Charles Buxton, M.P., when the following places were visited, viz.,—Slyfield Stoke D'Abernon church, Cobham church, and the King's House, Byfleet. Leatherhead station was the rendezvous, where conveyances awaited the members and friends.

The party partook of a collation at the Cobham schools provided for them by the president, and there were about 200 guests present. The papers read included one on Slyfield, by Mr. C. Baily; on Stoke D'Abernon Church, by the Rev. P. Parr Phillips; on Cobham Church, by the Rev. E. Loring, vicar of the parish; and on the King's House, Byfleet, by Mr. Buxton.

The Sussex Archæological Society held their annual meeting at Eastbourne; but the weather not being favourable, the meeting was an unusually small one. The proposed visit of the British Archæological Association to Hastings, no doubt also helped to diminish the attendance. The meeting, however, was sufficiently large to show the vitality of the society, and the interest felt in its proceedings. The party first visited the parish church of St. Mary, when Mr. G. F. Chambers pointed out the chief features of interest. The supposed Black Friars monastery and the ancient parsonage-house were then visited, and the Early English crypt beneath the Lamb Hotel; the various points of interest in all being explained by Mr. Lower, Mr. Chambers, and other gentlemen. The business meeting was afterwards held in the assembly-room at the Lamb Hotel, under the presidency of Mr. J. A. Hankey, high-sheriff of the county. A long paper "On Eastbourne" was partly read by Mr. Sax Bannister; but as it was resolved to print it, the remainder was left unread. In the afternoon the members and their friends met in the Cricket-ground, at a cold repast, in the society's marquee, the high-sheriff presiding, in the absence of the Earl of Chichester.

The Wilts Archæological Society have postponed until next year the general meeting which it was intended to hold at Chippenham this autumn. In lieu of the general meeting it is proposed to hold a *conversazione* in Devizes, in the course of the autumn, for receiving a report, electing the officers of the society, and other business, which will be followed by the reading of papers on divers matters of interest connected with the archæology of the county.

LOANS FOR THE ERECTION OF LABOURERS' DWELLINGS.

THE rules and regulations with reference to loans to be made towards the erection of dwellings for the labouring classes, under the 29th Vict., c. 28, have been printed. The applications are to be addressed to the Public Works Loan Commissioners through their secretary, setting forth the description and nature of the company or authority proposing to obtain an advance, accompanied by plans of the ground and of the proposed buildings, together with an estimate of the cost and a statement showing the proposed method of raising the difference between the loan and the estimate. The applicant is also required to give an undertaking that the houses are *bonâ fide* intended as dwellings for the labouring classes. "Parties to whom loans may be advanced will be required to enter into covenants to repair and insure for user (as far as practicable), by persons belonging to the labouring classes, and to submit to such by-laws as shall be approved by the Commissioners of

the Treasury, and to such inspection of the dwelling-houses from time to time, both as regards repair and conformity to by-laws, as the Commissioners of the Treasury may direct."

We congratulate the Treasury on the production of a sentence which would, we think, baffle the ingenuity even of a candidate for a junior appointment in the office.

Should the plans and security offered appear satisfactory to the Public Works Loan Commissioners, application is to be made through them to the Treasury for the sanction of the proposed loan, which will then be given, subject to the sufficiency of the title being established for the satisfaction of the Public Works Loan Commissioners.

The plans, specifications, and estimates will be submitted by the Loan Commissioners to the Board of Works, who will decide as to the suitability and sufficiency for occupation by persons of the labouring classes. All applications for instalments of advances are to be made to the Public Works Loan Commissioners, giving a certificate of the expenditure incurred and of the state of the works, which will be subject to the inspection of an officer of the Department of Works.

DOMESTIC ECONOMY.

Amongst the questions set under this heading, in the Society of Arts new Examination Papers, are the following:—

Describe a convenient and economical dwelling for a working man and his family, say of four children.

What circumstances would influence you in the choice of a dwelling-house?

Give advice concerning the selection and purchase of household furniture.

What are the effects, moral and physical, of over-crowded dwellings in town and country? What remedies can you suggest for these evils?

What occupations of the labouring classes in our towns do you consider the most healthy, and why?

Write a short essay on the most common habits injurious to health and strength.

How may hard water be rendered soft?

What are the advantages and disadvantages of an open fire-place? What precautions should be observed in the use of close stoves?

THE FALL OF A HOUSE IN HOLBORN.

An inquest has been held on the bodies of two persons killed by the fall of a house, No. 6, Ely-court, Ely-place, Holborn, on Wednesday in last week. A number of witnesses were examined, some of them stating that the proprietors had frequently been cautioned that the house was unsafe. This an Italian named Guanziroli, who is a Hatton-garden tradesman, said he especially did some sixteen months ago, when another of the houses fell, which has not been replaced. He noticed two cracks in the walls, and a beam propping up the house was rotten, and was removed without being replaced.

Mr. J. Clarkson, clerk to Mr. Porter, district surveyor of Holborn and East Strand, deposed that on the 5th of May, 1863, he had an interview with Mr. Guanziroli, whom he was in the habit of meeting. He said to witness, "I don't want to do anything unneighbourly, but what do you think of these premises?" Witness examined the walls, and told him that he did not think that it was a case to report to the Commissioners of Police. Witness had no recollection of seeing any cracks, or the strut placed against the wall. He did not think the parapet was seriously leaning over the wall. It was difficult to say how the building fell, but he thought the wall on the first floor above the level of the pin which was now standing, gave way and took the roof and ceilings with it. He did not think that the stack of chimneys first fell. Witness had no intimation from Messrs. Ledger & Clarke, the proprietors, as to the state of the house. He went over the other premises in Ely-court with the surveyor of the Commissioners of Police since the accident, and they determined upon putting up certain shores, but he would have no hesitation in sleeping at present in any of the other five houses in Ely-court. The timber of the house which fell was old, but the timber of a large number of houses in London was in as bad a state. The occupiers of the premises, had they been wise, would have reported the state of the premises. A house might fall down from some latent cause.

Ultimately the jury returned a verdict that the deceased persons were suffocated by the fall of a house, No. 6, Ely-court, Holborn, on Wednesday, the 15th inst., such fall arising from accidental causes; but they were of opinion that there had been a want of proper precaution on the part of Messrs. J. V. Clark & W. Ledger, in not replacing the strut which they removed sixteen months ago, and which strut was the support of the house that had recently fallen in.

COMPETITIONS.

Free Library, Birmingham.—By vote of the Birmingham Town Council, at their meeting on the 7th inst., the plans of Messrs. Bateman & Corser were adopted for the Free Library, Gosta-green. The architects invited to send designs were Messrs. Bateman & Corser, Messrs. Martin & Chamberlain, Mr. Bland, and Mr. Thomason. The latter had to forego the competition in consequence of ill-health, but designs were forwarded by the others.

Taunton.—The committee for building a new college for the West of England Dissenters' Proprietary School at Taunton, invited competitive designs from the following gentlemen, all of whom complied with the invitation:—Messrs. Wilson, of Bath; Tarring, of London; Joseph James, of London; Ashworth, of Exeter; S. Shewbrooks, of Taunton; and Messrs. E. Godwin & Crisp, of Bristol. They have awarded the first premium to Mr. James, whose design will be carried out under his superintendence; the second, of 50*l.*, to Mr. Shewbrooks; and the third of 25*l.* to Mr. Tarring.

THE TRADES MOVEMENT.

Manchester.—In consequence of a partial strike among the carpenters and joiners for a rise of 2s. a week in their wages, the masters have locked all out; and as the tailors are in a like position, several thousands of workmen have been thrown simultaneously out of employment.

Dewsbury.—There being a strike of masons here, threats and intimidation are being used to force workmen from their employment, and a prizefighter has been brought before the police magistrates and bound over to keep the peace, from having practised intimidation by using threats to a journeyman mason.

Tunbridge.—Nine of the English navvies who made a dastardly attack upon the foreign labourers on the Surrey and Sussex line, have been brought before the Tunbridge Bench, and five of them have been committed for trial at the Maidstone sessions. Messrs. Waring, Brothers, deny that they pay their foreign workmen lower than they pay Englishmen. They say that, being in want of more men than they can get, they are hiring all able-bodied men who present themselves, without respect to nationality. Most of their foreign navvies are Belgians, who, after paying their expenses in this country, find that they can lay by as much money as the whole of the wages they would receive in Belgium would amount to.

Newcastle-upon-Tyne.—The iron-workers are returning to their employment at a reduction of 11 per cent. on former prices. The workmen's union suggest arbitration, which the masters will not agree to.

THE BOSTON BATHS.

The corporation baths of this town have lately been thoroughly repaired and put in order, under the direction of the corporation surveyor, Mr. Wheeler. The baths and the grounds adjoining were laid out about three years ago, the funds being provided by some of the leading inhabitants of the town, who took the land on lease from the corporation. For the last ten years or more, owing to the death of some of the acting trustees, and others leaving the town, they have been entirely neglected and almost disused. On the expiration of the lease the land reverted to the corporation, who, considering the great advantage to the inhabitants of the town in having, at a small cost, access to both hot and cold salt-water baths, and in maintaining in good order the walks and plantations attached thereto, determined to maintain and repair them at the expense of the corporate funds. The result has proved more successful than was anticipated: great numbers of persons daily make use of them, and the receipts, so far as they have gone, promise to pay the annual expenses of maintenance and interest on the outlay.

The land on which the baths are built is about twelve acres in extent, and was originally a piece of marsh, covered daily by the tides. This was inclosed by an embankment, and the ground laid out in walks and planted, the reservoir for the baths forming an ornamental sheet of water. The baths consist of an open swimming-bath, 70 ft. square, to which a charge of 6d. is made for admission; another open swimming-bath, 100 ft. by 40 ft., free to the public; a ladies' swimming-bath, and a ladies' private cold bath, covered in; and five hot-water baths. The water is salt, and is taken into the reservoir from the river at the top of the tides, and allowed to settle before being used.

The swimming-bath has been paved with glazed earthenware tiles, made for the purpose by Messrs. Cliff, of Leeds; they are 9 in. square and 2 in. thick, with holes in the sides to admit two wooden pegs or dowels. Before laying the tiles, the bottom and sides were excavated to a depth of 6 in., and the space filled in with cement concrete, the soil being a quick silt. The bath is supplied with Macfarlane's patent cast-iron bathing shades. The hot baths have been fitted with a new boiler, and are heated by means of coils of pipes in the bottom of each bath, through which the steam circulates. This method has been adopted as the water used in the baths is salt, and to avoid pumping, which would be necessary if it were heated in the boiler, the reservoir being on a level with the baths. The charge for admission to the hot-water baths varies from 3d. to 1s.

The land immediately adjoining, about thirty acres in extent, is the property of the corporation, and it has been proposed that this should be converted into a public park and recreation ground; a proposition which there is every disposition on the part of the corporation to carry out as soon as their funds will admit. This will be a great boon to the inhabitants, as there is not a single acre of open space in the borough that can be used for public exhibitions or amusements.

NEW POORHOUSE FOR SOUTHAMPTON.

On the 7th instant the foundation-stone of this building, about to be erected from the designs of Mr. T. A. Skelton by Messrs. Bull & Sons, contractors, was laid by the mayor of Southampton, Mr. S. M. Emanuel.

The whole of the buildings are to be erected with red bricks, the front block, containing the board-room and offices, facing St. Mary-street, being relieved with stone dressings. The second block, containing the master's residence, is also to have stone dressings, and is surmounted by a stone cupola, which serves the double purposes of lighting and ventilating the staircases and corridor of the building. The style of the designs is Italian. The other buildings are to be plainly and substantially erected, and ornamented with moulded bricks, cornices, &c.

The accommodation provided is for 518 inmates; each class having its work and day rooms, such as carpenter's shop, oakum shed, laundry, &c.; and in addition to the above is the nursery, the separation, or disorderly, and vagrants' wards, and the refractory cells conveniently placed near the porter's rooms at the entrance, the entire establishment being provided with its chapel, board-room, and clerk's offices, waiting-rooms, master's office and residence, matron's rooms, dispensary, vaccine-room, and porter's residence, together with dining-hall, kitchen, scullery, boiler-house, stores, &c.

The general arrangement is based on the advantage of placing the main blocks of buildings, north and south, with their windows east and west, so as to afford a fair amount of light and air to each room, and to have no dwelling-rooms with a northern aspect only. This arrangement, by compelling the separation of the building into several blocks, facilitates the classification and subdivision of classes of inmates.

The infirmary comprises three floors. It is arranged on the plan recommended by the com-

mission appointed to inquire into the construction of military hospitals, 1861, which requires the blocks of buildings to be placed north and south, with the windows facing to the east and west.

The amount of space recommended by the above commission is 1,200 ft. to 1,500 ft. cubic space for each inmate, while the minimum required in sick wards by the Poor Law Board is only 500. The space shown on the plan is 66 ft. superficial, and 790 cubic feet each inmate.

The wards are to be heated by open fireplaces, and ventilated by the tripartite windows.

At the banquet that followed the ceremony, some ill-feeling was excited *pro* and *con*. by charges of non-attendance on cholera patients by ministers of the Established Church. If the charge had been true, it was not a nice time to make it.

THE CONNEXION BETWEEN WATER AND CHOLERA.

The Registrar-General in his last report, says:—

"There are seven districts in the east: the mortality by cholera in the poor district of Shoreditch was at the annual rate of 4, by cholera and diarrhœa 8, in 1,000; five of its sub-districts are supplied by the New River, one partially, and one wholly by the East London, probably from Lea Bridge. In the rest of the east districts the mortality by cholera was at very different rates; it was at the rate of 39 per 1,000 in Bethnal-green, 50 in Mile-end Old Town, 60 in St. George in-the-East, 70 in Whitechapel, including deaths in the London Hospital from other eastern districts, 70 in Poplar and Bow, and 80 in Stepney. Bethnal-green is one of the poorest districts of London, if we may judge by the annual value of the houses; but the people of Bow and Poplar are not conspicuous for poverty. The whole of these districts where the mortality from cholera was from thirty to forty fold higher than it was either in the west or the central, in the north or the south of London, were supplied with water from the Old Ford reservoirs. London is divided into 37 districts; six districts are supplied from Old Ford, and every one has been ravaged by the epidemic; the other 31 districts have for six weeks in succession suffered slightly. The 37 districts are subdivided into 135 sub-districts; 21 are supplied with the same water, and have all suffered six weeks in succession; 115 sub-districts have suffered inconsiderably, except in St. Botolph and a few other districts, where the same water has crept in, and the mortality is partially swollen. By the doctrines of chances it is impossible that the coincidence between this particular water and the high mortality should be fortuitous in 135 cases, during six weeks in succession. The induction extends over all the area of observation in previous epidemics, where sewage water has so often led to cholera outbreaks. The persistence of the epidemic in the east London districts is no proof that the supply of the company is *now* worse than that of other companies, as its effects on the place and on the population only subside slowly. This great lesson should be taken to heart by every water company and every community in the kingdom. Unclean water cannot be consumed with impunity; its consumption is the sin of which cholera is the punishment."

RAILWAY MATTERS.

The South London line of the Brighton Railway has been opened for public traffic, it having been officially inspected by the representative of the Board of Trade, and reported to have been satisfactorily completed. The South London places a large suburban district in immediate railway communication with the great system of the Brighton and South Coast Company. It is a line intended to run from London Bridge to Windsor, passing through Rotherhithe, Old Kent-road, Peckham, Peckham-rye, Denmark-hill, and Loughborough-park (Brixton), and thence on to Victoria. The portion completed and open for traffic is nearly nine miles in length, and extends as far as Brixton. There are stations at each of the places named. At London Bridge (where there are three lines of rails) the new station is large and commodious. Along the line are some heavy works, including several bridges with rather extensive spans. At present it is proposed to run trains every twenty minutes throughout the day. The fares are about the same as those charged by the omnibuses running in the districts. All the trains are first, second, and third class. The line was formally opened in the presence of Mr. Craven, the engineer, and other officials of the line.

The Cannon-street Station of the South-Eastern Extension will be opened on the 1st of September. The bridge, station, signalling apparatus, &c., have been examined and reported upon favourably by Col. Yolland, of the Board of Trade. This station has nine lines of rails, and five platforms of great width, one of them having a double carriage road for exit and entrance. The signal-box at the entrance to the station extends from one side of the bridge to the other, and has a range of sixty-seven levers, coloured yellow for distance signals, red for in trains on the east line, blue for out, and black for points.

The station has six rows of globular lamps. The segmental roof is wider in a single span and longer than the roof of any other building in London. At the inner corners of the station there are to the right the station-master's offices, and adjoining them the bullion office, which will be furnished with a large strong safe from Chubb's. At the opposite corner there are refreshment-rooms, booking-office for local traffic, &c. The principal booking-offices and waiting-rooms, with the entrance and exit to and from the station platforms, are, as at Charing-cross, on and through the ground-floor of the hotel. The nine lines in the station are reduced to five lines in crossing the bridge.

The Cannon-street Station is 350 yards from the Bank of England, 300 yards from Cheapside and Cornhill, 750 yards from the General Post-office, and about 600 yards from St. Paul's. It is expected that trains will run between Cannon-street and Charing-cross at intervals of about five minutes. The Strand will thus be greatly relieved, both as regards vehicles and pedestrians.

THE GROSVENOR HOTEL, CHESTER.

The Grosvenor Hotel, at Chester, which forms the subject of our illustrations, was opened to the public in the beginning of the year: it occupies an important situation on the north side of the Eastgate-street, one of the principal thoroughfares of the city, and includes the whole space between the city walls on the east and Newgate-street on the west.

The site was previously occupied by the Royal Hotel and various shops and premises, which were removed for the construction of the present hotel.

The whole of the buildings have been executed at the cost of the Marquis of Westminster, his lordship, together with Earl Grosvenor, having shown great interest throughout their erection. The style of architecture (somewhat in accordance with the existing buildings of Chester erected in the latter end of the sixteenth and commencement of the seventeenth century) was arranged by Earl Grosvenor with the late Mr. Thomas M. Penson, and this character has been maintained throughout.

The "Row," which is peculiar to Chester, and which existed in the former buildings occupying the site, had to be preserved, and forms one of the principal features in the Eastgate-street front, the superstructure being carried on a colonnade formed of polished Anglesea marble shafts, with moulded stone bases and carved and moulded capitals, and which support a series of wrought-iron (box) girders and stone lintels. The general face of the work is of red pressed bricks, the jambs, mullions, sills, and heads of windows, and all external angles, being composed of Bath stone.

The upper stories of the Eastgate-street front, and a portion of the return front in Newgate-street, present externally the appearance of a timber construction with plaster panelling, the gables being decorated with moulded and perforated verge boards, surmounted by wrought-iron finials. The external timber-work throughout the other portions of the buildings, is more sparingly introduced, being for the most part limited to the gables, the general face of red brick and Bath stone being continued.

The angles of the principal building are terminated by turrets, resting on stone moulded corbels; the upper parts of the turrets are made in conformity with the timber framing of the fronts, with which they range, the roofs being covered with lead, carried up a considerable height above the eaves cornice, and are terminated with wrought-iron finials painted and gilded. At the corner of the Eastgate-street front next Newgate-street, the lower part of the angle turret is treated in a distinct manner, a corbelled panel being brought out to receive the Westminster Arms, which are carved thereon in high relief: the upper part of the panel in front contains the name of the hotel and date of erection.

The principal entrances to the hotel are from the Row, in Eastgate-street, and by a recessed colonnade, of similar construction, in Newgate-street, this latter being principally intended for the use of the assembly-room, and is in close proximity to a stone staircase, and promenade corridor attached to the same.

Entering from the Row, through a vestibule and glass screen, are the hall and principal staircase, 45 ft. by 24 ft., with the bar immediately facing. The principal rooms on the groundfloor are the coffee-room, 40 ft. by 24 ft. 6 in.; commercial-room, 32 ft. by 20 ft.; smoking-room, 23 ft. by 15 ft.; billiard-room, 44 ft. by 24 ft.; and other smaller sitting-rooms; there are also bar parlour, still-room, washing pantries, plate-room, &c. &c. The kitchen is 36 ft. by 24 ft., fitted with cooking-ranges of several descriptions, hot closets and tables; and the scullery adjoining, 26 ft. by 17 ft., contains steaming apparatus and ovens and ranges; there are also spacious larders, pantry, &c.; also servants' hall, brushing and cleaning rooms, and all other suitable offices necessary for the working of a large establishment; all approached by spacious corridors and passages well lighted and ventilated.

Ascending the principal staircase (of York stone moulded steps and landings), the main first-floor landing is reached, and from thence the whole extent of the building may be traversed by spacious continuous corridors, from which proceed the several staircases communicating with the upper floors. The principal rooms on the first floor are the Westminster, or ladies' coffee-room, 32 ft. square; the assembly-room, 34 ft. by 68 ft.; refreshment or supper room, 36 ft. by 30 ft., with large serving-room adjoining; there are also numerous sitting and bed rooms, bath, store, and linen rooms, housemaids' room, coal and dinner lifts, and all other conveniences.

The second and third floors and the attic floors are chiefly occupied by bedrooms and the necessary requirements of a large hotel.

Large cisterns are provided on the attic floor for an ample supply of water, and hydrants are fixed in various parts of the premises on ground-floor as a security against fire.

The middle of the site is occupied by a large central court, affording light and air to the buildings which encompass it. This court is laid out as an ornamental garden, having a spacious ornamentally tiled and flagged ambulatory around, and at the centre of the south end of the court is an enriched clock turret and gable, springing from a stone shaft and impost. The clock has an illuminated face, and may be readily seen from the greater portion of the rooms.

In a detached building are situated commodious wash-house, laundry, and drying-room, with steam-boiler apparatus for supplying the washing-tubs, boiling clothes, &c.

Immediately adjoining the main hotel, and forming part of the hotel buildings, is the tap, which is in itself a distinct and perfect establishment, having separate entrances, hall, bar, bar-parlour, public sitting-rooms, kitchen, scullery, and all suitable offices, with bed-rooms on the first and second floors, together with all requisite conveniences.

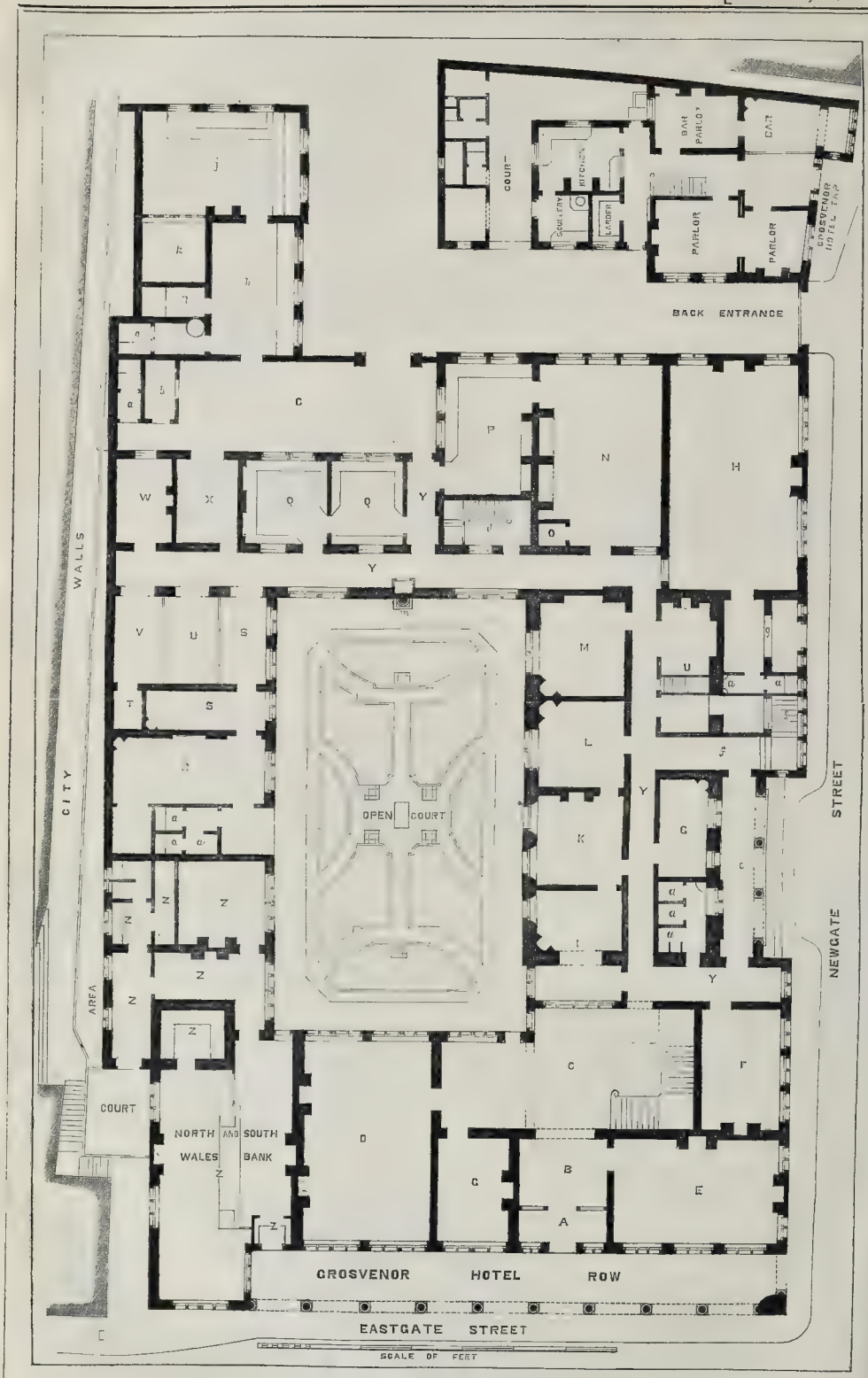
On the opposite side of Newgate-street, facing the hotel, are situated the stables and carriage houses, having large open yard and spacious sheds, together with residence for the superintendent: the stables are spacious and airy and have fittings of a very superior description; harness, saddle, and cleaning rooms are also provided and furnished with the best and most modern contrivances for carrying on the work of the establishment. The lofts are also very commodious.

The works at the hotel and offices attached, and the tap buildings, have been carried out under several contracts, by Mr. Thomas Hughes, of Aldford, builder; the stable buildings and residence attached were contracted for, and have been executed by, Messrs. B. & O. Owens, of Chester, builders.

The whole of the buildings have been erected from the designs and under the superintendence of Messrs. Penson & Ritchie, of Chester, architects.

REFERENCES TO GROUND PLAN.

A. Principal Entrance.
B. Lobby.
C. Hall and Staircase.
D. Coffee-room.
E. Commercial-room.
F. Smoking-room.
G G. Sitting-room.
H. Billiard-room.
I. Bar.
K. Bar-parlour.
L. Still-room.
M. Plate-room.
N. Kitchen.
O. Dinner-lift.
P. Scullery.
Q Q. Larder and Pantry.
R. Servants'-hall.
S S. Brushing-rooms.
T. Luggage- and Coal-lift.
U U. Commercial Luggage.
V. Boot-cleaning.
W. Porter's-room.
X. Coals.
Y Y Y. Corridors and Passages.
Z Z Z Z. Bank Premises.
a. Water-closets, Lavatories, &c.
b. Ashes-place.
c. Kitchen-court.
d. Staircase to First-floor.
e. Entrance to Assembly-room, &c.
f. Staircase to Assembly-room.
g. Kitchen-entrance.
h. Washhouse.
i. Laundry.
k. Drying-room.
l. Steam-boiler, &c.
m. Illuminated Clock.



THE GROSVENOR HOTEL, CHESTER.



THE GROSVENOR HOTEL, CHESTER.—Messrs. Kyrke Penson, & Ritchie, Architects.

LECTURE BY LORD RUSSELL.

At the fifth annual meeting of the Devon Association for the advancement of Literature, Science, and Art, held at Tavistock, Earl Russell delivered an address, in which, as already mentioned by the press, he reviewed the subjects of science, literature, religion, and politics, declining to treat of art in what his lordship called its native soil,—the county which produced Sir Joshua Reynolds.

On the general subject of science in which, he said, he had availed himself of aid afforded him by an eminent scientific friend, his lordship thus addressed his audience:—

The progressive improvements and refinements in the analysis of light since the time of Newton have recently led to an unexpected insight into the material constitution of the sun and the other great light-giving bodies of the universe, viz., the fixed stars. High microscopic power, subtle mechanical adjustments of the prism, and an apparatus for polarization of luminous rays, have, in combination, led to the detection of the characters of substances which in a state of incandescence emit the rays of light. Thus knowledge has been gained into the metallic constitution of the sun, and of some of the brightest of the fixed stars.

Our own time has seen some of the most interesting applications of chemistry combined with advanced knowledge of the nature and power of light which it is possible to conceive: I allude to the solar pictures called photographs. Every year sees some new and important improvement in this great discovery. Thus pictures, in which the most delicate details are faithfully preserved, are printed from the electrotype plate obtained from the photograph. The details of the illuminated surface of the moon are obtained with wonderful accuracy, and a photograph of Jupiter has been taken, in which the belts of cloud are well marked, and the satellites are distinctly shown. This science, on wing that never tires, has pursued her flight from the days of Galileo to our own time, losing nothing that she has acquired, but always adding new realms of knowledge to her former conquests. Returning to photography, it is curious to observe that the photographic eye is more sensitive than the living one; it can receive and register impressions too fine for human vision until increased light and new agency have improved our perceptions. Photography is now an indispensable servant in important meteorological records. Again, the engineer at home can ascertain, by photograph transmitted by successive mails, the progress, brick by brick, plank by plank, nail by nail, of the most complex works in the Indian railways. The physician can register every change of physiognomy in mental malady. The emigrant may carry with him miniatures such as neither Denner nor Gerard Dow would have equalled in their details, of the persons and scenes with which his dearest memories are entwined. Photography is also important to our social relations by giving new facilities to the officers of justice for the detection of criminals.

The most valued, perhaps, of the generalizations of science in the present century are those of the conception of force as being centred in points of space, not in points of matter; of the principle of the conservation of force; of heat, light, electricity, magnetism, galvanism, chemistry, as being modes of force; and, finally, of their universal convertibility into one another. Remote as such profound conceptions and subtle trains of thought seem to be from the needs of daily life, the most wonderful and astounding practical augmentation of man's power has sprung therefrom. The material advantages to be derived from Oersted's experiments with his small magnets, voltaic pile, and coils of copper wire, seemed hardly appreciable; but from these, and the discoveries springing from these phenomena, has come the electric telegraph. The philosopher, indeed, foresaw such an application of his newly-discovered power of converting electricity into magnetism. The inventive faculty of Wheatstone gave us the application. On the 6th of August, 1858, the laying down of upwards of 2,000 nautical miles of telegraph wire, connecting Ireland with Newfoundland, was effected; and on that day was sent, in thirty-five minutes, the following message:—"Glory to God in the highest: on earth peace and goodwill towards men." The President of the British Association at that time most justly observed,—"Never since the foundations of the waters were laid could it be more truly said, 'The depths of the sea praise Him.'" That success was not lasting; but again, in 1866, the month of August has witnessed the transmission of messages between the Queen of the United Kingdom and the President of the United States, which augur, I would fain believe, "On earth peace and goodwill towards men."

GRANTHAM TOWN HALL COMPETITION.

In reply to advertisement for designs, the cost of building, with stoves and everything, not to exceed 6,000*l.*, six designs were sent in, of which three have been referred to a gentleman to be named by Mr. G. G. Scott, to report as to the cost, &c. A correspondent objects, beforehand, that each of the designs selected would cost more than the sum named, and urges that, should the referee so report, the council should, as a matter of course, fall back upon one of the *plainer* designs submitted. "If," he says, "the council intended to have had an ornamental building, they should have named a sum in their conditions which would have allowed of an ornamental building being erected. But when any of the competitors, complying with their requirements, take the council at their word, and produce a *plain* building, it is a breach of faith to overthrow their designs for those whose only superiority consists in their being more elaborate and costly than the others. I trust that the council will adopt the line of conduct I have endeavoured to point out, and which I am sure the profession generally will endorse as being the only right one."

CHIEF CONSTABLES AND THE SANITARY ACT.

Sir,—Having observed in one of the recent numbers of the *Builder* an elaborate review of the Public Health Act of 1866, in which you attach much importance to the 16th clause, which gives to chief constables power to interfere for the prevention of nuisances, with the sanction of the Secretary of State, I beg you to reflect on the very uncertain position of chief constables, and the danger of being dismissed from their situation if they venture to interfere with the duties of their employers; for town councils, boards of health, nuisance committees, &c., are the persons who appoint and control chief constables, and those inhabitants who seek to set a chief constable over a nuisance authority are not his friends, for his term of office would be very short under such circumstances.

I believe it is not your rule to insert letters of this description in the *Builder*, but if so, perhaps I am not asking too much if I beg that in your editorial capacity you may be disposed to insert a few remarks, so that the public may learn the truth, and our rulers in framing laws see the difficulties surrounding the Act of Parliament in question.

Observer.

WHAT IS A RIVER, AND WHAT ARE ITS USES?

A river is the drain of a hilly district, which carries the water that falls from above, or that which springs from beneath, along the low grounds till it empties it into the sea. The quality of the water depends partly on the nature of the ground through which the rain filtrates to nourish the springs, and partly from the surface over which the redundant water flows before it reaches the river. Rain, as it descends from the clouds, is pure distilled water, and will readily absorb any soluble matter with which it comes in contact: in passing through the earth it partakes of the nature of the soil, whether it be chalk, clay, iron, or any other: in passing over the surface it absorbs the salts from decayed vegetable or animal substances, which it holds in solution, and from which it cannot be separated except by distillation. Water is thus said to be hard or soft in proportion to the quantity and nature of that which it holds in solution; when the rain falls more rapidly than the soil can absorb it, it acts as a natural scavenger, washing away all the impurities from drains, cesspools, ditches, &c., and drives all such matter into the river, where they become mechanically mixed, or, as it is generally termed, the water is made muddy. These grosser particles can be removed by filtration, which is nothing more than sifting, just as broken earthenware, oyster-shells, &c., are separated from ashes at a dust-heap. Having now seen what a river is, let us consider what are its uses. Its waters convey fertility to the valleys, and furnish food to plants from the impurities which it has brought down from the water-shed of the adjacent country; it supplies canals with the means of transport to merchandise; it furnishes power for grinding corn, &c. Are we, therefore, justified in making use of the water of a river for the supply of drink to the inhabitants of our towns and villages? Let us take one example. The river Lea rises at a small village in Bedfordshire, called Leagrave; thence it flows to Luton, a manufacturing town, of about 20,000 inhabitants, the liquid from the sewers of which, after being deodorized, fall into the Lea; it then passes through an agricultural district to Welwyn, Hertford, Ware, Broxbourne, and finally enters the Thames. One of its tributaries, the Mimram, rises at Whitwell, and after receiving the drainage of a tan-yard, passes on to its junction. Another tributary receives the drainage of Walkern, a considerable village. Thus, four towns, many more villages, and homesteads, send forth their refuse by the river Lea to the vicinity of London. Can such a stream be a proper source for water-supply to the inhabitants of any part of London? Filtration may make the water clear, but it does not remove the impurities which it holds in solution. Whence, then, can water be obtained for the great metropolis? Any one acquainted with a chalk district can testify to the amazing quantity that may be procured from wells sunk deep into the chalk formation; a number of these sunk a mile or two apart would furnish a very considerable supply. Let any person examine the natural springs at Ashwell, on the Royston and Hitchin Railway, the source of the River Cam, or inquire at the Hitchin Railway-station, where the whole water-supply to the engines of the Great Northern Railway is obtained from a well, and he will then form some idea of the treasures of good water which the chalk contains. It might be worth consideration whether two kinds of water might not be supplied, viz., spring-water for drink, and river-water, which is softer, for cleansing purposes. As a very small proportion of the water is drunk, sufficient might thus be obtained without fetching it from the mountains of Wales.

N.

THE MONUMENTS, WESTMINSTER ABBEY.

Observing in your report of Mr. Westmacott's Lecture on the "Sculpture in Westminster Abbey,"* the inference made by that gentleman that the figure of a female, with a cross beside her and a dragon at her feet, among reliefs in the chapel of St. John, may be meant for the Blessed Virgin, I venture the suggestion that it may more probably be St. Margaret, whom legends represent as slaying a terrific dragon by virtue of the holy symbol. See Wordsworth's sonnet on the Worship of Saints—

> "St. George, whose flaming brand
> The dragon quell'd, and valiant Margaret
> Whose rival sword a like opponent slew."

Though it is, in fact, a cross, not a sword, that is often given to her in art as the instrument of her mysterious victory, as in a picture by Guercino at S. Pietro in Vinculis, Rome.

Florence. C. J. Hemans.

NUISANCES IN SOUTH LAMBETH.

Sir,—While the new Sanitary Acts are occupying some little public notice, it is not, perhaps, out of place to call attention to what, as it is the most lasting, is also as common and as dangerous a nuisance as any existing, and in some districts (this parish at least) as difficult, if not more so, to get the vestry to attend to. They take fifteen days to serve a notice; the notice lasts twenty-eight days. They then (taking their former rate of proceeding), in fifteen days more serve another twenty-eight days' notice; and, if this be not attended to, they may possibly, in fifteen days more, arrange to do something themselves within twenty-eight days from that time. This, the surveyor tells me, as a parishioner, is the most rapid rate they can move at, viz., 129 days to remove or remedy a nuisance that would carry off every inmate in the house in less time, perhaps, than they take to get them to move at all in the matter.

The nuisance itself is this: the old cesspool and the old well are left with the old pipes all perfect to the kitchen

* See p. 591, *ante*.

sink, while some jobbing bricklayer, not understanding the business, lays a new drain (just over what was an excellent well) into the next house, and so it runs off no one knows where. The rats soon open a way to the old drain-pipe, which is covered with a little mortar at the end only. Presently come wet weather and autumn, when all the wells are replenished, and the cesspool and well (by this time as foul as a cesspool) are charged with water from the land-drainage, forcing out the foul gas generated during the summer. The weather getting colder, you cannot leave all your windows open; and in this state you must exist, according to the vestry and their surveyor, for a period of four months, the landlord refusing to do anything but enforcing his rent rigidly. Can the tenant, under the circumstances, help himself?

The lawyers and a County Court Judge say No. Is it not the duty of a landlord to do what the law says he shall do, until he is compelled by a proper authority? The tenant must lie quiet and be poisoned,—he has no rights in the matter. If this really be law, it is time it was altered.

In other districts I am told the vestry serve a seven days' notice under such circumstances, when, if it is not attended to, they take the matter in hand themselves: this is as it should be. W. M.

*** Under the new Act, another "authority" may be appealed to.

BUILDERS' CLERKS' BENEVOLENT SOCIETY.

Sir,—It affords me great pleasure to see the kind notice you have taken of the above Institution, also of those gentlemen who form the committee.

I have read with great interest the notes and correspondence in your valuable paper appealing for interest and support, which I sincerely hope will be responded to.

Being a Builder's Clerk's wife, I well know that as a class we require some funds to fall back upon in the hour of trouble. Should sickness, accident, or death overtake us we should be left totally destitute: after being brought up in a superior position it would be indeed painful. Our means do not exceed 100*l.* per annum, with which we have to keep a respectable appearance and support and educate a family. My husband's energies are required from early in the morning until late in the evening, and this is unceasing, without the least change or recreation: with a superior education, he has to plod on for less money, in fact, than a mechanic. Surely we feel the need of help.

I am not acquainted with the founder of the above Society, but, I must say, he deserves all our thanks and gratitude for the warm interest he has taken; and I hope that those who are blessed with ample means will contribute to the support of this cause, and that you will kindly continue to give your interest to the same.

The Wife of a Builder's Clerk.

ROCK CARVINGS IN IRELAND.

Sir,—I am sure you will allow me to offer a few remarks on your review, in the *Builder* of July 14th, 1866, of a paper of mine, published in the last quarterly journal of the Kilkenny Archæological Society, explanatory of carvings on a natural rock-surface, at Ryefield, county of Cavan.

It is difficult for any one to estimate the true character and value of any rude carving or inscription without having seen the original; and while I admit that it is just possible that children may have made some of the smallest and most fresh-looking simple cross-shaped scrapings on the surface of the Ryefield stone, those markings which are deeper and more complicated, are most unquestionably of high antiquity, as many of them were completely obscured by a thick coating of lichen, and were only discovered during the process of carefully scraping the surface of the rock.

I admit that the only thing which invests these carvings with real interest is the fact, that similar markings, produced by similar means, are seen on some of the carved stones forming the sepulchral chambers on Sleive-na-Caillighe, in the county Meath. But is not a most important archæological fact thus established? and how can we tell its bearings on other facts yet to be discovered? All the great truths of science or research have been established by the accumulation of separate facts truthfully recorded.

You cannot, I think, suppose that the Sleive-na-Caillighe crosses, enclosed in lozenges or rude squares, are, or could be, the work of idle children, when the cist in which they occur had, until very lately, been buried beneath its original enormous tumulus of broken stones.

If you will refer to my original letter on the explorations of the tumuli on Sleive-na-Caillighe by my friend Mr. Conwell, published in the *Meath Herald* of October 21st, 1865, a copy of which I now enclose, you will see that the carved work in the chambers of the tumuli consists of three kinds—punched, chiselled, and scraped work; the last being proved to be the most recent, as it is observed occasionally to overlie the other two. The scraped-work patterns are invariably *rectilinear*, in distinction to the others, which are *curvilinear*. No one can for a moment doubt the extreme antiquity even of the latest of these decorations or devices; and if we find similar patterns produced in a similar way on a natural rock surface, we may fairly claim for the latter an antiquity equal or approximating to the former. How, therefore, any attempt to compare the two primitive devices with a view to proving their identity of age or design could appear "odd" to an archæologist, I am at a loss to understand, though you thus express yourself in the review to which this letter refers.

The carvings on the stone from the cist on Sleive-na-Caillighe have, as I have just shown, a distinct bearing on the carvings from the rock surface at Ryefield, as they prove that the latest of the sculpturings on such pagan sepulchral chambers apparently synchronise with those on this exposed rock surface.

I can assure you that in all the devices at Sleive-na-Caillighe, New Grange, Dowth, &c., there is not one at all resembling either of the diagrammatic figures given in your review of my communication to the Kilkenny Archæological Society at page 522; and to imagine for a moment that the "arborescent figure" at New Grange is made up of a series of VVV, one placed beneath the other, but not touching, as implied in your remarks, is so totally at variance with the plain fact, and is so calculated to mislead the purblind "architects of theories," that I, as an archæological "hod-man" or "carrier of facts," must entreat of you to dispel this illusion; and with this object in view, I at once send you a rubbing of this fern-like device from New Grange.

With regard to your supposition, that "many of these pre-historic records" (such as the tumuli in Sleive-na-Caillighe) "may relate to a time contemporary with the people whose traces have been found in the glacial drift," I can assure you, on the best geological evidence, that such an idea cannot for a moment be entertained. I have found that many of the exposed rock surfaces on the summit of Sleive-na-Caillighe, like that of Ryefield, bear *glacial striations;* and any iceberg passing over such a surface, which at the time must have been submerged beneath the sea, and leaving such scorings on the rock, would have swept away all such superficial structures as these tumuli, and left a polished and striated rock beneath the spot where they stood.*

The fabricators of the rude flint hammers, whose remains are now entombed in the gravels of our glacial age, long ceased to exist ere the green hills and valleys of the British islands were traversed by the fabricators of our megalithic structures.

In one of the cists of a chamber in one of the tumuli on Sleive-na-Caillighe, Mr. Conwell discovered a vast collection of bone flakes, or long leaf-shaped knives, and many of them were decorated with small engraved circles and parts of circles, grouped in various patterns. In every instance the centres of the circles were defined by a minute dot; and it was amongst these relics that *the leg of a diminutive pair of compasses, with an iron point, was discovered.* Archæologists, therefore, who are not of the school of "theoretic architects," will not fall into any error in allotting to its correct place, or estimating the true value of such a discovery.

I believe it is unquestionable that one of the groups of carvings at Sleive-na-Caillighe is an Ogham inscription, but the so-called Ogham from New Grange is of very doubtful character; of this I also send you a rubbing.

Geo. V. Du Noyer.

* New Grange is about 150 ft. and Dowth Cairn 260 ft. above the sea. When the glacial drift passed over the South of Ireland, these localities were from 1,500 ft. to 2,000 ft. beneath the level of the sea.

THE MAPLIN SAND SCHEME.

The second annual general meeting of the Metropolitan Sewage and Essex Reclamation Company has been held, Lord Warren de Tabley in the chair. The report says,—

"The directors are happy to state that the tedious and expensive works connected with the junction of the company's sewer with the main outfal. sewer of the Metropolitan Board of Works; the passage across the Barking marshes, underneath the navigable tributary to the Thames known as the Barking Creek; the crossing of the Tilbury and Southend railroad; and the first pumping station at Five Elms, have all been authorised, and the work is being carried forward by the contractor in a very satisfactory manner. In order to demonstrate the truths of statements made before Parliament and elsewhere, that Maplin sand irrigated by sewage would produce luxuriant crops of grass, the directors caused upwards of 3,000 tons of sand to be brought up in barges from the Maplins, taken from a spot about a mile and a half out to sea, and spread 2 ft. deep over an acre of land at the outfall reservoir at Barking Creek. The plot was spread in the early part of March last, was sown with Italian ryegrass on the 14th April, and was fertilised exclusively with sewage. The first cutting was made on the 20th June from a portion of the acre, which was again cut on the 17th July; and the grass, exhibited at the Essex Agricultural Show on that day, representing as it did only twenty-seven days' growth, weighed at the rate of 14 tons an acre. Another portion of the sand plot, which was cut for the first time on the 7th July, weighed at the rate of 16 tons to 20 tons an acre. With the further object of proving the value of sewage, the directors have leased a farm near Barking, to which an iron pipe is now being laid in advance of the main culvert, and they hope very shortly to show the Essex farmers that, by laying out a moderate portion of their land for irrigation, they would not only derive a profit from the increase in their stock (which seven or eight annual cuttings of grass will enable them to make), but they would have the opportunity highly and profitably to manure the remainder of their land worked in the ordinary manner."

The report was unanimously adopted, and other business of the company transacted.

FIRST CASES UNDER THE NEW SANITARY ACT.

At Clerkenwell, Mr. Frederick Barlow, the owner of No. 41, Payne-street, Copenhagen-street, Islington, was summoned before Mr. Barker, to answer the complaint of Mr. William Mayes, inspector of nuisances and sanitary inspector on behalf of the vestry of the parish of St. Mary, Islington, under the Sanitary Act, 1866, on the ground that they are so overcrowded as to be dangerous to health. Mr. Layton, solicitor and vestry clerk of Islington, said that these were the first proceedings that had been taken under the Public Health Act, an Act to amend the law relating to the public health, and which received the royal assent on the 7th of the present month.

Mr. William Mayes, sanitary inspector of Islington, stated that on Tuesday, the 14th inst., he, in company with Dr. Ballard, inspected the house, 41, Payne-street, and found it to be occupied by five families. In the two kitchens there were one man, one woman, and four children; in the front parlour there were one man, one woman, and four children; in the back parlour one woman; in the first floor front one man and three children; and in the back room on the first floor there was one woman. From the first floor a woman was taken out ill and died. The average of air for each of the occupants of the kitchens and the parlours was 180 ft., and the minimum allowed was 300 cubic feet. The house is filthy, and the stench from the front parlour was fearful.

The magistrate said that this was downright cruelty to the poor persons in the house. He should impose a penalty of 20s., and order the defendant to pay 1*l.* 3s. costs. If the defendant was brought here again for the same offence the full penalty would be imposed.

Mr. Layton said that by the 36th section of the new Act, where two convictions against the prisoner of any act relating to the overcrowding of a house, or the occupation of a cellar as a separate dwelling-place, shall have taken place within the period of three months, whether the persons so convicted were or were not the same, it shall be lawful for any two justices to direct the closing of such premises for such time as they may deem necessary, and in the case of cellars to empower the nuisance authority to permanently close the same in such manner as they may deem fit at their own cost.

We must applaud Mr. Layton, Dr. Ballard, and the authorities for the energy they are displaying in improving the sanitary condition of Islington.

The Henry-street houses at Islington are also in a shocking state in every respect as regards filth and defective water supply, drainage, privies, &c., as well as general disrepair and dilapidation.

CASES UNDER METROPOLITAN BUILDING ACT.

Projection of Shop Fronts.—Mr. Hammer, builder, of Greenwich, was summoned to the Greenwich police court by Mr. J. Whichcord, the district surveyor of Deptford, for erecting wall to shop front projecting more than 10 in. beyond the external wall of house No. 11, High-street, Deptford, contrary to section 26, part I., rule 2, of the Metropolitan Building Act, which provides that, "In every street or alley of a width greater than 30 ft., any shop front may project 10 in. and no more, and the cornice may project for 18 in. from the external wall and no more."

Mr. Whichcord informed the magistrate that the work complained of was the projection of a new shop-front about 3 ft. from the original front of the house, and that the adjoining houses on one side were in a line with the original front of the altered house; whilst the houses which adjoined on the other side projected 3 ft. farther into the street, and were in a line with the new shop-front now complained of. He objected to the work on the ground that the Act provided that in the case of a street, like the High-street, Deptford, which was of a greater width than 30 ft., a shop front may not project more than 10 in., whereas the building then under consideration projected 3 ft. from that which was, and which on the first and second stories of the house still is, the original external front wall.

Mr. Arthur Harston appeared for the defendant, and stated that he was the architect under whose direction the alterations were being made, and further that there ex-

tended along the whole front of the house an enclosed forecourt 7 ft. wide, which projected into the paving of the street, and that after the building of the new shop-front now complained of there still remained a width of 3 ft. of enclosed ground belonging to the house; and he contended, firstly, that this was not originally, and is not now, a house or building in a street, inasmuch as there was and is now an intervening space of land, several feet in width, between the front and the street, and that, therefore, the section did not apply. Secondly, that inasmuch as the projected shop-front has new brick walls and front piers in continuation of the original party walls of the thickness and otherwise in accordance with the regulations prescribed by the Act, the faces of the new piers at the ends of the new walls must be construed to mean the external wall intended by the Act; and that the term "shop front" applied only to the modern portion of the vertical enclosure of the shop, which in this case did not project from the new brickwork more than the 10 in. allowed; and, in proof of this argument, he adduced that the Building Act of 1844, which was repealed by the Act now in force, contained a similar clause, differing only in having the term "face of a wall" instead of the present term "external wall;" and that the alteration in the clause was made with a view of allowing similar projections to the one complained of, where they did not encroach on the public way or beyond the general line of buildings. He also called the attention of the magistrate to the case of Morgan *v.* Hesketh, in which the official referees under the repealed Act disallowed the objections of a district surveyor in a similar case.

The Magistrate observed that the case before him was an objection under a clause contained in the Metropolitan Building Act, which regulated the construction of buildings, and had no reference to the line of frontage, upon which question the district surveyor had no jurisdiction, but which was regulated by the Metropolis Local Management Acts under the direction of the Metropolitan and District Boards of Works. He was of opinion that the clause under which the proceedings were taken only applied to houses abutting on streets or alleys; and inasmuch as the building under consideration had a space of land between it and the street, the section did not apply. It would be unreasonable to construe the Act into preventing an owner of property from bringing forward an addition to his house without reference to the relative position of the same to the public way, or its distance therefrom. The summons was, therefore, dismissed.

COMPETITION EXTRAORDINARY.

The directors of the Cookham Bridge Company, having advertised in our columns for designs for an iron bridge, 100 yards long and 20 ft. wide, received thirty-seven plans and estimates, the lowest of which was 1,900*l.*, the highest 27,000*l.*! The tender of Messrs. Pease, of Darlington, was accepted, at 2,650*l.* The premiums for the two next best plans were awarded to Messrs. Peto & Co., and to Mr. John Pinchbeck of London.

METROPOLITAN WATER SUPPLY.

The existing water companies appear to be on the move towards an improvement of their supply. Surveys, it is said, are in progress with a view of applying to Parliament in the ensuing session for an Act to enable existing companies, or some of them, to procure a better supply. It is proposed to divert and utilise all the sewage of the towns which lie on the Severn above Tewkesbury, in accordance with the principles laid down in the report of the Rivers Commission, 1865, and to take the supply from that river just above Tewkesbury, and convey it thence to large reservoirs at a distance of nine miles, and at a sufficient elevation to allow the supply to pass from these reservoirs to London, delivering the water there at the requisite height to afford a constant supply at high pressure to every portion of the metropolis. It is said that the flow of water so far, without receiving any contamination in its passage, will so oxydize the organic matter held in suspension that it will tend greatly to purify and soften the water; but if in close pipes or aqueducts, however large, this seems doubtful. The estimate of the probable cost of carrying out this undertaking, as made by the engineer, Mr. Hamilton Fulton, is 3,000,000*l.* should it upon further investigation be found impracticable to divert the sewage satisfactorily from the towns above referred to, it is considered that a pure supply for London might be obtained from the sources of the river Wye, which drain the districts in the vicinity of Plynlymon range, where the annual rainfall is equal to 70 inches deep. Mr. Fulton estimates the additional cost of this plan at 2,500,000*l.*, or a total of 5,500,000*l.*

If the sewage of the towns on the Severn is to be diverted from that river, might not the sewage of the towns on the Thames, which is nearer home, be as well diverted from that river, and two useful purposes for London served at one and the same time? Or if there be any fear as to the diminution of the quantity of water in the river, is there not the same fear with respect to the Severn? But would not the fear in either instance be groundless? Water from mountain lakes, however, would be far preferable to river water.

In reply to a question in the daily papers as to why the Grays Water Company have not brought their spring water into the east of London, Mr. Alfred Smee says:—

"It is true that the South Essex Waterworks Company have a surplus of from 6,000,000 to 10,000,000 gallons of pure spring water per day, which is now running to waste in the Thames, and which this company is most anxious to supply to the east of London.

As soon as this project was under discussion the East London Water Company made large reservoirs, at great expense, at Tottenham, to catch the water of the river Lea. Surely, however, the time has passed, when, under our present water-closet system, rivers should supply our towns with water.

The question really is, ought the people of the East of London to be supplied with pure spring water, or shall they continue to be supplied with water of the Lea, mixed with the sewage of Waltham, Epping, Hertford, and the villages on its banks?

* * * * * *

The London water companies have been thought to enjoy a monopoly too powerful to be interfered with, and capitalists up to this time have feared to tackle the question with them. I can state officially that the pure spring water of Grays would have been supplied to the east of of London before this time if the necessary funds for laying its mains could have been provided.

* * * * * *

The company invites the co-operation of the Boards of Health of parishes at the east of London, with the view to utilise these springs and lessen the spread of the cholera poison."

A meeting of delegates from metropolitan parishes, called to consider the best means of obtaining a Sunday water supply for the metropolis, has been held at the Vestry-hall, Upper-street, Islington, Mr. Harvey in the chair. The delegates present were from Plumstead, Mile-end, Chelsea, Kensington, St. George's-in-the-East, Bermondsey, Clerkenwell, and Southwark. Mr. Layton (vestry clerk) read replies from the following water companies to the application of the delegates;—East London, Grand Junction, Southwark and Vauxhall, New River, Lambeth, Chelsea, Kent, and the West Middlesex. *Only one company*, the Grand Junction, stated that they would lay on a Sunday supply. The other companies agreed to a temporary supply in poor neighbourhoods, but argued that there was not sufficient reason shown for employing their servants on Sunday. The East London Waterworks Company agreed simply to comply with the Act of Parliament. After a discussion, the following resolutions were unanimously agreed to:—

"That the companies supplying the metropolis with water be immediately invited to send, on Thursday, October 4th, at twelve o'clock, a representative or representatives to the Vestry-hall, Islington, to meet the delegates of the metropolitan vestries and boards of works, and at the meeting it be urged—first, for an immediate supply of water on Sundays; and, secondly, for a constant supply for the future: and that in the meantime a second and peremptory application be made, under the present threatening circumstances, for an immediate and general Sunday supply.

That in the opinion of this meeting no reform in the water supply of the metropolis will be complete until the Legislature compel inhabitants of towns and villages on the banks of the Thames to cease polluting the water of the same."

PROVINCIAL NEWS.

Romsey.—The old building used as a Town-hall at Romsey being too distant from the place, and likewise insufficient in size to meet the increased requirements of the town, a new one has been completed, and formally inaugurated. It has been erected in the Market-square, from the designs and under the superintendence of Mr. A. Bedborough, of Southampton, architect. The front of the building is in the Italian style. It consists on the ground floor of a council-chamber or magistrates'-room, two reading-rooms,—one for the town and another for the use of a reading society,—library, County Court offices, with judge's jury, and witnesses'-rooms, and above these the registrar's-room, with living and sleeping apartments for the attendants. The Town-hall, which is on the second floor, is 62 ft. long by 34 ft. wide, and 22 ft. high, lighted by day with a series of plate-glass windows. The dressings of the building are of Bath stone, and the principal front is faced externally with red brick. Mr. Dallimore, of Fareham, was the builder. The cost of the building has been about 4,500*l.* The Treasury contributed 1,500*l.* towards the cost.

Stourport.—The Town-hall, which has recently undergone considerable alteration and improvement, has been opened with a vocal and instrumental concert. The alteration consists of an enlargement. The public room is double its former size, it being now 60 ft. long, and 23 ft. broad, and is fitted up and lit with gas. In addition to this there is a large committee-room, reading-room, library, and class-room. The market-hall, in the base of the same building, has been renovated and fitted up with stalls, seats, &c. The cost of the alteration is 650*l.*

Burmingham.—Alderman Phillips having purchased from the Corporation for 18,000*l.* the land at the corner of Worcester-street, has entrusted to Messrs. Bateman & Corser, architects, the erection of nine retail shops, with three stories of offices and other rooms over them, in the Italian style. The workmen have commenced. The cost of the buildings will be 10,000*l.* or 12,000*l.* The property was gradually acquired by the Corporation, the negotiations for it extending over a period of at least three years. The freehold interest of Mr. J. B. Payn was purchased for between 10,000*l.* and 11,000*l.*, and that of the Free Grammar School for nearly 9,000*l.* Mr. Whittaker was awarded 5,000*l.* for his interest in the Fountain Inn. The Corporation were also obliged to purchase the leasehold interest of Messrs. Jones, Turner, Greaves, and Boucher, so that the improvement in that part of Worcester-street and New-street, if great, has also been expensive. The other improvements in contemplation or in progress in New-street are,—the erection of the Masonic Hall (Messrs. Briggs & Sons, contractors, at about 20,000*l.*), in progress; a new bank for the Midland Banking Company, opposite the Exchange, at a cost of 30,000*l.* or upwards; and the alteration, scheduled in the Improvement Act, at the corner of New-street and High-street. A Mr. Phillips claims 30,000*l.* for his freehold interest in the property required by the Corporation at that corner. The tenants would also have to be compensated for leasehold interest and loss of business. Mr. Phillips's claim has been submitted to arbitration.

Bradford.—A new building has been erected in Cheapside, immediately adjoining the County Court, the "home" of the "Bradford Club." The architects are Messrs. Lockwood & Mawson. The building is in the Venetian Gothic style. The principal front is towards the new street intended to be cut from Cheapside, but there is a front towards Cheapside with a bay window. The entrance is in the middle of the building, towards the new street. The hall is lofty and well lighted, and the floor is paved with encaustic tiles of subdued colours. From the entrance hall admission is obtained to the coffee room, which occupies the whole length of the building fronting to Cheapside. This room is 56 ft. by 25 ft., and the "bay" commands nearly the whole length of Cheapside. The first floor is reached by a staircase, the balustrades of which are of carved oak. On this floor the principal apartment is the billiard-room, in which two oak tables are now being fitted. Fronting to Cheapside is the reading and writing (or "drawing") room, 25 ft. by 38 ft.; and next to this again, a private dining-room, 25 ft. by 18 ft.: and again, in the immediate vicinity, a card-room, 10 ft. by 12 ft. The smoking-room communicates with the billiard-room, and is 12 ft. by 20 ft. On the upper floor there are ten bed-rooms. The contractors are:—Masonry, Messrs. J. Burnley & Son; joiners' work, Messrs. J. Wilson & Son; plastering, Mr. B. Dixon; plumbing and glazing, Mr. Walton; slaters' work, Messrs. Hill & Satcliffe; and painting, Messrs. Briggs & Mensforth. The cooking apparatus has been put in by Messrs. Byrne & Co. The club consists of more than 200 members.

CHURCH-BUILDING NEWS.

Strensall (Yorkshire).—A new church has been opened at Strensall, near York. The edifice has been erected from designs and plans prepared by Messrs. J. B. & W. Atkinson, of York, architects. It is dedicated to St. Mary, is built in the Early Decorated style of architecture, and consists of a nave and chancel, with a tower surmounted by a spire at the west end of the fabric. In length the nave is 45 ft. by 21 ft. 6 in., and the chancel is 24 ft. long by 15 ft. 6 in. wide. The height of the spire surmounting the tower is 80 ft., and the square of the tower outside is 12 ft. 6 in. The porch is on the south side of the church near to the tower, and the vestry is situated on the north side of the chancel. The nave is divided into four bays, and the curved ribs supporting the roof rest upon stone

corbels inserted in the walls. The roof is open timbered, and its apex is 36 ft. in height from the floor. The walls outside are of stone from Bradford and Whitby, and the edifice is covered in with Westmoreland green slates, the ridge of the roof being crested. There are three bells in the tower, and a clock will also be placed in it, the gift of Lady Mary Thompson. The windows of the nave are of two lights each, with trefoil heads, and the west window is of the same character. The chancel is lighted with lancet windows, and the east window is of three lights. At present it is glazed with plain glass, but it will be filled in with stained glass by Mr. Knowles, of York. The subject is the "Adoration of the Magi," and the window is now in the York Exhibition. The other windows are filled in with cathedral glass, and have coloured margins of blue and ruby. The sittings in the nave are of deal, with shelves for prayer and hymn books. They are open, and stained and varnished in the same style as the rafters of the roof. The pulpit is placed in the north-east corner of the nave. The church is heated by a stove sunk below the nave floor. The church will seat 200, and it has been built at a cost of 1,300*l*. The architects were Messrs. J. B. & W. Atkinson. Mr. Dennison executed the carpenter and joiner's work; Mr. J. Hebden has done the masonry; Mr. S. Prudames, Low Ousegate, has filled in the windows with Cathedral glass, and executed the plumbing work; Mr. Jennings has carried out the plastering; Mr. Thomas Wood the slating; Mr. Alfred Lee the staining and varnishing; and Messrs. Fryer & Sons the heating apparatus. The architects and contractors are all of York.

Appleton-le-Moors.—An early English memorial church has been erected, at a cost of 10,000*l*., at Appleton-le-Moors, fourteen miles north of Malton, in Yorkshire. The building was designed by Mr. J. L. Pearson, of London. It comprises a nave, 37 ft. long and 15 ft. wide, with narrow north and south aisles, making the whole internal width 32 ft. 3 in. The chancel is 24 ft. 5 in. long, and of the same width as the nave, and has a circular apsidal east end. It is fitted up with stalls for the accommodation of the clergy and choir, and is lighted with five stained-glass windows, inclosed by an arcade of plain arches. Under this arcade is a reredos of Caen stone, divided into two compartments, the upper containing various emblematic figures, the lower a representation of the Last Supper, all executed in red incised work. The tower stands at the east end of the south aisle, and is 14 ft. square externally, and surmounted by a spire of pyramidal form. On the opposite side of the chancel, and at the east end of the north aisle, is a small mortuary chapel, in memory of the late Mr. Shepherd, ornamented with panels of incised work, and lighted with lancet windows of stained glass. An arcade of three plain arches opens into the aisles on either side, which are lighted with pointed windows of stained glass. There is also a circular window in the west gable. The seats, which are made of oak, are quite open, and will accommodate about 200 persons. The benefaction includes a parsonage, school, and schoolmaster's residence.

Leighton Buzzard.—The new church, North-end (chapel of ease) is progressing rapidly. It will be called St. Andrew's, and will contain 500 free seats. It is built of red sandstone, dug on the ground, with Wilts Farley Down stone dressings; 99 ft. in length by 54 ft. in width. The cost will be nearly 3,000*l*., chiefly raised by voluntary contributions, Col. Hanmer, lord of the manor, giving the land on which it stands. The architect is Mr. Joseph Neale, of Bristol; the builders are Messrs. Garside & Holdstock, Leighton; the stonework is by Mr. John Greenway, of Linslade, Bucks; the clerk of the works, Mr. J. P. Stephens.

Eton.—The foundation stone of a new church has been laid at Eton Wick, in connexion with the college. The site selected for the building adjoins the National Schools.

Maldon.—The contractor has been taking down the old pews in All Saints' Church. The columns stand out in all their original proportions, with their bases exposed, instead of being buried halfway up the shafts. The sedilia, double piscina, crypt, and arcading at the western end, are interesting, but the incised stones, without one exception, have been emptied of their brasses. Some of these stones, from the design of the matrices, seem to be very ancient. Two tables on brass only remain; but these are simply inscriptions, and date from the middle of the seventeenth century,—one of which brasses, in memory of a lady, characterises her as "The most lovinge spouse of *Elisa* Garington." The stone over the grave of Mr. Edward Bright, the celebrated "fat man of Essex," is now visible under the gallery, from the removal of the pews, and some other curious epitaphs have come to light.

Warrington.—The foundation stone of St. Ann's Church, Town's-end, has been laid. The edifice is designed in the Early Gothic style, and is to be constructed almost entirely of bricks burnt to a light colour. All windows, doorways, vaulting-shafts, and piers, and other ornamental portions, are to be executed in moulded brickwork. In plan the church consists of a nave 77 ft. long and 42 ft. wide, which is entered by two porches, one on the north and the other on the south side. The whole width of the nave to the west of the porches is raised by three broad steps, on which are arranged seats for the accommodation of about 260 children. The whole church, including nave, chancel, and choir, will accommodate about 600 persons. The chancel, 32 ft. long by 18 ft. wide, is vaulted in brickwork, and is 36 ft. high to the top of the vaulting: the east end terminates in a semicircular apse, round which are placed five two-light windows, having stone tracery of simple design. If the funds will admit, it is intended to fill these windows with painted glass. Between them the vaulting-shafts are carried down to the ground, and there are large buttresses on the outside. An arch of moulded brick on the south side of the chancel opens into the organ-chamber, which is 14 ft. square, and placed under the tower; this is also vaulted in brickwork, and is separated from the chancel by a metal screen. Another arch of moulded brick opens from the organ-chamber into the nave. The semicircular apse of the chancel will face Winwick-road, and will be about 38 ft. high on the exterior, not including the roof. The tower will be 70 ft. in height, the roof rising 20 ft. above this, the staircase turret being carried to the full height of the tower, terminating in a circular-pointed roof. The building is estimated to cost from 4,000*l*. to 5,000*l*. Mr. John Douglas, of Chester, is the architect; and Messrs. Gibson & Sons, of Warrington, are the builders.

Books Received.

From Calcutta to the Snowy Range. By an Old Indian. London: Tinsley, Catherine-street, Strand. Calcutta: Wyman & Co., Hare-street. 1866.

THIS very interesting volume contains the narrative of a trip through the upper provinces of India to the Himalayas, and gives an account of Monghyr, Benares, Allahabad, Cawnpore, Lucknow, Agra, Delhi, and Simla, through all of which the author passed on his way. The volume is illustrated by engravings from photographs and drawings, and by a map of the route. The author, we happen to know, is Mr. Wyman, of Calcutta, publisher and newspaper proprietor. He is a skilful writer, and has here produced a pleasant and readable book, which must be extremely useful to those who seek health in the Himalayas after too long a business campaign in Calcutta or elsewhere in our Indian provinces. The author, who must have felt the want of just such a work as his own when he began his tour, has here provided for all who follow him a thoughtful and profitable guide book, adviser, and literary and historical companion. Travelling through the upper provinces of India is quite a different thing now-a-days from what it was before the railway era. Now, there is railway conveyance from Calcutta all the way to Delhi, by Benares, Lucknow, Agra, and other of the cities already named; and the remainder of the route to the Indian Sanitarium, Simla, in the Himalayas, is comparatively short. The Kootûb has not yet become a railway station, nor the Taj a monster hotel, but the Governor General can now book himself and his carpet bag by first-class to Delhi, and so put an extinguisher on his slow, though splendid, progresses through the country as of yore. Mr. Wyman complains much of the railway management, which renders railway journeying in India quite a different thing as yet from a railway trip at home. The Indian stations are ill-arranged, the trains irregular, the carriages dirty, and the hotel accommodation is bad.

The volume is interspersed with graphic though brief descriptions of the principal edifices which the author visited on his way; and the interest of many of these descriptions is enhanced by the historical remarks connected with each respectively, and especially with those which relate to the late rebellion. In respect to the Indian structures generally,—at least to those of a Mahometan character, the author says,—

"It is objected by some that the remains of the mighty structures erected by the Mahometan rulers of Hindostan are devoid of interest from the great similarity in style. Similar they are, it is true; but I think it will be found that each possesses special claims and merits of its own; and the historian or the traveller will add greatly to his knowledge and to his pleasure by a careful study and comparison of their several specialities. The buildings of Akbar are almost invariably of red sandstone, elaborately wrought. Those of Shah Jehan, on the other hand, are mostly of marble; whilst the structures of the Patans are celebrated for a wondrous massiveness of construction, combined with an exquisite elaboration of detail. Indeed, it is said of them that they built like giants, and finished like goldsmiths."

Of the architecture of Lucknow, our author, however, admits that,—

"Much of the effect which would otherwise be produced by the magnificent structures in Lucknow is lost from very sameness. The architecture all partakes more or less of the same character, as do also the decorations of the buildings. The designs are pure Moresque in most cases, and the Palace of the Alhambra will give, in its various parts, a copy of almost all the styles of stone carving and decoration in Lucknow."

We may quote from the account given of the chief architectural gem of Lucknow,—the great Imambarra:—

"This truly magnificent hall, said to be the largest in the world, stands on an elevated terrace approached more immediately from two vast square courts, richly laid with tesselated pavements, the innermost court being elevated considerably above the other, adding thus to the effect of the building as viewed from below. It is described as 'The crowning work of Nawab Asf-o-dowla's reign. He is said to have spent incredible sums on it, and the native report, always prone to exaggerate, puts the cost at a million sterling. The architects were invited to submit their plans to a competition, Asf-o-dowla only stipulating that the building should be no copy of any other work, and that it should surpass anything of the kind ever built in beauty and magnificence. Kyfeent-col-lah was the name of the successful competitor, and it would be hard to say that its conception, as it stands before us in the present day, falls at all short of the large and liberal stipulations of the monarch. The building is as solid as it is graceful, built from very deep foundations, and no wood-work is used throughout.'

The Great or Royal Imambarra is now used as an arsenal, and, fitted with the stern implements of war, it presents a striking contrast to what it must have done when in the time of its splendour. The great hall is 162 ft. long by 53 ft. 6 in. wide, and lofty in proportion, with carved and highly ornamented roof. On the two sides are verandahs, respectively 26 ft. 6 in. by 27 ft. 3 in.; and at each end is a fine octagonal apartment, 53 ft. in diameter, the whole interior dimensions being thus 263 ft. by 145 ft. At the death of its founder he was interred here, but during his lifetime it was probably used as the grand celebration place for the Mohurrum.

On the capture of the Imambarra by Sir Colin Campbell, at the taking of Lucknow, the chandeliers, mirrors, and the like, were ruthlessly destroyed by our infuriated troops; and Mr. Russell describes the marble floor as having been 3 in. thick with the *débris* of the valuable decorations it contained. To the right of the Imambarra stands a copy of the Delhi Jumma Musjid, having two lofty four-storied minars or towers, an ascent to the upper galleries of which is rewarded by a truly superb view of the city and surrounding country.

The Great Imambarra stands near the Room-i-Durwâzâ or Constantinople Gate of Lucknow—a gate built, it is asserted, on the model of that which gave to the Court of the Sultan of Turkey the title of 'The Sublime Porte.' The gate is grand and elegant in style, and well harmonizes with the Imambarra itself."

Before closing our notice of this volume, we will give the author's account of the splendid fluted round tower near Delhi, called the Kootub Minar:—

"The buildings of which it originally formed the centre and chief ornament have decayed to a picturesque ruin, but the noble column remains untouched, apparently, by the hand of time, and bids fair to outlive many another generation.

The tower, which is the highest column known, is built of red sandstone in five stories, narrowing gradually, from a circumference at the base of 159 ft. to one at the top of 24 ft.; with 12 ft. diameter at top and 48 ft. 4 in. at bottom. Around each story run several horizontal belts, elaborately inscribed with passages from the Koran—very marvels of patient genius. The summit is reached by an interior winding staircase, lighted by loopholes of great breadth inside, but narrowing to almost vanishing point as they reach the outer thickness of the wall, focussing thus, as it were, the outer light from without. A survey of the huge blocks of sandstone, hard almost as granite, with which the tower is built, with the prodigious circumference of the base, diminishes the scepticism first entertained as to the endurance of the structure through so many years. On each story is a balcony, where you gladly rest between the pauses of the ascent, which is by 375 steps of about a span each. The tower is 242 ft. high to its *present* summit, the top canopy having been removed, when struck by lightning, some few years ago.* This exceedingly ornamental cupola has been erected on a piece of ground adjoining, and when on the summit of the tower must have added greatly to its effect.

The Kootub is reputed to have been built some 700 or 800 years ago, by Sultan Sham-Shood-deen, in honour of the holy fakir who foretold him the birth of an heir; and it is stated that it took forty years to complete. The legend also runs that it was erected by the Rajah of Prithie for a favourite daughter, who desired to possess a tower with its top nigh unto heaven, from whence she

* It is said that the only Mahometan building known to be taller than this is the mosque of Hassan, at Cairo.

might offer up her prayers. Other accounts describe the Kootub as one of two minars designed by Sultan Shamsh-Shooddeen to flank a mighty mosque in everlasting remembrance of Kootub-ood-deen, who, to his qualities of general, added those of a saint. His tomb is still venerated and maintained with some show of state, being visited by thousands of devout Mussulmans. From out of the chaos of legend and superstitious chronicles it is impossible to gather any certain or precise information as to the origin of this famous structure."

Other round towers are described, one of them the celebrated Buddhist tower, near Benares, supposed to have been built about 530 B.C., and which was seen and described by Hwen Tsang Fa Hiang, the two ancient Chinese travellers, in the beginning of the fifth century, A.D. It is 110 ft. high, and 93 ft. in diameter at the base. The structure is solid. We cordially recommend the book.

Miscellanea.

The New Law on the Thames Navigation.—One of the most important Acts passed in the late session, the Thames Navigation Act, has been printed. It contains ninety-one sections and two schedules, and from its general importance was referred to in the Speech from the Throne when Parliament was prorogued. The conservancy of the river is now vested in the conservators from Staines to Cricklade, Wilts. The Upper Navigation Commissioners are discontinued, and with five additional conservators (one to be appointed by the Board of Trade) and the eighteen existing conservators, the traffic of the river is to be carried on, and effectual means adopted to prevent the pollution of the water, with the provision that another Act is to be applied for in relation to the Thames between Staines and the western boundary of the district under the authority of the Metropolitan Board of Works. One of the sections states, that "the conservators shall cause the surface of the Thames to be (as far as reasonably practicable) effectually scavenged, in order to the removal therefrom of substances liable to putrefaction." There is a distinct enactment on the "pollution of water," and no sewage is to be poured into the Thames under heavy penalties. Each of the metropolitan water companies is to pay 1,000*l.* a year beyond the present payments.

Decoration of the new Grand Opera House of Paris.—The paintings in the interior are to be entrusted to MM. Baudry, Boulanger, Barrias, Delaunay, Gérôme, and Pils. It is said that the designs for these internal decorations, which have been submitted to the judgment of M. Garnier, the architect of the work, amount to several thousands in number. The list of the statues and busts which are to decorate the exterior of the building and the vestibule is published officially. The *Journal of the Society of Arts* says,—On the principal façade, in the tympans of the arcades of the main entrance, will be medallions of the composers Cimarosa, Pergolesi, Bach, and Haydn;—in the grand vestibule four seated statues of the four chiefs of the schools of Italy, France, Germany, and England, —Lulli, Rameau, Gluck, and Handel. In the seven *œils de bœuf*, or small circular windows, are to be seven bronze busts, gilt. The centre will be that of Mozart, born 1756; and those of the other composers will be placed on each hand, according to the dates of their birth. Thus to the right of Mozart will be Beethoven, born 1770; Auber, 1782; and Rossini, 1792; and on the left Spontini, 1774; Meyerbeer, 1794; and Halévy, 1799. On the return of the façade, busts of two librettists,—Quinault and Scribe. On the two lateral façades are to be placed twenty-four busts in chronological order. On one side Monteverde, Durante, Jomelli, Mongigny, Gretry, Sacchini, Lesueur, Berton, Boieldieu, Herold, Donizetti, and Verdi; on the other, Lambert, Campra, Jean Jacques Rousseau, Philidor, Piccini, Parsiello, Cherubini, Méhul, Nicolo, Weber, Bellini, and Adam. In one of the foyers are to be placed busts of celebrated architects, or others connected with opera. Amongst the sculptors employed are M. Carpeaux, whose bronton for the *Pavillon de Flora* of the Tuileries was attracted so much well-deserved admiration, and which we have mentioned in our notes on the late Paris Salon; M. Denecheaux, and M. Bruyer. Amongst the reports afloat respecting the decoration of the interior, is one to the effect of M. Meissonnier having made proposals for departing from his micrographic style, and executing colossal works on the walls of the Salon in the rear of the Emperor's box.

Etching on Glass.—In reply to an inquiry, etching on glass is performed by laying on the glass a ground of bees' wax, and drawing the design thereon with the needle, as in etching upon copper. Sulphuric acid is then poured on, and fluor spar sprinkled on it. After four or five hours it is taken off, and the work cleaned with oil of turpentine.

The Carlisle Water Supply.—The local council have resolved, by a majority of 25 to 9, "that a new committee be appointed to consider the whole water question, having regard to Mr. Lawson's and Mr. Simpson's pumping schemes, as well as that proposed by Mr. Nelson, but leaving out of view the Glenderamackin scheme as impracticable under existing circumstances."

International Piscicultural Exhibition at Boulogne. — An international exhibition of articles connected with fisheries has been opened at Boulogne with great ceremony. These exhibitions are rare, being utterly unknown in England, and three having only been held on the Continent,—namely, at Amsterdam, Bergen, and Archchon. The Boulogne exhibition is very complete, and embraces every kind of article used in connexion with fishing and fisheries. England is said to be the country worst represented on this occasion, and this is much to be regretted. The exhibition is to remain open until the 13th of October. The main portion of it is contained in the Halle au Poisson.

The late Mr. W. G. Ginty, Engineer.—We have to announce the death of Mr. William Gilbert Ginty, which occurred suddenly at Rio de Janeiro on the 13th ult. Mr. Ginty formerly followed the profession of a civil engineer in Manchester, and was engaged in the construction of the railway between Bolton and Liverpool. He was associated with a number of enterprises in Manchester. He removed to Rio on being engaged as the agent of the Baron de Maua, who then had the Imperial Gasworks on his hands. Mr. Ginty's active and wise administration soon lifted that undertaking from a depressed condition into one of prosperity. At the request of the Baron de Maua, Mr. Ginty took upon himself the administration of the Tijuca railway, running from Rio to Tijuca Serra, and his energy was soon perceptible in the improvements he introduced. Some years ago the Emperor of the Brazils recognised his public services by conferring upon him the honour of knighthood in the Brazilian Order of the Rose.

Artificial Diamonds.—A correspondent reminds us that M. Despretz, of Paris, in 1853, succeeded in fusing and crystallizing carbon by means of a galvanic battery, thus producing microscopical diamonds. Of this fact we were quite well aware, although the writer of our remarks (we may state in reply to a question put by our correspondent), was not M. Despretz. What we wanted, however, was not microscopical diamonds, but good large ones; and hence it was that we suggested a new process,—namely, the subjection of carbon along with sulphide of carbon to galvanic action, in order to see whether the so galvanized sulphide would not dissolve an additional dose of the carbon, which might then be crystallized in its precipitation, on the gradual diminution and withdrawal of the galvanic action. Fragments of diamonds might predispose to crystallization. We now observe that yet another process has just been tried and reported on to the French Academy of Sciences, in which sulphide or sulphuret of carbon has also been used, but in another way, and without additional carbon. "M. Lionnet," says *Galignani*, "communicated to the Academy a process of his for obtaining pure carbon (diamond) in a crystallized state. His plan consists in taking a long and thin gold or platinum leaf, rolling upon it a thin piece of tinfoil, and putting it into a bath of sulphuret of carbon. The liquid is decomposed under the influence of the weak electric current thus excited; the sulphur combines with the tin; and the carbon is deposited in crystals at the bottom of the vessel. The author thinks diamond must be produced by nature in a similar way." According to this report, artificial diamonds have actually been got by means of galvanic and chemical action from sulphide of carbon. Had they been large and valuable, we dare say M. Lionnet would not have been in a hurry to report his progress. It remains to be seen whether our method be not a still better one than M. Lionnet's, considering that there would be an indefinite supply of carbon under galvanic action along with the sulphide, and probably no destruction of the solvent.

The Inclosure of Plumstead Common.—An address, signed by several influential residents of the district, has been issued, in which it is said, "Mr. Julian Goldsmid, M.P., has agreed to test the right of the lords of the manor to inclose, and fight the battle to an issue, at his own expense, provided that a committee for the purpose would raise half the cost (estimated at 500*l.*), which committee has been formed, and, relying upon the support of the people, has entered into the required undertaking with Mr. Goldsmid. The committee confidently anticipate that subscriptions will readily flow in to relieve them of their responsibility, especially when it is known that the public have rights over these commons of which they have been arbitrarily deprived, and that the law is sufficient, if properly administered, to afford a remedy."

The Thames Embankment.—During the past six weeks the works of the Embankment on the north side of the river have progressed rapidly. The outer or river wall is completed in several sections, and in general it is above the high water (spring tides) level. In those sections where the piling has been removed the work appears to advantage from the river. The construction of the new steamboat piers at Westminster, Hungerford, and Waterloo bridges is being proceeded with. The filling in of No. 1 contract (Mr. Farness), extending from the east side of Westminster-bridge to Waterloo-bridge, is nearly completed; and that in No. 2 contract (Mr. Ritson's), from the east side of Waterloo-bridge to the east side of the Temple-gardens, is level with the upper part of the wall. On the south side the embankment from the west side of Westminster-bridge to Bishop's-walk, Lambeth Palace, is approaching completion, the difficulties with which the engineer and contractor had to contend being trivial compared with those on the north bank of the river.

Alarming Explosion of Gas at Mr. Creswick's.—On Wednesday in last week considerable alarm was caused in Bloomsbury-square, owing to a loud explosion, in the mansion occupied by Mr. Creswick, the tragedian. It appears that one of the burners of a chandelier in the back parlour had been left open, and when the meter was turned on to supply the other portions of the house, the gas escaped and accumulated in the parlour, and a servant, on going into the room for the purpose of lighting the chandelier, struck a lucifer-match, when the gas exploded, knocking her down, scorching her face, blowing out some windows, forcing down the plaster cornice, and sending about in terrible confusion some of Mr. Creswick's valuable pictures. The gas was turned off from the main, and no further damage was done. This accident might have been avoided, had the patent whistling signals been attached to the burners. Turning off the gas at the meter while some room or other may be lighted, and thus leaving the tap open till next evening when the gas is again put on at the meter, is almost certain to cause an explosion. Every light ought first to be put out before the gas is turned off at the meter; this is the only safe rule: better to leave it on at the meter than fail to put out all the lights first.

The British Association. — The opening meeting of the Association at Nottingham took place on Wednesday. Mr. Grove, Q.C., is the President for the present year. The excursions are of an interesting character. The extensive coal-fields of Mr. North, at Cinder Hill, will be inspected on the 25th, under the superintendence of Mr. R. Barber. A description of the geological features of this valuable mineral district will be delivered by Mr. Fowler, C.E. The same day Newstead Abbey, Annesley, Alfreton Ironworks at Riddings, and the Midland Railway works at Derby, will be visited. Excursions to Charnwood Forest will take place on the 30th. The geological district comprised in this excursion includes the Museum of Lias Fossils at Barrow, Mr. Ellis's limestone quarries, the Swithland Slate Quarries, the Monastery of Mount Saint Bernard, Taylor's bell-foundry at Loughborough, &c. On the same day the ironworks at Codnor Park and Butterley, with the rolling-mills, collieries, and other objects of interest in the surrounding district, will be inspected under the guidance of Mr. Alleyn and Mr. Bean. Matlock, Darley Dale, Chatsworth, Haddon Hall, Monsall Dale, Castleton, and Buxton will be visited on the same day. Bakewell Church and Cross will be visited. Nottingham presents an animated appearance, and effort is being used to make the visit a decided success.

South Kensington Museum.—The number of visitors during the week ending 18th August, 1866, was, on Monday, Tuesday, and Saturday (free), 12,331; on Wednesday, Thursday, and Friday (admission 6d.), 1,426; total, 13,757. National Portrait Exhibition by payment, 11,781; schools at 1s. per 30, 1,946.

A Testimonial.—Last week a testimonial was presented to Mr. Thomas Dawson Ridley, the engineer to the contractor (Mr. Ritson) of the Thames Embankment, North, contract No. 2. The inscription on a salver, forming part of the testimonial (a tea and coffee service, together with a timepiece), stated that it was given by "the members of the staff, workmen, and friends, as a mark of their esteem." The testimonial was presented by Mr. Thomas Gabriel, of the firm of Thomas Gabriel & Sons.

The Clock Tower at London Bridge. At a recent meeting of the Metropolitan Board of Works, the Works and General Purposes Committee brought up a report calling the attention of the Board to the amounts of the tenders received by the committee for the removal and re-erection of the Clock Tower, handed over to the Board by the St. Saviour's District Board, amounting to above 1,000*l.*, the original cost of the tower being 676*l.*, and recommending that a communication be addressed to the District Board, thanking them for their offer of the Clock Tower, and expressing the regret of the Board that, under the circumstances, they are unable to avail themselves thereof. This was approved.

The Closing of Filthy and Overcrowded Dens in Southwark and Islington.—On evidence given before the police magistrates, twenty-three houses in Magdalen-court, Tooley-street, St. Olave's, Southwark, and seventeen in Henry-place, Copenhagen-street, in the parish of St. Mary, Islington, have been ordered to be immediately cleared of inhabitants, and closed, as nuisances and unfit for habitation, till repaired, the cost of repair to be repaid to the parish authorities by the defendants. The houses in Magdalen-court, Southwark, belong to Magdalen College, Oxford, who declined to act in the matter. The court is a *cul de sac* at best, even though the houses were otherwise in a habitable state.

Death of a Sculptor.—We record the death of Mr. David Dunbar, sculptor, which sad event took place at Dumfries. He had his early aspirations of seeing Rome and studying in Italy realised through the kindness of some friends who had long watched the genius of the embryo sculptor. On his return to this country he entered the studio of Sir Francis Chantrey. Upon leaving London he began business on his own account, and executed many works. His best works are busts from the life, and some copies in marble from the antique. He had sittings from Earl Grey, Lord Brougham, Lord Durham, and other eminent statesmen; and he executed a bust of Grace Darling, which was several times reproduced in marble for the Bishop of Durham and others.

The Fatal Panic in Paris during the Emperor's Fete Day.—In the Rue de Rivoli the two currents of promenaders met together, and a frightful crash ensued. Dresses were torn, families separated—the confusion, in fact, was awful. The terror-struck people climbed up the iron railings of the gardens of the Tuileries, while lots of poor women and frightened children were hoisted up to the parapets and terraces by their distracted fathers and brothers. One poor mother who witnessed the trampling to death of her infant is now a raving lunatic. At least 1,000 persons were massed on the bridge; women ran madly along the parapet; others fainted, and were trodden to death, and children also. Five corpses were deposited in one of the halls of the Palais Législatif, opposite the bridge, as well as about 170 wounded. At the apothecary's shop at the corner of the Rue de Bourgogne, several more corpses were to be seen; and others were found in a house in course of construction at the corner of the quay where numbers of the wounded had sought for shelter, and some of whom expired there. As to the shoes, hats, coats, and petticoats picked up by the police it would be impossible to enumerate them. The real cause of the catastrophe, it is said, has been ascertained to be that a number of pickpockets organised a panic beforehand, shouted danger when there was none, and unfortunately succeeded but too well in carrying out their infamous design. Several arrests have taken place.

Iron Mile-posts for Railways. — A patent has been taken out by Messrs. J. & G. Goad, for the manufacture of iron mileage posts for the use of railways. They will be made of cast iron and galvanized. The figures, instead of being painted on the iron, will be formed open through it on a dark ground, obviating, therefore, entirely the necessity of painting or renovation.

Extreme Carelessness in Storing Gunpowder.—A quarryman, at Dumbarton, had a quantity of gunpowder stored in his house, and some children who were playing with lucifer matches close to where a barrel of it stood let a spark fall, and the gunpowder exploded. The house was at once reduced to ruins, and twenty persons, forming four families, were more or less injured.

Labourers' Dwellings in Liverpool. — The special committee appointed by the Liverpool Health Committee to promote this object have reported that they have made a representation to the Loan Commissioners in order to ascertain upon what terms money could be lent to the corporation for the purpose of erecting improved labourers' dwellings, now one of the most urgent local requirements.

The Site of Ophir. — The last antiquarian sensation is the discovery of what is supposed to be the ancient gold-exporting city of Ophir, of Biblical fame. The locality is in that part of South-eastern Africa lying to the north of Zululand. The tribe living there allow, it is said, no approach to the ruins, from which it is supposed they procure thence the materials for the manufacture of certain gold ornaments they are in the habit of wearing. Discarding probable falsehoods and exaggerations, the truth of the matter may be that gold is found in the corner of Africa indicated, and that there are some traces there of an ancient civilised settlement.

Fall of Part of a Railway Station.—A part of the roof of the Preston Railway-station has fallen in. The condition of the station has been complained of for years, and the Preston corporation have time after time sought to induce the owners, the London and North-Western and Lancashire and Yorkshire Companies, to remove or improve it. It was the roof of the eastern side of the station which gave way, hurling glass in all directions, and throwing large iron girders upon seats generally occupied by passengers, tearing huge pieces of wood in pieces, smashing the booking-office windows, and completely demolishing a portion of the roof, measuring about 40 yards in length. A woman was very badly cut in the head, and a pointsman had a narrow escape.

Large Bridge for the Central Argentine Railway.—The largest bridge ever undertaken for South America is now being constructed in England for the Central Argentine Railway, to be placed over the Rio Segundo eight leagues this side of Cordova. The length is upwards of 400 varas, and with its masonry and approaches upwards of 500 varas. The entire construction is of iron; it is to consist of thirty-two spans resting upon cast-iron pillars 14 in. in diameter, and secured into the ground, each pillar having a minimum height of 25 ft. It is to be supported above by longitudinal girders of iron, the framing and ties all of wrought iron. The first sections of this large bridge are now on their way to Rosario, whence they will be conveyed by rail to Frayle Muerto and other points as the road advances, and taken by carts to the Rio Segundo. The section will require nearly a year.

The Atlantic Telegraph.—The diary of the *Great Eastern* has been received, but is comparatively tame, as there were no startling events to record. There was only one sensation scene during the voyage, when a foul flake took place in the after tank, but it was soon rectified. If the cable continue in successful working order, a contract will speedily be made between the American "Associated Press" a great combination of nearly all the daily newspapers published in the United States and Canada—and the Cable Company for the regular transmission of news. This is to be done upon the basis of the transmission of a daily despatch from Europe of about forty words, for which the American press are to pay annually the snug sum of 110,000 dollars in gold, or 22,000*l.* It will cost the American newspapers over 70*l.* a day for their little despatch of forty words, which can readily be printed in five lines.

Increased Supply of Water in the Strand and Holborn Districts.—On Saturday the Holborn and Strand District Board of Works, in order to co-operate with the New River Company in their gift of an increased supply of water from the company's mains, erected cast-iron stand-posts, with self-closing taps, in conformity with the company's suggestion, in the most densely populated localities within their respective districts. In Marylebone, St. Pancras, Paddington, and the districts at the east-end of the metropolis, similar stand-pipes and posts are being fixed. This supply is in addition to that also given gratuitously on Sunday mornings.

TENDERS

For additions to the Kent County Lunatic Asylum, comprising day rooms and dormitories, for about 100 patients. Mr. Martin Bulwer, architect. Quantities supplied by Mr. Geo. Ruck, Maidstone:—

Stiff	£6,938 0 0
Anscomb	6,258 0 0
Simms & Marten	5,988 0 0
Naylar & Son	5,930 0 0
Grenated	5,800 0 0
Vaughan	5,600 0 0
Wallis & Clements (accepted)	5,565 0 0

For the erection of Lecture-hall and Reading-room, Lenham, Kent, for the Lenham Institute Company. Mr. William Powell, architect:—

Clark & Co.	£791 5 0
Head	637 10 0
Fell	590 0 0
Peters	579 0 0
Norris	558 2 0
Coast	540 0 0

For alterations to No. 19, Brompton-road, for Mr. C Lyons. Mr. T. Danby, architect:—

Coleman	£929 0 0
Sims & Marten	794 0 0
Colls & Son	744 0 0
Chutter	729 0 0
Foster	674 0 0

For the erection of four cottages at Wall End, Essex. Mr. J. W. Dennison, architect:—

Riddall	£650 0 0
Withers	650 0 0
Ellis	590 0 0
Stokes (accepted)	505 0 0

For the erection of Convalescent Wards at Southall Schools, for the Directors and Guardians of the Poor of the Parish of St. Marylebone. Mr. H. Saxon Snell, architect. Quantities supplied:—

Brown	£655 0 0
Bell	644 0 0
Gibson, Bros.	595 0 0
Wilkinson & Co.	573 0 0
Hanson (accepted)	538 10 0

For New Reform Club, 71, Jermyn-street. Messrs. Porter & Markham, architects. Quantities by Messrs. Richardson & Waghorn:—

Wells	£8,740 0 0
Coleman	8,620 0 0
Bland	7,896 0 0
Rider & Son	7,700 0 0
Hart	7,650 0 0

For the erection of a warehouse and manufactory for Messrs. Harper & Son, at Clerkenwell, with fire-proof construction. Mr. J. Macklow, architect. Mr. E. Warburton Stent, surveyor:—

Kirk	£4,805 0 0
Torner & Sons	4,353 0 0
Sawyer	4,330 0 0
Brass	4,111 0 0
Sabey	4,050 0 0

For a pair of semi-detached villas, Ilfracombe. Mr. M. C. W. Horne, architect:—

Call & Pethick	£2,100 0 0
Gibbs	2,077 0 0
G. Reed	1,725 0 0
Jos. Reed	1,687 0 0

For house at Cheetham-hill, Manchester, for Mr. Rich. K. Cooper. Messrs. Hayley & Dawes, architects (exclusive of fittings):—

Thompson (accepted)	£1,868 0 0

For erection of ragged schools, Charter-street, Manchester. Messrs. Hayley & Dawes, architects (exclusive of fittings):—

Davison (accepted)	£1,220 0 0

For two houses and shops for Mr. Lambert, Red-hill, Surrey. Mr. J. F. Mathews, architect. Quantities supplied:—

Barnes	£3,399 0 0
Nightingale	3,242 0 0
Langley & Turner	3,220 0 0
Wesley	2,990 0 0
Simms & Marten	2,948 0 0
Gage	2,780 0 0
Holdsworth	2,650 0 0

For alterations, &c., to "Golden Lion," Bagnigge Wells-road. Messrs. Bird & Walters, architects:—

Emnor	£1,530 0 0
Harvey	1,498 0 0
Langmead & Way	1,497 0 0
Newman & Man	1,412 0 0
Williams & Son	1,378 0 0
Kelly (accepted)	1,357 0 0

For alterations, &c., to "Mitre" Tavern, Mitre-court, Fleet-street. Messrs. Finch Hill & Paraire, architects:—

Langmead & Way	£1,884 0 0
Eaton & Chapman	1,838 0 0
Newman & Mann (accepted)	1,686 0 0

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Mr. R.—Mr. H.—H. S. S.—J. W. D.—R. P.—F. G.—Mr. F.—E. M. B. —Miss B. P.—R. G. T.—W. P. G—C. H. F.—H. H.—J. N. B.—Messrs. C. & L.—F. W. S.—C. R. J.—J. K.—W. W.—J. C. H.—E. K.—G. J.— Two Hard-working Men.—J. F. M.—W. L. & Co.—L. M. T.—W. S. & Son.—W. B.—J. F.—T. M. B.—A. M.—W. D. A.—Alpha.—W. T.—E. W. T—H. C. G. (form of numerals is more modern than the date given. Can we have a rubbing?)

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All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

Note.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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[Advertisement.]

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CLUN UNION.—VALUER WANTED.—The Assessment Committee of the Union will, at their Meeting, which will be held at the Union Workhouse, Bishop's Castle, on FRIDAY, the 31st day of AUGUST, 1866, immediately after the transaction of the ordinary business of the Board, proceed to APPOINT a competent PERSON to Value the undermentioned Parishes which are comprised in this Union, at per acre:—Bishop's Castle Borough (exclusive of houses in the town), 5,809; Bishop's Castle Parish, 3,672; Clun (exclusive of houses in the town), 24,000; Clunbury, 7,520; Clungunford, 3,963; Diunore, 1,09; Edgton, 1,943; Hill End, 90; Hopesay, 3,857; Hopton Castle 3,077; Horderly Hall, 30; Hyssington, 3,179; Ludbury North, 7,323; Lydham, 1,533; Mainstone, 2,343; Myndtown, 400; Norbe, 2,133; Norbury, 2,485; Oakenholt Moor, 83; Radlesphope, 5,103; Shelve, 920; Snead, 257; Wentnor, 6,774. The gross estimated rental and rateable value of each Parish, Borough, &c. in each parish will be required security will be required (subject to the approval of the Committee) for due completion of the valuation of the said parishes, on or before the 31st day of JANUARY, 1867. Plans, maps and references will be required for the use of the valuer by each parish, at the cost of the Union. Separate Tenders will be required for maps, which would be sanctioned by the Poor-law Board, if any Map I be required. Separate Tenders will be required for the towns of Bishop's Castle and Clun, as per house. All persons desirous of contracting must send in tenders, as per acre, to my Office, on or before the 29th day of AUGUST, 1866.—By order,

FREDERICK PARDOE,
Clerk to the Union Assessment Committee.

N.B.—The price per acre and per house must include all expenses whatever, except the production of parish maps and references.

Bishop's Castle, August 3, 1866.

CHIPPENHAM HIGHWAYS DISTRICT.

SURVEYOR WANTED.—The Waywardens require the services of a competent person to perform the duties of DISTRICT SURVEYOR. The district comprises 9 parishes, with 22½ miles of road, 15 parishes of which, with 164 miles, are let by contract, and the other six repairs by performed by the contractors, under the superintendence of the district surveyor. The person appointed must reside in the district, and will be required to provide security to the amount of 500l for the due performance of his duties. Salary, 150l. per annum. Applications, in the handwriting of the candidates, and not in print as to character and competency, stating age and present occupation, must be sent to my Office in Chippenham not later than TEN o'clock on THURSDAY morning, the 6th day of SEPTEMBER next. Applications will be considered on the 7th of SEPTEMBER, and the elected candidates will afterwards be communicated with, and be required to attend the Board meeting on a day to be named when the election will take place. The person appointed must be prepared to enter on his duties at Christmas next. Canvassing the waywardens either personally or by letter is strictly prohibited.—By order of the Board

JACOB PHILLIPS, Clerk.

Chippenham, 16th August, 1866.

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Maidstone, August 21, 1866. EDWARD HOAR, Clerk.

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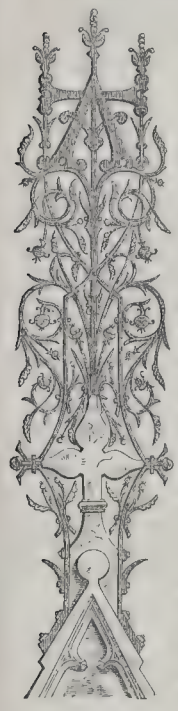
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The Builder.

VOL. XXIV.—No. 1230.

The Architecture of the City of London.



MUSING writers, occupied with the manners and customs of the English, in London, have recounted stories, more or less apochryphal, illustrating the ignorance which is said to prevail in the West-End "world," of whatever lies eastward of Temple Bar. The suggested idea may be considered as correct: indeed, generally, the denizens of this metropolis have no greater amount of information about the characteristics of localities beyond the quarters which they severally inhabit, than people of one town have ordinarily of the people of another. The heart of London commerce, and of the finance of the empire, has been a region to which periodic visits were paid for purposes of business; whilst, now, every addition to the facilities of transit is increasing the number of those persons who, finding avocations in the City, have their residence elsewhere. The intellect of London, however, which is always aiming at great ends, including the regeneration of art, is not confined to the City; whilst, on the other hand, for the efficacy of its exertions, it should be open to impressions other than what are derived from the partial acquaintance with facts such as those of the condition of architecture in the London streets and squares generally, and in what is too large a portion of the area of the suburbs. One of the requisites for any improvement is the knowing how things are; and fair appreciation of the architecture of the British metropolis is not to be made by confining attention to main thoroughfares, like Holborn or the Strand, or to those quarters, like Pimlico and the north-western extension of London, where the greatest use of the material of architecture, as mouldings and columns, is made contemporaneously with the least use of art, and where cement of the particular kind that becomes blackened sooner than the stone which it is intended to imitate, is most prevalent. It is in the City of London that the greatest manifestation of art in buildings should be looked for, if not the nearest approach that has been made to general street-architecture.

Of the last-mentioned architecture, however, there is little,—as there has been in London taken altogether, since Regent-street. About the Royal Exchange can be recognised that combined disposition of masses and of thoroughfares or open spaces, which is required in order to produce the particular effect itself; but, unless accidentally, such effect is not usually attainable by the mere erection of separate structures of good design; though recent writers, when appreciating the merits of certain buildings, and using the heading "Street-architecture" for an article, have not quite perceived this. For real *street-architecture*, many buildings are required; and questions of the relation of sites to spaces and routes come into consideration, as much as those of individual decorative character. Street-architecture has for several years received no advance in the City of London from street-planning; or, if not since the area was cleared in front of the portico of the Exchange, or the buildings were completed, of architectural character, that are seen from the flagged space at the eastern end of the same structure, it has not since the view of St. Paul's was obtained, from Cannon-street,—bungled albeit as that matter was, especially in the foreground. As to buildings themselves, all that has been done of late years has been produced under great difficulties and disadvantages. Ornament for upper stories has been in many cases used only to be thrown away, in consequence of the narrowness of a street,—which the architects, it may be said, ought to have considered, as by making the ground-floor principal, as in Messrs. Robarts, Lubbock, & Co.'s Bank, and by sparing decoration in places where it could be only for the benefit of the larks and crows, or the distress of wingless animals; and, in some other instances, effect, as of an elaborate front, is quite destroyed by the curvature on the ground following the curve of the street. All this we have endeavoured to point out on several occasions.

Still, a day can be most profitably spent by the student, or practical architect, in the study of the numerous buildings that have been erected during the last few years in the City of London; and for ourselves, we must say, we are never occupied in the examination of what has been done, without feeling that if architecture in this metropolis is not what it should be, the fault does not lie mainly in a deficient ability of our architects. Use made of architecture indeed there has been, of late, more than could have been hoped for, twenty years ago; and the prevalence of ornament, externally, is becoming even more remarkable than the number of new buildings.

In our volume for 1864, under special headings, we examined in considerable detail the architecture about the Bank, but leaving several buildings that are now amongst the most important of Lombard-street only slightly referred to, in their unfinished state at the time, and not attempting the description of many works that there were in other parts of the City. Influenced by the growth of companies, and under the continued demand for offices and premises of various kinds, the erection of buildings has gone on; and it is still proceeding, apparently little checked by the recent state of financial affairs; although whole floors are "to let" in structures that were finished a year ago, and notice-boards directing application to Messrs. Debenham, Tewson, & Co., or Messrs. Norton, Trist, & Co., or Mr. St. Quintin, as to "first-class," "desirable," or "commanding" premises, meet the eye at every turn. When a thousand or two thousand pounds can be demanded for a first-floor, with expectation of getting such a rent, perhaps the owner can afford to wait. Some persons in the City predict that the building-activity must soon come to an end: however, it has not done so as yet; and, at this season, a monthly chronicle would be needed to do justice to the importance of what is in hand, regarding the works numerically, or the part they play in the architectural movement of the time. Though all those buildings in Lombard-street that we mentioned in 1864, have been some time finished, there is again to be seen on both sides of the street, scaffolding or hoarding, as where a richly-decorated structure is in course of completion, and where the City Offices Company are beginning to cover the northern frontage of their extensive clearance of ground. In each of the narrow lanes that connect Lombard-street with King William-street, there are structures that have been completed lately, and which possess art-character that is generally commendable. In St. Swithin's-lane and Walbrook, on the other side; about the Bank, and in Throgmorton-street and Broad-street; along the main routes of Cheapside, Cornhill, and Leadenhall-street, Bishopsgate-street, Fenchurch-street, and Tower-street; in transverse streets, "lanes," and "hills," and even in courts where there are no thoroughfares, there is new work of architecture that is worthy of note. We meet with it, when making "a short cut," in unexpected quarters, or where a person the best acquainted with London would hardly expect to find himself in face with evidence of any effort in the line of art, dating in these times. Much of the work may seem as though hurried in the design, rather than studied; and generally, there is nothing inside the buildings, even not excepting the banks, that is at all equal to what there is belonging to them externally; still we must have hope for architecture when commercial and financial sections of a community, such as have presided over art in its most important periods, enlist our art in their service, and find that decoration affords a return pecuniarily, and in gratification of the higher sort.

What is now most required for the continued progress of architecture in our cities, is, after the extinction of the smoke-nuisance, moderation in the use of *ornament*, or what is in the form of stone-carving. But there seems to be required, further, perception of the fact that the *way* of using materials, such as marble or granite, is important, however costly the materials may present themselves as being. Even beautiful materials, as well as colour, are only *vehicles* for architecture: art has still to be called in: the architect, more than the manufacturer or dealer, has to play his part. There is yet considerable room for amendment upon the manner of using slender shafts, whether of metal, or marble or granite, and whether used to carry arches, or placed in the middle of an opening as supplementary support to a lintel of long bearing. Looking at some buildings, we are almost tempted to wish that certain materials had never been introduced. Similarly we are tempted to ask whether, since the idea of artist-workmen was revived, the architect has kept place in advance of the ability of the carver. Architecture wants something more, or something else, than an overloading with the work of mere dexterous hands. Besides, it really admits of consideration whether all that is now spent upon decoration had not better be given to the obtaining materials the best adapted for preservation, under the influences of the London smoke, of the effect of the building as designed or the best adapted for cleansing. There is already a movement in this direction, as in the use of grey-granite. As regards different kinds of coloured marbles used for shafts and panels externally, we regard the employment of some of these materials as mere waste. Any one who doubts the propriety of the assertion need not go far for evidence. Here in Lombard-street, there are some marble panels in the front of the building at the corner of Clement's-lane, now occupied by the London and South-Western Bank, which was illustrated in our pages when it was built for a different company, very few years ago: the material has altogether lost the appearance of marble. Similarly in the case of the shafts used in the windows of the narrow front of No. 45 in the same street: out of six or seven that there are, only the red marble preserves anything like its original colour and polish. Purbeck marble goes to actual ruin in a London atmosphere. Perhaps the most

striking instances of the erroneous use of marble would be afforded by the state of the drinking-fountain erected for Miss Burdett-Coutts in the Victoria Park, and of the monument of the Berens family in Norwood Cemetery, each erected within the last three or four years. The Sienna marble has lost both colour and surface; and black marble has become something like slate, rubbed over with chalk. Even in the fountain at the corner of Great George-street, not yet finished, the shafts have not half the effect that they had when first exposed. We can impute no blame to the architects in these cases; but the mistake must not be made again. The permanence of red granite, or of serpentine superficially, is very different: the material need only be rightly placed, decoratively considered.

With whatever shortcomings, however, there is a great amount of meritorious work in hand, as we have already shown. The amount becomes the more surprising if, after the most recent one of several periodic examinations, we think about the duration of architectural effect, in London, in materials other than granite. The expectation of life of any design may now be set down as not more than ten years: for, after such period of exposure, or less, the very building that took us by surprise at first, and may not have been excelled since, is likely to be passed by unnoticed. Without taking into account the national system in public buildings, we may depend upon it that the money spent on architecture with us, would seem abundant for all objects, did we see the results anywhere else than as in the smoky atmosphere of one of our towns. Under existing circumstances, the campaign in which taste gains a succession of advances into the territory of ugliness, resembles the operation in war; where every march involves a certain loss in the invading force, tending, in due time, without the constant reinforcement, to ultimate extinction of the force, and sacrifice of steps gained. In Paris, the opposite state of things exists: every successful work is something added to existing effect: the sum of art, productive of delight, is ever on the increase; and each work contributes suggestions to what is designed subsequently.

There are two or three circumstances in the production of the architecture of the City of London, that require to be mentioned here. First, the architecture is not Gothic. There is indeed one new building, in Lombard-street, that has a great deal of detail that must be called Gothic; but in the general arrangement of lines and parts, and as to several important features, the design belongs as much to a different family of architecture. Second, the architecture of the City testifies to the advantage of employing architects. Buildings erected can hardly fail to be in the main, one of two things,—pleasing as objects, or the reverse. No one can say that the majority of the buildings of London and the suburbs are pleasing, though particular suburbs are improving greatly; but a decided majority of the new works in the City are pleasing. The public are apt to censure architects for what our profession is not allowed to have any hand in: perhaps it is only fair to point once more to the results where a system different to the general one for ordinary houses, is pursued. Third, the architects are not usually selected by competition.

Some portion of the effect of the new buildings of the City is due to the goodness of the materials and the workmanship. We are not alluding merely to the use of stone, which is general, but to the doors and window-frames, of mahogany, or wainscot, and to the decorative character which is rightly extended to those details, by special design. In many interiors of banking-rooms, great decorative effect results from the manner in which the best materials are used,—even though our previous remark should hold good.

Having spoken of certain not uncommon modes of using coloured materials, wherefrom the results were not those sought, we may commence our particulars of individual buildings, by mentioning one employment of a coloured material wherein the results are in every respect satisfactory. We refer to the use of the polished granite for external doorways. When we last described the buildings of Lombard-street at any length, the bank of Messrs. Barclay, Bevan, Tritton, Twells, & Co., and the building for the offices of the Royal Insurance Company, were not completed. The former building now has, as one of its best features, a polished red granite doorcase, with bold mouldings, large hollow, and deep reveal. On the lintel is a console in bronze. Bronze enrichments, in the form of laurel-leaves, are attached to the Spanish mahogany door-frame, at the sides of the opening; whilst acanthus-leaves, also in bronze, are placed as enrichment to the frieze in the head of the frame. The threshold of the door is closed in at night by some arrangement of shutters descending portcullis-fashion. Mr. P. C. Hardwick was the architect of this building. In the instance of the Royal Insurance Company's building, at the corner of St. Clement's-lane, where the polished red granite is also used, the opening is arch-headed; and there is some very effective incised ornament, consisting of a water-leaf pattern on the external cyma-reversa, and anthemions in the large hollow. The clean, accurate, cutting of the forms, along with the "dead" sinking contrasting with the polish and the boldness of the mouldings, combine to produce an excellent effect. But the whole decoration of this entrance to the building, including the pediment or door-head carried on cantilevers of very bold projection, which are partly in the form of animals, is exceedingly clever. Indeed, the ornamentation of the entire building deserves similar commendation: there is nothing better in London. As there is so much merit, it is then somewhat remarkable that there should be one particular characteristic of the building that approaches to defect. Some of the features at the top, as the balustrade, lucarne-windows, and roof-decoration, cannot be seen from any place in the street. Even as to the stories themselves, the ornament can best be appreciated by ascending the stairs of the chambers on the opposite side of Clement's-lane. Things unsuspected before, then come to light and life: such are details of the lilliputian balusters under the principal windows of the third-story. In the ground-story, in the trusses, the combination of the lions' heads with the anthemion decoration is very happy; as also is that in the cantilevers of the principal doorway, just now mentioned, where the chimeræ are springing forwards. There are some good grotesques in the spandrels of the windows. There is a peculiar ornamentation of the alternate rustic-coins, which has excited the admiration of writers in the newspapers, and not undeservedly. The face of the coin shows a pattern, varied in each case: it is flush with the face, the field being cut away. We have omitted to mention the iron-work to the fan-lights of the doors, and the reclining figures; the latter are in marble. It cannot be too often repeated,—because there is a lesson to be learned from the fact,—that no drawing can represent any of these Lombard-street buildings as they are seen. We have before us a view of the Royal Insurance Company's building that appeared in the *London News* at the end of last year. To allow the whole height of the structure to appear without offence to perspective, Lombard-street is widened; and to allow the whole length of the Clement's-lane front to come in, that street is shown about three times its real width. A good hint might be taken from the treatment of the columns in the principal office of this building. The shafts, in the lower part, are enriched with leaf-work; and the enriched capitals carry four brackets as apparent support to the ends of the beams of the ceiling. Mr. John Belcher is the author of this, after all that we have said, excellent work of architecture.

Previous to the use of granite with mouldings and ornament worked in it, it had been used in many cases, as our readers are aware, for the lower story of a building, as by Mr. I'Anson; and we need not say, largely, for the shafts of columns. There seems to be now an increasing use of serpentine. One example of the use, which may be conveniently referred to, is the lower portion of the lofty building in Cornhill, where the offices of the Crédit Foncier and Mobilier of England Company, Limited, are. The building when described by us some years ago, in an article under a similar heading to the present, was occupied by Messrs. Sarl, silversmiths. It had a lofty shop-front, of which the principal features were two tall antæ pilasters with red granite shafts. Two intermediate pilasters are now added; and the three inter-pilasters are filled in with two stories of openings, with dressings to the windows and doorway, the whole of this filling being of serpentine of different colours. This work we have had occasion to mention before. At the entrance is a good specimen of coloured marble pavement. Mr. Barnett was the architect of the alterations, as also of the building as it was. It often happens that the architect of a building sees his work altered by a different hand; and we must commend the Company for acting more judiciously, as well as considerately, than companies and individuals act generally. The next building to the premises of Messrs. Sarl, eastward, was a structure similar in character to that which there is at present westward, and of nearly the same frontage. In place of the building, east, however, there is now a structure just completed, of extended frontage, and very different character. It is for the offices of the Commercial Union Assurance Company. The details of this building may be quoted as exemplification of treatment that is common, and has been already alluded to. There are six stories above ground, besides one in the roof; and the windows of the principal stories consist of wide openings surmounted by cornices carried by trusses at the ends, the openings being divided by granite shafts. There is want of harmony between the long shafts and the other parts of the windows; and not least so where, in some of the windows, there is a central pediment. Why it is that the eye is satisfied by a certain relation between the dimensions of an entablature and the number of diameters in height of its support, would take much time to consider; we need merely observe that the idea of adequate support has been thought to have something to do with it; but we may be sure that whilst good effects are quite possible of production in styles that are formed of two or more systems mixed, the combination is not to be made without great skill. In the old Gothic, it was quite exceptional to use the slender shaft, as in the Lady Chapel of Salisbury Cathedral, wholly detached in position from a pier. The shaft was usually supplementary to the pier, to which it was often banded at one or more points in the distance between base and capital; or it was one of a cluster of shafts. Many architects are using these slender shafts of granite, of fifteen or twenty diameters in height, for compositions which are generally classic in character, in a way that simply produces discordance. In the ground-story portion of the building last mentioned, red granite is used with effect for the four piers which, with two intermediate shafts, form that portion of the front,—the basement however being of grey granite. Mr. Belcher is the architect of this building; which, though clever in parts, is very inferior to his other work.

Returning to Clement's-lane, where much has been done in two years, we find the most remarkable example of the use of a coloured material. In this case, serpentine of different colours is used for nearly the whole facing of a ground-story. The building alluded to, called St. Clement's House, has been erected by the City Offices Company on this part of their land before mentioned. The front is divided into ten bays: two of these are doors; and a third is the entrance to a thoroughfare to Grace-church-street. The building was designed and commenced for three stories, on a raised basement; but as regards the greater portion of the length, the difficulties of "ancient lights" have proved insurmountable. The Company were ready to pay almost any amount of compensation to the owner of property on the opposite side of the street; but they were eventually obliged to slope the roof from the window-sills which are placed for the third story which it is hoped at some period to complete. The serpentine of the ground-story is mere facing: the actual weight of the superstructure is borne by iron bressumers at the back of the window-heads. The decorative arrangement consists of a range of stilted segmental arches, excepting where the two doorways are, carried by piers with moulded capitals and bases, and surmounted by a cornice of stone. The arches have boldly-carved console-heads in stone. The piers and their capitals are of dark-coloured serpentine: the bases, continuous with a sill of the windows, are of stone. The window-heads, with simple archivolt-mouldings, and the spandrel-spaces, are of light green serpentine; and over each pier is a moulded patera, in the dark-coloured serpentine. The basement is of stone, with serpentine-filling to panels which there are above the window-heads,—a circle, of light green, and spandrels the dark colour. The two doors have jambs of serpentine; these latter have carved stone capitals, carrying an entablature, with a pulvinated frieze in stone carved with leaf-enrichment; and the door is surmounted by a curved pediment, in stone. The windows of the second story have architraves in stone, with well-carved ornament, consoles with heads, and

cornices, the general facing of the walls being here brick. The sills of the windows of the third story are ornamented with a guilloche. The carving throughout is very effective. There is a slight defect in one matter of detail: the crowning fillet of one of the lower string-courses projects somewhat in face of the door-pier, or architrave, instead of stopping against it. The interior of the building is planned according with what has become a common arrangement where there are offices. The offices, on each side, are separated from the passage only by glazed screens, lighting the passage. As usual there is no internal decoration calling for notice; but everything is well executed. Messrs. Francis were the architects.

We may mention that on the opposite side of the street there is a good brick building, of narrow frontage, with stone lower story; we mean No. 13. The decorative effect, in the upper stories, is produced merely by a brick cornice of the plainest description, a panel for the date, and key stones of simple character; and in the ground story by the arrangement of a stilted segmental arch, slightly moulded, to a low, wide, window-opening, which has short quarter-columns in the nooks of the jambs; and by the pilasters to the doorway, which have simple carved capitals, and the cantilever-cornice.

Next to the building of the City Offices Company is one erected for the English Joint Stock Bank, Limited; a company which is in liquidation. It is much plainer than the structure that it adjoins, but is a good building, with bold features and original character. There are five bays in the front, and three stories and the basement in the height. There are three windows between the end-doorways, as the features of the ground-story. The group of windows has for the two middle piers, columns with polished red granite shafts and Corinthianesque capitals, and has stilted segmental arches,—the two jambs being formed by the mouldings of the head, continued down without imposts. The doorways are splayed at the jambs and head, two large hollows being grooved out of the splay. On the wall above the doorway is a red-granite panel of octagonal form, bordered by stone mouldings, and carried by the console of the door-head. Separating the ground-story from the second story, is a bold cornice-string broken by four blocks, or quasi-corbels, corresponding with the angles of the slightly-projecting ends of the front. The five windows in the second story are all arch-headed: those in the centre have bold mouldings, and a console to the head of each; and the two at the ends have rusticated jambs and head, in the brickwork, but with alternate divisions of stone, of the rustics, bossed. The third story has segmental-headed windows with mouldings, and sills projecting on small trusses. The building is terminated by a plain stone cornice finished by trusses at the ends; and this is carried across the break in the front by a course of bricks set angle-wise. The architect of the building is Mr. Edward Ellis.

Next to this structure is one (Nos. 30 & 31 in the street) devoted to the offices of the Imperial Continental Gas Association. It is a very plain building, especially when compared with the structures near it; but there is something noteworthy and suggestive in its treatment: though its stone coins are weak in effect. The main portion of the front is brick; the ground story is of stone, and has a cornice-string, with plain block-consoles; whilst there is a basement or podium of grey granite.

We shall continue our review without delay.

WORTHING AND ABOUT.

VERY considerable improvements have been made in Worthing of late years, materially increasing its attractions as a watering-place and its healthfulness and advantages as a residence. The West Worthing Company have built a number of large houses at that end of the town, offering first-rate accommodation, and some of them are furnished and fitted up in much better taste than is ordinarily exhibited in lodging-houses. In planning residences for the seaside or country, however, it is advisable to keep all the rooms as light and airy as possible: a third room on a floor is very desirable; but it should not be brought out so as to block up and darken the back dining-room (or library) and the back drawing-room. The quantity of seaweed at this end of the town is so considerable as to give a dirty and unpleasant aspect to the incoming sea at times. Engineering skill could probably lessen this objection. At the back of the new houses some excellent swimming-baths have been erected and opened. The main building, eclectic Gothic in style, is divided into three parts, and is covered throughout with a cheap and effective open roof; one portion, the larger, being appropriated to gentlemen, another to ladies, and the third as a concert and assembly room, the decorations of which are very creditable to those concerned. The grounds around are considerable, with a fountain curiously ugly; as may be imagined when we say it consists of a thick compo'd slab, or rather solid basin, supported on rock-work, and carrying a pile of rock-work. This compo'd mass, pushed in between two little heaps of rock-work, has the oddest effect; and memory murmurs,—

> "It is not that the thing is rich or rare;
> One wonders how the devil it got there."

Preparations are made for the formation of a similar ugliness to match: we shall have done a service to the owners of the establishment if we lead them to reflect on what they are doing. One such eyesore (in the midst, too, of much that is praiseworthy) is more than enough. The one that is up is very funny, but too much of a funny thing is no fun at all.

At the other end of the town land has been recently sold for building purposes, and will probably soon be covered.

The Pier is a great addition and advantage. It is about 1,000 ft. in length, and 15 ft. in width, and particularly light. The supporting columns are of cast iron, only 7 in. in diameter, and ⅜ in. thick. There are three in breadth, one central, placed vertical. Those at the outside rake inward 1 in. to each foot vertical. These pillars are 40 ft. apart, so that the girders are in 40 ft. lengths. All the angle-irons were specially rolled for the work in 40 ft. lengths, and at the time were the longest ever made so light. The central girder is beneath the platform. The side girders form a balustrade, and support the platform from the lower flange. We will go a little into detail. The girders are formed of 4-inch angle-irons ⅜ in. thick, riveted top and bottom, so as to form a T. The tops of the outside girders are finished with a plate, rolled, to give additional strength and form the balustrade. The floor of the pier is formed by cross-joists placed 5 ft. apart. An angle-iron is riveted to the girders, and a 4-in. square scantling is secured to the angle-iron. 3-in. deals are bolted and nailed down to these joists, but are placed ¼ inch apart. There are side-bays; one length of girders being projected 7 ft., half the width of the pier. There are two of such side-bays in the entire length. There is an end platform of about 2,500 square feet, with two flights of steps from the top of the pier to the sands below, having seats, small shelter-houses and shops on the platform; the occupant of which, by the way, would do more business if he did not bother every one who only peeps at the window. The pier is lighted with gas, and tempts to a walk at night. Brighton showing two or three miles of sparkle, the light at Beachy Head, and an expanse of sea made evident by a glorious moon, were our own reward on such an occasion.

The subsoil, we must add, is chalk marl. The columns pass some 6 ft. or 7 ft. into it, and the columns are cross-braced with wrought-iron inch round rods. The entire cost of the pier,—that is, the entire capital of the company,—was 5,000*l.*, or about 5*l.* per foot run of the finished pier. The strength is up to one ton at rest on each square yard of floor surface. Certainly a cheap work.

Storms on this coast are very violent. The shoal shore causes the waves to break with terrific force; but the lightness of this pier constitutes its safety. The breakers roar and foam on the shore beneath it, without any visible shock or effect on the structure. At times the waves break over the surface, and one or two planks have been loosened. This is probably the worst that can happen, as the construction of the pier makes it as strong from beneath as from above,—that is, the girders will carry as much weight upwards as downwards, so far as bolts and nails will hold; and as the floor must give way first, the most fearful storm can only loosen a few more planks. Iron is unquestionably the best material for a pier on such a coast, both on account of economy and strength. A fishing-boat broke loose and drifted against the pier, last winter, breaking one column. This was easily and cheaply restored. The structure of the pier is such, that if an entire set of columns should suddenly be struck out from beneath, that portion of the platform would not come down, as the girders would carry the floor. In the case named of the fishing-boat, it was an outside column that was broken, but the outside girder over it was not in any way injured.

As a commercial speculation, the pier pays its shareholders 6 per cent.; the admission being one penny. The pier was designed and constructed by Mr. Robert Rawlinson, C.B., civil engineer; and the contractor was Mr. Cliff, of Bradford. The girders were made at Bradford, and were sent up by rail.

The same engineer, whose handmark is now to be found in many of our towns, designed the waterworks. The tower, 40 ft. square and 100 ft. in height, shows itself from all sides. The tank is of cast-iron, 45 ft. square, and 13 ft. deep, having a central well-staircase. The well is in all 365 ft. deep, sunk and bored into chalk. Water is poured into the tank by a high-pressure steam-engine and three throw-pumps, and about 150,000 gallons per day are lifted and used. Cast-iron mains carry the water over the town, and wrought-iron service-pipes distribute it in the houses. Upwards of 1,200 houses, we learn, are supplied.

The town-streets and all the houses, we must add, are sewered and drained. The sewage is pumped, and is used over land about one mile to the east, for irrigation. Italian rye-grass is grown, cut, and sold green, for horse- and cow-feeding, in the neighbourhood. We are told that some 50 tons per acre per annum of grass are cut from the land so irrigated, and are sold at from 10*s.* to 11*l.* per acre, according to the season.

A great charm of Worthing is that the moment you turn from the sea you are in the country, with flowers of all kinds abundant and trees of marvellous growth. The walks and drives round Worthing are charming and varied. The student of old churches, the rubber of brasses, the tracer of earthworks, and the lover of nature will each find matter to his taste. Broadwater Church, within a mile of the town, a Norman transition building, with large central tower and lofty transepts, was restored not long ago, and apparently without interfering with the original aspect of the structure. Here there are two capital brasses for rubbing,—one of the best floriated crosses in the country, and a splendid example of a coped ecclesiastic, Dr. John Mapilton, who died in 1432, or, as expressed in a round-about way in the inscription—

Anno Millena : C quat' bis X duoꝺecim.

He was chancellor to the queen of Henry IV. The canopy is beautiful. On the Orphrey of the cope are circles and lozenges alternately; each of the former contains the letter M: the maple leaf also appears in allusion to the name. The cross has an inscription at the foot commemorating John Corby, a rector of the church, who died 1415, but which does not belong to it. Dallaway says the cross was found under the pavement of the church in 1826, and was probably intended for Richard Tooner, who was rector from 1432 to 1445. Anyhow, it is an elegant specimen. Each arm of the cross has some capital lettering, such as—

Sanguis xpi—Salua me.

The chancel arch is semicircular, much depressed; the corresponding arch opening into the nave is pointed, but has the Norman ornamentation, and was probably also semicircular originally.

On the road hither from Worthing are seen the Broadwater and Worthing Cemetery buildings, Gothic in style, and noticeable from the mosaic-like aspect of the walling formed of varicoloured stone (Plymouth rock?), set random-wise. A new residence close by, with tower, shows considerable expenditure, but is not very pleasing. It stares. Not far off there is an elaborate wooden garden-gate, more showy, perhaps, than strong; and in the hedge opposite, when we last passed, sat a bright, sparkling girl, engaged in sketching it. A smaller sister subduing her mischief, looked on, while an attendant with a parasol carefully shaded the little artist's head from the rays of a hot sun, and a very good sketch between them were they making. This is the right sort of practice, young ladies, depend on it: and young gentlemen, too. Instead of niggling over a copy from a copy, on a piece of paper 4 in. long, set yourselves down before the stem of a beech, with an

ivy-covered bark for background, the window of the church, or the little donkey-cart, and accurately reproduce what you see in good size; so that hereafter, when you want to generalise and give much in little, knowing exactly the forms, you may indicate them with certainty, though you make but a few touches.

Tarring Church has some associations. The church at Goring, at first sight, deceives into the belief that it is an old one: the stone is lichen-covered and decayed; but a second glance, showing the corbels all alike, and amorphous window-cills, proves it modern. Within the building some Norman-looking columns, said to be copied from the old church, separate nave and aisles. Some of the windows have very good tracery. Goring Wood is absolutely charming. These Saxon *Ings*, to which we alluded when speaking of Hastings, last week, are numerous in Sussex: add to those we have just named,—Tarring, and Goring,—Climping, Worthing, Angmering, Lancing (see the new College), Sompting, Poling, Patching, Steyning, and others, all of which places, besides the two Shorehams often mentioned in our pages, may be easily visited from Worthing.

We mentioned the rebus on the Mapilton brass at Broadwater: such are not uncommon. We get another on the interesting brass commemorating "John Shellie" and his wife, 1526, at Clapham Church, in this neighbourhood. Shelley bears upon a tabard his armorial insignia, including whelk-*shells*,—an instance of the arms called "canting." The shells are so awkwardly imitated in parts, that they look more like purses of the period, and foreshadow the Christian-name (Percy) which attaches to the family. This brass includes a curious group, indicating the Trinity. Clapham church, like various others round about, is Transition Norman. The capitals of the columns on the south side have a row of single leaves in the lower member, more French than English.

The "Miller's Tomb," erected about 1766 by one Olliver, thirty years before his death, is a place of resort, and is itself as ugly an erection as one would wish *not* to see. The ramble to it, however, is just now, literally, over a "flower-spangled mead," and the view from the top of the hill on which it stands, is superb. Such a panorama! wood, meadow, hill, valley, and the sea for distance. Behind this hill stretches, still upwards, the grassy and billowy down; and on the summit, Highdown-hill, is a British encampment, well made out. A still more perfect work of this kind is to be found on Cissbury, a little farther on, a name probably compounded of Cissa, one of the sons of Ella, the founder of the kingdom of Sussex, and who is said to have given name to Chichester, and *beohr*, Saxon for hill. The fosse and vallum may be seen all round the camp, and within this enclosure are a number of pits, which are viewed by some as showing the position of British residences. If the visitor go on to Chanctonbury,—Chancton Beohr, shall we say?—he finds a third of these camps, and, moreover, gets some magnificent views and effects, scarcely to be rivalled. In the valleys below, we heard, goitre, as in Switzerland, troubles the inhabitants. Is it produced by want of light or bad water? That word *Beohr* that we have just now used, may be heard even now on Chanctonbury. If you get hold of the hale-looking old man, seventy-six or more, who looks after the place for its reverend owner, Mr. Goring, and ask him which way he comes up to the top, he will probably say,—"Oh, I come up our *Borstal*,"—the local term for a steep way leading up the face of the downs from the Weald, and the derivation of which is found according to some writers in the "Sussex Archæological Collections,"* in *beohr*, a hill, and *stigele*, a steep ascent. Steyning Borstal, and Amberley Borstal, are well known. But we may not longer gossip. Worthing has a neighbourhood full of interest, and is a very pleasant place.

SALE OF BURNS'S NATIVE COTTAGE, AT ALLOWAY, NEAR AYR.—This celebrated cottage, which has long been desecrated to the uses of a wayside drinking-house, is now in the market, at an upset price of 3,000*l.*, including five of its original seven acres of land. It is to be hoped means will be adopted in Scotland, as in the Shakspeare case in England, to secure the property as a national record of the poet.

* Vol. ii., p. 292; and Vol. viii., p. 187.

ON THE BAYEUX TAPESTRY.*

IT is now some fifteen or sixteen years since the library committee of the Society of Antiquaries paid me the compliment of requesting me to write a notice of the Bayeux Tapestry, to accompany the engravings of it, from the accurate drawings of Mr. Alfred Stothard, published as early as 1819, in the "Vetusta Monumenta." In reply I begged it might be distinctly understood that, with every wish to assist the Council or oblige the society by any means in my humble power, I could not undertake the serious task of writing such a critical history of this important relic as I felt ought to be issued by the Society of Antiquaries of London. The time requisite for the researches was not at my disposal; and to make a mere *résumé* of all the controversy that has appeared, or a digest of all the conflicting speculations that have been published on the subject, would have occupied more than I could conveniently spare, and tended, perhaps, to bewilder rather than inform the reader.

That excellent antiquary Monsieur Frederick Pluquet was so strongly of this opinion, that he prefaces his valuable evidences concerning the tapestry in his "Essai Historique sur la Ville de Bayeux" with these words:—"So many descriptions of this monument have been published, so much has its origin been discussed, that I shall take great care not to involve myself too deeply in these interminable arguments. I shall follow in this chapter the plan which regulates all the rest of this work,—that of not repeating what others have said, and of publishing only what others have been ignorant of, or forgotten, or neglected." Such is the plan I propose to follow in my notice of the tapestry, as far as it is possible, considering that I have on this occasion to address a general audience, of whom the fair sex, as we are always delighted to find, form a fair proportion, and that to many of my auditors the subject may be entirely new or known but by name. To the latter, therefore, it may be necessary to state, that the curious relic popularly called the Bayeux tapestry is a roll of linen (formerly preserved in the Cathedral of Bayeux, in Normandy, and now in the town library of that city), measuring 19 in. in breadth and about 211 ft. in length, on which is worked in coloured wools the representations of a series of events immediately preceding the death of Edward the Confessor, and terminating with the accession of Harold, the invasion of England, and the decisive battle of Senlac or Hastings; possessing, therefore, a strong local interest for the inhabitants of this county, which I trust will atone for the unavoidable dryness of an antiquarian dissertation.

For the reason above stated, I shall also recapitulate the evidence collected by M. Pluquet in the admirable essay to which I have recently alluded, respecting the origin of the tapestry,—one of the principal bones of contention amongst antiquaries, and the cause of a quantity of *ink*-shed which it is perfectly alarming to contemplate.

After briefly stating his confidence in the antiquity of the tapestry, as contemporary with many of the personages represented in it, though neither the work of the first or the second Matilda,† but executed by order of Odo, Bishop of Bayeux, uterine brother of the Conqueror (who alone had the power to deposit and display the representation of a subject from profane history in a sacred edifice), M. Pluquet proceeds to answer the principal objections that have been urged against such an opinion, in the following brief but conclusive manner:—

Objection 1. The silence of historians, particularly of Wace (author of a metrical history of the dukes of Normandy and the conquest of England).

Answer. It was not the custom amongst the historians of the Middle Ages to quote monumental evidence of any description. "Comme dit l'histoire," "Comme on lit," "Comme on trouve écrit," "Comme dit oil (celui) de Jumièges." Such are the only authorities of our ancient chroniclers.

Objection 2. Subjects appear in the border of the tapestry taken from the Fables of Æsop or Phædrus, and those works were not known at that period.‡

Answer. This is an error. They were well known long previously. Freculphus, Bishop of Lisieux, who lived in the eleventh century, says that Edward the Confessor caused the Fables of Æsop to be translated. Ingulphus informs us that Alfred had translated them from the Greek into Saxon in the ninth century.

Objection 3. The word *Franci* is found on the tapestry, and the Normans never called themselves Frenchmen (Français).

Answer. Wace, who was a Norman, calls the Normans "Français" in many passages of his works, and particularly when speaking of the battle of Hastings.

Objection 4. Bayeux was burned by Henry I. in 1106, and that conflagration must inevitably have destroyed the tapestry.

Answer. Wace says positively that the treasures were carried out of the cathedral before it was burned.

> "Tote fu l'Eglise destruite,
> *E les richesses fors conduite.*"
> Roman du Rou.

Objection 5. The inventory of the treasures ("*effets précieux*") of William the Conqueror, taken in 1087, makes no mention of the tapestry.

Answer. The tapestry did not belong to William, and had no right to be entered in an inventory of his property.

What can be clearer or more satisfactory than these refutations of unfounded assertions? And how grateful should we feel to M. Pluquet for wading through that mass of misapplied erudition and illogical deduction, and so quietly and concisely disposing of it. I should almost apologize for adding one word to his commentary; but the line "*E les richesses fors conduite*," has been quoted by the Abbé de la Rue, and interpreted by him in the sense of plunder. Even in that sense it does not necessarily imply destruction. The very absence of intrinsic value would go far to insure its safety. The Abbé asks who would care to rescue a piece of needlework? I ask, where would be the temptation to destroy it? Again, much stress has been laid on the silence of Wace, who, as a prebend of Bayeux, it is contended, *must* have seen the tapestry, had it existed in the cathedral in his time; but independently of the satisfactory reason given by M. Pluquet, there is no *must* in the case. Wace, who died in 1184, was born in Jersey, and educated at Caen, where he wrote his "*Roman du Rou*," in 1160. He never could have seen the old cathedral out of which the treasures were taken in 1106, and who can say when the tapestry, if a portion of them, found its way back to the new edifice, rebuilt, or rather restored, for it was not entirely destroyed, by Philip de Harcourt in 1159. Nor can the silence or ignorance of Wace on this subject, who had finished his poem in 1160, be much wondered at, when we find M. Ducarel, in 1767, telling us that the clergy of the cathedral, to whom he applied for permission to inspect this remarkable relic, knew nothing about it! It was only by explaining to them that the tapestry he desired to see was annually exhibited to the public on certain days, that they comprehended his request; and even then seemed not to be aware that it had any reference to William the Conqueror, whom they simply designated Duke William. Wace expressly tells us that he wrote the account of the Conquest from the information of his own father, and had he even had an opportunity of seeing the tapestry, which does not appear probable, would no more have thought of quoting it as an authority than a writer of the present day, describing the battle of Waterloo from the information of eye-witnesses, would think of supporting such evidence by Jones's celebrated picture, or Burford's capital panorama, supposing the latter were still in existence. Besides, his poem was finished five years before King Henry II., his patron, sent him to Bayeux; for as the records of the cathedral tell us he enjoyed his prebend nineteen years, it follows that if he died in 1184, he could not have been appointed before 1165.

I will now state the few facts of which we are at present in possession relative to the history of the tapestry itself. The earliest mention yet found of it occurs in an inventory of the jewels, ornaments, books, &c., belonging to the church of Notre Dame de Bayeux, and at that time found in it, taken by Guillaume de Castillon, Archdeacon of the Vez, and Nichole Michiel, *fabriquier*, canons of that church, in the month of September, 1476. In the third chapter of this valuable document, two magnificent mantles are described as having been those,

* By Mr. J. R. Planché, Somerset Herald.

† Mr. Hume attributed it to the third, the Empress Matilda, daughter of Henry I.; and the Abbé de la Rue, being perfectly ignorant of costume, supports this opinion, and most authoritatively states the tapestry to have been undinished in 1167, the date of the Empress Matilda's death! *Archæ.*, vol. xviii., p. 160.

‡ Abbé de la Rue.

according to tradition ("*comme l'on dit*"), worn by Duke William and his duchess at their marriage, a circumstance important to our present subject, as supporting the assertion of Wace, that the valuable property belonging to the cathedral in the eleventh century was *not* destroyed with the building in 1106; and in the fifth chapter, containing an account of the cloths, tapestries, curtains, &c., for the decoration of the church on solemn occasions, we find, "Item, *une tente tres longue et estrait de telle (toile) à broderie de ymages et escripteaulx, faisant representation du conquest d'Angleterre laquelle est tendue environ le nef de l'Eglise le jour et par les octaves des reliques.*" It is remarkable, in corroboration of M. Pluquet's opinion, that the tapestry was not the property of William, and had never belonged to him; that whilst the two mantles are traditionally assigned to him and his duchess, the tapestry is associated with neither of their names as donors or previous proprietors. Its popular appellation "*la toilette du Duc Guillaume*," with the additional tradition that it was the work of his wife Matilda, does not appear to have been known to the canons of Bayeux in 1476 any more than to their successors in 1767; but the name it would naturally receive from its subject, as it was also called "*la toile de St. Jean*," from its exhibition on the festival of that saint. The report mentioned by Montfaucon that it was the work of Queen Matilda and her handmaids, originated probably in the suggestion of some antiquary of the sixteenth or seventeenth century, repeated till it assumed the consistency of a fact. Should it eventually prove to be one, it would not at all invalidate the idea of M. Pluquet that it was placed in the church by Bishop Odo, for whom, and by whose desire, it might have been executed by his royal sister-in-law. M. Jubinal has, indeed, been hardy enough to suggest the name of the principal sempstress employed upon it ("*Moyen Age et Renaissance—Tapisserie*").

That the treasures were not destroyed or stolen at the time of the fire we have abundant proofs; for, independently of the existence in 1476 of the two mantles traditionally assigned to William and his duchess, Mr. Ducarel in 1767 speaks of a curious ivory casket, with a silver-gilt lock, of oriental workmanship, part of the spoils taken from the Saracens by Charles Martel at the battle of Tours; the chasuble of St. Regnobert, presented to the cathedral by Ermentrude, wife of Charles the Bald, and two unicorns of massive silver, one 15 ft. and the other 9 ft. long, the gifts of William the Conqueror and his brother Odo, and which the Dean and Chapter of Bayeux offered to Francis I. in 1531. The king nobly declined accepting them, saying that as they had been preserved there since the time of King William, they ought to remain under the same guardianship. During the troubles of 1562, these valuable figures were confided to the care of the Duke de Bouillon, governor of Normandy, who never returned them, and they have since disappeared entirely.

Having now told you all that is really known about the tapestry, I will proceed to describe the various subjects represented on it in the order they occur, appending the few remarks I shall presume to make upon them as they arise. First, then, we perceive Edward the Confessor seated on his throne, conversing with two persons, supposed to be Harold and an attendant receiving Edward's instructions to go to Normandy, or, according to other writers, requesting to make the voyage contrary to the advice of Edward.

A great deal of useless discussion will be found on this point in the earlier writers on the subject. There is nothing indicated in the tapestry beyond the fact of an interview. Whether Edward be issuing an order or granting a request must be left entirely to the imagination. We next see Harold with his attendants riding to Bosham.

Harold, with a hawk on his wrist, the mark of high nobility, is here depicted with moustaches. In the former group the figure supposed to represent him has none; but they are worn by the person beside him. Bosham, I need scarcely inform the present company, is now a small village on the coast of this county, but in the eleventh century was a well-frequented port, where Harold took shipping. It was royal property in the time of the Confessor.

This subject is followed by a church, no doubt that of Bosham. Two persons are seen entering the church, or it may be praying at the entrance. Adjoining the church is a building, in the upper story of which five men are seen drinking; a sixth stands at the stair head; and a seventh is descending the stairs with an oar in his hand, following others carrying dogs and birds through the water to a boat.

Two vessels are next seen, crowded with warriors and mariners; and the inscription informs us that Harold crossed the sea and came full sail into the territory of Count Wido. Harold's vessels were driven by contrary winds into the mouth of the Somme, and he was therefore compelled to land on the territory of Wido, or Guy, Count de Ponthieu.

Inscription 5 is simply "Harold;" and he is next represented landing from a boat at anchor, and immediately afterwards arrested by the count.

"It was the custom," observes M. Thierry, in his "*Histoire de la Conquête*," "of this maritime country, as of many others in the Middle Ages, that all strangers thrown upon the coast by a tempest, in lieu of being humanely assisted, should be imprisoned and held for ransom."—(Book 3.) He is then conducted as a prisoner to Belrem (Beauraine le Château, two leagues from Montreuil), where he is subsequently depicted parleying with Wido.

M. Lancelot suggests this conference is respecting Harold's ransom. I am sure it is not worth while to dispute so probable a conjecture; but what is the value of it? The count and his prisoner are apparently in conversation. That is all we can really gather from the tapestry.

This is followed by the inscription; underneath which, and over the head of a bearded dwarf who is holding the horses of the envoys, is worked "Turold." This is evidently a proper name, and has been by common consent appropriated to the dwarf. The authors of "*Les Recherches sur le Domesday*" observe that "the name of Turold was so common in the two countries of France and England at this period (Temp. W.C.) that it is difficult at present to identify the family of this tenant. Alnredus (nepos Turoldi), grandson or nephew of Turold, held in Lincolnshire at the time of the Survey the same lands he held during the reign of Edward the Confessor. A Turold was sheriff of Lincolnshire after the Conquest, and founder of Spalding Abbey. His niece and heiress was Countess of Chester, and married Ivo Taillebois, the Conqueror's nephew. A Gilbert Fitz-Turold, apparently a feudatory of Odo, bishop of Bayeux, held Watelage at the time of the Survey, which had been previously held by Earl Harold. An Albert and a Richard Fitz-Turold are also mentioned in Domesday. William the Conqueror's governor or tutor was named Turold,—"*Turoldus teneri Ducis pedagogus*;" but he was killed shortly after William became Duke of Normandy. Miss Agnes Strickland's assertion that Turold was an artist, who designed the tapestry, is unsupported by any evidence. The figure holding the horses is certainly a singular-looking personage, and may have been a celebrated character of that day,—the Count of Pontheiu's dwarf, perhaps; for we know it was the custom of men of high rank to have such in their household. Be this, however, as it may, the introduction of the name without further explanation is one of the best proofs of the contemporaneous execution of the tapestry.

This is succeeded by a second embassy, the first having failed. Count Guy, we are told, was deaf to both the threats and the blandishments of the duke, and yielded only to a large sum of money, and a fine domain on the river Eaune.*

> "Tant promis au comte et offri
> Tant manacha et blandi
> Que Guy, Heralt au duc rendi."
> *Roman de Rou.*

We are then shown the envoy of Count Guy in the presence of Duke William. The figure of the envoy is very diminutive and apparently deformed; and it was therefore suggested by Montfaucon that it represented the same dwarf Turold whom we have just seen holding the horses of William's ambassadors. M. L'Echaude d'Aniay, after a careful inspection of the tapestry itself, inclined to the same opinion, in opposition to Ducarel. But the name of Turold is not repeated, and it is useless to recapitulate arguments which are unsupported by facts, and amount simply to a conflict of speculations. If we could draw any inference from the attitude of personages so rudely represented, we might certainly presume that the envoy was approaching the duke with great reverence and some alarm, and that the actions of one of the men-at-arms in attendance, who appears to be placing his hand on the head of the envoy, indicates a familiarity only to be accounted for by the peculiar character of the individual subjected to it. William was no doubt angry at the delay of Guy to deliver up his captive, and at the little effect of his threats, until accompanied by bribes; and the count might have selected an ambassador who was likely to divert the duke and allay his irritation. No hint of this, however, has been yet discovered, and we only find "Wido conducting Harold to William, duke of the Normans;" the tapestry thus corroborating the account of Guillaume de Poictiers, William of Malmsbury, and Matthew Paris, who state that the Count of Poictiers delivered Harold in person to William, and did not merely send him under a guard, as is asserted by Eadmer, Roger of Hoveden, and others.

Harold is next seen accompanying the Duke of Normandy to his palace, again in accordance with Guillaume de Poictiers, who states that William conducted Harold to Rouen, the chief city of his dominions "*In urbem sui principatus caput Rothomagum introduxit.*" This subject is immediately followed by the palace, in which William is seen seated in state, and Harold speaking to him with considerable action. There is no inscription over this group, and the subject of the conversation must, as in the former instances, be left to the imagination.

We now come to inscription 14.—"*Ubi unus clericus et Aelfgyva*"—"Where a priest and Aelfgyva." This is one of the mysteries of the tapestry which has yet to be explained. Mr. Gurney says, "a woman, *certainly* Adeliza," William's daughter, promised to Harold,—a devotee whose knees are said to have become horny from incessant genuflexion in prayer, and who died afterwards affianced against her will to Alfonzo of Spain. Why "certainly" Adeliza I do not perceive. M. H. F. Delaunay asserts as positively that it is Adela, another daughter of the Conqueror, who was promised to Harold, and afterwards married Stephen, Earl of Blois. Indeed no two historians seem agreed as to the particular daughter so promised; and none of William's daughters could at that period have attained the age of the woman represented as Aelfgyva. Besides, a scandal is implied, in my opinion, by this representation, which would have been a justification of Harold's refusal, and therefore not likely to have been introduced in this tapestry. Mr. Amyst has discussed this subject fully in his paper (*Archæologia*, vol. xix. pp. 199-202), but does not appear to have suspected the imputation on the fame of the lady, which appears to me to be conveyed, not only by the *unfinished* inscription, "Where a priest and Elfgyra——," but also by the character of the figures in the border of this compartment; the only other instance of grossness occurring in the same border, under what may be considered the commencement of this part of the story—the Deliverance of Harold to William. I have no wish to encumber this paper with theories of my own without something like facts to support them; I shall therefore limit my remarks on this obscure subject to facts. 1. Nothing has yet been detected in the contemporary chroniclers which throws light on the circumstance here intended to be represented, but which was doubtlesly as well understood at the time as the allusions to Turold and others still to be noticed. 2. The names given to William's mysterious daughter are Adela, Adeliza, Agatha, and even Matilda; but it does not appear she was ever called Elfgyva, which is a purely Saxon appellation, signifying literally, "the gift of the Fairies," or "Fairy Gift," and usually appropriated by them to royal personages. It is very improbable that even a Saxon embroiderer would have applied this title to one of William's daughters; besides which, Mr. Amyot has shown that "the history and even name of this injured princess are left in extricable confusion." (*Archæolog.*, vol. xix. p. 200.) It is still more improbable that, if really intended to represent a young, chaste, and pious child, of eleven or twelve years old, the greatest age she could have attained at that period, her portrait should be desecrated by the association of gross caricatures, and her character hinted away by a purposely incomplete inscription. This latter fact has been entirely overlooked by every writer I have seen on the subject, and by some the inscription has been incorrectly copied. Launcelot gives it "*Ubi clericus et Aelfgyva*," omitting the word "*unus*," and M. Delaunay writes, "*Unus clericus et Ælfgyva*," omitting the more important word "*ubi*," without which the inscription, though still obscure, would be complete, as (you will observe) are all the others

* "Chronique de Normandie." Thierry's "Histoire de la Conquête."

throughout the tapestry. But we have here "*Ubi unus clericus et Ælfgyva*"—"Where a clerk, or priest, and Elfgyva;" or, indeed, we may read it, "Where a certain clerk and Ælfgyva," the word "*unus*" allowing of such a particularization. How can we doubt that the design of the embroiderer was to recall some scandal so generally known at that period as to render any plainer allusion to it perfectly unnecessary? Now, there were only two contemporary personages popularly designated as Ælfgyva, respecting whom I can find a scandal was in circulation. One was Emma Ælfgyva, sister of Richard II., Duke of Normandy, the queen first of Ethelred, King of England, and, secondly, of Canute the Great, and mother by the former sovereign of Edward the Confessor. According to some historians, she was accused by Godwin, Earl of Kent, and Robert, Archbishop of Canterbury, of being accessory to the murder of her son Alfred, and also (which is more to our purpose) of a disgraceful intimacy [with Alwyn, Bishop of Winchester.—(Knyghton, Brompton, Higden.) Her walking over red-hot ploughshares in order to prove her innocence, is a popular tradition, which has been known to us all from childhood. The other Elfgiva is not so notorious, nor was she of royal birth. She was the rival of Emma Elfgiva, being the mistress of Canute, and is distinguished from her by being called Elfgiva of Northampton. She was the daughter of the Ealdorman Almelm, and the noble Lady Wulfruna; and we are told by Florence of Worcester, and other historians, that she caused the new-born child of a certain priest to be brought to her, and induced the king to believe that she had borne him a son. This child was Sweyn, to whom King Canute gave the kingdom of Norway. The chronicler goes on to say, "Harold" (*i.e.* Harold, surnamed Harefoot) "also said he was the son of King Canute, by Elfgiva of Northampton, although that is far from certain, for some say that he was the son of a cobbler, and that Elfgiva had acted with regard to him as she had done in the case of Sweyn."—(Florence of Worcester, *sub anno* 1035.) I do not attempt to propound any theory, or draw any inference from these circumstances. I only point out that the unscrupulous mother of Edward the Confessor, and the wily mistress of her second husband, were both called Elfgiva, and that both were suspected of conduct which might be darkly hinted at in the inscription,—"Where a certain priest and Elfgiva." At the same time I honestly confess I do not see what connexion the peccadilloes of either have with the adventures of Harold, the son of Godwin.

The four next subjects, depicting the expedition against Conan, Count of Brittany, in which Harold assisted William, are highly interesting from the fact that they represent events unmentioned by any of the historians, and in one instance (that of Guillaume de Poictiers) positively contradict the chronicler, who states that William's forces never proceeded beyond Dol, and retired without striking a blow, having waited in vain for Conan, who continued retreating in lieu of opposing them. According to the tapestry, William pursued him to Rennes, and afterwards to Dinan, where the count ultimately capitulated, and surrendered the city with the usual formality of the delivery of the keys. He is holding them out at the end of a lance to a knight on horseback, who is receiving them on the point of his own weapon,—a curious illustration of the manners of the period. It may, however, be Rennes he is surrendering, and not Dinan, as generally believed, as the inscription does not designate another city, but simply informs us that "here the duke's soldiers fought against those of Dinan—*contra Dinantes*." Forces from Dinan might have marched to the rescue of the capital, and on their defeat Conan would be compelled to surrender. Everything is in favour of the tapestry. The details are too circumstantial to be the imagination of the embroiderer; and the next Inscription, 22, "*Hic dedit arma Willelm Haraldo*"—"Here William gave arms to Harold," seems to corroborate Ordericus Vitalis, who tells us that William rewarded Harold's exertions with presents of splendid arms, horses, &c.; in contradiction to Wace, who, in the Roman de Rou, lays the scene of the presentation of arms at Avranches, when William was on his march to Brittany, and, of course, before Harold had exerted himself at all.

We next find William returning with Harold to Bayeux, and are told, "Here Harold made oath to Duke William;" the said oath being to recognize the duke's right of succession to the throne of England on the death of King Edward. Harold is seen standing between and placing his hands on two shrines or reliquaries. After he had sworn, William is reported to have uncovered the shrines and alarmed Harold by the number and importance of the relics contained in them. William of Poictiers and Ordericus Vitalis place this incident previous to the expedition into Brittany.

The tapestry then represents Harold returning to England, and recounting to King Edward his adventures, or reporting the result of his mission.

Everybody has noticed, of course, the singular transposition of the two following subjects in this part of the tapestry. The funeral of Edward is made to precede his death, for we read in

Inscription 27.—"*Hic Edwardus Rex in lecto alloquit Fideles*;"—"Here King Edward, in bed, addresses his friends." The king is supported by one attendant, who sits behind his pillow. At his bedside are two persons, supposed to be Harold and Stigand, Archbishop of Canterbury; a third, at the foot of the bed, is a female, naturally imagined to be the queen. This is supposed to be important as corroborating the assertion of the Saxon Chronicle, Florence of Worcester, and Roger de Hoveden, that Edward on his deathbed declared Harold his successor; while others assert that he confirmed his previous bequest of the crown to Duke William. I protest, as before, against any inference being drawn from such a representation. The king's hand is extended towards Harold (if Harold it be), to whom he may be simply bidding farewell, or whom he may be enjoining to respect his oath to William. Each party may form its own conclusions; but I contend that there is nothing in the action which can positively be affirmed to settle this disputed point of history.

The death and funeral of King Edward is followed of course by the election of Harold. "Here," says the inscription, "they give the crown to King Harold." M. D'Anisy and Mr. Sharon Turner observe upon this, that although the tapestry evidently tells the story in the Norman way, and in favour of William, there is no indication here of Harold's seizure of the crown by violence, as intimated by Malmsbury, Rudborne, and Ordericus Vitalis. We next read—"Here sits Harold, King of the English. Stigand Archbishop." Harold is seated on the throne, holding a sceptre in his right hand, and a globe surmounted by a cross in his left. On his left is Stigand, Archbishop of Canterbury, who is said to have crowned him in defiance of the Pope's interdiction. The tapestry, therefore, appears to corroborate this statement, and refute the majority of English writers, who assert that he was crowned by Aldred, Archbishop of York.

Inscription 31.—"*Isti mirant. stella*"—"They marvel at the star." This star is a comet, the appearance of which is mentioned by Guillaume de Jumièges, Matthew of Westminster, and the MSS. Chronicles, Tiberius, B. 1, and B. 4, Brit. Mus., and was regarded by the English as a sign of impending great tribulation. At the time of the projected invasion of England by Napoleon I., a comet made its appearance; and the Emperor, who had caused the tapestry to be brought to Paris for his examination, is said to have contemplated the one depicted in it with considerable interest.

Inscription 31.—"Harold." Harold is seated on his throne listening to a man who appears to have brought him some important information, as the king's attitude is one of great attention. It has been suggested with some probability that the intelligence communicated by the messenger is that of the landing of Tostig and the Norwegians. Others consider it to represent the ambassador William sent to Harold to expostulate with him on the seizure of the crown; but in this case it should follow the next subject. And here, again, it is a mere matter of opinion—either may be right, both may be wrong.

Inscription 32.—"*Hic navis Anglica venit in terram Willelmi Ducis*"—"Here an English ship came into the dominions of Duke William;" bringing the news of Harold's accession; for this is immediately followed by

Inscription 33.—"*Hic Willelm' Dux jussit naves edificari*"—"Here Duke William commanded ships to be built." William seated in his palace is in conversation with a personage, who, from his tonsure, is evidently the duke's uterine brother Odo, Bishop of Bayeux, and not his other brother Robert, Count of Mortain, suggested by Lancelot. A man is in attendance with a hatchet in his hand; and this group is followed by the representation of a forest, and men hewing down trees, shaping planks, and building vessels.

We then see the ships dragged down to the beach, and laden with arms and provisions. Soldiers are represented bearing hauberks on a pole thrust through the sleeves, the most convenient mode of carrying such body armour, the weight of which must have been considerable. The wagon laden with wine is ingeniously made to carry lances and helmets.

The scene is again shifted to this county, and we approach the great event which the lapse of eight hundred years has not deprived of interest. Seventeen or eighteen vessels are, more or less, perfectly depicted in the tapestry. The great ship, on board of which we are to suppose William, has the banner of the cross surmounting the mast, presumed by M. Lancelot to represent that which was sent to the duke by Pope Alexander I. At the back or prow of the galley is the head of a lion, and at the stern is the figure of a boy, holding in one hand a banner, and in the other a trumpet, which he is in the act of sounding. This does not agree with the description of Wace, who tells us the figure-head of the duke's vassel was a boy armed with a bow and arrow, which he appeared about to shoot in the direction of England; but an ancient MS. tells us that Matilda caused a ship to be built for her husband, at the head of which was the figure of a boy in gold, with a trumpet in his hand; an assertion curiously borne out by the tapestry, with the unimportant difference that the figure is placed at the stern instead of the head of the vessel.

They arrive at Pevensey, and we see them landing the horses from the ships, and then foraging parties riding towards Hastings to seize provisions.

This subject is immediately followed by the figure of a warrior on horseback, with the long Norman kite-shaped shield, and holding a baton in his right hand, over whom are the words, "*Hic est Wadardus*"—"Here is Wadard." He appears to be giving orders to a man with an axe on his shoulder, who is leading a horse. This is one of the inscriptions which clearly proves the contemporary character of the tapestry, as this must have been some personage so well known at that period that no further description of him was necessary. Sir Henry Ellis was, I believe, the first person to point out, in his "Introduction to Domesday," that a person named Wadard was an under-tenant of Odo, Bishop of Bayeux (Earl of Kent after the Conquest), and held very large possessions in six counties, viz., Kent, Surrey, Wilts, Oxfordshire, Warwickshire, and Lincolnshire. Mr. Hudson Gurney presumes he was William's Dapifer, through whom alone he could receive or make communications in his parleys with the English; but in that case I think we should have found him so named elsewhere. We know of two of William's Dapifers,—William Fitz-Osbern, "*Dapifero*," who furnished him with sixty vessels, and Gerold "*Dapifero*," who contributed forty. Mr. Amyot considered him to be a follower of Odo, by whom he appears to have been subsequently rewarded for his services. A third belief is that he was a Norman, resident near Hastings at the time of the invasion, and assisted his countrymen on their arrival, which would account for his sudden introduction at this point into the tapestry. William of Poictiers informs us that a noble Norman, whom he calls Robert, the son of Guimara, a lady of high birth, and who was established on this coast, fearing that the duke, his natural sovereign, had undertaken a rash enterprise, sent a messenger to inform him of his danger and the strength and resources of Harold. That messenger might be Wadard; but the baton in the hand of the figure indicates command, and I incline to the belief of Mr. Amyot, that he was one of Bishop Odo's officers, who distinguished himself in this expedition, although no record of the precise services for which he was so handsomely rewarded has descended to us.

The establishment of this great prelate was celebrated for its regal magnificence, and comprised a number of officers and attendants exceeding even those of the duke himself. An "Alured Dapifer" occurs in Domesday as holding many lands in the county of Kent, and is supposed by the author of "*Les Recherches*" to have held that office in the bishop's household. Cooks are next seen dressing meat, and a banquet follows, where the chiefs are dining in truly warlike fashion, making tables of their

shields. Bishop Odo is depicted saying grace at the ducal table, which is served in state, an attendant kneeling with a napkin. Bishop Odo is on the left of William, and a very aged long-bearded personage on his right (the seat of honour), who is in the act of drinking, and leans with his left hand on the table most unceremoniously in front of the duke. This should surely indicate some very important personage, a Saxon, I presume, from his beard; but the chronicles afford us no clue to him, and I have met with no speculation concerning him. Dr. Bruce says, vaguely, probably William's Nestor; but who was his Nestor he does not inform us. Under the inscription [43], "*Odo Eps, Willelm. Rotbert*," we see the three sons of Harleve, the Duke of Normandy, Bishop Odo, and Robert Count of Mortain, seated apparently in council.

[Inscription 44] "*Iste jussit foderetur castellum at Hastinga*"—"He ordered a fort should be entrenched at Hastings." The English word "at" is here used in lieu of the Latin "ad," one of the proofs adduced of the Saxon workmanship of the tapestry, which I shall offer some remarks upon presently. Two of the workmen are represented fighting with clubs. Whether commemorating any particular quarrel or disturbance we have no means of deciding.

[Inscription 45] "*Ceastra*," for "*Castra*;" another Saxon word for the camp, or one of the wooden castles erected at Hastings by William. The news is now brought to William of the approach of Harold's forces, and the next subject is the firing of a house by some soldiery. The inhabitants, a woman and boy, are seen escaping. It seems to be the general opinion that this is not to be taken as a simple indication of the horrors of war, but the record of a particular fact that occurred at the time. The house is represented as one of some consequence; and as William strictly forbade plunder, I presume this to have been the act of Harold's soldiers in revenge on some person of importance, who had declared for, or was suspected of favouring the invader. An imaginative antiquary might point to the female and the boy as the wife and son of the man who was already in the camp of William.

The invading forces are now seen issuing from Hastings to give battle to the English. Duke William is on horseback at the head of his knights, and is armed with a club. Two banners or standards are borne behind him; one, the banner with the cross which has been already frequently seen in the tapestry; the other a semicircular flag, with an indented border, and charged with a bird of some description. Sir Samuel Meyrick considered it to represent "the Ræfan," the celebrated raven ensign of the Danes, which their descendants might still be supposed to venerate and display on such an occasion.

The duke is next represented interrogating a warrior, who is named Vital, respecting the army of Harold. We have here a third person, who has not yet been positively identified. No mention of him occurs in the chronicles of the period; but, as in the case of Wadard and Turold, we find in the Domesday Survey a Vital or Vitalis holding lands under Bishop Odo, and cannot doubt his having been an equally well-known personage at the time the tapestry was worked.

The tapestry next exhibits Harold receiving in his turn information respecting the army of Duke William.

The circumstance of Harold's spies returning with an account of William's army, and representing it as composed of priests, in consequence of the shaven and shorn appearance of the Normans, "*tout rez et tondu*," is well known to every reader of English history; but the tapestry furnishes us with a most curious illustration of the peculiarity which evidently gave rise to the remark, the Normans being thereon represented not only without beards or moustaches, but having the backs of their heads shaven in a most extraordinary fashion, which seems to be alluded to by the old chronicler Glaber Rodolphus, who, describing the followers of Constance of Poitou, queen of Robert, King of France, in 997, says that their manners and dress were equally fantastic; "that they were bare from the middle of their heads," their beards shaven like minstrels, &c. Mr. Alfred Stothard, in his account of the tapestry (*Archæologia*, vol. xix.), pointed out this singularity as a most important proof of the age and authenticity of the work, but was not aware of the corroborative testimony of a contemporary historian.

The Duke of Normandy is next seen haranguing his soldiers, and this subject is followed by the onslaught, over which there is no inscription; but much has been said of the representation in the tapestry of Taillefer, the Norman jongleur, throwing up his sword in the air, according to the description of Gaimar. Mr. Stothard quietly ended the controversy by pointing out the fact that the weapon in the air is a mace and not a sword, and that there is no figure which can be supposed to represent Taillefer. I have only, therefore, to remark, in addition, that the mace, as well as a javelin above it, is flying towards the Normans, and therefore has been hurled by a Saxon and not a Norman hand.

To this succeeds the death of Lewin and Gurth, brothers to King Harold. Ordericus Vitalis tells us they were not slain till after Harold had fallen; but the tapestry is, I think, a better authority on this point.

The next inscription informs us: "Here fell together English and French in Battle." This portion of the tapestry has been supposed by Lancelot and Sharon Turner to indicate that particular event in the battle when, deceived by a feigned retreat of the Normans, the Saxons were thrown into disorder, and the Normans themselves coming suddenly upon a great ditch, concealed by vegetation (and afterwards called, from the accident, "Malfossed"), perished in great numbers, dragging the Saxons also into the ruin.

Bishop Odo in complete armour is then seen on horseback, bearing, like other leaders, a club, with which, the inscription tells us, "he encouraged the youths," *i.e.* the young soldiers or raw levies. Wace makes particular mention of this fact:—

> "Seated on a white horse,
> He was known by every one,
> Holding in his hand a baton,
> Wherever he saw great need,
> He made the knights turn
> And stay the tide of battle."

Whether by exhortation or the actual use of the "*argumentum baculinum*," we have no distinct information. Next follows the inscription, "Here is Duke William," almost the actual exclamation of the Norman leader, who, finding his ranks waver under the impression that he was slain, rushed amongst them, and throwing back his helmet, cried, "Behold me! I live." William is here depicted in the act of raising his helmet by the nasal and discovering his face.

Over a warrior beside the duke is the nearly obliterated name of "Eustatius." We are indebted to Mr. Stothard for the discovery of this interesting feature of the tapestry. It indicates Eustace, Count of Boulogne, who was a principal commander in that engagement, and to whom was entrusted the "*ruse de guerre*" lately alluded to. He is represented as pointing out William to the dismayed soldiery. He holds a standard, on which which is a plain cross, between four roundels; a near approach to a positive heraldic bearing. Roundels (*boules*) were afterwards the allusive arms of the Counts of Boulogne.

The general *mêlée* is followed by the death of Harold. He is first seen fighting beside his standard-bearer, who carries the royal ensign of the Dragon, long afterwards borne before the kings of England. He is next depicted endeavouring to draw out the arrow which has entered his eye. The weapon is nearly effaced, but is sufficiently visible to identify the subject. He is a third time represented, under the words "*interfectus est*," falling on the ground, and a Norman knight on horseback inflicting the wound in his thigh, which wanton barbarity so excited the indignation of William that he disgraced its perpetrator on the field.

The English are then represented in headlong flight, pursued by the victorious Normans.

After this subject, the tapestry is "a mass of rags, in which," says Mr. Stothard, "I was fortunate enough to discover a figure on horseback, with some objects in the lower border. These are additional discoveries, not to be found in Montfaucon's print. The figure of the horseman certainly decides the question that the pursuit of the flying Saxons is not ended where the tapestry so unfortunately breaks off."—(*Archæologia*, vol. xix. p. 185.) It does not follow, however, that anything beyond the total rout of the Saxons was ever executed, and there is nothing in the appearance of that single horseman amongst the flying foot to contradict the opinion of Mr. Hudson Gurney, that "here the tapestry ends with figures of persons retreating in great haste, not complete in its ornamental work, but I think complete in its history."—(*Archæologia*, vol. xviii., p. 370.)

I will endeavour to be as brief as possible in the few observations which I have reserved for the conclusion of this already too long dissertation. The subject of the costume, of all classes, depicted in this curious relic, has been pretty nearly exhausted in the course of the controversy respecting its age and origin. So little was really known of the dress, weapons, and ornaments of the eleventh century, when this tapestry first attracted the attention of antiquaries, that pages on pages have been wasted in assertions and speculations on points which are now perfectly understood and undisputed. The more the tapestry is examined, the clearer will it appear that it must have been executed as closely as possible upon the events it portrays, and whilst the most minute particulars in them were matters of public notoriety. Although the armour and weapons might be found similar in the reign of Henry I., the civil costume—particularly that of the ladies—had undergone great changes even as early as the end of the reign of William II.; and the dress of the clergy, which is scarcely distinguishable in the tapestry from that of the laity, had progressed considerably towards the magnificence it attained in the thirteenth century. The custom of shaving the back of the head, which I have already described to you, was abandoned as barbarous and unbecoming very shortly after the establishment of the Normans in England, and, with the usual caprice of fashion, they seemed to have run into the opposite extremes. As early as 1095, a decree was passed against long hair by the Council of Rouen, without effect, and the sermon of Serlo, which moved Henry I. and his courtiers to tears, and induced them there and then to submit to be cropped by the enthusiastic prelate with a pair of scissors, which, at the critical moment, he whipped out of his sleeve, is an anecdote now to be found in every history of England. That the tapestry was the work of any Matilda there is no ground for believing, beyond the mere fact that it was most probably worked in the lifetime of the first, the queen of the Conqueror. The opinion that it owed its origin to the second Matilda, queen of Henry I., "the good Queen Mold," as she was affectionately called, was founded on the Saxon words and orthography occasionally to be met with in the inscriptions. One important fact, however, seems to have escaped the notice of all the learned writers on this subject, both French and English, with the exception of Dr. Bruce. The people of Bayeux were of Saxon origin, and spoke, even in the tenth century, a Teutonic dialect. "In this canton of Normandy," says M. Thierry, who, though he quotes the information from Guillaume de Jumièges, does not appear to have seen its bearing on this question, "the Norwegian idiom differing little from the popular tongue, became fused with it, and rendered it intelligible to the Danes and Scandinavians." Those who contended in favour of the third Matilda (the Empress of Germany and mother of Henry II.) argued in total ignorance of the internal evidence presented by the tapestry itself, and were put to the rout nearly fifty years ago by one of the most intelligent and competent of all writers on the subject, Mr. Alfred Stothard. Now, when we take into consideration the strong arguments used by M. Pluquet in support of his opinion that the tapestry was worked by order of Bishop Odo, "who alone had the power to deposit and display the representation of a subject from profane history in a sacred edifice," and add to them first the fact that, next to the royal personages, the said Odo is one of the most prominent figures in the tapestry. Secondly, that the officers whose names alone are mentioned, are found after the Conquest holding large estates under him in England, and therefore must have been in his service, and consequently well known to the people of Bayeux. Thirdly, that the dialect spoken in Bayeux was a mixture of Saxon and Norman, that would account for the characters of the inscription. Fourthly, that the width and length of the tapestry show it to be specially adapted to the purpose for which it is known to have been used* and presumed to have been intended by those who projected or executed the work; and lastly, that with the exception of its one visit to Paris, by order of Napoleon I., it appears never to have been out of the city with which it is so closely associated,—can we have

* It is of the exact length required to surround that portion of the church in which it was formerly exhibited.

any rational cause for doubting either its age or its origin?

It has been so often my disagreeable duty to disabuse the popular mind of a long-cherished tradition, that it is quite refreshing to me to fight in favour of the genuine antiquity of a monument of so much historical interest and importance as the one under consideration.

I do not profess to have thrown much additional light on this subject; nor in my description of it have I attempted to rival the graphic and powerful narrative of our esteemed associate Dr. Collingwood Bruce, whose fervid eloquence we have all so frequently admired. My object has been to support, to the best of my ability, the critical opinions of such writers as Stothard and Pluquet, and pick out for clearer examination the few grains of wheat from the bushels of chaff in which they run great risk of being buried. The poet has truly said "a little learning is a dangerous thing," but I question whether there is not quite as much danger in a large amount of learning when not under the direction of sound judgment. In the former case (at any rate as far as regards archæology), the damage is commonly confined to the reputation of the unfortunate individual; but in the latter, incalculable mischief is done to the many, who are awed by the apparent weight of the authority, and too much dazzled by the display of erudition to perceive "the baseless fabric" of the argument on which it is wasted. Those who have toiled through the principal archæological publications abroad and at home, during the last hundred years, will, I think, bear witness to the truth of this observation, as applied to the controversy respecting the Bayeux Tapestry.

LAKE DWELLINGS.*

WHEN the first discovery of a lake dwelling was made, scarcely twelve years ago, few persons would have guessed that it was the clue to such important additions to our knowledge of the history of man as it has since proved to be. It has, however, led to the certainty that nearly every lake in Switzerland and the surrounding territory was the site of similar settlements; and this fact, taken in connexion with the existence of lake dwellings in Scotland and Ireland, points to a period when Europe was peopled by tribes thus living upon the face of the waters. It cannot, notwithstanding, be said to have taught us so much as we have yet to learn concerning them. Like every other acquisition in the way of knowledge, the discovery has shown us how little we really know. We can, by its means, realise the pile-formed platforms rising out of the waters, with their villages of huts built upon them; the scented forests upon the pleasant shores whence the settlers procured their timber; the implements with which they felled it; the indomitable powers of battling with means by which with such poor appliances large works were carried out; the busy comings to and fro as the colonists went hunting or foraging; the sunny summer days spent in fishing; the autumnal nuttings; the determined industry that set them to make pottery with their hands, and weave rough textile fabrics,—powers of adaptation in the clever adjustment of rude means to required ends, that prove them to have been no unworthy predecessors; but these realizations throw no light upon the direction whence these tribes arrived in the first instance, nor upon that of their dispersion; and, curiously, no tumuli, nor other burying places, have yet been found in the neighbourhood of any lake settlement, to indicate the manner in which they disposed of their dead. Whence they came and where they went, the date of their first formation of these water-dwellings, and of their last occupation of them have yet to be ascertained.

It says not a little for the zeal and industry of Swiss *savans* that so many examinations have been made, so many relics properly preserved, and so much information diffused on the subject. It says, too, not a little for the admirable reticence of the antiquaries in question, that they hazard no conjectures, start no unripe theories, but content themselves with collecting facts, and awaiting the gradual revelation of this dim historic page. There is scarcely a museum in Switzerland without a collection of relics from the newly-formed lake dwellings, nor, we are told, a native of their locality, who is unacquainted with the nature of the recent discoveries and of their bearings on the history of man. English readers have not been without information of the proceedings of the Swiss antiquaries, for Sir Charles Lyell, Sir John Lubbock, and Mr. Wylie have given descriptions of some of them; but it has been reserved for Mr. Lee to place notices of the discoveries in a complete form before them. This he has elected to do by translating the accounts written by Dr. Keller from time to time as additional settlements were obtained, arranging them in the form of a connected treatise, and adding to them such information as he deemed would render them more complete. We have now before us, therefore, a statement at once comprehensive and exact, which will be eagerly perused in the antiquarian and anthropological world, and scarcely less so by all who follow in the steps of these early builders.

The quantity of relics found is surprising. Dr. Keller tells of two boat-loads of broken pottery being gathered together speedily at one spot, and of hundredweights of bones being carted away at another. It is not always, however, that such large acquisitions are made. Mr. Lee relates the ordinary modes of operation, when the piles are still under water, to consist of picking up the relics, many of which lie upon the surface of the bed of the lake, with a long pair of forceps fixed to the end of a pole; or, when they are buried in the mud, of scraping a quantity of this into a heap and then raising it and examining it. In the instances where the piles are no longer under water, excavations only are required, and the progress of a railway has enabled the antiquaries occasionally to avail themselves of a steam mud-engine. The broken condition in which this engine deposited the relics within reach neutralized the advantage that might have been obtained from the scale of its operations. The stumps of the piles, too, present obstacles, and prevent any very rapid examination; consequently when we look at the quantity of relics accumulated, we must think of the industry and perseverance of the collectors, rather than of the wonderful fact that these traces of human residence should have been so numerous and lain so long unperceived. Stone hammers, stone celts, stone awls, stone chisels, sling-stones, and grindstones; flint arrow-heads, flint harpoons, flint saws, flint knives; bone fishing implements, knives, awls, chisels, hammer-heads, arrow-heads, lances, beads, hairpins, needles, all made of bone; the teeth and tusks of wild boars made into needles and fish-hooks—what shifts and thrift are thus mutely impressed upon us! Highland tourists are sometimes astonished at the number of objects that the Highlanders can make out of stags' horns; but they would transfer their wonderment if they examined the objects picked out of the lakes which the pioneers of civilization made out of the same material. Barbed harpoons, agricultural implements, hammers, hatchets and hatchet-hammers, hafts or handles to various tools, drinking-vessels, beads, ornaments, and hairpins made of stag's horn have been found in many of the settlements. All these items and many more, to the number of 1,500, are illustrated by Mr. Lee, some from transfers and copies of Swiss plates, and others from original sketches. The volume is also enriched with a frontispiece, showing an ideal restoration of a lake dwelling which is founded upon the accumulation of facts now gathered together, and therefore differs from that which accompanied the first Zurich report and was based upon the information contained in the earliest discoveries only. We are shown a placid lake with a background of peaked mountains. Jutting into the waters from the foreground is a raised roadway, built on piles, which terminates in a village of parallelogramical huts, likewise built on piles. There are indications of windows as well as doors in the houses, and each roof rises to a ridge like that of a barn. Festoons of smoke escape from the centre of each roof-ridge. A rude fence edges the platform, on which fishing-nets are hung out to dry, and several figures indicate activity on the part of the population. Two boats—scarcely canoes—are on the face of the waters, in which fishers are pursuing their avocation. The only point upon which there could be any great difference of opinion as to any of the details here given is the form of the houses; but the opinion once expressed that this might be circular appears by the evidence to be no longer tenable. To complete our indication of the comprehensiveness with which Mr. Lee has executed his self-imposed task, we must add, that he has incorporated with it a copious abstract from Dr. Oswald Heer's Treatise on the Plants of Lake Dwellings, illustrated with the original plates; the Report of Professor Rütimeyer, of Basle, showing the result of his investigation of the animal remains found in connexion with the "Pfahlbauten," and the chemical analysis of the bronze implements made by Professor L. R. von Fellenberg, of Berne; besides a geographical list of the water villages in the Swiss district, a notice of those found south of the Alps, a communication from Mr. Stuart respecting the Scottish crannoges, an epitome of our information concerning Irish crannoges, and the remarks of Dr. Keller upon the recent work of M. Troyon upon "Habitations lacustres."

It is not a little singular that the existence of the remains of so many dwellings should have been unknown so long. In places most frequented by fishermen, where barks are constantly stationed and boats continually passing to and fro, with piles standing up out of the bed of the lake in such inconvenient profusion that they have sometimes been taken up, these vestiges have been unnoticed till the first discovery at Meilen caused people to look into the waters with different eyes. Then the fragments of strange pottery were accounted for, and the stones of peculiar forms were ascertained to be the result of human fashioning. But this may also be said of many other secrets that the dry land, as well as the waters, contain. Who thought that gold would have been found in California till it was found? or, to take an antiquarian example for a query, who would have supposed that the curious sculptures first found on English rocks should have been so rapidly perceived to exist in Wales, Scotland, and Ireland also? The fact shows us how much we have yet to learn. Probably we may find lake dwellings in Wales and Westmoreland, and inscribed rocks in Central Europe. This would tend to confirm the old view of waves of civilization wending northwards; but we must find out more before we could say whether these were the work of the same people or of two races. The pile-dwellings present evidences of having been occupied for centuries. Some of them have been rebuilt twice upon the old foundations at different elevations, each layer of *débris* being distinctly visible, and containing relics. At Rokenhausen a growth of peat, from 2 ft. to 2 ft. 6 in., is to be observed over the flooring of one settlement, and below that of another, denoting the lapse of a long interval of non-occupation. There are evidences of a third floor below either of these at this station, beneath which grains of barley and wheat, threads, pieces of cloth, and fishing-nets were found, all presenting the appearance of having been carbonized. The relic bed of the floor above this yielded corn, apples, pieces of cloth, bones, pottery, and implements of stone and bone, likewise carbonised as by a second conflagration. The third settlement appears to have been broken up and deserted, as the only relics found present no appearance of having suffered by fire, and are of such a nature as a population would leave behind as useless or easily replaced. The explorer of this settlement, Mr. Messikomer, found hearthstones, a mealing stone, heaps of corn, pieces of woven and plaited cloth, raw flax, and the clay weights belonging to primitive looms, in groups at regular intervals, as though these items were the contents of separate houses in a length of platform measuring 150 ft. long by 40 ft. broad. This would give 27 ft. by 22 ft. as the size of each dwelling.

The alteration in the level of the waters in many of the lakes since these villages were built is further evidence of the distant date of their erection. Several settlements are now left high and dry that were once in deep water: others are now at the bottom of deep waters that were once shallow. A pile platform at Zug, with which stone relics only were associated, is now 60 ft. from the border of the lake, and 15 ft. above the level of the water. An excavation here, in the bank-like appearance the exterior of the settlement presented, showed four different beds in a 6 ft. section; the first being common mould 2½ ft. thick; the second sand and rolled stones 1½ ft. thick; the third, the *culturschicht*, or relic bed; and the fourth the ancient bed of the lake. At Koller, the level of the water is now 3 ft. below the relic bed. At Mooseedorf it was not

* The Lake Dwellings of Switzerland and other Parts of Europe. By Dr. Ferdinand Keller, President of the Antiquarian Association of Zurich. Translated and arranged by John Edward Lee, F.S.A., F.G.S., author of "Isca Silurum," &c. London: Longmans, Green, & Co. 1866.

till 8 ft. of water had been drawn off the lake that the traces of a submerged settlement were perceived. But we need not multiply instances of the startling alterations effected in the face of nature since the builders of these early homes deserted them. As a check to any tendency we might have to assign them too remote an antiquity, we have the sequence of bronze and iron relics found near the same thresholds, and the presence of a certain glass bead, which points to occasional barter with nations well advanced in the arts. The animal remains are of a class, too, that prevent us from going very far back into the untold centuries before history takes up the wondrous tale. It is clear that the lake dwellers domesticated an ox that was contemporaneous with the mammoth; but they do not appear to have been in possession of any bones of the last-mentioned animal, nor to have encountered wild beasts more formidable than the bear, the boar, the lynx, and the wolf. The contents of the grotto of Aurignac leave no doubt but that there was a race who used the mammoth and rhinoceros, as well as the urus and bison, for food, and that the tiger and hyena were their contemporaries; and it is believed proved that this race were spectators of the mighty glacial phenomenon which has left its mark upon our rocks. Professor Rütimeyer, after his examination of the animal remains of the lake dwellings, expressed his opinion that the occupants were not the first inhabitants of Europe. With the proofs furnished by Aurignac before him, he thought we should look for predecessors of the lake settlers under the glacier moraines; that is to say, a people evidently existed prior to the passage of ancient glaciers that have scoriated our rocks. This, then, places the lake dwellers, though many of them belonged exclusively to the stone age, comparatively upon the threshold of the historic period. But that threshold was wide, and endured for centuries. Its limit seems to be defined by the glass bead found in the settlement of Wanwyl, to which we have alluded. This ornament is of the character found in the graves of the inhabitants of Egypt, supposed to be of Egyptian or Phœnician manufacture; and therefore suggests that, though only in possession of stone implements, the owner of this bead must have been in communication with a race advanced in the arts. Dr. Keller says, "Just as the fact of finding in all the lake dwellings, and in the oldest Celtic tumuli and graves, tools of noble nephrite—a kind of stone universally allowed by mineralogists to belong only to the East—gives us a proof of barter in the earliest times between Europe and farthest Asia; so, as history affords us some information as to the origin and continuance of the Phœnician trade, this glass ornament gives us a chronological datum for determining the age of the lake dwellings, which, however insufficient it may be, yet expressly forbids us to throw back their existence to a period many thousand years before our era." To those who uphold the Japhetic origin of European peoples, the possession of this Eastern stone would appear to prove more than this, if it were not that there are equally suggestive indications of a Southern origin to be seen in other objects, especially the cultivated plants, among the relics. The Wanwyl settlement may have been inhabited for a long period before the bead found its way there, and yet not have passed out of what is called the stone age when it was abandoned.

The construction of the lake dwellings has been very minutely ascertained. They are of various areas, frequently of three and four acres in extent; those of the stone age being generally exceeded in extent and stability by those of the bronze age. Two modes of forming the foundation or substructure have been ascertained; namely, by piles driven into the shallows so as to form the basis for a wooden floor of split trees or boards, which was above the level of the water, and on which the houses were built; and by fascines, when, instead of a series of piles, layers of sticks and small stems of trees were built up from the bottom of the lake, strengthened by stays or guides. At Nidau a third process was used. An immense quantity of stones was brought by boat to the site, and thrown down, to form an artificial bottom. On the rough floors on all these descriptions of platforms a layer of mud loam and gravel was laid and firmly beaten or trodden down. Small piles have been found projecting above the platforms which evidently formed the framework of the houses; for, in some favourable instances, planks have been found firmly wedged in on edge between these upright posts in the position of skirting-boards. This arrangement has not been seen to rise to a greater height than one plank. The walls, in every instance, have been found to have been made of hurdle work, strengthened by uprights, and covered with a thick coating of loam or clay. From the quantity of straw and reeds found in every lake dwelling, we may conclude that they were thatched. As we have seen, the interior of each hut had its hearthstone. From the number of clay weights found, and fragments of woven cloth, it is probable that most of them had also a loom. Some huts seem to have been set apart as the seat of particular processes. At Wanwyl, for instance, three ordinary hearthstones were found arranged in the form of a half-moon, around which was a surprising quantity of flint refuse, arrow-heads partly worked and broken, and flint knives, an arrangement which could leave no other impression but that it was a workshop. And at Wangen, a certain spot yielding burnt and charred flax, in all stages of manufacture, and in stems with the seed-vessels attached, as well as in bundles and skeins, spun into thread, and made into plats, could have been nothing less than a centre, or store place, for the kind of industry. This grouping of objects has led to the supposition that the lake settlements were magazines or places of meeting; but Dr. Keller points out the sizes of the huts, the hearths, the large earthenware vessels for keeping food, the pipkins covered inside and out with soot, the quantities of corn-crushing and mealing stones, all betokening domestic arrangements and family residence. The remains of articles used as food show occupation through all the seasons. Professor Heer can see summer, autumn, and winter represented in the cherrystones, the seeds of raspberries, blackberries, sloes, and dog-rose, and in the nuts of the beech and hazelnuts. Small beans, peas, barley, and two-rowed wheat, all of apparently extinct races, tell of cultivation of the soil, while fragments of fishing-nets, fishhooks, and quantities of fish-bones tell of another source of food besides that furnished by the beasts of the forests, and those domesticated by the settlers. The dwellings do not appear to have been infested with the modern nuisance of rats and mice, as no bone of either or of a cat has yet been found. Some of the bones of the larger animals present marks of having been gnawed by rats and mice, but these may have been water-rats and field-mice. One bone of a field-mouse furnishes this solution. This immunity is all the more wonderful from the fact of cattle as well as stores having been kept in the settlements.

Those who are acquainted with the incised ringed and grooved sculptures on rocks recently found in various parts of this kingdom will examine the relics from the Swiss dwellings to see if any clue is furnished by them which may lead to an interpretation of their meaning, or an identification of the period to which they belong. The nearest approach to any form of a similar kind is upon a large stone found at Font, where may be seen three hollows, which call to mind the central hollows within the parallel circles of our own stones. These three hollows are, however, unencircled, and disposed in a different manner. They are placed in a group, so as to form a triangular or trefoiled outline. Side by side with the illustration of this stone, taken from the lake dwelling at Font, there are delineations of two others found on the mainland, which have more likeness to those of England, Scotland, and Wales. One of these is on a huge block, on an exposed eminence in the neighbourhood of Bienne. The sketch and the description do not agree exactly, but, taking the former to be correct, there are ten single cups or hollows at irregular intervals, three couples with a groove connecting each pair together, and two sets of three hollows, each having a groove passing from the first to the second and from the second to the third, in neither case in a straight line, but slightly sloping, so that each group of three presents an angle of different degrees of obtuseness. The third stone, which is now in the fine collection of Colonel Schwab, was found in a grave on the height of Jolimont, between the lakes of Bienne and Neuchâtel. It has four hollows upon one of its slab-like surfaces. It will be remembered that these hollows surrounded by circles have been also found on cist-covers in this kingdom, but not in such profusion as to lead to the exclusive association of them with sepulchral formalities. A further search in the neighbourhood of those already found in Switzerland may lead to more intelligible results. It is not unworthy of notice that no traces of any superstitious observances have yet been observed among the Swiss relics. The only objects that can possibly be supposed to represent the making of graven images are some stone and earthenware ornaments resembling half-moons, but also having a likeness to the horns of oxen. About two dozen specimens were found at Nidau Steinberg, all provided with a broad base so that they may stand upright, but differing in sizes, the space between the points of the horns measuring from 8 in. to 12 in. Others have been found at Cortaillod. Dr. Keller, deeming that it is impossible that these objects could have been of any use, thinks they may have been placed inside or outside the houses as ornaments or as idols. Though the Celts are not known to have worshipped the moon, it is certain the Gauls ascribed much medicinal and mysterious power to that orb; and in the absence of any other solution of their nature, it is just possible that those crescents may have been sacred emblems, although equally likely that they were early manifestations of that instinct which prompts man to ornament his home. Some bronze articles of a similar crescent form Dr. Keller abandons as cutting instruments. The religion and the burying-places of the lake dwellers are still mysteries.

M. Troyon, in his "Lake Habitations," brings forward the view, that the successive introduction of bronze and iron was the result of the immigration of new peoples, totally different from the inhabitants belonging to the stone age. He states that the lake dwellings were destroyed and the occupiers slaughtered or driven away by these new-comers successively. The first people belonged to a Finnish or Iberian race, which came out of Asia, and following the course of the Rhone or the Rhine, found their way into the valleys of the Alps. The second people he identifies as Celts, naming Asia likewise as their starting-point. The third comers were Helvetic, from south-western Germany. To all this Dr. Keller dissents. To him it seems much more certain that the lake-dwellers were one people, who gradually became possessed of the great instruments of civilization—metals; and eventually, as order was developed, gave up their isolated mode of living for more comfortable quarters, just as at the close of the Middle Ages the nobles of that day abandoned their castles and strongholds for pleasanter and more convenient abodes. This intelligent, energetic people, he believes, were Celts. The Fins, or Iberians, he altogether disclaims, and the Helvetii he will not own as conquerors of the lake dwellings.

We could scarcely give an instance more indicative of the zeal with which examinations of the relics are carried on in many quarters, than by referring to the able chapter on the manufactures of vegetable fibre. When the first specimens of burnt cloth were shown to Dr. Keller, he could not, he narrates, repress the conjecture, that they were the products of a different age, that had fallen into the water by accident, as it appeared to him impossible that cloth could be woven at all, much less in the complicated patterns first found, without metals; but a careful search proved that there was no doubt but that these relics belonged to the same age as the implements of stone and bone. The inquiry was taken up by Mr. Paur, a ribbon manufacturer of Zurich, well acquainted with machinery, who constructed out of the rude materials accessible to the settlers a loom in which he could produce all the cloths woven by them; and in this chapter he relates the treatment of the various sets of threads necessary for the attainment of the different patterns, and illustrates it with drawings of the looms at which the workman or woman must have pursued his or her task.

Since the bulk of the volume was in the press, further discoveries have been made. These are all enumerated. We must draw attention to two of them. The first is a quantity of flint arrow-heads, which present unmistakeable signs of having been re-sharpened and worked up after having been disused for centuries, for "the parts of the flint that belong to the original manufacture had become white by age, while those portions which indicate the second operation are 'honey-yellow,' or the natural colour of the stone," a difference in appearance that only centuries could produce. The second is a knife with a bronze handle and iron blade, which shows that the latter must have then been rare to be so economised, and that the first iron



PROPOSED NEW GENERAL POST OFFICE, SYDNEY.—*Front in George Street.*

implements were of precisely the same shape as those previously made in bronze. If a new set of workmen had been employed upon the new metals, we should probably have found a diversity in the forms executed. Both these examples seem to corroborate Dr. Keller's view of long centuries of occupation by one race.

Those who open this volume will step into a world at once old and new, and as fascinating as it is tantalisingly shrouded in uncertainty in some particulars. Mr. Lee must be congratulated as the producer of one of the most interesting works of the day; and the Swiss antiquaries cannot but feel gratified with the manner in which he has introduced them to English readers. There is in one remote corner of the Alpine district a race of men using an old dialect which has been long disused in other parts of Switzerland, whose skulls bear the stamp of a much earlier age, whose sheep are those of the stone age, and swine those of the lake dwellings.

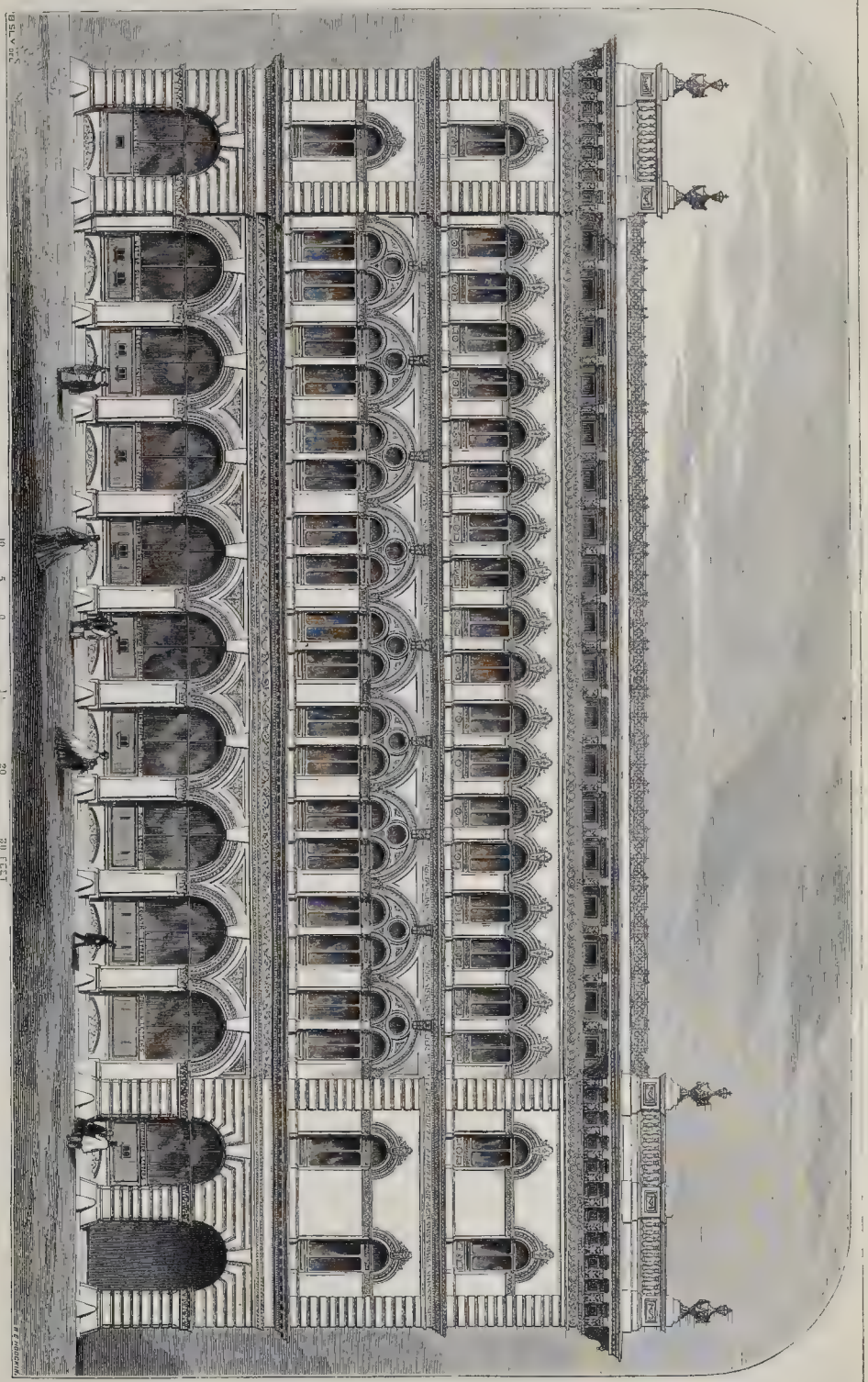
We should be glad to hear more of this people, of their possessions and traditions, from our able friends, Drs. Keller, Heer, and Rütimeyer, in the same way as every one who comes to the end of a charming book wishes for another volume.

THE ROYAL ACADEMY.

The public have heard that the Government have given Burlington House, and the ground behind it (except so much as is appropriated to the London University), to the Royal Academy: and it will make a noble site for their intended new building. We have now the pleasure of stating that, on Wednesday evening last, Mr. Sydney Smirke, R.A., was appointed their architect, by the general assembly of Royal Academicians.

PROPOSED NEW GENERAL POST OFFICE FOR SYDNEY, NEW SOUTH WALES.

The progress of architecture in our Colonies is a matter of considerable interest. The new General Post-office, now in course of being erected in Sydney, will have a frontage of about 80 ft. in George-street, and a frontage of about 170 ft. to a proposed new lane, which will connect George-street with Pitt-street. The business of the money-order and telegraph departments will be transacted in the building, as well as that of the post-office, the posting and delivery of letters, &c., taking place under the arcades in George-street, and in the New-lane. The entrance to the offices is in the centre of the George-street front, and that for mail carts, &c., at the eastern end of the lane front, being the centre between George-street and Pitt-street. Sydney free stone will be used in the erection of the building principally, with the exception of such portions as the base course, the columns and capitals of the arcades, &c., requiring additional strength, where granite will be employed to resist the pressure: of this an abundant supply of excellent quality and various colours can be obtained at several places along the coast between Sydney and Cape Howe. Internally brickwork and wrought-iron will be used as far as practicable. The design is by the present colonial architect, Mr. James Barnet. We give a view of both fronts.



PROPOSED NEW GENERAL POST OFFICE, SYDNEY, NEW SOUTH WALES.—*Flank Elevation.*—DESIGNED BY MR. JAMES BARNET, ARCHITECT.

HASTINGS CONGRESS OF THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

CONTINUING our remarks, we have to note, that on Wednesday evening (22nd August) Mr. George Wright, F.S.A., read a paper on Sir Antony Brown, Standard-bearer to Henry VIII., and on his descendants the Viscounts Montacute. The subject was suggested by the visit intended to be made on the next day to Battle Church, where the monument of Sir Antony Brown remains. The Rev. F. A. Arnold read an excellent paper on the Nine Months' Reign of Harold, a reign crowded with events which put to the test the judgment and energy of his character. It was no slight achievement which he accomplished when he gained a great victory over the Northumbrians at Stamford Bridge, at the end of September; heard of the landing of William the Norman four days after; and met him on the field of Hastings only nineteen days after his victory in the north.

On Thursday, August the 23rd, a large party set out from Hastings in carriages, and made their first halt at Bodiam Castle, a fortress erected by a favoured soldier of fortune, Sir Edward Dalingrudge, at the end of the fourteenth century. Some admirable drawings of the castle, by Mr. J. Tavernor Perry, were exhibited at the lecture-room the previous evening, and the arrangements and history of the castle were explained on the spot by Mr. Charles Savery. The building is in the form of a quadrangle, with a flanking tower at each angle and bastion towers in the middle of each side. It is surrounded by a broad and deep moat, still full of water. On the north side is the entrance to the castle, the bastion tower being as it were doubled to form a gateway, in which the portcullis still remains; from the gateway a causeway is formed across the moat, and this causeway is defended by a barbican. There is a postern gate in the middle of the south side, requiring, however, the aid of a boat to cross the moat. Within the castle, the residence filled all sides of the quadrangle. The hall, buttery, and kitchen may be distinguished on the south side of the court; the lord's apartments, with the chapel on the east side, the servants' apartments on the west side, and the guard-rooms on the north, adjacent to the fortifications of the entrance gate. The external walls are almost perfect, but on three sides the interior walls have been in past times nearly destroyed. The next point in the excursion was the Cistercian Abbey of Robertsbridge. This monastery is situated in the valley of the Rother, and near to its banks in the parish of Salehurst. A plan showing the arrangements of the monastery restored, made by Mr. Gordon M. Hills, was exhibited; and Mr. E. Roberts, F.S.A., explained the subject on the spot. All that is known of the history of the monastery is given in the collections of the Sussex Archæological Society, with some good engravings of the remains. The misfortune is that the parts are there misdescribed. It appears that the refectory which occupied the south side of the cloister is still in existence, with parts of the monks' common-room at its east end. Of the west wing of the monastery, enclosing the west side of the cloister, very little remains; but a building attached to its west side for the accommodation of the prior or the guests is very perfect, and occupied as a farm-house. The remains are of the thirteenth century. The church which was to the north of the cloister has wholly disappeared. The next stage in the journey brought the travellers to

Battle,

where, having refreshed themselves with a lunch at the George Hotel, they were reinforced by a large assembly of the country people and Hastings townsfolk anxious for this opportunity for a thorough inspection of the monastery. Mr. Gordon M. Hills, the treasurer of the Association, undertook the guidance of the whole. After passing through the magnificent gatehouse of the monastery, a work of the reign of Edward III., and crossing a beautiful grassy lawn, once the fore-court of the monastery, a halt was made in the great hall of the mansion.

Mr. Hills said, "There were very few points of historical interest connected with this great monastery, except that great incident, the battle, which just 800 years ago had made our country an Anglo-Norman kingdom, and had probably been the most fruitful in events of any of the great battles of the world. On the field of that battle, and in commemoration of his thankfulness for success, the victor founded this monastery. His reign did not, however, suffice to complete it, and the church was dedicated in the reign of his son, William Rufus, in 1094. This fact is almost the only one of which we have any record with respect to the purposes of the buildings. The Battel Abbey chronicle continues down only to the year 1176; and whilst one fragment of the work alone can be pointed out as anterior to that date, every other part is from 50 to 100 years later, judged by architectural evidences. In the possession of Sir Thomas Phillips, it is true, there are ninety-seven volumes of charters, deeds, and ancient account rolls of the monastery; and from the latter (especially the rolls of the sacrist, the officer who had the charge of the buildings) it is certain that many highly interesting particulars could be drawn. These rolls have never been examined, and their situation in a private collection at Cheltenham makes it difficult to do so. At Bury St. Edmund's abundant materials for assigning correctly the various denominations of the buildings were obtained from a great number of notices of incidents which had occurred within the monastery, from account rolls, inventories, and the like; and at Durham we had still greater facilities, for to all these sources was added the description of a writer who knew the monastery in its perfect state.

At Battel, it so happens that, since the time of Brown Willis, wrong names and mis-descriptions of the buildings have arisen, and somehow it is said that Mr. Hartshorne, our late member and much-lamented friend, has added the weight of his name in confirmation of Willis's mistakes. Due respect for Mr. Hartshorne's name required, therefore, that good reason should be given for varying from the descriptions received on the spot. Mr. Mackenzie Walcott had been the first to attempt a correction of the popular notion, and Mr. Hills now reminded the audience, by reference to his plans of Bury St. Edmund's and Durham monasteries, exhibited before them, together with a precise plan of the Battel buildings, of the arrangements common to Benedictine monasteries. Having done this, he stated that in the perambulation of the remains he would adopt the description and nomenclature of the buildings as given by Eadmer, a monk of Canterbury, of his own monastery, at little before the time when the Battel chronicle ceased. Eadmer drew a plan of Canterbury, which is still preserved at Trinity College, Cambridge. It was published more than a hundred years ago by the Society of Antiquaries, and has been recently republished by Mr. Walcott. Except as to the position of the Guest House, the Battel buildings correspond in almost all particulars with this ancient arrangement at Canterbury."

Mr. Hills then described the western buildings in which they were assembled, as containing the cellarer's department, with the residence of the abbot and dormitory for the lay domestics. These buildings form the residence or mansion at present inhabited by the Duke of Cleveland. The hall in which the lecture was delivered is a late addition, probably the work of one of the last abbots, and the duke's library is a still later building, erected by the first lay grantees (the Montacutes), and in a great measure rebuilt by the present owner. In passing through the beautifully vaulted and groined apartments, Mr. Hills called attention to the decorations of which they were susceptible, as evinced in the richly ornamented drawing-room, an apartment vaulted in four bays of two avenues, and pointed out the beautiful porch formerly the entrance to the monastery, but now almost buried in the modern kitchen offices. On leaving this block of buildings by its northern end, a lofty mass of wall, about 6 ft. thick, attached to it, as the south-west angle of the church, was pointed to, this fragment being the only bit of the work left which was consecrated in the time of William Rufus. The church thus formed the north side of the monastery, and the foundation of the south wall of the nave, a fragment of the transept and the walls of a crypt showing the eastern apsidal termination of the church with three radiating chapels were described as all that remains of a church about 315 ft. long. From its transept extends the eastern wing of the monastery, specially devoted to the monks themselves. Mr. Hills pointed out the small remains of the chapter-house, the first apartment in this range, and then led the company through a noble series of vaulted apartments, the two common rooms and parlour of the monks,—in which he showed how skilfully advantage was taken of the natural fall of the ground to give all the magnificence that could be obtained. These rooms are vaulted partly in two and partly in three avenues. Above them was the dormitory of the monks (locally misnamed, as he thought, the refectory), the walls of which are still perfect. The ancient refectory was pointed out as extending between this wing and the west wing, the part first inspected. Attached to the west wing is still seen one end of this hall, very richly ornamented with arcades and panelling of the thirteenth century, and the whole west side of the cloister is here also seen to have been panelled with beautiful arcading of the thirteenth century, altered with enrichments of the fifteenth century. An inspection of the vaults beneath the ancient guest hall (the hall itself is destroyed) concluded the survey of the monastic buildings. In passing out through the gateway, it was shown that a small part of this mass of buildings belongs to the Norman period. The company then reassembled in the parish church, when a call was made for Professor Willis, who had been present during the inspection of the abbey, but that gentleman not presenting himself, the Dean of Battle alluded to the chief features of interest. The church was erected, as its architecture indicates, early in the thirteenth century, and has additions of almost all subsequent Mediæval styles. It has a fine western tower, two aisles to the nave, a fine Early Pointed chancel, and two chantries. The Dean asked for suggestions as to the meaning of a very peculiar hagioscope window in the north aisle, and some arched recesses at the east end of the same aisle; and on re-assembling in his grounds, where he handsomely invited the whole company to partake of refreshment, a discussion ensued—from which it would appear that the arches were the accidental accompaniments to the stairs of the rood loft, and that the hagioscope window indicated the existence at some time of a north porch, with a chamber over it. Sir Charles Boughton returned thanks in the name of the Association for the hospitality of the Dean. The evening papers were,—an interesting one on the Ironworks of Sussex, by Mr. Charles Savery; and an elaborate one on the Earls of Sussex, by Mr. Planché, in which that gentleman dealt most carefully with the difficulties of the early history of the title.

On Friday, the 24th, the excursion was to Pevensey, where the only failure of fine weather occurred during the week. The rain almost prevented the inspection of this most interesting castle. A short and pleasant detention occurred on the road, where Major Lane and Mr. Simpson, the clergyman of Bexhill, brought the party to a stand to examine the church there, and to partake of some refreshment. In the afternoon the weather became more propitious, and an examination was made of that charmingly picturesque ruin the Castle of Hurstmonceux. At this place, as well as at Pevensey, the guidance of the party was ably managed by Mr. T. H. Cole, of Hastings. In the evening, by invitation of the Mayor of Hastings, a large number of the principal families of the town were assembled to meet the members of the Association, and an interesting account of the ancient annual visits of the Bailiffs of the Cinque Ports to the great herring fair at Yarmouth, was given by Mr. Alderman Ross; some of the original journals of the bailiffs, together with other interesting muniments of the town and cinque ports, being exhibited on a table in the room.

On Saturday, the 25th, the closing meeting was held at Lewes. The Association was met by the High Constables of Lewes, Messrs. Edward Chatfield and Henry Jeffery, and by Lord Pelham, on behalf of the Earl of Chichester, with a large number of the members of the Sussex Archæological Society, who most kindly and handsomely entertained the whole party at luncheon. Mr. M. A. Lower, the well-known Sussex antiquary, undertook the guidance of the meeting, and led in succession to the barbican and keep of the castle; to St. John's Church, where the inscription to a Danish chief was much discussed; to the ancient vaults under the Star Hotel; to the fine Elizabethan house of the Newtons, now occupied by Mr. Wyndham; to Southover Church, where the highly interesting remains of the tomb and leaden chests containing the bones of William de Warenne and his wife Gundrada, daughter of William the Conqueror, were viewed. After luncheon, Mr. Lower gave the history of the great Clugniac priory of Hastings; the small remnants of its remains were

viewed, and a careful plan was exhibited, made by Mr. Parsons before the railway, twenty years ago, broke up a considerable portion of the church. The suggestions of Mr. Walcott, Mr. Hills, and Mr. Roberts, as to the arrangements of the monastery, were discussed, and the proceedings of the week were finally brought to a close.

THE DESIGNS FOR THE INTENDED LAW COURTS.

CORRESPONDENCE has taken place as to the provision of a proper place for the exhibition of the designs now in course of preparation. The Royal Gallery, in the Palace of Westminster, used before for a similar purpose, has been pointed to, but the Commissioners think the position would be objectionable, and that the exhibition should take place as near as possible to the offices of the law; the great reason being that the final plans, which will have to be immediately prepared, must be made by the successful architect in the sight of, and on deliberation upon, the different drawings while hanging side by side; and that this should be done with the daily attendance and assistance of the officers of the law, which is only possible within a short distance of Lincoln's-inn and the Temples.

The cost of erecting a temporary building for the purpose Lord John Manners puts at 1,500*l*. There will not be another meeting of the Commissioners, probably, until November to decide. Mr. Gibson, one of the architects named to compete, has withdrawn. His place will not be filled up.

The architectural clerk has received plans of the Courts of Angers, France, but finds they offer little that would be of any service to the competing architects.

The sub-committee of the Commission appointed to confer with a committee of the benchers of Lincoln's-inn on the subject of a carriageway through Great Turnstile have met a committee of the benchers, and they unanimously thought it highly desirable that some such way should be made, but they found it impossible to come to any definite opinion upon the subject without being advised by a competent surveyor, both as to the proper direction of such way, and as to the property which it would be necessary or advisable to purchase, and the probable expense of such purchase. Mr. Pownall is accordingly to be instructed to prepare plans and estimates.

FROM ADELAIDE, SOUTH AUSTRALIA.

THE opening of the new town-hall was celebrated by more than 800 gentlemen accepting the invitation of Mr. W. Townsend, M.P., and mayor of the city, to a banquet given by his worship on June 20, the anniversary of the accession of our Queen to the throne of England. The town-hall, after more than three years from the laying of the foundation-stone, has been completed at a cost of 20,000*l*.

The entire front of the building is 73 ft. wide, and projects over the footpath, the arcade being 20 ft. wide, furnished with a series of arches, over which is an open colonnade, surmounted by a cornice. The entire front, as well as the tower which extends above it to the height of 145 ft. from the pavement, is constructed entirely of white freestone. The enrichments are in the Corinthian order. The belfry is provided with a peal of bells. The chief entrance to the building under the portico is protected by an iron gate, which conducts into the grand entrance and lobbies; these are inlaid with Minton's ornamental tiles. The entrance-hall itself is 43 ft. by 27 ft., and the passage 7 ft. wide, terminating in the room appropriated for the city council chamber, the dimensions of which are 43 ft. by 23 ft. 8 in. On either side are commodious rooms to be used in accordance with the recent arrangement entered into between the Government and the corporation for the purposes of the local, police, and insolvency courts and offices. The entrance to the town-hall proper is by means of large doors on the sliding principle.

The hall is 108 ft. long, 68 ft. broad, and its greatest height is 44 ft.; the superficial area being 7,344 ft. Its ordinary capacity is computed at from 2,500 to 3,000 persons. The main walls are ornamented by twenty-six Corinthian columns. The windows are decorated with composite columns and enriched capitals.

The whole of the windows—sixteen in number—can be opened or closed simultaneously by one person by means of machinery, and cold air can be admitted and vitiated air escape through apertures provided for that purpose, without inconvenience to the audience. The ceiling is decorated with a large ventilator, studded with embellishments and mouldings. From each of three roses, bordered in the most ornamental style, are to be suspended gaseliers, one of which will overhang the platform. The decorative plastering was executed by Messrs. Firth, Vernon, & Wilson. The floor of the hall has been constructed on a principle adopted with a view of deadening noise or sound arising from promenading, &c. For this purpose sawdust and clay have been used and filled in to a depth of 8 in. between the joists and the floor.

FROM SYDNEY, AUSTRALIA.

UPWARDS of 20,000 persons were present on St. George's-day, at the unveiling of the bronze cast, obtained for New South Wales, of Mr. Theed's statue of the late Prince Consort. It is placed on a handsome pedestal in one of the finest sites in the city, at the entrance to Hyde Park.

Various stained-glass windows have been presented to St. Andrew's Cathedral by different individuals, and nearly the whole of them are now fixed in their places. The largest one, however—the east window—is not yet prepared, but the plans have been approved. This window will be erected to the memory of the late Bishop Broughton, and the cost will be defrayed by public subscription. It will have three rows of lights, seven in each row.

The foundation stone of the new church of St. Peter (Church of England), in Woolloomooloo, has been laid by the governor. The site of the church is at the corner of Ann-street and Bourke-street, near the intersection of the latter by William-street, and the style is Early English. The building is to be erected wholly of stone, in massive blocks, the base course being 24 in. in height by 26 in. on the bed, and the foundation will rest on rock. The dimensions of the church are: length, 105 ft.; width, 78 ft. The front elevation, facing Bourke-street, will have three gables, the centre one, being 45 ft. high, exclusive of the bell turret, which will surmount it. There will be an entrance door in the centre, with wrought and carved pillars, lancet head and label, with a triple lancet window over, and a trefoil light above. On each side of the doorway there will be a corresponding triple lancet window, with an oval-shaped light above for ventilation. The design of the east end is similar to the front, there being a large triple-lancet window lighting the altar. The side facing Ann-street will have an entrance door and porch, with three well-finished double-lancet windows on either side. The north side of the church will be lighted by seven windows. The roof will be open, and will be constructed with three rows of Gothic arches, tracery, &c., extending from the gables in the front to the rear. There will be three rows of iron columns supporting the arches, and dividing the middle of the church into three aisles, these being again intersected by corresponding arches at right angles from the columns to the side walls. The aisles will be paved with black and white marble tiles. The designs were prepared by Mr. O. H. Lewis, and the work is being carried out under his superintendence. Messrs. Newland & Son have the contract for the stonework.

Workmen are engaged in taking down the walls, and clearing away the ruins of St. Mary's Cathedral, with a view to the erection of a new building on the ground.

A small church, to accommodate 100 persons, and a cottage as a Presbyterian Church sanatorium, are about to be erected on Douglass Hill, Kurrajong, partly for behoof of the numerous visitors from Sydney and other places who repair to the locality in quest of health. Plans for the two buildings have been prepared by Mr. T. Rowe, of Pitt-street, architect.

A sum of 10,000*l*. having been voted by the Parliament for the improvement of the rivers Murray, Murrumbidgee, and Darling, active measures have been taken for carrying out the work. Clearing parties have been formed for cutting away and removing the snags and other obstructions that impede the navigation of the rivers.

An extensive scheme of improvement to Darling Harbour has been proposed by the Engineer-in-Chief for Harbours and Rivers, and submitted to the Government. It is proposed to construct a range of wharfs to enclose the whole of the head of Darling Harbour, with a view to the establishment of a railway terminus there; and in connexion with it to deepen the whole of that part of the harbour to 20 ft., so that vessels of the largest class might lie alongside the wharfs to discharge or take in cargo.

Darlinghurst Gaol will be erected upon ground recently enclosed on the north side of the original gaol, to give additional accommodation for prisoners. The foundations of the large wing, which will be erected by prison labour, are all in, and the erection of the walls has been commenced. The foundations were put in by prisoners, unassisted by any free labour, and all the stones for the building are dressed by prisoners, but are set by two or three masons employed for the purpose. About 150 prisoners are employed in stone-cutting; and it is a somewhat curious fact, says our authority, the *Sydney Herald*, and highly creditable to the trade, that there has not been a man in the gaol who learnt stone-cutting while free, and followed it as a means of livelihood. The prisoners, therefore—and some of them are excellent workmen—have learned all they know about stone-cutting in the gaol from free men. As the authorities desire to erect the new wing (to contain sixty-six cells) as speedily as possible, the erection of the circular building, as a chapel, has been suspended for a time. The drainage of the gaol is unfortunately defective; and has at various times given many of the people who reside in Woolloomooloo a considerable amount of inconvenience. With a view to remedy the defect, plans have been prepared and submitted, and these have been reported upon by the colonial architect; but unfortunately there is a hitch somewhere, and the result is, that no determination in regard to them has yet been arrived at.

The telegraph line, by which Sydney and Adelaide will be brought in direct communication is not yet finished, but as it progresses through the various districts in the interior, stations are opened at points where the extent of population, or the probable requirements of telegraphic communication indicate that course to be desirable or necessary. The communication with all parts of the four colonies thus afforded will meet an increasing requirement, and be regarded as a great convenience by the squatters and settlers generally.

WATER SUPPLY AND SEWERAGE.

London.—The following are the returns of the Metropolitan Association of Medical Officers of Health, showing the quality and composition of the metropolitan waters:—

Names of Water Companies.	Total Solid Matter per Gallon.	Hardness.	
		Before Boiling.	After Boiling.
Thames Water Companies	Grains.	Degrees	Degrees.
Grand Junction	17·49	13·0	2·5
West Middlesex	16·77	12·5	2·0
Southwark and Vauxhall	17·10	13·0	3·5
Chelsea	16·60	13·0	2·5
Lambeth	18·39	13·0	2·5
Other Companies.			
Kent	27·86	18·0	5·5
New River	17·16	13·0	3·0
East London	18·16	13·5	3·5

H. LETHEBY, M.B.

The analysis of the metropolitan waters during the month of July shows that in every case there is less than the average proportion of saline and organic matters, and the reduction of the latter, which is the most important constituent of potable water, is most marked in the waters derived from other sources than the River Thames. But after all the most important consideration at the present time is the means of obtaining a constant supply of pure water, so that the prolific sources of contamination and of real danger to the community, the filthy butts and cisterns, may be entirely abolished. The daily supply of water to London is at the rate of about thirty gallons per head, whereas experience has proved in many instances that with a well-regulated constant service it need not exceed twenty gallons a head. As a matter of economy, therefore, as well as of public health, it is high time the consumer should make preparation for such a supply, in the way that the Act of Parliament directs, and then there would be no difficulty in applying processes of purification at every point where the water is used for domestic purposes.

A circular has been sent us calling attention to a scheme for the formation of a new sort of water company, for the supply of pure water to London in bottles or jars at 1d. per quart! Badly off as the Londoners are for water, especially the poorer classes, they are not quite reduced to water at 1d. a quart, however pure; and we look to improvements of a much more thorough-going and efficient nature for the future supply of pure water to the metropolis.

Liverpool.—A sub-committee of the health committee has been inquiring for some months past into the causes of the excessive mortality of the town compared with other parts of the kingdom. At the last weekly meeting of the health committee, the mortality committee presented their report. The committee arrived at the conclusion that there were three great causes of mortality—indigence, intemperance, and overcrowding. The remedies the committee recommend are: To provide decent dwellings for the labouring classes; to break up the masses of crowded dwellings by driving thoroughfares through and across them to let in light and air; to open up still further the close and confined courts; to encourage cleanliness by securing an ample supply of pure water; and to get rid altogether of the open midden system. As some means towards checking the growing and diabolical evil of intemperance, they advise the committee to obtain an Act of Parliament to control the sale of excisable liquors within the borough.

Nottingham.—From a report on recent sanitary operations and improvements in Nottingham by Mr. M. O. Tarbotton, C.E., the corporation surveyor, it appears that a total length of permanent sewerage has now been made of about twenty miles, but that probably double this length requires yet making in the streets of the old town and the later-made streets of the new part. Means of ventilating the sewers are now in progress. The total daily quantity of the Nottingham and district sewage is about 4,000,000 gallons, and plans are in course of preparation for distributing this over a sufficiently large area of land, whereby the pollution of the river Trent may be abated, and the full agricultural value of the sewage may be secured. The erection and maintenance of places of public convenience and decency, in suitable situations, have had special attention. The sewers in all new streets are entered from the subways, which are still being made for gas and water pipes, and Mr. Tarbotton shows that there is no danger of explosion.

Saffron-Walden.—In consequence of the very imperfect system, or rather no particular system, of drainage in this improving town, the corporation about two years ago applied to the proper quarter to have powers under the Local Government Act, and the result, after the inspection of the Government officer, was the formation of the "Saffron-Walden Local Board." This new Board immediately consulted Mr. Lawson, civil engineer, of London, who submitted a plan, which was not, however, carried out; but the Board at once set about repairing and improving an old large sewer which runs from the bottom of the extensive common through and under the town to the Swan meadows, altogether half a mile in length. This ancient sewer, in form of an immense barrel-arch, averages 10 ft. in height by 9 ft. wide; and the principle adopted was to form a smaller sewer in the centre of the larger one for the refuse of the town to run through, the sides being paved with brick, and sloping towards the middle. The drains from the various parts of the town are connected in the centre sewer, and thereby prevent the accumulation of sewage on the sides. The passage now is very complete, and the whole has been constructed under the direction of Mr. Ford, C.E., surveyor to the local board; and the works have been executed with hydraulic materials. The entire tunnel, well illuminated for the purpose, was lately opened for the inspection of the public, and it is believed that at least 200 persons went through it on that day, including the mayor, the principal members of the corporation, the clergy and medical men of the town and neighbourhood, and most of the principal tradesmen. The passage of the water through the channel is said to be so rapid that there is no possibility of any offensive smell arising from this improved sewer. The cost is about 500*l.*, and this will be defrayed by a loan for thirty years, obtained from the Public Commissioners of Works, increasing the rates about one half-penny in the pound for a portion of that time.

Southampton.—The town-clerk has laid before the local Board a copy of a report drawn up by Mr. James Lemon, C.E., the borough surveyor, upon the whole question of the drainage of the town, a copy of which had, he said, been sent to every member of the council. It was in the form of a book, containing an appendix, consisting of a series of lithographed plans, showing the alterations and improvements suggested in about twenty pages of printed matter:—

After reviewing the probable cost of, and receipts from, utilisation, Mr. Lemon says, in conclusion:—

"I am of opinion that the Local Board should adopt the best means in their power to place the drainage of the town in a perfect state, and that any plan for the utilisation of the sewage, which may be approved, should be entirely subsidiary and independent of the main drainage scheme, so that in the event of any failure of the works, commercially or otherwise, the health of the town will not suffer."

The report has been referred to the special and general works committee.

THE ROOF OF THE HOUSE OF COMMONS.

IN the instructions furnished to the architects who are making plans for the proposed courts appears a letter from Mr. E. B. Denison to the Law Courts Commission, in which that gentleman states that the ventilation of the Houses of Parliament was left to the architect, and totally failed; and after some abuse of architects in general and the Houses of Parliament in particular, he adds:—

"Among other things, I find the ceilings of both Houses of Parliament were—one still is—in such a state that they may be set on fire all over in a minute."

Whatever truth there might have been in this statement it does not affect the architect. The danger, whatever it might be, arose solely from the mode adopted for lighting the Houses, and this differs altogether from that designed and carried out by the late Sir Charles Barry, and which had long since been altered without his approval and without any reference to his views. In fact, the architect was as little responsible for the state of things referred to by Mr. Denison as Mr. Denison himself.

Consequent on the letter in question a correspondence between the Office of Public Works and Mr. E. M. Barry has been printed to make clear what we have just now said. From this we further learn that under the direction of that gentleman the dangerous fittings over the House of Commons have been removed, and that metal has been substituted for wood. The work was done by Mr. John Imray, and cost about 1,500*l.*

MONUMENTAL.

The Watt Memorial, Birmingham.—Mr. Alexander Munro, the artist to whom the execution of the statue has been entrusted, has submitted a sketch model of the figure. The great inventor is represented in an easy position leaning against the cylinder of a steam-engine. The statue will be executed in marble, and will be 8 ft. high, placed on a pedestal some 10 ft. or 12 ft. high. It shall be completed by midsummer next year. The amount required is not complete.

"*Cailean Mor.*"—A grand memorial stone is about to be erected by the Duke of Argyll in honour of his ancestor, the chief from whom he derives the patronymic of Mac-Cailean Mor,—*i.e.*, the son of the Great Colin, perhaps better known under that travestied form introduced by Sir Walter Scott, "Maccallummore." The monument is to be erected within the ancient burying-ground of Kilchrenan, on the west side of Lochawe, where, there is good reason to believe, the warrior-knight found his last resting-place. It will consist of a massive slab of polished Ross-of-Mull granite, laid horizontally on solid masonry, and bearing an inscription.

Mural Tablet at Liskeard.—A serpentine Mural tablet has just been finished by Mr. John Murphy, of Penzance. According to the *Cornish Telegraph*, it consists of an octagonal piece of beautiful serpentine from the Kennack quarries, about 2 ft. 6 in. across, with a circular ornament, and inscription, in brass, with blue and red initial letters. This tablet is in memory of the late Mr. Edward Pedler, of Liskeard, long known in West Cornwall for his antiquarian studies. Mr. Murphy is superintending the fixing of the monument in Liskeard Church.

Hastings.—A tablet, raised by public subscription to the late Arthur William Ticehurst, son of the Mayor of Hastings, has been placed on the inner side of the south wall of St. Clement's Church. It was executed by Mr. G. Sharp, statuary, of St. Leonard's, and is designed in the Gothic style. The inscription commences thus strangely,—"In memory of Arthur William, eldest *surviving* son of Frederick Ticehurst, Esq., Mayor of Hastings."

ST. JOHN'S, NEW BRUNSWICK.

INDIANTOWN, one of the suburbs of St. John's, almost totally destroyed by fire some time ago, is now rebuilt, and much improved; indeed, some of its buildings will compare favourably with any wooden ones in the city. The stores of Mr. Hamm (Mr. M. Stead, architect), and Messrs. M. D. and H. A. Austin, with the dwelling of Mr. M. D. Austin (Mr. J. A. Munroe, architect), are the best.

In Carleton one of the finest dwellings in the lower provinces is being erected, after the designs of Mr. J. A. Munroe, for Mr. E. D. Jewett.

Mr. Stead has just prepared plans for a new church, to replace St. Paul's Church, which is about to be taken down; the new one will be Early Gothic, plainly treated. The church, long known as the "Bethel," has been remodelled, and is now used as a Baptist church.

Building materials are very high in price here, owing to the large quantities shipped to the United States.

Provisions also command large prices. Shipbuilding is very dull, scarcely anything being done in that line; indeed, mechanics of all descriptions are leaving for the States.

Wages here are, for masons, 2 dolls., or about 8*s.* 4*d.* sterling per day; stone-cutters, 2 dolls.; painters, 1 doll. 60 cents; carpenters and joiners, 1 doll. 35 cents.

Water-pipes are being laid to Indiantown from the city.

SANITARY REPORT ON WHITECHAPEL.

THE report of Mr. Liddle, the local medical officer of health, for the quarter ending 30th June, has been printed. From this report it appears that the present epidemic was preceded by a very unhealthy state of the district, as regards epidemical diseases generally, showing some probable connexion of the cause of cholera with the cause of other epidemics. The weekly mortality varied from 63 to 40, the average having been 52·3 per 1,000 of the population. Of this average 30·8 per cent. of the total mortality of the district arose from epidemics, especially measles, small-pox, and fever. Deaths from fever occurred in Pelham-street, Chicksand-street, North-place, Hunt-street, Samuel-court, Spital-street, Brick-lane, Charlotte-street, Swan-yard, Fisher's-alley, Frying-pan-alley, Sandy's-row, Wilke-street, Wood-street, Osborn-street, Old Montague-street, Prince's-street, Royal Mint-street, and Queen-street. The mortality of children under 5 years of age was 41·7 per cent. of the total deaths. In the north subdistrict it was 57·7 per cent., and in Goodman's-fields 64·8 per cent. of the total deaths. The unhealthy condition of Frying-pan-alley and Charlotte-court had been frequently complained of. In the former fever had prevailed to a great extent, chiefly among foreign Jews, who were sadly overcrowded. The water-supply was still unsatisfactory, as indeed it still is.

PLASTIC SLATE ROOFING.

THIS invention was made known to the public by the Farmers' Club of New York, at their meeting in the latter part of June, 1865, and its importance was discussed. The inventor, Mr. Wm. L. Potter, of Clifton Park, Saratoga county, New York, had been experimenting with the material for years, and had, it is asserted, demonstrated its utility and practicability.

The *Petroleum Standard* has the following flaming paragraph on the subject:—"After suffering many partial failures in compounds of lime in all its various forms and phases—in sand, in granite, in plaster, mineral coal, clay of various kinds, soapstone, coal tar, vegetable tar, as-

phaltum, &c., in all the proportions and combinations that an intelligent and inventive mind could suggest, for fourteen years, he tried the slatestone also in many combinations before he discovered that nature's law of reconstruction was exceedingly simple, requiring only gluten or other viscous matter to hold the particles in juxtaposition till time and the action of the elements united them. Slatestone and coal-tar are too well known to require a description. Associated in geology—perhaps originally combined—an affinity is found to exist, and the slate being pulverised and brought into contact, a union is formed which no power can dissolve;—a material at once cheap and abundant in every civilized country on the globe, so simple in preparation and application that common sense is the only qualification for using it. A mastic—it adapts itself to every shape and condition. Adhesive—it needs no nails or hooks to hold it. Non-combustible—it is not the means of destroying your property, but of protecting it. Impervious—water, nor even steam, can penetrate or dissolve it. Repairable—'a little more of the same sort' and a brush or trowel restores it from accidental injuries. Renewable—the waste from the friction of falling water may be returned once in ten or twenty years for ever by the use of the brush. It is, in fact, the only material known of which can be affirmed that it will endure so long as the building endures under it."

THE ROWS IN CHESTER.

IN the description of the new Grosvenor Hotel, at Chester (in the *Builder*, p. 629), it is stated that—

"*The Row*, which is peculiar to Chester, and which existed in the former buildings occupying the site, had to be preserved, and forms one of the principal features in the Eastgate-street front, the superstructure being carried on a colonnade formed," &c.

The accompanying engraving and plan show a colonnade on a level with the street, an architectural feature which is certainly not "peculiar to Chester."

I have always understood that the peculiarity of the rows in Chester consisted in their being raised above the level of the roadway, and formed, as it were, in the first-floor of the houses, so that the citizens could command the streets in case of any sudden irruption of the Welshmen or other hostile force. I know that was the character of some of the Chester rows at least: whether of all I am not sufficiently acquainted with the city to say. But I should like to know whether "the row" that existed in the buildings pulled down for the site of the Grosvenor Hotel, and which is said to have been "preserved,"—*i.e.*, imitated, was merely such a colonnade as appears in the new structure, or one of those raised galleries which presented the more singular characteristics of the old Chester "row."

J. G. N.

THE POLLUTION AND USE OF WATER BY MANUFACTURERS AND OTHERS.

WATER used and polluted by many of our manufacturing processes could, by simple means of filtration, be clarified and used for the same purpose many times, and that often with advantage and economy, as the water charged and impregnated with chemical agents must become more and more active, and the action more intense the oftener it is used. Now it is greatly abused as a vehicle for carrying away to pollution many ingredients mechanical and chemical. To such an extent is this wilful waste carried, no wonder that the woeful want of a remedy is being felt. Lately we read of some 50,000*l.* being annually thrown in the gutter, either from the want of chemical skill or from the rapid manipulating processes of our manufactures of plated goods, &c. If we wash away the precious metals in our sewers, no surprise need be felt at water being so charged with all manner of filth, — manufacturers and others being rather benefited by economizing their fuel while consuming the smoke, that used to be a greater nuisance than it is now. It may be that using water more economically they may, when it is thoroughly fouled, and will no longer clarify, evaporate what remains, and so regain much they now throw away to their own loss and their neighbours' injury.

I know the difficulties that exist in purifying water once fouled, either mechanically or chemically, having some years ago been engaged by Sir James Matheson, Bart., in fitting up filtering, or, rather, clarifying apparatus for supplying Lewes Castle and the town of Stornaway with pure water, from a clear moss-coloured sough. Having tried every known method of filtration, the moss-coloured water still passed of a bright brandy colour. Having thus spent 150*l.* without obtaining clear, crystal, colourless water, I at last adopted the simple plan of having a large settling basin; the water passing through charcoal and broken bricks, ascended and thus flowed into a tank nearly filled with peat charcoal, in the centre of which was placed an ascension filter, from which the water flowed clear as crystal.

JAMES KERR.

THE ORDNANCE SURVEY AND PROFESSIONAL MEN.

THAT the grievances of the members of the engineering and surveying professions are many and bitter, the correspondence published in your very valuable paper has sufficiently proved. That those professions are preyed upon by a set of quacks on the one side, and that they have to enter into competition with a power that must ruin them, on the other side, are facts to which you have now nobly called the attention of the public. For that service I, as an aggrieved member, tender you my best thanks; for, sir, I am convinced that, if we are to have the injustice redressed, it is only at the hands of the public that the redressment can be obtained.

As your correspondent has shown in the case of the Scottish survey, so I think I can show from the survey of the North of England that the public money has been wilfully squandered. Take, for instance, the surveys of the large towns, which are engraved and sold at 2*s.* per sheet. In Leeds, Bradford, Halifax, Huddersfield, &c., everything down to lamp-posts, water-plugs, steps, and causeways are shown; the buildings are all there; and when a man buys one of the maps he labours under the impression that he has got a map infinitely superior to anything a private practitioner could supply him. The consequence of this, sir, is, that men are prone to give superior credit to the Government maps, to the detriment of all others. Now Colonel James may be most competent as a military engineer, and he may be perfectly capable of teaching his subalterns how to conduct trigonometrical operations with the nicest degree of accuracy, but I assert that he cannot provide himself with subordinate *employés* sufficiently skilful and trustworthy to execute the work in the manner he directs. If he could do that, we who have had to examine every kind of map that he has produced, should not have had cause to complain of their internal discrepancies, and the public, in some instances, would not have had to complain of expenses increased largely thereby. It is in the interior of the Ordnance Surveys, the parts where the skill or honesty of the individual surveyor is taxed, that they fail. On that ground, therefore, the money so expended is only wasted, the public are deluded, and by that delusion errors are perpetrated, and the services of surveyors who could rectify them are supposed not to be needed. I would ask, why was not London surveyed in detail, as are the great towns of the north? If in the case of London the advantage of a detail survey was not equal to the expense, does not the same argument apply to every other place? But I know of no reason why a survey on that scale should ever be attempted, except it was to gratify a whim of Colonel James, for it has not even the recommendation of serving some landowner, or body of landowners, who may happen to have the power to vote away the nation's money.

There is, however, another point of view from which Colonel James's operations may be regarded. He was not satisfied with training the Royal Engineers as surveyors, but he must needs take into his employ some hundreds of civilian assistants, for the vast importance of his work necessitated its speedy termination. Now, my experience tells me that at least 70 per cent. of the quacks who roam about the country sojourning at any place where they are unknown, and can obtain credit until they are known and their credit fails them, are the disbanded ordnance surveyors. These are the men who shamelessly advertise themselves as civil engineers, surveyors, architects, valuers, and, in short, anything down to "practical men;" and it is at their hands that the professions suffer, both in reputation and material welfare. I am not now telling an idle tale. I could point out to you men who have imposed upon the public and the profession by means of testimonials from captains and colonels of every name known to the Royal Engineers. Of course, after we have discovered that the owner of this testimonial is a drunken, dissolute vagabond, we are bound to consider him also a forger, for we very well know that the Royal Engineers are represented by gentlemen of the highest social worth and the greatest professional learning. But what, sir, is to guard the public against these charlatans? Nothing. The existing members of this class must plot, conspire, scheme, and victimize, until their mortal race is run; but it is certainly the duty of Parliament to prevent a second crop of them being raised.

There is, however, one way in which a remedy against some of these evils might be provided; and I am of opinion, sir, that your services as the editor of a powerful paper would be of great assistance in establishing it. In the first place, we ought to have the professions of civil engineer and architect recognised by law, as are the medical and legal professions; a competitive examination established similar to theirs, which pupils and students must be compelled to pass before they could obtain a diploma, and so be allowed to practise. I am ignorant of the exact manner in which that end could be attained; but I think, if you were to ventilate the matter, and money and an acceptance of your suggestions were all that were necessary, we should not be long in our present impotent and degrading position, and we should no longer have to fear the competition of a "paternal" Government; for a legally constituted society would be sufficiently powerful to stay the nefarious operations alike of our major and minor competitors. It is, indeed, a pitiful thing, sir, to have to make these complaints; but would not others ask loudly for justice where injustice was meted out to them? What, indeed, would the doctors say if army surgeons were organized to practise publicly for half the ordinary fees? Why, they would at once demand redress, and their demands would be attended to, because they are the members of an organized and powerful society.

METATOR LEODIENSIS.

THE ORDNANCE SURVEY AND PRIVATE JOBS.

SIR,—Some two months ago there appeared an advertisement in the *Builder*, offering a premium of 10*l.* for the best plan for the drainage of Aberdare, in Glamorganshire. I visited the place, and found a parish map to a scale of 8 chains to an inch, which was made some twenty years ago, and when the parish did not contain one fiftieth part of the houses it does now. I told the authorities that what they offered 10*l.* for would cost several hundreds. The Board then invited me, with several others, to tender for the work, which I did. The clerk to the Board has now informed me that the Ordnance surveyors are going to survey the place. I may remark that in 1850 the Board of Ordnance surveyed Merthyr Tydfil, and I believe they have never been paid a farthing for so doing. How is it possible for civil engineers and surveyors to compete with a Board paid out of the public funds? The Board of Ordnance ought to confine themselves to public works, and leave local surveys to parties who devote all their time and attention to sanitary matters.

THEODOLITE.

FOOT PATHS.

SIR,—In answer to an inquirer respecting foot-paths, we have laid down more than 1,000 yards of Portland cement. Some of it has been down four years, and answers well. Most likely all the paths in this town (Hitchin) will be laid with the same. We have 2 in. of cement concrete, and ½ in. of cement and well-washed drift sand, or Thames sand will do.

W. D. ANDREWS.

THE BORROWDALE LEAD MINE.

SIR,—With regard to the family of Banks you mention: it was a John Bankes who, about 250 years ago, bought the share of the Black Lead Mine, which still appertains to the family,—the Bankes of Corfe Castle, Dorset. This John Bankes was father of Sir John Bankes, attorney-general in Charles I.'s reign. It was he who argued two days for ship money. He was afterwards Chief Justice of the Common Pleas, and died at Oxford and was buried there while in attendance upon the unfortunate monarch. The Bankes of Dorsetshire still own nine-sixteenths of the mine.

The father of Sir John built a house in Keswick: n a ceiling in it there is a monogram containing he initials J. B., and the date 1602. Sir John Bankes, the chief justice, makes reference in his ill to this house as built by his father. It is ow transformed into a coach office.

The last sale of lead which took place in ondon, at the warehouse, in Essex-street, trand, brought for picked plumbago 20s. per ound, having been previously picked through at rmer sales. After this, there was a considerable tock sold at much lower prices, more like 20*l.* er ton than anything else; *whilst the* PURE *Iorr vedale* lead even now would fetch 30s. er lb., *or* 3,000*l. per ton.*

The mine ceased to work three or four years go. The Company who took it passed through he Bankruptcy Court. The Keswick makers ot unfrequently purchase pure lead found in the ocality, which has been washed from the nountain into the rivers and low lands;—so hat pure Borrowdale lead pencils are still to be urchased for money at Keswick, but compaatively few people go to the price, viz., 6s. per ozen.

J. F. C.

ATENTS CONNECTED WITH BUILDING.

ORNAMENTING THE SURFACES OF TILES. — *H. ienables.* Dated 18th September, 1865. — The atentee claims the manufacture of ornamental les by repeated immersion of a moulded surface a slip, and the subsequent scraping down thereof abstantially as described.

APPARATUS for SECURING OR FASTENING METAL LATES TO BEAMS, RAFTERS, AND OTHER PLACES OR ROOFING, &c. — *R. Fow.* Dated 19th September, 1865.—This invention consists in formig a groove or slit on the beam, rafter, or other rticle to which the patentee desires to secure he metal plates. At certain points in this roove he inserts metal staples, the tops of which e flush or nearly so with the surface of the roove. Then, according to the shape of the rface of, say, a rafter, he forms a metal plate o correspond in shape therewith, and which he ys thereon. This plate has slots cut in it at hose parts where the staples are inserted, and he end of the slots is adjusted to, and correponds with, the said staples. The upper metal late is made to correspond in shape with the ver, and has secured on its underside, either y solder, rivet, or otherwise, prongs or catches t laterally, which correspond in number with he staples.

MACHINERY USED IN THE MANUFACTURE OF RICKS AND TILES.—*W. Porter.* Dated 20th eptember, 1865.—This invention is applicable machines where the plastic clay or brick earth expressed through moulding dies or orifices. is preferred, in carrying out this invention, to nstruct the machines in such manner as to mploy two pairs of expressing rollers, one pair ising horizontal whilst the other or front pair is ertical; but the employment of the hinder exressing rollers is not essential, as in place of hese a piston or plunger, or other expressing nstrument, may be used combined with the front airs of expressing rollers before mentioned.

APPARATUS APPLICABLE FOR FIRE-ESCAPES AND UILDERS' SCAFFOLDS.—*E. Vagg.* Dated 5th ecember, 1865.—The base of the said appaatus consists of a stand mounted on wheels like common cart, but made to run very near the round. The stand is mounted on the wheels in uch a manner that, by means of a screw, atchet, or other apparatus, the stand may be naintained at or nearly on a level when passing p or down hill. In the centre of the said stand pole or mast is erected, of such a height as ay be deemed requisite, whether the apparatus n used for a fire-escape or a builder's scaffold, nd the said mast or pole may be fixed in its ocket in the stand by a hinge, to enable it to be owered when not in use. When raised perpendicularly, means are provided for maintaining it n its proper position by a bolt running through e and the socket, or by any other means. On his mast is a platform, made to slide up and own upon it rather easily, and also to turn pon it, which is done by reason of the frame n the top part of the mast carrying the pulleys eing made to revolve on the top of the mast. It is raised and lowered to the required height y means of ropes, cords, or chains running in pulleys at the top and bottom of the pole or nast. This platform is made stronger and rather ider, in order to carry supplementary platforms, ladders, ropes, and other useful articles to assist n rescuing persons or property from fire, or to carry such materials and apparatus as builders may require. The apparatus being moved as near to the burning house as is proper, the operators lower the stage or platform by the ropes or cords already referred to, and the firemen enter the platform, which is then raised opposite to the window or place where the persons are who are to be rescued. The supplementary platform and ladders are then pushed out, and the persons walk on to the platform, which is then lowered; or the platform may be turned round on the mast, and the persons may then enter the opposite houses. In the same manner, if the apparatus be used for a builder's scaffold, the bricklayers, masons, plasterers, and others would have a much safer and more commodious stage for carrying on their operations.

STAINED GLASS.

Christ Church, Watney-street, Commercial-road East Three stained-glass windows have been erected at the east end of this church, in memory of a late churchwarden (Mr. W. H. Foulger). The windows represent, the left-hand one, the birth of our Saviour, the centre the Crucifixion, and the right-hand one the Ascension. The windows were designed and executed by Messrs. Gibbs, of Bedford-square, W.C.

Easton Church, Pewsey.—The memorial to David Herbert Llewellyn, surgeon on board the *Alabama*, who was drowned at the sinking of the vessel, having refused to imperil the lives of the wounded by entering the boat, is now completed. A general desire was felt that some memorial of his gallantry should be erected at Easton, of which parish his father is the incumbent. The memorial has therefore taken the form of a stained east window in Easton church, with a marble tablet beneath it bearing an inscription. A small surplus was expended in a medallion window at the west end of the church. The east window is by Messrs. Lavers & Barraud.

Rudgwick Church.—The chancel of this church has just received the addition of two stained-glass windows, in memory of the late Mr. and Mrs. Braby, of Maybanks. They were designed by Mr. Edward Hogwood, and the subjects are Rebekah at the Well, and the Good Samaritan. Messrs. Powell & Son, of London, were the artists. There has also been recently erected in the churchyard a monument of Portland stone in memory of the same persons.

Coggeshall Church.—A stained glass memorial window has just been placed in the east end of this church. It was executed by Messrs. Clayton & Bell, and the fixing was partly performed by Mr. Samuel Parke, plumber, of this place. The top tracery contains representations of the twelve apostles and four evangelists, and there are also displayed four angels. The subjects, numbering fourteen, are as follows: Christ saving Peter, the Agony in the Garden, Christ bearing the Cross, the Resurrection, Christ appearing to Mary in the Garden, the Supper at Emmaus, St. Thomas, the Annunciation, the Salutation, Angels appearing to the Shepherds, the Birth of Christ, the Presentation in the Temple, the Baptism of Christ, and Christ blessing Children.

PROVINCIAL NEWS.

Ipswich.—The new National Provincial Bank building has been completed and opened. The surrounding buildings are completely dwarfed by the new bank, the height of which from the pavement to the top of the parapet is 45 ft. The front is of Portland stone, and though plain and simple it has a classic character. The ground-floor front is divided into three divisions, the centre and eastern ones being filled by large plate-glass windows, by which the banking-room is lighted, and the third containing the entrance to the bank and also to the manager's house. There are pilasters on either side of the windows, of similar stone to the rest of the front, and the whole is surmounted by a dental cornice. The banking-room is entered from a lobby by mahogany swing doors. This room is 30 ft. in length, the width varying slightly, being about 28 ft., and the height 15 ft. 6 in. Light is admitted by the two large windows, and Moore's ventilators are placed in the windows. At the north end of the bank are two fire-proof strong-rooms with stone floors and slate shelves, and Chubb's iron doors. The windows are protected by Clark's patent iron revolving shutters. The plumbing work, gas-fittings, and painting have been executed by Messrs. D. & E. Haggar. The building was erected from the designs of Mr. John Gibson, of Westminster. Mr. E. Gibbons, of Ipswich, was the builder. Mr. J. J. Miller, as clerk of the works, has superintended the building. The total cost, including the cost of the site, will be about 8,000*l.*

Newcastle-upon-Tyne.—The chief stone of the Borough Pauper Lunatic Asylum has been laid at Coxlodge, near Bulman's Village, about two miles from the town. The asylum will accommodate 250 patients of both sexes. It consists of two stories, and the general outline of the plan is in the form of the letter H., with the centre limb very much elongated. The centre contains the general dining-hall on the ground floor, with the chapel over it; and right and left of the centre are wings containing the accommodation for the patients, and embracing the whole extent of the south front, along which are the airing-grounds. The east wing is appropriated to the female, and the other to the male patients. On the ground floor are all the sitting-rooms, with a proportion of single sleeping-rooms and associated dormitories. The upper floor is devoted entirely to dormitory accommodation. Each wing is divided into three galleries, with an infirmary or hospital. Behind the dining-hall is the kitchen, with stores and other domestic offices. Extending backwards and along the north is a range of building, with the entrance to the asylum in the centre; a residence for the medical superintendent; and the workshop and the laundry offices. The plan is similar to that of the Stafford County Asylum, erected at Burntwood, near Lichfield, by the same architect, Mr. Wm. L. Moffatt, of Edinburgh. It is said to differ in its arrangements from those which have hitherto been erected. The style of the building is Palladian, simple in its details.

CHURCH-BUILDING NEWS.

Okeford Fitzpaine.—The parish church has been restored and re-opened. The work says the *Dorset Express*, was commenced in March, 1865. A careful inspection of the old building was first made, and it was determined to entirely rebuild the chancel, south aisle, and north porch, and partially restore the other portions of the church. Mr. Hicks, of Dorchester, architect, furnished the design, and the work was entrusted to Mr. A. Green, builder, Blandford, by whom the whole of the work has been executed. The church consists of a nave, north and south aisles, chancel, and porch on the north side. Of these, the chancel, south aisle, and porch have been entirely rebuilt. The old arcade arches, which were found to be considerably out of the perpendicular, have been partly taken down and rebuilt, whilst others, not so much gone, were sawn and restored. The tower, at the west end of the church, is built over an archway, under which is a font, presented by the curate's wife, and made by Mr. Bolton, of Worcester. The old chancel was entirely taken down, and rebuilt in the Decorated style of architecture, with open-timber roof and moulded ribs, to form panels, carved bases intersecting the ribs. The windows are glazed with tinted cathedral glass, and there are sittings for between 300 and 400 persons. The church is heated by one of Gurney's hot-air stoves. A considerable addition has been made to the churchyard, which is enclosed with iron palisading. In addition to 400*l.* to be raised by rate, various donations have been promised, in order to pay the cost.

Blythorp.—The little mountain church at Wythorp, midway between Keswick and Cockermouth, has been consecrated. The site has been presented by Sir H. R. Vane, bart., lord of the manor. There is also space left on the site for a Sunday school, plans having been prepared by Mr. Bruce, of Whitehaven. The school will be erected as soon as sufficient funds are raised. The church has been built at a cost of nearly 1,000*l.*, 70*l.* of which are yet required. Mr. Bruce is the architect of the church as well as the schools. The church is built in the Early English style. The nave roof in the interior has curved traces of stained oak, crossed at the apices and supported on stone corbels. The sittings, pulpit, and reading-desk are constructed of stained pine. The nave is 40 ft. long by 21 ft. wide, and the chancel is 19½ ft. long by 16 ft. wide. The building is intended to seat 120 persons.

Long Whatton, Leicestershire.—This church, after being closed for twelve months in order to

be restored, has been reopened by the Bishop of Peterborough. The roofs are new, and raised to a very high pitch, corresponding with that of the west end gables. The pillars and arches have been restored, and a new chancel arch has been erected. Clerestory windows have been inserted over the nave arcade, which has been raised about 9 ft. The chancel windows and roof are both new, the latter in stained wood-work. In the north aisle the old pews have disappeared, and the interior has been fitted up with benches, uniform with those in the south aisle. A vestry has been formed out of the lower portion of the tower, which is on the south side. This is separated from the nave by a screen, filled in with figured ground glass. The floors are paved with Whetstone's (Coalville) tiles, in encaustic patterns. The east window is fitted up with stained glass. It is divided into three lights, which are filled in with subjects taken from the 20th chapter of St. John's Gospel—one representing Mary weeping at the sepulchre; the other, Mary looking into the sepulchre and seeing the two angels; and the third, Mary meeting with Christ. Above is a figure of the Saviour, symbolizing the resurrection. Messrs. Hardman, of Birmingham, were the artists. The entire work has been carried out by Mr. Walker, the contractor, West Leake, from the designs and under the superintendence of the architect, Mr. Joseph Mitchell, of London. The stone work has been done by Mr. Brown, stone mason, Nottingham; and Mr. Blundell, also of Nottingham, has constructed the roof and all carved woodworks.

Danbury, Essex.—A statement has been issued as to the work of restoring and enlarging the church. These works are to include the erection of a new and much enlarged south aisle, with the entire re-pewing of the church and the complete restoration of the interior of the fabric, including the restoration and setting up of the south arcade, all of which has been undertaken by the owners of property and parishioners of Danbury, at a cost of 2,000*l.* Since the work has been taken in hand a desire has been felt to carry out several important improvements, which were not included in Mr. Scott's first estimate, but strongly recommended by him. The essential points of this enlarged plan include a new porch, the restoration of the exterior of the tower, the complete renewing of the stonework of the windows, &c., and involve an additional outlay of 600*l.*

Hulme (Manchester).—The chief stone of this church has been laid. The site is in Erskine-street. The building will be in the Pointed style, in red brick, with bands of dark blue. The window tracery and other decorative features will be of stone. The chancel will have a circular-ended apex, and over its western bay will be the steeple, so that the place for the choir will be underneath the tower. Acoustic advantages will be aimed at, as by other means, so particularly by the placing of a flat boarded ceiling over the choir. The site for the font appears to have been so designed that the sacrament of baptism will be received in the sight of the whole congregation. Great pains are to be taken with the interior, &c. This will be of red and white brick (unplastered), and the work will be so arranged that the church will be capable, at any future time, of receiving a high degree of finished decoration. The carving of the pillars, for instance, need be limited only by the state of the funds. Again, at the eastern end there will be marble and stone to be relieved and enriched. The sittings will be for 750 people, and the seats, if not of rush chairs, will be low open benches. The architect is Mr. J. M. Taylor.

East Raynham, Norfolk.—The Marquis Townshend is restoring, or, more properly speaking, rebuilding the church in connexion with his family seat at East Raynham. The rector, the Rev. R. Phayre is completing the work by rebuilding the chancel. The architects are Messrs. Clark & Holland, of Newmarket; and the whole of the works are being carried out by Mr. W. Hubbard, of East Dereham.

Sacriston (Durham).—The church of St. Peter's, Sacriston, has been consecrated by the Bishop of Durham. Sacriston is a colliery village situated about four miles from the City of Durham, and notwithstanding that it possesses one or two dissenting chapels, it is only now that it can boast of having a church. This is one of the first churches erected partly by the aid of the Bishop of Durham's Church Building Fund, from which 400*l.* were appropriated. The style of architecture is Early Gothic. The plan of the edifice consists of a nave, with porch, chancel, and vestry. In the north wall of the nave aisle, arches and columns have been inserted, in order—should circumstances require it—that an aisle may be added at some future period, and so complete the design without incurring the necessity of removing the nave roof. The chancel finishes with an apse, forming three bays. The centre bay is in the form of a gable, and hipped back into the apsed roof. A three-light tracery window is inserted in the centre bay, with small tracery windows on each side. At the west end there are three pointed windows, surmounted by a large rose window and double belfry. Entering the church by the south porch, the principal features of the design have been studied to afford an internal effect by grouping the spandrel timbers of the apse and chancel roof, the chancel arch, and tracery windows, so as to form a perspective view from the nave. All the seats are free. The nave and chancel will accommodate 219 adults and 48 children. When the new aisle is added the church will accommodate 464 persons. The cost is a little over 1,700*l.* The whole of the work has been executed by Mr. Thornton, mason; Mr. Sanderson, joiner; Mr. Laidler, plumber; Mr. Hodgson, painter; Mr. Rule, slater; and Mr. R. Mole, plasterer, all of Durham. The church is from designs by Mr. T. C. Ebdy, of that city, architect.

Tunbridge Wells.—St. Mark's Church, Broadwater Down, has been consecrated. The edifice stands on the estate of the Earl of Abergavenny, and has been built, together with the parsonage adjoining, entirely at his cost. The church is built principally with native stone, from the earl's estate. The texture of the stone is cemented by iron in various conditions of oxidation, whilst it is of a varied colour and very hard. Most of the ancient churches in the vicinity have been built of this stone. The dressings are in Bath stone, and the native stone is used for scalped rustic work. Over the principal entrance is sculptured a figure of St. Mark. The style adopted by the architect has its principal type drawn from the French churches of the middle of the fourteenth century. The walls are lined with hard bricks, having a space left between the inner and outer castings, bonded together with a patent adamantine brick, to prevent the damp from penetrating. In plan the church is cruciform, with a tower for bells at the north-west angle, crowned by an octagonal spire, the whole being 132 ft. high, whilst the length of the church is estimated at 124 ft., by a width across the transept of 76 ft. There is a nave, with side aisles, transepts, and a deep chancel with a semi-octagonal apse. At the sides of the chancel are a vestry chamber and an organ room, in which an organ now building is intended to be placed. The chancel is raised above the nave five steps. The roof is an open timber one, forming a corona over the communion. It is decorated with colour and gilding, and the spaces of wall over the windows are filled in with Mediæval arabesques. The windows are sparingly filled in with tinted and stained glass. The body of the church and the transepts are filled up with pews, which will accommodate about 600 persons. The nave and transept roofs are open timberwork. The capitals of the columns are carved. There is a double range of clerestory windows above the arcade, filled in with stained and tinted glass. The architect is Mr. R. L. Roumieu, who has also designed the parsonage-house adjoining; and both church and parsonage have been built by Mr. Mansfield, the lessee of the Broadwater Down Estate.

DISSENTING CHURCH-BUILDING NEWS.

Kirkdale.—The Congregational Church, Chadwick Mount, Kirkdale, has been opened for divine service. The building has been designed with special reference to the site it occupies. The adjoining buildings are of a classical character, and the aim of the architect has been to produce a design that will harmonise with them. The style adopted is the Roman Ionic of the time of Palladio, freely treated. The church is approached by a flight of steps, and is entered through a vestibule, or recessed portico, which gives access to an aisle at each side, dividing the interior of the building into three parts. The dimensions of the church are 66 ft. long by 33 ft. wide, or an exact double square. The ceiling is divided into bays by the principals being ceiled at the upper parts of the tie-beams. The pulpit-platform is backed by an elliptical, coved recess, formed of resonant materials, with hollows for throwing forward the voice of the preacher. There are two large vestries behind, with separate entrance. The church will seat upwards of 300 people on the ground-floor. Beneath the church and vestries are a large school-room, the size of the church, and class-rooms, all entered on the level of the land behind the balustraded terrace, the whole lighted by a double range of windows, free from obstructions. The total cost of the buildings will be 1,500*l.*, which will include painting, decorating, forming approaches, &c. Mr. H. H. Vale, of Liverpool, was the architect, and Mr. Edwards, of Bootle, the builder.

Halsted.—The new Congregational Chapel has been opened for divine service. The building is in the Gothic style, and has cost about 4,500*l.*, inclusive of internal fittings. Accommodation is provided for between 700 and 800 persons. The plan is a parallelogram, with an apsidal end; the extreme width from north to south being 70 ft., and from east to west, 42 ft., with transepts 60 ft. wide. The roof is divided transversely into three spans, with arched principals in the centre, 45 ft. high, and trussed banner beams on each side, supported on cast-iron columns, with ornamental capitals; longitudinally there are three arches over the columns on each side, and one wider arch over each transept. The timbers are wrought and stained; and the ceiling, varnished boarding, open to view. The galleries, which extend round the sides of the chapel, are approached by two staircases in the front, and two others attached to the transepts. On the west side, attached to the transept is a tower containing one of the staircases, surmounted by a stone spire 110 ft. high. The roofs are slated, and the ridges finished with ornamental cresting. Kentish rag, with Caen stone dressings, have been employed in the exterior work. Under the chapel is a schoolroom capable of accommodating 360 children. Mr. F. Barnes, of Ipswich, was the architect; and Messrs. Sudbury & Son, of Halsted, were the builders.

Pembrey.—The foundation stone of an English Wesleyan Chapel has been laid at Pembrey. The edifice is calculated to seat about 250 persons, and is to be built in the Gothic style, from plans furnished by Mr. D. Stringer.

Mossley.—The memorial stone of a new Wesleyan chapel and schools has been laid at Mossley. The building will be erected on a site in Stamford-road, and will comprise a school on the basement, with chapel above, which, by the aid of a gallery, will seat 600 persons. There will also be four class-rooms and vestry, as well as the usual offices. The style of architecture is Lombardo-Venetian, and the estimated cost a little over 2,000*l.* The architect is Mr. W. Williamson, of Manchester.

Huddersfield.—The chief stone of an Independent chapel at Moldgreen, near Huddersfield, has been laid. The plans are by Messrs. Healey, of Bradford, and the cost will be 3,000*l.*, including the site; the chapel to seat from 700 to 800 persons, and the school to accommodate from 400 to 500 scholars.

Bury.—The Northgate-street Independent Chapel has been closed for the last three months during the time that extensive alterations and repairs, including the erection of a new front, have been going on. The new front is substantially built of white brick and stone, from designs by Messrs. Bacon & Bell, of this town and London, the builder being Mr. W. Rednall, of Northgate-street. The total cost is between 600*l.* and 700*l.*

Books Received.

Le Moniteur des Architectes: Revue Mensuelle de l'Art Architectural, Ancien et Moderne. Paris: Lévy. London: J. M. Boekbinder, 67, Berners-street.

THE new series of this useful publication, issued under the direction of M. A. Normand, the architect of Prince Napoleon's Pompeian villa in Paris, shows considerable improvement. Each No. contains 6 quarto engravings, illustrating ancient and modern work, with 8 pages of letter-press. The number for July now before us includes details of the Pompeian villa; details of a Paris house designed by M. A. Lance; fragments from the Museum of Toulouse; and a large view of the parish church of Argenteuil, designed by M. Ballu, an example of modern French round-arch Gothic.

rworks: Borough of Liverpool. Report on e proposed Supply of Water to Liverpool from la Lake, in North Wales. By ROBERT WLINSON, Esq., C.B., C.E., &c. Waterlow Sons, Printers, Parliament-street, West-inster. 1866.

RAWLINSON was the original proposer of plan of water supply to Liverpool from Bala e, the rival scheme to which was the ngton Pike supply, which was carried out, now appears to have been a failure. Mr. linson's plan, though laid before the Liver- Corporation twenty years ago, has never ow been published. The Corporation have the Bala scheme under re-consideration, and ough, in the meantime, they are endeavour- to ascertain to what extent more local and ady available sources can be extended, it is able that they will be forced to come back ast to Mr. Rawlinson's plan, whereby an ndance of unusually pure water may be had he supply of the whole borough from Bala e, as well as of other towns, such as Chester, enhead, Runcorn, Warrington, and even chester.

Valton's Labour Wages Table.—Another pub-ion on labour wages calculations has been ed (Whittaker & Co., London, publishers). in a tabular form, and gives at a glance the unt of wages from one hour to sixty, and from o 6s. per day. The form is convenient for es.

legraphic.—A small pamphlet, by Mr. W. H. ce, C.E., titled "Electrical Intercommunica- in Trains in Motion," is in circulation. It escriptive of the system of intercommunica- in trains in motion which has been in prac- use on the South-Western Railway since uary, 1865; on the Midland Railway since h; and on the Great Northern Railway since l last. The system is said to have shown to be perfectly practical, and free from objection, and has met with considerable oval from the railway officials.

Miscellanea.

ISCOVERIES AT THE ROMAN SILCHESTER, NEAR NGSTOKE. — Some curious discoveries have itly been made on the site of the ancient shand Roman capital of southern Britain, and been already briefly alluded to in our pages. main street and a street running from it been laid open, together with two large an houses with tesselated pavements. The which surrounded the capital were three in length. The site of the amphitheatre been found, and an admission-pass like the bone passes of the present day dug out. connected with periods anterior to the of our Saviour have also been found. A has turned up on which some Roman had cut the words relating to "my lass," my girl." Roman toothpicks, earpicks, ors, and other things, have been met with. ester is the property of the Duke of Wel-on. The South of England Literary and sophical Society lately paid a visit to Sil-er, where the Rev. J. G. Joyce gave a ription of the city and the excavations. The f the temple is known, and it will one e explored.

W IRON-PRESERVING AGENT.—Dr. Henry rd Francis de Briou, a Paris physician, who tany years has resided in England, has dis-ed and patented a process for preparing indiа-rubber an *enamel paint*, which is ab-ply proof against the action of the atmo-e, as well as against the power of all liquids ding the most potent acids), to affect iron. ereparation is applied cold and in a liquid and in consistency and general appearance sembles such common oil-paint as is ordi-r used for iron-work. It may be applied ease; but of course it is necessary that the ss of application should be conducted with care as will insure a complete covering of rfaces to be protected. This covering may thin that its presence cannot be detected; it leaves the protected surfaces in all their ral sharply-defined freshness. It hardens at once, and immediately forms a smooth sustrous enamel-like covering, air-proof, -proof, water-proof, and acid-proof. Thus ected the iron is safe. Rust cannot accu-te on the surface of this enamel-paint, nor e beneath it.—*Art-Journal.*

A SEA SUBURB OF LIVERPOOL.—Two crescents are proposed to be built at Blundellsands, the larger of which, to be called Minie-crescent, has just been commenced. The foundation-stone of the first house was laid on Wednesday afternoon by Miss Blundell, eldest daughter of the proprietor of the estate. The plan, prepared by Messrs. Reade & Goodison, represents two crescents of picturesque outline, containing about forty houses.

PHOTOGRAPHERS AT THE LOUVRE.—In consequence of the carelessness of photographers in the galleries of the Louvre, M. le Comte de Nieuwerkerke has issued an order suspending all permissions to photograph until further notice. It appears that the "artists" exhibit a great deal of negligence in their operations, and are in the habit of upsetting their chemicals on the floors of the apartments, which they treat as if they were their own operating rooms.

DEPOLARIZATION OF THE "NORTHUMBERLAND."—It is stated that the magnetic polarization developed in this iron ship, from having been built in a north and south position, has been destroyed by reversing that position and demagnetizing her by means of two of Grove's batteries of five cells each, and electro-magnets, applied by Mr. Evan Hopkins, on a plan suggested by him for the purpose of depolarizing the ship. The *Minotaur*, which was built head north, like the *Northumberland*, cannot be safely navigated in a fog from a similar polarization. It is supposed the whole of our iron fleet will require to be submitted to Mr. Hopkins's process.

IMPORTANT DISCOVERY.—A discovery of considerable interest is reported from South Wales. It is well known that during the process of copper-smelting fumes of the sulphuric acid are given off in great quantity, the effect of which is in all ways most deleterious. The herbage is destroyed for miles round, and the country, which might be rich and productive, is turned into a treeless desert. Thanks, however, to a process which has just been discovered, this state of things is said to be no longer likely to continue. The sulphuric acid, instead of being poured into the air to poison it, will be condensed, and the product utilised. The results will be varied and important.

RUGBY BLUE LIAS LIME, CEMENT, AND BRICK COMPANY.—The proprietors of these works having recently placed and started on their premises a new mill and engine of great power, with the most modern improvements, invited their employés to a dinner, in celebration of their progress thus far. There were present about 150 men. The machinery is so constructed that by the action of the three pairs of stones, each pair will produce 40 3-bhl. sacks of cement hourly, which will thus be, both by day and night, prepared for dispatch. The cement and lime-stone is obtained from large quarries, from the most distant of which it is intended to be conveyed by tram-railway direct to the kiln; through which, having been burnt as lime, it descends to another tram-railway, from which it is again raised by tram-railway to the mill for grinding. These works have benefited by the experience of Mr. L. M. Tatham, who was the means of introducing, some twenty-five years since, the Blue Lias Lime into the London markets.

SALE OF THE ARBORETUM AT WORCESTER.—It may be that those ratepayers who refused to add 5,000*l.* to Lord Dudley's offered gift of 5,000*l.*, in order to secure an excellent recreation-ground by a voluntary rate,—their principle being "No rates for nothing,"—had the beggarly expectation that Lord Dudley would himself supply their deficiency by increasing his gift to 10,000*l.*; but if so they have been sadly mistaken. The beautiful grounds have been cut up into 100 lots, and sold for building purposes. According to the proposed plan there will be eight streets. Twelve houses will have a frontage to Sansome-walk. The existing main path will remain, and from the right side of it another street will be carried across the present cricket-ground to the railway. About seventy yards north of the lodge a road will be made which will pass through the present gardens and meet a transverse street at the bottom, extending the whole breadth of the gardens. Other roads will be made. The total sum realised was 9,726*l.*, being an average of about 6s. 1d. per square yard; that is, about 1,472*l.* per acre. The highest price for any lot was a trifle over 10s. per yard. One acre has been sold by private contract for 1,000*l.*, so that the whole proceeds are nearly 11,000*l.*

THE PULPIT AT BEAULIEU, HANTS.—Sir: In Parker's "Glossary," the pulpit at Beaulieu, Hants, is shown with a *battlemented* cornice. In Weale's "Quarterly Papers" the cornice of this pulpit is shown with *no battlement*. Can any of your correspondents tell me which is right? It is an interesting point. If the battlement is correct, it is, I think, the earliest instance of its occurring as an ornamental adjunct in this way.—P. E. M.

DISCOVERY OF ANCIENT WALL PAINTINGS.—Conisbro' Church is at present undergoing restoration, and during the process of removing the plaster, &c., from the walls, some early paintings have been brought to light. They are somewhat roughly executed, in a bright red colour. They are, unfortunately, far from perfect, but enough remains to show the whole church has at one time been an illustration of sacred story. The subject of the painting at present most laid bare is apparently the expulsion of Adam and Eve from Eden.

ARCHITECTURAL COMPETITION IN BELGIUM.—The authorities of Charleroi invite foreign as well as Belgian architects to submit plans for the enlargement of the town, the demolition of its fortifications, and the reconstruction of its railway station. The first premium is 200*l.*, but it is not stated whether the recipient will be entrusted to carry out his design; the next best design to receive 80*l.* The prize plans to remain the property of the municipality, which, moreover, reserves to itself the right of purchasing any of the others for the sum of 20*l.* each.

LANDSCAPE GARDENING. — Sir: Landscape gardening is a thorough contradiction of the fundamental and philosophical principles of design. Anything executed by man should show distinctly its human origin, it should show design, design carried out on the accepted human principles; but a landscape garden is a bad imitation of nature by man, it has no *human* design. It is absurd because not human. Nature turned out to order is ludicrous. The old gardens of Le Notre, to my mind, were, on the contrary, excellent: they showed distinctly their human origin by human principles of design.—ALPHA.

THE NEW CHEMICAL LABORATORIES AT BONN AND BERLIN.—One of the appendices to the thirteenth report of the Department of Science and Art, contains a report by Professor Hofmann, on the laboratories now being built under his superintendence, at Bonn and Berlin, the report having been got by the application of our Government to that of Prussia. The Bonn Laboratory will be completed next summer. The plans were drawn out by Mr. Augustus Dieckhoff, architect to the University, and the construction has been intrusted to a young architect named Jacob Neumann. The cost will be 18,450*l.* The Institution is intended for sixty students. The street front of the building is 180 ft. in length, and the side front 250 ft.

RE-OPENING OF JOHN-STREET CHAPEL, BEDFORD-ROW.—This place of worship has for some time been undergoing extensive repairs and alterations, but has now been re-opened. The alterations, which have been carried out under the direction of Mr. Thomas Dabbs, have extended to the external as well as the internal arrangements of the building. The front has been enlarged by the addition of two stone staircases for the galleries. The old portico has been removed to make way for a new one with ornamental balustrades and columns. The front court area will be enclosed within an ornamental iron railing, the principal entrance being opposite the portico, but with additional gates for those leaving by the side entrances. A class-room has been added to the exterior of the building for a Bible-class on Sundays. The cost of this room has been defrayed by the class. Within the old chapel the alterations have been considerable. The old pews have been removed, and their place supplied by those of a modern style, uniformly cushioned. An enriched cove ceiling has been introduced into the roof, thus raising it 9 ft. above the old ceiling. Two sunlights, supplied by Mr. Hulett, of Holborn, have been introduced into the roof, and these give light to the galleries and the central division of the building. The galleries have been lowered 3 ft., and are surrounded by gilt bronze open rails. A new pulpit, with ornamental panels, has been put up. The alterations and additions have cost about 2,000*l.*

THEATRE BURNT.—The principal theatre in Constantinople, worth 10,000,000 piastres, has been destroyed by fire.

THE BRITISH ASSOCIATION'S NEXT YEAR'S MEETING.—It has been decided that the next meeting of the Association shall be held in Dundee, which has been for six years a suppliant for the honour.

FORTHCOMING INDUSTRIAL EXHIBITION AT THE AGRICULTURAL HALL.—Extensive preparations are in progress at the Agricultural Hall, Islington, to meet the requirements of the forthcoming Metropolitan and Provincial Working Classes' Exhibition and Industrial Festival, appointed to commence on September 3. This exhibition has been proposed and taken in hand by the same committee of gentlemen and guarantors and the same management as that of the first working classes' exhibition of any magnitude in London, held at the Agricultural Hall in 1864. There will be facilities for the sale of the articles; machinery in motion; musical gatherings; lectures on popular subjects; manufacturing processes in operation; flower shows; *conversaziones* of masters and workmen; free admission to schools, free reading-room, &c. The exhibition will be opened by Mr. Hanbury, the member for Middlesex.

GAS. — The Liverpool Gas Company have declared their usual dividend at the rate of 10 per cent. per annum. Since the last reduction in price from 3s. 6d. to 3s. 4d. outside the borough, and from 3s. 2d. to 3s. within its limits, the increased consumption of gas has amounted to 69,000,000 cubic feet, which is about 5½ per cent. upon the total consumption.——The Cardiff Gaslight and Coke Company have also declared a dividend for the last half-year, at the rate of 10 per cent. per annum on old shares, and 8 per cent. on new.——The Hertford Gas Company have announced a dividend of 7½ per cent., free of income-tax.——At the annual meeting of the Eastbourne Gas Company, a 10 per cent. dividend was declared, and the directors in their report stated, that notwithstanding the price of gas had been reduced from 5s. 10d. to 5s., the receipts under that head had increased 300*l*. The works are to be increased.

THE "DRY-LIVERS" OF BERLIN. — Building speculations have of late been very extensive in Berlin, and a system is practised of turning all sorts of poor people into the new and raw houses, rent free, in order to heat and prepare them for their future tenants. An amusing account of this "dry-living" process is given by the *Pall Mall Gazette*, according to which the first corps of *quasi* tenants is not the only one of the sort; for as these are driven upstairs to the higher flats of the tenements a rather better class of people are admitted into the lower floors on somewhat similar terms, and continue there till the rooms be thoroughly tempered and dried. Meantime the speculators take this opportunity of selling the buildings to advantage as tenanted property if they can. The apartments, it seems, are from the outset decorated and finished as they are intended for the ultimate tenants, but how the rif-raf tenantry are prevented from dirtying them, or introducing another class of tenantry of a still worse desciption, the German newspapers, whence the *Pall Mall Gazette* obtains its information, do not seem to say.

GREAT FIRE AT HOLLAND & HANNEN'S.—A disastrous conflagration has taken place in the extensive workshops of Messrs. Holland & Hannen, builders, Duke-street, Bloomsbury. The shops, stores, stables, &c., covered a large area of ground, and contained an immense quantity of goods, and, owing to their inflammable nature, the flames made fearful progress before the arrival of the engines. The engine-room, sawmills, plasterers' shop, joiners' shops, smiths' shops, painters' shop, and stables were one mass of flame. Floor after floor and roof after roof fell in. The offices and the foreman's residence were in a blaze from top to bottom, and other premises were soon ignited. The water thrown into the burning pile seemed to have but little effect. The amount of property destroyed must be immense, and unfortunately a great number of men have lost their tools, besides being thrown out of employment. Messrs. Holland & Hannen are insured. As to the origin of the fire, the only feasible conclusion arrived at is that some live embers may have been left unperceived in one of the furnace holes, and, blowing up, communicated with the timber in the factories.

EXCURSIONS.—Accounts of a number of excursions by the *employés* of various firms, who regaled them handsomely, have reached us. Each has equal claims for space, and we have not room for all.

FALL OF AN ARCH OF THE NEWCASTLE NEW THEATRE.—On Wednesday, about 4 p.m., one of the large arches which has been built at the theatre, in Westgate-street, Newcastle, fell to the ground, creating great alarm. Fortunately no other damage was done.

SALE OF A THEATRE.—The Prince of Wales's Theatre, at Birmingham, has been sold by auction. The property, including the piece of frontage land, was put up at 3,000*l*. The biddings afterwards advanced to 3,800*l*., at which sum the lot was knocked down to Mr. James Rogers, proprietor of the Worcester, Lichfield, and Hanley Theatres. The sale took place at the instance of the mortgagee, who will barely realise the sum advanced upon the property. About 18,000*l*. have been spent upon the buildings. The theatre was let to Mr. Swanborough for more than 1,000*l*. a year, and even now Mrs. Macready offers 600*l*. a year rent, on a lease.

PROPOSED HARBOUR OF REFUGE WORKS AT HARTLEPOOL.—The Hartlepool Port and Harbour Commissioners, at a recent meeting, appointed a committee to go to the Tyne to inspect the piers and other works at the entrance of that river, to observe the effect produced upon the tidal waters, and ascertain the benefit that the port has received from the construction of the piers, the expense of the structures, and their mode of construction, &c. The object of the visit is in consequence of the Hartlepool Port and Harbour Commissioners having in contemplation the erection of similar refuge works at Hartlepool. It is expected that about 300,000*l*. will be raised to erect these works.

A GIGANTIC GASLIGHT.—For the last three months or so Mr. Blyth, mining engineer, has been employed prosecuting a bore in search of ironstone in a field on the estate of Sir William Stirling-Maxwell, of Pollok. Their proceedings, however, were lately stopped by an issue of natural gas or fire-damp which accidently caught fire. The boring apparatus had to be torn down, and the rods left in the bore, which is 2¾ in., and has now attained a depth of 420 ft. and passed through the sandstone strata. The flames reached from 20 to 30 ft. in height. They were of very brilliant shades of blue, yellow, green, and orange. After burning for some time the jet went out of itself.

THE TRADES MOVEMENT.—About 1,700 of the 2,300 carpenters in Manchester and Salford have been locked out, in consequence of the strike for 2s. advance on three months' notice. The masters required six months' notice; but the men say it was the masters who refused to adopt the six months' clause in the trade-rules, and that therefore they cannot be considered to claim a six months' notice in the present instance, the six months' clause, as it stands, only relating to hours of labour. —— The London painters in the employ of Mr. Crace have had a strike for 7½*d*. per hour as the minimum standard rate of wages. Mr. Crace wrote the strike committee as follows, having left the Masters' Association:—"As all my painters, except the foreman, have struck, and as no painters will come to work while the strike lasts, it is useless for me to hold out longer against the men; I therefore agree to pay 7½d. per hour to all the painters in my employ as the minimum rate of wages."

RATING OF GASWORKS.—The Phœnix Gas Company were rated to the poor-rate of Lee in respect of the occupation of land by their pipes; and, upon appeal, they claimed deductions in respect of their meters, retorts, purifiers, steam-engines, boilers, and gasholders. The meters were supplied by the company to each consumer upon his premises, and were their property. The other articles were such as are ordinarily found and used in gasworks, and such as a tenant carrying on such works would have to take to and find capital for working. The Sessions allowed deductions for all these, and reduced the rate accordingly. It was held by the Court of Queen's Bench that all the above, except the meters, should be considered as forming, if not part of the freehold, still so far connected with it as intended to be permanently attached to it, and therefore should be taken into account in determining the rateable value of the land so occupied by the pipes. This was the case of The Queen *v.* The Inhabitants of Lee.

THE HEADS IN FRONT OF THE SHELDONIAN THEATRE, OXFORD. — These well-known busts are now being removed from their position by order of the curators, the workmen having commenced operations. Their remaining long has been jeopardised by the displacement of the foundation. Some of them lean as much as 9 in. out of the perpendicular, and toward the street. They are consequently unsafe, and hence the order for their removal; but according to the local *Journal*, it has not yet been determined whether they shall be restored or the places simply filled by other ornaments. The work is being done by Mr. Gardiner, builder.

WOOD PRESERVING.—The process of preserving wood from decay, invented by Mr. L. S. Robbins of New York, is to be worked in this country by the "British Patent Wood Preserving Company." Mr. Robbins's process consists in first removing the surface moisture from the wood, and then charging and saturating it with hot oleaginous vapours and compounds. It is pointed out that albumen is the constituent in wood which first decomposes; and herein the process of decay and putrefaction commences, and it proceeds until the woody tissue is destroyed. But the albumen in the sap is coagulated by the application of heat, and also by the antiseptic power of creosote, which the oleaginous vapours deposit in the cellular tissue. Coagulated albumen is insoluble in water, and hence it is not likely to be changed by exposure to a humid atmosphere. As the Robbins process applies the preserving material in the form of vapour, the wood is left clean, and after a few hours' exposure to the air it is said to be fit to be handled for any purposes in which elegant workmanship is required. Neither science nor extraordinary skill is required in conducting the process, and the treatment under the patent is said to involve only a trifling expense.

ST. MARY'S CHURCH, WARE.—The organ of St. Mary's, Ware, built by James Bishop, was one of the first he ever erected for a church. It was formerly placed in an unsightly gallery over the west entrance; but about eighteen years ago, when the church was restored, under direction of Mr. Godwin, it was removed to a chamber which has two arches, one in the chancel, facing the south, and the other in the north transept, facing the west. This chamber is of larger dimensions than required, and the organ was placed quite at the back with front and manuals to the west, the choir sitting actually within the chamber. Four years ago extensive alterations were made in the organ under the superintendence of Mr. Forster, of the firm of Forster & Andrews, of Hull. The uncouth casing has been removed, and a reformation has been brought about, with the aid of designs and suggestions, partly furnished by Mr. Alfred Bishop, the organist. The front, comprising forward from the arch into the chancel, is stained and varnished, and fitted with illuminated pipes, and the same design is repeated in the arch of the north transept. The tone is also improved, and the power of the instrument increased. The cost will be defrayed by subscription, which Mr. Gisby, the churchwarden, is endeavouring to raise.

THE EVICTIONS IN HOLBORN.—A public open-air meeting has been held in Bleeding Heart-yard, Holborn, to consider the removal and eviction of the poor in this district, in consequence of their dwellings being required for the improvements in Holborn-valley. A pile of wood in the yard formed the rostrum from which the speakers addressed a crowd of wretchedly-dressed but well-behaved people, who cheered every expression of sympathy with them. Mr. George Brooke, salesman, of Newgate-market, occupied the post of president. He said that many of the people living in the adjoining Union-row might be said to be Irish, and, therefore, accustomed to evictions in their own country; but here, at least, where they had been driven, they ought to have received greater consideration. The resolutions, which were unanimously passed, were to the following effect:—"That this meeting is of opinion that the crowded condition of the poor in streets, courts, and alleys, in houses not fit for human habitation, is an evil of such magnitude in this city as to call for the immediate attention of the Legislature;" and "That it was the imperative duty of the public to demand that whenever densely-populated districts are being destroyed for any improvements houses should be temporarily prepared for the poor, and all needful expenses paid to compensate for the removal."

The Builder.

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How to Replace our Wooden Walls.

IT has often been observed that the course and the main events of a battle are but dimly and indistinctly appreciated by those who are most fully enveloped in the smoke and the din of the actual shock. The confusion of the *mêlée* is one thing; the *coup d'œil* that embraces the dispositions of the hostile

s is another; and, while the great captain, ved to some point of vantage from which glass can sweep over the whole of the ested field, or even, at some moment of me crisis, adding his own sabre to the ht of a decisive charge, will ever keep nt to his mind the chief features of the gle as a whole, the subalterns will have attention riveted on their own special ons of service, and the private can but pected to do his duty, or to await orders, e spot to which the complex movement e mighty organism of which he is but chanical unit has taken him, as it were, by e. It is from this impossibility that the ers constituting the mass should compre- the actual position, from hour to hour, of ody of which they form a part, that panic fatal to an army. An unexpected terror ng a few soldiers, and thrilling with such as to overthrow for a moment all soldier- ualities in them, is propagated from man n and from rank to rank with an electric ity of contagion such as that which may en at times to prevail in troops of wild or in herds of deer; and a few minutes hecked, unreasoning panic fear will suf- convert an army into a mob, a check into , and to bring the crown worn for centuries martial race beneath the ruin of an irre- le disaster.

uch be the case with regard to events , compact in the unity of time, of place, persons, may pass beneath the eye of a laced and cool-headed observer, how much is it to be expected to occur when the ion is directed to the *ensemble* of these , the record of which gives the materials temporary history. How small and narrow e objects for which so many of the indi- actors in the scene are contending. A a legislative assembly, a place or a ribbon, snatched by good generalship, or the cent applause that rewards an oratorical —such motives as these are far from the most petty and insignificant by which nd are moved. Hunger or sleepiness, the to hasten one's dinner by a quarter of an r to get a good night's rest, are influences ave determined many a division, and that ffect the legislation of a country, where ction is committed to the haphazard of majority and minority, for more than a single lifetime. And if we look at the more prominent figures in party struggles or in political life, if we give the benefit of a large and charitable doubt as to the question how far they are actuated by mean or unworthy motives, still, how much room is there for the unavoidable influence of ignorance, of haste, of unconscious prejudice? Here it is a narrow, though a genuine, patriotism; there it is an uninformed, though a generous, philanthropy; in a third place, it is that sentiment which, according to its justice or the reverse, becomes either a noble self-reliance or a ridiculous self-conceit, that disturbs the calm, clear, philosophical ken which should precede the action of of political life. You meet politicians, as they call themselves—men ready enough to preach and to quarrel, in every alehouse; the man to whom politics are a science is as rare as is the great soldier.

Nor, again, are those publicists and popular writers on whose pens devolves the important task of presenting to the eyes of the million a faithful summary of the events of the day or of the week, less liable to be affected by disturbing influence. Almost every journal has its public, and its tone, and is in the habit of viewing occurrences through spectacles of its own focus and its own tint. The actions of public men are thus described in opposite lights as they are regarded from opposite points of view. Here you see a man whom force or fraud has raised to so commanding a position, that all he does seems good in the eyes of those who chronicle his movements. There you see a noble deed misrepresented and the man sacrificed.

Apart from all these disturbing causes, there is so much in the magnitude and the number of the stirring events of the history now transacting under our eyes, that the task of rightly appreciating their gist and bearing, and deducing the true lessons which they teach, is one of great delicacy and difficulty. It is as hard to read history in telegrams and correspondents' letters as it is easy to join in the enthusiasm awakened by a great victory, or to share in the depression following a great disaster. The lessons most needful to ourselves to be drawn from the struggles of the time are those which regard the defence of our own homes from possible danger, and even these it is not easy to draw without hesitation.

To the military points of instruction to be derived from the campaign of 1866, we have already adverted. The efficient organisation of the Prussian army, the high education of the officers, and of the men of all ranks, the free and eager adoption of every appliance of science, in arms, in projectiles, in telegraphy, all these are matters of full discussion among those whose *métier* it is to know how to fight. And the one important fact, that the engineer is gaining ground on the soldier, so that the soldier, to hold his own in the field, must more and more become an engineer, is one on which we have found good reason to insist.

But the lessons of the present year as to naval warfare and naval architecture are less ready to read. In the great military revolution now taking place it is difficult to co-ordinate some of the new observations. It is as perplexing as it is important, to understand fully the battle of Lissa.

The main facts and outline of this battle, when cleared from the mist of the systematic, though sometimes unconscious, mendacity of the Italian accounts, are plain and undeniable. The interest to ourselves, as a people whose independence and welfare have been so long thought to depend on our naval eminence, is concentrated on two questions. How far does the return to the naval tactics of the Greeks and Romans, to the attempt to decide naval fights by the impact of vessel against vessel, appear to suit our present system of ship building? We say our, as meaning that most prevalent in our time; for, to our shame be it spoken, we seem at the present time to have no system of our own. And, secondly, why was a larger fleet, with more expensive vessels, and heavier guns, defeated with unrequited loss by a less numerous, worse armed, numerically and nautically inferior force, defeated with the loss of two of its finest vessels in action, while the invincible ram on which the admiral hoisted his flag only made her way from the scene of action to go down like a Thames coal lighter beneath the feminine fury of an Adriatic burrasque.

The simplest, the rudest, the most ancient idea of naval fighting is to bump against your enemy. A square, forcible blow, well delivered on the flank of an opponent, is very likely to cause him to founder, then and there. Even such a blow as this, if by skilful manœuvring it can be given and none taken in return, must give a serious shock to the structure of the attacking vessel. If she be provided with a beak for the purpose of piercing and tearing the timbers of the enemy, there is a great chance of this weapon becoming fixed in the wound which it inflicts, and of striking and stricken vessel going down together, or of the former sharing the fate of the angry bee that has driven its sting too deeply into the unwary visitor of the hive. And in the general *mêlée* of a naval battle in which ships try to foul one another a very general and serious damage to each fleet must be regarded as certain—a damage, moreover, of an undecisive and unsatisfactory kind. Boarding, one of the main features of ancient, and also of modern, naval battles, seems rendered all but impossible by the velocity at which, by the use of the steam engine, vessels of war are now propelled, and by the form of the turret-ship. So that the chance of running down one or more of the enemy, with the certainty of rendering your own vessels unseaworthy, seems to be the result of reverting to the naval tactics of the date of the battle of Salamis.

In the harbours of Syracuse, or among the indented bays and islets of the Grecian coast, it was well enough for the galleys of the Alexandrine or the Augustine ages to bump each other in this primitive fashion. The Mediterranean sailors are still accustomed to lose their open undecked boats whenever such a puff of wind as calls out English ladies to enjoy the Brighton Pier alarms the land-locked calm of the Bay of Naples. The combatants, it was to be hoped or expected, could generally swim, the distance from shore was small, and the damage done, after all, was far from irreparable. But nations that have been bred to the navigation of the Atlantic and the giant billows of the Cape have learned to look at sea-room as the first element of naval life. People who have set afloat those great castles that are now riding idly at Portsmouth, at a cost of more than 1,000*l.* per gun, and of more than 10*s.* per cubic foot of timber, are unwilling to dash their costly sentinels of the deep, without rule or purpose, against their opponents. To sink or damage by solid shot, to clear or set on fire by shell, to board during the confusion caused by a well-aimed and well-sustained fire, such are the ideas we have entertained of the way to fight at sea, and the upshot of the battle of Lissa is hardly such as to induce us yet to return to the tactics of Themistocles or of Sextus Pompeius.

In even fight, in open sea, and in deep water, any well-taught sailor or practical mechanic would need some very overpowering inducement to lead him to peril all beneath his command by treating his and his enemies' vessels as school-boys do walnut-shells when they "cob" them. If war is hereafter to be put an end to by making the weapons of destruction so fatal that no combatants will be left alive on the field, naval fights on the principle of those formerly carried on by triremes will certainly be among the most expeditious means of accomplishing this end. To

destroy, or to damage, your enemy is of course the aim of war. But this is not to be done without regard to the principles which, as Monsieur Jourdain explained to his maid Nicole, regulate the science of fencing. To give,—and not to receive,—to strike and to ward, were rightly explained by that immortal authority as constituting the art of attack and defence; and although the practical reply of Nicole, who pushed in carte when her master was intending to ward in tierce, demolished the guard of the lecturer, it did not overset his maxims. Let us give all the attention that is possible to artillery, and to the great object of speed at sea, as well as to the attainment of the best form of floating battery or gun-carriage. But if we attempt to build our vessels to act as triremes, we shall be likely to neglect that which is within the province of mechanics for that which is not. A heavy vessel may run down a light one with little damage to herself, but when ship runs against ship, weight for weight, the reciprocal damage is likely to be tolerably balanced, and eminently unsatisfactory, — the only decided advantage being in favour of the squadron that is nearest to a friendly port.

If these views be correct—and it is hard to say what military reason can be urged to outweigh their mechanical truth—the battle of Lissa must be regarded as a scramble rather than a manœuvre, as a shoal to be avoided rather than as a beacon to guide us on our course. But how was it, that in that scramble the strongest went to the wall? How was it that the 300-pounders of Persano were silenced by the light smooth bores of the Austrians? The reason seems to be, that in a naval conflict of the rude and primitive nature to which we have been referring, the physique of the men is even more telling than the build and armature of the ships. The wooden *Kaiser*, well handled, gave a fatal blow to the iron *Rè d'Italia*. All people have their peculiar qualities, good or bad; but any pugilist knows that *sang froid* is one of the most valuable qualifications of the fighter. The northern people possess far more of this than do the more volatile and inflammable people of the south. The Italian does not fight except in fury; the German fights as matter of business. In an encounter between two such antagonists the angry one is pretty sure to get the worst of it. The heavy guns of Persano's fleet, which, if handled by men trained on the board the *Excellent*, would have sunk the *Kaiser* before she came into close quarters, seem rarely to have hit the mark. No attempt at firing concentrated broadsides—the most efficient practice—seems to have been made by the southern ships. However unfit for actual service the Italian fleet may have been,—however true it may be that the hoisting of a new flag has done little to reform the secular corruption so long rampant and dominant in the dockyards of southern Italy, there can be no doubt that it was in a far more efficient state than the Austrian squadron. But the furious and unregulated onset of the former—firing, it is said, sometimes unshotted guns in excitement and nervous tremour—gave advantage to the worse equipped but cooler crews, and the natural result followed, a result which, the catastrophe of the *Affondatore* has taught us, was only a timely escape from worse disaster.

Another point has been referred to as bearing in no slight degree on the fortunes of the battle of Lissa,—a point which those who have most experience of the Italian character would have suspected, if they had not been informed of its existence. With an unusual degree of ability the Italians generally combine an altogether unbalanced estimate of their own powers as compared with those of other people. Call it self-reliance, call it national jealousy, call it morbid *amour propre*, account for it as you will, the Italian will rarely condescend to verify his opinion. If then, owing to the risk of war, or the parsimony of a hard-pressed administration, the English engineers have disappeared from the Italian navy; if the working of the engines has been committed to the inexperienced and incompetent hands to be found among the southern cities, those who have navigated the Mediterranean will need no other explanation of the fate of the *Rè d'Italia*, the *Palestro*, and the *Affondatore*. Steam speaks English all over the world, and certainly has not yet learned to speak Italian. The words of command "stop," "steady," "go a-head," can be ill rendered into that courteous and euphonious language, and are but ill represented by screams of "*Viva Italia!*" "*Viva Vittorio Emmanuele!*"

It is impossible to give too much attention to a subject so essential to our national safety as is that of naval construction and maritime warfare. The wooden walls of Old England are things of the past—the iron ramparts that are to replace them are yet of the future. Our naval minister is unable to give the names of the vessels composing our reserve fleet. In fact, they have yet to be built. It is with shame and humiliation that we contrast the results of the last seventy millions expended on our dockyards with those of the last four years' exertion on the part of the naval constructors of the United States; when we reflect that we have done little but patch, during the peace with which Providence has blessed us, while our neighbours have set afloat a fleet of 4,500 guns, including 75 monitors, while struggling with the claims of the most destructive civil war yet recorded in history. Even Brazil is said to be before us in her fleet, and our long-prized rule over the waves exists only in the form of ballad. Never, since Van Tromp cruised the Channel with a broom at his mast-head has England been in a state of such complete naval inferiority, as compared with other powers. Against America, if war broke out between us, we are absolutely defenceless; and there is hardly a port in the world from which we do not hear of the unexpected sally of some form of war steamer that should shame the launchers of the *Northumberland*. Cholera has caused alarm enough, but what has lately been admitted in Parliament as to the state of our costly and ill-administered navy is such, were it once laid hold of as it ought to be by the public mind, as to revive a feeling in England unparalleled since the time when beacons flamed from hill to hill to announce the tidings borne by "a gallant merchant ship, full sail to Plymouth Bay." We know of no Armada fitting out for our subjugation. Let us thank God, for we have no fleet to resist it if we did.

THE MANAGEMENT OF THE PATENT OFFICE.

The recently issued Report of the Commissioners of Patents for 1865 is not, in itself, a particularly interesting document, being simply an account of the number of patents applied for and issued during the year, and containing long extracts from the Final Report to the Treasury on the condition of the office by Messrs. Greenwood and Hindmarch. But when read by the light of its predecessors it possesses a considerable degree of interest. Few people, we think, attach sufficient importance to the Commissioners' operations, and to the magnitude of the interests dealt with at the Patent Office.

As most of our readers are aware, the office as at present constituted dates only from 1852, when an Act was passed giving greater facilities for obtaining patents and reducing the fees by a very large amount. The immense increase in the number of applications consequent on the lowering of the fees, was, perhaps, hardly foreseen by the promoters of the new Act, and it could scarcely have been predicted that the Patent Office would in time become a profitable source of revenue. Since the 1st of October, 1852, when the new law came into operation, inventors have paid into the Exchequer no less than 529,437*l.* 10s. 7d. over and above the sum necessary for the working expenses of the Patent Office. We have been at some pains to examine the Commissioners' previous reports, and we have drawn out a general balance-sheet of their operations, from which may be seen how much or how little the new law has done for inventors.

The receipts of the Commissioners from Oct. 1, 1852, to Dec. 31, 1865, are as follow:—

Fees and stamp duties	£1,204,245
Sales of printed copies of specifications, indexes, &c.	17,815
Total	£1,222,060

The expenditure during the same period is as follows:—

Paper and printing	£310,378
Law offices and their clerks	136,539
Salaries of clerks and officers in the Patent Office	99,648
Compensations	59,364
Copying	39,579
Patent Office Museum	16,392
Preparation of abridgments	10,635
Books and binding for Free Library (estimated)	6,500
Miscellaneous expenses	44,587
Revenue stamp duty	221,270
Surplus income	308,167
	£1,222,060

We will discuss these items separately, beginning with the first. The Act of 1852 provided that all the specifications should be printed; and the work was accordingly commenced in 185[2] and has been carried on ever since. In addition to the specifications, the Commissioners also print and publish indexes and abridgments of these documents; but the great bulk of the expenditure is for printing the specifications. It will be seen, by referring to the other side of the account, that the sales realized only 17,815*l.*,—a perfectly insignificant sum when compared with the cost. This item would, no doubt, have been much larger, were it not for the praiseworthy liberality which has prompted the Commissioners to present about 130 public libraries and other institutions, both at home and abroad, with a copy of each of their publications. Seeing, however, that a set of these works occupies about 450 ft. run of shelving, some of the less enterprising and public-spirited of the institutions have returned the books which in a moment of enthusiasm they were unguarded enough to accept. On the other hand, it would probably have been smaller, had the Commissioners thought proper to take advantage of a clause in the Patent Law Amendment Act, empowering them to present twenty-five copies of each specification to the respective patentees. The fee of twenty-five pounds has been carefully looked after, but the twenty-five copies have been carefully withheld.

Thanks to the ingenuous manner in which the reports are drawn up, we are furnished with the necessary materials for ascertaining, roughly, the quantity of surplus stock on the Commissioners' shelves. Up to the end of 1865, about 52,000 specifications (250 copies of each) have been printed, making in all 13,000,000 copies. "The price of a print of the average length of letter-press, and drawings," says one of the reports, "is eightpence." Supposing the sale to have consisted solely of specifications, at an average price of 8d. each, the absolute number of prints sold up to the end of 1865 would be 534,450. To this we must add the 6,760,000 copies given away to different libraries. The remainder will represent the surplus stock. Put in a tabular form it is as follows:—

Number of prints sold up to 1865	534,450
" given away	6,760,000
Surplus stock	5,705,550
Total number printed	13,000,000

Allowing a weight of 1 lb. for each 10 copies, we find that the waste amounts to about 2[5]00 tons. An extra 250 copies of about 7,000 of the earlier specifications were printed. We have, therefore, to make an addition of 80 tons to the stock in hand. Hitherto we have treated the whole of the publications as specifications; but as several of them consist of indexes and abridgments, which are very much heavier than the former, we will add another 20 tons to our estimate, thus bringing the total to 350 tons. Our calculations have, we think, been made fairly, and it is probable that they are not far wrong.

We are not at all surprised to learn that "the Patent Office, in every department, requires greatly enlarged space *for the business which is carried on.*"—(Report, p. 11.) The italics are our own. This "business," we suppose, accounts for the increased expenditure on account of rent, &c., from 617*l.* in 1863 to 1,098*l.* in 1865. We do not mean to say that the printing of the specifications has not been very beneficial. It has, on the contrary, been productive of a vast amount of good. We will not assume the responsibility of deciding whether there has been any unnecessary waste or extravagance displayed, but we make a present of the result of our calculations to Mr. Seely, who will, perhaps, when he has quite finished with the dockyards, turn his attention to the Commissioners of Patents' account with Messrs. Spottiswoode.

The next item is one of 136,539*l.* for fees to the law officers and their clerks. One is naturally led to inquire the nature of the services rendered by these gentlemen in return for the very handsome salaries which they receive. Every petition for the grant of letters patent is accompanied by a "provisional specification," which gives an outline of the invention. This document is referred to the law officer, who is supposed to examine it, and state whether the petitioner is entitled to a patent. For this service he receives a fee of two guineas. Now, if this service were properly and honestly performed, it would be remarkably cheap. But the fact is, that it is not only not done honestly

but in many cases it is not done at all, the work being left to the law officer's clerk. Many of the "amendments" consist of alterations in the spelling, and correction of grammatical errors. We recollect one case in which the specification commenced with "*a* is the cylinder; &c." The small "*a*" had been altered to "A," so as to avoid commencing a sentence with anything but a capital letter. In another the word "binograph," which the inventor had used to describe his improvement, was struck out of the provisional specification because forsooth it was not in the *Imperial Dictionary!* In spite of the examination, patents are continually allowed to pass which involve a mechanical fallacy; and two were granted a year or two ago of such an indelicate nature that one we believe was refused even in France. Very few applications are refused, and indeed it can hardly be otherwise. The law officers are placed in a very unfair and anomalous position. The more conscientiously they discharge their duties, the less income do they receive. We should explain that the law officer's fee is paid, whether the application is refused or not; but, in case of refusal, he loses the further fee of one guinea on the warrant for sealing. It is, moreover, not to his interest that applications for patents should be discouraged in any way. As it is, the duties performed by the law officers and their clerks are utterly decisive, and are little better than a sham. We do not say that the Attorney and Solicitor General are overpaid; but it is perfectly monstrous that inventors should be taxed at the rate of upwards of 9,000*l.* a year to pay the obtaining fee,—for such it is,—of the Crown lawyers.

Under the head of "Compensations" an expenditure of 59,361*l.* has been incurred. Now, did these been legitimate compensations, they would, in process of time, viz., with the death of the recipients, have become extinct. But on referring to the detailed account of these "compensations," we find that they include a perpetual charge on the patent fund of 3,450*l.* per annum, which is distributed as follows:—

The Attorney-General for Ireland	£1,200
His clerk	300
The Solicitor-General for Ireland	800
Lord Advocate for Scotland	850
His clerk	300
	£3,450

We see, then, that patentees pay a further sum of 3,450*l.* per annum to officials, who render no service, and do not make a pretence of rendering any service, to the patentee in return. The whole system is a barbarous relic of times when the unfortunate inventor, kept at a respectful distance by the "divinity that doth hedge a king," was forced to approach his majesty through some great man at court, and, cap in hand, humbly present a small bribe to one of "my lord's" servants. The petition might, perhaps, get into the hands of his lordship, who, for a consideration, would undertake to lay it before the king himself. In course of time these "bribes" came to be called "fees;" and thanks to the iron sway of precedent, the system ripened into a law. In what other way could an official, like the "trainbearer to the Lord Chancellor of Ireland," who still receives 12*l.* per annum, come to have a finger in the pie? Why should the Watts and the Arkwrights of the present day have been compelled to pay since 1852 the enormous sum of 195,903*l.*, for which they receive in return nothing? This is the way in which inventors are "encouraged."

We have not much to say on the expenditure of 9,648*l.* for "salaries of clerks and officers in the Patent Office," except to show that the men who have really done the work have received only about half the sum pocketed by those who, whilst making a great show, have in reality done nothing. It is satisfactory to learn from the report of Messrs. Greenwood and Hindmarch that the Treasury that the clerks have worked hard; and we trust that they may obtain the reward to which these gentlemen state they are justly entitled. For some years past the Commissioners have been in the habit of emitting in their annual report a feeble moan for an increase in the staff. The remedy lies in their own hands, as they have power under the Act to appoint clerks as they shall think fit. To be sure, however, how little they are in earnest, we need only to refer to the annual balance-sheet, where we find that the Commissioners have been annually *reducing* the staff, and this in the face of a large increase in the business of the department. The amount expended for "salaries of officers and clerks" during the past three years is as follows:—

1863	46,674
1864	6,551
1865	5,862

What is the object of this double-dealing? Does it not seem reasonable that if the Commissioners were really anxious to increase the permanent staff they would at once do so. Surely the Treasury would make no objection to the outlay of a few hundreds in an office which returns a revenue of 60,000*l.* a year. The next report will, however, show a slight increase under this head, the staff having been increased during the last few months by the appointment of a few young gentlemen to fill up the vacancies.

The item of nearly 40,000*l.* for copying appears at first sight very extravagant; but this is not so, as a considerable portion of the money has been spent on copies of the assignments and licence-deeds, which are mostly of great length. Every document of this kind must be registered at the Patent Office before it can be enforced; and three copies are made, one being retained at the office for public inspection, and the other two sent to the offices in Edinburgh and Dublin, pursuant to the Act. It is the general opinion that the transmission of copies to the two latter offices is of little or no service, and might be dispensed with. Another portion of this charge is for office copies, which are paid for in stamps by the public.

Few will be disposed to quarrel with the expenditure of 15,392*l.* for the Patent Office Museum, at South Kensington, except, perhaps, on account of its smallness. When the Commissioners shall have made up their minds about a new building, we hope to see the Museum grow into an establishment like the "Conservatoire des Arts et Métiers" in Paris. At present the museum is so full that an examination of the articles is quite impossible. Unless some measures are taken to remove it from its present position, we fancy that it will not remain long in possession of the Commissioners, as the South Kensington authorities have already made several bold attempts at annexation. Considering the difficulties which the museum has had to encounter, the only wonder is that the superintendent has been able to collect such a number of interesting objects. The story of the rescue of Symington's engine forms quite a romance. Some of the brass castings had been sold for old metal, and were actually in the foundry when a telegram from Mr. Woodcroft saved the precious relics from destruction.

Amongst the most valuable of the Commissioners' publications we must place the "Abridgments of Specifications." They were commenced in the office in 1856, and two years afterwards gentlemen unconnected with the department were employed, the regular staff being totally insufficient to perform the increased labour. Messrs. Greenwood and Hindmarch recommend that the staff should be increased, so that the abstracting of future specifications may be done as they come into the office.

Those persons only who are engaged in making long searches can fully appreciate the immense value of such an arrangement. The "Abridgments" are not, of course, intended to supersede the specifications themselves, but they are just sufficient to indicate the nature of each invention, and to warn the intending patentee when he is treading on dangerous ground. A genuine inventor is always desirous of knowing what his predecessors have done, and it is clearly the duty of the Commissioners of Patents to give him every facility for obtaining this information. The publication of indexes is a great boon; but the abridgments, which are, after all, only a sort of extended indexes, are perhaps of still greater value. We are at a loss to understand the slowness with which they make their appearance. The "Fuel" series was announced as being "in the press" on the 30th of April, 1858, more than eight years ago, during which interval upwards of 1,000*l.* has been spent upon its preparation. "Steam Engines" have cost 450*l.*, and the book has been announced since January, 1859. The series relating to "Railway Signals and Communication," a subject of great interest just now, has been in preparation nearly four years. "Railways" and "Hydraulics" have been in the press for more than three years, and have together cost 928*l.* About 3,000*l.*, or more than a fourth of the sum spent for "abridgments," has been barren of results, so far, at least, as the public is concerned. Up to the present time twenty-eight volumes have been issued, and about 7,000*l.* have been expended on their preparation. They were promised in 1861, "at the rate of six or eight series in each year," but since that date only six have been published. The last addition consists of the volume relating to spinning, on the preparation of which more than 1,000*l.* have been spent. This is the only one which has appeared since the report for 1864 was issued, although more than 900*l.* have been spent during the same period.

With regard to the Free Public Library of the Patent Office, we believe that it will shortly be placed on a more satisfactory basis, the House of Commons having voted about 14,000*l.* for building a new room to accommodate the large and constantly increasing collection of books. It will be ready, we are informed, in a few months. The present library is a disgrace to the Commissioners' clerk. It is filthy and disorderly, ill-lighted, and worse ventilated. We sincerely trust that Mr. Woodcroft will introduce a better system in the new library. We happened to visit the establishment on one occasion when the library was closed, but we saw through the half-open door that it was in possession of some elderly females, of curious aspect, who were "dusting;" that is, raising a cloud of dust to settle on the books. The condition of some of the works in the Commissioners' Library is quite distressing to those who look upon a valuable book as something more than so many sheets of paper inclosed by a casing of millboard and leather.

With reference to the last two items, we shall only point out that the true surplus is represented by their sum. Since October, 1852, inventors have been made to pay into the exchequer half a million in excess of the sum necessary for the administration of the patent law. The "Revenue Stamp Duty" is secured to the exchequer by the Act of Parliament, but we look upon the appropriation of the 300,000*l.*, "surplus income" as a gross injustice, we had almost said a robbery. Supposing the patent laws to be right in theory, it appears also to follow that the granting of patents should not be turned into profitable source of revenue. The stamp duties of 50*l.* and 100*l.*, payable at the end of the third and seventh years respectively, produce now about 50,000*l.* per annum. The remission of these payments would very speedily bring down the surplus income. The question, however, is of direct interest only to inventors, who have always been a long-suffering and patient race. Indirectly it is of great importance to the community at large, since the benefits of a successful invention are by no means confined to the inventor himself.

Some of the reforms which we have hinted at could not be carried out without an Act of Parliament, but much relief might be obtained by modifications in matters of detail. The office has already been the subject of two Parliamentary committees and three private Treasury inquiries, and several valuable suggestions have been thrown out in the course of these investigations. From a careful consideration of the subject, we have arrived at the conclusion that several of the inconveniences of the present law would be removed by,—

1. Compelling the law officers to subject every application to a rigid scrutiny, giving them professional assistance as provided for by the Act when necessary. This would diminish the enormous number of worthless and frivolous patents now granted.

2. The increase of the staff of the office so as to accelerate the printing, abridging, and indexing of the specifications, all of which are now very much in arrear.

3. The appointment of an officer of energy and ability (in conformity with Messrs. Greenwood and Hindmarch's suggestion), who should have supreme control over the department, and who should attend daily at the Patent Office. At present the department is without a head, and however anxious the officers may be to do their duty, it is obvious that no good result can be attained without their efforts are controlled and directed by one individual.

We believe that this is the first attempt to give an epitome of the Commissioners' proceedings since their establishment. We have been at some pains to ensure accuracy, and we have endeavoured to "nothing extenuate, nor set down aught in malice." Speaking in the name of inventors, we beg to express our gratitude for what the Patent Office has done. We confess, however, that our gratitude is only that of the

world, and we fear that it consists mainly of "a lively sense of favours to come." The Office has done so much, and has done it so well, that we expect it to do more, and to do it still better.

THE BUILDING FOR LONDON UNIVERSITY, BURLINGTON GARDENS.

Two designs for this edifice were made by Mr. Pennethorne, one Classic in style, the other Mediæval. Lord John Manners, Chief Commissioner of Works, selected the latter, and this will be carried out forthwith (the architect being now occupied on the details), unless, indeed, any change in the Ministry should be brought about before it be commenced, when who shall say what might occur, since style is made to depend on political ascendancy. However, regarding the design as settled, our readers will be glad to have even a slight notion of it.

The building will front Burlington Gardens, and will be about 220 ft. long; the centre being 115 ft., and each wing about 52 ft. The centre consists of the main body, flanked by a campanile at each end with spire-like roof: the main body, 55 ft. high, and each campanile 100 ft. The main body consists of an arcade of five openings, 10 ft. wide and 20 ft. high, partly segment-headed. Above the arcade, in the wall of the building, are five large pointed-headed windows; above them being dormers, &c. Each wing contains a large lecture-room, 70 ft. long and 52 ft. wide, lighted by Gothic windows in triplets, the bottoms or sills of which are 25 ft. from the ground: the lower part (externally) being panelled in various coloured stones or marbles. The style is that of North Italy, transitional,—*i.e.*, between Classic and Gothic, but with the Gothic forms and feeling decidedly predominating.

As three separate architects will be engaged on the buildings proposed to be erected on the Burlington House plot, namely, Mr. Pennethorne, Mr. Sydney Smirke, and Messrs. Banks & Barry, some general understanding with a view to accordance, should be arrived at between them.

WESTMINSTER ABBEY.

The new altar-piece is in progress; the old reredos in plaster has been removed, and marble and alabaster will take its place. The table, carved by Mr. Farmer, has been ready for some time. The chief feature of the new reredos will be a mosaic picture, on gold enamel ground, representing the Last Supper; and this, about 12 ft. in length, and 4 ft. 6 in. in height, has just now been received from Venice, and is in the Jerusalem Chamber, at Westminster. The picture has been beautifully executed by Dr. Salviati, who has also been credited by some of the daily papers with the design of it. This, however, is not correct; and as it is desirable, the work being one of considerable importance, that all concerned in its production should have their fair share of praise, we will state the facts of the case. Some time ago Messrs. Clayton & Bell were commissioned by the dean and chapter, through Mr. G. G. Scott, to prepare a design for the work. It was not until this design was made that Dr. Salviati, as executant only, was asked to furnish an estimate of the cost of copying the picture. They subsequently made the full-sized cartoon, arranging the colouring, and in every way undertaking the entire responsibility of the artistic portions of the work; which should, therefore, be described as that of Clayton & Bell in all that relates to its artistic qualities, and as that of Dr. Salviati in all that concerns its mechanical reproduction in mosaic. To both we give hearty commendation.

The figures around the tablet are naturally and well disposed: all have dignity, and some have character. Judas sits in the front, to the right of the spectator, without nimbus, downcast and brooding. Christ stands in the centre (having broken the bread), against a dark background of tapestry, the apartment elsewhere being open above the dado. The mosaicist has reproduced the work in a most effective manner. The picture is surmounted by the text, "This is my body, which is given for you. Do this in remembrance of Me. This is My blood of the New Testament, which is shed for many."

The abbey is about to be warmed by Mr. Haden: both hot water and warm air will be made use of. The ancient buttery-hatch, with sides and head of Purbeck marble, has been recently discovered in the remains of the south wall of the refectory. Mr. Christopher Forster, who has been clerk of the works at the abbey for some years, has just now completed a very excellent plan of the building, showing the position of every known grave in it.

PURE WATER FOR ROME.

Knowing the difficulty there is in obtaining a sufficiency of pure water in Rome we mentioned, with satisfaction, some time ago, the establishment of the Anglo-Romano Water Company to bring the "Aqua Marcia" into the city, and in whose favour a liberal Concession had been granted to Mr. James Shepherd, well known there as the *gérant* of the very successful Roman Gas Company. The correctness of our assertion as to the want of water in Rome was questioned in London, and one esteemed and reverend gentleman made publicly some observations to that effect at the Royal Institute of Architects. What influence these may have had in England we do not know. To show that these observations were erroneous and that we were correct, it is only necessary to mention how the proposition was received in Rome. 3,000 of the shares (20*l.* each) had been apportioned to that city, and these were all subscribed for in three days. We have before us the names of the 121 subscribers, including Prince Odescalchi, Prince Borghese, the Duke Grazioli, the Swiss consul, the English consul, Prince Aldobrandini, Prince Doria, Monsignore Muccioli, and others equally well known, a pretty good proof of what Rome itself thinks about its water-supply. The tenders for bringing the water to Tivoli (whence it will be led to Rome in cast-iron pipes) have been just now sent in, and stand as follows:—

Gay	Fr.1,667,116	0
Ponsi & Co.	1,562,943	93
Cavelletti	1,419,043	40
D'huard & Co.	1,308,496	75
Vitaglani	1,232,794	25
Lovatti	1,194,138	25
Bonfigsetti & Moraldi	919,744	75

We may mention as to the Roman Gas Company, that a considerable extension of its operations being required by the municipality, a fresh Concession, giving twenty-five years from the present time, has been granted, and additional capital is to be raised.

WINDOW FLOWERS.

A taste for floriculture has been much stimulated by the Association lately formed, and by the prizes awarded for the best specimens of flowering plants grown by room-keepers and cottagers within the precincts of London.

The great care bestowed upon Victoria, Battersea, Hyde, and Regent's parks, as well as upon the various horticultural and public gardens, had already instructed the working classes, and stimulated them to become possessors of those beautiful natural productions, which they had learned to value; and which, although hitherto unattainable except at high prices, are now so extensively cultivated that they are within reach of the workman, who has also found out that he can rear and multiply them on his own window-cill wherever the sun shines for but two hours daily.

In the whole range of the City, and the most populous of its suburbs, there are very few streets, or narrow lanes and courts, where ranges of beautifully-diversified and luxuriant flowers may not be seen, bestowing an air of lightness and beauty upon scenes that before were sombre and melancholy. Take any lane or court off Aldersgate-street, or in Bermondsey, or Hackney, or Islington, and the evidences of floriculture are the same: in some rooms with only one window and perhaps four or five inmates the pet plants are clustered on the cill, giving out their odour, and through care vigorously flourishing, as though planted in Anderson's, Bull's, or Whimsett's nursery. The possession of these beautiful flowers, comprising rarely more than a few geraniums, fuschias, convolvuli, astors, calceolareas, and lobelias, creates an interest by the daily-recurring short attentions bestowed upon them, and amply repays, in dazzling radiance and odour, the time and trouble; whilst they tend to make the humble home more tolerable, and to harmonise the mature and rising generation in one common object of admiration.

Some ten years back there were scarcely any window flowers to be seen. A few houses in the west end had laburnums or Virginian creepers planted in the areas, and trained to the balcony; of late, the greater number exhibit collections on the first-floor balconies and parlour windows, many having glass cases, or herbaria, rested upon the cills, and filled with the choicest specimens from the conservatory.

In Piccadilly, several mansions have these cases filled throughout the whole season of their town residence; one of the first examples being Northampton House, which is covered as high as the second floor simply with Virginian creeper and ivy; lower in the dip, opposite the Green Park, another house has the glass cases for flowers in the parlour, and all the windows to the second-floor beautifully fringed with parasitic plants. These houses are of the old brick-fronted order, and offer a good basis for ornamentation, as wall-nails may be driven without damage, whereas on stucco or compo frontages a trellis is needed.

The general rule now is, in some fashionable quarters, floral balconies and shrubbed areas; but one house in Grosvenor-square, before alluded to in the *Builder*, surpasses all others in the decorative effect of its luxuriant bloom and parasites. The whole plan and arrangement are due to the butler of the Countess of Dysart. In the area, 10 ft. under the street level, are planted ivies, Virginian creepers, and *scobia scandens* which clothe the walls in luxuriant tresses rising on the front elevation to the first-floor balcony, and forming a tastefully-arranged dwarf blind to the parlours; myrtles in tubs and varied flowers, and plants in pots, are disposed over the pavement, and tendrils trained on bars across from the railings, with pendant flower-baskets; the whole of the front windows being also adorned with the choicest geraniums and flowers of hues selected for effect. Even the stable-wall adjoining the mansion, in Audley-street, is covered by the Virginian creepers, all verdant now but ensanguined in September.

It is rather strange that the taste for floriculture should not have advanced so much in the neighbourhood of Brompton and South Kensington, where the atmosphere is more genial to their growth, although some houses in the Prince's and Exhibition roads display a goodly array of flowering plants and exotics. Still the small streets diverging towards Chelsea discover their partiality for window flowers, and these are generally tended by the tenants of floors and single rooms; and in one cottage at the Chelsea end of Keppel-street, a little garden of about 20 ft. by 15 ft. is worthy of note; although, like some of the mansions whose occupants have left town for the season, it has run somewhat into wilderness. This little patch was ornamented some years back with rockwork around its boundary walls, and planted with shrubs and flowers; several broken pillars, as of a ruined temple, being fitfully placed as possibly they ought to have fallen. This little morsel of fantastic simulation, covered in ivy, parasitic plants, and flowers, was probably the first fancy model in the hortulan way of this vicinity. The last is as much in the opposite style—it is a tastefully finished shop in the Brompton-road opened for the sale of plants and cut flowers by Messrs. Hopgood; the display at times is, perhaps, unequalled, and, occurring at a moment so favourable to the advance of floral taste and skill may be almost deemed a public acquisition.

THE LAKES AND FELLS.*

We look for exactly the same qualities in a handbook as we should wish to find in a guide. We want precision both as to the route and the objects to be visited on it, or seen from it. We want in the handbook condensation, just as we approve of the practice of making short cuts on the part of a guide. In both digression is an error. Both are required to meet the contingency of difference of taste in the individuals by whom they are consulted, and be able to throw out, in a clear, agreeable, yet, withal, compressed mode information that will prevent the admirers of students of any department of nature or art from passing unwittingly within tantalizing reach of objects they would fain have seen. A traveller whose preferences may be for Celtic, Roman, Mediæval antiquities, or for modern works of engineering or architectural skill, may yet have

* Handbook for Travellers in Westmoreland and Cumberland. With new travelling maps. London: John Murray, Albemarle-street. 1866.

sympathies to spare for another *spécialité*; and, though he might be making a tour with either of the first class of objects in view, would gladly avail himself of opportunities to become acquainted with such specimens of his second or third study as might be accessible on his route, if he were made aware of their proximity. A good guide should prevent the possibility of missing any objects of interest, or rarity, however diversified their nature, and leave it for the traveller to decide for himself whether he will leave his path or pause in it to visit them. The architect, the antiquary, the naturalist, the geologist, the botanist, and the landscape lover should be all remembered, and as specially provided for. This versatility is to be found in many of Murray's Handbooks, and is not altogether absent in the new guide to the Lake district, which has just been published in the same series. But we should have been glad to have found a further elaboration of the treatment in question, such as an indication of details in Mediæval art, ancient stained glass, monumental brasses, sculptured effigies, legend-bearing bells, worth seeing or sketching; or of any vestiges of ancient Britain that have been hitherto passed over. Archæologists have been so industrious in other countries, and pointed out so many objects illustrative of the history of the country in British occupation, that it is difficult to believe that the fastnesses in Cumberland and Westmoreland have been unexplored. If Celtic remains were not mentioned, we should have concluded the author thought the subject not sufficiently popular for his purpose; but the old ground is gone over in the old style, with the addition of a confusion of terms that savours of inadequate examination of this class of antiquities. No Celtic archæologist uses the words cists and "sepulchral circles" interchangeably; nor have they yet identified any circles as sepulchral.

It is, probably, only a slip of the pen that is the author of the new information, that Lysons wrote two centuries ago (see page 19). But we must protest against the more deliberate carelessness that takes the visitor close to one of the most curious and celebrated of Cumbrian antiquities without any mention of it. Every one knows that Cumberland possesses three choice specimens of ancient fortified churches, Burgh-on-the-Sands, Great Salkeld, and Newton Arlosh. The author of the new handbook duly mentions the two former; but, although he describes a route passing within a short walk of the latter, he does not point it out. This is the more inexcusable, because in the prefatory introduction this particular fortified church is quoted as one of the curiosities of the county. We also object to the same exclusion of all reference to the remains of the old Roman roads, which are so frequent in this part of the country. The Maiden Way especially is worthy of a few words. Those who have taken up the subject of Roman antiquities will deem such an omission a blemish to a knapsack book. The treading and tracing an old Roman road is a real treat and holiday performance to a working antiquary.

The lake and fell district is, however, so intimately associated with the memory of the poets who have resided in it, that many will consider a task well executed that links, with discrimination, their sweet verses with the scenes to which they allude. The new guide fulfils this condition with much taste. If the brave Celts who, with almost superhuman power, considering their poor resources, placed the grey monoliths in the weird circles where two thousand and more seasons have seen them, and the legions of bronzed-faced soldiers who formed the causeways and frontier-belts, only second to these in wondrousness, are swiftly dismissed from the green scene of their labours, the golden-speeched poets are enthusiastically installed in their places. The selection from the notes of Wordsworth and Southey are particularly appropriate. Sir Walter Scott depicted Cumberland scenes with a mastery that will compel all handbooks to quote his pageant-like verses, under pain of being deemed incomplete and colourless. We are reminded, too, of the residence, at different times and at different periods, of George Fox, Mrs. Hemans, Wilberforce, Tickell, Coleridge, and Christopher North. The regatta on Windermere, at which Canning, Scott, Wordsworth, and Professor Wilson were present, must have been a goodly sight to see. Land of Dacres and Howards, traversed here by the road that led Mary Queen of Scots to Workington, without money or change of apparel, after a defeat at Langside; there by the great highway along which so many post-carriages have torn to Gretna Green in fear of fancied or real pursuit; here beautified by Eden Hall, its chalice and traditions; there by mementos of the Musgraves, Cliffords, and other noble families of the Middle Ages; there is yet another shrine towards which many faces will be directed before turning southwards. This is the little village of Newfield, in Seathwaite, where are Wordsworth's Stepping-stones. In 1741, there died the Rev. R. Walker, aged ninety, a Cumbrian pastor, whose annual stipend amounted to 5*l.*; yet he reared twelve children. Out of the various pursuits he followed to eke out this insufficient sum he saved 2,000*l.* He was the village doctor, schoolmaster, amanuensis, and legal adviser. Besides these superior employments, he worked in the fields at haymaking and sheep-shearing times, sold home-brewed beer, and cultivated his glebe. You may see his little parsonage covered with climbing roses; you may enter his quiet church, and see his pew lined with cloth that was woven with his own hands.

We may add that tourists should look at Carlisle as the seat of such sanitary precautions as can be taken by a public body for the preservation of the public health. Whitehaven, too, has just improved its condition by the conveyance of water to the town from the neighbourhood of Cleator.

We must give a word of commendation to the excellent maps accompanying the Handbook. There are two. One shows Westmoreland, Cumberland, and part of Lancashire, on a scale of seven miles to an inch, with their geographical features, communications, natural curiosities, antiquities, gentlemen's seats, battle-fields, churches, &c., duly marked: the other, chiefly reduced from the Ordnance Survey, is on a scale of two English miles to an inch, and is confined to the Lake district. Pedestrians, when tired or belated, will thank the thoughtfulness that has indicated the exact position of the various Lake hotels. Who that has climbed a hill or a mountain, has not wondered how many feet he stands above the sea level? This information, and much more, is shown in these neat specimens of mappery. It is rather to be regretted that the area thus compendiously delineated falls short of the site of that "sisterhood forlorn," Long Meg and her Daughters, the sixty-seven enormous unhewn stones, placed in the form of a circle, between Eden Hall and Kirkoswald, for this locality is a centre of interest. At Kirkoswald, also beyond the limits of the map, there are the remains of a castle once supposed to be "the fairest that ever was looked on;" and a church, recently restored, noticeable for its peculiar treatment to adapt it to its site. The tower and belfry are isolated on an adjoining hill, so that the bells may be heard afar off. And a rivulet flowing beneath the church falls into a well below the west window.

WISE MEMBERS OF A BOARD OF HEALTH.

AN enraged inhabitant of Idle, near Leeds, sends us an appeal to the freeholders and ratepayers of Idle, signed—"John Lee, Cote; Amos Raistrick, Thackley; Robert Sutcliffe, Cliff Cottage;" who, seeking to become members of the local Board, guardians of the people's health, have the hardihood to say, as a reason why they should be elected,—"We shall be opposed to all schemes of levying rates for water purposes; we shall also be opposed to any system of public sewerage, or to any system of paving. These classes of works are in our opinion not needed at all; and if they were to be undertaken, our rating would have to be altered, and the burdens on buildings would be most materially increased;" and they end their address with,—"Please to give circulation to this paper." "Write me down an ass," says Dogberry,—"Forget not that I am an ass."

We have known many members of a Board act constantly as if guided by the evil principles here enunciated, but never before met with one who was willing to acknowledge them, still less to boast of holding them. It is positively past belief, and too serious to joke upon, that three men should be found at this time resting their claims to the consideration of their brother ratepayers on their intention to oppose all endeavours to obtain for the town proper water supply, paving, and public sewerage;—men who should dare in their ignorance publish their opinion, that "these classes of works are not needed at all." It is to be hoped that the people of Idle will show themselves to be in advance of such would-be representatives. "Please to give circulation to this paper." Yes, indeed: "Write me down an ass."

THE TENTH CONGRESS OF THE SOCIAL SCIENCE ASSOCIATION.

GREAT preparations are being made in Manchester to render the Congress, which is to close the first decade of the Association's history, one of the most brilliant and successful that has yet been held. The local committee have the great advantage of being able to house all the departments in one building—the beautiful New Assize Courts. Not only will all the business of the Congress be done there, but on the evenings of the 4th and 8th of October the Courts are to be the scene of two brilliant *soirées*; while on the evening of the 9th a banquet is to be given in the great hall. Indeed, the Association will need to leave the Assize Courts only twice,—on the 3rd of October, to receive the address of the President of the year, the Earl of Shaftesbury, in the Free Trade Hall; and on the 5th for the Working Men's Meeting in the same place.

An interesting discussion may be expected in the Economy and Trade Department on Friday, the 5th, upon Improved Dwellings for the Working Classes. Last winter a crowded meeting was held in the Rooms of the Association in Adam-street, Adelphi, upon this matter, and two Bills arose out of the discussion, one introduced by Mr. M'Cullagh Torrens, the other prepared by the Association in conjunction with the Society of Arts. The latter was never brought in, owing to the chaotic state of politics, and Mr. Torrens's was perforce withdrawn. The Association and the member for Finsbury are by no means agreed on some important points, and Mr. Wm. Hawes, late chairman of the Society of Arts, is to open the discussion with a paper on the respective merits of the rival Bills. It is the intention of the executive of the Association, if a strong feeling of preference for their Bill be displayed, to make a vigorous effort to achieve its passage through Parliament during the next session.

INDUSTRIAL EXHIBITION, ISLINGTON.

THE Metropolitan and Provincial Working Classes Exhibition, in the Agricultural Hall, was opened on Monday last with a very satisfactory ceremonial. Mr. Culling Hanbury presided, and a large number of persons were present. In the course of the proceedings a very creditable composition, titled *Ode to Labour*, written for the occasion by Mr. John Plummer, formerly a factory operative at Kettering, and set to music by Dr. Spark, was performed. The soloists were Madame Louisa Vinning and Mr. Weiss, and the choral music was sung by the large choir of the Tonic Sol-fa Association.

The Chairman, in his address, spoke of the value of such exhibitions as affording rational recreation for the working classes. Not all have the same talents, he said, or the same facilities for producing that which shall be worthy of a place in such a collection. But all can enjoy wholesome recreation, and nearly, if not quite all, can manage to pay the twopence, which, by the very wise regulation of the committee, secures an evening's recreation in this hall, devoted alike to agriculture and industry. The committee have, as I think rightly, made it an important feature in their arrangements to provide good, sound, healthy recreation in connexion with this exhibition; and I am sanguine that the promise held out of excellent musical and other entertainments will secure both a pecuniary success to the exhibition and an agreeable recreation for the thousands who will attend. No more important point remained to be solved when the early closing movement became so general, and of late, also, the much-desired Saturday half-holiday, than how to secure the right use of the leisure thus obtained. And working men's exhibitions may now justly claim their share of the credit which is due to those who have so rightly used the leisure afforded them. They have on the one hand provided employment for some in their quiet hours at home, and for others in an evening's rational amusement.

The total number of exhibitors is upwards of

1,500. The greatest number in the provinces are found to be from Bristol, Birmingham, Norwich, and Plymouth, while Clerkenwell, Islington, and the north-eastern metropolitan district claim the largest number of London exhibitors. The number of different trades represented, either in skilled or amateur work, is upwards of 320: of these there are ninety-three clerks, forty-four printers, forty-one engineers, thirty-seven carvers, thirty-seven carpenters, thirty-five engravers, twelve watchmakers, and twelve labourers. Space has also been allotted to 228 females.

To decide upon the merits of the articles exhibited the following gentlemen have consented to act as adjudicators:—Mr. P. Le Neve Foster; Rev. C. Boutell; Mr. D. Clarke; Mr. S. C. Hall; Mr. O. Smith, wood engraver; Mr. J. Dafforne; Mr. W. Parker, silversmith; Mr. Digby Wyatt; Mr. John Hopkinson, pianoforte manufacturer; Mr. Baker, cabinet-maker; Mr. Brooker, engraver; Mr. W. Campion; Mrs. Warren (editor of the *Ladies' Treasury*), ladies' work. In addition to the features already noticed, the exhibition contains a large number of articles contributed by children belonging to the Sunday Schools of North London and the scholars under the tuition of the Ragged School Union.

We should add, that in a gallery off the great hall, a collection of works of art, contributed from South Kensington by the Science and Art Department, and numerous specimens of old china, lent by Mr. Gladstone, are arranged for inspection by visitors to the exhibition of manufactures.

ARCHITECTURAL PHOTOGRAPHIC ASSOCIATION.

This Association is to be revived. The acting officers inform us that for 1866 they have now made arrangements with the photographers who have executed the works for the past four years, to make a tour through parts of Normandy, Maine, Tourraine, Anjou, and Poitou, and that they have undertaken to produce twenty-two photographs, in continuation of the series already commenced, of some of the most important examples of early ecclesiastical and domestic architecture which are to be found in those provinces. Mr. George Aitchison is the hon. secretary. The list of places to be visited stands thus,—Jumièges, Boscherville, Lisieux, Thann, Langrune, Norrey, Lemans, Chartres, Tours, Cormery, Loches, Beaulieu, and Poitiers.

NEW COUNTY GAOL, MANCHESTER.

This building is now rapidly approaching completion. It stands immediately behind the Assize Courts, and forms an irregular parallelogram, covering an area of 9¼ acres. The style of the architecture is Byzantine Gothic, some of the details being of the early round-arch work to be seen on the banks of the Po and the Rhine. Mr. Waterhouse is the architect. The first block of buildings is the governor's house, contiguous to which are the houses of the chief warder and the porter. The archway is composed of deeply-recessed mouldings in stone, the outer ones having indentations, and being supported upon shafts with capitals. Within the gateway is a groined and wagon-headed vaulting. A similar gateway faces the prison, and forms a vista, the effect of which is very pretty as seen from Southall-street. Passing through the gateway we find an open court, to the right hand of which is a one-story block of buildings, containing the reception-cells for both male and female prisoners. Immediately facing the visitor as he enters the precincts of the gaol is the entrance to the men's department of the prison proper, which is separate altogether from the women's department.

The building has six wings, diverging from alternate sides of a duodecagonal central hall. Two of the wings are eighteen cells in length, a third has twenty cells, a fourth thirty cells, and a fifth twenty-eight cells. All these wings have a central corridor, open from the main floor to the roof, and on each side of the corridors the cells are entered from galleries, supported on iron brackets, and approached by staircases at the ends of the wings, and from the central hall respectively. Two of the wings are open from the basement floor to the top, forming four tiers of cells; and the other wings have three tiers of cells, the lower story in great part being used for storeage and workrooms. Entering the prison proper by the main portals, a corridor of 16 ft. in width, and 105 ft. in length, is approached. It is ornamented by wagon-headed vaulting, and lighted by side windows. This corridor conducts to the central hall by two flights of steps, the floor being raised about 10 ft. above the adjacent ground, and on a level with the first gallery, giving access to the cells. The whole of the interior of the gaol, so far as the central hall and the corridors are concerned, is built of pressed bricks, painted or colour washed. The chapel is similarly constructed. Each of the cells is 15 ft. long by 7 ft. wide, and is arched in brickwork, having a door-frame of iron, and a massive wooden door lined on the inside with sheet iron, the floors being of tiles in patterns. Each cell is supplied with a water-closet, and a tap for the supply of water, and with gas. The windows are strongly guarded by bars of iron. In the men's gaol there is space for 912 cells, including the basement story, which it is intended to use as stores and workshops, but the apartments are so constructed as to be convertible into cells if required. Each cell-door has an inspection apparatus, through which the warder on duty in the corridor can see the prisoner without being himself seen, and each door has also an opening for food, ingeniously constructed. When opened, a door falls down at right angles with the cell-door and forms a shelf, on which the prisoner's food is placed, and is closed by a locking apparatus. The prison is constructed on the separate system, but the prisoners will, to some small extent, be associated in the workrooms. The whole of the building is warmed by hot water.

The women's gaol is very similar in construction to that already described. It is an entirely distinct block of buildings, with four wings branching from four sides of an octagonal hall. It is connected with the men's gaol by a covered corridor. The total number of cells will be 380, including, as in the other case, store-rooms which may be converted into cells when required.

The ventilating shaft is a massive structure of brick, rising from a base 30 ft. square into an octagonal panelled shaft to a height of 165 ft. from the ground. At this height a bold corbelling of stonework is carried around it, forming a gallery protected by an open-worked parapet, and covered by a weather-screen. Above this is an arcaded drum and a brick dome, the whole forming a shaft 220 ft. high, the foundation being carried to a depth of over 40 ft. The smoke from the men's gaol, from the boilers and cooking apparatus, is conducted up the centre of this shaft by an iron chimney. It is intended to open and close one of the large gaol gates by hydraulic power gained from the water supply. There is a communication between the cells of the assize courts and the grounds of the prison, and for this purpose a flight of steps has been formed, so that prisoners may be brought direct from the courts to the prison, and *vice versâ*, without passing through the streets.

ACCIDENTS.

An inquest has been held at St. Bartholomew's Hospital, on the body of the man who was buried under the walls of Whitbread's brewery. He was at work in pulling down the side walls, when alarm was given by the foreman that the walls were falling. There were six men at work, when the whole of the side walls suddenly fell. The jury returned a verdict of accidental death.——At the Calder Bank woollen mills, Dewsbury, while a number of men in the employ of Mr. Brier, contractor, were engaged making a travelling crane, and a bed on which some ponderous machinery was to be erected was in the course of formation, it was necessary to convey solid blocks of stone to the place, and for this purpose a crane was erected. The workmen were moving a block of stone weighing at least 6 tons along the crane, when suddenly the supports snapped, and the whole of the heavy framework, stone, and machinery, fell to the ground. A man was struck with a falling beam, and his scalp was ripped off, laying bare his skull, and thus inflicting injuries which caused his death. Another workman sustained a compound fracture of the neck, and the contractor and other workmen were more or less injured.——Workmen have been excavating at the corner of Guildford-street and Zoar-street, Southwark, for the foundation of extensive warehouses. A row of houses stood upon the edge of the ground, and the contractors shored up the last of these. The excavation had proceeded to a depth of about 10 ft. below the foundations, when suddenly the struts (owing, it is suggested, to the swampy nature of the ground) sank, and the greater portion of the house No. 9, Essex-street, came down. Had the occurrence happened when the inmates were in bed the result would have been very serious. Additional struts have been fixed, and other means taken to secure the walls.

ORGANIZATION OF LABOUR.

A delegate meeting of working men from France, Great Britain, Germany, Belgium, and Switzerland, is being held in Geneva. This congress has been convened by the provisional central council of the International Working Men's Association, which central council has hitherto sat in London. Seven delegates have left London to attend the Geneva Congress—namely, George Odger, provisional president of the association; W. R. Cremer, hon. sec. *pro tem.*; Carter, Inng, Dupont, Eccarius, and Lawrence, president of the Amalgamated Tailors. The general programme of questions to be submitted and discussed by the congress is as follows,—1. Organization of the association. 2. Combination of effort by means of the association in the different national struggles between capital and labour. 3. Trades' unions—their past, present, and future. 4. Co-operative labour. 5. Direct and indirect taxation. 6. Reduction of the hours of labour. 7. Female and children's labour. 8. Standing armies—their effects upon the interests of the productive classes. 9. That it is imperatively necessary to annihilate the influence of Russia in Europe by applying to Poland the right of every people to dispose of itself and to re-establish that country upon its native democratic basis. 10. The religious idea—its relation to the social, political, and intellectual development of the people. 11. The institution of a system of international credit. The delegates from London are further instructed to press upon the attention of the congress the expediency of a general inquiry into the condition of the working classes.

SCHOOLS OF ART.

The Reading School.—The annual distribution of prizes in this school has just been made. The Rev. C. Kingsley was to have presided, but in his absence the mayor took the chair, and the Vicar of St. Lawrence delivered the prizes. The report announced the continued prosperity of the school. It stated that,—

"During the present year, considerable alterations in the regulation of Art Schools have been made by the Department, the most important being the simultaneous holding of examinations throughout the country, and the severance of the connexion between the central and national schools. By the first of these alterations, the past working year has embraced but nine months, the examination in 1865 having been held in June. The examination this year was held on the 12th, 13th, and 14th of March, and eighty-four pupils attended. Forty-one of these were successful, eight taking prizes, the remainder cards of merit. Nineteen works were sent to South Kensington for national competition. Seven of these received third-grade prizes, which are now awarded instead of local medals. The total number of pupils who have attended has been ninety-six, showing an increase of six over the previous year. The amount received from the Department on the results of the examination was 124*l.* 6*s.* 6*d.* The amount subscribed to the local prize fund, 22*l.* 1*s.* The published results of the examinations, as issued by the Department, show that Reading occupies a very satisfactory position as compared with other towns."

Votes of thanks were accorded to the mayor and to Mr. Havell, the head master of the school.

THE CABLE FOUND.

The most astounding step in progress perhaps ever made with the electric telegraph is the picking up of the lost cable from a depth of 2,400 fathoms, or nearly three miles! in the midst of the Atlantic ocean, after 1,040 miles of it had been paid out from the Irish coast. Every one knows the story of the ship's cook, who was responsible for all cooking utensils which were *lost* while in his keeping. "Can you say a thing is lost when you know

where it is?" he cunningly asked of the captain.—"Certainly not." "Then the stewpan is not lost, for it is down there,—at the bottom of the ocean." The point of this story is for ever lost, since the lost cable has been found. The first Napoleon said the worst of the English was that they never knew when they were beaten. If they were ever excusable for imagining themselves to be beaten, and doubly beaten, it was when the cable broke and sank thousands of fathoms deep in the middle of the great Atlantic. They would have been justified, in the eyes of other nations, not only in despairing of ever repossessing the lost cable, but of ever successfully laying any such cable. The lost cable, however, has not only been found, but spliced anew, and is now on the eve of completion as a second line across the Atlantic. It is in complete order, too; so that a year's lying at the bottom of the Atlantic has done it no apparent harm. Talk of "looking for a needle in a bottle of hay:" what is that to looking for a rope three miles down in the wide Atlantic?

PETROLEUM FOR MARINE ENGINES.

A PARLIAMENTARY paper just issued gives an account of the results of experiments recently made at Woolwich Dockyard with the view of testing the value of petroleum and shale oil as substitutes for coal in raising steam in marine boilers. The experiments were conducted by Mr. Richardson, who had proposed a plan of employing oil instead of coal. The report of the results is not of a very decisive character, but it shows that the value of oils for the purpose in view varies considerably.

The report concludes, that if results as favourable as three mentioned can be obtained under ordinary circumstances, it would appear that 1 lb. of oil will evaporate about double the weight of water which 1 lb. of coal burnt in the ordinary way would evaporate, but at the same time the greater cost of oil (from 10*l.* to 23*l.* per ton) must be taken into consideration. If, however, a great reduction were to take place in the price of the oils, "probably under some circumstances they might be advantageously used instead of coal. The experiments, therefore, as far as they have gone, may be regarded as of considerable value in showing the great evaporative power of these oils, and the practicability of burning them according to Mr. Richardson's plan."

Mr. Richardson writes to the *Times*, and says,—

"The experiments at Woolwich were necessarily commenced with the best and more expensive petroleums. Nothing was known of their properties as fuels; the result has proved that those which contain spirit and burning oil are not so well suited for fuel as those from which they have been extracted; but until a method was arrived at of getting rid of the smoke no others could be used. The smoke was mastered by simply decomposing a little water vapour, carbonizing and burning the gases. The heavy oils, as they are termed—those from which the spirit and burning oil have been extracted—are about the consistency of gas tar. Their market price is at present 5*l.* per ton. . . . . When we remember that gas tar is the same as the heavy oil, only in a more concentrated form, and that it can be obtained in any quantity at 15*s.* per ton, cheapness would be the result of an enlarged manufacture."

In Canada there are vast deposits of asphaltum, or mineral pitch, which the inhabitants call gum beds. Perhaps these could be made available in Canada for engines. A cubic foot of this asphaltum, it is said, represents the effusion of 60 to 80 cubic feet of lubricating oil, and from 100 to 120 ft. of illuminating oil. Some of the best oil-wells in Canada are sunk on or near these gum beds.

ANOTHER CATASTROPHE AT OTTERY ST. MARY.—Eight persons have been killed and twelve seriously injured by the fall of a chimney of one of the numerous houses lately destroyed by fire in this town. A lady who belongs to the sect of Plymouth Brethren was preaching from the ruins of a shop in Jesu-street, leading into the square, to a crowd who stood near and amongst other house ruins, when the chimney of one of them fell amongst the audience. A strong wind was blowing at the time of the accident, and it is believed that the foundation of the chimney had been sapped by water which had collected around it since the great fire. It seems pretty clear that such a ruin ought not to have been allowed to stand, nor ought the preacher to have been allowed to collect a crowd in such a locality. It is said there are numerous other chimneys quite as dangerous amongst the ruins.

NEW RAGGED SCHOOLS, CHARTER STREET, MANCHESTER.

THESE new schools, which are being carried out from the designs, and under the superintendence, of Messrs. Hayley & Dawes, of Manchester, architects, will be three stories high, and will be built of red seconds bricks, with blue bricks arranged in bands round the building. The outer walls will be 16 in. thick, with 2 in. cavity, the outer and inner shells being bonded together with 16 in. purposely-made bricks. The lower story will be 14 ft. high, half being below the pavement line and half above. It contains an infants' schoolroom, 30 ft. by 20 ft. 4 in.; dining-room, 18 ft. 9 in. by 14 ft. 6 in.; kitchen, 19 ft. 3 in. by 11 ft. 1 in.; teachers' room, 14 ft. 10 in. by 14 ft. 9 in.; two W.C.s for the girls and infants, and two for the boys and teachers, with urinals: lavatories and cloak-rooms are connected with each. Large sliding doors are arranged between the infants' school and dining-room. There will be two stone staircases, one leading to the room on the ground-floor, and the other leading to one of the front entrances.

The ground-floor is arranged as one large mixed school-room 56 ft. long by 30 ft. 3 in. wide, which will be divided into a number of compartments for separate classes, and will also have a moveable screen arranged across the centre, one half of the room being then set apart for the boys and the other half for the girls. The upper story is arranged as a lecture-room. The height to the wall-plate will be 11 ft. and to the ridge 23 ft. 6 in. The whole of the woodwork will be stained and varnished. Ventilation will be by flues built in the walls, and carried under the floors and connected with ventilating gratings. The cost of the building, including the purchase of land, will be about 2,000*l.* Mr. Davison, of Cheetham-hill, is the contractor.

VISIT OF THE WORCESTER DIOCESAN ARCHITECTURAL SOCIETY TO GLOUCESTER.

A NUMBER of the members of the Worcester Diocesan Architectural Society and their friends visited Gloucester on Thursday in last week, to inspect its architectural antiquities. Among the party were Sir Thomas E. Winnington, bart., M.P., and Mr. Matthew Holbeche Bloxam.

The party assembled at the north porch of the cathedral, and were there met by Mr. Gambier Parry and others. Archdeacon Sir George Prevost, bart., and friends, subsequently joined the party. The visitors, under the guidance of Mr. Niblett and the Rev. H. Haines, made the entire circuit of the cathedral, visiting the crypt, and ascending to the triforium. They finally emerged through the north door into the Little Cloisters, and thence through the gardens.

In the south transept special attention was directed to the new facing which has been laid upon the old Norman work; to the flying arches; and to the monuments of Alderman Blackleach and his wife.

Mr. Bloxam gave a description of the monuments of the Abbots and of Robert Duke of Normandy. The restored Church of St. Mary de Crypt was visited, where faint traces of wall-painting yet remain. Being on the spot, Mr. Gambier Parry gave a sketch of mural decoration in general, adducing interesting details of the old and new modes of working in fresco and tempera. Mr. Parry mentioned that all the nave of the cathedral was once painted, and when the columns were cleared of whitewash interesting remains of the painting were found, but they had, unfortunately, been scraped away. Indeed, the old architects seemed always to have considered their work incomplete without the aid of colour. The party next proceeded to the Blackfriars, and afterwards looked, as they passed, at the painted-glass window from Munich, now lodged for a time at the School of Art. Thence they returned, and about forty sat down to a dinner at the New Inn, in the large room recently erected on the site of the old dining-hall. The tables were arranged in shape of an architect's T-square, and were decorated with flowers. Sir T. Winnington presided, and was supported by the Ven. Sir G. Prevost, bart., Mr. Gambier Parry, Mr. Niblett, &c. St. Nicholas Church was afterwards visited, and the party then proceeded, by invitation, to Highnam, visiting first the church, where, at a request of the president, Mr. Parry made some remarks on fine art. They next adjourned to the Court, outside to view the gardens and landscape, inside to inspect several specimens of ancient art, arranged by their owner.

Mr. Parry gave all his time, both in Gloucester and at Highnam, to show the visitors whatever he thought might best interest and instruct them. On their return to the New Inn, Mr. Niblett produced drawings to illustrate and explain certain peculiarities of the Great Abbey, and Mr. Haines also showed some rubbings of brasses of this neighbourhood. Mr. Bloxam made remarks upon the monumental effigies in the Cathedral, the glass at Highnam, and upon the drawings and the sepulchral brasses. Sir Thomas and his party, including several ladies, slept at the New Inn. The party arranged next day to visit Cirencester and Fairford, to inspect the church and museum of the former place, and the stained glass in the church of the latter.

BACK VIEWS AND FASHION'S WHIRLIGIG.

To "see suitors following and not look behind" is one of the merits in a woman that goes towards getting Iago's praise, such as it is; nevertheless, a glance behind now and then, "in man or woman, dear my lord," is a very desirable thing. In architecture, sculpture, and costume, it is excessively important that we should take care how things look behind. If we go behind a bedizened front and find it a sham, "false as dicers' oaths,"—that the expressive gable, for example, has no roof against it, and that the rest of the structure is all in "the back-kitchen style," pleasure no more is to be found in the front, the illusion is destroyed, and we grieve that the architect did not give some little thought to the back view. Looking at some of this tea-garden architecture, the green and unsuspecting spectator is filled with visions of beauty and glows with delight. And no wonder he says in his heart,—

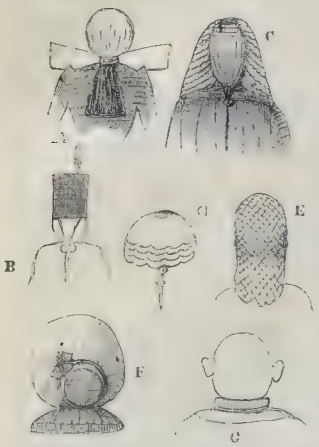
> "For wheresoe'er I turn my ravish'd eyes,
> Gay, gilded scenes and shining prospects rise;
> Poetic fields encompass me around,
> And still I seem to tread on classic ground."

Presto, however, he gets behind, and there he beholds nothing but sticks and canvas, nails and glue. So, pray, Mr. Architect, when you are putting up a building, do always consider what the back view of it will be.

Do our sculptors always think of this same necessity in their case? Certainly not. For example, some of the statues in Trafalgar-square, Bloomsbury-square, and elsewhere, seen from the back, are but laughable caricatures. Such a result might always be avoided if sufficient attention were paid to the matter. An out-of-door statue should look well from every point of sight. The statue of Sir Hugh Myddelton, on Islington-green, though not high art, yet in consequence of skilful arrangement, looks well when seen from most directions; so does the statue of the Duke of Bedford, in Bedford-square. We cannot say quite the same of the otherwise excellent Crimean monument in Waterloo-place; and as to the colossal Duke on horseback at Hyde-park Corner, seen from some points it is positively hideous. When, by the way, is this statue to come down, so that its really good points may be obvious. We made a long fight against its elevation years ago, and obtained something very like a promise from the then Chief Commissioner of Works that if ever the Duke could be brought to yield his wish, and he, Lord Carlisle, were then in office, it should have a lower pedestal. The statue of Canning, at Westminster, is not satisfactory behind. The front of this work of art is remarkable for boldness and breadth, but seen elsewhere is unmeaning and common-place. In the front of this statue, by the way, there is a long and nearly straight line in the drapery; and it is said that this was the work of Turner, the landscape painter, who, when asked by Chantrey to suggest anything that would improve the model, drew this severe line with a walking-stick.

As regards costume, who that has seen the back of the speaker of the House of Commons, or that of the judges, in their wigs and robes, can forget the sight? How odd is the back view of a herald and some other state functionaries. A seat at the back of a concert-room, or in the last row of stalls at the opera, will always give some back views worth study and suggestive of the necessity of preparing for the back observer. We have been led into this vein of gossip by looking

at a sketch or two that we have gathered from time to time: and here are some of them:—



A and B are state and military backs of the time when George II. was king; C and D are legal backs; E and F are female backs, seen in the reign of our gracious Queen; G is the outline of a back view in Whitechapel, and a terrible view it is. Others are ludicrous, but this is alarming. Similar back views, and worse, are to be met with in other parts of the metropolis, where the thick neck may be seen enclosed in gaudy-coloured neckerchief. In dark and unwholesome dens this dangerous race of wide-necked gentry have been reared, in the midst of ignorance and vice. For the very means of existence, and in self-defence, they have been forced to battle with those around them, and so principally come such developments.

The modern chimney-pot, to be worn presently, if we may judge from what is being done in Paris, taller and straighter than ever, does not make a good back view; but nothing better has yet been hit upon. The wide-awake is much more comfortable, but it is disorderly and undignified. Some would get rid of hats altogether, and point to the Blue-coat boys to show it can be done. In this uncertain climate, however, such a step is out of the question. We need protection as well from the rays of the sun as from cold and rain. It is difficult to understand why men deprive themselves of the advantage a light umbrella offers against a hot sun; but so it is, except in occasional instances. However, as to hats, the attention of a genius is needed for the production of an agreeable form, satisfying to the eye of taste, and capable of being varied to suit particular countenances. In addition to this requirement, it should be made to fit comfortably to the head; above all, it should not press on the temples, or other parts, so that the circulation through the blood-vessels may be unimpeded. Often, when wearing a new hat of the chimney-pot shape, we have envied the monks their snug cowls, or the old German printers the comfortable head-dresses which their good sense willed them to wear. Further, there should be such ventilation as will prevent the inside of a hat from being a cell of heated air, produced by the warmth of the head and the sun's rays outside.

In the manufacture of head-dresses for summer wear, it should be kept in memory that black absorbs heat to a much greater extent than lighter tints. It is therefore desirable that the proper colours should be selected. In hot climates the general use of white in large quantities, both for head-dresses and for the robes which cover the body, is the result of experience, which teaches what colours, under the peculiarities of the climate, afford the greatest amount of protection. It is also worth notice that in those regions the turbans worn on the head are arranged in various folds, for the purpose of resisting the heat: besides, there is no glaze on the linen of which the head-dresses are composed; and from this we may learn that if thin materials, such as straw, be used in very hot weather, the surface should be kept dull; and that, although ventilation is attended to, the inside should be thickly padded with wool, or some other light material, which will serve to repel the heat; but felt, for the main portion of a hat for summer use, is preferable to the wooden case, overlaid with silk or straw, or other matters, or the oil-cloth or other glazed fabrics which are often employed in the manufacture of hats and caps. Besides its capabilities for repelling rays, grey and other felt has the advantages of being pliant and fitting comfortably to the head without any improper amount of pressure.

For a long time a foolish attention to routine caused serious damage to those portions of the British army which were stationed in India, where the men were forced to wear stiff neck-stocks and caps and hats that were almost unbearable at home. The effect of this want of attention to the suitable arrangement of clothing was that much loss took place in the Crimea. Matters are far from being right now; but the introduction of white head-dresses and other light-coloured clothing has been the cause of much comfort to soldiers who are serving in tropical climates: even the covering of dark-coloured hats and caps with white cloths has been found to be of advantage, and something of the same kind might be usefully introduced at home during the intense heat of summer. Again, the brim of a hat should be made of sufficient width to shade the face and protect it from rain. We have not heard how the police are satisfied with their altered head-piece. Let us, nevertheless, amongst our sketches record its aspect, with that of the hat it superseded, and the head-covering of the old Charley, put aside not too soon by the police.



What a whirligig is fashion! As it spins round what varying forms pass before the eye.



It is curious to watch the changes its incessant moving brings, as well as a recurrence of old forms. If we look back, say to the time of Queen Elizabeth, we see quilted and padded petticoats which in their general appearance much resemble the monstrous hoops of cane or steel work which so much encumber the sex in the present day; and it is to be noted when studying the never-ending changes, that more or less there is to be observed a sort of imitation of the ladies' dresses reflected in those of men: see, for instance, the trunk hose of the courtiers of Elizabeth's reign, and the peg-top trousers and sleeves of the time of Queen Victoria.

It is also a curious circumstance of fashion's movement that costumes are carried to the most ridiculous extent, and then suddenly, as if at a pantomime, an alteration is made to an opposite extreme. Thus, crinoline being doomed, it will be laid on one side, and instead we may look for a revival of narrow, scant skirts, and waists which terminate under the arm-pits; and instead of the bonnets which barely cover a part of the head, it is not unlikely that the monstrous coal-scuttle may be once more revived, to the outrage of taste. The present pretty attempts at head-covering do not in many cases afford sufficient protection,—without a parasol they would be positively dangerous; but they are infinitely more artistic, and, when not too small, more healthful than the coal-scuttles aforesaid. Of the present mode of dressing the hair we should speak as strongly in favour if it were not carried to excess and admittedly a falsity. In theory, there is not a word to be said against it: in practice, it is utterly abominable and discreditable. The only thing that can be urged in extenuation is, that the imposition is so universal that it has ceased to deceive: the honesty of the *chignon* is in all cases doubted. We may hope that some of the subjects of our last sketch, bits of "the porcelain clay of human kind," are exceptions from the general rule; but the innocent suffer with the guilty. The growing taste for extravagance in dress needs strong control. What we want are moderation and good taste: the education of the eye for good form, and knowledge of the effect of colours, to produce harmonious repose. It was said of Ben Jonson, as a critic, that,—

> "Nature in him was almost lost in art."

Nowadays, in the person, the triumph of the latter is often complete, and this, artists though we be, we desire not. As for the frightful and increasing practice of whitening and colouring the skin, producing something, oh, so unlike

> "The beauty truly blent, whose red and white,
> Nature's own sweet and cunning hand laid on,"

no denunciation can be too violent. Good taste is not over-common amongst our milliners; a proper school for them is needed. A fair form may be disfigured, and the milliner, complacently gazing, will consider it, what is truly,—

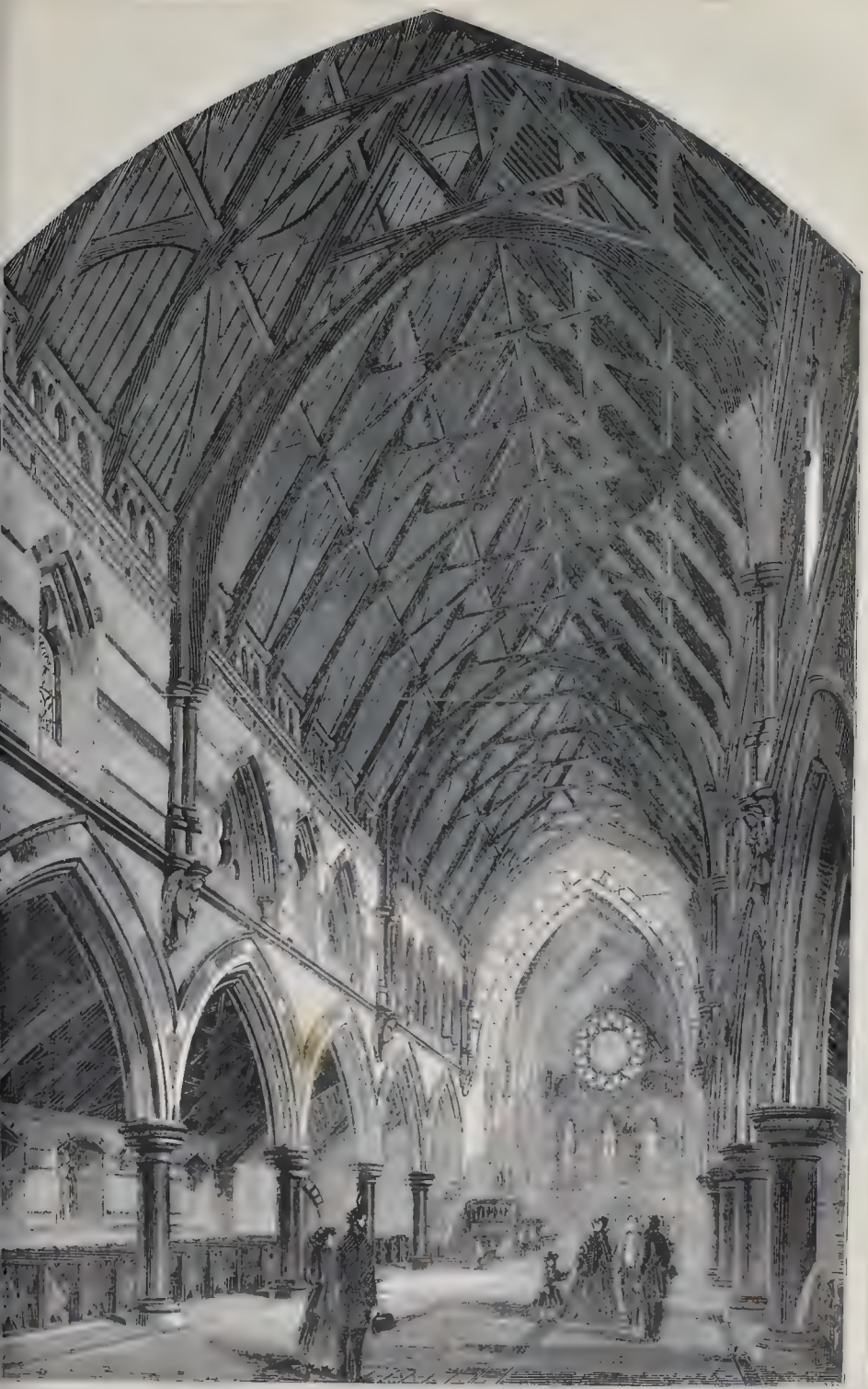
> "Earth's noblest thing, a woman perfected."

And who shall praise the character of woman too highly? What are her foibles contrasted with her strength and nobleness,—

> "She, when Apostles fled, could danger brave;
> Last at his cross, and earliest at his grave."



Finis coronat opus.



URCH OF ST. STEPHEN, QUEEN'S GATE GARDENS, SOUTH KENSINGTON.—Mr. Joseph Peacock, Architect.

ST. STEPHEN'S, SOUTH KENSINGTON.

THE new Church of St. Stephen, Queen's-gate Gardens, South Kensington, of the exterior of which we published a small engraving in our volume for 1864, is approaching completion, and we now give an interior view of it. The church is arranged without galleries, with nave, aisles, transepts, and chancel, to seat 1,100 on the floor. The nave is 99 ft. 6 in. in length, and 36 ft. in width. The chancel is 36 ft. long and 26 ft. wide. The tower (the building of which was delayed for the present) will stand at the north-west end, detached, and form the chief entrance; and near it will be the baptistery, formed on the west end of the north aisle, octagonal on plan, the roof groined in stone.

The site was purchased of the freeholder, Mr. Alexander, for the sum of 3,000*l.*, and the church is being erected by the incumbent of the district, the Rev. J. Astbury Aston, with such aid as he could obtain from the locality. The cost of the church and fencing, exclusive of the tower, will be about 9,500*l.* It is faced externally with the grey Bargate stone, with Bath stone dressings, relieved with shafts of red Mansfield stone, and the tower will be covered with green slates. Internally, the piers of the nave arches are of blue Pennant stone, the caps and bases are of Hollington stone, the arches of Bath stone. The walls are faced with pale Malm brick, with bands of red and black brick; the gauged arches of rich coloured brick, relieved with red and black, and laced with stone. The principals of the nave roof are supported on clustered shafts of Bath and red Mansfield stone, resting on carved corbels, the windows of the clerestory being divided into three lights of different groups. The chancel is lined with Bath stone, incised in pattern, the windows having shafts of Serpentine and Devonshire marble. The chancel arch rises from a cluster of red and green marble shafts, with carved capitals and corbels. The nave roof is of stained deal, in open timber: the chancel is groined in wood. The church will be fitted with open benches of deal, the chancel with oak. The aisles will be paved with Staffordshire tiles, the chancel and baptistery with Minton's tiles in pattern. The pulpit, reader-desk, and font, will be of stone. The church is built from the design of Mr. Joseph Peacock. Messrs. Simms & Marten are the builders.

THE ROCK AND SORCERY CHAMBER CARVINGS OF IRELAND.

SIR,—Your remarks seem to have somewhat offended" and annoyed Mr. Du Noyer; just as my [illegible] that chambered barrows may not have all always been graves has given grave offence to the Rev. Mr. Graves; and hence all the imagined "irritability" in my really quite cool and good-natured, but apparently *irritating* because uncompromising, correction of wrong and reckless writing; and hence, too, is it that I am a "purblind architect of theories," not to be compared with the self-named "hodmen of facts," who are my opponents.

With all his evident good will to the task, Mr. Du Noyer has not been able to start one single objection to the statements in your pages without first of all basing his objection on obvious misapprehension or misrepresentation of what is said.

As to the word "oddly," it was obviously not used with reference to any such comparison as that now alleged, but simply from the mere coincidence of *both* Mr. Du Noyer and Mr. Graves having written ostensibly about their own discoveries while by far the most interesting and important matter brought forward in both papers was Mr. Conwell's new and startling discovery, which was not even hinted at in the paper of either. Had only one of them done so, the word "oddly" would, even then, probably, not have been used at all.

As regard to the really worse than "purblind" remarks of Mr. Du Noyer as to the diagrammatic figures in the review of his paper, all I need say about these figures and the context, as any one with half an eye might see, have nothing to do with the "fern-like device" from New Grange, the dibbing of which he has taken the trouble to show you; nor with the VVV of that fern-like device, although they have to do with the ΛV of the X of ancient Egypt, which, as here used, is quite another thing, although Mr. Du Noyer does not see it. If this be the way, however, in which Mr. Du Noyer carries his hod and gathers his facts, he cannot even be a good hodman.* He evidently requires to reperuse what was said, and to look once more at the diagrammatic figures which will then be before him, as well as at the carvings of New Grange, and at his own illustrations of some of those at Slieve-na-Calligh; and surely he will *then* carry away with him in his hod at last the actual *facts* of the case, which he plainly has not yet been able to do.

Were it not that a gentleman who is employed in a geological survey office may be a good surveyor without being much of a geologist, I certainly should have felt some surprise at Mr. Du Noyer's geology. "The best geological evidence" which he adduces seems to be his own, which is the only evidence adduced; and from that it appears that he evidently sees not the slightest reason to doubt that "glacial striations" on the summits of Slieve-na-Calligh *must necessarily* have been produced by "icebergs;" and that *hence* these summits, "*at the time* [of the glacial striation], must have been submerged beneath the sea;" whereas "glacial striations" could have been produced, during the glacial era, by land glaciers gliding down from the summits themselves, while not even the lowlands might *by that time* have been all submerged. To say the least of it, at all events, the theoretical conclusion that "glacial striations" on hill tops demonstrate that "icebergs" must have made them, and hence that, at the time of such striations, the hill tops must have been "submerged," may be a fine specimen of hodman theory, but would scarcely satisfy theoretic architects.

First of all Mr. Du Noyer starts with the *implied* supposition (which was none of his reviewer's, although he misrepresents it as such) that the chambered barrows of Slieve-na-Caillighe were in fact not works of any period *during* the glacial era at all, but were *pre*glacial; and he then proceeds to demolish that "theory" of his own creation, by showing that the icebergs of the glacial era, at the opening of which era the land was depressed, would have swept away all such structures as these by that time deeply submerged and *hence long previously erected* tumuli. Of course they would; and the New Grange and Dowth ones would have shared the same inevitable fate, unless indeed *they* were by that time too deep down among the fishes for the icebergs to reach them—"1,500 to 2,000 ft. beneath the level of the sea!" These preglacial nine-pin tumuli, however, which Mr. Du Noyer has just knocked down with his icebergs, are of his own setting up—not yours.

Now, although it is not easy to *quote* in few words any complete idea of the glacial era from geological works, let us see, and with as much brevity as possible, what is said of this glacial era by one or two geologists who really know what they are talking about,—albeit they are not mere hodmen, or fact gatherers, of science, but also "architects of theory."

The beginning of the glacial era is thus alluded to by Professor Phillips in his "Guide to Geology" (pp. 81 and 173, 4th ed.):—

"The cold was preceded by a great subterranean movement—a change of the land and sea."

"After the age of the crag and other preglacial deposits, a large portion of the northern hemisphere was depressed; the sea currents were altered; the temperature was lowered; and the mountains, though less conspicuous, were overspread with snows, which gave birth to glaciers."

Lyell (ed. 1855), in speaking of the northern drift having been found in one locality at a height of 1,392 ft. above the level of the sea, says:—

"It is remarkable that *in the same neighbourhood* where there is evidence of so great a *submergence* of the land *during* PART *of the glacial period*, we have *also* the most decisive proofs yet discovered in the British Isles, of *subaërial gluciers*."

In other words, although, *during one part*—that is at the opening—*of the glacial era*, the land, generally speaking, lay deep beneath the ocean; *during another and subsequent part of that era* the land was no longer thus deeply submerged, but had risen above the sea and was covered with *land glaciers*, traces of which still remain.

Again, Phillips (p. 78) thus describes the general features and the probable time of the glacial era in Ireland and Britain:—

"There is reason to think that, *during very late geological*—PROBABLY PREHISTORICAL—*periods*, the same northern zones of the earth which, *in earlier times*, had nourished plants and animals resembling those within the tropics, were chilled by a general reduction of temperature; so that *the mountainous* [and, at that time, *island*] *regions of Great Britain and Ireland*, were covered with perennial snow; their rugged *valleys filled with gliding glaciers*; the SEAS AT THEIR FEET, filled with arctic life, and covered by floating icebergs, loaded with rocks."

True "the cold was *preceded*," as Phillips remarks, by a depression of the land; and the glacial era existed even while the present land was, as he states, about 1,500 ft. to 2,000 ft. lower than it now is; but it rose by degrees *during* that era, and continued to do so till it had reached nearly its present level "at the close of the glacial" and the commencement of the "post-glacial and lacustrine" era, when "much the same general conditions of land and sea as those which now prevail" existed and have since continued to exist.

Now the idea suggested in the *Builder* was that many of those prehistoric records which have so generally been found on high ground, as in Northumberland, Argyleshire, and at Slieve-na-Caillighe itself, may probably date from that late period of the glacial era when the higher lands were yet islands, and the lowest levels of the land as it now exists were not yet above water;* or, in other words, towards the "close of the glacial era," as before expressed,† on the occasion indicated in the passage quoted from your review by Mr. Du Noyer; and not date from an era preceding the submersion of the land, and hence preglacial altogether, as he has represented. His disingenuous version of this idea is therefore really a gross and inexcusable misrepresentation.

The drift of which he speaks must be the great northern drift, in which no stone implement has ever been found that I am aware of, but which was deposited while the general surface of Ireland *was* covered by a deep sea, which floated gravel-mud-and-boulder-loaded icebergs from more northern regions to the future site of Ireland as it is; just as the cold arctic current south, from Baffin's Bay, &c., still floats icebergs to the coast of Newfoundland, where they melt and deposit the detritus or drift with which they are loaded; whereas the local glacial drift originated in *local* glaciers, which, as Professor Phillips expresses it, "broke off at the seaside," and drifted off as icebergs till they also melted away, depositing the detritus or drift with which they, too, were loaded. Stone implements have been found either in this detritus or in that of these very glaciers *before* they reached the coast of the time, or as they glided down to it, like rivers, for which they have been theoretically mistaken, from the highlands, and through the valleys, which they filled to a very high level even while they deeply excavated them. It is needless, however, for me to say more in connexion with Mr. Du Noyer's geology, or with the idea of the contemporanity of the "pre-historical people" who carved the rocks and sorcery chambers with the "very late geological—probably pre-historical—periods" approximating to "the close of the glacial era." On what *facts*, by the way, does Mr. Du Noyer base his own theory?

I cannot see any force in what Mr. Du Noyer says of the pair of compasses. The question is whether the circles, even on the bone flakes discovered by his friend Mr. Conwell, be geometrical,—not whether they have central dots: the concentric circles on the Northumbrian rocks have central dots, but they are not geometrical, and never could have been traced by compasses. If the bone-flake circles be geometrical or symmetrical, why did not Mr. Du Noyer say so? That would have been much more to the point (of the compass leg) than to have told us they have central dots. But even though these bone-flake circles be geometrical, that does not prove

* Is Mr. Du Noyer, in calling himself a "hodman or carrier of facts," quite ready to accept the legitimate inference as to the worth of a hodman's opinion on those questions of inductive structure and plan or theory, with which it is certainly not for hodmen, but for "theoretic architects," and their hands, the bricklayers and masons of science, to deal? If it really be the summit of his ambition merely to carry facts as a hodman to the theorist, and not to be a theorist himself, he differs sadly, without knowing it, from his great would-be exemplar, Lord Bacon, who thought it very hard indeed that, in his day, he should have no useful hodmen to carry facts—the raw materials of theory—to him, but was obliged to act as hodman himself. Mr. Du Noyer, as an archæologist, ought to be ambitious to be something more than a mere hodman of his science, if he wishes his opinions on questions of theoretical structure, or induction from facts, to be respected. He ought either to abandon the antiquated nonsense on this subject which leads him to limit his ambition to the mere carrying of facts to the theorist, for whom he expresses so unworthy a contempt, or he should cease at once and the same time to despise theory, and yet to theorize.

* It does not at all follow that this theory is not tenable because the sites of New Grange and Dowth are not so elevated as the great majority of the localities of carved rocks and barrow chambers; because still, both the New Grange and the Dowth barrows may have belonged to the glacial era, only a little later, when even *their* sites had risen entirely above the level of the sea.

† See *Builder*, 22nd April, 1865.

the carvers of the ungeometrical circles to have been the original proprietors of the compasses found along with the bone flakes.

As for the alleged oghams in New Grange, it is pleasing to note that since I first wrote on this subject in the *Builder*, a certain class of Irish archæologists appear to be making rapid progress—backwards—towards Colonel Vallancey's belief that they *were* oghams,—for, till now, they have had no doubt at all about their being "palm-leaves and circles;"—but it is evident that they begin to doubt the correctness of the palm-leaf and circle "theory" altogether, and incline rather now to doubt whether they may not be oghams after all! Mr. Graves, who was an out-and-out palm-leafist till I dissented from him in the *Builder*, now even admits that one of the inscribings "looked like an ogham;" and assuredly the rubbing sent you by Mr. Du Noyer has no likeness whatever to palm-leaves, or circles either, but it has a generic likeness not only to oghams but also to inscriptional looking characters among the cognate carvings on the Northumbrian rocks; and now that an "unquestionable" oghamic inscription has been discovered in another of the Irish sorcery chambers, and a cryptic or oghamic rune in the one at Maeshowe (resembling others, by the way, in the *still glacial* vicinity of Baffin's Bay), it may be felt convenient to drop the absurd palm-leaf theory, and the stupid ridicule aimed at older and perhaps wiser archæologists, *who believed, from the first, in the connexion of oghams with sorcery halls*; and to fall quietly into the ranks of the "purblind architects of theory" who advisedly rejected the palm-leaf idea as the palm-leaf theorists themselves now also appear to do.*

J. E. DOVE.

GLOUCESTER CATHEDRAL.

SIR,—A few days ago, during a stay of a few hours in Gloucester, I was naturally desirous of seeing the cathedral: so accordingly at five p.m., I entered the south porch; but found the door was all but closed, and that I could not gain admittance in consequence of a piece of wood being placed skilfully by one of the vergers to that establishment (I can hardly call it anything else). My trying the door soon brought one of those officials (on the watch, I suppose) to my assistance, who, when applied to by me for entrance, to walk down the nave—for I thought, as at Westminster, Salisbury, and Worcester, one was allowed that privilege in any cathedral—I learnt to my disgust that he was willing to let me enter if I would undergo the punishment of being shown over the building by him, and listen to his traditional lies, wrong dates, and general humbug; but at the same time gave me most distinctly to understand in a semi-impudent tone that he would not let me enter on any other condition. Before visiting this cathedral, I thought a visitor was allowed entrance to any cathedral, and that if he wished to be shown certain parts of the building, such as the choir, lady-chapel, chapter-house, and crypt he would most properly have to pay a small fee for the trouble of the verger in showing him these parts. Next morning I tried to gain admittance a few minutes after nine (having learnt from one of the inhabitants that it was open at that hour); but this time saw a stout verger, who said exactly the same words, but in a still more impudent tone than his thinner brother. This official consequently slammed the door in my face, telling me the cathedral would be open at 10.30 a.m. for service. Unfortunately I had to leave the city a little before ten, and did not have time to complain to the dean personally, who surely cannot be aware of such arbitrary powers as these being evinced by the vergers of the cathedral. No one objects to pay any authorized fee for entrance to a cathedral in aid of the restoration fund, as at Hereford, where the visitor has to deposit a small fee in a box for that purpose, and also to sign his name in the visitors' book. There are also printed notices about the cathedral distinctly forbidding any fees to the sextons, who are paid by the Dean and Chapter. At Worcester the visitor is forbidden to give fees to the sextons, excepting in case of being shown over certain parts of that cathedral. It cannot be in keeping with a sacred edifice to make it a show-place, where money is all but "taken at the doors."

THOS. B.

SHAM ARCHITECTS AND SURVEYORS.

SIR,—Most cordially do I endorse the opinion expressed by your correspondent "Metator Leodiensis," that active and comprehensive steps ought to be taken to "have the professions of Civil Engineer and Architect recognized by law, as are those of law and medicine;" and, indeed, without making further transcript of his excellent letter, I may especially commend to the consideration of "all whom it concerns" the concluding paragraphs thereof.

Has it ever occurred to your correspondents on this subject that Parliament has already recognized two important points, if not three, leading to the legitimate deduction that the evil of pretenders and sham professors is at least noticed and admitted; and, therefore, any moderate and fair measure for the protection of the really qualified man would meet with less difficulty than if the matter had never been recognized at all? Let me make three or four statements and afterwards prove them.

1. Government has recognized the existence of "Sham Surveyors" and unqualified pretenders in our profession.

2. Government also admits that occasionally the sham surveyor may, through the stupidity, cupidity, or meanness of the local constituted authorities, by fair means or foul, get hold of an appointment as town surveyor or surveyor to a local Board.

3. Government deprecates such a calamity, and provides what we all must admit is a very good and proper remedy. Let me prove these various points by reference to 10 and 11 Vic., cap. 34, commonly called the Towns Improvement Clauses Act, 1847.

Sec. 7 provides for the appointment of a local surveyor to take charge of the paving, lighting, draining, and other works carried out in the town.

Also that the surveyor shall be "a *person duly qualified.*"

Also that his "due qualification" shall not be a matter settled by a resolution of the local Board, but his appointment shall be "subject to the approval of one of her Majesty's principal Secretaries of State."

And I happen to know that this "approval" by no means follows as a matter of course, for having myself been elected town surveyor from among fifteen others some years ago, my name was duly sent forward "for approval," and the reply was to this effect:—"Before the appointment of Mr. A. B. can be confirmed, his experience and fitness for the office must be proved." And I well remember that time and patience had to be expended before I could "observe" my qualifications sufficiently to obtain the official approval. Surely, then, as the way is already paved, we have influence enough and power enough to obtain legislative protection similar to that of the other professions; and I am fain to believe that hundreds of your readers, like the very humble one who now addresses you, would gladly co-operate with exertion and fund to bring about this desirable result.

CARIL WALDE.

DEODORIZERS.

SIR,—I feel sure that the beneficial effects, both as to health and comfort, to be obtained from the use of deodorisers requires only to be known to be more generally adopted in private houses. The trouble of mixing with water, in proper quantities, the ordinary deodorising fluids, and the expense, have no doubt retarded their more general use; but this does not apply to the powders.

The Local Board of this town (Boston) having directed that deodorising powder should be given away amongst the poor, I have lately tried various kinds, with a view to finding out the most effective and economical, and consider the two best to be—

McDougall's Disinfecting Powder, which costs 10s. 6d. per cwt.;

Dr. Bishop's Sanitary Powder, which costs 5s. per cwt., and is also made up in packets of 1d. each and canisters at 6d. each.

The former is a fine white powder, requires no preparation, and is free from poison.

The latter is a brown powder; and on account of its cheapness, and the convenient form in which it is sold, is the one that I have adopted for use in the borough. The sixpenny canisters are perforated at the top, so that they may be used for dredging the powder.

I consider that no private house should be without a supply of one of these powders; that a little of the powder should be sprinkled twice a week in the dustbin, and wherever any smell is perceived; that in all water-closets a dredge containing the disinfecting powder should be placed, and a little be dusted at each time of using: this will not only free the air of any disagreeable odour, but assist in keeping the house-drains sweet; and wherever a smell arises, whether from drains, stables, privies, or ash-bins, the powder should be sprinkled from time to time, by which means foul smells will be avoided, and noxious gases will be prevented from finding their way into the house.

W. H. WHEELER.

CARRYING TOOLS IN THE STREETS.

AN action, Smith *v.* Emerton, was brought in the Sheriff's Court to recover 6s. damages sustained by the plaintiff through the negligent conduct of the defendant. The plaintiff stated that he was walking in the City on a recent occasion, and he met the defendant, who was carrying a small plane, called a plough. A piece of sharp iron projected over defendant's arm, and caught the sleeve of plaintiff's coat, tearing it so that it was necessary to have a new sleeve. Plaintiff considered that defendant was carrying the plane in a very careless manner. Defendant said he carried the plane as safely as he possibly could. There was a particular way that he and his fellow-workmen carried the tool, and he thought it was plaintiff's duty to have avoided it.

The Sheriff said he was clearly of opinion that plaintiff was entitled to recover. It was the duty of workmen carrying tools in the public streets, especially in the City, to take care that no injury was done to passengers. Defendant should have a bag for his tools, as carpenters had, or he should cover them up so that they might be safely conveyed through the public streets. There was no doubt he had not done so in the present case, and therefore plaintiff would have a verdict with costs.

IRELAND.

Church of the Magdalen Asylum, Lecson-street, Dublin.—In a recent limited competition for the best arrangement for laying out the sum of 1,200*l.*, the bulk of which was a bequest of a charitable lady, towards the improvement of this estimable institution, the Messrs Lanyon, Lynn, & Lanyon were successful. Externally, in common with the whole institution, its present aspect is best described as hideous. It is now a considerable number of years since it was built. The proposed improvements comprise an entire new front to the church, with a tower and slated spire, a porch, and groined vestibule, with organ and females' gallery. The females will be screened from the public by an organ, designed to fit in the newly-formed semicircular arch, which will open the females' gallery to the church. At this level a passage through the tower will serve for communication with the institution. The style of the old building may be termed Classic. The new work is Mediæval in style, French Gothic detail seeming to prevail. Coloured materials will be used in bands and arches on the external face, red, blue, and yellow bricks being introduced. The rose window, and the leads of some of the windows, will be of Bath stone, executed as plate tracery; the minor arches spring from limestone shafts, with carved capitals. Mr Tighe is the builder.

St. Philip's, Milltown.—This new church is in course of completion on the Temple-road, a rising district of the "Palmerston" property, and is designed to accommodate 200 worshippers. The general arrangements are simple, and in strict accord with the ritual of the Anglican Church. They consist of a nave, 60 ft. by 23 ft. 6 in.; an apsidal chancel, 19 ft. 6 in. by 19 ft. 6 in., of semi-hexagonal form; a robing room, with adjoining stairs to future organ chamber; with a south porch, for the present omitted. A spire-capped tower on the north side forms, on the ground-level, the porch, and stands isolated from the building, with which a cloister vestibule, lighted by shafted arcades, connects it. The upper stage of tower, with the slated spire, for the present deferred, will form the most novel feature of the design, and will exceed 100 ft. in height. The bell-chamber with arched, cusped, and shafted openings on the four faces, is filled with stout slate-shaped louvres. The quoins at this stage will be shafted, with caps and bases to match. Here, also, bands and arches of varied material will be introduced, formed of materials of the locality. The slated spire, of moderate pitch

* Of the cryptic rune inscriptions at Maeshowe and Baffin's Bay, Dr. Charlton says:—"It is well known that this cryptic style of writing is identical in arrangement with that of the Irish Oghams." May not these cryptic or oghamic inscriptions, then, if more ancient than other runes, be capable of reflecting some new light on the more obscure Irish and Northumbrian inscriptions?

Dr. Charlton, by the way, Mr. Editor, appears to be one of those eminent Runic scholars who happened to translate simply into the word "tumulus" or "howe" of "Lodbrog," the Runic characters which another eminent Runic scholar, Professor Rafn, rendered "Sorcery hall" of Lodbrog, which still involved the meaning of chambered barrow or howe as well; but even Dr. Charlton, so far from considering this barrow to have been exclusively used for sepulchral purposes, admits (the very rune from which Professor Rafn translated rendering it possible) that "a Norse witch" of the name of Lodbrog "may [at some time or other] have uttered her incantations in this gloomy cavern,"—like the Cumæan Sibyl, I may add, in her rocky cell. And it must be noted that the Lodbroks were "the famous half-fat itious *heroes* [or demigods, of early Scandinavian times," as Dr. Charlton remarks; and that it was the belief at least of the Runic carvers, as expressed by their inscriptions, that the chambered barrow or pyramid at Maeshowe was formerly "erected for Lodbrok;" so that *in their estimation* it was no *ordinary* "tomb," since it was erected for a demigod. That this fact, to a certain extent, supports Professor Rafn's translation, and so far countenances the use of his rendering of the name "Sorcery hall," in preference to merely "tumulus" or "howe," is very obvious; and hence, I presume, even Dr. Charlton's supposition, that at one time a witch may have made use of it for purposes of sorcery or magic,—such purposes, in fact, as those also indicated by the Druidical or Tartesin recor is in an allusion to "the narrow house under the tumulus" where "the god Ha" and the Druidical "hero" or magician lay as "bedfellows;" like the sibyl in oracular entrancement by, and with, her god, upon the rocky bed, within her "gloomy cavern" at Cumæ; or the "chosen priestess," with "the god Belus" or Baal, on the "elegant bed" of the god or his oracle in the temple of the pyramid at Babylon. Such chambers, cells, and temples are quite as unlikely to have been mere burial-places as any cromlechs are. The sloping rock-bed of the cromlech was no doubt just another mode of "consulting the oracle" in a priest or priestess, laid out in a state of entrancement *sim latus ac death*, and in this case probably exposed to the reverent gaze of the congregation surrounding the cromlech altar as the centre of devotion. I may here also note that it has been remarked by others, that of all the hundreds of concentric circled and other rock carvings, so closely resembling those of the Sorcery chambers, scarcely any were *sepulchral*; nearly all appearing to have far more closely related to the *living* (as in circles and camps) than to the *dead*. So much for the sepulchral theory of Mr. Du Noyer. These hints are not intended for mere physical-fact-gatherers, who cannot be expected to see their force or probability.—J. E. D.

will be relieved by cut stone lucarnes, pierced, cusped, and decorated with crockets and other such cut-stone ornament characteristic of the style, which is Early French Gothic. Portland stone is used for all external carved work, tympana of doorways, capitals to shafts at doors and arcades, &c. A bold arch, with shafted and carved corbels, together with a low ritual screen in Caen stone, separates the chancel from nave, from which it is reached by six steps; another step and footpace ascending to the altar. A Caen stone carved pulpit will occupy the north pier of the chancel-arch, and a carved oak lectern the south. At the entrance, in a suitable position, will stand a Caen stone font. Except at the west end, where there are three lancets, with piercings over, the church will be lighted, both in nave and chancel, by single lights, with point-arched heads. The roof will be formed of open stained red pine timbers of hammer-beam construction, with arched principals and spandrels pierced, springing from moulded corbels. The benches will be open, with substantial cut ends. Externally, the materials used are granite, limestone, black calp, and Portland stone. Ornamental iron cresting and crosslet will terminate the hip and ridge of chancel. The cost is about 2,000*l*. The architect is Mr. Thomas Drew, known in connexion with Mr. W. G. Murray, of Dublin. The builder is Mr. Walter Doolin.——A large store, for the purpose of the provision trade, is being erected in Tomb-street, for Messrs. Sinclair, of the same town, from designs and under superintendence of the same architects. The facing is of red brick, with black bricks and bands, archivolts, and cornices, and the cost will be about 4,000*l*. The contractors are Messrs. Lowry & Son.

Miscellanea.—A number of coast-guard stations are being, or about to be, erected, in Castletownsend, Rachley, Dooron, Black Sod Bay, and a few other places, with an average accommodation for one officer and five men, with boat-house, watch-tower, and stores, and at an average cost of 1,000*l*. each. Also a constabulary barrack at Maam, in the county Galway, from designs and under superintendence of the architect to the Board of Public Works in Ireland.

CHURCH-BUILDING NEWS.

Crosby Garrett (Westmorland).—Extensive repairs and alterations have been done at the parish church: these have been going on for the last two years. Part of the building is Old Norman. The north aisle, north wall, and east and west gables, have been taken down and rebuilt. The north aisle has been improved by the introduction of five new Norman windows. Nearly the whole church has been re-seated, and a new pulpit and reading-desk put in. The mason work, plastering, &c. was done by Messrs. James Irving & Sons, of Soulby, and the joiners' work by Mr. Wm. Abrahams, of Soulby. The plans were made gratuitously by Mr. Edward Johnson, of Liverpool, and carried out under his direction. Four of the windows are of stained glass, and were supplied by Messrs. Forrest & Co., of Liverpool; and Mr. W. C. Newby, brother of the late rector, gave a window in memory of his brother. The subject is, John preaching in the wilderness—"Prepare ye the way of the Lord." This window was supplied by Mr. Wailes, of Newcastle-upon-Tyne.

Maidenhead.—The district church of St. Luke has been consecrated. The edifice is incomplete in appearance. It now consists of chancel, nave, north and south aisles, vestry, and organ-chamber. The tower and part of the nave still remain to be built, and several capitals are as yet uncarved. The church is at present capable of accommodating 400 persons. It is built in the Early English style, the material being free-stone, from Charlbury, Oxfordshire. The dressing is of box ground Bath stone for the external work, and Corsham Down stone for the interior. The cost has been 3,500*l*., of which about 2,900*l*. were raised, leaving a debt of 600*l*. The architect was Mr. G. R. Clarke, of London; the builder Mr. Griffiths, of Worcester. The pulpit was given by the architect, and the font by the builder.

Church Langton.—The church here has been restored and reopened for Divine service. Exteriorly, on the south side, the walls have been restored, all the decayed stone taken out and replaced, and the whole has been pointed. On the north side a large buttress has been removed, a new vestry has been made, and an organ recess built the same height as the chancel. The north wall of the chancel was taken down, and has been rebuilt, at the cost of the present rector, the Rev. T. Hanbury. The east window has been raised about two feet, and the chancel walls have also been raised under the roof. The moulding and the arches have been repaired with Bath stone. Drainage has been made round the church. Interiorly the old organ loft has been taken down, and the tower arch opened. The organ gallery has been removed, and the tower arch, which was previously blocked up with boards and plaster, has been restored. The old seats have been replaced with oak seats, the ends of which are carved. The whole pulpit is carved, and the work has been done by Mr. Barfield, of Leicester. The stalls in the chancel are of oak, and are also carved. The east window has been improved and raised two feet. The windows have been filled with stained glass to the memory of the founder of the Hanbury charity. The window has four lights, which have been filled with stained glass by Messrs. Heaton, Butler, & Bayne, of Covent Garden, according to the instruction of the founder, and consists of a painting of our Saviour. In one of the lights is the Crucifixion, and the other subjects are, the Agony in the Garden, the Soldiers reviling Christ, the Entombment, and the Resurrection. The tracing is filled with angels. The floor of the chancel is of coloured tiles, from the works of Mr. Whetstone, of Coalville. The floor of the church is of stone, with a border of tiles. The whitewash and plaster have been removed from the walls, and the stone pointed with dark mortar. The pillars, too, have been cleared and repaired. The contractors were Messrs. J. Stanyon & Son, Market Harborough, and Mr. Ward, of Leicester. Messrs. Norman & Underwood were the plumbers, and Mr. Barfield, the carver employed. The restorations were carried out under the superintendance of Messrs. Goddard & Son, of Leicester. Mr. Clifton was clerk of the works.

Danbury.—The restoration of the village church is now in progress, the first stone of the new works having been laid. The restorations, which are from designs by Mr. Scott, are being carried out by Mr. Saunders, builder, Maldon, and will cost about 2,600*l*. It is intended, we understand, to erect a new and much enlarged south aisle, and to entirely re-pew the church and restore the interior of the fabric, as also to build a new porch, restore the exterior of the tower, and renew the stone work of the windows, with other exterior improvements. Mr. Chapple is clerk of the works.

Northwich.—St. Wilfred's new church and presbytery, Northwich, have been opened for public worship. The site is one of the highest parts of Northwich. The church consists of nave and aisles, a chancel, side chapel—at present used for choir—north and south porches, and sacristy; the latter connected by a passage with the entrance hall of the presbytery. The interior of the church has an absence of stone arches and pillars, their places being filled by wooden ones, framed and braced with the roof. There is no break in the roof between the nave and the chancel. The divisions between the chancel and nave are defined by a bell turret. Moulded bricks are used for the cornices, door and window jambs, and have string courses worked in them. The contract for the church was 1,300*l*. This included benches for upwards of 400 persons. The contract for the house was 250*l*., including outbuildings. The entire contract was 1,545*l*., and this provided for boundary walling, gates and posts, drainage, &c. The contractors for the entire work were Messrs. Leicester & Drinkwater, builders, Northwich. The works have been carried out from the designs, and under the superintendence, of Mr. Edmund Kirby, architect, Liverpool.

Thornton, Pickering.—The parish church of this village (one of the twenty-eight bearing the same name in various parts of the kingdom) is a good example of the Late Decorated style of Gothic; but having been allowed to fall into a very dilapidated condition, a thorough repair and restoration became necessary. This work was begun in the early part of last year, and has just been completed. The walls of the chancel being in a dangerous condition from the excavation of graves close to the footings, it was found necessary to rebuild them on new concrete foundations; and a vestry, with vault below for heating apparatus, was added on the north side. Much of the old stone crumbled to pieces on being removed, but all that was sound has been worked in again, and the inside has been formed of dressed stone. On removing the plaster from the walls, two windows were found walled up on the north side, and a small leper's (?) window and priest's door on the south side; these have been opened out and restored. The chancel has been repaved with Minton's encaustic tiles, and reseated with oak benches having carved poppy-heads. A new desk, lectern, and pulpit of oak have been placed under the chancel arch. The plaster and paint have been entirely removed from the walls and piers of the nave and aisles, and all the joints of the stonework pointed. An organ gallery which blocked up the tower arch has been removed, and the organ placed against the wall of the north aisle. The church has been re-roofed, the new roof following the pitch indicated by the weather moulding on the tower. The angle at the vertex is 90°. The old pews have been replaced by oak benches. Memorial glass by Messrs. O'Connor, of London, has been placed in three windows of the chancel, and in the west window of the tower. The east window is in three lights, the centre of which is occupied by the "Ascension," the "Annunciation" and "Resurrection" filling the side lights. Two windows on the south side are filled with illustrations of the life of our Lord. The tower window has three lights, which are filled with some of the prominent miracles of healing recorded in the New Testament. All the other windows are filled with tinted cathedral glass. The warming apparatus is by Messrs. Haden & Sons, of Trowbridge. The other works have been done by local workmen under the direction of Mr. E. Wyndham Tarn, architect, of Mecklenburgh-square.

DISSENTING CHURCH-BUILDING NEWS.

Parkgate.—The foundation-stone of a new chapel and school in connexion with the United Methodist Free Church, has been laid at Parkgate, near Rotherham. Accommodation is provided in the chapel for 921 adults and children. The contracts amount to 2,124*l*. 17*s*. Messrs. Blackmoor & Withers, of Rotherham, are the architects. Messrs. Askew, Brothers, Parkgate, are the builders.

Worcester.—The Presbyterian Church called Christchurch has been opened for public worship. The plans were prepared by Mr. George Bidlake, of Wolverhampton. The work has been executed by Messrs. Wood; and the carvings on the lantern of the tower and the front of the building by Mr. Forsyth. The woodwork in the interior is of the same character as the exterior work. A hot-air heating aparatus has been built at the rear, and the lighting is effected by a series of pendants from the roof, and two-light branches under the gallery. The entire cost of the church, including the site, is 5,000*l*.

Leiston (Suffolk).—The chief stone of a new Congregational chapel has been laid here. The new edifice will be built of red brick, the front being of white brick and ornamented with stone dressings. The length will be 50 ft. and the width 29 ft., and there will be a vestry in the rear. Accommodation will be provided for upwards of 300. The contract is for 517*l*., and including the price of the site the total cost will be about 650*l*. Mr. A. O. Chambers, of Lowestoft, is the architect; and Messrs. Mallows & Son, of Framlingham, are the contractors.

Leicester.—Friar-lane Chapel, after being almost entirely rebuilt, and materially improved and enlarged, has been re-opened for divine service. The general plan of the building forms a parallelogram 66 ft. long, and 50 ft. wide, inside measure, the height of the centre ceiling being 35 ft. The front to Friar-lane has two angle towers, containing the entrances and staircases. The east tower is square, and is carried up three stories, and is furnished with an ornamental parapet, angle pinnacles, and a spire, altogether 80 ft. in height. The west tower is octagonal in form, and is surmounted with a smaller spire. The front is pierced with four windows below and three windows above the galleries, the centre window being a four-light window of stone. The whole of the front is executed as much as possible in ornamental brickwork, with brick bands, cornices, and variegated arches; the black, red, and white bricks and stone, producing a variety in effect. The interior is divided into nave and aisles, with rows of iron pillars, which have highly ornamented capitals, formed with leaves and flowers of copper gilt. The galleries occupy the aisles, and there is a deep gallery fronting the pulpit and a small organ-gallery behind the same. Over the organ-gallery is a large elliptical arch, supported by pilasters with

decorated capitals. Underneath the communion is the bapistery, which has two flights of broad steps of York stone. The sides are lined with white Dutch tiles, and the floor is composed of variegated tiles. The size of the baptistery is 17 ft. by 6 ft. The sittings, generally, are open seats with moulded bench-ends; and all the interior woodwork throughout is stained and varnished. The windows are glazed with ground glass, and the tracery heads of same are filled with stained glass of a simple character. The schools at the back are being re-floored, painted, and decorated. The whole has undergone complete restoration. The cost of the building may be placed at something over 2,000*l.*, being about 2*l.* per sitting. The accommodation is for 1,000 persons, including 80 children. The contractor for the whole of the works was Mr. John Flude, of Leicester. Sub-contractors—Mr. West, the woodwork; Mr. Shaw, the plastering; Mr. Hill, the plumbing and glazing; Messrs. S. Wright & Sons, the iron-work; Messrs. Nicholson & Goffey, the stone-work. The clerk of the works was Mr. Thomas Carter, of Leicester; and the architect, Mr. R. Duffat Smith, of Manchester.

Sevenoaks.—The new Congregational church at Sevenoaks has been opened for divine service. It is situated at St. John's-hill, at the entrance to the National Freehold Land Society's estate. The style is Gothic, and the materials Kentish rag stone, with Bath stone dressings. The tower is 62 ft. 6 in., and the spire is 67 ft. 6 in. in height; the former terminates with a moulded cornice and quatrefoil tracery in Bath stone, and the spire is turned from the square to an octagon by four angled weatherings. There are also two diaper bands of Bath stone in the spire, and it finishes with 12 ft. of Bath stone, and a vane surmounts the whole. The interior of the main building contains 500 sittings and two vestries. There are no galleries at present. The seats are open, of stained deal, and varnished, and the timbers of the roof, which are all shown, are all stained and varnished, and the ceiling is tinted with French grey. The roof is supported by eight iron columns, resting on stone. In the apse there is a wheel window of stained glass, the cost of which was borne by the Rev. A. B. Attenborough. The builder was Mr. Thomas Potter, and the contract price was 2,500*l.*; but the total expenses, including cost of site, architect's fees, &c., will be about 3,200*l.* The building is from designs by Mr. Tarring, of London, architect.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Epsom.—St. Joseph's new chapel here has been opened for divine service. The building is Gothic, after the designs of Mr. Gilbert R. Blount, executed in local red brick, with Box stone dressings and bands of black bricks, erected by Mr. Sylvester Hooker, of Ewell. The nave is 50 ft. by 20 ft. inside, and the walls 13 ft. to the plate, with an open timbered roof, covered with tongued boarding and plain tiles, and capable of holding nearly 120 persons. The cost, including the sacristy, 21 ft. 6 in. by 8 ft., was 789*l.*, but this did not include the altar, rails, benches, gas-fittings, &c. The benches are open, of plain varnished deal; the altar is raised on a dais of three steps, painted, with gold mouldings and cross in centre. The building is so constructed that, when the increase of the congregation shall require it, it can be nearly doubled at no considerable outlay.

Yarmouth.—The foundation-stone of a mortuary chapel has been laid here in the Roman Catholic burying-ground, which is situated upon Caister-road, about a mile and a half distant from Yarmouth. The chapel has been designed by Mr. Bottle, of this town, architect. It will be 33 ft. long by 18 ft. wide, and its height, including the bell turret over the west gable, will be about 35 ft. The plan is rectangular, with a semi-circular or apsidal termination at the east end, and will be entered by a doorway from the west end. There are to be two single-light windows on each side, while above the doorway in the west gable will be a two-light window with quatrefoil tracery and a niche for the reception of a sculptured figure. The apse will be provided with three narrow lancet windows. The style will be Early Geometrical. The walls of the building will be faced with the split flintwork so common in the old churches of Norfolk, Suffolk, and Kent; and the stonework of the windows, quoins, entrance-door, &c., will be of Ancaster or Bath stone. The apse or chancel will be laid with Minton's ornamental tiles, and there will be a paved walk of similar tiles from the west door up the centre of the chapel. The ceiling is to be of stained boarding with moulded ribs and cornice in the angles. The builder is Mr. James Leggett, and the stonemason Mr. John Stanley.

Northwich, Cheshire. — The site of St. Wilfred's church is one of the highest parts of Northwich, and is nearly a square: on the north side of which is Witton-street; on the south side lies the church; and on the east the presbytery, stretching from the church to the street, forming the shape of the letter L. The church consists of nave and aisles, a chancel, side chapel (at present used for choir), north and south porches, and sacristy; the latter connected by a passage with the entrance-hall of the presbytery. The presbytery has been designed for the occupation of one priest. The place of stone arches and pillars inside is filled by wooden ones framed and braced with the roof. There is no break in the roof between nave and chancel. The divisions between the chancel and nave are defined by a bell turret. Moulded bricks are used for the cornices and door and window jambs. The contract for the church was 1,300*l.* This included sacristy, vestment press, altar railings, confessional, and benches for upwards of 400 people, all made very strongly and finished well. The contract for the house was 250*l.* including outbuildings. The entire accommodation of the church is for upwards of 600 people, a few more than 400 of whom can be seated. The altar is a wooden one, decorated from designs by the architect. The contractors for the entire work were Messrs. Leicester & Drinkwater, Northwich. Mr. Edmund Kirby, Liverpool, was the architect.

SCHOOL-BUILDING NEWS.

Green Hill, Harrow-on-the-Hill.—The church schools in connexion with the chapel of ease to Harrow Church, now erecting at this place, are about to be considerably enlarged in conformity with the existing design. Mr. Bassett Keeling is the architect employed, and the works will be carried out by Messrs. Dove, Brothers.

Margate.—A new school-room for infants has been commenced as an addition to the St. John's Schools, Margate. The building will conform in style and finish with the present, and will contain space for 150 children, with a gallery in a recess at one end. The walls will be of Kentish rag, with Corsham Down dressings; the roof an open queen-post frame, and the timbers chamfered, stopped, and polished. The ceiling will be on the top of the collar-beam, with perforated zinc panels opening into the space above, through which a current of air will circulate from apertures in the gables at each end. In addition to these openings for the escape of heated air, a supply of pure air from without will be admitted through metal pipes built into the walls at the back of the fireplaces, opening both outside and within the building. By the manner in which these are intended to be constructed, the air passing through them will be moderately warmed in winter time; and at all seasons, will cause no unpleasant draughts. The cost of the whole will be 395*l.*; and the works will be carried out from the designs and under the direction of Mr. G. Wheeler, architect, by Mr. R. Sayer, of Margate, as contractor.

Shouldham, Norfolk.—The new national school here has just been completed and opened. It is 46 ft. long, and 18 ft. wide, with two porches on the eastern side, 7 ft. square. The room is designed to accommodate eighty-four children, as a mixed school, with the necessary offices. The school is lighted by two two-light windows, on its eastern side, having dormer gables to same; the south and north gables by three-light windows, all having tracery in their heads, and constucted in Casterton stone. The walls are built of yellow brick, externally and internally, with red Swaffham bands. The roof is framed with collars and braces to principals, the intermediate space being ceiled, and the whole woodwork stained and varnished. A bell is hung in a small niche, in the south gable, and all windows are furnished with ventilators. The architect was Mr. Withers; and the builder, Mr. Clare, of Watlington. The total cost, including the small site is about 500*l.*

Dallington (Northampton).—National schools in connexion with the Church of England have recently been opened here. The plan comprises boys' and girls' rooms, calculated to hold 150 children, and a class-room, together with lobbies, lavatories, &c. The building is erected with red brick, with bands of black brick exteriorly. The internal walls are lined with the same material, but with white bands. The roofs are covered with tiles blue and red, the bell turret being over the archway dividing the two school-rooms. The building has been licensed for divine service until the committee are enabled to obtain funds to erect a new church, a site for which has been given by the Rev. W. Thornton, who presented the site for schools, and also subscribed largely to the building fund. The buildings, including fittings, boundary-walls, &c., has been about 800*l.* The schools have been erected from a design furnished by Mr. R. Wheeler, of Brenchley, Kent, architect, by Mr. Roberts, builder, Weedon.

Jarrow.—The foundation-stone of new Wesleyan schools has been laid at Jarrow, by Mr. Solomon Mease, of North Shields.

STAINED GLASS.

All Saints, Kingston.—A stained-glass window has been placed at the west end of the north aisle of this church. The subject is the Resurrection of our Lord. The centre shows the Angel, while the two side compartments represent the three Maries. The tracery is filled with emblems of the Resurrection, angelic and floral. The window is the gift of Mrs. Parnell (daughter of the late Mr. W. Carter, of Kingston). The glass was executed by Messrs. Lavers & Barraud, of London. The stone work was executed by Mr. Trigg, of this town.

Illingworth Church, Yorkshire.—A stained glass window, by Messrs. Ward & Hughes, has just been put up on the south side of this church. The subject is—"Christ blessing little children." It harmonises with the east window, by the same artists, which was erected in the autumn of last year, at the cost of the Holdsworth family. The new window is the gift of Col. Akroyd, M.P. for Halifax.

Lincoln Cathedral.—The memorial window to the late Professor Boole has been placed in the nave of the cathedral. It contains three subjects on a mosaic ground, the three panels being united by two smaller circular medallions, each with a figure representing "Study" and "Pious Devotion,"—a key, as it were, to the others. The upper subject represents the parable of the Talents; the next, Christ with the Doctors in the Temple; and the third, the Infant Samuel receiving a Message from the Lord for Eli. In the upper part of this panel are two circles, shadowing forth the future events. In one Samuel tells his oracular experience to Eli, and the other represents the fall of the ark, and the death of Eli's sons. The glass is of the kind known as Winston's antique. The artists were Messrs. Ward & Hughes, London.

Gainford Church, Durham.—A memorial window has lately been erected in Gainford Church. The subject, taken from the life of our Saviour, represents an angel ascending to the heavenly mansion with an infant in its arms; a scroll being unfolded beneath with the words written thereon, "Of such is the kingdom of God." In a *vesica piscis* is the Paschal Lamb, or Agnus Dei. The artist is Mr. Wailes, of Newcastle-on-Tyne. On a highly-polished brass tablet, also by Wailes, and placed within the splay of the window, is the following inscription, richly embellished, "To the glory of God, and in memory of Robert William Joseph Edleston, born October xxxi. 1865, died April iv. 1866, son of Joseph Edleston, LL.D., Vicar of this Parish, and Harriet Sophia his wife, this window was erected by his godfather, William Wellington Waterloo Humbley, LL.D."

Books Received.

Plan of Sanitary Improvements of the City of Edinburgh. By Messrs. Cousin & Lessels, Architects.

Mr. Cousin, the Edinburgh City architect, and Mr. Lessels, have here greatly extended and improved the Lord Provost's plan, on which theirs is based, for the consideration of the Lord Provost's committee. The architects, while they state that the revised plan has, in all its parts, been the subject of personal scrutiny on the

spot, acknowledge their having, in some instances, adopted hints from previous inquirers, particularly the council of the Architectural Institute of Scotland, whose suggestion as to opening up the thoroughfare between Nicolson-square and Charles-street has been adopted. The Lord Provost, they add, has also given valuable hints, and has been all along in personal communication with the architects. As finally made up, too, the plan has received the approval of the sub-committee of the Lord Provost's committee.

The architects are of opinion that, whatever be the expense, less than what they have suggested in the way of change would not effect the great sanitary object in view. They coincide with the Lord Provost's opinion that the alterations should be gradually carried out, beginning with those parts between New-street and Leith Wynd, where the population is least dense; thus opening the ground for building operations previous to dispossessing families in other quarters.

The probable cost of the whole property embraced in the several improvements in the plan is estimated at 306,995*l.*, and the balance to be provided by assessment, 195,923*l.* The total number of families to be dispossessed from beginning to end would be 3,257; and new accommodation would be provided for 2,500 to 3,000 families.

The Management of Steel. By GEORGE EDE, of Woolwich Arsenal. Fourth edition, revised and enlarged. London: Tweedie, Strand.

THIS very useful treatise relates to the manufacture of iron and steel, the choosing of steel for tools, forging iron and steel, annealing cast iron and steel, hardening and tempering of cast iron and steel, expansion and contraction of steel, shrinking of iron and steel, and the case-hardening of wrought iron; also the toughening of mild cast steel for guns, shot, railway bars, &c. There is one point which will remain to be treated of in any new edition which may hereafter be published,—that is, steel-making by gas, which is now in practice at Birmingham, with Siemen's regenerative furnace.

Fire Prevention and Fire Extinction. By JAMES BRAIDWOOD. Including Fire-proof Structures, &c., &c.: with Memoir and Illustrations. London: Bell & Daldy, Fleet-street. 1866.

THE late Mr. Braidwood's experience on the subject of fires has here been rearranged and republished, with a memoir of the late able head of the London Fire Brigade. It is to be regretted that his sudden death prevented him from preparing a complete record of his long and varied London experience, but various reports and other sources have here been made use of, and his more matured experience made available in the omission or modification of previous materials, and the whole arranged in a systematic form.

We may quote some remarks in Mr. Braidwood's own words on fire-proof buildings from p. 57:—

"With regard to the subject of fire-proof dwelling-houses of average size, I consider that such houses when built of brick or stone, with party-walls carried through the roof, the partitions of brick, the stairs of slate or stone, the joists of wrought-iron filled in with concrete, and the whole well plastered, are practically fire-proof, because, as stated at the opening of this chapter, there is no probability that the furniture and flooring in any one room would make fire enough to communicate to another. The safest manner of heating such houses is with open fire-places, the hearths not being laid upon timber. Stone staircases, when much heated, will fracture from cold water coming suddenly in contact with them; but in a dwelling-house built as described above, there is very little chance of such a circumstance endangering human life; even with wooden steps carried upon brick walls, and rendered incombustible by a ceiling of an inch and a quarter of good hair mortar and well pugged, all the purposes of safety to human life would be attained.

"There is a particular description of floor, which, although not altogether fire-proof, is certainly (at least so far as I can judge) almost practically so for dwelling-houses. It is composed simply of plank two and a-half or three inches thick, so closely joined, and so nicely fitted to the walls, as to be completely air-tight. Its thickness and its property of being air-tight will be easily observed to be its only causes of safety. Although the apartment be on fire, yet the time required to burn through the floor above or below, will be so great, that the property may be removed from the other floors, or, more probably, if the means of extinguishing fire be at hand, it may be subdued before it can spread to any other compartment. The floors must of course be made in proportion, and the partitions of brick or stone."

Sussex Archæological Collections, relating to the History and Antiquities of the County. Published by the Sussex Archæological Society. Vol. xviii. (vol. vi. of second series). George P. Bacon, Lewes. 1866.

THE volumes of the Sussex Archæological Society are superior to many others of a similar order, and the present one, which makes its timely appearance just when archæology in Sussex is in the ascendant, is quite up to the mark. Amongst the papers here given are the following:—"On the Early Traditions of Bosham, and the Discovery of the Stone Coffin of a Daughter of Canute," by the Rev. H. Mitchell; "On Sussex Iron-works and Iron-masters," by Mr. M. A. Lower; "On Hardam Priory," by Mr. Gordon Hills; "On Sussex Castles," by Mr. W. D. Cooper and Mr. Lower; "On a Kitchen Midden at Newhaven," by Mr. M. A. Lower; and there are various others, together with some notes and queries. The paper on Bosham is especially interesting, and is illustrated with good engravings of the chancel-arch, the tower wall, and the coffined remains of, so-called, Canute's daughter. The volume contains several other engraved illustrations.

The Art of Illuminating as practised in Europe from the Earliest Times. Illustrated by Borders, Letters, &c. By W. R. TYMMS. With an Essay and Instructions by M. D. WYATT, Architect. London: Day & Son, Limited.

THIS, if we are not mistaken, is a smaller sized edition of a book which has been already noticed and commended in our pages. The illustrations are accurately reduced to a corresponding size. Letters of all periods are given. By lessening the size and cost, the publishers have placed a very useful book within the reach of a larger number of persons to whom it will be valuable.

VARIORUM.

MESSRS. GEORGE SMITH & Co., of Glasgow, have issued a trade book (they are metal-workers and sanitary engineers), which must have cost many hundreds of pounds. It is of quarto size, and contains drawings, many of them very good, of all sorts of fittings and metal work. Some of the designs for monuments, by the way, are but indifferent. Accompanied by a price-list, the book will be found very useful.——"The Little Scholar's First Step in the German Language," and "The Little Scholar's First Step in German Reading," both by Mrs. Falck Lebahn (published by Lockwood & Co.), are two excellent little books.——Hardwicke's *Science Gossip* goes on capitally. In the last number, a very good one, mention is made of the establishment of a club,—"Our Club,"—for amateur microscopists. The club now meets in the Library of University College.

Miscellanea.

CAMBRIAN ARCHÆOLOGICAL SOCIETY: MEETING AT MACHYNLLETH.—The twentieth annual meeting of the members of this association was commenced at Machynlleth. The opening meeting took place in the evening, under the presidency of Professor Babbington. The chairman opened the proceedings with an address, after which the secretary read the report, and the meeting was addressed by Mr. Pughe, F.R.C.S., and the Rev. R. W. Mason. A paper on "British Encampments" was then read by Mr. Graham Williams, and, the proceedings of the next day having been announced, the meeting terminated. On Tuesday, excursions were made to Towyn Church, Cadfan Stone, Craig Aderyn, Entrenched Camp and Watch Tower, Llanaber, Dyffryn, Cromlechs, and Harlech Castle.

THE LONDON WATER SUPPLY.—Interest is being excited in the Mid-Wales districts, owing to the proposal of Mr. Hamilton Fulton, the engineer, to supply London with water from the sources of the river Wye, in the neighbourhood of Plynlymon. Meetings have been held, and it is said the measure has the support of the landowners and others interested in the locality. The navigation of the Wye is considered to be of little importance, comparatively speaking, to that of the Severn and the Thames, and therefore, it is urged, the abstraction of the necessary quantity of water from the upper portions of the Wye would hardly be appreciable. Mr. Fulton's intended area of water-shed of 180,000 acres is at present almost a total waste, and free from refuse of lead-mine workings, with an available rainfall of 60 in. per annum. The Crown and Sir W. W. Wynne are said to be the principal owners. The estimate made by Mr. Fulton exceeds 7,000,000*l.*

THE NEW PRINCE OF WALES'S THEATRE, LIVERPOOL.—This new theatre will be opened on the 15th October. It stands opposite St. George's Hall, facing one of the widest and most crowded thoroughfares in the town. It is the property of a Limited Liability Company. The architect is Mr. Salomons, of Manchester, who is said to have studied and improved upon the best points of the principal theatres and opera houses, both in this country and on the Continent.

THE STRIKE IN NORTH STAFFORDSHIRE.—A meeting of the Master Builders' Association has been held at Hanley. A letter forwarded by Mr. Lynam, of Stoke, architect, in which that gentleman expressed his belief that the operatives out on strike would now be willing for the matters in dispute to be submitted to arbitration for settlement, was submitted to the meeting, and considered. As it was not an emanation from the operatives officially, it was thought well not to entertain it; but a proposal from the operatives would be considered.

OZONE.—Mr. Daubeny, F.R.S., read a paper at Nottingham "On Ozone." He considered the amount of ozone present in the atmosphere to be dependent on the direction of the wind. He then proceeded to show that the ozone present in the air was derived partly at least from plants, the green parts of which generated ozone when they emitted nascent oxygen. It was shown that ozone was generated by the leaves only, and not by the flowers of plants. On the whole, it seemed to be fairly presumable that plants are appointed agents not only for restoring to the air the oxygen which animals consume, but also for generating ozone to remove those noxious effluvia which arise from animal life and death.

THE EVICTIONS IN HOLBORN.—Another public meeting has been held in Bleeding Heart-yard, Holborn, to protest against the system of wholesale evictions consequent upon the progress of the Holborn Valley improvements. Mr. W. Osborne occupied the chair, and the meeting, as before, was attended by a large number of the people, male and female, of the neighbourhood. Mr. Hughes moved a resolution to the effect that the meeting was of opinion that it was the duty of Government to appoint a royal commission to inquire into the best means of providing dwellings for the poor of the metropolis who were turned out of their homes by the progress of public improvements, and that a petition to both Houses of Parliament be prepared with that object, and forwarded to Mr. Torrens, M.P., for presentation. The resolution was agreed to. Mr. Mayhew moved a vote of thanks to the press for its advocacy of the movement, which was carried by acclamation. It is unjust that these poor people should be thrust out of house and home without the slightest compensation, while those better able to suffer such evictions receive all due compensation.

ARTIFICIAL DIAMONDS AND UNBREAKABLE GLASS.—Our notes on the possible production of diamonds appear to have excited some interest, from the various quotations and allusions made by our contemporaries. Parisian ladies, too, are said to be on the *qui vive* on this subject. The *Lincolnshire Chronicle*, while informing its readers of what we have said as to it, suggests "the production of a glass which shall be fusible, colourless, but capable of colour, but when cold as unbreakable as sapphire." That, he adds, would be almost an invaluable contribution to architects' resources. The object in view, however, is not very clearly stated. He considers it practical, by which, we suppose, he means practicable,—more so, he thinks, than artificial diamonds; but artificial diamonds are not only practicable, or practical, but have actually been produced, and therefore cannot be said to be impracticable: all we require is larger ones than those already got. The ancient sages stated that they, too, produced diamonds, and could produce them *of any size!* and with the utmost ease. As for unbreakable glass, why not revert at once to another alleged product of the old sages, namely, malleable glass. They state, quite as positively, that they could, and did, "make glass malleable;" and we question whether the unbreakable glass be one whit more practicable than malleable glass. Already, however, there is, it seems, an equivalent for either in one of the forms of that singular proteus parkesine, composed of oil and collodion, which is said to be transparent like glass, and tough so as not to be breakable like glass. Doubtless it could be tinted with translucent colour.

THE RIGHT WOMAN IN THE RIGHT PLACE.—The foundation-stone of a new fish-market has been laid in Sunderland by Peggy Potts, a popular fishwife, who was well supported on the occasion.

THE OLD MARKET- AND TOWN-HALLS.—Sir: This class of building is common to all countries; and it is interesting to notice how the different municipal wants and climates change the character of the buildings in different countries. It should be remarked that in England the lower part is usually open under arches, to serve as a market in bad weather. The town-halls built in the last century and in the beginning of this, in country towns, still retain this feature. The Town-hall, Shrewsbury, was (may stand still) a good example. Evesham, also, and the older half-timbered market-houses of Herefordshire, are very remarkable, being built on a series of posts.—A. M. N. Z.

THE FUTURE OF INDIA.—The following passage occurs in a recent article in the *Calcutta Review*. Speaking of the destruction of forests for metallurgical purposes, and of the superiority of charcoal iron, the reviewer says,—"Two hundred years hence, when England has taken the last sack of coal out of her exhausted mines, India, if she is still under a strong government, may be turning out magnificent machinery for her own manufactures, and for the supply of enlightened Asia. At any rate, she will be able to keep up a good stock of well-tempered bayonets for her army, and to take over from her stepmother country the vast business of supplying the world with penknives."

FRENCH RAILWAYS.—We learn from the recently-published Government returns, that on the 30th of June last, 13,662 kilomètres (8,484 miles) of railway were open, against 13,207 kilomètres (8,201 miles) at the corresponding period of 1865. The receipts for the first half of the present year amounted to 284,399,282 francs (11,849,970*l.*), which shows an increase of 25,550,926 francs on the receipts of the first half of last year. It appears, then, that the average receipts per kilomètre, from January to June, 1866, amounted to 20,817 francs, or 1,396*l.* 15s. per mile. In the first half of last year the figures were 19,600 francs per kilomètre, or 1,315*l.* 2s. per mile. Thus, the receipts per mile are greater by 81*l.* 11s. than those of the corresponding period of last year.

ODD MEN IN AMERICA.—A letter from Middletown, Conn., says (according to an American newspaper) that wonderful discoveries have recently been made in the sandstone quarries of that place. "The graves and mode of burial of a primitive race are found in the rock. The men are lying in one position and the women in another. These men all had three fingers and a thumb, and four toes. The comparatively more recent of them were 6 ft. to 7 ft. high, but as we unfold the leaves still further and proceed far back in the cycles of time to the lower depths of the rock, we come to a race of giants 12 ft. high, with feet 22 inches in length. These men wore shoes, and had domestic animals of peculiar structure and great size. The only human instruments so far discovered were made of stone. They had sams and long knives made of slate." Very curious indeed,—*if true*.

EXCAVATING MACHINERY.—At a recent meeting of the French Society of Civil Engineers the result of some experiments with Messrs. Frey, Brothers, & Sayn's excavating machinery was given. The cylinder of the engine forming the motive-power was 7·4 in. in diameter, with a stroke of 14·2 in., and it was supplied with steam at a pressure of 120 lb. per square inch, cut off at two-thirds of the stroke. The speed of working was 140 revolutions per minute, and this gave a speed to the bucket-chain of 1·47 ft. per second, the number of buckets passing in one minute being 30. The capacity of each bucket was 1·41 cubic foot; and if each bucket had been completely filled, the quantity excavated at the above rate of working should, consequently, have been 42·3 cubic feet per minute, or 94 cubic yards per hour. During the trial of 91 minutes, however, the quantity excavated was 76·4 cubic yards—this being at the rate of 50·38 cubic yards per hour, or 503·8 cubic yards per day of 10 working hours. The amount actually excavated was thus about 54 per cent. of that theoretically due to the speed and capacity of the buckets. The earth was lifted 4 yards, and moved 12 yards horizontally, yet the cost was only about 1d. for each cubic yard excavated.

THE LONDON LABOURERS' DWELLINGS SOCIETY. From the Report for the six months ending the 30th of June, it appears that the capital has increased to 24,800*l.*, and that the net profits are sufficient to pay the members a dividend on the half-year at the rate of 5½ per cent. per annum. The directors recommended that only 5 per cent. per annum be divided, and that the balance be carried to the reserve fund, which, with the profit of the forced sale of some property to the East London Railway Company, will exceed 4,400*l.* The secretary, Dr. Greenhill, of Hastings, hopes that some of those persons who have at heart the improvement of the houses of the labouring classes may be induced to take shares, and thus increase its efficiency.

THE NEW FIRE ANNIHILATOR, L'EXTINCTEUR.—A series of experiments with this machine has taken place, under the superintendence of Mr. Casper, the licensee, in a field attached to Wilson's-yard, Highbury. A number of gentlemen were present. The powers of the engine were first tested in extinguishing a fire which was supposed to have burst out on a staircase. After this, a shed or room, constructed entirely of wood, in which was placed several tarred barrels, a quantity of shavings, and splintered wood, was set fire to. The flames were allowed to spread over the whole of the building before any attempt was made to extinguish them. The fluid which was poured upon them from the engine, in rather less than a minute, it is reported, subdued the fire, about two quarts of the fluid only having been used in the operation. A tank filled with tar, over which several pints of naphtha had been thrown, was next set fire to. After burning furiously for some time, the engine was brought into play, and in fifteen seconds the fire was extinguished.

MONUMENTAL.—The equestrian bronze statue of Prince Albert at Liverpool has been placed upon its pedestal at the east front of St. George's Hall. It was cast by Messrs. Elkington, of Birmingham, and was carried to Liverpool by road, the bridges by railway being too low to allow it to pass, as it is 14 ft. high; and even by road, the head, which is a mount, had to be removed at Stafford for a similar reason. While passing Cannock Chase, in the black country, the local workmen insisted on a sight of the statue, which was therefore prematurely unveiled amidst the cheers of the crowd, who subscribed a recompense amongst themselves to repay the waggoners for the delay.——The rector of Wilford, near Nottingham, having had his especial attention called to the fact that there is no memorial whatever to the late Henry Kirke White in Wilford (his favourite resort) or the vicinity, is anxious, says the *Notts Guardian*, that an effort should be made to supply the deficiency, and with that object in view intends to solicit all admirers of the amiable poet of Nottingham to aid him in his effort to place a memorial window in the church of that village.

SEWERAGE AND WATER SUPPLY. — A portion of the "grant" money, according to the *Dorset Express*, is to be appropriated to the drainage of Portland, and the work is to be commenced forthwith under the superintendence of the inspector of nuisances, Mr. E. C. Seaman. The same paper suggests that as those living under the hill might be amply supplied from the valuable spring at Fortune's Well, there would be a saving of both time and labour if, when the trench is open for receiving the drain-pipes, a water-pipe were also inserted at the same time, running above the sewage-pipes. Other villages on the island should then be attended to.——The main sewer in connexion with Portsmouth new drainage works runs from Blackfriars-road, through York-street, and into Arundel-street. The narrowness of York-street, and of that facing it by the side of the new Wesleyan Sunday-schools, renders the undertaking hazardous. The ground has given way in several places, but not so as to cause alarm until Tuesday before last, when the new line of sewer which passes an old main down Arundel-street with a connexion in York-street burst in two places, the water passing through the new cutting to the height of 3 ft. 6 in. The ground at the side being unusually porous, it soon separated under the foundation of the Cobden Arms and Mr. Pannell's beerhouse at the opposite corner, and these premises were in danger of falling, but additional shorings were brought into requisition. However, one of the small houses in York-street gave way, and fell into the street.

EATING NATIVES IN THEIR NATIVE ELEMENT.—An American proposes to construct an immense diving-bell for use as an oyster saloon. People could then enjoy the luxury of fishing for their own oysters, and eating them all alive in their native element. Cool! certainly.

BRITISH INSTITUTION.—We hope the directors of the British Institution will not persist in their intention of withholding exhibitions, either of living artists or old masters, next year. The closing of the Institution, for only a year even, will be a serious matter to some; and, although the lease of the house in Pall-mall has expired, some suitable place might be found temporarily.

"BYRON'S TOMB," HARROW. — The tomb so named, and looked for by every visitor to Harrow churchyard, is in a dilapidated condition. Its total destruction is said to be imminent if something be not done to repair it. Surely there will be no difficulty in raising sufficient money to put it into a sound state if the vicar or the churchwardens will take the matter in hand.

VALUE OF PROPERTY IN PARIS. — In consequence of the extension of the Rue de l'Impératrice to the Théâtre Français, fifteen houses are to be removed, for which the jury awarded a sum of 4,128,000 francs. The proprietor of a bathing establishment, whose lease had five years to run, received 120,000 francs, and a similar sum was awarded to a boarding-house keeper.

NEW WHITE CLOTH HALL FOR LEEDS. In consequence of the North-Eastern Railway Company taking the White Cloth Hall for their works, under their Act of last session, a new White Cloth Hall is about to be erected by them on the site of the present Infirmary Gardens. The contract has been taken by Messrs. Weatherley & Rymer, of York, and the works are to be commenced forthwith. The design is in the Italian style. We believe the cost of the building will be about 20,000*l.*—*Yorkshire Post*.

THE INTERNATIONAL RAILWAY BRIDGE. We have been favoured with particulars of M. Boutet's proposal for building a large pontoon bridge between Blanc Nez, Calais, and Shakspeare's Cliff, Dover, of about 22 miles long and 214 ft. wide, connected with a railway at each end, with openings for ships and footpaths for passengers on either side. The account describes what statues are to adorn the bridge, where the clocks are to be placed, and so forth; details much more simple and easy to be believed in, the bridge being formed, than the safety of the bridge itself. The cost is estimated at 16,000,000*l.*

AN ARTISTS' NIGHT-LIGHT. — An interesting conference on colour as regards artificial light has been given by N. Nichles, at Nancy. This professor spoke at great length on the power possessed by light produced by the combustion of magnesium to bring out certain natural as well as artificial colours with the identical brilliancy which they have by day. The presence of chloride of sodium in domestic lighting, he said, explains the impossibility of distinguishing certain shades of a dress, a flower, or painting, by night. A magnesium lamp, such as is used by photographers for night scenes, would permit of artists working at night with as much certainty as by daylight.

NEW HOP AND MALT EXCHANGE, BOROUGH.—The foundation stone of the contemplated buildings of the Hop and Malt Exchange and Warehouse Company, Limited, has been laid by Sir Brook W. Bridges, bart., M.P. The company intend to construct warehouses adapted to the stowage of hops, malt, and other produce, and a freehold site has been secured at the corner of High-street, Borough, with a frontage of about 320 ft. in the new Southwark-street, and containing nearly 26,000 square feet, with separate entrance into Park-street in the rear, towards the Borough Market. The Exchange, in architecture, magnitude, and appointments, is intended to be adapted to the extensive requirements of the trade. Space will be provided for private and general offices, stowage of stock and samples, and show-rooms, with accommodation for tenants and shareholders. Subscription and refreshment rooms will also be provided; and it is proposed to establish a club for hop-growers, country dealers, and brewers. The greater portion of the buildings will be devoted to classified fire-proof warehouses and offices. The principal foundations have been laid. The architect is Mr. Moore.

The Builder.

VOL. XXIV.—No. 1232.



*The Architecture of the City of London.**

THE member of the House of Commons who, in one of the conversations on the subject of the Law Courts and the selection of architects to compete, mentioned "the fine buildings in the City," gave thereby some indication of a capability of perception and appreciation of art architectural, that we do not usually find evidence of in the British Legislature, or the acts of the Government, or in what is generally said or written where buildings are in question. So commonly the case is that what is appreciated is not the *art* of a new structure, but rather the reproduced style, the mimicry of old work, or the appearance of mere hand-labour, or costliness of material, that it is comforting to meet with an omen of the more healthful state of things now and then. Whilst occupied in the city with our notes, we are able to see that the buildings attract considerable attention. This is not given, as in so many cases, to the work because of its oddness; for, as we have shown, there is less of violent contrast of style in the city, than in other quarters of London where building has been of late pursued with activity. It must be due in some measure to the *art*-element which there is in the works produced. Whether regarding the works themselves, or the interest which they excite, the architecture of the City of London is even more deserving attention as the inauguration of a new era in art-practice and art-appreciation, than for its merit contrasted with the architecture of other periods.

Since our last article was written, we have noticed that an important addition is likely to be made to the effect of the buildings that are seen from the space in front of the Mansion House. The building occupying the point of the angle between Lombard-street, or King William-street, and Cornhill, known as the Globe Insurance Company's premises, and so long the most prominent of the remaining cement-fronted structures thereabout, is to undergo considerable "alterations." These, according to the notice-board at the temporary offices in the Poultry, and from the appearance of taking-in the east-ward adjoining premises, with frontages in the two streets, would seem to amount to rebuilding. We have recollection of a somewhat tolerant opinion as regards the present building, expressed before a Parliamentary Committee by a leading architect. The form, however, on plan, we must consider the only feature worth preserving. The details are even inferior to those of the architecture of King William-street, where the buildings equally belong to the period before the joint-stock banks and insurance companies had commenced their operations in the field of architecture.

One of the most noticeable of the buildings in the last-named street is occupied by the London Life Association. Including the front in Nicholas-lane, which has some effective arch-headed three-light windows as its features, it is a good example of the better kind of Romano-Italian architecture of the time of William IV.; and may be compared with work of the present day; wherein, superior as the art is on the whole, ornamentation is tending to excess.

In our last article we described some of the new buildings in one of the three "lanes" that connect Lombard-street with King William-street. Proceeding with what there is in Clement's-lane, we here note that opposite the building of the English Joint-Stock Bank, is one occupied by the London, Bombay, and Mediterranean Bank, Limited. It was erected in 1865. It has a lofty stone front,—four stories in height, and three bays in width; and is of the Venetian-Italian, sixteenth-century, character. The ground-story consists of three arches, springing from Roman Doric columns,—the latter attached to the piers,—and the arches having enriched consoles and spandrels, whilst the story is terminated by a block-cornice. To the second story there are arch-headed windows, with balconies. The archivolts spring from Corinthian pilasters. The third story has windows with architraves and cornices, and sills carried by trusses; and the centre-window has a segmental pediment. The fourth story has square windows, and panelled piers between them. The structure finishes with a modillion-cornice. This is one of the buildings that are remarkable for the goodness of the window-frames and of the internal fittings. To the windows there is a transom at the line of the springing of the arch; and there is an anthemion-ornament at the centre of the semicircle; all being in mahogany. Mr. Edwin Bull was the architect.

Nearer to Lombard-street, but on the east side of Clement's-lane, whilst separated from the former street by a building to which we have already referred, is one front of the structure erected for the bank of Messrs. Alexander, Cunliffe & Co., the other front being in Lombard-street. The latter front is evidently the principal one, though of only three bays in width; and some skill is evinced by the treatment which has resulted in the effect alluded to, whilst also in the harmony between what are two parts of the same work,—the Clement's-lane portion being considerably the longer in frontage. The character of the building, as we said in our former article when referring to the matter of style, is Gothic, that is by reason of many of its details, and some of its main features. Amongst these latter are arches oversailing the shafts of coupled columns that carry them, and gabled dormers to the Lombard-street front; whilst amongst features of rather different origin, are the small balconies which there are to some of the windows in the latter front. The pointed arch is studiously avoided though arches are everywhere used, excepting in the top story. Taking for present notice the Clement's-lane portion of the building,—intended for letting, but as yet occupied only in part,—the features include, first the ground-story range of semicircular arches; then an upper range, springing from piers or pilasters,—these latter taking in the height of two stories of windows; next a fourth story of square-headed openings,—each opening being divided into two lights by a column—whilst the mouldings and ornamentation of the capital are repeated across the pier, like the impost of an arch, or according with what is become a not uncommon arrangement in modern work indebted to the Continental Gothic; and over all, a cornice with a notched member, and what we may call cantilevers of the Gothic character. Below each of the windows of the second and third story is a row of quatrefoil piercings, or openings of another pattern, apparently for ventilation. The effect of these features is very good. Amongst the peculiarities of detail are the chamfering of the pilasters, and the returning of the mouldings of the capitals upon the chamfers: also must be included features of the windows; where the jambs are plain, splayed; and the heads, segmental in form, have many mouldings, which spring from the chamfering. In the ground-story, though the arch over the actual window-opening is semicircular, there are concentric archivolt-mouldings which are segments springing from masonry above the capital. The labels, segmental, of these arches are carried by grotesque corbels, which are well executed, as all the carving is. The shafts of the coupled columns are of the polished red granite, the bases, capitals, and bands to the shafts being stone. These shafts and mouldings are in themselves highly effective; but when the eye takes in the massive features of the upper stories, there is an appearance of weakness, such as there should not be in the piers of the base of a building. And on looking along the front from the opposite side of the street, there is so much of the overhanging, or corbelling out, of the arches, above the shafts, and so little in the shape of reveal for the window-frame as set in from the apparent wall-face, that the entire front seems to rest upon a row of pegs for the external line of the structure, and a mere sheet for the internal line: indeed at first sight one would suppose the Buildings Act was not complied with. A good feature is introduced in the spandrels of the arches above the third story, in the shape of a red granite ball carried in notching of a small circle which is sunk in the spandrel. There is some good metal-work to be found about the building; but of that which is external, the railings between the bases of the columns must be objected to: not simply are they unnecessary,—since sufficient protection to the area and the basement-windows is otherwise provided; but instead of something being given to the footpath, the latter is rendered more inconvenient in its narrowness, by the spiked heads that there are to these railings. Prominent as are the defects, however, the building is one that has striking merits in its treatment, as what we have said of it has shown. Mr. Waterhouse was the architect.

In Nicholas-lane, already mentioned, there is an important structure (No. 37), lately completed for the Agra and Masterman's Bank, but now to be sold. It is of composite Greco-Italian and French-Italian character, with wide openings, which in the upper stories are divided into two lights. Mr. Wallen is the architect. There are four bays in the length, and three stories, besides dormers, in the height of the front. In the ground story, the four openings,—two of doorways, and two of windows which are joined with those of the basement,—are segmental-arched, and have boldly carved console-heads. The piers, which are on pedestals, and the arches, are rusticated. The lines of the rustics are moulded. This modification of the ordinary square sinking would have given more effect, had the moulding and sinking been arranged so that the former could have been wholly seen in parts of the story which are above the eye: in these, now, it is so deeply sunk as to be in great part lost. Above the arches is a string-course with the Vitruvian scroll. In the second story, each of the four windows has a carved frieze and cornice,—the latter carried by trusses at the ends, descending

* See p. 641, *ante*.

very low,—whilst the frieze, or lintel, is carried in the middle by a column having a polished red granite shaft and a Corinthian capital. Each space on the pier between these windows has two raised-panels divided by a string-course, the panel ranging with the trusses being a square with a circle in it. In the third story, which, as to the piers, is plain-rusticated, the windows have moulded architraves, and mullions which are perfectly plain. The crowning cornice is of very slight projection, and advisedly so. It has, as its principal features, trusses,—which are coupled over the piers, and single over the mullions of the windows,—and a frieze with long narrow panels apparently in a coloured material. So far, the narrowness of the street would seem to have been taken into consideration. But in the dormer-windows, ornament, and money, are wasted, just as they generally are in one way in the new buildings about Lombard-street. In the building in Nicholas-lane, the dormers are the most elaborately decorated parts of the whole. But there is not a spot in the Lane, or anywhere on the street-level, where more than a little bit of the top of the dormer can be seen. On going to the top of a building in Abchurch-lane, we find that these dormers have elaborate scroll-buttresses. Surely we are justified in arguing from many similar facts, that not merely is money wasted, but that the architecture of the City, meritorious as it is, is thus much of it designed on a *motif* that is a wrong one. An architect supposes a field of view, —and measuring laterally as well as vertically,— which there is not, and is not likely to be. Waste of work is something actually deducted from pleasurable result; and, as in the City, the exemplification is each time accompanied with loss of an opportunity, afforded by the peculiarity and even difficulty of the case, of producing an original thing.

At the King-William-street end of Nicholas-lane is a highly enriched doorway, which forms the entrance to the premises of the National Bank of India, Limited. It has panelled pilasters and a segmental pediment. The ornament is of the distinctive character of the Early Italian Renaissance.

We may mention that, not far off, on the opposite side of King William-street, is an example of a sort of structural work that is not unfrequent, and which has here combined with it good art. A company takes a ground floor: wider openings for light are required, than the original windows, together with some features that may attract attention; and the different objects are attained with both economy and taste. The premises here referred to, No. 18, forming part of one of the Greco-Palladian cement-fronted ranges of building in the street, are those taken by the Scottish Provident Institution. The effect is produced by floriated capitals, or ornamental mouldings, to the stone piers, and by the addition to the sides of these last, of plain quarter-pilasters in the reddish purple serpentine, forming the reveals of the windows.

The building in Abchurch-lane (No. 34) to which we have alluded, and which is for the London Discount Company, may be quoted as example of ordinary work in progress. It has three bays of windows, and four stories, the whole being of white stone,—excepting that there are polished red granite jambs and lintel to the doorway, and that iron columns are used in the ground-story to carry arches. The key-stones of these latter have incised ornament, but with the cutting filled with blacked cement. The filling is a mistake, especially as here, or *very* black: incised ornament is best where accurately and deeply cut, and without any addition of the sort,—unless polychromatic effect be aimed at, and some such colour as red is used. The work is well done, including that of the casements, and top sliding-sash, combined, which is the arrangement for each of the principal windows. Mr. Robert Parris is the architect.

In Lombard-street itself, near to Gracechurch-street, there is a richly-decorated front of Greco-Italian character approaching completion. It is for a Mr. Hosier, who will carry on his business (the exact nature of which we are not informed of,) on the ground-floor, and will let the upper stories. There are five stories in the height, including a mezzanine; and there will be five bays in the front, and one additional, where is the way through to Allhallows Church. Of the five bays at the ground, two will be entrances, or one of them to the chambers above. The ornament on these entrances is being elaborately carved. In the middle of the front there is much good work in fluted Corinthian pilasters and enriched friezes,—the whole of what is in the upper part of the building having that comparatively slight projection of the horizontal members, which is perhaps the treatment best suited to the case of a lofty structure in a narrow street like Lombard-street, at least in this climate. Mr. P. C. Hardwick is the architect.

North and east of the Bank, there are works, lately completed or in progress, not less important than any that we have described. Were we writing the architectural history of the last quarter of a century, there is scarcely any building now to be seen on looking north-eastward in Threadneedle-street from the Exchange, that would not be found belonging to that history, and deserving of honourable mention in it. But passing by approved works like the Sun Fire Office, and reaching the end of Bartholomew-lane, we find a large structure, which has one front in the Lane and one in Throgmorton-street. It has been erected partly for the Alliance Bank, and partly for letting. The portion to be let is called Bartholomew House. The site, or greater part of it, was that of the Auction Mart; for which a new structure, to be hereafter noticed, has been provided in Tokenhouse-yard. The Bartholomew-lane front of the present building on the site will eventually be extended somewhat to the south, on ground where there is now a brick-fronted structure of common-place character. Both fronts of the building we are describing are in stone, the features being the same in each, excepting as to the doorways, which are in Bartholomew-lane, and some of the windows in the bay next the angle, where the entrance to the bank is, and to which importance is given. There are four stories in the building, besides the basement, and a story lighted by dormers in the roof. There are five bays in the length of the Bartholomew-lane front, to which two may be added; and there are six bays in the Throgmorton-street front. The entrance to the chambers, or Bartholomew House, is in the present southward bay of the five; whilst that of the bank is as already mentioned. The angle of the structure takes the form of a small quadrant on plan, and is decorated with shields (which, however, are coarsely executed,) and surmounted by a chimney of ornamental character. The chief effect of each front is given by an order of pilasters comprising the height of the second and third stories, by decorative panels on the wall-space between the heads of the second-story and the sills of the third-story windows, by the dormers, and by a peculiar ornamentation of the curb-roof. The fourth story forms an attic to the order. Above this there are antefixæ over the pilasters; and from the back of these, lines are carried up, somewhat like party-walls above roofs, but in zinc, to the horizontal mouldings on the angle of the curb, which are also in zinc, and where there are again antefixæ, in zinc, as are the others,—the connecting lines being formed as mouldings to a centre-band, or hollow, of scale-work. The ground story and basement of the building are treated with wide openings, with stilted-segmental rusticated arches, and narrow piers; which latter have capitals, or imposts, moulded, and ornamented with a star or nail-head pattern, (similar to what may be seen in some other buildings in the City,) and have panelled dados, and pedestals of which the cornice-mouldings are continued as sills to the windows. The entrance to the chambers has the same character: but at the entrance to the bank, Corinthian columns and antæ are added; and the key-stone of the arch has an enriched corbel carved upon it, with a date, which corbel forms the support of a balcony that there is to the window above, or its centre-light,—the window being Venetian. The soffit of the balcony is carved as laurel-leaves, the form of the projection on plan being semi-elliptical; and to the sill, and the balcony of the centre, there is an iron railing. The order is Composite in character. Each capital has a shell as one of its features. The shafts are plain, and of bold projection, and diminish both in the elevation, and from the front of the building. The entablature has cantilevers, carrying, from the architrave, the corona of the cornice; whilst between them the frieze has square panels; and there are dentils. The cantilevers are plain, except as to the form in profile; but over the columns, where the cantilevers are coupled, they carry festoons of flowers. The ordinary windows of the second story of the building have simple moulded architraves; whilst the Venetian-window has Corinthian columns and plasters; and it has, over the central light, an enriched escutcheon on the lintel, besides shell-formed ornamentation under an archivolt. Upon the archivolt are two seated female figures holding a shield with the City arms. This sculpture is the worst feature in the whole building; indeed it is inelegant in design and bad in execution. The best features of detail in the building are the panels between the second and third story windows, which are filled with good scroll-work, and have circles with monograms. Above these panels are the sills of the third-story windows, carried by small cantilevers, and projecting from a plain string-course. The windows themselves of this story are without architraves; but the piers between the windows are finished with mouldings, continuous with those of the capitals and carrying the entablature. The attic has windows with moulded architraves, and has a simple cornice. The ordinary dormer-windows have Corinthian pilasters, and segmental pediments; whilst the window over the entrance is Venetian, and carries a coat of arms with its supporters. Amongst the features on the rounded angle is the motto, "We Raze but to Raise," and the date, 1865. The entrance to the chambers has considerable space on the plan devoted to it, for effect: there is a tiled floor; and there is a space on the wall for names, with a framework of architecture, and very prominent: but much more might have been made of this entrance.

In descending Bartholomew-lane, the addition made some years ago to the building of the London and Westminster Bank is seen at the end. In this portion of the building a new entrance to the bank is being made; and it is of greater importance than the old doorway westward. Two of the bays are thrown together; in the ground-story, two three-quarter Grecian Doric columns, between antæ, are placed for the entrance itself; and over these are a frieze, with fretwork ornamentation, and blocks channelled on the face, carrying a plain balcony spanning the width of the bay. The balcony projects from a new three-light window of the second story.

At the entrance of Throgmorton-street, there is a stone-fronted building which deserves to be noticed for the effect that is produced by the windows of three of its stories, with the string-courses. All these windows are nearly as plain as they could be: the piers, which are very narrow, between the windows, and the lintels, have merely a very simple moulding on the angle. In the top-story, where stopped chamfers are substituted, the effect is not nearly so good. The two next buildings, Nos. 35 and 34, exemplify what is a curious case in adjacent properties. Their party-wall is exactly over the middle of the way into Angel-court; and to make the case more strange, different decorative characters have been adopted in the buildings. Instead of the lintel, or girder, spanning the opening, having the same mouldings from side to side, there is one series of mouldings for the length of one half, and a different series for the other half, the only compromise between the adjoining owners, or their architects, being made in the shape of a console in the centre for the lines to butt against. The front and back walls, with the party-wall, are carried by iron girders, the spaces between which are filled in with stone landings. Of these two buildings, No. 35 has in the ground-story, three Corinthian columns with red granite shafts,—the fourth column being omitted, because of the entrance to the court,—and has what would have been the centre-intercolumn, wide, and spanned by an arch over a shop-front. In the spandrel, in stone, over the doorway, is a circle with a head of Mercury. The windows of the upper stories have stone dressings, entablatures, and pediments, and sub-arches with a central shaft, which latter is in metal. Of the adjoining building, all that can be said from what can be at present seen behind scaffolding, is that the front is entirely of stone, and that there are arches in the ground-story, and columns in one of the stories above. Each of these three buildings in Throgmorton-street has a very narrow frontage, and would in any other quarter of London be left of simple brickwork, or would receive pretentious decoration in cement: the details of the upper windows of No. 35 are certainly not effective in proportion with their cost; but the three structures well exemplify the influence as to materials and decoration that is being exerted upon ordinary buildings of the City.

At the entrance of Tokenhouse-yard, or having one of its fronts in Lothbury, a highly-decorated building been for some time in hand. It is for

the General Credit and Finance Company; and is perhaps the nearest reproduction of the Venetian Gothic manner that has been made. Of course the exactitude of the reproduction detracts greatly from the *art*-character of the work. Next to this structure, or in Tokenhouse-yard, is a work of very different style and character, the building before alluded to, for the Auction Mart; and it is one of the singularities of the position at which our art has arrived, that these two buildings, in progress during the same time, are the work of the same architect, Mr. G. Somers Clarke. These are the buildings of which so much has been heard of late in connexion with injunctions for interference with light-and-air to neighbouring properties. The difficulties are not yet settled: neither building can be entirely completed; and the Gothic building is in a very unfinished state; so that a temporary roof is being placed at what was not the intended roof-level. Looking at the decoration of the building, this is as remarkable for the area over which it extends, as for its peculiarity. But a small portion of the whole can be seen without difficulty. This portion includes what belongs to the narrow front in Lothbury,—that is a mere end of the building; whilst the western front entire would have to be got into the mind's eye after the way had been found, down a few-feet passage, into the church-yard; and then, perhaps, observation would have to be supplemented by going on to the roof of the the church. The lavish use of decoration may be politic, or the reverse: it may be good practice of art; or it may be mere waste: we do not here go into that question; but we note that this building is the most considerable exemplification of "sacrifice" that architecture in this country has seen. To speak truth, we apprehend that that is not a healthful condition of art, where decoration is placed where either it cannot be seen, or gives pain to those looking at it. There should not be bare walls for the upper stories of buildings in narrow streets, where lower stories are decorated; flank and party walls seen above adjoining buildings should not be bare; but concentration of effect on parts that can be conveniently seen, is simple concession to the natural instincts of the spectator; whilst the other thing is torture for him. The building which called forth these remarks is not sufficiently divested of scaffolding to be fully described in detail. There may be five stories. In the south front, the windows are of four lights; and those of the principal stories, or excluding the top-story, are grouped all together within a marginal notched-moulding. Upon each angle of the building is a spirally-fluted shaft or angle-staff, broken here and there by ornamented bands. A cornice, with cantilevers and notched ornament, crowns the whole building. Close under this comes the window of the top-story, the divisions of the lights being made by columns, which have red-serpentine shafts, and carry some of the cantilevers. At the angles of this top-story are large cateras, or medallions, in red Mansfield stone, each with a centre-boss of the serpentine. These ornaments are continued along the flanks of the building. In the story next below, the group of window-lights has a somewhat similar arrangement to the top-story lights; but the shafts of the columns are stone. Below the lights is a long panel with sculpture in relief. In the story next below there are windows of greater height, but also with columns. Then, in the second story above the ground, is a four-light window,—square-headed, as the others,—with Venetian cusped-tracery, and with a balcony projecting on cantilevers which take the form of winged female figures bearing shields. The front or enclosure of the balcony is formed with many cusped perforations. The western front, above the level of the church adjoining, has windows of the same character, but several in number, wide apart, and of two lights. On the broad pier next the angle, are large square panels, bordered with mouldings, and each filled with a circle containing nine smaller circles around a central large one,—these ten spaces being filled with different coloured serpentines; whilst the spandrels of the enclosing circle are of red Mansfield stone. The whole of this panelled and coloured ornamentation is almost exactly taken from panels which Mr. Ruskin first published in his "Stones of Venice." The chimneys are conspicuous features in the western front; the ends of the shafts are diminished as they rise; whilst the space thus gained at the ends has a semicircular projection: a notched, corbelled, and trefoliated cornice crowns the chimney; and the whole has a peculiar effect, to be seen perhaps in Venice, but not easily to be explained here. The east front appears to have a greater number of windows, and to be more elaborate as to their ornamentation, than the west front.

Of the new building of the Auction Mart, what we should like to say descriptively, and in praise of it, would not come within present limits. We therefore postpone.

There are important buildings in hand in other parts of the City, as in Cannon-street: in Leadenhall-street there is a large structure for the St. Katherine's Dock Company; in the Poultry there is a conspicuous building for Messrs. Corbyn & Co., which has some very good features, including incised ornament, and some parts that seem as if they had been hewn with a hatchet; and there is enough elsewhere to fill several notices such as the present one in length. We may return to these works shortly.

SOMETHING MORE OF MEXICO.

IN continuation of my notes* in Mexico, and in drawing them to a close, I must observe that when the Imperial Mexican Railway was "located" in 1858, a regular track was cut 12 ft. wide completely through every part of the forest, and even large trees that stood in the way were cut down, and after the works had been let by contract, and the engineers went out to lay out the line, expecting to find cleared ground regularly staked out, and bench marks established, no trace of the line could be found, it was as completely grown up and obliterated as if no line had been ranged and cut, in a period of about seven years, and the course was again traced out with difficulty by means of compass bearings, and the selection of elevated points, where you could observe the contour levels of the country.

Where vegetation grows so rapidly, it is easy to imagine how deserted towns, villages, haciendas, and neglected monuments could be hid in a short space of time, and buried from the eye of man; and it is said an ancient city has recently been discovered by the French near Matamoras, completely engulfed, if I may use the term, in the thick and almost impervious forest, the laboured works probably of the aboriginals, Toultecs, Aztecs, or other races of man, that occupied the country at a remote period, equal probably in interest to the great pyramids of Cholula, Patpantla, or Teohucan.

In the neighbourhood of most of the towns there are ruins of churches and religious houses, in fact, there is scarcely a place that I have seen where many do not exist; and in the course of my explorations, I have discovered ruins of many haciendas and chapels connected with them, some of considerable extent, completely hid from the view and buried apparently for all time in the impenetrable, dark, and gloomy recesses of the forest. The extent of many of these ruins, covering a large area of ground equal if not surpassing the extent covered by many of the gray ruins of our old feudal castles, all the timber work burnt, decayed, destroyed, or carried away, nothing but the bare walls and pillars of masonry left to show its position and size, and attest to the wealth and magnificence of the former owners of these deserted and desolate mansions, whose halls once resounded with mirth and revellery, exciting and spirit-stirring incidents, the soft and sweet guitar, and gay fandango.

Having attained the ascent to the Cumbres of the Bocca del Monte, the line of railway gradually descends in the direction of Mexico, with easy falling gradients, Mexico being about 1,000 ft. lower than the summit. The line passes at and near the following places:—San Antonio, Chalcomula, Aljojuca, San Salvador el Seco, Nopaluca, San Christobal, Huamantla, San Juan, Santiago, Tetla, Atlancotepec, Quamalaingo, Buena-Vista, Apam and Lake, Xaltepec, Otumba, Atapexpan, and thence between the Lakes to San Maria, San Pedro, and Guadalupe, 3¼ miles from Mexico (where the line has been already made and in working operation), and thence to the city of Mexico. The branch to Puebla is 30 miles long, and joins the main line at Apixaco, about 85 miles from Mexico.

From the level character of the country the gradients are very favourable, and the works of a light character—shallow cuttings and embankments, except on the Puebla branch, where the works are rather heavy. The ruling gradient on this part of the line is to be 1 in 75, and the curves of not less radii than 350 yards. The country through which the line of railway passes is very like that described between the Cumbres of the Bocca del Monte and Puebla, extensive prairies partly cultivated with cereal crops, and partly covered with stunted brushwood; an undulating or rolling country, barrancas here and there, but nothing of any magnitude, and one altogether exceedingly favourable for a line of railway, more so than the direct line, through San Andres and Palmar, to Puebla. From Mexico to Guadalupe, 8¾ miles, the line has been finished and in working operation for some time; the company has recently widened and laid down a double line of rails, finding one line insufficient for the traffic; they have also laid down a double line of rails from Vera Cruz to Medellin, a short branch made at the commencement of the works.

The land all along this line of railway is freely given by the Government and the proprietors, and it is to be regularly and legally conveyed to the company in perpetuity; and this, I cannot help remarking, is a striking contrast to our English system, as the proprietors of land, when railways first commenced, exacted the utmost possible farthing for their lands, and even resorted to very questionable means to victimise the companies; but now "a change has come o'er the spirit of their dreams," lands are now sometimes offered freely, and at low prices, to be taken out in shares, or other inducements, to lead companies to construct lines of railway, so satisfied are they now of the general advantages all classes derive from the establishment of the railway system: and to have no railway communication is almost like living out of the world.

Vera Cruz and Mexico have been connected together for some years with the electric telegraph carried out by a company; and a telegraph has been laid along the Camino Real. There are two lines of wire, and the poles are made from the suitable timber of the country. All telegrams are sent in the Spanish language, except those sent by the French for military purposes; and it is rather a curious circumstance, and somewhat reflects on the sagacity and foresight of the French, that these messages are known and commonly talked of in the towns in which the telegraph stations are situated, and are, of course, soon known to the spies of the Guerillas, who regulate their actions accordingly. Notwithstanding this telegraph line along the Camino Real, the railway company has laid one along the line of railway. There are three lines of wire, and the poles for the electric telegraph are made of iron, secured at their bases in stone blocks; and I think the construction of the telegraph posts of iron instead of wood is rather injudicious, and does not speak well for the system of management. In a country like Mexico, where such admirable straight timber of hard wood can be obtained, so very suitable for telegraph poles, and at a small cost, it appears to me to be a waste of money to import cast iron for such purposes from England at a very heavy cost; and it is somewhat unaccountable and strange that, in England, where iron is comparatively cheap and suitable and timber scarce and dear, that timber should be used instead of iron. The old telegraph company is formed doubtless with Mexican capital, while the railway line is made with English money, and may account for the anomaly. The former, for economy, have used the very suitable and durable native-grown timber, while the latter have lavished their means on the more costly material, iron. "Look on this picture and on this." The fixing of the rough, unwrought telegraph poles in the streets of the towns through which the telegraph passes mars the picturesque appearance of the houses, and also obstructs the traffic; and, although railways and telegraphs are necessary to the advanced state of our civilization, they rather detract from the beauty of our landscapes, and cut up and disfigure our towns. The stations of the Mexican Telegraph Company are at Vera Cruz, Solidad, Paso-del-Macho, Cordova, Orizaba, Aculcingo, San Andres, Palmar, Acacingo, Puebla, San Martin, Rio Frio, Ayotla, and Mexico. Their rate of charge is high for telegrams, and the process is much slower than in England.

The country through which the eastern end of the line of railway passes abounds with fine

* See pp. 281, 383, 439, 539, *ante*.

timber for sleepers and other works required for the railway, and the woods from which the sleepers are to be selected are the following, viz.: encina (live oak), roble (black oak), zapote (sapodilla), mesquite (acacia aribica), cedro colorado (red cedar), quietra lacha (locust), fresno (ash), coabilla or caoba, crolem, lucidem, and cipres colorada (red cypress), all of which are thought to be suitable; but I think the red cedar, and even the ash, though fine timber for certain purposes, are not sufficiently hard and durable to be used for sleepers.

Besides the timber above-mentioned, which are good and useful woods, and much used in buildings of all kinds, there are others equally good and useful, and should not be passed unnoticed, there are red and white pines, pitch-pine, mahogany, rosewood, cocoa, balsom, and walnut, that I have a knowledge of; but there are other woods, three of which are of a dark colour, of heavy specific gravtiy, beautifully variegated, and that take a fine polish, called by the natives "copite," "teponosde," and "tepeowacke;" and there are two light-coloured woods, of small specific gravity, and that also take a fine polish, called "ocotillo" and "ocosote."

These names are evidently Indian, as I cannot trace them in the Spanish language, nor have I been able to learn their botanical names. The woods that are light-coloured are very like sandal wood, and have a similar odoriferous scent. Perhaps some of your readers, learned quidnuncs, well up in the dialects derived from Babel, may enlighten our dull understandings, and trace the words to their roots. I am well acquainted with nearly all the good and useful woods of Central America and the West Indies, specimens of most of which I have in my possession, but I have not any like those mentioned above, and I have brought home specimens of the Mexican woods, which I have had squared and polished, and the whole together form a very interesting collection.

I have seen it remarked lately in a scientific journal, that we know very little about the useful woods of our own country, and I think the remarks apply with redoubled force to colonial and foreign woods; although we import foreign woods extensively, we pursue a beaten track, and only introduce certain kinds, while there are a great variety of other kinds of useful woods that it would be advantageous and desirable to import, but they, perhaps, have not been pressed sufficiently on the attention of our enterprising merchant princes.

To resume my narrative. After leaving Puebla, the Camino Real passes over flat and generally uninteresting country, through San Martin, Rio Frio, Ayotla, to Mexico. The only place that possesses any interest at all is the neighbourhood of Rio Frio, about halfway between Puebla and Mexico; there are situated great pine-wood ranges, and long tracks of rough and broken country, bright spots at intervals occasioned by clearings and cultivation, and these are dotted about with rough, angular, and moss-covered rocks, standing out in bold relief, with small meandering streams of water, and old withered and spruce young pines, mingled in every shape and age. These vast sweeps of blue pine forests make a European believe that he is traversing old Scotia's romantic soil, or distant Norway's table-lands, except the sky is somewhat clearer and brighter, and the sun shines with less diminished splendour.

It was in the neighbourhood of Rio Frio, where the Belgium embassy met with such a disastrous and terrible attack from a body of guerillas; they were returning from Mexico to Vera Cruz, *en route* to Belgium, and had reached the neighbourhood of Rio Frio, when they were attacked by a body of desperadoes, who shot the Belgian minister, and wounded others of the party, but they were repulsed after a sharp conflict. This is a spot of all others peculiarly adapted for such desperate deeds, and if the stones round about could speak, doubtless many dark and horrid catastrophes would be revealed. There are plenty of dense thick bushes that afford good places of concealment, so that they can make the attack suddenly, and when their victims are unprepared, and it also makes a safe and easy mode to secure a quiet retreat, supposing they are worsted or surprised. So quickly are these depredations sometimes committed, that they pounce upon their victims suddenly from their coverts, and as suddenly retreat again, having secured their booty, and the whole affair has been only the work of a few minutes.

It is usual with many nervous and timid travellers to ask from the Government military escorts, and these are usually composed of Mexican horse soldiers, and they are generally rough, ragged, cut-throat-looking fellows; indeed even more dangerous looking than the guerillas themselves, and if the diligences and travellers, they are specially sent to protect are attacked, the soldiers invariably run away, thinking with Hudibras, I suppose, "that discretion is the better part of valour;" or, as many suppose, they are in collusion with the guerillas.

After you have passed the woods and wilds of Rio Frio, the scene suddenly changes, and you get into a wide and open country, and enter on the vast plain that leads to the city of Mexico, situated about thirty miles distant, and there is but little cultivation of the soil: a great extent is barren and arid; bulrushes and long sedgy grass attest the character of the soil, and shows the necessity of some great scheme of drainage, that would render the vast tracts of land suitable and profitable for cultivation.

While travelling over the Tierra Frio, I must not pass unnoticed a remarkable peculiarity in the atmosphere around you. From its great height above the level of the sea, an unclouded sky, and the extreme heat of a tropical sun, the air is very dry and much rarefied, and it has a peculiarly oppressive and unpleasant effect upon your feelings and system. And this may be accounted for as follows: the density of the atmosphere has been ascertained to decrease with the altitude, and this result is caused in a certain ratio by the diminished pressure of the air, and the decreasing force of gravity. At lofty elevations the rarefaction of the air lessens the intensity of sound, impedes respiration, and causes minute veins of the body to swell, and even open. In such situations also water boils at a comparatively low temperature.

The above causes probably produce the effect described; and that Providence who "tempers the wind to the shorn lamb" has so ordained, and wisely made, and delicately adjusted the blood-vessels of man, as to be equal in every situation to the atmospheric pressure which may be brought to bear upon them,—

> "Where one step broken the great scale's destroy'd;
> From Nature's chain whatever link you strike,
> Tenth, or ten thousandth, breaks the chain alike."

I have heard this peculiar and remarkable change in the atmosphere alluded to by many travellers, and in no country in the world are they so remarkable: in a short journey of 300 miles, from Vera Cruz to the city of Mexico, you pass through such a variety of climates and changes of temperature as is seldom met with, from 105° in the shade at Vera Cruz to 90° and 80° at intermediate stages, and 70° and even 60° at the city of Mexico, in a journey of from three to five days, according to the season of the year and the state of the roads, and when the railway is complete, you may pass in one day from extreme heat to even arctic rigour, if you choose to ascend the mountains; and in which you see almost every variety of vegetation peculiar to tropical and temperate regions, and a great diversity of animal life.

As you approach more closely to the city of Mexico the aspect of the country is flat and monotonous; its scenery has neither grandeur nor boldness to recommend it. The outlines of the bluish misty-looking hills are harsh and uninviting; but behind you is the majestic and noble-looking peak of Orizaba, and to the left the no less celebrated peaks of Popacatepetl and Ixtacoaxtl, which almost appear to overhang the city.

The road upon which you pass is very flat, and lined with bulrushes, indicating the character of the soil. The lakes are too distant to be visible from the road, but about six or seven miles from the city the porcelain-covered domes of the cathedral and churches glitter in the sun. In fact, Mexico presents the best aspect from its exterior: its numerous domes, minarets, and campaniles towering grandly above the bright and variegated foliage of the trees, and covering an extensive area, suggest the idea of a city of great magnitude, the outline of the distant bluish, sombre-looking hills forming a background to set it out in relief, and the two remarkable stately-looking mountains above mentioned, to the south, capped with a glistening snow-white mantle, adds to the interest of the scene, and forms quite an interesting landscape.

Mexico, like other cities designed, remodelled, or improved by the Spaniards, is well and regularly laid out: its wide and straight streets converge towards the Plaza Mayor, running east and west, and north and south. The Plaza de Armis, or Plaza Mayor, is a square of considerable magnitude, and surrounded with some of the principal buildings,—the cathedral, a large and imposing structure; the extensive palace and government offices, the Hotel Iturbide (named after the late Mexican Emperor) and other large buildings. The main street, which ends at the Alameda, has some stores of considerable importance and extent which are well supplied with the manufactures and produce of the civilized world, although brought at great labour and expense principally on the backs of mules for 250 miles over the very worst road, I should say, in the universe. The second-class streets are lined with houses of the usual Mexican style of architecture; and do not present much attraction, and the back and inferior streets are in a very dirty, neglected, and dilapidated state. The pavements of the principal streets are usually in good order; and the surface drainage, as is the custom in Mexican cities and towns, runs down the channels in the centre of the street; but deep drainage there would be difficult, as water is found about 3 ft. below the surface of the ground, and the country around for a considerable extent is very flat.

The Alameda, or public gardens, like many of the other attractions in this neglected and abused country, have been allowed to get out of order, and present a disorderly array,—

> "In thy once smiling garden the hemlock and thistle
> Have choked up the rose which late bloom'd in the way;"

their arrangements are similar to those of Vera Cruz and other Mexican cities.

There is also the Paseo, or carriage-drive, of about one mile long, — the Rotten-row of Mexico, — much frequented by the *élite* in carriages, and equestrians, both in early morn and dewy eve. Many of the carriages are splendidly embellished with silver mountings, elegant and luxurious in other respects, with horses richly caparisoned; and the horsemen usually wear the showy Mexican costume bedizened with silver ornaments; and the saddles and bridles of the horses are also similarly adorned, making such a show and display of wealth not exactly in character with the apparent poverty of the country. There is also a large and commodious theatre, which is well supported, at which plays, operas, and concerts are performed, and these usually take place on a Sunday. Gambling is also carried on to a frightful extent on the same day with billiards and cards.

There is also a large circus for bull-fights,—the especial delight of the old Spaniard, and his degenerated prototypes the Mexicans. These semi-barbaric scenes take place on their religious feast days, Saint days, and Sundays.

The water gardens, for which Mexico was formerly so celebrated and remarkable, still exist, and are beautiful and attractive objects in the midst of the dreary-looking surrounding swamps, as bright spots in a dull and gloomy landscape put in by the great artist of nature; but, as in the case of the Alameda and the Paseo, neglect and Time's effacing fingers has worked wonders, the glory of their former resplendent days has somewhat diminished; but the accomplished, energetic, and spirited Empress Charlotte, notwithstanding the cares of state and the duties that devolve upon her elevated position, has taken them under her especial care and supervision, and doubtless before long, should civil war cease and peace once more be restored to that distracted and unhappy country, they will emerge, Phœnix-like, from the neglect and indifference of years, the magic wand of the fair and distinguished artist may restore their pristine beauties, splendour, and usefulness, and this fine and eminently endowed city, one of the noblest and most distinguished in the Western Hemisphere, would recover some of her most attractive and charming features, and the fair city of Mexico would be as eagerly sought after by travellers and tourists in search of all that is grand and sublime in nature and in art, as are some of the noble, wealthy, and the richly architecturally embellished cities of the European continent.

The architecture of the city of Mexico is singular and pleasing; the houses are generally one storied, are well and substantially built, and with sparing ornament, and instead of a roof they have flat terraces, similar to those of the southern countries of Europe. The houses are usually erected on a similar plan to those described in Cordova and Orizaba; the building proper covers the outer area of a parallelogram

or square, with an open courtyard in the interior of the square appropriated principally to ornamental gardens, statuary, and fountains. There is an open corridor all round the inner side of the building, the roof of which is supported on ornamental or other pillars, and a dwarf wall, with openings left at intervals, separates the corridor from the courtyard. If the houses have an upper story, the corridor is continued above with ornamental pillars, and sometimes open and ornamental balustrades to connect the pillars together, and to protect the corridor.

In the fronts of many of the houses pretty iron balconies are fixed, extending in some instances the whole length of the buildings, in others to each of the windows only: the patterns of some of them are chaste and elegant in design, evidently the designs and works of accomplished artists, worthy of the best ages of art, and the days of Quentin Matsys, and other art-workers in metal.

The Spaniards, from whom these fine works emanated, early excelled in their bronze and other ornametal iron work, and they have left many beautiful and interesting examples in those distant countries which once acknowledged their sway in the western hemisphere. The population of the city of Mexico remains almost stationary, at present it contains about 200,500 inhabitants, and a great many of those are foreigners, a mixed race, and but few of whom can boast of their pure Castilian blood and descent.

In addition to the buildings mentioned above, there are fourteen churches, fifty convents or monasteries, and numerous charitable and benevolent institutions.

The cathedral and churches present, exteriorly, the same sombre heavy looking style of architecture peculiar to the other religious edifices of Mexico, and which generally characterizes the Mexican adaptation of the Byzantine or Moresque system to their immediate wants and requirements; campaniles generally adorn the principal façades, and domes tower above the roofs, glittering in the sun, as they are covered with glazed porcelain of every variety of design and colour, and they form attractive objects in the distant landscape.

I cannot account for their lack of decoration to the exterior of their architecture, except on the ground that they reserve all their means and wealth to make a gorgeous display in the interior of their religious buildings. Gold and silver are lavishly bestowed as objects of worship, and in embellishment, bright and glowing colours profusely illustrate important parts; and all their artistic and decorative skill is called into requisition to produce effect, so as, I suppose, to make a striking and lasting impression on the minds of all those who resort to such shrines, and on bended knee to offer up their prayers and adorations to the Deity. The Emperor's Palace, which is situated in the Plaza Mayor, covers a large area, is two stories in height, and the architecture is very plain and unpretentious; the fronts are simply adorned with an iron balcony, there are square projections at each of the angles, and a central gateway, above which floats the respective banners of France and Mexico.

The town-hall is also a large erection possessing some architectural features; the centre part is two stories high, and the wings three stories, the ground-floor of the front is formed into an arcade by means of pilasters and arches; the pilasters support a string course above, extending the whole length of the front, and above that ornamental pillars support a parapet, between each of which there are windows adorned with separate balconies.

The post-office, formerly the palace of the unfortunate Emperor Iturbide, is a four-storied building, with a considerable amount of decoration in the front, both in plaster and stencil; there are ornamental pillars to the principal and other doorways, and dressings to the windows, and also well-executed pilasters, pillars, capitals, and cornices, and an elaborately-ornamented parapet. There are balconies to the windows of the upper stories, and the lower ones are supported on decorated cantilevers to each window, the space between being filled in with architectural ornament.

Besides those above mentioned, there are many other fine buildings that merit a place here, but a description of them would add unnecessarily to the length of this series of papers, as the general plan and arrangement varies but slightly from those I have described. The city of Mexico is lighted up at night by oil lamps in which they use petroleum supplied from the United States, which gives a very dull and subdued light, scarcely sufficient to make darkness visible. I understand, should the empire thrive and prosper, it is the intention to erect gas works, and to light up the city with the more brilliant rays of gas, but if they have to import coal for the purpose it will be rather an expensive article of consumption, even after the Imperial Mexican Railway is made. At the present time the ordinary freight of goods from Vera Cruz to the city of Mexico is from 16*l.* to 24*l.* per ton, and this high price is occasioned by the very bad and much neglected state of their communications. But I understand coal has been found in the neighbourhood of Jalapa, to the north of the district of the country I traversed, and doubtless it exists in many other places, and should peace and good order be established, and demand be made for it, will doubtless be worked with profit and advantage both to producer and consumer.

The staple manufactures of the city of Mexico are gold and silver jewellery, gold and silver lace and filagree work, hats, carriages, saddlery and ornamental leather-work, in which they excel. Their jewellery is not so well finished as the European, but it is more massive and probably made of finer metal.

In the neighbourhood of the city of Mexico is situated Chapultepec, the country palace of the Emperor Maximilian; it is erected on a bold and lonely bluff, surrounded at its base by a grove of gigantic and very ancient Cypress-trees.

I have now brought my "Notes in Mexico" to a close, and I trust though the materials have been hastily gathered together in the few leisure hours of an active professional campaign, they have not been altogether uninteresting. I may add, that I have passed in my wanderings from Yorkshire to the city of Mexico, through a country in a state of actual warfare and bristling with bayonets, sojourning in fortified cities with barricaded streets, and surrounded by the strangest, wildest-looking, armed men, "bearded like the pard, jealous in honour, sudden and quick in quarrel, seeking the bubble reputation, even in the cannon's mouth."

B. B.

ON THE HISTORY OF ST. MARY'S COLLEGIATE CHURCH, IN HASTINGS CASTLE.*

THE excellent paper which has already appeared in the "Sussex Archæological Collections" (vol. xiii., pp. 132–179), and the incidental notices which are scattered at intervals throughout that journal, respecting *the College and Priory of Hastings and the Priory of Warbleton*, have set forth so many details concerning them, that I shall not attempt to add anything to their statements in regard to those events, which have been duly ascertained and authenticated. As some few facts, however, appear still somewhat obscure in reference to the early history of St. Mary's, I venture to hope that the speculations in which I am about to indulge concerning such points as have not yet been quite satisfactorily settled, will be favourably received, if not altogether on account of their conclusiveness, as many doubtless will dissent from them, yet, at any rate, for their brevity; since I know from dire experience what an infliction a long dissertation is, which, like Pope's "needless Alexandrine, drags its slow length along," and wearies the patience of every one who hears it, except that of the learned but somewhat impulsive and long-winded author himself. Referring, therefore, those whom it may concern to the valuable publication which I have already mentioned for all the known facts concerning the history of our subject, I will endeavour to elucidate some few matters upon which considerable doubt still continues to exist. And, first, it appears, that there is much uncertainty both as to the founder of the church, and as to the time when it was built and endowed. Some writers are inclined to attribute it to the Saxon period, although I have not been able to ascertain the precise grounds upon which they arrive at that conclusion; for, be it remembered that this paper relates only to the ecclesiastical establishment of St. Mary's, and not at all to the general history and antiquity of the military portion of the castle. I myself can discover nothing which points to anything earlier than a Norman origin; and my belief that it is Norman rests upon the following grounds.

It is well known that William I. granted to Robert Count of Eu the Castlery of Hastings, as a reward, for his having been one of the chief counsellers of the monarch's successful invasion of this kingdom. Now, in 1093-4, which was the 7th William II., we learn that not only was the church of St. Mary in the castle standing, but that it was in ordinary use for ecclesiastical purposes. Matthew Paris, in his "Historia Anglorum," writing of the year 1093, says, "Anno quoque sub eodem convenientibus totius Angliæ episcopis, Thomas, Eboracensis episcopus, Anselmum Cantuariensem electum pridie nonas Decembris consecravit antistitem;" thus fixing the precise day of the installation of the archbishop. Anselm then having been consecrated Archbishop of Canterbury, on the 4th of December, 1093, in February, 1094, in consequence of William's having determined upon an expedition into Normandy, the king and the court were assembled at Hastings. It is, perhaps, in a slight degree "travelling out of the record," if I pause here for a minute to call your attention to the "manners and customs" of this period, and show you what a fashionable watering-place was in the time of William Rufus, so as to afford archæologists an opportunity of comparing the *tout ensemble* of the frequenters of Hastings during his reign with the appearance and bearing of those who visit it in these more enlightened days. The following then is the description given of Hastings, in the year 1094, by the Dean of Chichester, who, as he tells us, derives his knowledge of the customs of the age from Eadmer, William of Malmesbury, Henry of Huntingdon, and Ordericus Vitalis. "It was," he says, "a scene of gaiety, and while the smiths were repairing their armour, the young courtiers paraded in the fashionable attire of the age. They wore tunics with deep sleeves and mantles, with long trains. Their caps or bonnets were of the richest fur, adorned with precious stones or gold; the girdles which bound their doublets to the body were adorned with clasps, like birds' beaks; their cloaks and mantles were of the finest cloth. Their shoes were remarkable, being peaked, with long sharp points stuffed with tow, and twisted to imitate a ram's horn, or the coils of a serpent; gold and silver chains attached them to their knees. We are not surprised when we hear that thus shod, their gait appeared to be affected; that they came tripping rather than walking; and that the frequenters of William's court should show but little reverence to their spiritual pastors and masters, meeting them with a free and easy nod, instead of tendering a humble obeisance. All this offended Anselm, but he was most provoked with what was a new fashion among the Normans. The young men appeared with their long hair divided in front, and curled. Eadmer, moreover, mentions it as a fact, that they actually combed it every day; their hair fell in ringlets down their backs, and was often lengthened by the addition of false curls; they had also permitted their beards to grow. When Lent commenced the Archbishop denounced the prevalent fashion, and declared that none should receive absolution who did not clip their hair and shave off their beards. The Bishop of Rochester (Gundulf) concurred. I believe his successor in these modern days adopts similar views with regard to the clerical votaries of St. Barbatus; and although, perhaps, he would not go so far as to deny them absolution, yet he is said to be extremely strict in tonsorial matters, and to enforce very close shaving upon all ecclesiastics in his jurisdiction. I do not know whether his opinions upon this point are shared by his brethren on the episcopal bench, but in William's time it appears that "Gundulf, bishop of Rochester, and Ralph, bishop of Chichester, were the only two among the English bishops who maintained the cause of Anselm;" so that you see in those early days the bishop of your diocese was opposed to clerical *chignons* and ringlets, for, as Dr. Hook tells us, quoting from the life of Wulfstan in the *Anglia Sacra*, "Wulfstan, the noble-hearted Anglo-Saxon bishop, being a practical man, used with his own hands to poll the heads of those who would submit to it; for which purpose he kept a little knife, which also served him for trimming his nails or cleaning his books. Those who would not accept him as a barber he lectured for their effeminacy, and threatened them openly with God's judgment," or, to use the words of William of Malmesbury, "*ille vitiosos, et præsertim eos qui crinem pascerent insectari*," "he was wont to be very bitter against the

* By Mr. Edward Levien, M.A., F.S.A. Read at the Hastings Congress of the British Archæological Association.

immoral, and especially so against those who cherished their hair," which plainly shows that he thought those who cultivated flowing locks were even more deserving of episcopal censure than those who led vicious lives; and he assigned as a reason for this, that men who imitated women in the growth of their hair ought to blush for themselves, for they would be of no more use than women in defending their country against invaders from over the sea; and our learned vice-president, Mr. Planché, has shown us how general the feeling of the Normans was against "curled darlings" in those days, by pointing out to us and remarking upon their closely-cropped polls, in the Bayeux tapestry.

But to return from this digression to the history of St. Mary's Collegiate Church. It was, as we have seen, certainly used for ecclesiastical purposes in 1094, for in that year Robert Bloet, the royal chaplain, was consecrated there by Anselm, as Bishop of Lincoln. Eadmer, in his "Historiæ Novorum," gives the following account of the proceedings upon the occasion:—"Evolutis de hinc aliquantis diebus ex præcepto Regis omnes fere episcopi una cum principibus Angliæ ad Hastinges convenerunt, ipsum regem in Normanniam transfretaturum suâ benedictione et concursu prosecuti. Venit et pater Anselmus suis quam maximè orationibus per marina pericula Regem protegendo ducturus. Morati vero sunt ibi Rex et Principes plus uno mense, vento transitum Regi prohibente. *In quâ morâ Anselmus sacravit in Ecclesia sanctæ Dei genetricis Mariæ quæ est in ipso Castello, Robertum ad regimen Ecclesiæ Lincoliensis*, ministrantibus sibi in hoc officio septem de suffraganeis Episcopis suis." The church, then, was evidently founded before 1094, and is said to be "*in ipso* castello," in or within the very castle itself; and the next question—the right solution of which solves the first—is, who was its founder?

In answering this we must unfortunately rely entirely upon second-hand evidence, as the original deed of foundation is lost, or if it is still in existence it has not yet been discovered. We have, however, I think, sufficient proof to show that it was founded by Robert Earl of Eu, who flourished during the reign of William the Conqueror, and died in 1090, which was the 4th of William II. Anselm (I mean, of course, the French writer, not the anti-hair-and-beard-growing archbishop) in his "Histoire genealogique et chronologique de France" (vol. ii., p. 494), gives us a short memoir of this nobleman, which he has compiled from fuller accounts of him in the "Historiæ Normannorum Scriptores Antiqui." In this latter work, to which I have myself referred, he is frequently noticed both in the "Gesta Guillelmi Ducis Normannorum, et Regis Anglorum," by William of Poitiers, archdeacon of Lisieux, and in the "Historia Ecclesiastica" of Ordericus Vitalis, who were both of them contemporaries of the Count of Eu. By these writers he is lauded not only as a valiant soldier, but as a man who was eminent for his abilities even among the bishops and abbots of the period, and as being one of the most distinguished of those who "were mighty in the splendour of great liberality, conspicuous for their zeal in religion, and in their practice of all sorts and kinds of goodness." Now we know that this illustrious personage was not only given to found and endow churches and abbeys himself, but that he came of a church founding and endowing, or, as it would probably be called in these days, a "serious," family. Thus his father, William the Bastard, of Normandy, founded and endowed the church of Notre Dame at Eu, and his mother, Lezleline, the daughter of Turketil, lord of Turqueville, in Normandy, founded the abbey of St. Peter, at Dive. His brother Hugh, who was bishop of Lisieux, built a monastery in his episcopal city, and completed and was a great benefactor to the cathedral there; while Count Robert himself, in 1056, founded the Abbey of Treport, on the sea, near Eu; contributed largely to his mother's ecclesiastical establishment at Dive; granted his forest of Espinay to the abbey of St. Catherine, at Rouen; and took an active part in the foundation of the abbey of St. Stephen, at Caen; while his name appears among those of the lay witnesses to the confirmation charter of William I., by which, in 1069, he re-grants the priory of Deerhurst, in Gloucestershire, with its land and possessions, as it had been originally granted in the time of Edward the Confessor, of St. Denis, in France.*

But not only do the antecedents of Count Robert of Eu render it probable that he may have founded the Church of St. Mary in the castle at Hastings, but one of the records of the Court of Chancery formerly in the Tower of London, but now transferred to the Public Record Office, proves, I think, beyond a doubt, that he was the founder, and not, as has been very often stated, merely its great benefactor and refounder. The record to which I refer occurs in a roll entitled a "Visitation of the Free Chapel within the Castle of Hastings;" and is styled, "the foundation, or confirmation of the foundation or ordination of the chapel of Hastings and the prebends of the same by Henry Earl of Eu." Now this charter has hitherto been stated to be of the time of Henry II., and to contain a list of the grants and benefactions made to the church by the *second* Henry, Earl of Eu, who flourished during Henry II.'s reign, and died in 1183. But I venture to think that the words used in the document itself, which is undated, indicate plainly, that it is of the time of Henry I., or, at the latest, of that of Stephen, and that the Count d'Eu by whom the grants were made was Henry the first of that name, and not the second. In the first place, then, the following passages occur in the deed: "Whereas it behoveth that we should not only be successors to those things which descend to us by hereditary right, but that we should more especially be heirs of the religion of our forefathers, therefore I will that those holy places and churches which my progenitors have founded should be venerated and exalted. Now although I am not able to augment the benefices pertaining to such places so liberally as I should wish to do, I am at least desirous, as it becometh me to be, that those things which are left there by my ancestors should be preserved entire. I have therefore decided it proper and useful that the canons of the same place [viz. of the Church of St. Mary of Hastings] and my barons being called together I should order to be made known in presence of all what my father, or rather my grandfather R[obert] Earl of Augo [or Eu] gave and granted in alms to those who were first appointed brethren of the prebends;" and after this, in reciting previous grants, Earl Henry says: "Thus R[obert], Earl of Eu, *the founder and builder of the church*," here stating clearly that his grandfather was the very builder and founder of the church, and not as some suppose—upon what ground I confess I am at a loss to imagine—merely its rebuilder and refounder. Now, the grandfather of the first Henry d'Eu was Robert, whereas the grandfather of the second Henry was this very Henry the first; and therefore if the deed had been drawn by the second Henry, he could not have called Robert his grandfather.* Having now got through the chronological and genealogical quagmire, which I fear must appear to savour somewhat of the intricacy of that well-known query, "If Dick's father is John's son, what relation is Dick to John?" I will merely add that one of the witnesses to this deed is called Hugh the Dean, which proves that Thomas à Becket could not have been the first dean; for Becket's appointment took place about 1157, and there is no Dean Hugh mentioned *after* his time. This, then, is another, as I think, irrefragible argument that the charter we have been considering is of a date anterior to Henry II.

I shall now, however, proceed to the consideration of another point connected with the history of St. Mary's in the Castle, which is also somewhat of a *crux*, and that is the period at which it was removed from its original position to the spot which it afterwards occupied, and where only a few ruins now remain to indicate to us what it once was. That it was so removed is beyond a doubt, as I hope to prove by the following observations.

Rouse tells us that "in 1094 William II. held a great council in the castle of Hastings, which stood below the cliff upon a site which the sea afterwards overflowed;" for the comparatively modern fort or castle erected by William the Conqueror was a distinct building from the Saxon castle upon the cliff, and was situated, to use the words of the petition of the Dean and Chapter to Edward III., "infra claustrum quod per frequentes inundationes meris pro majori parte devastatur," which proves that the chapel then stood below the claustrum or "barrier," so to speak, which was then, for the greater part, destroyed by the sea. In the fifth year of this king, therefore, they obtained the well-known royal charter empowering them to enclose the castle and its precincts with walls, so as to secure the church from the irruptions of the sea, which ultimately destroyed so much of the town that, as Mr. Durrant Cooper informs us, "in the will of Richard Meeching, 1436, All Saints' Church is called the New Church," a fact which, added to others that he mentions, seems, and most justly so, to him to afford "conclusive proof that the old part of the town stood seaward of the present streets, and that hence is to be found the reason why so few remains have been brought to light." But it was not only the inroads of the sea that involved a great part of Hastings in ruin, for in the 2nd of Richard II. (1378) the French burnt it; and we are told in the charter of Edward, that "the aforesaid free chapel, from want of enclosure of the castle aforesaid, which by frequent inundations of the sea is for the greater part destroyed, on account of this is looked upon as derelict by divers evil-doers; and often before these times, as well by night and by day, had been broken and robbed, the reliques, ornaments, and treasures of the same taken and carried away, and the ministers of the said chapel beaten, wounded, and evilly treated." The seal of the college, which is figured both in maps and as an illustration to Mr. Turner's paper referred to at the commencement of this essay, bears the date 22 Edward III., that is A.D. 1349; and it was, I should conjecture, during the early part of this king's reign, that the building was removed from its ancient site to the old castle on the cliff. If this were the case, I imagine that the destruction of the ancient church may have been completed by the French in the invasion to which I have referred above, i.e. a century later than the date assigned by Mr. Durrant Cooper in his excellent dissertation upon Hastings Rape, Castle, and town, in the second volume of the "Archæological Collections," as the commencement of the decay of the military portion of the castle. He justly observes that, "In Richard II., when the French burnt a portion of the town and church the castle was useless as a protection;" and he adds, "that the fifth, sixth, and seventh Earls of Eu resided for a long time at their Château d'Eu, and founded many monastic establishments in Normandy; and it is most probable that Hastings Castle was neglected or fell into decay in the latter half of the twelfth century or the commencement of the thirteenth." It was on Monday pointed out that the architecture of the chancel arch indicates a date somewhat anterior,—say of about twenty years,—to that which I have assigned: still the statements contained in the documents to which I have referred seem to me so precise and positive that if the arch still standing (I mean, of course, that portion of it which is original) is of the very commencement of the fourteenth century, it must be part of the work which belonged to the older church, and have been removed to its present position at the granting of the charter, 5th Edward III. About five-and-twenty years after the invasion of the French the church began to be neglected; for Mr. Turner tells us that in the 7th Henry IV. (1408), the commissioners sent down to examine into the state of the building, &c., reported that its rents, profits, and other emoluments, even though liberally aided by the offerings of the faithful, had become insufficient for its reparation and support,—a statement which fully proves that at this time the fabric was in a dilapidated state, and stood in sore need of repair. It seems that the church, or "Royal Free Chapel," as it was also called, on account of its claim to be independent of episcopal and other ecclesiastical jurisdiction, save that which was prescribed in its original foundation charter, maintained a struggle for existence for some years; for we hear of "its continually decreasing revenues," and that it was involved in the quarrels and collisions which so constantly took place at this period between the crown and the ecclesiastical authorities with regard to their respective rights over free chapels. At length, in 1480, it was arranged that the chapel and canons should be under the same ecclesiastical jurisdiction and visitation as the other clerical establishments of the

* Printed in Dugdale's Monasticon (London, 1823), vol. iv., p. 665.

* There is a translation of this charter in the British Museum, in Additional MSS., 15,662, f. 171, but it is very inaccurate. It gives the date as of the reign of Henry VI., calls the *comes de Augo*, or Eu, the Earl of Anjou; and whereas it styles the Earl correctly as *Henry* throughout the body of the document, it designates him in the attesting clause as Count *Hugh*. A translation of the Inquisition of 2 Edward I. is in the same volume, at f. 179; of the charter of the 25th and 26th Henry VI., securing the jurisdiction to the Bishop of Chichester, in Additional MSS., 15,663, f. 155, and the *Inquisitio ad quod damnum* of 4th Edward III., granting the licence to the dean and chapter to enclose the castle in Additional MSS., 15,664, f. 107.

diocese, and various points as to their patronage were settled in a manner satisfactory both to the royal and episcopal disputants.

The time at which St. Mary's became a parish church is another matter upon which some doubt has arisen. It may, I think, perhaps be referred to about the period just mentioned; for we know that soon after 1480 the deanery of the college was endowed with one prebend; that the dean had a residence, lands, certain money payments and allowances granted to him, and also "the advowson of the Vicarage of St. Mary in the Castle," which, as Mr. Turner observes, "was then called *in* the Castle, but which must surely mean within its precincts." In confirmation of this, he quotes a grant of the rectory in 1549, in which the church is styled St. Mary *prope castrum de Hastings*, and adds "of which [*i.e.*, the old collegiate church actually in the castle] the present church of St. Mary is the substitute, for no traces are to be found of a second church *in*,—that is, *within*,—the castle buildings, and to which a parochial district was attached." In the 30th Henry VIII. (1538), all colleges, free chapels, chantries, hospitals, paternities, with their lands, tenements, and hereditaments, were, as we know, seized by the Crown; and Sir Anthony Brown, K.G., who was standard-bearer to the king, was presented by his royal master with the site of, and all the rights appertaining to, the free chapel of St. Mary's in the Castle. In 1721, these were conveyed by Sir Anthony Brown's descendant, Anthony, sixth Viscount Montagu, to Sir Thomas Webster; and their subsequent history is so well known that there is no need of my recapitulating it here. The parish of St. Mary in the Castle was without any place of public worship from the dissolution until the year 1825, when the present church was erected by Thomas Pelham, second Earl of Chichester, a worthy ancestor of our noble president, and was consecrated in 1828 by Dr. Carr, bishop of the diocese, and afterwards of Worcester. It is still called St. Mary's in the Castle; and when we ourselves, and the buildings by which we are surrounded, shall become subjects of discussion for archæological societies, antiquaries will haply be very much puzzled to decide why the modern edifice rejoices in its title, and will be employed in tracing a connexion between structures which have no more to do with each other, either locally or architecturally, than Tenterden church-steeple has to do with the Godwin Sands.

In conclusion, I have only once more to add, that I have purposely abstained from entering into any of the well-ascertained and authenticated events connected with St. Mary's in the Castle, as they have all been so admirably collected and set forth by Mr. Durrant Cooper, Mr. Turner, and other members of the well-known Archæological Society, which has done such valuable service in elucidating the history and antiquities of this county; and the title of my paper may therefore be regarded perhaps as somewhat of a misnomer; but the few suggestions which I have made, and the arguments I have advanced, are put forward with all due deference to the greater knowledge possessed by the gentlemen whom I have named, as well as by some of their colleagues, when compared with the limited light which I have been able to throw upon the subject. I hope, should I have committed any error, no one of them will be afraid to act as a "*plagosus Orbilius*," and to give me a hearty rap over the knuckles if I deserve it.

THE CONVENIENCE OF CANNON STREET.

WE English are a very placable people. We get angry, at times, like our neighbours, but our anger does not invariably require to be extinguished in blood. We are not backward in accepting excuses. We are ready often, not only to take the will for the deed, but further to accept the wish for the will, and to allow a courtesy of manner, a general willingness to oblige, and the absence of any glaring and tangible breach of specified duty to excuse the authors of great misfortunes who, under the sterner regimen of the French code, would have had to expiate their ill luck by a small pecuniary fine, coupled with a few days', more or less, actual imprisonment.

A very striking instance of this national amiability, or by whatever other name it may be called, has just occurred. From the commencement of the season of partridge shooting, an entertainment of a different kind, has been considerately prepared for those whom the pressure of business or other causes has detained from the moors and the covers. If the residents to the south-east of London have not, as yet, been called to join in the success of a monster battue, they have at all events been furnished with the excitement of a chase. It has not been one of an entirely novel description, although none hitherto has been planned or conducted on so gigantic a scale. The game has been no other than the well-known mythological character distinguished by the attributes of the scythe and the hour-glass; the pursuers have been the passengers bound for Charing Cross, or the new and convenient station of Cannon-street, and the scent has been lost, on every occasion, in a manner more complete than the experience of the most veteran travellers can remember. Half an hour—an hour—two hours have the patient passengers, or rather would-be passengers, had afforded them to admire the wagon roof that eclipses St. Paul's, or to marvel at the perfect and complete arrangement of signal and switch. Like the famous performance of *Hamlet*, in which the part of the Prince of Denmark was omitted by special desire, everything that could be desired on a railway was present—except locomotion.

It appears, however, that the travellers of a stupider sort,—men unable to appreciate a practical joke,—did not, in the first instance, hail the new conveniences afforded by the Cannon-street station as might have been expected. Angry men wrote to the newspapers, and for a week no journal could be taken up in which some new form or detail of complaint was not urged against the well-deserving company. At last, dissatisfaction seems to have borne fruit in the shape, unusual in our mild climate, of an indignation meeting, which duly came off, and where habitual passengers came forward to insist on their grievances. It is this meeting which, if we may give full credit to the reports, affords so remarkable an instance of English good humour. By reasoning not communicated to the outer world, the traffic manager appears to have prevailed on the irate assembly to have a little patience, and to expect that, by the close of the month, the traffic may go on nearly as punctually as before the opening of the Cannon-street station. So everybody seems to have gone home contented. It is to be hoped that a full report of the proceedings of this unusual meeting will be printed by the directors, and that a copy will be delivered with every ticket taken at their counters during the present month. The report, if printed *in extenso* from the notes of the shorthand writers, will no doubt be long, but the passengers will be assured of ample time to study it, even during the passage of the shortest distance for which they engage a seat in the company's trains; and we hesitate to express a doubt that the perusal will be found fully consolatory to every present and future passenger during the period for which the manager has entreated the patience of his customers, and even for any necessary prolongation of the time.

If we may venture on offering any suggestion to persons so fully adequate to the difficulties of the moment as must be the directors and managers of this great blockade company, it is, that they should, at all events during the existence of the present locomotive pressure, alter their system of fares, and charge by time instead of by distance. The revenue of the company would thus be notably benefited, and if another indignation meeting be held, and be as ably encountered as was the last, the change will no doubt be received by the passengers with acclamation. Perhaps they will even vote a piece of plate to the traffic manager on the occasion.

The change seems to us to be a fair and legitimate consequence of the present improved system. The company contract with the public to convey them a certain distance in a certain time. This they do (*i.e.* contract, not convey) in a complete and definite manner, by the issue of tables stating the hours of departure and of arrival, and by the sale of tickets and acceptance of money on the basis of those tables. The contract with each purchaser of a ticket is complete. Then the company, in their wisdom, so arrange that the time of transit shall be considerably extended. Let us say that instead of conveying passengers at the rate of a mile in three minutes, including stoppages, they now convey them at the rate of a mile in a couple of hours. Is it fair that a first-class carriage which is occupied in conveying a couple of dozen passengers from London Bridge to Charing-cross during a period amply sufficient to carry them to Brighton or to Dover, should remain for this length of time unproductive to the company, or only earning the smaller fare, instead of that larger return upon which the shareholders have a right to calculate. It will, we trust, be obvious to the directors that much benefit will accrue from the adoption of our suggestion, and we hope to receive a free pass over all the lines of the company in acknowledgment.

There is one other consideration which it would be unjust to a body of men who, apart from satire, are hard worked and well deserving, to omit. Whose fault is the block? Our readers may remember the opinion which we gave as to the effect of the attempted improvements on the over-tasked system of railway lines that converge and cross at London Bridge. We pointed out that each additional junction, as at present managed, would be an additional cause of danger and of delay. Even so it turns out. Look at the great diversity of traffic,—long swift express trains to the Continent, short local trains for the service of the suburbs,—shuttle trains to displace the public vehicles of the metropolis. In endeavouring to conduct this vast and heterogeneous traffic over the same level surface, the companies are calling on their traffic managers to do the work of their engineer, and are attempting, and hopelessly attempting, to remedy by administration and working arrangements a radical vice of construction. We may shortly expect to see how Sir Charles Fox's method of dealing with this difficulty at the Victoria Station will answer. We offer no predictions, but there, at all events, the difficulty has been foreseen, and provision has been made to avoid it. At London Bridge, on the other hand, difficulties have been allowed to accumulate until they appear to be insuperable except by a bold reconsideration and reconstruction of all the engineering arrangements which, in any case, cannot cause a temporary interruption of the traffic of a more serious nature than that which now appears to have become chronic, and that will be ultimately far cheaper to the companies interested than either the loss of their traffic, or the indemnities which they will surely have to pay when they come to the end of John Bull's most unusual patience.

ITALIAN NOTES.

A PERIOD pregnant with great events has passed over Italy without any marked alterations to the outward life of her capital. Performances in theatres, musical or dramatic, for the benefit either of the wounded or the volunteers, spectacles intended in patriotic sense among the *sub dio* entertainments of the amphitheatre, besides the appearance of Garibaldi's red shirts in the streets and daily novelties in form of wood-cut illustrations of battle-fields or other military subjects, have been among things on the surface to remind us of the great conflict, some of whose acts have taken place within but few hours' journey from Florence, in which the national destinies have been exposed to the risks of war. One result manifest in every-day life here, is the increased activity of journalism, the constant sale and perpetual crying of papers in public, demanded at all hours of the day and everywhere devoured by readers, in the open air as well as in cafés, restaurants, shops; and we have often observed idyllic groups at street-corners, assembled to listen to some perhaps rather ragged reader, who may have been the only man of letters in the company. Of six new papers started in Florence since the beginning of this year, three are exclusively dedicated to war subjects, and two provide the wood-cut illustrations, far from first-rate, now so much in request, such being the additions to the numbers announced in the statistics of Italian journalism, according to which there were at the end of last year, 372 periodicals, 79 daily, 152 weekly, the rest monthly or fortnightly, in the whole of this kingdom,—the number for the Florentine province being then 42, and the maximum within similar limitations, namely, in the Milanese, 51; the total of copies issued, 45,300. In Tuscany, the most valuable addition made to this aggregate in the present year is the *Nuova Antologia*, a monthly review of belles lettres, science, and politics, designed on a plan very similar to the *Revue des Deux Mondes*, and supported by men of mark both in literary and scientific walks. But one result of absorbing political preoccupations

has been, and not unnaturally, the comparative neglect of all other interests by the periodical press in this country; journals *exclusively* dedicated to art and letters being scarce found; to archæological subjects, nowhere, save in that sphere not otherwise the most prolific, the publications of Rome.

In various epochs, signalized by momentous events, and especially within recent years, has been witnessed the revival of energies and impulses in the literature and (though far less remarkably) in the art also of Italy. For such consequences from the late vicissitudes we may, in regard of the artistic interests at least, remembering the results of productiveness and encouragement after the campaign of 1859, entertain a consoling expectation, looking for ward to progress after the struggle and lessons of 1866; and an earnest seems to justify hopes from what has already been done, but the other day, the Ministry having instituted a system of premiums, to be periodically given at the Florence Accademia, for approved works in the several walks of painting; in the historic, with not fewer than three figures, life-size, 10,000 francs; in the same, with at least two figures, two-thirds the size of life, 6,000 francs; in landscape and perspective, or architectural subjects, 2,000 francs; and the same amount for *genre* and domestic scenes, — the pictures in each instance to be left for the artist's possession. We have yet heard nothing as to the labours of the two historic painters, Ademollo and Caffi, who, by desire of the King, accompanied the army and fleet for sketching subjects to be worked up into the illustrations of the historic episodes just passed. The only monumental undertaking yet heard of in the Tuscan provinces for the honour of those who have fallen, is that ordered by the municipality of Leghorn to commemorate the self-sacrifice and fate of the *Palestro* and her crew, lost by fire in the battle off Lissa; as also, for special tribute to the memory of her gallant captain, Alfredo Cappellini, a tablet to be placed on his house in that city, and the substitution of his name for that of Ponte Nuovo for a public piazza there, further to honour his memory.

As might have been expected under the circumstances, the public works for enlarging and improving Florence have been mostly brought to suspense, and, it is believed, will be yet long at a stand-still, owing to want of means, those that *are* now in progress being due to the enterprise of a company of private speculators, who are building the streets on the city's northern side, to occupy a spacious level hitherto bounded by the walls; and also the several isolated mansions, on large scale, to be let in suites or chambers at fixed and very moderate prices. The demolition of those walls on the same side, between the gates S. Gallo and Pinti, has been accomplished to a certain extent, and then left off, though still in project for what remains.

As was inevitable, the competition for the façade of the Duomo, to have been opened in June, and been followed by an exhibition of designs presented, has been put off—we fear, quite indefinitely and *sine die*—as neither public interest nor curiosity seems any longer awake in regard to this undertaking. But, on the other hand, the work actually done, and still in progress, for the advantage of this noble cathedral, deserves favourable report in every sense,—we mean the restorations, during many months almost uninterruptedly going on, as at this day, wherever the marble incrustations or tracery of windows have required repair; and we observe the most scrupulous adherence to original design in all instances, the grey-veined white, dark green, and reddish brown marbles being fortunately at hand, to supply the place of whatever portions have been damaged on the ancient surface. In the result of these works, an effect somewhat patchy is given to the exterior, particularly on the southern side; but time will no doubt soon give that mellower tint in which the old now contrasts with the new on the vast marble structure.

The only other noticeable novelty of architecture here is the just completed façade of the Corsi Palace, for which it is said that the municipality have spent 500,000 francs, defraying the entire costs of this work, after the demolition of the old palace front had been decreed on account of its most inconvenient projection upon one of the most crowded streets in Florence. And the new building is a noble specimen of Italian style, resembling the Cinque-cento rather than the earlier Tuscan palaces, with Doric friezes, considerably projecting cornices, round-arched windows and portals; even the old iron sockets and rings, so noticeable in the historic residences of Florence, restored at intervals along the front, exactly (we believe) as in the original building. We have not seen in any Italian city an edifice of its class, among works of the present time, so imposing or finely-conceived as this. Another demolition just begun will, unfortunately, involve the sacrifice of a picturesque piece of Mediæval work; the arcades and niches for sarcophagi advancing from one side of the S. Maria Novella convent, to be thrown down is the object; the piazza they encroach upon, whose ground is important because adjacent to the esplanade before the central railway stations.

We have just read the report of the committee appointed by Parliament, consisting of the President of the Lower House, another deputy, and three architects, to examine designs presented in competition for the complete re-arrangement, as to fittings up, &c., of the Cinquecento Hall in the Palazzo Vecchio, now the Chamber of Deputies. On the 17th July, the committee sat for the inspection of sixteen designs sent in, each distinguished by a motto. The first words of their report are simply nothing else than the sweeping condemnation of *all*, but modified by the sequel, which allows certain merits in four, alone worthy of notice, and a pre-eminence among these recognisable in one, though even that fails of answering to all requirements. In this dilemma it was voted that the offered premium, 4,000 francs, should be given to that one which was the least unsatisfactory among the four considered; and the schedule being opened, this design was found to be the work of Signor Comotto, an architect not unknown; after giving which particulars, this report winds up with a list of requirements in five clauses that must be kept in view by the architect, whoever he may be, finally intrusted with the directing of the works, in which it is especially ordered that due regard should be had for interests of art, and Vasari's great frescoes on the walls of the *Sala* left unconcealed. It is decided that the much-desired enlargement of the Ponte Carraja, the most crowded and inconvenient of Florentine bridges, shall be executed in iron-work, which has been contracted for at Liége, to be in readiness for January next.

Among publications of sterling value lately produced here, is one for which a grant was made by Government, from the pen of Count Comstabile, Archæological Professor at the University of Perugia, descriptive of the Etruscan tombs and their art-contents, opened in 1863, on a hill-side near Orvieto, where were found the traces of a considerable necropolis; and in fifteen sepulchres, still well preserved, a variety of paintings, bronzes, and other such objects as were usually laid by that people beside the dead. The learned Count was commissioned to visit, report on, and suggest means for the future conservation of these antiques; and his volume on the subject, in every way creditable to him, supplies eighteen copper-plates, besides the well-compiled details in the context.

SEA DEFENCES FOR WORTHING: TENDERS.

At a recent meeting of the Worthing Local Board, the General Purposes Committee reported that the tenders for the sea defences were as follow:—

	Oak.	Fir.	Elm.	Beech.
Blaker	£15,042	£14,389	£14,351	£14,351
Thorn	10,200	8,780	8,868	8,963
Potter	9,300	8,250	8,500	8,350
Light	8,759	7,762	8,116	8,759
Bushby	7,314	6,849	6,849	6,673
Lawrence	6,980	6,220	6,600	6,286

In consequence of the inadequate means at the Board's disposal, these works were modified, and Mr. Lawrence was invited to send in a second tender, which he did as follows: Oak, 6,009*l.*; Memel, Riga, or Dantzic Fir, 5,983*l.*; Elm, 5,866*l.*; Beech, 5,718*l.* Mr. Lawrence's amended tender of 6,009*l.* was accepted, subject to the approbation of his proposed sureties, and to his entering into a written contract, to be prepared by the Clerk."

In the course of a discussion that ensued, it was asserted that the surveyor was going to too great expense, and that the use of so much marl as was contemplated was throwing money away. The surveyor reminded the meeting that the proposed works were no common undertaking. He had to contend against the ocean, and they all knew what the ocean was, and what it could do. If in his calculations he had gone a little too far, it was on the safe side. If the town proposed to expend some 6,000*l.* on these works, it would be unwise to endanger them by a mistaken economy. He prided himself upon having discovered the peculiar value of the sea-marl. The more this marl was washed by the sea the harder it became. Nature had provided close at hand the very best material they could possibly have.

The report was ultimately adopted.

What is to be thought of such tenders as these, and some others in our present number: how are the differences to be explained? What would be said of an architect who, when asked to give a general estimate of the cost of carrying out a design, should name 6,900*l.* for what a builder afterwards should put down 15,000*l.*, the architect, be it remembered, not being commissioned, ordinarily, to make an estimate and charge for it, but being supposed able, without any cost to the employer, to say for what sum the design could be carried out? when here we see six contractors whose personal interest is concerned in correctness,—who, indeed, have, perhaps, as in many other cases, included in their estimate a sum of money as the cost of obtaining that accuracy,—differing to that extent,—an extent equal to 120 per cent. Is Mr. Lawrence about to lose 8,000*l.* by his contract, or was Mr. Blaker proposing to gain that sum beyond the ordinary trade profit? Or does one of these gentlemen know nothing of the work he proposes to execute? These are really interesting questions that require answering.

THE STAINED GLASS OF FAIRFORD CHURCH.

On the second day's meeting of the Worcester Diocesan Architectural Society, which was devoted to Cirencester and Fairford, the chief interest at Fairford centred in its famous stained glass. About the year 1492 a vessel laden with stained glass, and bound from the Low Countries to Rome, was taken by a ship belonging to John Tame, a merchant, who founded the church to receive the glass. The building was finished by his son, Sir Edmund Tame. The glass was stated by Mr. Bloxam to form, with the collection in York Minster, the most perfect series in England. That in the York Minster illustrates the Early English period; that of Fairford the Perpendicular, or late period. The subjects are the usual Scriptural ones, beginning with the Creation of Man, and closing with the Doom, which is portrayed in the great west window. The great east window pictures the Crucifixion. There are twenty-four painted windows, most of them of considerable size. The fact that they are large, coupled with the excellence of the glass, provides for the admission of ample light. Not the least entertaining point of the visit was the description of the windows afforded to the archæologists by the parish clerk, who ran volubly and in a sustained monotone through an elaborate account, spoken in a dialect perfectly in harmony with the age of the glass he described.

An amusing story about a Gloucestershire antiquary was told by one of the visitors. Once on a time he went to spend a day in this church, and was led to make a stay of several weeks, lying on his back sketching the subjects and devouring the beauty of the work, until at last his friends addressed their letters to "The Great East Window, Fairford," and there the postman delivered them to him.

KENSINGTON IMPROVEMENT ACT.

Among the local Acts passed in the late Session was one to enable the Metropolitan Board of Works to make improvements, which it is declared would be of great public utility, in widening and forming new streets in Kensington, and special provisions have been framed for the benefit of the labouring classes, which will doubtless be acted upon in respect to other public improvements. The Act is not to be enforced before the 1st of October unless a law shall have been passed for the benefit of the labouring classes. Plans of the alterations contemplated have been deposited with the Clerk of the Peace of Middlesex. The compulsory purchase of property required is limited to five years, and the compensation is to be ascertained by a jury or an arbitrator, and the funds may be raised by annuities, which, as

well as moneys raised by mortgage, are to be charged on the rates of the Metropolis Management Act. The following provision has reference to the labouring classes:—"The Board shall, not less than eight weeks before they take in any parish fifteen houses or more, occupied either wholly or partially by persons belonging to the labouring classes, as tenants or lodgers, make known their intention to take the same by placards, handbills, or other general notice placed in public view, upon or within a reasonable distance from such houses, and the Board shall not take any such houses until they have obtained the certificate of a justice that it has been proved to his satisfaction that the Board have made known their intention to take the same in manner herein before required. Any person who would not otherwise be entitled to compensation, who may be removed under this Act from any tenement, shall be entitled to reasonable compensation from the Board for the loss occasioned by such removal, such compensation, in case of dispute, to be settled by the police magistrate of the district in which the tenement shall be situated."

METROPOLITAN SANITARY ASSOCIATION AND THE CONDITION OF LONDON.

A CONFERENCE meeting was held in the rooms of the Social Science Association on Wednesday last, to consider the subject of the present epidemic of cholera, in its medical, sanitary, and social aspects. The chair was taken by the Lord Bishop of London, and the rooms were filled with an influential assemblage. A long discussion ensued, of which we had prepared an account; but as the proceedings have been already reported in most of the daily papers, we content ourselves with printing the resolutions ultimately passed, on the motion of Mr. B. Shaw, seconded by Dr. Acland, F.R.S.:—

"That having regard not only to the present epidemic of cholera in the eastern districts of the metropolis, but also to the habitually-imperfect sanitary and social condition of many portions of it,—to the difficulties which exist in the way of raising adequate funds for carrying out remedial measures, and to the necessity which prevails for making this state of things better known to the inhabitants of the more wealthy parishes, and to the community generally, this meeting deems it to be its duty to urge upon her Majesty's Government the propriety of issuing at once a Commission to inquire into the sanitary and social condition of the metropolis, with a view to obtaining the best evidence on the subject, and of suggesting such steps as may be most proper for its permanent improvement.

That a deputation be appointed to wait on the Government, and to press for the appointment of such a Commission; and that the Bishop of London be, and he is hereby earnestly requested to head such deputation; and that the deputation be composed of the following gentlemen, with power to add to their number:—Sir Morland Wells, Mr. E. Chadwick, C.B., Mr. Godwin, Mr. Liddle, Dr. Druitt, Rev. Mr. McGill, Rev. Mr. Pattison, Dr. Acland, Mr. W. Rendle, and Mr. Shaw."

THE JOINERS' STRIKE AND LOCK-OUT IN MANCHESTER.

THE master builders of Manchester have sent us a statement of the circumstances attending their present dispute with their workmen, in the form of a report of a meeting of master builders, at which one of the speakers, Alderman Neill, stated, that there was reason to believe that the demand of 2s. advance on 30s., without timely notice, implied not so much a question of money as one of supremacy,—whether they or their employers should be masters. Mr. Neill also remarks that,—

"The joiners did not, like the other tradesmen in the town—bricklayers, masons, &c.,—give a proper notice at the proper time of the year; but they waited to see the result of the other applications; and, finding the masters had met the requests in a fair and friendly spirit, they made their demand on a two months' notice, at a time of the year when nearly all the contracts had been taken, and they insisted upon having everything they asked for. They stated to a committee of the masters that they would not abate one iota; and yet they issued an address begging money to support them, on the plea that, despite their efforts to have no strike, they had been driven into one by the conduct of the employers. At one of their meetings it was proposed to accept 1s. now, and the other in March. That was lost, but yet they put forth a statement that they would have taken it had the masters offered it."

Ultimately it was resolved at the meeting, that efforts should be immediately made to procure workmen, and that the whole of the shops should be opened on Monday morning, at the wages of 30s. per week. A committee of gentlemen was appointed to engage workmen in various parts of the country.

MODEL DWELLINGS AT WIMBLEDON.

SOME dwellings have just now been erected in Church-road, Wimbledon, for the Rev. Alfred Peache, upon the site of a number of dilapidated buildings, which were a disgrace to the locality. They stand upon an acre of ground, and comprise in all thirty-one dwellings, which have been designed to afford the best accommodation, combined with sanitary arrangements. These buildings supply a want very much felt in the neighbourhood, and are picturesquely arranged to suit the site. The cost of works, including laying out roads and gardens, has been 3,000*l*. The architect is Mr. James G. Smither, of Fleet-street; and the builder, Mr. William J. Mitchell, of Dulwich.

ANCIENT DOMESTIC ARCHITECTURE AT BOPPART, ON THE RHINE.

CONTINUING our notice of ancient domestic architecture in Germany,* we give a view (fig. 1 p. 686) of one of the best examples of a thirteenth century dwelling that we know of. Its front appearance might seem even to suggest an earlier date still; but upon close examination it will be seen that, although the arches are round-headed, the rest of the detail is quite pointed in character, and it is well known that the round arch continued to be used in this part of Germany until quite the end of the thirteenth century.

Very near to this building is another, almost equally interesting (see fig. 2). This has evidently originally been a dwelling-house of considerable size and importance. It is fortified by projecting turrets, and has a beautiful little chapel projecting in a half-octagon plan from the east side, beneath which is a crypt: both are vaulted. The building is probably late fourteenth century work. Old houses of a like date crowd every street of the town, and render it one of the most picturesque and curious places in North Europe.

FRANCONIAN CHURCHES.

TABERNACLES.

LATELY, we gave a short description of some most remarkable towns and villages in the neighbourhood of Wurzburg, confining the remarks chiefly to the remains of civil and domestic architecture which they contain. In this communication we purpose to say a few words about the churches and other ecclesiastical buildings to be found in the same locality. These churches are far more remarkable for their richness in furniture than for their structural excellence or beauty. Following the route sketched out before, we arrive first at Heidingsfeldt. The church is a large building consisting of a very plain Early Romanesque nave and aisles, Third Pointed transepts and choir, and a lofty Romanesque tower at the south side of the chancel; the nave and aisles are low and narrow, the choir large and lofty, with long three-light windows in the apse; on the north side is the lady chapel. Internally the nave is ceiled with a flat plaster ceiling; the choir transepts and lady chapel are well vaulted. There is a very fine tabernacle (*Sacraments häuslein*) on the north side of the choir near the high altar; it is about 25 ft. high, in a fine state of preservation, and retains vestiges of old decoration (fig. 1, p. 687); on the opposite side of choir is a fine bas relief of the dead Christ with angels: both of these works date from the close of the fifteenth century. In the nave is a stone pulpit of most elaborate workmanship, rich in "interpenetrating work" and "stump tracery," and some really excellent figures round the base; the foliage is very crisp and bold; the date is about the year 1,500. There is an old stone altar attached to one of the nave piers, the frontal is ornamented with sunk panels. The font is Cinque-cento. There is a good wooden processional mace, and some sixteenth-century brass candlesticks on several of the altars. In the churchyard is an old chancel chapel, with the remains of a stone pulpit and cemetery lantern attached to one of its angles. There are two other churches in the town, but neither of them is worth notice.

The church at Randesachre has a good First Pointed tower and spire, but is otherwise not remarkable.

The churches of Sommer and Winterhausen are both Lutheran. The former was rebuilt about a century and a half ago, and the latter, although an old church, is so disfigured by pews and galleries as entirely to destroy any beauty that it may once have possessed.

The church at Frickenhausen is a late building with a very attenuated spire, a nice doorway, and some very good monumental slabs and bas-reliefs let into the walls; there is also a representation of Our Lord's passion ("*Passionsbild*"), consisting of several figures nearly life-size under a kind of penthouse, which is vaulted and ornamented with panelling and cusping. The interior of the church has been modernized.

The church at Ochsenfurth is really a most interesting building. It consists of a nave and aisles under one large roof, with a row of low chapels opening into the south aisle, a very deep chancel, and a lofty Romanesque tower capped with a lead spire. The whole building, with the exception of the tower, is very good Middle-Pointed work; the windows and tympana of the doorways are ornamented with very elaborate geometrical tracery. The whole church is well vaulted. The piers of the nave are adorned with statues under canopies, but they possess no capitals. The chief glory of this fine church, however, is its magnificent "*Sacraments häuslein*" (fig. 2). This is situated at the east end of the north aisle: it is entirely of stone, and about 50 ft. high. Nothing can exceed the beauty of the workmanship, and the figures with which it is adorned are specimens of the very best German art. Of course, in general design there is too much quasi-metallic construction, but the delicate finish of every separate piece of detail, and the immense amount of labour bestowed upon it, render it one of the finest examples of Mediæval church furniture in Germany. The whole is covered with decoration and gilding in a very perfect state of preservation. The door, which is of bronze, is approached by a portable wooden staircase. In the choir are some good stalls and a tabernacle of earlier date, with some good carving in the tympanum above the doorway. The high altar bears the date 1602; and though out of place in a Gothic church, is a remarkably fine specimen of cinque-cento carving. The old high altar is still visible at the back of the present reredos. It is about 10 ft. long, and is ornamented with a series of panels, with a good base mould and cornice. Suspended from the ceiling of the choir are three large cinque-cento chandeliers. They are of brass, and ornamented with many little statuettes. In the south aisle is a most remarkable bronze font, the basin of which is octagon, supported upon four slender shafts and four curved and twisted brackets, which meet in the centre under the bowl in a large knob, ornamented with four monsters. From this point they again diverge and form four feet, each of which supports a lion holding a shield. The space between the feet is filled with tracery, out of which grow brackets supporting evangelistic symbols. The eight panels round the base contain bas-reliefs of the following saints:—SS. Mary Magdalen, Andrew, Clare, Henry, Killian, Burkart, Catherine, and Barbara. This font is probably of the same date as the tabernacle. At the west end of the nave is a very deep vaulted gallery. There are several old monumental slabs against the walls, both internally and externally, and a very ornamental stone cemetery lantern upon a column about 8 ft. high. Between the two eastern buttresses of the apse is a fine "*Passionsbild.*" In the churchyard is a very beautiful chapel, with a western doorway, adorned with a double row of statues and a "Last Judgment" in the tympanum. The windows of the chapel are of three lights, very long, and the buttresses have crocketed gablets. Below the chapel is a crypt.

The church at Saltzfeld is very similar to that already described at Frickenhausen. The churches at Markt Briet and Markt Steft are Lutheran, and are internally nothing but a conglomeration of pews and galleries.

Of the five churches at Kitzingen one only is worth notice, the Catholic parish church. It consists of a nave and aisles, chancel and tower, and four small chapels opening into the aisles; two of which are octagon in plan. The south aisle is divided into two stories by a stone-vaulted gallery running the whole length of the nave, the front of which is ornamented with pierced stone tracery. There is a very fine tabernacle on the north side of the chancel-

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* See pp. 541, 542, &c., *ante*.

ANCIENT DOMESTIC ARCHITECTURE OF THE RHINE.



Fig. 2.—*Fourteenth Century House at Boppart.*

Fig. 1.—*Thirteenth Century House at Boppart.*

arch; it is about 30 ft. high (see fig. 4), and is ornamented with a great deal of carving and several figures. We were unable to find out whether the modern altar which stands in front of this tabernacle occupies the position of an older one; but we should think it most probable. There are some good stalls in the chancel and under the western gallery.

The parish church at Dettelbach has been described in our pages; the Franciscan church at the same place contains a pulpit very similar in design to that at Heidingsfeldt, only of marble instead of stone.

The parish church at Volkach has been entirely modernized internally; it possesses, however, a singular font and a "*Passionsbild*." The Pilgrimage church, a little way out of the town, is very interesting. It is a small Second Pointed building, consisting of a nearly square nave and an apsidal chancel. The nave is ceiled flat with a wooden panelled ceiling, the chancel vaulted in stone. On the north side of the nave is a curious wooden crucifix, with Evangelistic symbols painted on the arms of the cross. Opposite to this is a curious representation of the rosary; it is carved in wood, and decorated with colour; the beads are arranged so as to form a kind of niche round a statue of the Madonna. There are five decades, separated by small bas-reliefs, each representing one of the mysteries. In the chancel is the monument of a knight in full armour, and the little tabernacle represented in fig. 6. There is also a stand for votive candles, with some good metal work about it.

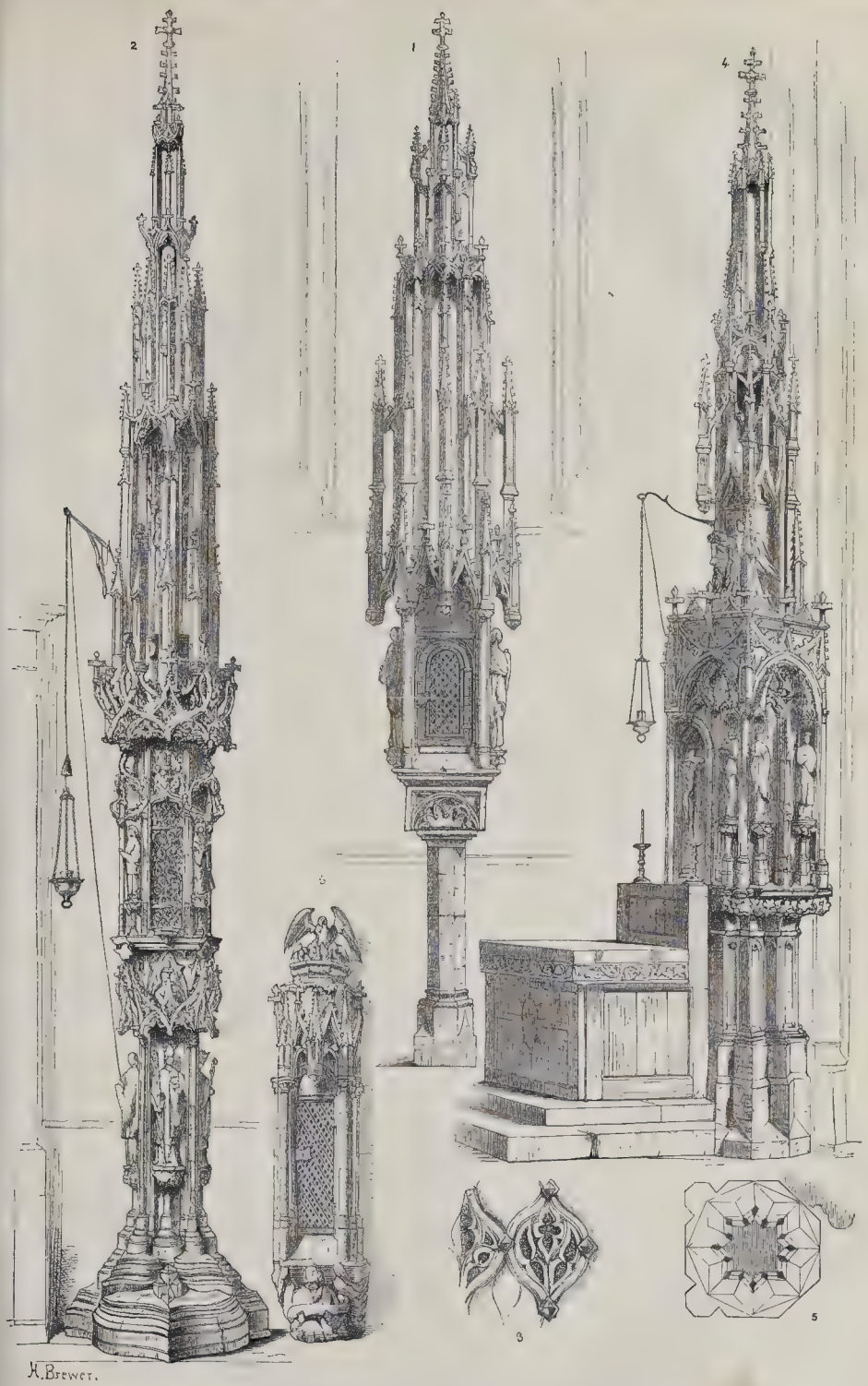
The buttresses of the exterior of the church contain niches with good statues, and on the south side are a large "*Passionsbild*" and several monumental slabs.

It may, perhaps, not be out of the way to offer a few remarks upon the tabernacles so often to be met with in the German churches. None of them, as far as we have been able to ascertain, are of an earlier date than the fourteenth century, few earlier than the fifteenth; nor do we think that they were used before that period. The finest, those at Nuremberg, Ulm, Ratisbon, Nordlingen, and Ochsenfurth, are none of them earlier than the year 1500. At Erfurth and Bonn are specimens as late as the year 1600. It is most probable that previously to the introduction of these *sacraments haüslein*, the consecrated host was reserved in a dove suspended over the altar, as is still the case in some parts of Italy and Spain, and which is known to have been the custom in France. These doves were generally made of precious metals, and enriched with jewels. M. Viollet-le-Duc gives a specimen of one of these doves in his "Mobilier." Pugin says, that the altars of the English churches previous to the Reformation, were furnished with metal towers for the purpose of reserving the consecrated host.

This might also have been the case in Germany. Some people have expressed an opinion that the "ambries," in the chancels of many English churches, were used for this purpose; but it can scarcely be believed that that religious sentiment which induced the Germans to build those splendid *sacraments haüslein*, and the French and Italians to cover their dove-shaped tabernacles with costly metal and precious stones, would have left the English satisfied with a square hole in the wall. Not only is the origin and history of these isolated tabernacles involved in obscurity, but also the reason for their discontinuance; for although many of them are still used, we cannot find an instance of one having been erected since the earlier part of the seventeenth century. They appear to have been peculiar to Germany, France, Belgium, and Holland; we are not aware of any examples in other countries. At Landshut is a *sacraments haüslein*, occupying the same position that it does in modern Roman Catholic altars, with the exception that the door is at the back. This is, however, the earliest specimen we have ever seen of a tabernacle attached to the altar in Germany.

REFERENCES.

Fig. 1. Tabernacle at Heidingsfeldt.
„ 2. Tabernacle at Ochsenfurth.
„ 3. Ornamentation to Door of Tabernacle at Ochsenfurth.
„ 4. Tabernacle at Kitzingen.
„ 5. Plan of ditto.
„ 6. Tabernacle in Pilgrimage Church at Volkach.



TABERNACLES IN FRANCONIAN CHURCHES.

"AULD REEKIE," SOCIAL AND SANITARY.

THOUGH much has been written recently and remotely anent "Auld Reekie," social, sanitary, and otherwise, in the pages of the *Builder*, the reflections of you reorrespondent may not be amiss, for cities, like individuals, present many aspects for study and comment.

Edinburgh has been termed, through the fancy of some folk, "the modern Athens," but I confess to be too cosmopolitan to acknowledge her as such. She has her beauties, it is true, ancient and modern, in stone; but she has also her yesterday and remote vulgarities. Athens! ehen! Yes, sure, one can read it in the roofless colonnade, on the Calton, and the corrugated frontispieces of Princes-street, princely though it be. But no matter, Edinburgh is historic and mighty withal, and can suffer a puncture for her drawbacks without seeing highly chagrined at the infliction. The serrated wheel of time has left its marks upon the "old town" that the fast life and fashion of the new cannot obscure. It was in the quaint old nooks and the queer old wynds, and the tortuous thoroughfares of the former, my path mostly lay, to my enjoyment and indignation betimes.

My first sight of Edinburgh was not through a March dust, but a March frost and snow, some two or three years ago; and as I trudged up the High-street towards the castle the picture presented to my vision was no inviting one. There was sludge underneath, and eaves dropping icicles overhead, and the thaw had set in under the influence of some rain. Perhaps I was out of sorts; but no; for I remember it too well; and remembrance also tells me now that personal observation told me then,—that my illusions respecting "Auld Reekie" were dispelled. I have seen Edinburgh since twice, and under more favourable aspects, and the panorama each time appeared less grim. As I learned more of her past I was tempted to forgive much of her present. But there is one thing, as an advocate of sanitary reform, I cannot,—the sore neglect of her once patrician streets and closes, her ancient glory and her present shame.

Behold them in the Westport, by Lauriston and the Grassmarket; walk through them off the Cowgate to the Pleasance and St. Mary's Wynd, or adown the Cannongate to the foot of hoary Holyrood, and around and up through the radial cateries and offshoots again. But this is not all. Thousands multiplied by thousands; Ossa upon Pelion, flat upon flat, of a thick matted working population are here "cabinned, cribbed, confined," breathing, daily, vitiated air; eating, drinking, sleeping, unvisited from year to year by one fresh breeze of heaven, to raise a glow on the sunken cheeks, or send a thrill of joy through their saddened hearts. Health at all hazards must be established in these feverish localities, even though it should be heralded by "vandalism." Better that ninety-nine houses should fall than one useful citizen's life should be sacrificed by contagion, that could be prevented,—but it is not,—to the danger of the entire community.

The project of the present Lord Provost, if carried out, will effect a lasting good. Few know better the condition and wants of Edinburgh than do William and Robert Chambers. Both have, intellectually and morally, by their joint labours, helped to lift their capital to a prominent position in the eyes of Europe. A social and sanitary reformation is yet needed to lift it above continual censure and reproach.

To do any one at all conversant with the contour of the old town, it must be allowed that impediments are in the way; but these are not irremoveable. Streets must come down, wynds must be gutted, and angles rounded off; but provision, at the same time, must be made for the dispossessed, who will of a certainty be mostly of the working community.

No measure of sanitary improvement can be considered advisable or judicious, or even laudable, that neglects the proper housing or settlement of the working population, whose removal unfortunately too often precedes what are called improvements. Large masses of the working men need to be located in the heart of the city, or convenient to the great centre of their labour.

Suburban dwellings may be very healthy and desireable; but where no means of rapid and cheap transit exist, location and living must be adopted to surrounding circumstances, and corporate authority should be slow, or rather hesitate, in destroying one evil if it only lead in creating another.

The underground railways in London, by being made available in a special manner by the running of early trains for working men, by the issue of a weekly return-ticket, are indeed a boon, and appreciated as such.

Most of the flats or dwellings in the low streets of Edinburgh, and even in the High-street, are wholly unfitted for the habitation of any classes of men. Most of the old houses, with their long and darksome winding stairs, afford a penance and a pilgrimage. Their topmost flats are more fitted for the abode of some miserable anchorite or Stylite fleeing from the face of humanity, than for the habitation of a hardy race of industrious men.

Habit may be a second nature in more things than one; but if custom or necessity reconcile men to perch themselves in eyries, it is no reason why those eyries should be robbed, by corporate neglect, of the usual requisites and accompaniments appertaining to civilized life.

Those back-to-back houses in the Old Town, where back yards are unknown, and their usual conveniences absent, where the water-pipe and the sink are in the window-box by the fire-side (common reservoirs of all refuse), where slops go down and fetid odours rise; houses with these "excellent provisions," built in accordance with the botchery of a bad system, are in no wise conducive, I opine, to "health, wealth, and longevity." But matters will mend soon, let us hope, when the right men are in the right place. If the practical wisdom of the Lord Provost, and the volcanic thunder of her university rector, do not move Auld Reekie to action on this subject, her sanitary salvation may be despaired of indeed.

A word or two, *en passant*, on other things may not be out of place. Commercially, as every one knows, Edinburgh is in no way comparable with Glasgow in manufacturing importance or aught else in a general industrial way.

Education, of course, has its citadel here, and law, physic, and the kirk are full of life and power; but how pulseless and inert would all be if the winged industry of mighty Glasgow took flight. The "modern Athens" might put on her widow's cap and mourn her great departed; her own spirit would have ceased to

> "Walk the land in earthly glory,
> Hurling a light from height to height,
> Through many a darksome hour before her."

The printing and publishing trade of Edinburgh is a source of considerable employment, as is also the kindred branch of type-founding. The iron-moulding trades, also, give much employment, but can never, of course, as a branch, be comparable with the Glasgow trade in this line. The American Rubber Company at Fountain Bridge, also, for a time, gave vast employment to young women, as well as men, in the manufacture of a variety of articles ornamental and useful, which the utilization of this valuable material has created.

Impetus of late years has been given to the building business near and within the environs of the city, and a considerable amount of new building and alteration appears to be in progress. The building trades are the most representative bodies in this northern city. They also may be said to be the principal sources of employment.

With all the Sabbatarianism that the Scots are said to be possessed of, I can perceive that her industrious classes, as a body, are not adverse to the relaxation of the "Sunday train," as is evidenced by their patronage of it weekly to and from Glasgow. So be it. The anathema of the kirk fell lightly on the obdurate heads of the North British, and "the nine days' wonder" is at an end.

The Hibernian element is considerable in and about the Cowgate and other places mentioned; and of those in business in the small shop-keeping and brokerage way, their votes at election-time are accounted of moment. Many a mighty M.P. and civic functionary in robes and office is said to have run after Patrick for his vote and interest among his kin, and did not run in vain; and a plumper, without pay or reward, was given to him: the only condition was to let the "Mother Church" alone. Happy Pat, though an "exile of Erin," in the Cowgate, sure the better half of it is your own! Do you not hear your own paper read weekly or nightly by your own kinsman, in that little hob parliament under the shadows of George the Fourth Bridge; and can you not talk treason to your heart's content, in condemnation of Sandy and his Saxon brother, without fearing that the oblivious baillie or more officious "Bobbie" will disturb you? Eh! But what's that to me?

High-street on a Saturday night, to the stranger in Edinburgh, is a picture worth seeing. From the Iron Church to John Knox's house, ay, and even stretching far adown the Cannongate, you may see groups of men, hedged around some inner circle, or circles, listening to some head centre descanting on the topics of the hour. Groups of English, Scottish, and Irish, separate and distinct, are in serious and jovial converse. The gregarian characteristics of each nationality that flock under their own henchman may be finely studied here. I shall not at present attempt the task of limning them,—the lights and shades require a more facile pen than mine to reproduce them.

Of Leith, which acts as the port of Edinburgh, much could be said, precisely in a similar manner, in a social and sanitary way as of the former. Foul lanes and alleys, and a river more foul when the tide is down. But of noisome smells and other indescribable things in the living Leith, let us hope that they will soon dissolve in the "Waters of Lethe," by its continued efforts towards social and sanitary improvement, apart, or in conjunction, with Edinburgh.

C. H. C.

RESTORATION AND LINCOLN MINSTER.

LOOKING over the Lincoln book, one cannot but be pained to see a gentleman let down his respectable name by publishing such ill-judged matter. I hold the opinion that Mr. Buckler has been the subject of very unjustifiable attack, and I think some of the letters in the *Times* and *Ecclesiologist* are as ill-judged, intemperate, and nearly as silly as Mr. Buckler's defence. I wonder they did not act as a warning to him of the course to be avoided. Mr. Scott's interference as it is presented to us, has really nothing unfavourable to him; but every one must have felt long ago that his preaching and practice differ widely. I say this without for a moment intending any reflection on Mr. Scott's name, and merely to draw attention to the difficulty which we see he must have constantly experienced in reconciling the theory and practice of restoration.

The rules which the Institute published some time since are the merest platitudes. They lay down what every one freely admits, but are no help whatever when you have old stones and mouldings and carvings before you to be dealt with to provide for the necessities of church room or repair.

I have looked in Mr. Buckler's book for an account of what Essex did to the west doorways at Lincoln, and, spread over some seventy pages, there is a confused description. I am quite certain that Essex did deal largely with this sculpture, and a great deal of the outcry against Mr. Buckler ought to be against Essex, who, after all, did what he did wonderfully well.

AN ARCHITECT.

BLACK LEAD PENCILS.

SIR,—I have read with great interest your articles on the manufacture of "Black-lead Pencils," and in particular, I am obliged for the information as to the distinction, which I now find to be fallacious, between plumbago and Cumberland lead. There is one hint I got from an artist of my acquaintance, which is, that although "plumbago" is very largely used in the manufacture of pencils, it is by no means in some cases a disadvantage, but the opposite; as, for instance, in drawing the nude figure (small), or in a very small portrait. Used with a little red chalk, it makes a very beautiful and refined grey, superior to Cumberland lead, which is more black and coarse compared with it.

I have found that the harder pencils, such as HHH, and sometimes HB, have a bright glossy look, and if you want to use a B, or BB, over the markings of those pencils, they will not work at all, the markings of the harder pencils being so glossy. Now, why should that be? Why should not the hard and soft assimilate? I think the reason is that the hard pencils are made with inferior plumbago, and the soft perhaps a mixture of Cumberland lead and something else, as you describe.

I have seen some beautiful drawings of the nude figure with plumbago: they must necessarily be small, as there is not sufficient power

in the material to draw them large. There was a head, life size, by Carl Haag, I saw lately, apparently drawn with a plumbago pencil, and slightly tinted with water-colour, very fine indeed, as a specimen of drawing, but no power in it at all, in my opinion.

For sketching, if you want to shade your sketch well, you must use both hard and soft pencils; if only a rough sketch, an HB would probably be found the best. AN ARTIST.

"WISE MEMBERS OF A LOCAL BOARD."

ONE of the gentlemen who published the address to the ratepayers of Idle, assuring their fellow-townsmen, in order to obtain votes, that they would be "opposed to all schemes of levying rates for water purposes," also "to any system of public sewerage, or to any system of paving," these "classes of works" being in their opinion "not needed at all," sends the following statement to explain what was *meant*:

"An inexhaustible supply of pure water is at present laid on in the village of Idle from the reservoirs of the Bradford Corporation. This water can be sold by agreement, but no water-rate can be levied for it. This water supply has been brought to Idle by myself and friends. The local Board has a scheme of its own, and if it were carried out of course the Board would have power to levy rates in aid of their scheme. We have a supply without having to levy rates for it: we object, therefore, to a scheme which would have to be aided by rates—and this is the point at issue.

Idle is situated upon a steep acclivity, and is but a country village. It has no need of public sewerage works, for its night-soil is carted upon the turnip-fields. The same remark applies to paving works, which, however needed in a large town, are not needed in a country village, perched upon a hill side.

ROBERT SUTCLIFFE."

Even accepting this explanation of their preposterous statement, we differ *in toto* from Mr. Sutcliffe's conclusions.

ABBOTSFORD AND GALASHIELS.

SIR,—From the daily-increasing prosperity of the woollen trade of Galashiels, the builders are now more busily employed than at any former period, not only in erecting extensive and more tasteful business premises, but the many handsome and substantial-built villas around tell of a step up in the social scale. The rising ground opposite the river front of Abbotsford having been freed from the Gala estate, a question of taste has arisen between the world-wide visitors to that romance in stone and lime, and the "braw braw lads o' Gala-water," who (like the Galileans of old) do not honour their poet much by encroaching on the beautiful seclusion of Abbotsford, instead of leaving a few acres, as pictured to the poet's eye. A puny pert baronial sort of a villa is now being erected on an elevated site directly opposite Sir Walter's cherished pile. A visitor of the Artemus Ward school exclaims, "'Land o' cakes and brither Scots,' why this intrusion on the shrine of genius?" and notes down, "that for the interest of the woollen trade of Galashiels the romance of Abbotsford is *fleeced* and the prospect entirely *worsted*." A Pickwickian chiel amongst us, taking notes, observes in his diary, "That great spinner of yarns, Sir Walter Scott, evidently chose the site of his material romance from its vicinity to the famous yarn-spinning and weaving town of Galashiels." Success to the Tweed trade and true taste. J. K.

PAINT FROM INDIAN RUBBER.

SIR,—In your valuable journal (p. 659) it is stated that Dr. Briou, a Paris physician, "has discovered and patented a process for preparing from Indian-rubber an enamel paint, &c.," possessing the peculiar property of preventing metallic corrosion or oxidation. The appearance of this article is calculated to inflict severe pecuniary loss upon myself, being the inventor of a similar process fully described and set forth in the specifications to her Majesty's Letters Patent granted me, and being respectively Nos. 2,386, September 29th, 1863, and 2,025, August 4th, 1865. Although I regret the necessity of combating the pretensions of a foreigner, I cannot, in justice to myself or customers, allow the paragraph in question to pass unnoticed, more particularly as it affords another instance of the existing necessity for the appointment of a duly qualified official to search for prior inventions, and save the trouble and expense of re-patenting other persons' ideas. F. G. MELHOLLAND.

THE ARCHITECTURAL PROFESSION IN 1866.

SIR,—This old, old misery of competition is—for variety—coming out under a new phase. The "Boards" are evidently possessed of *some* amount of determination after all. They will ignore the profession of architecture entirely. The *practical man* will *answer their purpose*, and therefore they issue a *bull* or *notification* in your last impression, under the head of competition, as follows:—

"To *Builders* and *Others*.—The Burial Board of the parish of Twickenham, Middlesex, hereby notify that they are desirous [doubtless!] of receiving *designs*, with plans and estimates for the erection of two chapels, a lodge entrance and front fencing, &c." Then follow mysterious instructions as to the cost; and then the well-worn and established safeguard, that "the committee do not bind themselves to accept any of the plans which may be submitted."

Now, sir, this committee, with their clerk, must be a hopeful set of worthies, to think it possible that any builder *could*, and that any *others* (we conclude by *others* they mean professionals) *would*, send their brains to be thus sucked and returned, being "found wanting."

These gentry have evidently been taught a lesson by the judicious objections raised to the present base system of competition by all respectable professional men; and they evidently think they will address their appeal poetic to the *practical* half of the constructive world.

Let them go, and may they prosper;—only I should *so* like to ask them per their parish clerk, if, as they apply to builders and others for designs, plans, &c., they apply to tailors for coffins, and order their swallow-tails and knee-breeches of their undertaker?

DEFENDER OF THE FAITH.

LOCAL BOARDS AND SURVEYORS.

CHIPPENHAM.

SIR,—The *Builder* lately contained an advertisement for a surveyor for the Chippenham Highway District. Out of thirty-six candidates, by a committee appointed for that purpose, three were selected, and were asked to attend the Board on the 19th inst. The committee sat only on the 7th. One of the three did not attend the Board. Of the two who did attend, one was a surveyor, from South Wales, and the other a small farmer, resident in the district. Canvassing the way-wardens in any way was, according to the advertisement, "strictly prohibited" by the Board. I would call your especial attention to that fact.

From the first, when the surveyor resigned in contempt of the Board, I heard it prophesied that the farmer would be elected. He was a tenant of the vice-chairman's, had been canvassing the way-wardens, and had received the promises of several of the way-wardens—the chairman of the Board for one—before even the committee sat. Is it not, then, too bad, to advertise at such expense, in so many papers, causing so much trouble and anxiety to so many candidates; go through the farce of selection; and then put us to the expense of paying the travelling expenses of the candidate,—candidates, if the other had attended?

The proceedings of the committee were so that even one of themselves protested against them. Does not this show the necessity of a central Board, similar in constitution to the Poor-law Board? If you will expose this affair you will truly oblige a RATEPAYER.

I enclose my card and address, and will be in all ways responsible for the truth of this letter.

CARRYING TOOLS AND BURDENS IN THE STREETS.

THE danger and annoyance caused by the careless carrying of tools by workmen render interesting the case of Smith *v.* Emerton, reported in your last number. There is a class of men who take advantage of a foul dress or burden, a dangerous-looking implement, or an awkward barrow, to clear for themselves a way through the crowded pedestrian traffic of London, trusting solely to the anxiety of the public to escape out of their way. Slaughtermen, chimneysweeps, plasterers, and millers' men represent one class of offenders, as the defendant in the above case represents another. In spite of legal prohibition it is not uncommon to meet hand-barrows upon the pavement travelling at racing speed, encouraged, perhaps, by the practice of taking out children in perambulators, by which means one child is made to encumber the foot-way more than half a dozen grown-up people.

Cabmen and drivers of other vehicles frequently assert their precedence in the use of the road by refusing to draw rein, and even shouting and cutting with the whip (as I saw last night) at foot-passengers who may be crossing their track, clearly thinking, with the defendant in the above case, "that it was the plaintiff's duty to have avoided it."

I shall carry to my grave the mark I received twenty years since from a millwright, who was carrying two or three sharp steel chisels, and as he swung his arm cut my hand to the bone. Lately, I passed close to a man who was mixing in a crowd, and carrying a small coke stove in a tray upon his shoulder, the blinding heat from which operated with effect upon one of my eyes, at a distance of 3 or 4 inches.

Everybody can admire the remark of Napoleon, who, seeing a lady too little inclined to yield the path to a heavily-laden workman, checked her with "Respect the burden, madam!" but there is a fair way and a foul way of carrying all things, and it is well that those who are careless of other people's comfort should know that they may have to pay for any mischief they may cause.

Accidents arising from the inefficient tying of the loads of railway vans are astonishingly frequent. I saw in one week—close to the Charter House — three cases in which packages fell from these vehicles, accompanied in one instance by the boy who was riding on the load. When death or injury has been inflicted upon a passenger (as by the fall of a load of empty barrels or of pockets of hops), the plea is that they were laden in "the peculiar way" customary in the trade. But this has been rightly rejected at law; for if it is not customary for loads to fall, some portion of the customary security must have been omitted where accidents have occurred. M. I. B. A.

BOOK INDICATOR FOR FREE LIBRARIES.

SIR,—In the exhibition just opened at the Agricultural Hall, is a screen containing a large quantity of numbers interspersed with the names of various authors, and called a "Book Indicator." I have taken the liberty of calling your attention to it, because it is designed to obviate a great and serious difficulty in the working of free libraries, which, with your kind permission, I will endeavour to explain.

In the first place, I should state that of the many institutions designed and intended for the benefit of the working man, none have more surely become a confirmed success than free libraries and news-rooms, particularly in large towns like this; so much so that, I can assure you, sir, your valuable magazine, which ranks among the most popular periodicals, from the time it is placed upon the table upon Saturday morning until the time it is taken off, is seldom out of hand. But with the borrowers, it is found that the great bulk of them flood in between the hours of one and two, and seven and nine p.m.; and the result is, that the staff of assistants (more than sufficient for ordinary purposes) utterly and entirely fails to prevent great and serious loss of the borrowers' very scanty leisure. The indicator, by showing only the books upon the shelves, enables the borrower to pick out for himself the number of the book he requires; he then hands it to the assistant, who is thus enabled in a moment to serve him with it, instead of, as at present, having to run up and down ladders in all parts of the library, until sometimes the whole of the list of thirty or sixty numbers is gone through with no result, consequent upon the large number always in the hands of borrowers.

Should you deem this article worthy of notice in your valuable periodical, it will become known to the whole of the librarians of free libraries in the three kingdoms, and it will deeply gratify me to know that I have so far been useful, and smoothed down what at present is a very serious and counteracting difficulty in the working of these inestimable institutions.

J. M. CHRISTIE, Librarian.

Birmingham Free Library.

COMPETITIONS.

Wath Church, Sheffield.—The gentlemen who contributed designs were Messrs. M. E. Hadfield & Son, Mr. Campsall, and Messrs. Blackmoor & Mitchell Withers. Eventually the designs by Messrs. M. E. Hadfield & Son were adopted. The work at Wath Church is to be commenced forthwith.

COMPENSATION CASES.

Holborn-hill.—Mr. Clifton, the arbitrator between the Corporation of London and Mr. Charles Meeking, of Holborn-hill, has made his award, under which the corporation have to pay Mr. Meeking a little over 26,300*l.* in addition to the property they are to convey to him. The sum claimed by Mr. Meeking was 110,000*l.* or thereabouts, and on the part of the corporation it was contended that, having regard to the value of the new site Mr. Meeking is to have, they ought not to pay him anything, but rather to receive from him upon balance of account. It appeared in the course of the inquiry before the arbitrator that Mr. Meeking's profits exceeded 20,000*l.* a year, and the loss from the interruption of this very lucrative business during the rebuilding of his new premises has, no doubt, largely entered into the arbitrator's decision. The settlement of this case will put the corporation in possession of all the property required for the viaduct down to the bottom of the hill except one house, the tobacconist's, at the corner of Shoe-lane.

The Bolton Corporation Arbitration.—The corration of the borough of Bolton, under their cent Improvement Act, granting them powers a large extension in their waterworks, luded 39 acres 7¾ perches of land belonging Mr. Peter Richard Hoare, banker, of London. e value was to be settled by arbitration, the bitrator being appointed by the Board of ade, who appointed Mr. Hunt the assessor. Saturday morning the town-clerk received a egram from the solicitors of Mr. Hunt, making award of 16,700*l.* The claim made by Mr. are was 37,000*l.*, and the value put on his d by Mr. Hoare's witnesses was, by Mr. omas Statter, of Bury and Manchester, 887*l.* 18s.; Mr. Richard J. Lawton, Manester, 69,845*l.* 0s. 5d.; Mr. T. Fisher, Manester, 70,138*l.* 10s. 5d.; and Mr. W. Wilson, nchester, 70,322*l.* 1s. 2d.: while the witnesses the corporation, Mr. J. C. Blackburne, C.E., ued the land at 9,667*l.* 3s. 7d.; Mr. J. Hamp-, agent to Lord Wilton, 10,236*l.* 17s.; Mr. J. rer, Bury, 9,917*l.* 19s. 4d.; Mr. Elias Dorning, ., Manchester, 11,122*l.* 15s.; and Mr. W. dford, C.E., Manchester, 9,319*l.* 6s. 10d., ich was the lowest valuation. It will be thus n that the award is 20,300*l.* less than the ount claimed, 53,438*l.* 10s. 5d. less than the hest value set upon the land on behalf of Hoare, and 41,137*l.* 18s. less than the lowest, 5,577*l.* 5s. more than the highest, and 80*l.* 13s. 2d. more than the lowest valuation the part of the corporation.

AN ITALIAN SCREEN FOR SALE.

HE Cathedral of Bois-le-Duc is being restored, the commissioners have determined on oving the Italian rood-loft or gallery that arates the choir from the nave, and replacing ith a carved wood screen, in accordance with style (Gothic) of the cathedral. We are id by the authorities to mention that they willing to sell the present structure. It con- of marble columns of various kinds, and reliefs and statues of alabaster. The South sington authorities might perhaps think it th while to inquire about it. We have a tograph of the screen at their service.

FROM SCOTLAND.

dinburgh.—Since the Lord Provost's scheme he improvement of the city was remitted by Town Council to the Lord Provost's Com-see, the plans have been revised by Mr. sin, the city architect, in conjunction with Lessels, architect—the latter being employed use the health of Mr. Cousin would not per-him to attend to the out-door portion of the k. The plans, says the *Scotsman*, have now med a very practical form; and not only the ground been all surveyed, but each ding that is likely to be interfered with has e carefully inspected. In adjusting the plans l has been taken to avoid as far as possible ference with any costly or serviceable tene-t. Great pains have also been taken re for the proposed alterations the consent e proprietors whose ground or buildings are y to be interfered with, so as to avert Par-entary opposition to the bill.

rnieuik.—The foundation-stone of a United byterian Church has been laid here.

asgow.—Over the south door of the nave of Cathedral there is a piece of tracery of a de- similar to that in the heads of the windows his side of the church. For some years it remained without painted glass. No sub-ber could be found to fill it in; and the tary to the committee represented to the First Commissioner, Mr. Cowper, that he no hope of being able to complete this side e church without his aid. Mr. Cowper at agreed to supply the means, and to employ rs. W. & J. J. Kier to execute the glass, which w in its place, and which harmonises with the unding windows, to which it is said to be i in execution. The design is necessarily mental only, but Messrs. Kier have also ated a figure of an angel in the Lauder , in the first window on entering, which eletes the series in this part of the crypts. hin the prospect of a demolition of a in Dunlop-street, a site, it is said, has secured for a new Theatre Royal, at the end of Bath-street, of which Mr. William Glover is to be lessee, and which is to have audience accommodation three or four times greater than the present spacious building.

Galashiels.—Two new mills are now in course of completion here, and at Wilderbank Mill there is in course of erection a large addition, and at Ladhope Mill a large spinning-shed has just been finished. But the most important addition to the manufacturing resources of the town is a new mill, the building of which has been undertaken by Mr. Stirling, builder, for the proprietors of Mid Mill. It is to be built on the tenter ground close by the Mid Mill. The local gas company intend to remove their works beyond the borough bounds, as they require enlargement, and objections have been made to their continuance on the present site. The cost will be about 14,000*l.* The profits of the company last year were 33 per cent. on the capital, 10 per cent. of which was apportioned as dividend, and the remainder to reduction of debt. The annual consumption of gas has risen from 5,925,500 ft. in 1856 to 13,000,000 ft. in 1866.

NEW DRAINAGE WORK AT HASTINGS.

A SPECIAL meeting of the local Board of Health was held on Tuesday last, to receive the tenders recently advertised in the *Builder* for the construction of new sewerage works. The proposed works are from plans drawn by Mr. W. Andrews, borough surveyor; and the object is to divert the sewage from the outlets at Warrior-square and the Queen's Hotel, to a point about a mile and a half from the east end of the town,—merely a palliative of a present dire abomination. It is intended to lay a new brick sewer, for a length of about two miles, along the front of the town. The dimensions are 4 ft. by 2 ft. 9 in., and gradually enlarging until the last section is 5 ft. 6 in. by 4 ft. (egg-shaped). The sewage will be received in a covered brick tank to be built on the sea shore, under East Cliff, and capable of containing a million and a half gallons. Hence the sewage will be discharged, one hour before low water, so as to meet a current which (in theory) is to carry it far away to the eastward before the flowing tide has a perceptible influence. A 4-ft. iron pipe will be used to allow the sewage to run about three-quarters of a mile out to sea, after leaving the tank. The estimated cost of the work was 24,000*l.* (including a new groyne, costing upwards of 1,000*l.*, the subject of a separate contract). The tenders were:—

Simms & Marten	£40,850	0	0
Peters & Co.	35,850	0	0
Coker	34,490	0	0
Harding	33,700	0	0
Fernandez	26,699	0	0
Howell (Hastings)	25,640	0	0

The latter was accepted, and the work is expected to commence almost immediately.

A new plan of drainage, designed by Mr. Bazalgette, at a cost of 5,000*l.*, is shortly to be carried out for the adjoining township of St. Leonard's, which is governed by a different body.

CHURCH-BUILDING NEWS.

Theddlethorpe (*Lincolnshire*).—The restoration of St. Helen's Church, Theddlethorpe, near Louth, was commenced in 1864, by the entire rebuilding of the chancel, from the designs of Mr. S. S. Teulon, architect, London. In February of the same year, a report upon the condition of the church and tower was made by Mr. G. P. Kennedy, of Glasgow, and from the dilapidated and very dangerous state of the tower and aisle walls, restoration was determined upon. Estimates were obtained for its entire renovation, and in February, 1865, the work was commenced, and the nave was roofed in by January, 1866, and the church was lately re-opened by the Bishop of Lincoln. The whole has been carried out by Mr. Richard Ryall, builder, Louth, from the designs, and under the superintendence of Messrs. G. P. Kennedy & R. Dalglish, of Glasgow, architects.

Moorby.—All Saints' Church, Moorby, has been entirely rebuilt, at the sole cost of Mr. J. Banks Stanhope, M.P., and opened for divine service. The building, which has been erected on the site of the old church, is in the Early Pointed style of architecture, and was designed by Mr. Fowler, of Louth, architect. It consists of a nave and chancel, with a vestry on the south of the latter, a porch on the north side of the nave near the west end, and a spirelet at the north-west angle. The walls are built of old green sandstone, relieved with bands of red brick, and Ancaster stone for the windows, &c., the outline of the whole being varied by the high pointed gables, the chimney for the stove, and the belfry tower. The builder was Mr. Maxey, of Louth.

Icklingham.—St. James's Church here has been restored under the superintendence of Messrs. Bacon & Bell, of Bury St. Edmund's and London. Mr. L. Jackaman, of Bury, was the builder employed. The works just completed include the clearing away of the old pews, which have been supplanted by benches of stained pine; the flooring of the main body of the church with black and red tiles, and of the sacrarium with Maw's encaustic tiles, arranged in a geometrical pattern; the erection of new roofs to the south aisle and chancel; the cleansing of the stonework from its coatings of paint and whitewash, the columns of the nave being found painted *black* as high as the pews, and above that coloured, and spotted with green; and, generally, a renovation both of the exterior and interior. The great east window, of three lights, has been filled with stained glass by Messrs. Heaton, Butler, & Bayne, the subject represented being the Ascension of our Lord. Throughout the church the stonework has been restored, both inside and outside, and the exterior has been generally attended to. The roof has been re-leaded where necessary, and the walls repaired. A brick parapet harmonising with the tower has been removed, and a stone and flint panelled parapet erected in its stead.

Radway.—The new church here has been consecrated. It is erected of Hornton stone, from the design of Mr. C. Buckeridge, of Oxford, and is in the Decorated style, with open seats, calculated to accommodate about 250 persons. The church consists of a nave, north and south aisles, chancel, north chancel, vestry, south porch, and a tower, the latter intended to be surmounted by a spire of 100 ft., which, however, is not yet completed. The builders were Mr. Watson, of Napton, and Mr. Price, of Leamington.

Hendon.—The foundation-stone of a new church, to be erected at Hendon New Town, has been laid. The building is expected to cost about 3,000*l.* It is to be of Gothic architecture, from a design by Messrs. Austin & Johnson, of Newcastle, and comprises a porch, nave, aisles, chancel, and vestry. It will be built entirely of brick, with stone dressings, and bands of Staffordshire grey brick. The builder is Mr. R. Humble; while the woodwork, the principal part of which is open benches, is being prepared by Messrs. Peart & Humble. Accommodation will be provided for 450 people, free.

Bournemouth (*Hampshire*).—The foundation-stone of a new church, dedicated to St. Michael and All Angels, has recently been laid on Poole-hill. The new building is intended to accommodate 400 persons. It will be simple in design, and will be 70 ft. long and 47 ft. wide, consisting of a nave and small chancel, with entrance porch. Upright posts will support the roof, which, in order to offer an effectual resistance to the strong gales to which its elevated position will expose it, will be tied together with cross pieces of timber. Purbeck stone will be employed for the construction of the building. The architect is Mr. G. Street.

Wool (*Dorset*).—The church here has been restored. From the account of the restoration in the *Dorset Express* it appears that with the exception of the tower, and a portion of the north wall, the edifice has been re-built: as much, however, as possible of the old stone has been again employed, and where repairing has been needed it has been effected with Purbeck stone and corresponds with the previous work. In the re-building of the outer walls Box stone dressings have been inserted, and the new work in the interior has been executed in Corsham stone. Formerly the chancel was of very small dimensions, but now it is 18 ft. in length and 14 ft. 3 in. broad. A perpendicular window has been inserted in the east end. This is filled in with stained glass by Mr. Bell, of Bristol. The quarries are ornamented with the lily and the cross, and have coloured borders. In the centre light there is a foliated panel with the Greek cross and INRI placed in the angles formed by the four arms, and underneath this is the sacred monogram, I.H.S. The light on the north side has a representation of the pelican feeding her young from her breast, and that on the south Agnus Dei. In the tracery of the head there are two angelic figures, bearing scrolls. Two lights have been inserted in the south side of the

chancel, the lower part of the easternmost one forming a sedilia. These windows have been filled with diaphane representing passages in the life of our Saviour, and are the work of the Rev. F. Newington during hours of sickness. The whole of the illuminated scrolls in the church were done by the incumbent. The figure-work in this church has been jointly done by Mr. Boulton, of Worcester, and Mr. Grassby, of Dorchester. In removing the wall separating the old chancel from the north aisle a stone was found which has puzzled the archæologists. It is 8 inches square, and has a cavity at each of the four corners. These are supposed to have contained the sacred cruets used in the celebration of the Romish mass, but for that only three would be required, and the suggestion is that the fourth contained the holy salt. To those learned in such matters, says the *Express*, we doubt not the incumbent would be glad to show the stone. An organ, by Mr. Walker, of London, has been placed in the bay opening out of the chancel on the north side. The funds for the restoration and enlargement of the church were raised by the exertions of the incumbent and his family, assisted by the churchwardens, Messrs. S. Sly & Hide. Mr. J. Hicks, of Dorchester, was the architect; and Messrs. Wellspring & Son, builders, carried out the work.

Kirkby-in-Ashfield.—The top stone of the new spire of the church at Kirkby-in-Ashfield has been laid by the Rev. T. Woodman. The spire has been designed by Mr. Stevens, of Derby, the architect for the restoration of the church. Mr. J. E. Hall, of Nottingham, was the contractor.

Books Received.

The Biographical Treasury: a Dictionary of Universal Biography. By SAMUEL MAUNDER. 13th Edition; reconstructed, revised, and in great part rewritten, with about 1,000 additional Memoirs and Notices, by W. L. R. CATES. London: Longmans & Co.

No biographical dictionary can ever be made perfect; but by repeated revision in numerous editions we may have the nearest approach that can be made to a really satisfactory work on such a subject; and if this cannot now be said of Maunder's well-known biographical dictionary, it cannot be said of any in existence. The work, with all its still-remaining faults, whatever these may be, is destined, we think, in this its thirteenth and greatly-improved edition, to have a great sale: it is a valuble work, at a moderate price; and, although small in comparative bulk, its type is so economical that its eleven hundred pages contain a vast quantity of matter. Its present editor is the author of "The Pocket Date Book." The work has a clever frontispiece, designed by J. E. Doyle, and comprising forty distinct full-length portrait figures chronologically placed in contemporary double groups. The size of the volume is fcap. 8vo., and the price 10s. 6d. It is twenty-eight years since the first edition was published, and a great many names of eminent persons who have died within the last quarter of a century have been added. In the present edition alone nearly 1,000 notices of these and others are given, besides about 900 which have been rewritten.

Miscellanea.

THE LATE FIRE IN BLOOMSBURY.—At the recent fire on the premises of Messrs. Holland & Hannen, the builders, which demolished a block of building covering about 10,000 square feet, and damaged adjoining houses, a great loss was sustained in furniture and clothing by the occupiers of rooms or floors in those houses, in addition to an estimated loss of nearly 2,000*l.* to the workmen in tools, &c. Fortunately this latter has been met in a great measure by insurance or funds from Benefit Clubs—but still, after all curtailment, it is found that the joint deficiency to tenants and workmen cannot be placed at less than 1,300*l.* An appeal is made to the public for the purpose of raising funds to meet so heavy a loss to persons who can ill afford it, and we trust it will meet with that hearty response it justly deserves. Mr. Tuckett, of 66, Great Russell-street, churchwarden of Bloomsbury, acts as treasurer. Messrs. Holland & Hannen, we see, have given 100*l.*, and Mr. T. H. Wyatt, 5*l.*

MANCHESTER INSTITUTION.—The exhibition of modern paintings and other works of art will be opened to the public this day.

THE STATUE OF CANNING IN PALACE-YARD.—By a slip of memory we attributed this statue in our last to Chantrey: the sculptor was the late Sir R. Westmacott.

THE MANCHESTER AMALGAMATED ENGINEERS. The members of this association in Manchester had an aggregate gathering there on last Thursday week. About 3,000 walked in procession through the leading thoroughfares with music and banners.

OBITUARY.—We mention with regret the death, on the 7th inst., of Mr. John Barnett, architect, at the comparatively early age of 56. Of some of Mr. Barnett's works in the City of London we spoke very recently. He was the district surveyor for part of Marylebone.——On the 6th inst., Mr. D. R. Hay, of Edinburgh, whose works on the Beautiful are well known, died at Morningside.

THE SALFORD SURVEYORSHIP.—A candidate complains that a "nephew of the borough surveyor" was chosen. This is of itself no argument against the corporation. If he be a competent man, his relationship ought certainly not to stand in his way. If an incompetent person were elected merely *because* he was a nephew, that would be a different thing; and a thing not unknown in classical times, when it was *nepotism*.

PORTSMOUTH BOROUGH SURVEYOR.—Certain charges having been made by members of the Portsmouth Local Board, in connexion with Messrs. Easton & Amos, against the borough surveyor, Mr. L. Angell, that officer sent in his resignation. The Board, however, were not contented with this, but at their last meeting dismissed him by a formal resolution. The chief charge against the surveyor is, so far as we are informed by a statement sent to us for publication (being *ex parte* we decline compliance), that he had requested the contractors about to tender for the borough works, to add 10 per cent. to their estimates,—for his own personal advantage his opponents would contend. The surveyor denies "emphatically, the substance of the charge."

THE MANCHESTER ALBERT MEMORIAL.—The Queen, with kindly expressions, has declined the invitation to open the Manchester memorial, proposed for next month. This memorial is now completed with the exception of the iron railings, which Mr. Skidmore has in hand. The following inscriptions for the memorial have been approved:—Facing Peter-street—"In grateful acknowledgment of public and private virtues." Towards the new Town-hall—"Albert, Prince of Saxe Gotha, Consort of her Majesty Queen Victoria." Towards Cross-street—"Erected by the inhabitants of Manchester." On the Deansgate side—"The statue was presented to his fellow-citizens by Thomas Goadsby, mayor of Manchester, 1861-62." The whole of the funds requisite for the completion of the memorial, amounting to 6,400*l.*, exclusive of the cost of the statue, have been subscribed. The position of the monument seems to us much to be regretted.

BURSTING OF A RESERVOIR EMBANKMENT.—The embankment of a reservoir, situated at Brushes Clough, near Oldham, and which forms part of the waterworks system of that borough, gave way last week at the inner entrance of a culvert near its bottom. The area of the reservoir is 5 acres, the depth 45 ft., and its capacity 40,000,000 gallons. Owing to the recent heavy rains the reservoir was full, and surplus water was being carried off by the by-wash. As speedily as possible about thirty men were set to work in removing obstructions to the course of the water, and it flowed towards a place called Goats, inundating several fields and, finally, getting into a stream which flows towards Milnrow and Rochdale. Fortunately the culvert held out against the pressure of the water sweeping through it, and thus the safety of the embankment was ensured. Several houses were flooded, and roads torn up, a great mass of stone and earth being swept from the hill slopes along which the water escaped. The cause of the rupture has not yet been ascertained, but it is supposed to have arisen from a portion of the puddle wall having given way, and allowed water to escape into the culvert, above which the embankment appears to have settled to a considerable extent.

THE DRAINAGE OF WINCHESTER.—The local board, after years of hard struggle by sanitary reformers, have unanimously adopted the principle that the city ought to be drained, and that premiums of 150*l.*, 100*l.*, and 50*l.* should be offered to engineers for the best plans for doing the works and utilising the sewage.

REMOVAL OF STAINS.—Chloroform is said to remove stains from paint, varnish, and oil. Every one knows that care is requisite in the use of chloroform. As little as possible should be used, and the work should not be done in a close place, but where the vapour will be rapidly carried off. Another fluid recommended for the same purpose is a mixture of six parts of strong alcohol, three parts of liquor ammonia, and a quarter part of benzole.

GAS.—The Western (Metropolitan) Gas Company have declared a dividend of 10 per cent. per annum for the past year. Since their reduction of price 6d. per 1,000 cubic feet their receipts have increased 4,852*l.* over the previous year. The profits for the year amounted to 31,428*l.*, and 2,262*l.* were carried forward after the dividends were deducted.——The Wolverhampton Gas Company have declared a dividend for the last half-year at the rate of 10 per cent. per annum. The increasing demand for gas is to be met by the erection of a new gasometer at the Stafford-road works.

"MUSIC HALL PROVIDENT FRIENDLY SOCIETY." At a public meeting convened for the purpose it has been resolved "That an institution be established, called the Music Hall Provident and Friendly Society, for the purpose of building almshouses, and affording relief to such necessitous or decayed members of the music-hall profession who shall have been for a certain time connected with the profession." It was announced that a piece of land for the erection of almshouses had been all but given them, and many handsome donations had been promised. Why this constant division and creation of new societies? Why not join, for example, The Dramatic, Musical, and Equestrian Sick Fund?

FATAL EXPLOSION IN CHATHAM DOCKYARD.—A sad disaster has occurred in Chatham Dockyard by the explosion of a large boiler, by which two men were killed on the spot, three so badly hurt that apprehensions were felt that they would not recover, and thirty others more or less seriously hurt. The disaster occurred in a boiler-house contiguous to the metal mills, and adjoining the old steam-hammer. There were two boilers in this house, side by side. From some cause, as yet unknown, one of these boilers exploded with terrific violence, destroying the building in which it was situated, and scattering destruction around. The massive front wall of the boiler-house was completely razed, forming a heap of ruins, and all was wrecked in the boiler-house, which presented a mere mass of shattered iron, stonework, and bricks. It is said that the boiler which exploded had been in use for sixteen years, and was very thin in parts.

TELEGRAPHIC.—A contemporary says, with reference to the Atlantic Telegraph,—"The cable almost annihilates both time and space. Liverpool is now within *one hour* of New York. Mr. R. Stuart, the energetic and intelligent agent of the Associated Press of New York, was in London on the 14th of August. He telegraphed to his clerk in Liverpool to send a telegram to New York detailing the incidents of the day's work in London and Liverpool. The news was transmitted at *two* o'clock, and at *three* o'clock it appeared in the New York evening papers." The transmission of messages from Europe to America in a few hours is a most wonderful thing; but our contemporary, we fear, loses sight of the difference of clock-time between Liverpool and New York. Though a message sent at two p.m. from Liverpool appears in the New York papers at three p.m., it does not follow that the message has only taken one hour to do so.——The Prussian Government, it appears, have confirmed the concession for the construction of a submarine telegraph line from the English to the Hanoverian coast, granted by the Hanoverian Government to Reuter's Telegram Company, and have further conceded to the same company the exclusive privilege of constructing land lines, which will bring the wires into direct communication with the entire Continental telegraphic system. The cable, which contains four conducting wires, will be in full working order by the 1st of October.

THE WORKING MEN'S CONGRESS AT GENEVA.—Clerkenwell supplied a working man competent to preside at an international congress,—Mr. JUNG, watch-maker, of Northampton-square, London, and one of the seven delegates from London. Jung is a Switzer by birth, and speaks French and German from his earliest years. A residence of ten years in London has given him an almost equal facility in the use of the English language.

THE JOHN DALTON CENTENARY.—Wednesday in last week being the centenary of the birth of John Dalton, the chemist,—the discoverer of the atomic theory,—the occasion was celebrated in Carlisle by a public dinner. Dalton being a Cumberland man, having been born at Eaglesfield, near Cockermouth, in that county, the celebration was purely of a local character. The chairman delivered a short address, in the course of which he sketched the life of Dalton from the time when at Eaglesfield he wound bobbins for his father, who was a weaver, to the time when his meteorological researches brought him into notice in Manchester, where his discovery of the atomic theory made him famous. One topic touched upon was Dalton's colour-blindness, which made blue, purple, pink, and crimson appear blue to his vision. This peculiar defect of the visionary organs became known among foreign philosophers as "Daltonism."

ABOLITION OF NIGHTWORK IN THE BAKING TRADE.—There is not a single trade, we do believe, in which workmen suffer more hardship, as regards long and untimely hours of labour, than in the baking trade. Their business, moreover, is well known to be an unhealthy one even at the best, so that the poor fellows have a double evil to cope with. It is earnestly to be hoped, therefore, that they will be successful in their present endeavour to shorten and re-arrange their hours of labour. A meeting of journeymen bakers has just been held in St. James's Hall, for the promotion of that purpose, Mr. J. A. Smith, M.P., in the chair, when a resolution was unanimously passed, to the effect that the present system is unjust and injurious, and calling on the meeting to bring about a total and unconditional abolition of nightwork, by reducing the hours of labour to from five o'clock in the morning until five o'clock in the afternoon.

THE DRAINAGE OF BOSTON IN LINCOLNSHIRE.—The local board of Boston have printed and circulated a "Report of Mr. W. H. Wheeler ((their surveyor) on the drainage of the town on the east side of the river." Mr. Wheeler proposes the construction of a main outfall sewer, commencing in Main-ridge, near the end of Penn-street, and discharging its contents into the haven a short distance above Maud Foster Sluice, with branch drains radiating from this as a centre. The cost he estimates at 3,500*l.*, or a rate of 4d. a pound for thirty years. The utilization of the sewage has difficulties in the way of it on account of the low level of the town, and the expense of pumping, but the new scheme would not require alteration if in future this should be resolved upon. The *Lincolnshire Herald* warns the inhabitants that if they do not speedily resolve on some system of draining their very unhealthy town, Government will order it to be done at their cost, and without much regard for economy in the outlay.

IGNORANCE IS DEATH.—At Newbridge, Ireland, some labourers were engaged in clearing out a tank of liquid manure, when, having reached a thick sediment at the bottom, they proceeded to shovel it out. The first man who descended into the pit and stirred it instantly fell down dead, being suffocated by the effluvia, and four of his companions who went successively down to assist shared his fate. The five poor men perished in as many minutes, one after another, as they entered the pits. A noble instance of courage and self-possession in connexion with this accident deserves to be recorded. Warned by the terrible fate which had befallen their companions, the men who were at the top of the tank were afraid to venture down to recover the dead bodies. A young fellow named Smith, however, volunteered to descend. Some persons endeavoured to dissuade him, but he said, "I know how I'll do it," and, procuring a rope, he fastened it round his body, and, inhaling a supply of pure air, he suspended respiration until he descended rapidly and drew up one of the bodies. His example was quickly followed by another man, by whose aid they were all brought up. Truly "knowledge is power."

THE MORTALITY.—According to the Registrar-general, the annual rate of mortality last week was 23 per 1,000 in London, 24 in Edinburgh, and 30 in Dublin; 21 in Bristol, 21 in Birmingham, 53 in Liverpool, 28 in Manchester, 26 in Salford, 22 in Sheffield, 29 in Leeds, 21 in Hull, 34 in Newcastle-upon-Tyne, and 23 in Glasgow.

BURY ST. EDMUNDS.—The alterations and additions to the Athenæum building,—viz. the entire re-arrangement and decoration, the ball-room, and the erection of an orchestra, artistes' rooms, &c., &c.,—have commenced, under the direction of Messrs. Bacon & Bell, architects. The contracts, in the first instance, amount to 600*l.* A new front has been designed for the building, and a new museum, &c., in connection therewith, which have received the approval of the committee.

SCIENCE AND ART DEPARTMENT.—The royal exhibitions to the Royal School of Mines, Jermyn-street, and the Government School of Science, Dublin, consisting of 50*l.* a year for three years and free admission to the respective schools, which are awarded by the Science and Art Department after the May science examinations, have this year been awarded as follows:—Those to the Royal School of Mines to German Green, aged 14, monitor at the Lower Islington Public School; and Frederick J. M. Page, aged 17, son of a carriage-builder, London. Those to the Government School of Science have been gained by Charles G. Stewart, aged 16, chemist, Camden-town, London; John M'Allan, aged 22, chemist's assistant, Dublin; and Stewart Williamson, jun., student of the Royal College of Chemistry, London.

TORQUAY SCHOOL OF SCIENCE AND ART.—This institution was formally re-opened for its second session on Wednesday evening, the 5th, when the prizes gained by the pupils at the examination were presented by Lady Palk. The distribution took place within the School of Art building, the walls of which were covered with specimens of art-study. The chair was taken by the president of the school, Mr. A. B. Sheppard; Sir L. Palk, bart., and other friends of the school being present. Considerable satisfaction is felt in the neighbourhood from the circumstance that one of the four medals given to the kingdom in the Science department has been obtained by one of the pupils of this school, Mr. Martin Fradd. Mr. Holmes, the art-master, and Mr. Viccars, master in science, were complimented.

A RAILWAY SLEDGE-CARRIAGE SYSTEM.—A Frenchman has just constructed a railway between Paris and St. Germain, in which carriages glide along like sledges without the aid of wheels. This invention is due to a French engineer, M. Girard, and is founded on an old principle, viz., that a layer of water introduced between two metal surfaces enables them to glide on each other with as little friction as a slab of ice on the polished surface of a frozen lake. The carriages are fitted on slides, which fit upon rails of a peculiar construction. By simply turning a tap, a stream of water is introduced between the slide and the rail, and a gentle motive power being applied, the carriage, mounted on the slide, shoots forward with great speed. By decreasing the quantity of water thrown on the rails, the speed may be diminished; and by shutting off the supply altogether, the train can instantly be brought to a stand-still. Hitherto only horses have been used as a motive power.

ACCIDENT.—The boundary wall separating the premises of a new warehouse in course of erection from the back of a row of houses forming Angel-street, Manchester, lately gave way and fell, killing one person and inflicting severe scalp wounds upon another. The wall, which was about 12 yards in length and 10 ft. in height, fell in one mass. The distance between it and the back doors of the cottages was only three or four paces, so that the falling bricks smashed the windows, and the *débris* choked the doorways. The wife of an artisan was washing in the back yard when the ruins fell in, crushing her to death almost on the spot. The wall was one of very old erection, and it is supposed that the foundation, which at the best of times was bad, gave way, partly through pressure caused by the earth thrown inwards in building the new warehouse, and partly through the recent rains. Outwardly, towards the back of the cottages, the wall had nothing to shore it up, while inwardly the earth had been piled up against it to a height of several feet.

GROSVENOR HOTEL, CHESTER.—We have to add to our notice of this building that the stables and harness-rooms were all furnished by Musgrave, Brothers, of Belfast, with their improved patent fittings.

THE SUPPLY OF WATER.—A case, "Spalding *v.* The East London Waterworks Company," was heard before Mr. Commissioner Kerr, at the Sheriff's Court. The plaintiff sought to recover 5*l.* damages, which he had sustained because of the company's refusing to supply him with water. He had rented a house the late tenants of which had left the water-rate in arrear. The supply was cut off, and the company refused to lay the water on again until the plaintiff paid the rate due from his predecessor. After the case had been argued, Mr. Commissioner Kerr delivered judgment against the company.

GOVERNMENT AID TO ARTISTS IN FRANCE.—The list of pictures, statues, busts, and other works distributed on the occasion of the late Imperial *fête* is a long one. In addition to the works purchased for the galleries of Versailles and the Luxembourg, pictures and statues were sent to no less than 112 local museums. The portrait painters received orders during the year for full or half-length portraits of the Emperor or Empress for thirty-eight subprefectures, thirty-four hôtels de ville, the Polytechnic School, and the asylum at Charenton. At a moderate calculation, the number of works ordered or purchased by the Government for public institutions during the single year could not have been far short of 300.

THE LATE SURVEYOR OF MARYLEBONE.—A meeting of ratepayers of Marylebone took place on Friday evening, the friends of the late Mr. Robert Scace, chief surveyor of Marylebone, to consider the propriety of erecting a memorial to his memory. Mr. T. H. Filmer presided, and there were present Messrs. Soden, Carr, Francis, King, Hallett, F. Wilson, Cooke, Andrews, Downes, &c. On the motion of Mr. Carr, seconded by Mr. Soden, it was resolved that a monument be erected to the memory of the late Mr. Scace, in Finchley Cemetery, in consideration of his long, active, and useful services as parish surveyor, and that the vestry be requested to allow the use of the Court House for a meeting to carry out the object.

WATERWORKS FOR SLIGO.—The *Sligo Independent* says,—"Our countryman, Sir John Benson, has supplied the city of Cork, very cheaply, by pumping water from the Lee to a reservoir over the city. St. Louis, with a population of 190,000, gets its water in pipes from the Missouri, eleven miles distant, the water being pumped by powerful engines to the top of a hill 500 ft. over the river, where there are immense reservoirs cut in the centre, and bricked in the inside, the depth being 26 ft. Chicago is also supplied with lake water pumped in the same way into a tower that rises 100 ft., as there is no rising ground round the city. Now, a reservoir might be made at the Green Fort to which the water might be pumped from the lake by a stationary engine of 30-horse power, or by the water power of the distillery; this would be the cheapest mode of supplying the town. We should obtain Sir John Benson's advice as to the best mode of getting good water into all our houses." Why don't they do so at once?

THE INCREASE OF MORTALITY IN LIVERPOOL.—In spite of the stormy and cooler weather, the increase of mortality in Liverpool from cholera and other diseases, is both distressing to the inhabitants and puzzling to the authorities, and the opinion appears still to prevail that there must be something wrong in the census returns on which the estimates of mortality are based. Some discussion on this subject has taken place at the weekly meeting of the local health committee, but it is considered unadvisable at present to make fresh arrangements with relation to ascertaining the real population of the town. As an explanation of the fact that the death-return of Liverpool is greatly above that of Leeds, the next unhealthiest town in the kingdom, it was stated that in Liverpool the returns have reference solely to deaths in the town proper, while in most other large centres of population the return includes the deaths within a radius of six miles from the centre of the town, including, of course, the healthy suburbs. Still this cannot account for a relative increase of mortality compared with the previous returns from Liverpool itself, and based on the same district population as before.

A CATHEDRAL AT INVERNESS.—An Episcopalian or English Church cathedral is being built at Inverness, at a cost of 12,800*l.* The Archbishop of Canterbury is to lay the corner-stone in October, and the building, it is expected, will be opened in 1869.

DEEPENING OF THE SEINE.—The *Journal de Rouen* learns from Paris that the Government has just given orders to commence works for the deepening of the Seine between Paris and that city, so as to secure a uniform depth of about 2 mètres (6½ ft.). The expense of these works is estimated at 6,500,000 fr.

AMERICAN PYRAMID.—An American paper states that a party of five young men, while on an exploring expedition recently along the Colorado river, discovered an immense pyramid on a barren plain. It was composed of layers of stone from 18 in. to nearly 3 ft. in thickness, and from 5 ft. to 8 ft. in length. It had a level top of more than 50 ft. square, though it was evident that it had been completed, and that some great convulsion of nature had displaced its entire top, as it was lying on one of its sides, a huge and broken mass, nearly covered by the sand.

LEAMINGTON INDEPENDENT CHAPEL.—The interior of this chapel has been entirely renovated, at a cost of about 300*l.*, by Mr. Ebenezer Goold, of Wellington-street. The pulpit has been lowered, and removed about 7 ft. backwards. By this arrangement, additional space has been secured, and the stained-glass window in the north wall has been brought out into prominence. The pulpit itself has been repainted and gilded, the colours being white and gold. The reading-desk in front is in the same style. The fronts of the galleries are in imitation of oak, the mouldings having been pricked in with colours of gold and maroon. The walls are sage green, and the columns supporting the galleries green, with white caps. The ceiling is decorated in lavender, red, gold and light buff colours. The north wall has the inscription, "Holiness becometh Thine house, O Lord, for ever," on a maroon ground.

A MORTAR.—M. Artus proposes a method of preparation by which the process of silication is much favoured; thus, it is said, a mortar may be prepared which becomes as hard as cement, does not crack in setting, and may even be used as a hydraulic cement under water. His process is the following:—Take good slacked lime, and mix it with the utmost care with sand finely sifted. Mix the sand thus prepared with finely powdered quicklime, and stir the mixture thoroughly. During the process the mass heats, and may then be employed as mortar. Of course the mixture must be made just as it is to be used. One part of good slacked lime was mixed with three parts of sand, and to this was added three-fourths of its weight of finely-powdered quicklime. The mortar thus made was used in a foundation-wall, and in four days had become so hard, that a piece of sharp iron would not attack it. In two months it had become as hard as the stones of the wall. (*Ann. du Génie Civil, Zeitung des Ver. Deutsch, Eisenbahn-Verwalt.*)

THE IMPERIAL HOTEL, JERSEY.—This new hotel has recently been opened. The building, which was erected from the designs of Messrs. Medland & Maberley, of London, the architects of the "Westward Ho!" Hotel, near Bideford, is constructed somewhat on the general plan of the letter E, the centre stroke of which forms the portico, and the upper and lower the two wings. Facing the main entrance is the principal staircase, which is of Portland stone, with balusters and handrails. On the ground-floor are the coffee-room and *table d'hôte* room, both of which are upwards of 50 ft. in length, 32 ft. in width, and 26 ft. in height. They are decorated with Corinthian pilasters, supporting a moulded cornice and a coned ceiling. On this floor, besides the manager's room, there are several suites of rooms, together with a reading-room. On the first-floor there is a ladies' drawing-room, with ante-room attached, and several bed and sitting rooms *en suite*. The smoking-room and billiard-rooms are both upon this floor, but approached by a separate staircase. The two upper floors are wholly occupied by bed-rooms, with bath-rooms. The basement-floor contains the kitchen, &c. In the hotel about 100 beds can be put up, and a cottage on the grounds has been fitted up with bed-rooms. A large ice-house has also been constructed.

SYNAGOGUE IN BERLIN.—The new synagogue here has been consecrated. The façade is in the Eastern style of architecture, surmounted by three mosque-like domes, and abuts upon the street. The splendid interior is of great size, and fashioned according to Moorish architecture on the model of the Alhambra. The walls, the pillars, and pointed arches, covered with carving of delicate workmanship, rise high to support a roof heavy with mouldings and interlacery of pattern, which, as well as the sides, the columns, and the vaulted arches, is picked and adorned with a variety of colour, at once solemn and gorgeous. Near the end of the internal synagogue, furthest from the entrance, raised on a marble platform, stands a Moorish dome supported upon four columns, each about 18 ft. high, round which twine, on a white ground, golden vine-leaves, the dome itself being decorated with white and gold; from the centre of this dome hangs a small red lamp; above the dome hangs a chandelier full of lights. This synagogue is said to be the largest and most beautiful place of worship at present possessed by the Jews in any part of the world.

TENDERS

For constructing sewers, &c., at Streatham and Tooting, for the Wandsworth District Board of Works, and keeping in repair for one year. Mr. James Barber, surveyor. Quantities by Mr. D. W. Young:—

Dover	£65,712 0 0
Hill & Keddell	56,464 0 0
Pearson	49,999 0 0
Morris	49,509 0 0
Robinson	48,760 0 0
Thirst & Co.	48,590 0 0
Blackmore	48,000 0 0
Willson & Son	46,930 0 0
Hiscock & Williams	46,500 0 0
Lonergan	44,338 0 0
Thackery	43,111 0 0
Morton	41,709 0 0
Whittick (accepted)	40,540 0 0

For Clapham sewers, for the Wandsworth Board of Works. Quantities supplied by Mr. Young:—

Pearson	£27,999 0 0
Bloomfield	27,331 0 0
Blackmore	27,000 0 0
Thackery	26,550 0 0
Hiscock & Williams	26,500 0 0
Morris	25,990 0 0
Wigmore (accepted)	22,835 0 0

For rebuilding the George Inn, Fulham. Mr. A. Moseley, architect:—

Wigmore (accepted)	£1,750 0 0

For a new warehouse, at Wolverhampton, for Messrs. Briscoe. Mr. Bidlake, architect:—

Cockerhill & Sons	£1,310 0 0

For a new Wesleyan chapel, at Hadley. Mr. Bidlake, architect:—

Millington & Sons	£542 0 0

For a new india-rubber factory, at Leicester. Messrs. Bidlake & Tait, architects:—

J. & H. Herbert	£3,173 0 0

For a new church at Bradley, dedicated to St. Martin. Mr. Bidlake, architect:—

Nelson	£5,554 0 0

For new markets at Dawley. Mr. Bidlake, architect:—

Messrs. Nevitt	£2,160 0 0

For a villa residence, at Wolverhampton, for Mr. J. Wells. Mr. Bidlake, architect:—

Trow & Sons	£2,098 0 0

For additions to the Grammar-school at Brewood. Mr. Bidlake, architect:—

Palmer	£1,188 0 0

For constructing an outer line of sea defence, new groynes, branches to old groynes, and other works connected therewith, for the Worthing Local Board of Health. Mr. Joseph Longland, surveyor. Quantities supplied by Messrs Rake & Ranwell:—

	Alternative totals, including specified portions of Groynes.			
	Oak.	Fir.	Elm.	Beech.
Blaker	£15,642	£14,380	£14,351	£14,351
Thorn	10,200	9,780	8 568	8,963
Light	8,759	7,762	8,116	7,959
Potter	9,300	8,250	8,500	8,350
Bushby	7,314	6,849	6,849	6,673
Lawrence*	6,900	6,220	6,500	6,296

* Accepted for oak.

For the alteration and additions to the Grange, Lolworth, and the erection of six cottages at Swavesey. Mr. Robert Hutchinson, architect:—

Allen & Smith	£1,601 0 0
Richardson	1,510 0 0
Bunting & Son	1,508 10 6
Mitham	1,386 0 0

For alterations at the Home and Colonial Schools, Gray's-inn-road. Mr. W A. Baker, architect. Quantities supplied by Messrs. Richardson & Waghorn:—

Colls & Co.	£1,684 0 0
J'Anson	1,658 0 0
Patman & Fotheringham	1,625 0 0
Sawyer	1,478 0 0

For work to be done in the completion of the National Schools, Doncaster. Mr. Teale, architect:—

Hawkins	£4,959 0 0
Wood & Son	4,920 0 0
Kirk & Parry	4,850 0 0
Anelay	4,376 7 6
Powell	4,328 4 6
Atteron	4,316 0 0

For building a villa residence, at Hitchen, Herts, for Mr. Joseph Bennett. Mr. Watson, architect:—

	With Porches.	With Verandah.
Allen	£1,257 11 0	£1,334 19 0
Twelvetrees	—	1,286 0 0
Warren & Son	1,112 0 0	1,199 0 0
Jeeves	1,018 10 0	1,101 18 6
Smith	949 0 0	1,010 0 0

For a new cabinet factory, 2½, Cleveland-street, Middlesex Hospital, for Messrs. Howard & Sons. Quantities supplied by Mr. J. Schofield:—

Patman & Fotheringham	£2,325 0 0
Gammon & Sons	2,286 0 0
Keeble	2,243 0 0
Conder	2,197 0 0
I'Anson	2,186 0 0
Axford	2,175 0 0
Simpson	2,130 0 0
Lawrence & Baugh	2,079 0 0
Myers & Sons	2,077 0 0
Hill & Keddell	2,046 0 0
Roberts	2,000 0 0

For the erection of offices at No. 1, Seething-lane, adjoining the Corn Exchange, Mark-lane, for the City of London Real Property Company, Limited. Mr. Edwin A. B. Crockett, architect. Quantities supplied by Messrs. Nichols & Franklin:—

General Works.

Jackson & Shaw	£37,000 0 0
Clemence	36,100 0 0
Mansfield & Price	35,700 0 0
Ashby & Sons	34,987 0 0
Brass	34,492 0 0
Macey	34,470 0 0
Conder	34,300 0 0
Little	34,187 0 0
Rider & Sons	33,950 0 0
Trollope & Sons	33,782 0 0
Hill & Keddell	33,583 0 0
Newman & Mann	33,507 0 0
Browne & Robinson	33,495 0 0
Myers & Sons (accepted)	32,984 0 0

Polished granite columns are supplied extra by Messrs. A. & F. Manuelle.

Ironwork.

Campbell & Johnstone	£9,200 0 0
Grissell & Co.	8,529 0 0
Moreland & Son	7,320 0 0
Handyside & Co.	6,994 0 0
The Thames Ironwork Company	6,860 0 0
Shaw	6,394 0 0
Cochrane & Co.	6,260 0 0
St. Pancras Ironwork Company*	6,115 0 0

* Accepted.

For the erection of a house and shop at Ford, near Devonport, for Mr. Robertshaw. Mr. J. Harvey, architect. Quantities supplied:—

Berry	£990 0 0
Foal & Lyon	968 12 0
Condy, Brothers	800 0 0
Marshall	788 0 0
Verran	775 0 0
Martin	740 0 0
Ambrose & Bishop	695 0 0
Jenkins	694 0 0
Tremain & Swigg	648 0 0
Turner	610 0 0
Blight (accepted)	459 10 0

For the construction of a wharf at Plaistow, for the London Wharfing and Warehousing Company. Mr. W. Winder, surveyor. Quantities supplied by Mr. Shrubsole:—

Simms & Marten	£6,754 0 0
Bunnett	6,293 0 0
Bond	5,760 0 0
Hughes	5,570 0 0
Garner	5,475 0 0
Gooch	5,316 0 0
Nicholls	5,190 0 0
Watts	5,022 0 0
Bidder & Birt	4,990 0 0
Maxwell	4,795 0 0
Harris (accepted)	4,521 0 0

For works at the Clapham and Wandsworth Workhouse:—

Stacey & Garrett	£335 0 0
Easton	310 10 0
Hardin	297 0 0
Crabb & Vaught	297 0 0
Darkin	294 0 0
Worm	288 0 0
Payne	285 0 0
Heal	269 0 0
Wilkinson & Co.	263 0 0
Nightingale	247 0 0
Minty	245 0 0
Johnson	240 0 0
Gates	225 0 0

For Sewer, Lancaster-road, Notting-hill:—

Brewer & Steggles	£685 0 0
Thackery	490 0 0
Thirst & Co.	449 0 0
Williams	420 0 0
Moxom & Mutton	409 0 0
Acton	395 0 0
Whittick (accepted)	325 0 0

For alterations and additions to the Victoria Tavern, Belgrave-place. Messrs. Bird & Walters, architects:—

Brown	£920 0 0
Henshaw	897 0 0
Williams	867 0 0
Stimpson	730 0 0
Harvey	692 0 0
Newman & Mann	685 0 0

For three houses, Nos. 1, 2, and 3, Bell-alley, Goswell-street, for Mr. Pearce. Mr. C. Foster, architect. Quantities supplied :—

Gadsby	£1,293	0	0
Dixon	1,175	0	0
Crouch & Son	1,170	0	0
Starkie (accepted)	1,098	0	0
Wicks	1,068	15	0

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T'Anson	1,134	0	0
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We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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Fire Premiums received in 1865	£739,332
Life do.	£ 25,103

The last year's Fire Duty paid by this Office amounted to 102,23[illegible] 1s. 1d. exceeding by upwards of 34,000l. the amount paid by any other country office.
The duty is now reduced to 1s. 6d. per cent. on every description of property.
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JOHN ATKINS, Resident Secretary.

£250,000 HAVE BEEN PAID AS COMPENSATION FOR ACCIDENTS OF ALL KINDS, BY THE RAILWAY PASSENGERS ASSURANCE COMPANY, INVESTED CAPITAL and RESERVE FUND, 50, ANNUAL INCOME, 85,000l.
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For particulars, apply to the Local Agents, at the Railway Stations, and Offices, 64, Cornhill, and 10, Regent-street.
WILLIAM J. VIAN, Secretary.

ROYAL INSURANCE COMPANY.—At the Annual Meeting was held on Friday, the 10th inst. Charles Turner, Esq., M.P., in the chair.
The following is an epitome of the Report:—
"FIRE BRANCH.
The progress of the Company, as respects the amount of business effected, has been satisfactory, the returns of duty published by Parliament, on the motion of the chairman of this Company, exhibiting by far the largest measure of increase which the Company has ever experienced.
The total net amount of Fire premium for the year, after deducting guarantees, is 414,739l. 18s.
LIFE BRANCH.
Turning now to the Life Branch, it remains to be reported that the progress has been marked by unchecked success. This will be made clear by one or two statistical expositions.
Taking the four previous quinquennial periods, it is found that the first, from 1845 to 1849 inclusive, commenced with a sum assured for—

Year 1845 of	£23,349	..... and ended the period with a total sum assured of...	£272,793
The Second, 1850 54			
Do. 1850 ..	95,650	do. do.	733,408
The Third, 1855 59			
Do. 1855 ..	306,514	do. do.	1,655,678
The Fourth, 1860 64			
Do. 1860 ..	440,942	do. do.	3,419,915

And now the first year of the fifth like period, viz. 1865, the Company has granted assurances for 886,683l. nearly twice the amount at the commencement of the last quinquennial period.
If, therefore, the rent of the total five years, ending in the year 1869, were to have a corresponding increase with the previous periods of five years each, the amount of business that would be effected in the quinquennial period now running would be more than has ever been on record in any insurance establishment in this country.
The Directors have likewise to report that the Life funds have increased by the sum of 103,146l. the accumulated funds of this department now amounting to 741,434l. As an addition of, at least, 50,000l. per annum to these accumulations during the next ten years may now be fairly anticipated, it is within reasonable expectation that during this period the Life funds will approach nearly to 2,000,000l. sterling.
The Directors propose to the proprietors that a dividend be declared of 3s. per share, and a bonus of 4s. per share, together 7s. per share, free of income-tax.
It is a matter of satisfaction to state that after withdrawing the amount of this dividend and bonus from the profit and loss account, a credit balance will still remain to that account of no less than 62,076l. 2s. In addition to the reserve fund, which, by the augmentation of the year, now reaches the sum of 116,913l. 2s. 11d."
This report was unanimously adopted.
PERCY M. DOVE, Manager and Actuary.
JOHN B. JOHNSTON, Secretary in London.

IMPERIAL FIRE INSURANCE COMPANY.
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JAMES HOLLAND, Superintendent.

PEAKE'S TERRO-METALLIC TILES, PIPES, &c.—Notice is hereby most respectfully given, that the LONDON DEPOT for this WARE is REMOVED to No 21 Wharf, Macclesfield-street North, City road Basin, N. Kindly, that the trade term, "TERRO METALLIC," is the exclusive right of the Proprietors; and duly, that the "Reports of the Juries," page 581, of the Great Exhibition, 1851, note the grant of a First-class Medal and rank the Manufactories known so long as "The Tileries," Tunstall Staffordshire, as the first of the kind in the world.

The Builder.

VOL. XXIV.—No. 1233.

Down with the Rookeries.

THE rapid and portentous revolutions that characterize the present memorable year are by no means confined to the political state of the continental nations, or to the results of the thirty days' war. In every part of the world mighty forces are in operation. The framework of social life heaves and rends like the buildings of some southern city beneath the throes of an earthquake. That shadow of imperial power which, since the holy Roman empire was formally dissolved sixty years ago, in obedience to the hoarse summons of the cannon of Austerlitz, the princes of the house of Lorraine Hapsburg have vainly endeavoured to body forth, has faded from the European map. That yet more ancient, more venerable, and more formidable power which, for the only time in human history, restored empire to a city which it had altogether deserted, and made the proudest sovereigns of Europe tremble at the missives despatched from the ruins of the palaces of the Cæsars under the sanction of the fisherman's ring, is *in extremis*, and a few months must witness a phase in its course, whether of downfall or of re-construction, of yet greater moment than the peace of Nikolsburg. The opinion of that most competent judge, the astute Macchiavelli, that the existence of the papacy, as an independent power, must terminate if Northern and Southern Italy were ever united beneath the same crown, an opinion, or at least a fear, which appears to have guided all the relations of the popes towards the Bavarian, the Arragonese, and the Angevin princes during their long struggles, seems now fairly to be brought to the test of experience: and in the face of events that menace the extinction of a temporal and spiritual sovereignty, the history of which is the history of Christian civilization, the fierce factions of the capitol of Washington, the unsuccessful attempt to re-establish the throne of Montezuma, the internecine civil war that is decimating the Celestial Empire, the movement among the negro races that is not unlikely to render the black tribes hereafter as rare as the nobler form of the red Indian, the repeated shocks to the power and dominion of the Caliph, —these, and many other contemporary occurrences, each of which would fill a graphic and important page in the history of the day, sink into comparative insignificance.

In our own favoured country, separated as we are by geographical position, no less than by habit of thought, from the struggles of the outer world, there are abundant indications that our isolation is rapidly becoming less perfect, and that, whether we desire it or not, we are continually more and more affected by the revolutions taking place abroad. The proposal, indeed, to tunnel the Straits of Dover, and thus to reverse the labour of the Corinthians, who were forbidden by the oracle to sever the isthmus which united the peninsula to the main land, with the intimation that Jupiter would have made it an island had he so wished it, can hardly be thought to be serious by any of us who have any personal recollection of the difficulties that were encountered in the comparatively trifling work of the Thames Tunnel; but the Channel, even now, is bridged by steam. Nor is this the case alone as to the postal and passenger service, or the rapid interchange of the objects of commerce. Our ancient wall of sea was long studded by those floating bulwarks, those wooden walls on which, since the reign of Elizabeth, we have been wont so proudly to rely. This reliance is, for the time at least, no longer possible. Our maritime supremacy is a doubtful thing; our maritime force is reduced in relation to that of other nations; so that, while increasing activity of commerce binds us more closely to the rest of the world, the citadel in which we were wont to ensconce ourselves has, for the moment, her gates unlocked and her defences dismantled.

While this change in our relation to other people has hardly yet been appreciated even by those who assume to guide the current of public opinion, there are signs of change and revolution in our own social condition that force themselves with no less importunity, on the public mind. We do not speak of political movements, which for the most part, history tells us, are rather the consequence than the cause of changes in the social state of the people. But look at the great fact of emigration. Not only is Ireland, under the influence of the continued exodus of the Celtic population, diminishing instead of increasing in population, and devoting her fertile plains and hills to the nurture of beasts in place of men, but the very centres of our national life feel the same influence. From Cornwall, we are told, the miners are emigrating, because the price at which tin can there be raised is reaching a limit at which the foreign miner can undersell the English producer. In Wales, not long ago, a dispute as to wages between masters and men seems to have been determined in favour of the latter by the threat of emigration, if their demands were refused. In Kent, within a week or two, we had to record a riot ensuing from the employment of Flemish labourers on an English railway, a fact of no trifling import as to the state of the English labour market. And while there seems to prevail this feverish and uncertain state among so many members of the very thews and strength of our body politic, those who conduct the great embellishments of our cities, and who are providing fresh channels for an activity of movement such as the world never yet has witnessed, are doing all that in them lies to increase the discomfort of those on whose labour they must rely, and to saw off the branch on which they sit astride.

We have repeatedly called attention to the manner in which the comfort of the working classes has been interfered with by City rebuilding. The evil is not peculiar to ourselves. In Paris, in Lyons, in many other continental cities, the quarters of the industrious, or, at all events, the poorer classes, are pierced by new streets, or improved away for the sites of palatial shops and imperial hotels. But the political aspect of these alterations has not been overlooked by those who have given the impulse on the Continent. They may have acted wisely or unwisely, but they have at least not acted unthinkingly. If a noble street has pierced a populous quarter, we are apt to find at the end of it the architectural embellishment of a casemate, and we find the omnibus to ply freely through the impracticable localities so long sacred as the very citadels of revolution. It is not so with us. Holborn-hill may have been very fatal to morality, so far as morality comprehends patience, but it is not ground consecrated to the memory of Jack Cade or of John Frost. Our London roughs have shown themselves more at home in demolishing than in constructing barricades. And those who believe that the physical comfort and well-being of the great masses of the population is the first object of the honest and enlightened social reformer, will turn with a sad but vivid interest from the contemplation of some of the manufactured grievances and got-up hardships of the day, to the account of such a meeting as that which was lately held, and held in all possible good order and propriety, by some of our fellow-citizens unhoused, and about to be unhoused, by the Holborn improvements.

The subject is one that does no credit to our national morality. Such of us as have had their attention to the manner in which the railway legislation of the day is carried on, quickened by possessing shares in lines depreciated to a ruinous extent by an unprincipled competition, have long ceased to look to Parliament as the protector of any but the hardiest speculator. The observations of the chairman of the London and North Western Railway on this subject at the last half-yearly meeting, strong as they were, but partially states the case actually existing against Parliament on this score. But in those who find the capital for the improvements, which commence by demolition, such selfish and unthinking haste is eminently short-sighted. To the mere speculator, the man who subscribes not for an investment, but for the gambler's chance of a premium, such considerations are, of course, beside the mark. Like the negro, who astonished the missionary by assailing him with a string of Scripture names in evidence of his claim to be treated as a Christian, and, when pressed on for an explanation, confessed, "I mean rum,"—those who mean gambling may well speak of improving a city, or of enlarging the accommodation of a railway, at the cost of unhousing a whole population of labourers. But improvements are not all made by mere speculators. That there must be a certain element of speculation in every great improvement is no doubt the case; but the main *modus operandi*, the actual tangible capital that makes its appearance in the shape of calls, must come chiefly from the *bona-fide* investor, from the man who seeks to lay up his earnings in a fairly reproductive enterprise. When this large body of small capitalists, the men who constitute the great majority of our public companies, are fully enlightened on any certain conditions of success in their enterprise, the more adroit and active speculators who form the forlorn hope of such undertakings must perforce consult such opinion, and modify their arrangements accordingly. It is to such, therefore, that we would address the warning that, although a hive may, at certain seasons, expatriate the drones, it can never afford to exclude from its shelter working bees; and that those augmented facilities for traffic and for commerce that are based on depriving the industrious classes of their homes, may destroy rather than augment the national wealth, and, by immediate consequence, that of their supporters.

It is at points of contact such as this that it becomes most signally evident that political economy is not the sum of political wisdom. A fair field and no favour is a good maxim; but it must not be forgotten, as it is forgotten by many of the economical doctors, that some of us start cruelly over-weighted in the race for life. If those who govern do not govern in the interest of all, the days of their rule are numbered, whatever be the self-acting machinery that vindicates the moral law. A well-remembered remark

characterised the rule of the Neapolitan Bourbons as the negation of divine Government. There is a phrase which, as far as words can go, far more absolutely contradicts the earliest divine edict, than any that ever fell from Italian lips. The mission of man, we have been told on no light authority, was to increase and multiply, to replenish the earth and subdue it. We do not find any information from the same venerable source as to the point at which, in this course, the teeming family of industry becomes obnoxious to the appellation a Surplus Population.

If we are content to walk by this newer light, if we hold blindly to the prejudice that the wealth of a nation consists in the bullion in its vaults, that quick profits and large returns are the *summum optime* of the citizen, and that, by an unerring law of nature, the weak must go to the wall, let us go on as we are now doing. Let us improve away all humble dwellings from our cities. Let us leave the labourer, and the journeyman, and the small tradesman, and the craftsman who needs but a single room for factory and for dwelling, to attend to themselves. Down with the rookeries and up with the palaces of commerce. Demand ensures supply—so that if our porters and out-door servants require fresh homes the homes must be forthcoming, if there be any truth in the unerring and self-acting laws of political economy, pure and simple. If it does not, the poor must go somewhere else: it is enough for each man to attend to his own business, and we may leave it to old women of either sex to heed the Cassandra-like forebodings of those who are always preaching as to taking care of the poor. Do the poor take care of us? Are we our brothers' keepers?

In those ancient saws and modern maxims which we have quoted there is, no doubt, the vitality of truth. Social law *is*, to a great extent, self-acting, and avenges its own infraction with unerring certitude. But the flaw lies in the fact that economics is not the whole of politics. Supply and demand have their fixed and certain laws; but so, on the other hand, have justice and mercy and truth. And the man who is content to deal with any social phenomenon on intellectual grounds alone, leaving out of sight the moral aspect of the question, and ignoring the touch of nature that makes the whole world kin, will be apt to find that he has not exhausted all the combinations of even the intellectual problem. The disturbing force may manifest itself at a point which he only too late discovers to be the least point of resistance. The unhoused poor man, for instance, in obedience to the law of supply and demand, may find himself a new home when thus summarily deprived of the old one; but it may so chance that such home will be too far off for him to hear you when you call for his labour. He may prefer to construct it for himself—to build it of log and lumber, where timber is to be had for the felling, and game for the shooting or snaring, and land for the cost of enclosing. We may so far fit our great cities for the abode of the rich, and of the rich alone, that they will be left to inhabit them by themselves,—to do their own service, to bear their own burdens, and to enjoy, with what appetite they may, the solitude which they have fashioned for themselves. This is no vague or idle supposition. We do not suppose any sudden exodus of the producing classes. But, on the other hand, we cannot shut our eyes to the actual facts. Such a departure is going on from part of the kingdom, and it threatens to become more general, and it is not the objects of charity that will go first. It is the young man, who in the strength of his arm and the comely vigour of his helpmate has the true essentials of wealth, that will first turn his back on those who pull the roof from over his head. The helpless poor will be the last to remain as a burden on the rates; the man whose poverty is only conventional, who is poor because he lives among the degradation of an over-wrought and corrupt civilization, but who is rich in strength, in energy, in hope, in productive and in reproductive power,—this is the man whom a few more razzias like that of the Holborn improvements will improve very shortly out of the country.

There are few reflecting persons who have not had some experience, more or less personal, of one phase of the great social revolution which requires such enlightened attention. How long is it since the journals were full of the subject of domestic service, of the hardship and the difficulty of obtaining good servants, of the disappearance of the respectable, attached, faithful, hard-working, modest serving-men and handmaidens, by whom our grandfathers were served? We cannot here enter on the causes or the details of a social change which tends to approximate English life to that constant residence in hotels which we so little admire in America; but we point to a fact known to all, and widespread in its operation, a fact of the same nature as the emigration of the Cornish miners, and the increasing disposition of the English workmen to ally themselves against, rather than with, their employers, to substitute the rivalry between master and man for the wholsome emulation between guild and guild, between craft and craft, as indicating that a reckless legislation, and an eager, inconsiderate grasping for money, may deprive us of a source of national prosperity more easily exported than our coal, and more necessary to our welfare than even our stores of that precious mineral, the best material ever yet offered to the hand of the founder of city or of empire, the stanch, skilled, capable English workman.

MURAL DECORATION, AND MOSAIC.*

One cannot advance far in the question of the requisites for good architecture, without attaching importance to internal chromatic decoration as one of them, whilst at the same time perceiving that this division of our art is not so much under the control of persons acquainted with correct principles of design as it should be. If, as we have lately held, the instances of success in the architecture of exteriors of buildings are few in proportion to the use now made of architectural details, as mouldings and ornaments,—that is excepting one quarter of the metropolis, and one or two districts of the extensive suburbs,—the proportion of failures must be considered much greater as regards the interiors of buildings. Our profession indeed seems to have become resigned to a state of affairs wherein the paperhanger, or the *decorator*, so called,—using things that are kept ready, and have been manufactured without that calculation as to exact position, which is of the essence of architectural design,—is allowed to mar any piece of internal effect that the architect may have intended. It is not however the modern period in the history of our art that has the first been characterized by great use of internal chromatic decoration, along with great disregard of principles, and with resulting ill-success. Never was architectural or decorative result, in the interiors of buildings, less in proportion to effort and cost, than when the talents of the greatest painters were employed on decoration, and when indeed were being produced works which are amongst the finest of the art of painting. We fear that, in the character of mural decoration, the frescoes in the Palace of Westminster cannot be considered as highly successful; although here the painters have had much less opportunity allowed them, than the great Italian masters had, of ignoring surfaces and spaces provided,—or of substituting effects of their own, under disadvantages needlessly as well as erroneously attempted to be overcome, for those attaining the results, united, that are aimed at by the architect, and the mural decorator, or painter, working in harmony with one another.

But not only are correct principles, as regards forms and colour, required in the decoration of interiors of buildings: there is required also durability or permanence of the work produced, in our opinion, just as much as in the case of the architecture of exteriors. Although the taste which there is in some of the French *cafés*, where great cost in the decorations is combined with little permanence, might be quoted against us, we are inclined to think that architectural *art* is generally served by the making durability an object. Apart from the consideration which seems obvious, the economy, where effect is indestructible, there is this one, that more pains would naturally be taken where the result is to be permanent, than where the artist is likely himself to see the rapid deterioration and ultimate destruction of his work. Not many months ago, as our readers are aware, Fishmongers' Hall was decorated in colour from the designs of Mr. Owen Jones. Some persons, even those who had seen the interior of the building, might have supposed that it had not previously been decorated. It had been, and at much cost; but even ten years ago, the elaborate decoration could not be looked at without a feeling of discouragement. Actual effect realized in the greater portion of the period during which expensive decoration has to remain before renewal, is so very different to what the designer intended, that one is dissatisfied with what seems waste of art, art that has become imperceptible to all but a small minority of those for whom it was produced.

Thus we have ourselves looked, even more hopefully than results warranted, to the discovery or application of processes for internal decoration of greater durability than painting in common oils, or in the more effective but less durable distemper, or even than fresco. In two or three of the *cafés* to which we have alluded, the object is sought to be met by the use of glass as covering to the decorations, as those of panels to pilasters; and some years ago, in England, a method of painting on the back of glass was introduced; though it does not seem to be now much practised. The glazing system succeeds tolerably well in some instances only. There is a *café* in the Galerie d'Orléans of the Palais Royal, where the decoration of the panels of the beams in the ceiling is protected in the manner referred to, and without much loss of effect. But in the *restaurant* of Vefour *Aîné*, near the Theatre of the Palais Royal, where the decoration is in arabesque, elaborate and well painted, the general effect is much reduced by the contrast which there is between small panels that are glazed, and others not glazed; whilst the arabesques without glass are so much more striking than the others, that we are obliged to admit that the glazing does not attain all the objects. Efforts in fresco, the vehicle of which the advantages for original effect, if not durability, are so much superior to oil for mural decoration, do not justify confidence in it as possessed of the durability we have here been contemplating as requisite. By a sort of unanimity, at length, all who are anxious to extend the use of coloured decoration in important buildings have turned to what seems to be the only vehicle that has the desired indestructibility, or that of the wall itself.

What has been executed so far, shows that we have the materials and the processes of mosaic, but shows also that in some other requisites we are lacking. There is no branch of art which is so well calculated to repay present study; though, now, a great debt is due to Mr. M. Digby Wyatt and others who have contributed to our knowledge of the Italian mosaics. But we must not be satisfied with success in the production of gold and other enamels; and we must not repeat the error that is often made, of merely imitating an archaic character of art, admirable in the original, and valuable instructively, but of which the copyism is derogatory to ourselves as artists, and cannot be appreciated as art by the public. Keeping this in mind, we are able to welcome a fresh contribution to the knowledge of the mosaic pictures in Italy, especially when coming from the hands of an observer like Mr. John Henry Parker.

On Mr. Parker's first visit to Rome and Ravenna in the spring of 1859, he was much interested with the mosaics: they were quite new to him; he took notes of all that he saw; and on his return he completed a chronological list of them, with the help of Ciampini's work, not having been able to obtain any such list except by the making one for himself. This list he printed in the *Gentleman's Magazine*, with the view of obtaining corrections and then publishing it separately with diagrams taken from Ciampini. Other occupations and a serious illness having subsequently prevented the completion of the work, and such a list being wanted, Mr. Parker thought a few copies might be usefully printed of it as it stood. This has been done, appending some notes from M. Vitet's work. Mr. Parker explains that on his second visit to Rome in the winter of 1864-5, and to Ravenna in November 1865, he examined all the mosaic pictures and pavements again, with the help of friends, and that the corrections found necessary are given in his appendix.

The work takes the form of a *catalogue raisonné* of some of the principal mosaics, chronologically arranged, from the time of Constantine to the sixteenth century, with a slight reference to the productions of other periods, including the modern. Mr. Parker acknowledges assistance that he has derived not only from the authors above named, but from M. Emile Amé, to whose work, "*Les Carrelages Emaillés*," and to the 25th volume of M. De Caumont's "*Bulletin Monumental*," he has been indebted for several wood-cuts. An essay on Ravenna, by the Abbé

* "Mosaic Pictures in Rome and Ravenna, briefly described by John Henry Parker, F.S.A. With Diagrams. Oxford and London: James Parker & Co., 1866." 8vo. pp. iii. & 50.

Crosnier, in the latter volume, has also been made use of; whilst the work of Bartholi, which gives engravings of some mosaics found in the crypts and sepulchres of ancient Rome, and the "*Vetusta Monumenta*" of the Society of Antiquaries, illustrating some of the pavements found in England, are mentioned in referring to the periods before Constantine. The materials of which mosaics were made are treated of by Ciampini (*Vetera Monumenta*," 1696), and by Professor Buckman in the seventh volume of the "Archæological Journal."

The art, or process, properly consists in the forming pictures or patterns of small pieces of stone, marble, tile, or earthenware, or glass, of different colours; and various kinds of it are enumerated as mentioned by ancient writers,—as "opus musivum," "musaicum," "mosaicum," "mosibum,"" museum," "opus tessellatum," "vermiculatum," "reticulatum," and "albarium et sectile." It is scarcely correct to speak, as does Mr. Parker in one place, of the pieces as though necessarily cubes; and "tessellated work," rather than "tessellated *pavements*," should be considered as the other term for mosaic. The designation *tessellated* would be always useful to distinguish the work composed of small pieces: one kind of *mosaic*, so called, the Florentine, is very different to what would be supposed from the explanation just alluded to.

As Mr. Parker says, the mosaic art is "one of the earliest known;" the Chinese possess it, and it was found among the primitive inhabitants of America. It is clearly referred to in the Bible, in the Book of Esther, in the description of the palace of King Ahasuerus. The Assyrians are supposed to have taught the art to the Egyptians and the Greeks, from whom it passed to the Romans. The truth is that the putting together different coloured materials in patterns, sometimes for the ornamentation of portable things, like what are made of Tunbridge ware, or of flattened and dried straw, as the productions of the North American Indians, and sometimes for pavements or wall-decorations, is very likely to suggest itself independently at different times and in many localities.

It appears that the Christians, both of the East and the West, had practised the art even before the time of Constantine. A remarkable example of early date has been found in the small church of D'Jemilah, in Algeria, by the French scientific commission, and has been published in a work at the expense of the Government. The art was practised to the fall of the Roman empire; when, according to Mr. Parker, and the common statement, it was in danger of being lost, as well as other arts. But it became used in the decoration of churches, and by the Greek Church as well as the Roman. Then ensued the persecution of the iconoclasts at Byzantium, the flight of Greek artists to Italy, and the production of works in the latter country, of the distinct schools. Mr. Parker says,—"The Greek mosaics in Rome of the eleventh and twelfth centuries, are readily distinguished from those of the Romans themselves by the peculiar stiffness of the drawing, the costume, and a certain solemn effect, and frequently by Greek letters, or the names of the artists." Mr. Parker's earliest example of known date is of the time of Constantine, and from the church of S. Constantia, once supposed to have been a temple of Bacchus consecrated as a church by order of Constantine. The date is given A.D. 320. The mosaics in this church include the series representing the culture of the vine. The next example is of the fourth century, or from the church of S. Agatha at Ravenna (A.D. 378), where there is a pointed arch over the mosaic, which last represents Christ between two angels. The art continued to be practised in Italy to the close of the ninth century, examples being described and illustrated in the volume before us. But then there is "an entire blank for two centuries, during which not a single mosaic picture remains at Rome, or at least has been noticed; the art appears to have taken refuge entirely at Byzantium." Civil war and destruction prevailed in the tenth and eleventh centuries at Rome; and during the tenth century there seems to have been generally in Europe, almost a cessation of building in stone. At the beginning of the eleventh century, Rome was rather behind than in advance of the rest of Europe. Of the twelfth century are the Siculo-Norman mosaics, the dated work of the pavement of the church of Murano at Venice, and examples at Rome, Capua, Ancona, and in the church of the Nativity at Bethlehem. Belonging to the fourteenth century is the "Opus Alexandrinum" of the church of S. Clement, and much more in Rome; the work of the shrine in the Confessor's Chapel, Westminster Abbey, and the platform for the high altar; that at Fountains Abbey, and that at the church of St. Margaret, near Ripon. Amongst the workers in this century was Giotto. Mosaics continued to be produced in the following centuries; and, as Mr. Parker says, at present the workmen appear to be as skilful as ever. Concerning the revival in England, he observes that it has been almost confined to glass-mosaic, and to patterns suitable to the Italian or the Byzantine styles,—though he mentions the vault of the burial chapel of the royal family at Windsor, restored in memory of the Prince Consort. But he remarks that no attempt has been made in this country, to introduce mosaic wall-pictures. This was probably written prior to the attempts made, as in St. Paul's Cathedral, and at South Kensington. He supposes that difficulty has been always felt in executing the work, unless by importing workmen from Rome. The encaustic-tile pavements of the Middle Ages were used in the northern countries of Europe, for mosaic; whilst of late years, a substitute for the effect of pattern-mosaic on walls has been made in several churches, and similarly by the use of tiles.

THE CHOLERA CONFERENCE.

METROPOLITAN SANITARY ASSOCIATION.

SOME of our readers are not satisfied that we should allow the statements made at the Sanitary Conference, to which we alluded last week, to pass unrecorded in our pages. We willingly comply with their suggestions, and print the pith of the principal addresses.

The Bishop of London, on taking the chair, said,—About a year has elapsed since we met in this room to suggest what could be done in the event of a visitation of cholera taking place. That visitation has come upon us. I do not think we can say it has found us altogether unprepared. Partly from the suggestions which were made here this time last year, and partly from the attention of the public having been otherwise directed to the subject, very considerable improvements have certainly taken place, and I believe we must all allow that London itself has been on the whole better prepared for the visitation on this than on any former occasions. I believe, too, we have reason to think that at the present time the spread of cholera in the metropolis has been considerably checked; but it has no doubt been a great mistake to suppose that because in the month of September there has been a visible improvement in the state of the public health, therefore we are free from any danger of a fresh outbreak of cholera. During the month of September we may be liable to a fresh attack of that disease, and medical men will tell us that it is quite possible the epidemic may break out in other quarters of London not yet infected during the present time, or at least during the months which yet intervene before the winter season sets in. If, therefore, it were necessary last year that we should be on our guard, and offer suggestions respecting sanitary improvements, it is still more necessary that we should make those suggestions now. I trust some of the many gentlemen present will be able to offer suggestions which will be of use to us for the improvement of the public health, and to guard against any fresh outbreak of the evil. There are a great number of matters to which attention may be most usefully directed, because, although several improvements have undoubtedly been effected, there are still many others which are most desirable. The water supply of London especially is at present in a state which we must all deplore. With such a meeting as the present, it may be possible to throw out suggestions by means of which the water supply can be improved. It would be a great misfortune indeed if these serious visitations should be allowed to pass over without creating some permanent effect on the sanitary improvement of the metropolis. The water supply question is certainly one which we are bound most seriously to consider. Amongst other important matters there is the great question of the dwellings of the poorer classes. I trust that will never be lost sight of until we have worked out a different state of things to that which now exists, which certainly is most miserable compared with our boasted wealth and civilization. We pride ourselves on the conveniences of life for the upper classes, but it is our duty to endeavour, by every means in our power, to improve the dwellings of the poorer classes. A great deal has been done in this direction by the erection of those large houses, the fruit of Mr. Peabody's munificent gifts, and also by the company over which Mr. Alderman Waterlow presides, as well as by other similar associations. We are most thankful to the Marquis of Westminster for what he is doing for the western part of London, by the erection of large and handsome blocks of buildings for the poor, capable, I am informed, of accommodating 800 families. But all these are a small matter in comparison with the vast population with which we have to deal. Therefore, whether as regards the water supply, improved dwellings for the poor, or with regard to drainage, or the establishment of convalescent hospitals, to which the poor in times of fever and sickness may, on recovery, be removed, I trust we shall, as the result of this visitation, see great improvements taking place in the metropolis.

Dr. Druitt (President of the Association of Medical Officers of Health) said, I venture to speak thus early because it has been through the consultation of myself and a few friends that this meeting has been called. The purport of it is this: it has appeared to us that the public have been coming forward in the most generous manner to relieve persons who have been suffering from cholera, but it must not be forgotten that gifts of this kind are transitory. Examples of other kinds of munificence are exhibited every year. There is not a winter passes but we see letters in the public newspapers setting forth the awful destitution of the poor of London; but however much money pours in, the effect passes off like water from sand. I live in one of the richer parishes, in which enormous sums are given to the working classes; but it is the conviction of the clergy and others that the effect of this charity is rather bad than good; that it tends to destroy independence and take away those virtues on which the health of the people depends. It has appeared to us that at the present juncture, when the hearts and pockets of the public are open to works of benevolence, that some effort should be made for effecting good of a more permanent character. The Medical Association which I have the honour to represent, at a meeting held yesterday, drew up some resolutions on this subject, the gist of which I will now lay before you as indicating the opinions they have formed:—

"That it is highly desirable that the benevolent part of the public, who have contributed so generously towards the relief of sufferers from cholera in London, should be invited to continue their efforts so as to promote a permanent improvement of that bad social, moral, and sanitary state of which cholera is but an evidence. That the clergy, district visitors, and other persons interested in the poor of every district, be invited to form themselves into sanitary or vigilance committees to give the earliest notice to the local authorities and officers of health of all breaches of the sanitary laws, and to support them in their efforts to carry out those laws to the fullest possible extent.

That even when every existing law has been put in force, there remains a large class of sanitary evils partly through the unavoidable insufficiency of those laws, but chiefly through the idleness, carelessness, and ignorance of the poor.

That the charitable public be invited to attempt rather the removal of those evils which arise from insufficiency of law, and the bad moral status of the poor, than to mere palliation of their effects.

That, as a temporary expedient till a constant water supply be enforced by law, it would be a worthy method of spending charitable funds to obtain daily extra supplies from the water companies.

That next to a free supply of water, charitable funds would be well employed in erecting baths and laundries, at which cleanliness of person and clothing might be effected at the smallest possible cost."

At present we have a new sanitary law in force, and no doubt it will be carried into effect more vigilantly; so that there is a better chance that the public health may be improved as far as it can be by law: but the law is but a dumb and a blunt instrument unless there is a popular feeling to cause it to be carried into effect. Under another system, if a better class were interested in the sanitary laws, no doubt a better state of things would have obtained, but their absence from vestries and other parochial boards tends no doubt to blunt the feelings of those interested in the law, and it is very much like pushing a dead weight up a hill. But if you enforce every law up to the very edge of the statute, there will remain a large residuum of things which depend upon the ignorance or bad moral status of the poor, or possibly upon the insufficiency of the law itself. First, there is the necessity of an abundant supply of pure water at all times. I need not enter deeply into that, because the feeling is, that

pure water, without stint or cost, should be provided in London at the very earliest opportunity; but till a radical change of the law takes place, it is impossible that can be done. In the meanwhile what can the charitable public do? Why not buy water, and give it to the poor? Large districts in the East of London have suffered from cholera; and even if science had not demonstrated that an abundant supply of good water is the best preventive of disease, it would be a good way of spending money to give that supply instead of giving port wine and soups to the people who have suffered from the disease. If a person wishes to do a charitable act, let him erect stand-pipes, and let that be done in every part of London, so that on Saturdays and Sundays especially, the poor people may be able by sending a little way, to have such a supply of water as is pure and decent, and fit for drinking and cooking. I cannot conceive a way of spending money better than giving plenty of pure water. The next point is, personal cleanliness, which is not only a material aid to health but also to virtue. A dirty man cannot be a good man. Let us consider for a moment how is it possible for a man or woman to wash in a room which serves as kitchen, parlour, and bedroom, and surrounded by half a dozen sons and daughters of all ages. We must not blame the poor for lack of virtues which they cannot exercise. Another point which I have the authority I represent to press upon this meeting is, to erect not splendid and costly buildings, but baths and washhouses of moderate pretensions,—even of a humble character; wooden buildings, if you please,—in the most populous districts of the east of London. With these recommendations the body I represent stop. Other matters may be matters of private opinion; but there is one point I would allude to incidentally. How can a mother in the districts most infected with cholera procure a supply of pure milk? The Registrar-General tells us how many young children die of choleraic diarrhœa. The process of disease is as simple as possible. Any woman who wishes to get rid of her child needs but to feed it in the most humane manner on the milk she buys at the shops. Delicate children fed upon such food will die. There is no milk which I could buy in that district which I could give to a child of my own without trembling for the result. This prompts the inquiry, can no means be provided for affording a supply of pure milk to the poor in London? I could specify other matters, but here I will stop; and will conclude by proposing the following resolution:—

"That the supply of pure water, of baths, and other means of cleanliness, and possibly of pure milk, at reasonable prices, are worthy channels for expenditure of charitable funds under the present emergency."

Mr. Liddle (medical officer of Whitechapel district) seconded the resolution. The inhabitants of the West-end had come forward most nobly and sent large sums of money, which were usefully expended in the treatment of sufferers from this malady. This, he said, was the fourth visitation of cholera which he had witnessed—viz., 1831, 1844, 1854, and the present one. He was sorry to say that the marks which the preceding epidemics had left had not to his mind been very visible: they had passed away. An excitement prevailed at the time: persons subscribed money liberally, but nothing of a permanent character had been carried out. The principal advantage had been that some improvement had taken place in the water companies of the south of London; but they had been left by the legislature without laws which were of a practicable nature. They had buried through Acts of Parliament without their being submitted to practical men to know how they were likely to operate. He did not know how the present Public Health Act would operate, but it would test the powers of the various vestries and district boards. He had personally a great objection to the powers having been made permissive where he thought they should have been made compulsory; but at the same time, as he had had the opportunity of telling the board in his own district, the local boards would now be put on their trial to show their fitness for local self-government. If they put in force the powers with which they were now invested, he had no doubt the scheme for the metropolis would work better than centralisation; but they must prove their fitness to carry out the powers entrusted to them. One of the most important things omitted by the Legislature was the non-providing of a proper Building Act, whereby those nuisances of which they now complained with regard to houses being unfit for habitation after they were built, might have been remedied. The munificent gift of Mr. Peabody and the efforts of societies had done a vast amount of good in erecting better habitations for the poor; but of what avail would that be while landlords could avail themselves of every unsuitable spot of ground for the putting up of houses? True they had power, after a house was erected, if the medical officer thought it unfit for habitation, to prevent its being occupied. How much better would it be if the plans as to sanitary arrangements were submitted to the local board before the houses were built? Plans with regard to drainage were submitted, but with regard to other sanitary arrangements the local boards had no power whatever. He had been in communication with gentlemen on this point, and he found that the Building Act would not prevent these unsuitable buildings being erected. The first thing they ought to do was to call on the Legislature to pass an improved Building Act, which should provide that houses should not be built unless the plans were submitted to and approved by the board in whose locality the houses were to be erected, not only in regard to drainage, but all other sanitary arrangements. The next thing was the water supply. He would state as a matter of fact that it was practicable to erect stand-pipes. The Jews, to their credit, had erected thirty stand-pipes in Whitechapel, from which water was obtained night and day, the water company having given the water free of any extra charge. There were other means of supplying the poor with water in Whitechapel. Upwards of twenty of the courts were supplied with water from the mains, and the water-butts had been done away with, and the people had an unlimited supply of water on every day of the week. He thought much good might be done by the purchase of some of the old and unsuitable buildings in the various districts. He would like to see that undertaken by a voluntary association to raze those wretched habitations to the ground. The local boards ought to have the power, where houses were structurally deficient, to put a veto upon their being occupied. The first thing to be done was to prevent them being erected; and having done that, deal with the nuisances which exist in any unhealthy locality. They were now paying the penalty for their legislature. These things ought to have been provided for long ago. We were suffering from our own neglect in not urging these points more strongly upon the legislature. The only means of dealing with the case was to destroy the unhealthy and unsuitable buildings, and by degrees better habitations would be sure to be built on the same spots.

Dr. Aldis remarked that much had been said about the water supply. If he might be allowed to express an opinion, nothing satisfactory would be done till they had a constant supply of water. In his own district of Belgravia they had a good supply of water, the service being twice a day; but the mode of supply was objectionable. A great number of tanks were provided with overflow pipes communicating with the closets, which was inconceivably dangerous; and if that state of things were continued, he should not be surprised at an outbreak of cholera. The system was not only bad in itself, but illegal. The water companies could fine the parties for the waste by overflow; but it was not done. There was one class of people he had particularly noticed. They heard of people who died of cholera on board of vessels in the river. He was summoned to one of those cases in his own district, which was taken to St. George's Hospital, and terminated fatally. He afterwards went on board the vessel, which was one of the class called Billy-Boys, used for bringing stone and other articles from Goole. On going into the forecastle, where the man slept, it gave him the idea of a veritable black hole, heated to an unbearable degree by a stove used for cooking, and altogether without any means of ventilation. There was another man ill in the place at the time.

Dr. O'Brien (Chelsea) said he believed it was a well-ascertained fact that cholera prevailed most where the water was worst, and he believed where water was kept in close chambers fungoid matter was formed in it, which varied according to the sources from which they arose. Such water was unfit for human drink; but there was a great distinction between the spores in different epidemics, which would be detected by the microscope. Even distilled water exposed to air charged with molecules generated fungi. The same rule held good with regard to dysentery, typhus, and similar disorders.

Mr. Rendle (St. George's, Southwark) said he thought the time was past for anything like makeshift arguments in connexion with the disease which was now affecting us, and which we believed to be in a great measure preventible. He had been actively engaged in the cholera from the first time of its visitation. On the south side of the Thames, he was happy to say, there had not been so many cases as before. He thought it highly desirable that a large number of stand-pipes should be put up; though he agreed it was pushing off the day when they wanted an absolute change,—such a change one might call revolutionary in the arrangements necessary for the well-being of the lowest classes of the people of this country. When he looked at the Blue Books of the Government, and found that in the country it was no rare thing for people to be driven from their work to other places miles away to save the poor-rates; that grown-up women were living with grown-up brothers, and whole families occupying one room in common; and that not a matter which occurred here and there, but was very widespread;—when he had witnessed this state of things in his own parish; that it was too often the case among thousands who were acquainted with the lowest circumstances of human condition in his parish, he was forced to the conclusion that, under such circumstances, it was impossible for a people to be Christian, or moral, or healthy. He contended it was waste of time to talk of doing a little by way of charity and benevolence, although that benevolence might amount to thousands of money subscribed by good and generous people, yet no permanent good could follow from it; and when he saw all this charity, there was comparatively little difference between the charity of this time and the charity of his first recollection; so also was it equally destitute of permanent benefit. When he first came to London, the population was not more than about 900,000. There were not so many poor people nor so much misery as there was now; but at the present time there were three millions of human beings crowded upon a small space. He thought the time was come when they must not deal with a house here and there; but they wanted some great alteration emanating from the central councils of the nation, so that they might have laws which would work, and people who would take care to work them. It should be obligatory if they had circumstances in which 10,000 persons could not be moral, healthy, or virtuous, that some radical change should be made which no palliative measures could effect; and he confessed he felt grieved when he heard the kind of discussion that took place on the Labourers' Dwellings Bill in the House of Commons. He felt grieved with the expressions that were uttered there by representatives of Christian communities. If they had gone with him and seen how people were huddled together, and how disease and vice must go on, they could not have failed to come to the conclusion that a change amounting to a revolution in such matters was absolutely called for and did not admit of delay. It was dangerous to go on as they had done hitherto. The inspecting officers went round from court to court. Fever was there; the water was bad; the water-butts were foul; and the water-closets abominations. The poor thus situated knew that this was wrong, and they got to know that the law would help them if it were put in force by those above them. Visit those courts another year: fever again cleared out its inhabitants; and, people finding the law was on their side, began to feel discontented, as well they might be: and that discontent would spread, and it would ultimately be found that the large mass of 10,000 in his own parish, multiplied by hundreds of thousands throughout the metropolis, would be a very unsafe community in the event of a disagreement between the classes of society. He was no alarmist; but he could not go into the courts and alleys of the metropolis, and see the condition of those whom, by every law of Christianity, they were bound to regard, without feeling that they were exposing themselves to a great social danger. The great remedy, he believed, was true and earnest legislation.

Mr. Godwin expressed a strong hope that Dr. Druitt would withdraw his resolution as one which was wholly inadequate to the present emergency. There were sufficient differences of opinion among the outside public which were wide enough, and led to enough discussion, without wasting the time of the meeting in debating the expediency of such a resolution as that before

them. To talk now about looking to benevolent funds for a supply of water to the metropolis was little short of nonsense. They ought to call loudly and at once for such arrangements for the supply of pure water as would give it cheaply to all, and render the expression of benevolence on this question unnecessary. The want of precise knowledge in respect of sanitary matters, the cholera, and many other things, was something surprising: one physician, for example, recommending a system of treatment that another, equally eminent, said was "death." He hoped a proposition which he understood was to be made would be strongly enforced upon the meeting, viz., for the appointment of a Government commission to make inquiries, and which would lay before the public facts that could not be denied or got away from, and urge measures that could not be neglected. He would rather have such a proposition as that before them than to argue upon a resolution for an insufficient measure, which he believed would be negatived by nineteen out of every twenty persons present. (No, no! Yes!) Until public opinion was formed,—till knowledge on sanitary subjects was more general,—what improvement could they expect? What must they look for, when in the present day they heard from a town near Leeds the pretensions of a person to become a member of the local Board grounded on such reasons as these:—That he would oppose all schemes for levying rates for the supply of water; every measure to obtain public sewerage or the paving of the streets; every measure of that sort, in fact, without exception, on the principle that all such things were a wasteful expenditure of the ratepayers' money? When they saw a placard like that; when they found doctors themselves expressing opinions contrary to one another and to all that had been proved by experiment for many years (No, no! Yes!);—why they had educated men saying that bad drainage did not produce disease. (No, no!) He repeated it. He had in his pocket a letter from a ratepayer of Sheffield stating that assertions made at the late meetings of the British Association had entirely paralysed the efforts of those among the people of Sheffield who desired to obtain proper drainage. Those present must have read on the previous day of an accident in a tank in Ireland, where four men descended one after another to clear away decomposing matter, and each one fell dead as he reached the bad air; and yet they still found men doubting if the emanations from sewers produced disease. He mentioned this to show the difference of opinion, not to say ignorance, in respect to sanitary matters that existed, and also upon the question immediately under consideration, as also even upon the cure of diseases arising from the neglect of sanitary matters. He trusted that Dr. Druitt would at once withdraw his motion, to save time.

Sir Mordaunt Wells did not wish to use expressions that would give the slightest offence. He said, as intelligent men, who had devoted a great deal of time and attention to the consideration of this question, it was a reflection upon them to entertain so absurd a resolution as the one now before them. Such a resolution as this was not calculated to deal with the great evil which existed at the present moment. He spoke in presence of gentlemen who had been working for the last six weeks, day and night, in the cholera-smitten districts of London, and who had by that means acquainted themselves with the real state of things; and he knew from what he had been told by them, as well as from his own personal experience, that the sanitary condition of the poor was most dangerous. He had seen such men as the Rev. Mr. Pattison visiting in the various districts, and he would bear him out that the great evil they had to contend with was the miserable condition of the poor in the eastern districts of London. Instead of passing a resolution of this kind, it would be their duty to pass a distinct and firm expression of opinion that it is the duty of the Government of this country to institute a searching inquiry into the sanitary condition of the people of this metropolis. It was utterly impossible that things could go on as they now exist. Whether cholera disappeared this month or next, as long as the poor to the extent of hundreds of thousands were living in their present state, disease would crop out, and with the medical profession doing all they could in this great crisis, it was impossible they could deal with such a fearful sanitary condition as the poor were in in the midst of London. It was their duty to call upon the Government to institute an inquiry into the sanitary condition of the people; and such men as Mr. Pattison and others he saw present would tell them that the sanitary condition of the poor was so dreadful that they did not know how to deal with the mass of misery existing throughout the districts of the east of London. He implored them not to fritter away this opportunity by providing merely a few stand-pipes. They knew that the people were in an absolute state of poverty; they knew that the houses they inhabited were not fit for animals to live in; they knew that great numbers of landlords neglected their duty in not providing proper houses to dwell in. They knew that one great cause in the prevention of improvement in the east of London was the system of short leases. If these leases were done away with, and the property was dealt with as freehold, streets of houses would be built fit for the people to live in. These were questions affecting not the poor only, but the whole of the inhabitants of the metropolis, and they must be pressed upon the Government, who were the responsible parties for the health of the people. He had been at work in these districts for the last six weeks, and he would say the sanitary condition of the people of the metropolis—and he would appeal to the personal knowledge in this matter of the right rev. prelate in the chair, who had bestowed an amount of individual attention to this subject upon which he would ever reflect with the greatest satisfaction,—the sanitary condition of the metropolis was such as to excite the greatest alarm. Let them not lose the present opportunity of saying to the Government, "Thousands and hundreds of thousands of poor people are now living by the hand of charity;" and when that was withdrawn he dreaded the consequences which he feared must ensue. Let it not be said of them abroad, that while they were living in comfort and luxury in the west of London, masses of the people were existing in the most abject poverty, and that thousands of poor creatures were half starving in dens breeding disease and death. He said the Government must be made to hear this, and then the sanitary condition of the people would be improved.

Dr. Farr (Registrar-General) saw nothing in the motion incompatible with further proposals; but

Dr. Druitt withdrew it.

Mr. Benjamin Shaw said, he was happy in the belief that the resolution he was about to submit would fall in with the temper of the meeting, as he trusted it would more or less embrace the sentiments of every gentleman who had spoken, because it was comprehensive and did not pledge them to any hasty or inconsiderate course of action. The resolution was, in fact, that which had been shadowed forth in the able remarks of previous speakers, viz., "for the appointment of a royal commission to investigate the whole condition of the east end of London." [A voice: "The metropolis generally; it is required as much in the south as in the east.] It would be competent to amend the resolution in its details; he only wished now to lay before the meeting the spirit of it. The resolution, as far as it went, was to inquire into the condition of the eastern part of the metropolis. They could include Southwark if it was thought desirable to do so. No doubt an inquiry embracing the entire metropolis would be wished by this meeting, but they had to consider the chances of that being assented to elsewhere. They had an especial handle which must be felt by every one in regard to the districts in which cholera had prevailed to a very great extent. The public at large and the Government would be prepared to say, "Let us hear a full account of that; let us hear all the grounds of it, and endeavour to prevent such fearful visitations for the future;" but he feared if they went with the request for an inquiry embracing the whole metropolis, the Government might say they were asking for something impracticable. Half a loaf was better than no bread, and if they succeeded as regards the east of London they would not only get a good half, but it would be going a long way towards making the inquiry a general one. If matters were put into a proper state in the east, other parts of the metropolis would not be long behind hand. The advantage of a royal commission was this, they might have a medical inquiry into the water supply. He understood the Government had taken measures for that through Dr. Simon, but when they found out that the water supplied was deleterious to health, how were they to improve it? They then got out of the medical field into that of engineering, and they must embrace the two branches in order to set that right. Complaints were made that local authorities were remiss in performing their public duties. He did not hold that opinion quite so strongly as some gentlemen appeared to do, because he knew from personal experience the extraordinary difficulty of enforcing the law in this particular, and he regretted to say that hitherto it had been the desire of the public to leave the administration of the law in these matters in the hands of a branch of the community which did not ordinarily embrace the most educated and the most far-sighted members of society, who would be most likely to administer those laws well; and it occurred to his mind whether it would not be well for those gentlemen who most strongly condemned the present administration, or rather non-administration, of the existing law, to take a share personally in the local government of the districts with which they were connected. It was obvious there had been deficiencies in this respect, but he repeated the difficulties were great, and a penny in the pound added to the rates for sanitary measures would be likely to raise a great outcry. This was a question which must come before a Royal Commission, because they could take up all the threads of the subject, and educe a right clue out of them all.

In conclusion he moved a resolution calling upon the Government to issue a commission of inquiry, and named a deputation to wait on the Government to press it upon their attention.

The Rev. G. W. M'Gill, of Christchurch, St. George's in the East, seconded it: he thought the question of poor-rates needed settlement.

Mr. Storr (Strand) proposed an amendment, asserting the paramount necessity for a scheme of improved dwellings for the poor, and the need of remedy for the disgraceful state of overcrowding that exists: but after considerable discussion, Dr. Stewart, amongst others, and Dr. Acland speaking, the amendment was withdrawn, and the original motion, in the terms given in our last, was unanimously adopted.*

THE MONUMENTS IN GLOUCESTER CATHEDRAL.

WHEN the Worcester Architectural Society recently visited Gloucester Cathedral Mr. M. H. Bloxam made some observations on the monuments there. Of these we are now enabled to give a report.

Amongst the monumental remains in Gloucester Cathedral, prior to the eighteenth century, said Mr. Bloxam, we have but one episcopal effigy, and not a single effigy of a dean, or of one of canonical rank. Of the sepulchral monuments of the Cathedral, when simply a conventual church, we have the effigies and monuments of three of the abbots, one Royal monument, and two commemorative effigies and monuments of dates long posterior to the times in which those thus represented passed away. The monuments in this Cathedral, though not numerous, are not wanting in interest. One, indeed—if we except the tomb and its accessories in Westminster Abbey of Henry VII.—may fairly be considered as the most chaste and beautiful of its class in the kingdom. The earliest specimen of a monumental class, perhaps the earliest wooden sepulchral effigy existing, is that now placed in the apsidal chapel north-east of the choir, commemorative of Robert Curthose, duke of Normandy, eldest son of the Conqueror, through his own indiscretion disinherited of his claim of succession to the crown of England, and who died in incarceration in Cardiff Castle A.D. 1134, aged 80 years. This effigy does not represent him in the armour of the period in which he lived, but rather in that of the reign of Henry III., to which era the execution of this effigy, one of the most singular of its kind, may be referred. The high tomb, however, on which it is placed, though also of wood, is of a still later period, and may be referred to the fifteenth century. Leland, writing of this monument, saith —"Robtus. Curthoise, sonne to K. William the Conquerour, lyeth in the middle of the Presbitery. There is on his Tombe an Image of Wood paynted, made long since his Death." This image carved in oak, represents him in the *camisia*

* We take the opportunity to urge again the claims of the Metropolitan Sanitary Association on the public in general, and our readers in particular. The organization is calculated to effect much good, and the subscription is but small. Funds are much needed. The office is at No. 1, Adam-street, Adelphi.

ferrea or hooded hawberk of mail, over which is worn the long sleeveless surcoat of linen, open in front from the loins downwards: chausses or stockings of mail cover the feet and legs, and tight-fitting breeches, apparently of cloth, the knees and thighs; the sword-belt crosses the body diagonally from the right hip to the left thigh, and to this the sheath of the sword is affixed. The guige for supporting the shield crosses over the right shoulder and under the left arm; but there are no indications apparent of any shield having been affixed, an omission most unusual at the period when this effigy was carved. The duke is represented, not in repose, but in action, either drawing or sheathing the sword, which, with its long cross-bar, is partly out of the scabbard, the latter being held by the left hand. The right thigh and leg are crossed over the left, but raised in a singular manner, so as to show a space between. On the heels are spurs, fastened by a single leather each, but the rowels now affixed are insertions of the seventeenth century. The coif de mailles or hood of the hawberk is fastened by a strap across the forehead, and open on one side of the face. On the head a low coronet is worn. The tomb on which this effigy is placed is one of the few wooden tombs we have; another, on which reposes the wooden effigy of William de Valence, Earl of Pembroke, who died A.D. 1296, is in St. Edmund's Chapel, Westminster Abbey. The surcoat or linen frock worn over the hauberk or iron shirt does not appear on sepulchral effigies earlier than the thirteenth century, and the effigy of William Earl of Flanders, son of this Robert Duke of Normandy, who died A.D. 1128, six years before the death of his father, represents him in the *ferrea camisia* and chauses of mail, without any surcoat over, but with a long kite-shaped shield. He was buried at St. Omer, and a representation of his sepulchral effigy, sculptured in grey marble, is given in Sandford's "Genealogical History." On the south side of the choir is a recumbent effigy of the thirteenth century, placed on an ornamental bracket or high tomb of later date, apparently of the fifteenth century. This effigy represents an ecclesiastic of rank vested with the amice, alb, and chasuble, holding in the right hand a building. On the *left* side of the body appears the pastoral staff; the head is tonsured, and the short crisp beard covers the chin. Over the head of the effigy is a horizontally-placed canopy, shaped pedimentally. The effigy and canopy are of grey marble. This effigy has been ascribed to Aldred, Archbishop of York, in the latter part of the eleventh century, and to Serlo, abbot here from A.D. 1072 to A.D. 1104. "Serlo, abbot of Gloucester," saith Leland, "lyeth under a fayre marble Tombe, on the south syde of the presbytery." I am, however, inclined to consider this effigy as that of Henry Foliot, abbot of the monastery of Gloucester from A.D. 1228 to A.D. 1243. Considerable reparations were executed in his time, and the church was re-dedicated. This effigy is undoubtedly of his period. The effigy of King Edward II., who was murdered at Berkeley Castle A.D. 1327, and whose body was removed to and interred in the Abbey Church of Gloucester, is the third in point of date of the sepulchral effigies of our English monarchs existing in this country. It is simply but gracefully treated. The King is represented in his regal attire, a long tunic with pocket-holes at the sides, over which is worn the pall or mantle. On his head is placed the royal crown; his neck is bare. He holds in his right hand a sceptre, and in his left a *mundus* or globe. The high tomb on which this recumbent effigy reposes is of most beautiful and elaborate workmanship. A series of ogee-headed arched recesses, cinquefoiled within the heads, and richly crocketed above, formerly contained statuettes. Above the tomb the canopy is formed of two stages of open ogee-headed arches, richly foliated and crocketed, and surmounted with finials, with buttresses between, terminating with rich finials. A projecting bracket in the middle compartment of the tomb on the north side appears to be an adjunct of the fifteenth century. Altogether this monument may be considered to be, if not the most costly, the most graceful and beautiful in the kingdom. The effigy appears to be of alabaster, an early instance in which that material was used. The effigy of Thomas Seabroke, abbot of the monastery at Gloucester from A.D. 1450 to A.D. 1457, has evidently been removed from its original position, as it is now placed north and south, on a high tomb, faced with what appears to be a portion of stone screen work. This monument is placed in a small sepulchral chapel at the south-west corner of the choir. The effigy is of alabaster, somewhat mutilated, but well executed. It represents the abbot vested in the amice, alb, stole, tunic, dalmatic, and chasuble. On the head is worn the mitre, *mitra pretiosa*, granted to this abbey by Pope Urban VI. in the early part of the fifteenth century. The abbatial bordon or pastoral staff covered with the veil, the extremities of which are so designed as to flow gracefully over the staff, is placed on the *right* side of the body, herein differing from episcopal effigies, where the pastoral staff, with rare exceptions—as that on Bishop Veasey's tomb, Sutton Coldfield Church, Warwickshire—is placed on the left side of the effigy, and is generally held in the left hand. The commemorative effigy of Osric, king of Northumbria, one of the reputed founders of this monastery, who died A.D. 729, is somewhat coarsely executed in stone, and shows a change in the regal habiliments from those of King Edward, in accordance with the period in which it was sculptured, apparently during the abbacy of Abbot Parker in the early part of the sixteenth century. It is placed on a high tomb at the north-east of the choir under an obtuse arched canopy of good but late design, the horizontal cornice of which is finished with the Tudor flower. The effigy represents this monarch clad in the tunic and mantle; the laces connecting the latter hang down in front over the tunic. Over the shoulders and in front of the breast is worn the hood, resembling the *aumasse* or furred tippet of a canon. I do not find the hood on the effigies of our English monarchs earlier than the reign of Richard II. It does not appear on the effigy of Edward III., but it does on those of Richard II. and Henry IV. Amongst the articles ordained by King Henry VII. for the regulation of his household, is the following relating to his regal apparel:—"Item, the day when the Kinge is crowned, he ought to goe to the mattens the which arraye longeth his kirtle surcote and tabard with *his furred hudd* sliven over his head and rolled about his necke, and on his head his cappe of estate, and his sword before him. Item, at evensonge hee must goe in his kirtle and sircote and his *hudd laid about his shoulders*, and claspe the hudd and tippet together before his breast with a great owche and a rich, and his hatt of estate upon his head. Alsoe, as for the twelfth day, the king ought to go crowned and in his robes royall, kirtle, sircote, *his furred hudd* about his necke and his mantle with a long train, and his lace before him. . . Hee must have his scepter in his right hand, the ball with the crosse in his lefte hand, and the crowne on his head." The feet of this effigy are represented in the broad-toed shoes or boots of the fashion of King Henry VIII.'s time, and on the head is worn the high-bowed crown which does not appear till the latter part of the fifteenth century. On an incised brass in Wimborn Minster, representing the demi-effigy of a king, and commemorative of one of the Anglo-Saxon kings, the regal attire plainly bespeaks the century in which this brass was executed, the shoulders and breast being covered by the furred hood. Within a small sepulchral chapel of open screen and panel work on the north side of the choir is the monument of Abbot Parker, elected A.D. 1514, the last abbot of this monastery, who died soon after the suppression, and is said not to have been buried here, this costly monument having been erected by him during his lifetime. The high tomb on which his effigy lies recumbent is decorated on each side with three panelled recesses, cinquefoiled within the heads. At the back of each recess is an escutcheon; one is charged with the five wounds, another with the instruments of the passion, ladder, pillar, reed and hyssop, and cross. The effigy, which is well, carefully, and elaborately executed, is of alabaster, and represents the abbot in his full vestments—amice, alb, tunic, dalmatic, and chasuble, with the maniple over the left arm. On the head is worn the mitre, *mitra pretiosa*. The abbatial bordon or staff, partly enveloped with the veil, appears on the *right* side of the body. On the feet the broad-toed shoes of the period are worn. The extremities of the stole are not apparent. The practice of erecting a monument with a sculptured effigy in the lifetime of the person commemorated was a very frequent one. In the south aisle of the nave, near the east end, on a high tomb, are two recumbent effigies, representing a warrior and his lady, probably persons of distinction, but the names of whom are unknown. The effigy of the warrior represents him armed in a breast-plate and skirt of taces, with a horizontal bawdrick or belt encircling it; on the head is a basinet, with a torse or wreath surrounding it, and the neck, shoulders, and breast are protected by a camail or tippet of mail; the arms are encased in rere and vambraces, with condes or elbow-plates, and the thighs, knees, legs, and feet, in cuisses, genouilleres, jambs, and sollerets, all of plate, excepting the portions covering the insteps, which are of mail. The lady is habited in a close-bodied robe or gown with full skirts, over which is worn a mantle attached in front by a cordon. The head-dress is rich. Round the neck of each of these effigies is the collar of SS. This monument, which cannot be anterior to the reign of Henry IV., is apparently of the early part of the fifteenth century.

We now come to the period when this fine monastic church was converted into a cathedral. But it contains only one recumbent effigy of a bishop of the Reformed Church. This is of Godfrey Goldsborough, bishop of this see from A.D. 1598 to A.D. 1604, who was buried in a little chapel on the north side of the Lady-chapel. His monument consists of a high tomb, with three divisions on each side, the middlemost of which contains an escutcheon surrounded with scroll-work. On this tomb the effigy represents the bishop attired in the episcopal vestments of the Church of England, viz., the rochet, over which is worn the black chimere with full lawn sleeves; on the head is the coif or skull-cap, and round the neck is the short ruff, whilst the tippet—that bone of contention in the vestiarian controversy, in the reign of Elizabeth,—which was also called the scarf, by which name it is better known at the present day, worn over the shoulders, hangs down in front on each side. In the lady-chapel, on the north side, are the monument and effigy of Elizabeth Williams, wife of Mr. John Williams. She died A.D. 1622. The base of this monument is plain, relieved only by shallow sunk panels without any kind of ornamentation. On this beneath a semicircular coved canopy, surmounted by a horizontal cornice, supported at each end by a Corinthian column, lies the effigy of the lady, reposing on her right side, her head supported by her right hand and arm. She appears clad in a boddiced gown or robe, with a falling ruff worn round the neck; a mantle at the back of the body covers also the head. Beneath her is the representation of an infant child in swathing clothes. In the south transept, against the south wall, is the well-known monument of Alderman Blackleach, who died A.D. 1639, with the effigies recumbent thereon, in marble, of himself and his wife. This has been executed by one of those sculptors of the seventeenth century of more than ordinary merit whose works we occasionally meet with, but whose names as yet remain unknown. The effigy of the alderman represents him bareheaded, with a piked beard and moustache, habited in a doublet with slashed sleeves, breeches, boots, and a falling Vandyke collar; across the body is worn a scarf, and to the left side is attached a basket-hilted sword. His wife appears in a boddiced gown with full sleeves and mantle over. These effigies are evidently portraits; and sculptured monumental effigies in stone, apparently by the same hand, are to be found in the church of St. Nicholas, Gloucester. Not equal, I think, in execution to the works of our celebrated English sculptor of the seventeenth century, Nicholas Stone, they yet partake of that better school of art in which he excelled. By Dallaway this monument has been conjectured to be the work of Le Sueur or Fanelli. The effigy on the north side of the Lady-chapel of Sir John Powell, knight, one of the judges of the Court of King's Bench, who died 1713, represents him in a standing attitude—a custom which gradually crept in in the latter half of the seventeenth century, but became more frequent in the eighteenth century. He appears attired in his judicial robes, the gown, casting-hood, and mantle faced with fur or miniver; on his head is worn the coif, and under his chin are the plain falling bands, which subsequent to the Restoration succeeded the ruff. The cuffs of the sleeves of the gown are furred, and in the right hand is held a scroll. In 1635 certain rules were made with respect to the robes of the judges, and in accordance with which this effigy is represented. It is placed on a circular pedestal, within or beneath a semicircular escalloped cove, surmounted by a segmental-shaped pediment, supported on each side by a Corinthian pilaster with architrave, frieze, and cornice.

There are other monuments in this cathedral

of later date and of interest, but which I do not purpose to describe. A monumental painting of many figures on the north transept may fitly be compared with the curious monumental painting of the Baron of Burford, in Burford Church, Salop, and with the series of portraits on panel at Stanford Court, Worcestershire, and would almost seem to indicate that, so soon as the early half of the seventeenth century, limners of the school of portraiture then prevalent, as well as sculptors, traversed the country ready to execute any commissions which might fall into their hands.

SANITARY IMPROVEMENT AND "THE BUILDER."

AN eminent physician, we withhold his name because his note was marked "private," in forwarding a copy of a pamphlet on the nature and treatment of Cholera, addresses to us these observations:—

"I enclose a small pamphlet on Cholera. If you read the preface you will see why I desire particularly to call your attention to the subject.

We doctors have done as much as we shall ever be able to do in the way of ascertaining the nature and cause of the disease, and the true principle of treatment. The engineers must now take up the subject, and prevent the disease by giving us pure water." * * * *

"You see that I have the highest medical authority to support my views of the nature of the disease. You cannot read that part of my pamphlet without feeling a deep interest in the subject, and the sooner the whole world can be taught that science and common sense take the same view of this matter, the better it will be for the said world."

The portion of the preface pointed to is of course that which says that "Cholera is a disease which is bred and nourished in filth," and that we have poisoned our rivers,—"We drink diluted sewage, and we thus establish a strange circulation of loathsome organic fluids."* A second distinguished practitioner, who might be supposed to know all that has been said and done towards spreading a knowledge of the condition of London, and the want of a proper water-supply, gives us in a very kindly way reasons why we might now very properly take up such questions, and endeavour to obtain water for the poor on *Sundays*: while the *Medical Press*, speaking more generally, is glad to observe, that "the lay-press is *already* taking up the impropriety of storing our drinking water in butts and cisterns, which too often become the receptacles of diseases," against which system it had several times lifted up its voice.

The ignorance of what has been done, and is being done, by others thus and in a thousand other quarters shown, is a disheartening characteristic of the times. Such is the personal struggle now-a-days, that no one seems to know anything but what he has done himself, especially of what has been done by those on the results of whose labours he has founded his own little buildings. For fifteen years and more the conductor of this journal has sought, with pen and pencil, to show the want of pure water that has prevailed; the miserable nature of the receptacles, where there were any, used for storing it; and the belief, founded on strong evidence, that by means of impure water cholera was greatly spread. We gave accounts of cases fourteen years ago, where typhus fever was unquestionably produced by the drainage getting access to the water-well: we early, if not first, set forth the connexion between the now noted Broad-street pump and the outbreak of cholera in its neighbourhood, and co-operated with the late Dr. Snow, in some of his inquiries, which further proved the connexion between polluted water and choleraic disease—what is now called "the great sanitary discovery;" and we have examined during many years hundreds of houses in which there was never a pint of water on a Sunday. This one most important necessity, a good supply of pure water, we have set forth in all conceivable ways, through these pages and in separate publications,† and our words have been echoed by the periodical press far and wide. We can, therefore, spare the suggestions of eminent physicians, the majority of whom at that time had not arrived at the conviction they now wisely hold as to the value of sanitary improvements as preventive measures.

If our warnings had been attended to there is every reason to believe thousands dead might now be alive. The very streets and houses that we pointed out years ago as fever nests and death-dealers have again given up their inhabitants to the grave.

We are glad to hear that a petition has been drawn up, and is to be presented to the House of Lords, when Parliament reassembles, praying it to "take such steps as in its wisdom may seem best for the immediately placing the supply of water to the metropolis on a better footing in respect to quality and quantity, and a reduction in the scale of rates as at present levied."

FLITCH GIRDERS.

REFERRING to recent inquiries on this subject in the *Builder*, I desire to draw attention to a record in Fairbairn's work on cast and wrought iron, of experiments made upon a "Sandwich beam" 22 ft. 6 in. long, 12 in. deep, and 12½ in. wide, of good Baltic fir, sawn down, and having a plate of iron of the same length, 12 in. deep and ⅜ in. thick, placed between and bolted with inch bolts. The supports were 22 ft. apart, and the weights distributed over about 6 ft. of the middle. In the following table the third column shows the computed equivalent weights which, if applied in the centre, would occasion the same deflexion:—

Weight applied.	Deflexion.	Equivalent weight in centre.
Tons.	Inches.	Tons.
4	·60	3·45
8	·75	4·31
8	1·00	6·90
12	1·50	10·36
14	2·00	12·09
16	2·50	13·81
18	3·30	15·54

The load of 18 tons was left on sixteen hours; after its removal a permanent set of 1·3 in. was noted.

Taking these experiments as a basis, and for the purpose of showing how the strength of such beams may be approximately computed, I propose to calculate the weights which the iron and timber respectively might be expected to sustain, and to compare the result with the above record of actual experiment. In the investigations affecting the iron plate, I shall use the formulæ adopted by Hodgkinson in calculating the strength of the Conway tube, as given in the Appendix to the Report of the Commissioners on the Application of Iron to Railway Structures; and for those affecting the timber, the formula adopted by Barlow.

1st. To ascertain the weight which the iron plate would support in the centre, when subjected to a compressive strain of 12 tons per inch, that being the greatest strain which the material should be called upon to bear, and assuming the plate to be incapable of lateral motion,

Let f = force of metal multiplied by leverage d or d' = 12 tons.

S = thickness of plate.

Then $\frac{fsd^2}{3}$ = moment of resistance to compression (A).

And $\frac{fsd'^2}{3}$ = moment of resistance to extension (B).

Assuming material to be perfectly elastic, the neutral line will be in the centre of the depth, and $d = d'$, making $d + d' = D$, and adding (A) and (B) together we obtain $\frac{fsd^2}{3} + \frac{fsd'^2}{3} = \frac{2}{3} fsD^2$ = total resistance of the plate.

Now the momentum or strain due to a weight W, applied to the centre of a beam $= \frac{l}{2} \times \frac{W}{2}$ when l = the length (*i.e.* half the weight acting with a leverage of half the length), and $\frac{l}{2} \times \frac{W}{2} = \frac{lW}{4}$

In order that the resistance shall equal the strain, we have $\frac{2}{3} fsD^2 = \frac{lW}{4}$, and in the case under consideration the iron plate was 22 ft. or 264 in. between the supports, 12 in. deep, and ⅜ in. thick.

Here $\frac{2}{3} \times 12 \times \frac{3}{8} \times 12^2 = \frac{264W}{4}$; whence $W = 6{\cdot}54$ tons.

2. To compute the deflexion which will be produced by the application of a weight to the centre of the iron plate, sufficient to bring a strain of 12 tons per inch on the upper particles of the section.

By experiments given in the Blue Book above alluded to, it is shown that a wrought-iron bar will bear a compression of $\frac{1}{2418}$ of its length, without its utility being destroyed, though it will have sustained a considerable change in its elastic force; and that a pressure of 12 tons per square inch will produce that decrement.

Hence it is argued that the concave side of a bent beam may be compressed $\frac{1}{2418}$ shorter than the corresponding portion of the neutral line. Assuming the curves to be arcs of a circle, put R = radius of neutral line, a = distance of that line from concave side; then R − a = radius of concave side.

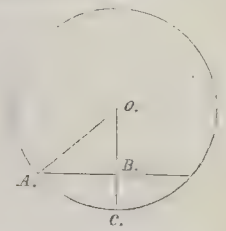
Now as the lengths of the arcs will be proportional to their radii,

R : R − a :: 863 : 862

Whence R = 863a.

Consequently the radius of the curve of the neutral line is 863 times the distance of the neutral line from the concave side, and therefore in this case is 863 × 6 in. = 431·5 ft.

Let AC represent a portion of the neutral line and BC the deflexion.



Then $\sqrt{(AO)^2 - (AB)^2} = (OB)$

(BC) = (CO) − (OB) = (AO) − (OB)

But (AO) = radius of curvature = 431·5 ft.

And (AB) = 11 ft.

Whence (OB) = $\sqrt{431{\cdot}5^2 - 11^2}$ = 431·359 ft.

And (BC) = 431·5 − 431·359 = 1·692 in., the deflexion due to a maximum compressive strain of 12 tons per inch of section, which, as has been previously shown, would be produced in the case under discussion, by the application of a weight of 6·54 tons in the centre.

3. Turning now to the timber flitches, which are stated to have been together 12 in. deep and 12½ in. wide, we proceed to ascertain what weight applied to the centre of such a beam, omitting the iron plate, will produce a deflexion of 1·69 inches.

Barlow's formula for deflexion of beams supported at both ends and loaded in the centre is, —

$\frac{W \cdot L^3}{32\ E \cdot d \cdot D^3} = B$

When W = weight in lbs.
L = length in feet.
B = breadth in inches.
D = depth in inches.
d = deflexion allowed.
and E = elasticity constant, which he puts 96 for fir.

Whence

$W = \frac{32\ E \cdot d \cdot D^3 \cdot B}{L^3} = \frac{32 \times 96 \times 1{\cdot}69 \times 12^3 \times 12{\cdot}5}{22^3}$

= 4·70 tons.

So that, according to this theory, when the compound beam is loaded with a weight of 6·54 + 4·70 = 11·24 tons, applied in the centre, the iron plate is subjected to the greatest strain it should be called upon to sustain, and the timber flitches are doing their just proportion of work. Comparing this result with the experiments, it will be seen that, with a weight equivalent to 10·36 tons, the compound beam deflected 1·5 in., and with 12 tons it deflected 2 in.; further, that it sustained a pressure of 13·8 tons with a deflexion of 2·5 in. apparently without set, but that the application of 15·5 tons produced a deflexion of 3·3 in. and a permanent set of 1·3 in., showing that it had been overstrained.

E. SWANSBOROUGH.

DESTRUCTION OF THE RHYL PROMENADE PIER. During a recent gale upwards of 250 yards of the Rhyl promenade pier (iron material) were completely destroyed by the combined action of the wind and sea. About 500 out of 1,000 yards of the pier had been constructed, and a large portion of it had just been opened for promenading purposes.

* The object of the pamphlet is to urge, as "the only rational and successful method of treatment," the cathartic or evacuant system. Another physician, in print, pronounces this system to be most dangerous, and certain to carry off the patient! What are lay-searchers for truth and safety to say after this?

† "London Shadows." By Geo. Godwin, 1854. "Town Swamps." 1859. &c., &c.

PARIS WATER SUPPLY.

A SHORT paper on this subject was read before the French Academy, on the 13th ult., by M. Grimand de Caux, a high authority on sanitary matters. A knowledge of what is being done by our neighbours may perhaps be of some interest in the present state of the question of a better water-supply for the metropolis. Several articles on the subject have already appeared in these pages,* to which we must refer our readers for detailed information. According to M. Grimand de Caux's estimate, there are now 59,000 houses in Paris, and the quantity of water required per diem is—

	Gallons.
For public use	55,000,000
For private use	37,400,000
Total	92,400,000

The supply is obtained from the following sources:—

	Gallons.
The Dhuis and secondary branch of the Surmellin	8,800,000
The Vanne	19,800,000
The Marne at St. Maur	4,180,000
Artesian well at Passy	1,760,000
Ditto ditto Grenelle	132,000
Ditto wells in progress	2,728,000
Total daily supply for private use	37,400,000
The Ourcq	23,100,000
The Seine	9,680,000
The Marne at Trilbardou and Isle-les-Meldeuses	22,220,000
Total daily supply for public use	55,000,000

The water obtained from the Dhuis and the Surmellin is of very good quality. The streams, when united, are brought to the city by a covered aqueduct eighty-four miles long, which discharges into the new reservoir at Ménilmontant, one of the outskirts of Paris, at a point 356 ft. above the level of the sea, and 272 ft. above the low water of the Seine. The lower story of this reservoir is intended to receive a part of the supply obtained from the River Marne. A reservoir is to be built at Montrouge to contain the waters of the Vanne, which will be conducted to Paris by an aqueduct 104 miles long. It is perhaps necessary to explain that the Vanne is a small river which rises in the department of the Aube, and falls into the Yonne a few miles from Sens. The Corporation of Paris has purchased the right to all the springs which supply the Vanne, and has also bought up the manufactories on its banks. The Vanne, it appears, feeds a small stream called the Rû de Monderean which belongs to the town of Sens. The Paris municipal authorities have undertaken to maintain this stream at its present level and also to supply the town with 132,000 gallons every twenty-four hours, and further, to provide mains for the distribution of the water. We read, in a French paper of a few days back, that the Corporation of Sens has rejected this offer, and intends bringing an action against the Paris municipality, claiming compensation for the loss of revenue consequent on the suppression of all the manufactories on the river. The authorities have, it appears, undertaken certain improvements in the town, the cost of which has been charged on the increased *octroi* duties contributed by the manufacturers. Should the Corporation of Sens obtain a verdict, it will of course add greatly to the already enormous cost of this portion of the scheme. The artesian wells at Passy and Grenelle, together with those now in course of construction, are estimated to produce 4,036,000 gallons per day, as shown by the above table. So much, then, for the supply of potable water.

The public supply, which is to be used for watering the streets, for the fountains, &c., is derived from the Seine, the Ourcq, and the Marne. The Ourcq was formerly a river, but in 1801-22 it was converted into a navigable canal. The water is very bad, and quite unfit for drinking, to which purpose, however, it was for some time applied.

It is intended to lay down another set of mains to supply the pure water obtained from the Dhuis, Vanne, &c. It has been suggested that a similar arrangement might be carried out in London.

At the present moment the length of the street mains in Paris amounts to 643 miles, and it is estimated that a further length of 393 miles will be necessary. Thus, when all the works are finished, Paris will be permeated by a network of water-mains 1,036 miles in length, without counting the special mains of the Bois de Boulogne and Vincennes.

By the time the new system is in operation, the population of Paris will probably be in round numbers 2,000,000, and each inhabitant will be supplied with forty-six gallons of water per day, of which nineteen gallons will be, it is said, of the best quality, and fitted for every kind of household use.

* For a description of the reservoir at Ménilmontant, see *Builder* for 1864, p. 842, and 1865, p. 715. On the general question of the Paris water supply, see Mr. Burnell's paper, p. 371, *ante*.

FISH AS FOOD.

WE are glad to observe that the Sea Fisheries Commission, in their report, have the same view that we recently urged in the *Builder* on this subject.

"The evidence we have taken," says the report, "coupled with the increasing scarcity and high price of butchers' meat, leaves no doubt on our minds that *a great field for profitable enterprise is open for the application of increased capital and skill to the sea fisheries of the United Kingdom*. Within the last two years a single London company have increased their fishing fleet by ten sailing and two steam vessels, and are now building two more steamers. The same course is being followed by others; and though, by such means, the supply of fish to Billingsgate is constantly increasing, it fails to keep pace with the demand. The well-known fishing-grounds in the North Sea are, even yet, only partially fished. The Dogger Bank, which has an area of several hundred square miles, and is most prolific of fish, is to a great extent unworked by the trawlers, and new grounds are still being discovered where fish are found in great abundance. . . . . When we consider the amount of care that has been bestowed on the improvement of agriculture, the national societies which are established for promoting it, and the scientific knowledge and engineering skill which have been enlisted in its aid, it seems strange that the sea fisheries have hitherto attracted so little of the public attention. There are few means of enterprise that present better chances of profit than our sea fisheries, and no object of greater utility could be named than the development of enterprise, skill, and mechanical ingenuity, which might be elicited by the periodical exhibitions and publications of an influential society, specially devoted to the British fisheries."

The great importance of fish as an article of food may be clearly shown by a comparison of the total supply of fish and beef to London in the course of a single year. Neither in the case of fish nor of beef is it possible to give accurate statistics. But it has been roughly estimated that London consumes 300,000 fat cattle annually, which, at an average weight of 6 cwt. each, would amount to 90,000 tons of beef. At this moment there are between 800 and 900 trawl vessels engaged in supplying the London market with fish; and, assuming the average annual take for each to be 90 tons, this would give a total of some 80,000 tons of trawled fish. This is irrespective of the vast quantities of herrings, sprats, shell-fish, and other descriptions of fish which are supplied by other modes of fishing. The weight of beef and of fish annually consumed in London is thus in no great disproportion. But the price is very different. The fisherman receives, on an average, little over 7*l.* a ton for his fish, prime and offal together; the farmer is readily paid for his beef not less than 60*l.* a ton! But this disparity of price becomes the more remarkable when tested by the practical experience, not of the producer, but of the consumer. The buyer of fish in the west end of London finds that, on the average, his fish costs him more per pound weight than his beef or mutton! And when inquiry is made, the salesmen at Billingsgate readily admit that *the retail dealer gets an enormous profit on the small quantity of fish he disposes of*. It might be thought that the competition of trade would rectify any demand for excessive profit, but in this case it does not seem to have that effect. While the fishermen receive 3d. to 4d. a pound at Billingsgate for prime fish, the buyer is charged 1s., 1s. 3d., and 1s. 6d. a pound by the retailer! Some check might probably be put upon this extravagant rate of profit by a daily return inserted in the newspapers, and signed by the clerk of the market, of the wholesale prices of the various kinds of fish sold in Billingsgate.

The commissioners for administering the laws relating to the deep sea and coast fisheries in Ireland, report upon the whole, in the year 1865, the continuance of a manifest and decided improvement in the condition and progress of these fisheries as compared with their state a few years back; an improvement, however, scarcely, if at all, apparent this year on the western and northern coasts, partly owing to the loss by emigration of the more able men, the poor condition and equipment of the boats, and the want of an immediate and remunerative market. The coastguard returns for 1865 show that there were employed in fishing 8,989 vessels, 35,184 men, and 2,730 boys—a decrease, as compared with the previous year, of 311 vessels, 2,232 men, and 794 boys. 6,582 tons of fish were conveyed by railway in Ireland in the year 1865, being 230 tons more than in the previous year.

THE LATE MR. D. R. HAY.

MR. DAVID RAMSAY HAY, whose death we mentioned in our last, was born in Edinburgh in March 1798; and was, consequently, in his sixty-ninth year when he died on the 10th instant. In his fourteenth year he was apprenticed to Mr. Beugo, a heraldic and ornamental house-painter, where he was a fellow-apprentice with the late David Roberts, with whom he maintained a friendship through life. In early days, Mr. Hay had painted some pictures which had attracted the attention of Sir Walter Scott, who saw the department of art in which Hay's talent would be most useful; and led him to commence business as a decorative house-painter, in which profession he has during many years maintained a leading position. In 1828, Mr. Hay made his first essay as an author; and his first work, entitled "The Laws of Harmonious Colouring," at once obtained notice and afterwards went through six editions. Mr. Hay afterwards published in succession the following works, which were all reviewed with much consideration, namely:—1. "The Harmonic Law of Nature applied to Architectural Design;" 2. "The Natural Principles of Beauty as developed in the Human Figure;" 3. "The Orthographic Beauty of the Parthenon referred to a Law of Nature;" 4. "First Principles of Symmetrical Beauty;" 5. "The Principles of Beauty in Colouring Systematized;" 6. "A Nomenclature of Colours applicable to the Arts and Natural Sciences;" 7. "The Laws of Harmonious Colouring adapted to Interior Decorations;" 8 "On the Science of those Proportions by which the Human Head and Countenance as represented in Ancient Greek Art are distinguished from those of Ordinary Nature;" 9. "The Geometric Beauty of the Human Figure Defined;" 10. "An Essay on Ornamental Design, in which its True Principles are Developed and Elucidated;" 11. "Proportion, or the Geometric Principle of Beauty Analysed;" 12. "The Natural Principles and Analogy of the Harmony of Form;" and, 13, "The Science of Beauty." These works are all profusely illustrated, and show a large amount of research and study. Mr. Hay's theory with regard to the application of the harmonic ratio to Greek art was examined and commented on in our pages on several occasions. Mr. Hay took a leading part in all that concerned the welfare of his native city. He was one of the earliest to assist in fostering the Royal Scottish Academy, and some fifteen years ago he established an Æsthetic Club in Edinburgh, which included several men of distinction.

ANTANANARIVO.—MADAGASCAR.

THE second of the four memorial churches to be erected in this city is making considerable progress. The site is at Ambohipotsy, the southern extremity of the lofty ridge on which the capital is built; and from its height (some 500 ft. above the surrounding plain) the building will form a prominent object for many miles in every direction. The church is in the Early English style, and consists of a nave and aisles, tower and spire, porch, transepts, and apse. It is constructed of a grey limestone, quarried on the slopes of the hill in the immediate neighbourhood. The windows of aisles and apse are single lights, trefoil-headed, and with hood-mouldings. The aisle windows are filled alternately with open louvering and with tinted cathedral glass. The transept windows are triplets. An arcade of six bays divides the nave from the aisles: the arches are carried by circular stone shafts with moulded caps and bases. The clerestory is lighted by circular windows of varied design. The apse arch is carried on shafts of black granite, springing from corbels. The ground-floor of the transepts forms class-rooms and vestry, divided from the body of the church by screen-work, capable of being opened into the main area when required. Over these are galleries, as well as in the first bay adjoining the tower, which opens into the church by a moulded arch. The roofs are open; all the timbers being exposed; covered with tiles and

plastered between the rafters. The internal dimensions are 76 ft. long by 40 ft. wide. The width at transepts is 62 ft. Height to ridge 42 ft. The base of the tower forms a porch, entered by a trefoil-headed doorway, with shafts in the angles. The upper stage forms a bell-chamber, having two lancet-lights in each face, and surmounted by a broach spire with enriched bands, and one tier of lights in the cardinal faces. The total height is about 90 ft. A platform, instead of pulpit, will be formed in the apse, with stone base, and carved lectern and railing of wood. In front of this will be the Communion enclosure and font. About one-third of the church will be seated with open benches; the rest of the area being left open to suit the native custom of sitting on mats on the floor. The building will probably accommodate upwards of a thousand persons. This church is built as a memorial of steadfastness of many native Christians who were put to death by spearing on this spot during the persecution of 1849, in the reign of the late Queen. The architect is Mr. James Sibree, jun.; the superintendent of works, Mr. Wm. Pool (late of Messrs. Lawrence's, London).

The third memorial church is also about to be commenced. It is at Faravohitra, the northern extremity of the hill, and is also at a considerable elevation above the surrounding country. This church will be Early English in style, consisting of nave and chancel, porches, and open bell-turret on the northern gable. The interior will be roofed in one span, the principals being carried on engaged shafts, with moulded caps, bases, and corbels. The roof will be open to the ridge, and boarded under the rafters, with panels formed by moulded ribs. The side windows will be single lancet lights, weather-moulded, and filled alternately with louvring and with glass. The ground-floor of the chancel forms a capacious class-room and vestry. Above is a singing-gallery with open traceried front. Another gallery is placed over the vestibule at the north end. The chancel gable is filled with a triplet of lancet-lights, having a *vesica-piscis* in the triangular space above. The principal or northern front is divided by bold projecting buttresses into centre and wings. A moulded and shafted doorway occupies the base; above this an arched recess is formed in the wall, in which is inserted a window of coupled lancet-lights, with quatrefoil in the head. The turret has a single-arched opening for a bell: the head is gabled with bold crockets, finial, and iron cross. As at the Ambohipotsy church, there will be a platform instead of pulpit, and open benches filling a part only of the area. The accommodation is for 800 persons; dimensions of interior are, 76 ft. by 32 ft.; height to ridge, 45 ft.; height of turret, 70 ft. This church is erected as a memorial of four Christian nobles, who in 1849 were burnt to death on the site. The architect is Mr. James Sibree, jun.; superintendent of works, Mr. James Cameron.

PARIS EXHIBITION OF 1867.

THE Imperial Commission has arranged the general plan of the catalogue for the Universal Exhibition of 1867. It has been conceived with the double view of placing at the disposal of the public, at the lowest price possible, all necessary information, and at the same time of assuring a large amount of publicity to the exhibitors. The catalogue will be composed of twelve parts or *livraisons*. The first, containing the plans, tables, and other general documents, will form the introduction; the second will treat of the exhibition of objects characterising the principal epochs of the history of labour; and the ten last parts will correspond to the ten groups of the general system of classification.

Thus the catalogue, as is usually the case, can be united in a single volume; but each part can also be purchased separately, so that visitors who may wish to examine specially any one particular group, can procure all useful information at a cheap rate. At the same time, an increased number of advertisements can obtain publicity by the number of copies being more considerable. Up to the present, the commission have adopted as a principle the idea of not publishing the catalogues themselves, but they call upon all printers, publishers, and other competent persons, as they wish to leave as large a margin as possible for private enterprise.

The building in the Champs de Mars is more than half roofed in, and the masonry wall surrounding the central *cour d'honneur* is completed. The railway leading from the circular line to the Exhibition has been completed, and the works of the landing-places for the steamboats are in a forward state. A small section of the quay wall, near the Pont d'Jena, has been removed, and an archway constructed, through which water is admitted to the pleasure-grounds and the main building. This canal will be also navigable for small boats. The gardens, representing the horticultural tastes of different nations, are in a forward state. Of course a large display of agricultural machinery will be made in the palace; but as it is intended to have competitive trials of the implements, it will be impossible to carry them on either in the building or on the surrounding grounds: so the commissioners have made arrangements for hiring a tract of land, near Paris, where the trials can take place in a proper manner. A temporary hotel is being erected near the Champ de Mars, capable of lodging a large number of inmates.

On the grounds, in a temporary building, a process of deodorising sewage matter has been at work for some time. It is the invention of M. Goux, and the produce is applied to the gardens.

THE TRADES MOVEMENT.

Burslem.—About 100 members of the Burslem branch of the Amalgamated Society of Carpenters and Joiners have had a dinner at the Roebuck Inn, Burslem. After dinner Mr. Samuel Hall officiated as chairman, Mr. Isaac Riley being the vice-chairman. The chairman congratulated those present on the rapid success of the society. They intended to present a lifeboat to the country, purchased by the voluntary subscriptions of its members, and for which a large sum had been contributed, thus affording a practical proof that the efforts of the society did not tend exclusively to their own interests, but that they were willing to contribute to the well-being of others. The chairman explained that the income of the society for the last twelve months was 17,575*l.* 19*s.* Twelve months since they had 101 branches, which had since been extended to 169, and several more were being opened both in different parts of the country and in Ireland. The increase in the number of members during the same period was 3,173. During the year the society had saved 6,000*l.*, and, after meeting all demands, had upwards of 11,000*l.* in hand.

Manchester.—The joiners' strike appears to be in a fair way of amicable settlement. Mr. Salomons, architect, has acted as *amicus curiæ* between masters and men; and the local *Courier* states that the question has assumed this position: the masters are not unwilling to grant the advance of wages asked for, but object to be coerced; they will consent, however, to grant an immediate increase of 1*s.* per week, and allow an hour on Saturdays,—the men leaving work at twelve instead of one o'clock; and in January they are willing, as we understand, to grant an additional advance of 1*s.* per week,—making 32*s.* It was hoped that the men would return to their employment at the beginning of the week.

Preston.—For nearly nineteen weeks the operative joiners of Preston have been out on strike. They sought an advance of 2*s.* per week upon their wages, which averaged 27*s.*, and a rule restricting the number of apprentices. The masters expressed their willingness to give the advance, but declined to be dictated to with regard to the number of apprentices, and also desired to effect an alteration in country time and country distances, and a reduction in the lodging money. This did not meet the views of the men, and the whole of them, 170 in number, struck work. The struggle has been carried on with some animosity on both sides. The masters introduced a number of joiners from Wales, and several of the men on strike were convicted of intimidation. After many conferences a formal settlement of the dispute was effected, and the men returned to work in the course of last week. The masters grant the advance, and also consent to the number of apprentices being restricted, while on the other hand the men agree to a modification of the existing rules with reference to country time and distance, and a reduction in the lodging money.

Carlisle.—The joiners' strike, which has for many weeks caused the stagnation of that department of the building trade of this city, is now at an end, according to the local *Journal*, masters and men having come to terms. The men got their wages advanced to 27*s.* a week.

Edinburgh.—The annual general meeting of the General Builders' Association has been held in the Freemasons' Hall, George-street. Mr. Alderman Neill, of Manchester, the president of the Association, occupied the chair, and about one hundred gentlemen from the principal towns of England and Scotland were present. Resolutions were unanimously passed as to the action to be taken by the builders of the country in connexion with the labour question, and the present very unsatisfactory system of contracts for building works.

Greenock.—A serious disturbance, the result, it is believed, of several foremen carpenters having ceased connexion with the Trades' Association and resumed work, has occurred in Greenock. Six apprentices have been apprehended on a charge of mobbing, rioting, and assault. It is stated that at a meeting the apprentice carpenters unanimously resolved to mob those foremen who had left the society to resume work.

America.—There is a strong movement among the working classes of the country to establish eight hours as the limit of time for a day's work, and the movement has received form from the establishment at Baltimore of a "Labour Congress," composed of delegates from the working men of all parts of the country. This Congress, with great unanimity, passed resolutions in favour of the "eight-hour system," and inaugurated the formation of working-men's unions and the publication of trade newspapers in all parts of the United States for the agitation of the question. They also appointed a grand committee, who waited upon the President on the 25th of August to ask him to aid the movement. The President replied that he was in full sympathy with the working man; and, although he was careful not to commit himself in any way, talked to them in a manner that won their confidence, and they departed much pleased with the interview.

ACCIDENTS.

AT the Thames Embankment (North), on Friday night, a man, whilst wheeling a barrow along the platform near Waterloo Bridge, was suddenly precipitated into the depth inside the works, and was lost sight of. In the morning his body was discovered.

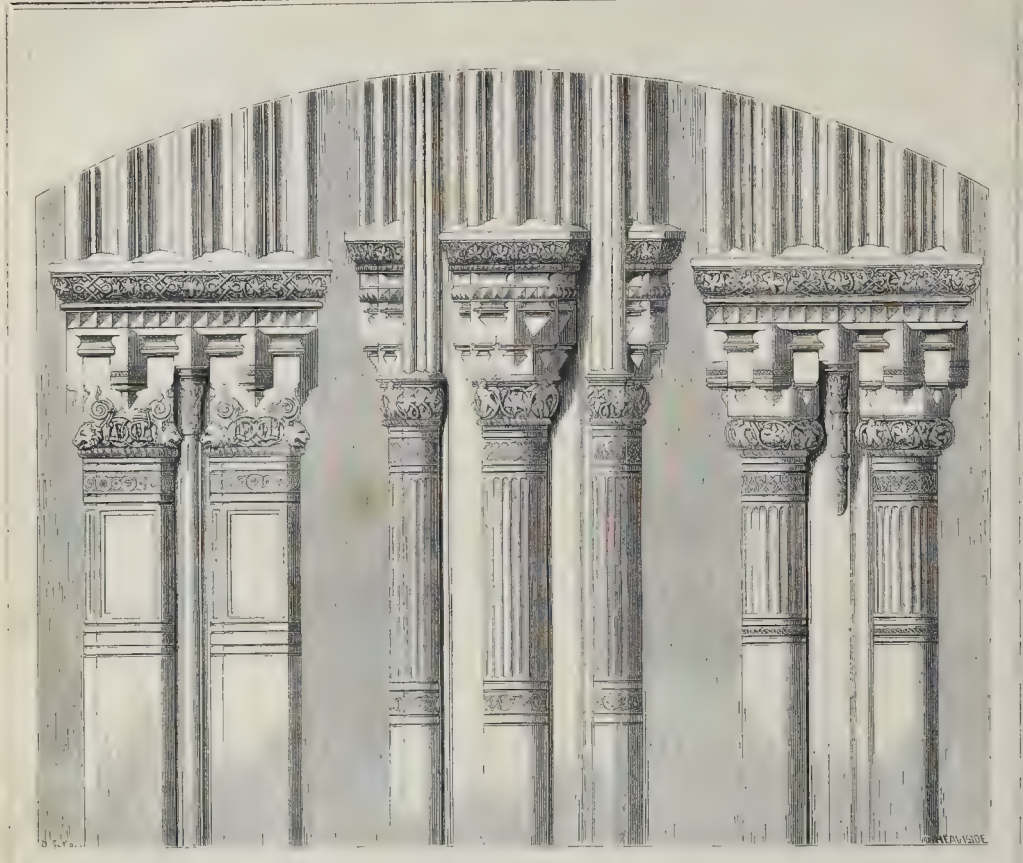
An inquest has been held at Charing-cross Hospital on the body of a bricklayer, who was instantly killed by falling from the roof of the International Hotel, Strand. The deceased, it appeared, was making some repairs on the parapet of the roof at the back part of the hotel, when he fell to the pavement in Ivy-bridge-lane. Verdict, "Accidental death."

An inquest has been held by the Liverpool borough coroner on the body of a labourer employed by Mr. John Edwards, the contractor under Messrs. Holme & Nicol, for the execution of the brickwork at the new Public Offices, Dale-street. A fellow labourer had left the deceased, who was assisting him to raise a scaffold on the third story of the building, whilst he went for a scaffold-rope, and on his return the deceased was not there, and shortly afterwards his body was found in the basement. The jury returned a verdict of "Accidental death," accompanying it with a presentment that in their opinion the contractor was highly censurable for jeopardising the lives of his workmen by employing them in erecting scaffolding at such a height before the flooring was laid down.

The new and not quite finished chimney of the Broughton-grove Paper-works, Bury new-road, Manchester, fell during a late gale of wind. The chimney is said to have been so defective in its foundation, that it must eventually have given way. Some days before it had swerved several feet from the perpendicular, so that the men had given up the idea of completing it. The chimney fell across a number of mechanical workshops and sheds forming a portion of the Messrs. Chadwick's premises, and considerable damage was done to the machinery. The height of the chimney was nearly 200 ft. and its fall covered about the same distance in length. It was erected as a remedial measure, on account of the nuisance arising from the works, which had led to the holding of public meetings and the threat of legal proceedings.

The end portion of a house in the Bolton division of Pendlebury, lately fell. Fortunately, none of the family who were sleeping under the roof of the house at the time were injured.

An accident, resulting in the serious injury of six men, has occurred by the fall of a scaffolding



THE MUSEUM OF ARMS, VIENNA.—*Details, Internal Columns and Capitals.*

in South Back of Canongate, Edinburgh. Six men were upon it at the time and were precipitated to the ground. All of them sustained very severe injuries from the fall, and were, besides, much cut and bruised by the falling battens and stones. It is said that the scaffolding was very slim, and that, though the men remonstrated with the foreman on account of its insecurity, nothing was done to render it safe for those who worked upon it. The *Scotsman* states that the case has been placed in the hands of the Procurator-Fiscal, and that an inquiry will be made.

At Belfast, a new Roman Catholic chapel has been built at Whitehouse, and while painting the interior, a scaffold gave way, and one of the men was killed. A witness at the inquest stated that one of the ledgers gave way, or came out of the wall at one end. The jury returned a verdict to the effect that the deceased came to his death by falling from the scaffolding, the supports of which gave way; but from what cause they could not determine.

THE MUSEUM OF ARMS IN THE IMPERIAL ARSENAL IN VIENNA.

IN the year 1849 it was decided by Imperial decree that an arsenal should be built on the Belvedere, and twelve architects were invited to compete, a premium of 100 golden ducats being offered for the best design. Only six responded, viz.:—Professors Sicardsburg and Von der Null, the architects of the new opera-house in Vienna, which is now in course of erection; Professor Rösner, Professor Töster, Mr. Riedel, and Mr. Hansen. The designs of the last were approved of; and, in 1851, his Majesty gave Mr. Hansen the order to proceed with the museum and arsenal.

We publish a view of the central portion of the chief front. Within it are the vestibule and staircase, ornamented with sculpture and painting. The Hall of Fame, in the centre of the first floor, has a height of 72 ft., and is covered with a dome. The galleries in it are for conservation of the relics of the most celebrated warriors of Austria. The two smaller rooms annexed thereto have, besides frescoes, on ceilings and walls, statues of celebrated generals. The vestibule is likewise decorated.

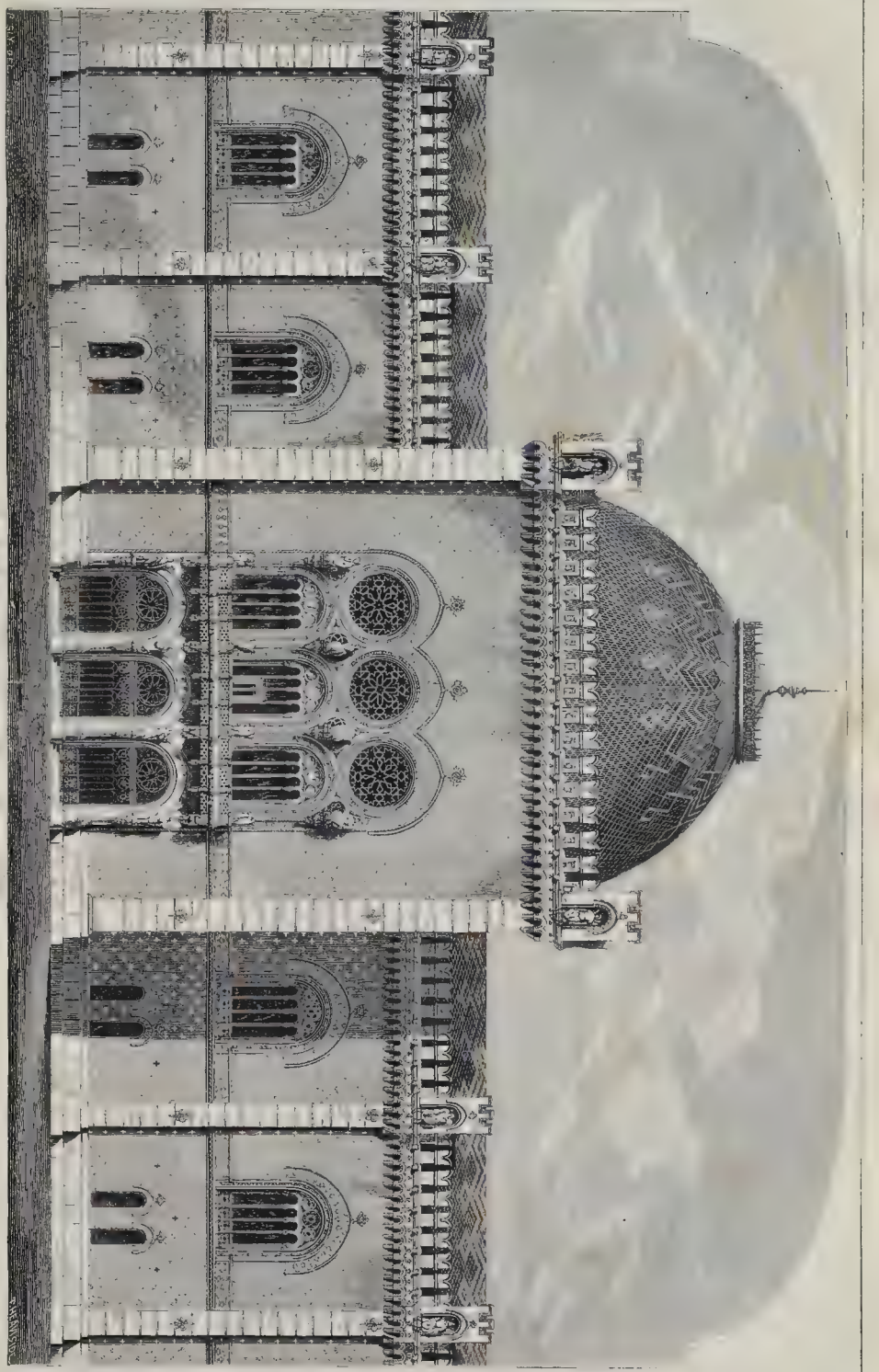
It is known that, through the variety of articles which are exhibited in a museum, the general impression always suffers, and the effect is that of a store-room. To avoid this was the architect's chief object. The arsenal possesses a collection which is probably unequalled. When it was decided that the vestibule should be ornamented with marble statues of the most celebrated commanders, a committee of officers of the army and three sculptors was formed to carry out the intention. From this committee, strange to say, the architect himself was excluded; and, notwithstanding all his propositions that the statues round the columns should be executed by the same sculptor, four different sculptors have worked round one pillar, without that understanding between them which was necessary to produce a satisfactory result. Some of the statues are produced in the most common marble. It was even worse as to the frescoes in the interior.

The celebrated Rahl (deceased) had composed designs of grandiose beauty, but these have not been executed, and the commission was given to Professor Blaas. It was also decided that the ornamentation of the staircase should only be in white plaster. The architect, however, proposed a rich polychrome, and his proposition, to his delight, was accepted. There Rahl was employed, and his work, although it only comprises six simple figures, was greeted enthusiastically, and made evident the mistake that had been committed in not entrusting the whole to him instead of to Professor Blaas, who quite altered the effect desired by the architect.

There are eight bays on each side the centre, and a turreted wing at each end, which is fitted up as dwellings for the inspectors.

The materials of the building are stone and bricks, and the cost is said to have been 130,000*l*. Mr. Hansen, who is a Dane by birth, had lived many years in Athens, where he had erected some fine buildings in the Greek style. He appears, however, to have no preference. The arsenal is in what may be termed Byzantine style; the chateau of the Archduke Leopold in Gothic; and he has erected several monumental buildings in Vienna in the Renaissance style.

In a future number we shall give the transverse section of the central portion of the Museum.



THE MUSEUM OF ARMS IN THE IMPERIAL ARSENAL IN VIENNA. CENTRAL PORTION OF PRINCIPAL FRONT.—Herr Theophilos Hansen, Architect.

SCHOOLS OF ART.

The Manchester School.—The annual meeting of the promoters of this institution has been held in the Royal Institution, Mosley-street. Mr. C. Calvert occupied the chair. The treasurer read the annual statement of accounts, from which it appeared that the annual subscriptions amounted to 413*l.*, and the students' fees to 682*l.* The expenditure left a balance of 77*l.* in favour of the institution. The report of Mr. W. J. Muckley, the head master, related chiefly to the changes that had been made in consequence of the altered regulations by the Science and Art Department as to the administration for schools of art, which alterations had arisen out of the late Parliamentary inquiry on art education. He suggested that any incentive that might in future be offered to the school, such as the Primrose Medal or other prizes, should be confined exclusively to the best works in the direction of the decorative arts.

The prizes awarded by the Science and Art Department are as follow:—Two silver medals, six bronze medals, one book prize, five third-grade prizes. Twenty-four were successful at the examination in the second grade.

The report of the committee recorded the high sense they continued to entertain of the valued and efficient services of the head master.

Mr. T. Worthington expressed his strong opinion in favour of breaking off all connexion with South Kensington, believing that in so doing, so far from losing 50*l.*, they should get a large and more liberal support from the town.

THE NEW HALL AT GANTON, NEAR SCARBOROUGH.

On Monday in last week the corner stone of the New Hall, at Ganton, was laid by Sir Charles Legard, bart. The ceremony caused considerable interest in the village and neighbourhood, although the occasion was of a private character. The clerk of the works officiated for the architect. The stone contained a bottle, in which was enclosed a scroll bearing an outline of the history of the worthy baronet's family, the names of the architect, clerk of works, and contractors. The tenant farmers and workmen, about seventy in number, afterwards repaired to Mr. Storey's, Greyhound Inn, where they partook of supper provided by Sir Charles. The New Hall is in the Elizabethan style, of Whitby stone. It was originally projected by Sir Francis Legard, and was more recently commenced by his brother, the late Sir D'Arcy W. Legard. The architect is Mr. Rawlins Gould, of York. The clerk of the works is Mr. William Lewis, of Hull. The contractors are Messrs. Weatherby & Rymer, of York; and their foreman is Mr. J. Bolton.

BRINKBURN PRIORY CHURCH, NORTHUMBERLAND.

The owners of ruins of Mediæval buildings have had a wonderful precedent set them by the present owner of Brinkburn Priory Church, Mrs. Cadogan. Assisted by her son, Mr. C. H. Cadogan, this lady has bestowed the choicest care upon the fabric left in her charge. Previously to the commencement of the work carried out by them we gave a view of the remains of the church. We showed a transitional building of great beauty of workmanship and of more than usual height, standing roofless by the side of the Coquet, on a secluded spot between two high wooded banks. The south-west angle, only, had fallen so as to warrant the designation of a ruin. It is a cruciform church, and the gable of the south transept was the part that presented the next approach to decay, the apex having begun to fray away. Reference to Grose's "Antiquities" shows that in the time of that veteran topographer the condition of the edifice was very similar to that we depicted in 1860. The flooring was gone, the windows were glassless, the roof had been stripped off. We have now to mention that the masonry has been replaced where it had disappeared, the floor covered with tiles, and every window filled with stained glass. The effect of all this is exceedingly good. The fact that the structure has not been used, except occasionally for sepulchral or nuptial purposes, since the dispersion of the canons at the suppression of monasteries, has spared it from going through the alterations that have spoilt so many. Not a window-opening has been touched; not a doorway blocked up. The silver-grey stones, worn at the edges with rain, are green here and there with lichen and rich in other tints that time only can bestow. In the interior, the effect produced by the antiquity of the fabric is even startling. The spacious floor is unencumbered by seat or pew; thus a larger surface of tiles is spread out to the eye than is often seen: all is open from the floor to the roof, from the west end to the east. The long exposure to weather has subdued the colours of the columns to a soft hue that does not disturb the quietness of the whole, and daylight is toned down in every corner alike by stained glass. The great east end, formed of nine lights placed in tiers, alternately lancet and round-headed, the topmost tier being circular headed, has been filled with figures of good colouring by Messrs. Clayton & Bell. No attempt at frescoes or any other kind of decoration has yet been made; nor has any commencement been made of finishing or furnishing. There is scope here that is worth having.

GIGANTIC CHIMNEY AT CAMPERDOWN LINEN WORKS.

Lochee is rapidly becoming a second Dundee. The Camperdown Linen Works are situated in the village, and at present afford employment to considerably more than 3,000 persons. Numerous additions have been made to these works. The latest consists of a gigantic chimney, erected a little to the east of the spinning-mill. It is by far the highest chimney in this part of the country, rising to the height of 282 ft. from the ground. It is a tower of variegated brick, in what would be called the Italian style. The tower is square up to a height of 230 ft., where there is a balcony; and from this point to the summit, about 50 ft. higher, it assumes an octagonal form. The tower is constructed in panels, ornamented with white and other coloured brick. It is estimated that considerably more than a million of bricks have been used in its construction, and its weight is thought to be not far short of 5,000 tons. The cost has been about 6,000*l.*

INTERNATIONAL SANITARY CONFERENCE.

The international sanitary conference, which has been meeting during six weeks at Constantinople, has concluded its sittings. The conference drew out a series of questions for a grand commission, formed of all the members of the medical profession present, and including the three delegates from Belgium, France, and Spain. They publish a pamphlet of one hundred pages, of which the most important points are that cholera being comparatively a modern epidemic, especially in Europe, science has not had time to collect information enough for a fixed system of treatment; that, believing that cholera is transmissible, the conference advise isolation and strict quarantine as the only guarantees against propagating the disease; and that everything which brings purer air and uncontaminated water to individuals and towns checks the faculty of receiving the disease; and they urge the disinfection of rooms, &c., as an indispensable precaution. As all evidence shows that the assembling of a great number of people at one place is dangerous, they also strongly advise the prevention of all large gatherings in the time of an epidemic.

VENTILATION OF SEWERS.*

The report of Mr. Lovegrove to the Hackney district Board of Works on district Sewer Ventilation, is a very useful one. In various diagrams, well adapted for popular inspection, but over large in size, he shows how untrapped drains, sinks, waste-pipes, and rain-pipes, leaky joints of water-closet apparatus, &c., infect a dwelling, and produce ill health, while the cause is invisible and unthought of. He gives an account of the imperfect ventilation of the district sewers, &c.; and, while giving warning that no system of sewer ventilation will make up for want of attention to drain-pipe trapping, suggests a system of sewer ventilation to replace the sixty-nine ventilating openings at present in existence, and which he regards as objectionable and dangerous. The estimate is thus given:—

About 5,000 ft. run of connecting sewers, for ventilation, for drainage, and diverting sewage currents About 12 valves for sewer junctions About 20 vertical shafts About 20 air supply and connexion pipes	£2,000

On the subject of disinfection, or deodorization of the sewer air, he says,—

"The fluid is the most simple for application, and the best mode would be that of erecting two vessels at each shaft—one to contain say Condy's fluid, and the other water; a small pipe should then be passed from the cistern into the shaft, with a fine rose at the shaft end, so as to discharge the water in the shaft in the form of fine spray: a smaller pipe should then be fixed in the fluid vessel, and connected with the discharging pipe, so as to combine in proper proportion the fluid with the water before the discharge. This system would disinfect the sewer air, and the disinfectant would fall into the sewage current and render that less foul. The sewers will always require disinfectants; but I have a strong conviction that some years hence it will be admitted that the water-closet system is all wrong."

AREA AND VENTILATION OF WORK-HOUSE INFIRMARIES.

The Metropolitan Poor-law Medical Officers' Association have issued a printed report of the committee of council of the Association, appointed to consider the report of Dr. Edward Smith, on the metropolitan workhouse infirmaries, &c. We may extract a few passages from this report.

On the subject of cubic and floor space the reporters, amongst other matter controvertive of Dr. Smith's report, say,—

"The mere fact (supposing it correctly stated) that the patients did not find the ventilation disagreeable or hurtful, is worth nothing, because the trials were made in warm weather. The same ventilation in winter would have been very different in its effects on the patients."

"The state of the atmosphere of sick-wards at night is the true test by which their ventilation should be tried; an average of the condition during both day and night, which Dr. Smith takes as a standard, cannot be considered as such."

"From the experiments made at Aldershott and at Netley, it can be proved beyond question, that (with an allowance of only 600 cubic feet per bed) in order to have reduced the carbonic acid, even to the unsatisfactory standard obtained in Dr. Smith's experiments, it must have been necessary to change the whole air of the wards *four times per hour;* and we venture to affirm, both from our own experience and the universal testimony of authorities, that this cannot be done without creating dangerous currents, except with the help of an elaborate and most costly apparatus, and a numerous staff of assistants. We consequently renew, with even more urgency than before the appearance of Dr. Smith's report, our demand for 1,000 cubic feet and 80 ft. of floor-space per bed."

Under the head of ventilation, they say,—

"It has struck your committee as not a little remarkable, that Dr. Smith appears almost entirely to ignore the importance of the organic products emanating from the human body, and more especially those subtle animal poisons which, floating in the air, are the cause of the spread of contagious diseases, more particularly in sick-wards, allowing small cubic and floor space."

Is the word "contagious" here rightly applied? "Infectious" we should have thought a more appropriate word. Does not contagion imply contact, while infection does not? A disease such as itch is contagious, while one such as typhus is infectious.

THE BILSTON DRINKING FOUNTAINS.

Three drinking-fountains, erected at the sole cost of Mr. Mason, solicitor, have been formally opened and presented to the town. The event was celebrated with some ceremonial. The fountains are intended, in addition to their public usefulness, to perpetuate the memory of three persons. The principal one has been erected near the post-office, in the centre of the town; it is about 7 ft. in height, formed of two blocks of Peterhead or red Aberdeen granite, highly polished, and resting upon two large slabs of grey granite, semicircular in shape, finely chiselled, the lower step being about 7 ft. by 7 ft. 6 in. from back to front. The lower part of the fountain is a square block panelled, and upon this rests the basin, surmounted by an urn of a monumental character draped, whilst running round the sides of the urn is a Greek fret. To add to the effect the drapery has been left unpolished. The basin for holding the water

* Board of Works for the Hackney District: Report on the System of Ventilation at present in action over the Sewers in De Beauvoir Town and Dalston Wards; and recommending a more efficient and less noxious system. By James Lovegrove, C.E., Chief Surveyor to the Board.

is chiselled, and is fed by a water-lily cast in bronze. On the front panel below the basin is the inscription, in deeply-cut gilt letters. The artist by whom the contract for the three fountains was carried out was Mr. R. Jackson, of London.

The second fountain is fixed in front of St. Mary's Church, Oxford-street, and is formed like the one before mentioned, of one solid block of red granite, polished, about 6 ft. high by 4 ft. wide. The top part is octagonal in shape, with mouldings, and the face is cut back with a kind of alcove in the centre, from which the basin projects semicircularly to the extent of about 18 in. from the front. The fountain is supplied with two drinking-cups, with a trough fitted in below for dogs.

The third fountain is of an exactly similar character to the second, and is placed at the upper end of the town, in front of the Primitive Methodist Chapel.

A NOTE IN PARIS.

IT will be remembered that the alterations proposed to be effected in the neighbourhood of the Luxembourg, for the purpose of obtaining better communication between the Quartier de l'Observatoire and the Quartier S. Sulpice, occasioned much dissatisfaction in consequence of the contemplated invasion of the Garden of the Luxembourg by two new streets—one running south from the Rue de Vaugirard and forming a prolongation of the Rue Férou; and the other running from the east to the west, dividing the garden into two nearly equal divisions. The popular murmurs at length reached the Emperor, who himself visited the spot and expressed a wish, which, of course, had the force of a command, that the plans should be modified so as to interfere as little as possible with the public recreation. A decree has been recently published giving effect to the Imperial request, and determining the future limits of the garden and the position of the proposed new buildings, which to some extent respects the ground dedicated to the public use. The triangular plot of ground lying between the Avenue de Luxembourg and the Rue de l'Ouest, as well as the Jardin de l'École de Médecine, will, however, be taken from the garden and built upon. The Rue Bonaparte will be widened to the extent of twelve mètres for its whole length, and continued southward as far as the Rue de l'Ouest, forming in future the western boundary of the garden. The south side will be bounded by a new street forming a continuation of the Rue de l'Abbé de l'Epée, and running into the Rue Notre Dame des Champs; and the eastern side will be enclosed as heretofore by the Boulevart S. Michel and the Rue de Medicis. The whole of the ground to the south of the Rue de l'Abbé de l'Epée, with the exception of a central avenue from the Palais du Sénat to the Observatoire, will be laid out for building; the ground being intersected by four new streets running east and west, which will considerably facilitate the traffic of this rapidly increasing part of Paris.

The necessary works will be very shortly commenced, and will, no doubt, be pushed on with the characteristic vigour that has marked all recent improvements in the French capital.

A new theatre is very nearly finished at the corner of the Rue de la Tour and the Rue Saint Hippolyte, 16th arrondissement, which is intended to supply the place of the Ranelagh, demolished several years ago. The new theatre will accommodate 1,200 persons, who will all enjoy a view of the stage, the auditorium being arranged in the Italian manner, without balcony or galleries. There will be two *foyers*, a smoking-terrace, and three separate means of exit. The architect is M. Morand.

The *Gazette des Tribunaux*, in an archæological sketch of the streets destroyed for the purpose of improving the access to the Théâtre Français, recals some interesting particulars relating to the elder Corneille. The author of the "Cid" died at No. 18, Rue d'Argenteuil, and the fact is thus recorded on a tablet of black marble on the front of the house:—

"*Le grand Corneille est mort dans cette maison le 1er Octobre*, 1684."

And underneath, the words

"*Erigée en* 1826."

It was not until the year 1826 that it was discovered that the first tragic poet of France died in the Rue d'Argenteuil. Another inscription has been placed in the courtyard of the house, with a bust of Corneille; and on a laurel crown placed above the bust are the words "Le Cid, 1636." It is worthy of remark, that Corneille lived in one of the newest parts of Paris, and it is to that he alludes in the *Menteur*, eleven years after the destruction of the Porte Ste. Honoré:—

"*Paris semble à nos yeux un pays de romans,*
J'y croyois ce matin voir une isle enchantée;
Je la laissai déserte et la trouve habitée:
Quelque Amphion nouveau, sans l'aide des maçons,
En superbes palais a changé ces buissons."

At one end of the Rue d'Argenteuil was the cobbler's stall, where, as the tale goes, the great Corneille, a few days before his death, stopped to have his shoes mended.

Works are in progress for the restoration of the inclosure of the choir in the church of Notre Dame. This portion of the building is thus described by Du Breul:—"*Le chœur de l'église Notre Dame est clos d'un mur percé à jour autour du grand autel, au haut duquel sont représentés, en grands personnages de pierre dorez et bien peints, l'histoire du Nouveau Testament et plus bas l'histoire du Vieil Testament avec des escrits audessoubs qui expliquent les dites histoires.*"

This construction, which belongs to the fifteenth century, is happily preserved on the north and south sides, behind the stalls to which it forms the back. The northern portion consists of a basement divided into twenty-nine bays, with trefoil arches resting upon triple shafts. The upper part has a continuous bas-relief, representing thirteen New Testament episodes, and the spandrels are filled in with foliage and grotesques. On the south side are twenty-seven bays, divided into nine compartments, each containing a subject in high relief, with a canopy over. The whole composition was originally very fully coloured, although but few traces of the colouring now remain. These slight indications are, however, carefully noted, and the coloured portions will be restored as nearly as possible as they formerly existed.

The new Parc des Buttes Chaumont, to the north-east side of Paris, is very nearly finished, and will serve to embellish what was once a very desolate part of the city. A miniature lake, a stalactite cavern, cafés, and restaurants, are among the agreeable features of the design of the municipality. The iron railing enclosing the park is nearly all fixed, and is, as usual in Paris, very light and graceful in design. The park, which is triangular in shape, is bounded on two sides by two new boulevards, which are to be called the Boulevart d'Orizaba and Vera Cruz; and on the other side by the Rue du Crimée.

The demolitions necessary for forming the continuation of the Rue Turbigo are now being carried on, and the eye can easily trace the direction of the new street starting from the Rue St. Denis towards the Pointe St. Eustache. At the same time the works for the completion of the opposite end of the street are being proceeded with from the Rue St. Martin to the Rue du Temple. The new street from the Rue St. Martin to the Rue du Temple, opposite the house of the celebrated Chancellor de l'Hôpital, although short, will effect a great transformation in the neighbourhood. It starts from the Rue des Gravilliers, cuts through the Rue Aumaire, and throws open the south side and apse of the Church of St. Nicholas, and further on the circular end of the building of the Arts et Métiers. Between these two edifices it traverses the Rue Bailly, and will destroy the mass of narrow tortuous streets to the right and left of the Rue Réaumur. It then crosses the Rues Volta and des Fontaines, abolishing the prison of the Madelonettes, passes through the Rue St. Elizabeth and du Vert Bois, and finally emerges in the Rue du Temple, after demolishing some of the houses on the south side of the Rue de Nazareth.

The house No. 86, Faubourg St. Honoré, just now being rebuilt, was a small house of two stories, and long formed a remarkable contrast with the handsome buildings with which it was surrounded. The tradition runs, that the first Napoleon, returning to the Elysée at the close of one of his campaigns, passed by this house, which was then an inn, and smelling the savoury fumes of cooking going on, alighted from his carriage, and, entering the inn, ordered a plate of soup, which he enjoyed amazingly. It was in remembrance of this visit that the landlord obtained permission that the house might remain during his lifetime in the same condition as it was when it received its imperial guest.

The new Marché Beaujon, Rue de Lisbonne, at the upper end of the Rue Miromesnil, near the Boulevart Malesherbes and the Parc Monceau, in the midst of the new neighbourhood to the west of the city, has just been opened. It is constructed in iron, with a roof of a single span, and contains 300 stalls. J. H.

THE IDLE BOARD OF HEALTH.

SIR,—I have the pleasure to congratulate you in being of great service to the village of Idle by saving them from having the would-be three "wise members of their Board of Health." I enclose a paragraph from the *Leeds Mercury* of to-day, showing the result of the poll. G. S.

"IDLE LOCAL BOARD.—The election of three members of the Idle Local Board, in the room of those retiring by rotation, took place yesterday. It was attended with an unusual degree of excitement, and was conducted with considerable party feeling. The Liberals supported Mr. John Stead, Mr. David Booth (retiring members), and Mr. Benjamin Rycroft; and the Conservatives supported Mr. John Lee, Mr. Amos Raistrick, and Mr. Robert Sutcliffe. The three latter have obtained an unenviable notoriety in consequence of the extraordinary address issued by them, and to which attention was called in the *Builder* a week ago, and this circumstance created a still stronger feeling amongst the ratepayers. The returns up to noon gave a large majority for the Conservative candidates, but it was gradually lessened afterwards, and on the votes being cast up after the close of the poll, the Liberal candidates were at the head, and were therefore elected. The following were the numbers:—Mr. John Stead, 678; Mr. David Booth, 564; Mr. Benj. Rycroft, 561. Mr. Amos Raistrick, 543; Mr. Robert Sutcliffe, 506; Mr. John Lee, 502."

STATE OF A STREET.

SIR,—I reside in a new neighbourhood, or, more properly, an addition to an old one, situated near the foot of Haverstock-hill (St. Pancras Parish, Ward No. 2), and although many of the houses in the street have been occupied for six months,—and with, I think, two exceptions, they are now entirely occupied,—the paving, which was begun and left off in the middle, has never been recommenced; and two lamp-posts that were erected at the time have not yet been put in use, or even been surmounted by the lamps themselves; the pipes are in the roads, I believe, for the parish has been paid long ago to do all the necessary paving, lighting, etc., and has sent in to the inhabitants for the customary rates and taxes.

Owing to the heavy rains that have fallen lately, that portion of the street that has not been paved is in a most deplorable plight, and the folks have every opportunity of learning how slippery, sloppy, and adhesive is wet clay. It is a sorry sight to see the occupants of the houses before whose doors this slough of despond exists, especially the female portion, stepping from their doors into the mire, where their feet are immediately lost, and on reappearing, look like the roots of plants with a ball of earth round them. Some have had recourse to first principles, and have set stepping-stones along the path; but stones are at a premium in B——t-street.

It grows very dark now of an evening; and as there is no gas near, it requires some knowledge of the geography of the place to be able to navigate oneself successfully to any given point; more especially as the lamp-posts are quite invisible, they being coloured a rusty chocolate, and are therefore like sunken rocks, upon which the unwary navigator may come to grief at any moment. A neighbour of mine has written to the Vestry about all this, and the receipt of his letter has been acknowledged, but, at present—that is all!

You can, by giving publicity to this, accelerate matters. As we never have any police down the street (there is no thoroughfare, and there are no areas), we *must* have gas, or we *shall* have thieves: suspicious-looking characters are sometimes seen taking stock of the place already.

OBSCURITY.

THE ROCK CARVINGS IN IRELAND.

WE have received from Mr. G. V. Du Noyer a reply to some observations by our correspondent Mr. Dove;* but not wishing to drift into further personalities, we print only those portions of it actually bearing on the discussion. We will add, notwithstanding a threat, on the part of Mr. Du Noyer, quite uncalled for, that our correspondent had not the slightest intention of assailing his professional character. We departed from our custom in the first instance in favour of Mr. Du Noyer, when we allowed him to review a review:—

"It would be loss of time," he writes, "to state the various theories which various geologists have propounded, to account for all the observed facts relating to 'drift deposits' and the 'glacial age.' I may remark, however, that while some of the higher ranges of mountains in Ireland and Great Britain were *centres* of *glacier dispersion*, other ranges of lower elevation were submerged at the time, and their sides and summits scored by the passage of *icebergs*, which, stranding on the shallows thus formed, dropped their burdens of transported rock on to what are now the summits and flanks of those low hills. This was the last great effort of the Glacial period, and the boulders thus dropped remain to the present day.

The range of Slieve-na-Caillighe being surrounded by a wide extent of plain, and not reaching to a height of

* See p. 671, *ante*.

1,000 ft., presents us with an example of this last class of hill, and over it we find perched or erratic boulders of diorite, &c., conglomeritic grit, &c., limestone, &c., resting on the lower silurian slates of which the range of hills is composed, while the striæ formed by the passage of the *icebergs* mark many of the exposed rock surfaces, the general bearing of the striations being north-west and south-east.

* * * *

All the circular carvings on the bone-flakes are strictly geometrical, and the centres of each circle, or part of a circle, are indicated by dots produced by such a diminutive pair of compasses as that found by Mr. Conwell. The carvers of the rude devices on the stones forming the chambers of the tumuli had evidently no such mechanical appliance, and doubtless belonged to a race far anterior to the fabricators of these bone-flakes. G. V. DU N."

GENERAL ASSURANCE OFFICE.

SIR,—Will you allow me the favour to state in an early impression of your journal that the credit attaching to the design for alterations to the General Assurance Office, 62, King William-street, London Bridge, which has been attributed to me as their surveyor, is due to Mr. R. C. Harrison, Surveyor to the Eastern District of the Office. The mistake doubtless occurred by the similarity of name. JAMES HARRISON.

BOLTON CORPORATION ARBITRATION CASE.

SIR,—In reference to a paragraph in your journal respecting the Bolton Waterworks, I beg to state that the value put upon Mr. Hoare's *land* by his witnesses was not as there stated. The valuations by his witnesses included an item for water privileges of upwards of 40,000*l.*, totally ignored by the Corporation, and it seems also by Mr. Hunt (whose solicitor seems to have chosen the unusual and somewhat novel expedient of telegraphing the amount of the award to Bolton), so that the award is not, as might be inferred, 53,438*l.* 1s. 5d. less than the highest value put upon the *land* by Mr. Hoare's witnesses.

S. CLEMENT TARPF, agent for P. R. Hoare, Esq.

COMPENSATION CASES.

Street Improvements, Bradford.—A Sheriff's Jury was recently empannelled for the purpose of assessing the compensation to be paid by the Bradford Corporation to Mr. Timothy Longbottom, as trustee of the late Mrs. Longbottom, for certain property, situated in Market-street, and required for street improvements.

Mr. Shaw, for claimant, stated that, in the year 1841, the rateable value of the property in the borough of Bradford was 137,000*l.*; in 1851 it was 201,000*l.*; in 1861, 299,000*l.*; in 1864, 315,000*l.*; and in 1866, 405,417*l.* The property of the claimant was situated in the best part of the town, being in Market-street. The property was valued at from 1,500*l.* to 1,700*l.* One valuer said that the property would realise a rental of 65*l.*, and another said it would realise 75*l.* per annum. But making certain reductions for repairs and insurance, a net rental of not less than 60*l.* could certainly be realised. That sum multiplied by a twenty years' purchase for business property like this, and they had the sum of 1,200*l.*, and then add (as customary) 20 per cent. for compulsory taking, and a sum of 1,500*l.* was obtained.

Mr. George Knowles, architect, valuer, and surveyor; Mr. T. Dixon, valuer and surveyor; and Mr. W. Andrews, architect and surveyor, supported this view.

No evidence was given for the Corporation, but the Town Clerk contended that the rent which had been paid for the premises was the best criterion of value the jury could have. The premises had been let for 42*l.* per year, except in an interval of depression, and in that interval the rental was 35*l.* per year. He therefore concluded that at sixteen years' purchase, which he considered sufficient, the property was not worth more than 640*l.*; which, with ten per cent. for compulsory sale, gave 704*l.*

The jury gave a verdict for 960*l.*

ARCHÆOLOGY IN CUMBERLAND AND WESTMORELAND.

A MEETING of archæologists has been held at the Crown Hotel, Penrith, for the purpose of establishing an association, embracing the two counties of Cumberland and Westmoreland. The meeting was called by circular, and the primary object of this, the first meeting, was to draw up and adopt a code of rules for the government of the association, and also to appoint officers to conduct its operations. The Rev. Jas. Simpson read a paper on "The present Position of Antiquarian Research in Cumberland and Westmoreland;" and the Rev. W. J. Greenwell, F.S.A., of Durham, one on "Recently opened Tumuli in Westmoreland and Cumberland." Lord Lonsdale was unanimously elected president. Lord Kenlis, the Hon. C. W. G. Howard, M.P., and the Hon. Percy S. Wyndham, M.P., were requested to act as vice-presidents; Mr. Hubert Rawson, of Carlisle, was appointed treasurer; and the Rev. A. Curwen, of Harrington, Mr. Chas. Wilkinson, of Kendal, and Mr. Chas. Ferguson, of Carlisle, were appointed secretaries. The following gentlemen were appointed members of the council:—Messrs. F. L. B. Dykes, J. P. Stenhouse, Robert Ferguson, J. Whitwell, P. H. Howard, G. G. Mounsey, W. Browne, F. A. Argles, Revs. James Simpson, G. F. Weston, H. W. Ware, Colonel Barker, Dr. Taylor, and Dr. Ainger. On the motion of the Rev. James Simpson,—Sir James Simpson, bart., Dr. Guest, of Cains College, Rev. W. J. Greenwell, of Durham, and Dr. Bruce of Newcastle, were elected honorary members of the association, which was established under the name of the Antiquarian Society of Cumberland and Westmoreland.

PAYMENT OF TOWN SURVEYORS.

REDCAR.

AT the last meeting of the Redcar Local Board of Health, according to the *Redcar Gazette*, a letter of resignation was read from the surveyor. After some expressions of surprise that this officer should wish to improve his position, the board proceeded to consider the terms upon which a successor should be appointed. Ultimately it was decided to offer 60*l.* per annum, with a house rent free; although an amendment was moved, but not seconded, that it should be only 50*l.*; and one of the members subsequently thought a man might be got for half the money! From an advertisement in the same journal, signed by the clerk to the board, it appears that the services of a competent person are required to act as a "Surveyor, inspector of nuisances, and collector of rates in the district," to devote the whole of his time to these duties, "and to provide two sufficient sureties for the due performance thereof in the sum of 100*l.* each. Salary, 60*l.* per annum, with an excellent dwelling-house in West-terrace (*part of which may be readily let as lodgings*), rent free."

The board must look to have either an incompetent person or a man who will expect to make his income equal to the demand upon it by percentages from the tradesmen,—which means little less than immunity for scamping the board's work. Other boards are offering similar insufficient sums. They should remember the wages that are now paid to artisans, and that they need the services of a specially educated, intelligent, and trustworthy man.

CHURCH-BUILDING NEWS.

Leadgate (Newcastle-upon-Tyne).—The chief stone of a new church, to be dedicated to St. Ives, for the densely-populated district of Leadgate, has been laid. The site of the new church is a short distance out of the village of Leadgate, and within a few yards of the turnpike leading from Newcastle to that place. The edifice is intended to be built in the French Gothic style, of the thirteenth century. It will consist of a nave and aisles of five bays, with chancel, and organ-chamber on the north. The north aisle will not be built at present, but the arches will be filled up, and the aisle will be afterwards added, if it is found necessary to do so. The west end will be lighted by two narrow lancets and a large rose window in the gable above. The exterior of the church will be composed of rubble stone from neighbouring quarries. The interior will be faced with dressed stone. It is intended to accommodate 430 persons. The seats will consist of open benches. The cost of the whole work is estimated at 2,200*l.*, towards which 1,500*l.* have been promised in subscriptions. Mr. C. Hodgson Fowler, architect to the Dean and Chapter of Durham, is the architect for the church; and Mr. Gradon, of Durham, is the contractor and builder; Mr. Thornton will supply the stonework.

Ashby-de-la-Zouch.—Trinity Church additions have been consecrated. The chancel, as originally built, was a mere recess. To erect the present chancel, the whole of what (if the orientation of the church were correct) would be the eastern wall has been taken down and rebuilt, partly on ground given by Mr. John Davys, at a distance from the nave of 28 ft. inside the walls, the width being 22 feet. The window, a gift of Mr. C. F. Abney Hastings, and Lady Abney Hastings, of Willesley Hall, is in the Early English style of architecture, and consists of three bays or compartments of considerable size, the centre one measuring upwards of 16 ft. from sill to apex, and 3 ft. 6 in. wide, the lateral ones being somewhat smaller. The whole has been filled with stained-glass by Mr. Wailes, of Newcastle-upon-Tyne, in a style to correspond with the architecture of the building; the treatment adopted being that of figures in medallions: the spandrels are of coloured foliage painting, and the whole enclosed within broad borders composed of continuous wreaths of conventional foliage. In the centre of each bay is a circular medallion, containing the arms of the donors. The figure subjects depicted on the windows are as follows:—In the centre bay, at the base, is a group consisting of St. John preaching in the Wilderness. The subject at the top of this light is a continuation of the lower subject, viz. the Baptism of our Lord in the River Jordan by St. John the Baptist: the dove, as the emblem of the Holy Spirit, occupies the apex. In the bays on the right and left, are full-length figures of the four evangelists, two in each, with their emblems. The groundwork of the medallions is in all cases of blue glass, thus giving relief to the draperies of the various figures, while that of the spandrels and surrounding ornaments is of ruby, serving in its turn to relieve the medallions. On one side of the chancel is the vestry, now enlarged to more than double its former size, and on the other side the organ chamber, the side of which next the chancel is entirely open, the superincumbent wall and roof being carried by a beam. The roof of the chancel is continued the same as before on the outside, but inside it is hexagonal in shape. The roofs of the vestry and organ chamber are open rafters of deal, stained and varnished, as is also the woodwork of the chancel roof and fittings. The chancel is fitted with open stalls of plain design. The chancel and the space within the communion-rails, are paved with encaustic tiles obtained from Mr. Whetstone's manufactory at Coalville. The alteration in the nave of the church consists in the removal of one of the two pulpits which disfigured it, and also of the square pews on each side, and the substitution of plain open benches of deal, stained and varnished. In addition to this, the whole of the church has been cleaned, painted, and repaired, and various other alterations effected. Mr. Lilly, of Ashby, has carried out all the work from plans by Mr. J. P. St. Aubyn, of London, architect. The churchyard has been remodelled, the walls rebuilt, the front approach made a gradual slope from the church, and the whole of the walls edged with a stone kerbing and new gravelled.

Petersfield.—A new church for the tithing of Sheet is spoken of. It has long been felt that the inhabitants of the tithing and village of Sheet are placed at a great disadvantage in being so far from the parish church. At a public meeting recently held to consider the expediency of enlarging the parish church so as to give an increased number of sittings, a plan and estimate prepared by Mr. Colson, of Winchester, were submitted to the meeting but not entertained, owing to the expense which it would involve—about 700*l.* Mr. Elkington threw out a suggestion that, instead of spending so much money on altering the present church, it would be better to raise a larger sum and build a separate church for the tithing of Sheet, which would at once relieve any pressure that might exist. The suggestion is to be acted on.

Feckenham.—The parish church has been re-opened. The restoration and alterations at the expense of the vicar, assisted by the churchwardens and a few of the parishioners, have been executed by Mr. Nelson, of Worcester, builder, from plans by Mr. Day, architect. The most important alterations have been made in the nave. At the west end, and underneath the belfry, the vestry formerly stood. A gallery, in which was the organ, occupied the west end and extended round the north side. This gallery has been removed, and the old vestry thrown into the church, thus re-opening a large window at the west end, which it is hoped to fill with stained glass. The roof of the nave corresponds with that of the chancel, and comprises open timber work, resting on carved corbels. The walls have been renovated, and the windows furnished with new tracery, &c. A vestry has been built on the north side of the tower, and several other improvements have been made. It is contemplated to warm the church, and add other improvements when the funds will allow.

Merrifield, near Torpoint.—A new church here has been opened. The style is Gothic. There is at present no tower attached to it, but through the kindness of Mr. W. H. P. Carew, there soon will be: he also has given the stained windows. The interior of the church is adorned with polished Devonshire marble columns, the gift of the Rev. Francis Kitson, of Antony. The cost of the church is about 3,000*l.*, and Mr. John Harvey, of Stonehouse, has completed it in about

eighteen months after laying the foundation stone. The stalls of the chancel are of carved oak, by Mr. John Webber, sculptor, of Stonehouse. The aisles are paved with encaustic tiles, and the plastering was done by Messrs. John & Anthony Lethbridge, of Plymouth.

Upper Bangor.—St. James's Church has been consecrated. The edifice has been erected as a memorial of the late Dean of Bangor, the very Rev. James H. Cotton. The ground plan of the church, which is Late Decorated in style, consists of a chancel, 33 ft. long, 16 ft. wide, and 29 ft. high to the ridge; a nave, 72 ft. long, 25 ft. wide to the centre of the arcade, and 34 ft. high to the ridge; a north aisle, 74 ft. long, 17 ft. 6 in. wide to the centre of the arcade, and 30 ft. high to the ridge; a tower and spire, having Newall & Co.'s lightning conductor, 105 ft. high from the floor of the entrance to the top of the cross, but having the appearance of considerably greater altitude in consequence of being on a bank several yards above the surface of the Holyhead-road. The tower contains on the ground-floor the principal entrance. In the east gable is the large window of four lights, the compartments and tracery of which have been filled with stained glass, the gift of Mr. F. Docker, of Menai-terrace. In the south wall of the chancel are two arch-headed windows, one single and the other double lighted. The single light has been provided with stained glass by Mrs. Slater, of Belmont; and the double light similarly filled by the family of the late Rev. John Hamer, who was for forty years vicar of Bangor. The nave is lighted in the south wall by five windows, two of which are traceried and segmental headed, one coupled and two single traceried equilateral arched-headed, the whole filled with cathedral glass; and in the west gable by a triple light arched-headed window, filled with geometrical coloured glass, the gift of the late Mrs. Price, of Bryn-y-mor. The north aisle, which is divided from the nave by an arcade of six openings, supported on circular columns, the caps of which have been carved, is lighted in the north wall by six windows, half of which are traceried and segmental headed, and the remainder coupled, having traceried equilateral arched heads, the whole filled with ground glass. In the east gable is a double-lighted window, filled with stained glass, presented by the late Miss Roberts, of the George Hotel. In the west gable is a window of three lights, filled with glass of a similar description to that in the west end of the nave: it is the gift of the Rev. Leonard Slater. The whole of the stained and coloured glass in the church is from the establishment of Messrs. Pilkington, of St. Helen's. The sittings are of Baltic timber, stained lightly and varnished, and, inclusive of the seats for the choir in the chancel, will accommodate 573 persons. The building will be lighted by means of eight brass and blue standards, having three branches with nine gas-burners each, and by brackets placed on the walls of the church and in the pulpit. The work in this department is to be done by Mr. Robert Jones, plumber. The circulating hot-water apparatus for warming has been provided by Messrs. De Winton & Co., of Carnarvon. The roofs which span the nave and the north aisle have a central gutter, and are, like the remainder of the timbering in the chancel, &c., of Baltic fir, stained, and covered with Bangor slating. The ridge of the chancel is engrailled. The walls of the church are built with the blue stone of the neighbourhood, pointed outwardly in the joints with cement. The external dressings are of Anglesea limestone, and the internal works of Bath stone. The walls are buttressed at intervals where required for strength, and coped with limestone on all the gables. The building has been designed by Messrs. Kennedy & Rogers, of Bangor and London, architects, and carried out under their direction by Mr. W. T. Rogers, of Pen Parc, Beaumaris, builder, at a cost of about 4,000*l.*

STAINED GLASS.

St. Peter's, Carmarthen.—A stained window, in memory of the late Mr. David Morris, M.P. for the boroughs of Carmarthen and Llanelly, has just been completed, and placed in the north transept of this church, by the family of the late member. The glass has been executed at the works of Mr. Wailes, of Newcastle-upon-Tyne. The subjects chosen for illustration are three important events in the life of St. Peter, the patron saint of the church. At the top of the window the angel Gabriel is represented bearing a scroll, on which is inscribed "Glory to God in the highest, and on earth peace and goodwill towards men." In the compartment on the left of the spectator (two figures) is represented St. Peter's call to the apostleship, immediately after the miraculous draught of fishes: — "And Jesus said unto Simon, henceforth thou shalt catch men." The centre compartment (five figures), illustrates Christ's charge to Peter, in which the apostle is seen kneeling. Jesus said unto him, "Feed my sheep." In the compartment to the right (three figures), the apostle is represented coming to meet Jesus on the water: "But when he saw the wind boisterous, he was afraid; and beginning to sink, he cried, saying, Lord, save me." Immediately above and below the principal subjects is some ornamentation work. Mr. David Llewellyn, painter, superintended the placing of the window.

Leeds Parish Church.—Two stained-glass windows, the work of Messrs. O'Connor, of London, have been fixed in this church. One, in the clerestory of the north gallery, over the family pew, is presented in memory of Mr. Ralph Markland and his wife, by their children. It is of three lights, and contains large figures of Isaac, Melchizedec, and Abraham, under canopies. The backgrounds are light, so as not to darken the gallery. The other window is in the ante-chapel, and replaces one which did not sufficiently harmonise with those adjoining. The centres of the two lights represent, in large figures, the Birth and Burial of Our Lord. Under them are panels with the "Circumcision," and "Bearing the Cross;" in the tracery, "Our Lord in Judgment," surrounded by angels, and two groups of ascending figures. As the window in its subjects treats of the sufferings endured by the Saviour for the redemption of man, so the design of the foliage throughout is formed upon the apple-leaf, as emblematic of the fall of man. Of the numerous stained-glass windows which the church contains, six have been supplied by Messrs. O'Connor.

Books Received.

A Record of the Progress of Modern Engineering, 1865. With Essays and Reviews. Edited by WILLIAM HUMBER, Associate of the Institution of Civil Engineers, &c. London: Lockwood & Co. 1866.

NEARLY two-thirds of this volume consist of plates from Mr. Bazalgette's original drawings of the metropolitan main drainage works; and, although this should certainly appear in a record of the progress of modern engineering, it is almost to be regretted that these, together with the letter-press from page 31, did not form in themselves a separate volume with a special and appropriate title. As it is, however, this volume is a valuable record of the progress of modern engineering. It includes a memoir of Mr. John Robinson M'Clean, the president of the Institution of Civil Engineers, with a portrait of that gentleman taken by the Wothlytype process. There are also sections on the construction of harbours, ports and breakwaters, fortifications, and on railway rolling stock, the sewage question, &c.; the whole preceded by an address by the editor.

A Concise Glossary of Terms used in Grecian, Roman, Italian, and Gothic Architecture. By JOHN H. PARKER, F.S.A. New Edition. Oxford and London: Parker. 1866.

THE first edition of this abridgment of the larger and well-known Oxford Glossary has been out of print some time. Many will be glad to hear of the new issue, which has been revised throughout and in parts condensed. For the knapsack of the traveller or the table of the amateur, not sufficiently interested to need the completer work, it is an invaluable little volume.

Original Designs for English Cottages. By a Practical Surveyor and Builder. Atchley & Co., London. 1866.

THIS volume contains elevations, plans, and detail drawings of cottages and houses of various sizes, with bills of quantities (somewhat broad), and estimates, somewhat under the mark. The elevations are for the most part very ugly; nevertheless the volume may be useful to the small builders in the country.

Miscellanea.

PROPOSED MORTUARY CHAPELS FOR LIVERPOOL.—Some time ago Mr. Robert Hutchison, one of the ex-mayors of Liverpool, offered to build a magnificent mortuary chapel, at an expense of 13,000*l.* The matter seemed to lie dormant; but at the last weekly meeting of the health committee a conversation arose respecting the proposed chapels. Dr. Trench proposed to ornament them with a cross, to give them a religious character that would induce the poor of the Roman Catholic persuasion to use them. He had no doubt the priests would use efforts in order to do away, as far as possible, with the custom of "waking" the dead. There was already one mortuary chapel in Crosbie-street for the south end of the town, and he proposed to erect others at the north end of the town, to be divided, like the mortuary chapels at Anfield Cemetery, into compartments for the Church of England, Nonconformists, and Roman Catholics.

THE "INDUSTRIAL" SOFA-BEDSTEAD.—Among the original contrivances now exhibiting at the Agricultural Hall, may be noticed the above, which, as the inventor tells us, is the result of his efforts to improve in that way the homes of the labouring and poorer classes, and to lessen in some measure the evils which have been so frequently brought forward in this journal. The "Industrial Sofa-Bedstead" (No. 103 in the catalogue), consists of a sofa in two parts; the upper half turning down beside the lower half to form a bed, or two single beds. By the arrangement of the shifting laths, a "well" is formed for the clothes by day, which are ventilated by the open laths underneath. When used as a bed, these laths are shifted to the then upper level of the frame, on which the mattresses are placed, the arm-rests of the sofa forming the head-stop, or bolster, and the cushions serving as pillows, so that the *whole* of the appliances are in requisition in both cases, there being nothing superfluous. No doubt much can be made of the principle in economising space, which is of the utmost importance to the class for whom it is intended; and on the score of cleanliness and health it is a considerable advance on the present unwholesome shut-up bedsteads. We observe that manufacturers are invited to copy the design, with the idea of placing it within the reach of the humblest individual, the inventor offering to furnish any information on the subject, without fee or reward. This spirit alone ought to commend his efforts (in a field quite foreign to his usual calling, which is that of a compositor) to the attention of those interested in the matter.

THE NEW RAILWAY SECURITIES ACT.—The Act to amend the law relating to securities issued by railway companies has been printed. Every railway company, on or before the 15th of January next, is to register, and to keep registered, at the office of the Joint Stock Companies in England, the name of their secretary, accountant, treasurer, or chief cashier for the time being authorised by them to sign instruments under this Act. The half-years for the purposes of the Act to be the 30th of June and 31st of December, and the first half-year next December, but the Board of Trade on application may appoint other days. Within fourteen days after the end of each half-year every railway company is to make an account of their loan capital authorised to be raised, and actually raised, up to the end of the half-year, specifying the particulars described in the schedule. The Board of Trade may prescribe the form in which the half-yearly accounts are to be made, and such accounts are to be open to the inspection of shareholders, &c., without payment. Within twenty-one days of the end of each half-year every railway company is to deposit with the Registrar of Joint Stock Companies in England a copy, certified and signed by the company's registered officer as a true copy, of their loan capital half-yearly account. Railway companies are prevented from borrowing until the accounts stated are rendered, and on a company failing to register or deposit the half-yearly account, a penalty not exceeding 20*l.* is to be imposed, and 5*l.* for every day during which the same continues after the day on which the first penalty is incurred. Any person may inspect the documents on the payment of 1*s.*, and have extracts furnished. There are penalties set forth for false declaration. On conviction of a director or officer by indictment there may be a fine or imprisonment, but on a summary conviction, a penalty.

MORTALITY RATE.—The annual rate of mortality last week was 23 per 1,000 in London, 19 Edinburgh, and 30 in Dublin; 18 in Bristol, in Birmingham, 55 in Liverpool, 28 in Manchester, 26 in Salford, 22 in Sheffield, 29 in Leeds, 20 in Hull, 31 in Newcastle-upon-Tyne, and 26 in Glasgow.

RYLAND'S IRON TRADE CIRCULAR.—The right of publication of the *Iron Trade Circular* (*Ryland's*), with the copyright and goodwill, was sold by auction at the Hen and Chickens Hotel, Birmingham, yesterday, by Mr. H. Smith, under an order of the High Court of Chancery, made in a cause, "Ryland *v.* Holt and Others." The first bid was 100*l.*, and after a spirited competition it was knocked down for 680*l.* Mr. George Ryland, one of the partners in the late firm, was the purchaser.—*Times.*

HOLBORN VALLEY IMPROVEMENTS.—On Monday morning, by instructions of the Improvement Committee of the City of London, the building materials and fixtures of sixteen houses and shops, situated on Holborn-hill, and six in King's Head-court and Bartlett's-buildings, were disposed of by auction, the sites being immediately required for the above improvements. The Court of Common Council have instructed the Markets Committee that, in the appropriation of the improved dwellings at the Metropolitan Cattle Market, preference should be given in all cases to the applications of such persons who have been displaced for the purpose of the Holborn Valley improvements.

EVICTED TENANTS' AID ASSOCIATION.—A meeting was held at the Inns of Court Hotel, Holborn, to form an association to aid the poor who have been compelled to leave their dwellings by the railway and improvement works of the Metropolis. Mr. Linnæus Banks was appointed secretary, and Mr. Heine, who has devoted much time in obtaining information as to the vacant buildings available for the working classes, was appointed registrar. It was decided to open a registry which working people might consult, as it was stated that a great object would be gained in saving them time which they could ill afford to spend in the search after lodgings. It was stated that the projects now on foot would dispossess 100,000 persons, and that 20,000 had been ejected during the past year. An executive committee was appointed.

RIPARIAN OWNERS. — BUILDING ON BED OF RIVER.—Though a riparian owner in the case of a stream not navigable is the owner in severalty of his half of the *alveus*, still he has no right to build upon such *alveus*, even though no damage be occasioned, or is likely to be occasioned, thereby. An action or injunction therefore lies at the instance of an adjacent or *ex adverso* riparian owner, against one who so builds, and it is no defence that no damage has been sustained, or is likely to be sustained. This was held by the House of Lords, in the case of *Orris v.* Becket. Lord Westbury added, that the interest of a riparian proprietor in a running stream goes not only to the extent of preventing it being diverted or diminished, but of preventing the course being so interfered with or affected as to direct the current in any different way that might possibly be attended with damage to such proprietor at any future period.

CONDITION OF HIGHGATE.—The great fault of the district has been the want of a proper system of sewers, and all former attempts to do what is necessary have been effectually resisted by the owners of property; the consequence is that the state of the drainage is now highly dangerous to the public health. The *Hampstead Express* says there are no properly constructed sewers into which the drainage of houses can be carried, and almost every dwelling has its cesspool in close proximity. We may instance the case of the west side of North Hill, where there is only a small watercourse, which, at the bottom, becomes an open drain. Several of the houses empty it, however, as a sewer, the result being that it often becomes choked, creating a nuisance of the most fearful character. The drain, or gutter, as it is little better, ultimately deposits its contents in Baker's Field, where a standing pestilential accumulation poisons the whole surrounding atmosphere, and is close to the public footpath which leads to Fortis Green. This is but one of many similar instances, and will give the new Sewer Authority, elected by the parish vestry, some idea of the duties which will have to be performed.

A MODEL HOUSE, WITHOUT A STAIRCASE.—A model house is now being built as an experiment in one of the suburbs of Paris. It consists of ten stories, besides the cellars underground. It has no staircase, but a hydraulic lift will be continually worked. As the upper stories will be more airy and quiet than the others, they will let at a higher rate, it is thought, than the lower floors.

A LARGE MAP OF LONDON.—The alterations and improvements which have within the last two or three years taken place within the metropolis have induced Messrs. Cassell, Petter, & Galpin to announce a new edition, corrected up to the present date, of their large map of London, the scale of which is no less than 9 in. to a mile. The corrections have been made at very great cost, after a new and special survey; and, judging from the specimen-sheet now before us, we should think the map will be an excellent one.

EXHIBITION OF WORKS OF ART IN SHREWSBURY.—The formal opening of this exhibition has just taken place in presence of a rather numerous and fashionable company. The exhibition is in connexion with the local School of Art. The Committee of Council on Education gave the nucleus of the exhibition, and various residents in the district have aided the movement. Amongst the objects of art there are 274 pictures, including works by various masters, old and new. There is also a great variety of old china, carved work in wood and ivory, enamels, gold and silver plate, and numerous objects of local and antiquarian interest.

DEATH OF AN ARTIST WHILE SKETCHING.—A melancholy accident is reported from Lucerne. Mr. Henry Telbin, a promising young artist and son of the well-known painter of that name, who has been sketching at Brunnen, in the canton of Schwitz, wishing to make a drawing of the Rothstock, made an ascent of the Wasifiech, a wall of rocks rising just opposite the Grutti. Having obtained a favourable site, he seated himself outside the parapet and within a few inches of the precipice, and began to draw, but almost immediately rose to make some change in his position. In so doing, his foot slipped, and he was precipitated from a height of 163 ft. into the depths of the lake below. Some workmen saw him fall, but the lake being very deep at that spot, and a violent gale blowing at the time, they were unable to recover the body.

"NICHOLSON PAVEMENT."—This is an American invention. It consists in first placing a bed of plank, well covered with bitumen or pitch, for a foundation. Upon this is placed vertically, or endwise, sawed sections of plank about 4 in. wide and 8 in. length, set transversely or across the street, with intermediate strips of board 1 in. thick and 4 in. wide, which serve to separate the blocks, leaving spaces or grooves about 4 in. deep and 1 in. wide, which are filled with coarse gravel, and the whole thoroughly saturated and covered with the bituminous preparation. The gravel is then beaten in compactly and re-saturated, and the whole covered with a finer gravel or sand, which completes the process, forming a smooth and arched roadway raised at the margins so as to form a shallow waterway or gutter. It costs 4 dollars per square yard. It is easy for animals, and almost noiseless, and stands, it is said, much tear and wear.

SILVER TRANSLUCENT AND USED FOR OBJECT-GLASSES.—In a paper addressed to the Academy of Sciences, M. Foucault describes a way of protecting the eye in telescopes, by silvering over the white surface of the object-glass. He was led to this discovery, says *Galignani*, by observing that all the glass specula for reflectors silvered by his process preserved a transparency and limpidity equal to that of the best coloured glass. This transparency is such that, if the sun be observed through the thin film of silver which covers the glass, the slightest vapours passing over the solar disc will be perceived. Such being the case, M. Foucault applied a film of silver to the outer side of an object-glass. By this means the instrument is protected from the heat of the solar rays, which are almost entirely reflected towards the heavens, while a small quantity of bluish light passes through the film of silver, is refracted as usual, and forms in the focus a clear and pure image, which may be observed at leisure without any danger to the eye. A telescope so prepared is only fit for solar observations.

PRUSSIAN PROGRESS ON THE ELBE.—The Prussian Government has decided to build a bridge on the Elbe between Hamburg and Harburg. The construction of this bridge, which has long been wanted, has hitherto been delayed in consequence of the opposition of the Hanoverian Government.

EXCAVATING MACHINERY.—At a recent meeting of the French Society of Civil Engineers the result of some experiments with Messrs. Frey Brothers & Sayn's excavating machinery was given. The amount excavated was about 54 per cent. of that theoretically due to the speed and capacity of the buckets. The earth was lifted 4 yards, and moved 12 yards horizontally, yet the cost was only about 1d. for each cubic yard excavated.

FEMALE INVENTORS: BURNING CULINARY ODOURS.—Mrs. S. E. Sands, says the New York *Gas and Petroleum Journal*, has patented a useful improvement in culinary vessels, designed to convey the odours arising from any culinary operation directly into the fire, where the vapour is consumed and carried off with the products of combustion into the chimney. It consists of a hinged cover, and a tube extending from the top of the vessel to the bottom, opening into the fire space, where any vapours are, of course, drawn into the fire and consumed. It is asserted that steak and onions can be cooked thus without any odour escaping into the house. But will the steak be juicily done under such a system of thorough drainage?

SHERBORNE ABBEY CHURCH.—A reparative operation has just been performed upon the stained glass in the three decorated windows in the north aisle of the church, which contains full-length figures of the twelve Apostles. Under the over-zealous rubbing of a person appointed to dust them last year, nearly all the countenances of the figures had disappeared. Messrs. Hardman were consulted, and it was discovered that, owing to the illness of the workman whom they had employed to mix their colours for many years, the pigment had been improperly prepared by the person whom he had engaged for that purpose, unknown to his employers, and consequently none of the windows so executed had stood well against the action of time. Messrs. Hardman at once undertook to remedy the injuries at their own cost, and their foreman has been engaged in substituting a new head for the damaged one in each of the twelve figures.

BURSTING OF A RESERVOIR AT OLDHAM.—Great alarm was lately excited in the neighbourhood of the Brushes Clough reservoir, one of the series which form the waterworks system of Oldham, lying between that town and Rochdale. It was found that water was escaping through a culvert situated at the base of the embankment, and, descending into the valley below with great force, it flooded a mill and several houses. A number of workpeople were obtained, and the flood was diverted from its first course. The reservoir is 45 ft. deep to the discharge pipe, and covers an area of five acres, with a capacity of 40,000,000 gallons. It is supposed that a leakage at the interior end of the compensation supply pipe caused the masonry face of the culvert to give way, and a rupture of some yards in extent was made in the embankment. The bottom of the culvert was torn up, but the arched stone top remained firm. The reservoir has been made about ten years.

NEW LECTERN FOR GLOUCESTER CATHEDRAL.—The lectern lately presented by Mr. J. C. Dent has just been received by the Dean, and is temporarily placed in the chapter-house. It is the work of Messrs. Hart & Son, of London, is of brass, polished, and stands rather more than 6 ft. in height. The upper part consists of an eagle erect, having its wings expanded and its talons fastened on a prostrate dragon, with twisted and barbed tail. Resting on the wings and tail of the eagle is a desk of nearly 2 ft. square. On it is incised a lozenge-shaped pattern, enclosing a Greek cross, with ornamental extremities, the centre and spaces between the arms having a pierced pattern. At the four sides of the lozenge are quatrefoiled circles, enclosing the symbols of the four Evangelists supporting books. The eagle revolves on a pedestal, 4 ft. 2 in. in height, consisting of a shaft rising from a circular base 2 ft. in diameter, resting on six eagle's claws grasping balls. The old lectern of the seventeenth century is still preserved in the Cathedral library.

THE DOVER DRAINAGE OUTFALL.—At a recent meeting of the Local Board, Mr. Birmingham said he wished to bring a nuisance under the notice of the Board—the outfall from the town drainage to the westward. The nuisance had become almost unbearable. It had been recommended some time ago that additional pipes should be laid so as to carry the sewage further out into the sea; but this advice had never been acted upon. The surveyor said there would be a great difficulty in carrying out the pipes, but if it would do any good that should not be taken into account. After some discussion, the surveyor was instructed to examine into the matter, and report.

PIRATING BUSTS AND ENGRAVINGS. — At the Marlborough-street Police-court Pietro Fenzi, an Italian image-maker in Red Lion-square, has been fined 10*l.* for pirating a bust of Mr. Gladstone, the design of which belongs to Mr. John Stark, of Etruria Vale, Staffordshire. Defendant appeared to think that he was entitled to copy the design because he had purchased a copy for 2*l.* He sold the copies for 3*s.* each. He said he had bought a bust of Mr. Cobden also, doubtless with the same object in view. A Mr. Lawrence was fined by the same magistrate 10*l.* each for eight lithographed copies of the well-known picture and engraving named "The Light of the World," the property of Mr. Gambart. The defendant said he did not know he was doing wrong.

NEW ORPHANAGE AND OTHER PROJECTS IN SOUTH LONDON.—A gift of 20,000*l.* has been promised by a lady to the Rev. Mr. C. H. Spurgeon to found an orphanage in connexion with the Metropolitan Tabernacle. Other works, according to our authority, the *South London Press*, are in contemplation. The sale of the Park-row Chapel will place funds at command, which it is proposed to employ in the erection of large schools; and the establishment of a grammar school, in which the children of the middle classes may be educated in connexion with the Tabernacle, has been suggested. The ground for the erection of some almshouses has been secured opposite the Elephant and Castle Railway Station, and building thereon will be shortly commenced.

GREAT FIRE AT THE DARDANELLES.—A letter from the Dardanelles of 28th ult. gives an account of a dreadful fire on the previous night, by which a third of the town was destroyed. The quarter where it originated was built of wood, and a strong northerly gale was blowing. Some futile attempts were made to pull down houses that lay in the pathway of the fire, but one prompt effort only was crowned with success; and this was effected by a small band of volunteers under the direction of Messrs. Wrench and Calvert, who arrested the progress of the conflagration at a point where it bid fair to devour every house in the Greek quarter. 441 houses and 139 shops were destroyed, and 2,500 people made homeless. Many of them have lost everything. The following is the official return:—Turkish houses 71, shops 12; American houses 66, shops 47; Jewish houses 192, shops 72; Greek houses 112, shops 8—total houses 441; total shops 139, besides three mosques, one khan, and one public bath. The Jews are the heaviest losers; in fact, the Jewish quarter is now reduced to 15 houses.

VITALIZING AIR: A PRACTICAL SUGGESTION.—In his inaugural address at the British Association, Mr. Grove mentioned a fact which may surely be made practically useful. "Atmospheric air, drawn through films of india-rubber, leaves behind half its nitrogen, or, in other words, becomes richer by half in oxygen." Mr. Grove spoke of this truth as pointing out a means of storing up force; but is not its sanitary value even greater than the possible mechanical uses to which Graham's discovery may be put? Men, so long as civilization lasts, must continue to live in imperfectly oxygenated air. Why, asks a reflective writer in the *John Bull*, should not the air which enters crowded rooms, churches, &c., be passed through india-rubber, just as in the "City peach-houses and graperies" proposed some years ago, there were flannel screens to catch the carbon with which the air of towns is saturated? Does the india-rubber touch the carbonic acid? And does it at all ozonise the oxygen which it allows to pass through? Even if it does not, surely some way may soon be found, if needful, for at any rate partly vivifying the oxygen when it is present in such quantities. Why not try the india-rubber films in Spitalfields work-rooms and Mile-end lodging-houses?

THE QUEEN'S STATUE IN ABERDEEN. — The statue of the Queen has now been removed from Mr. Brodie's studio, and safely placed upon its pedestal at the corner of St. Nicholas and Union streets. The date of the inauguration has not yet been fixed.

GRANTHAM GAS AND WATER WORKS COMPANY.—For the office of manager and secretary of the Gas and Water Works, the applications in the first instance numbered seventy, but were afterwards reduced to three, viz., Mr. Hunt, of Bow, London; Mr. Lolm, of the Hampton Waterworks; and Mr. Smedley, of Middleton, Manchester. Mr. Hunt was elected.

ENGLISH WORKMEN AND THE FRENCH EXHIBITION.—At a meeting of the London Working Men's Association, it was resolved to take measures so that representatives of English workmen of various trades may attend at the Paris Exhibition in 1867, and make a public report thereon. The committee were ordered to bring up a detailed programme for consideration at the next meeting. A number of influential gentlemen have promised their support to the scheme, if the association decide upon carrying it out.

TENDERS

For the erection of new Congregational Church, Lewisham. Mr. John Tarring, architect:—

		Boundary Wall, &c.
Mann	£7,187 0 0	£270 0 0
Piper & Wheeler	7,100 0 0	240 0 0
Perry	7,035 0 0	237 10 0
Browne & Robinson	7,017 0 0	281 0 0
Higgs	6,979 0 0	
Kilby	6,705 0 0	261 0 0
Newman & Mann	6,684 0 0	251 0 0
Myers	6,519 0 0	241 0 0

For the erection of three houses and shops at Croydon, for Mr. W. Ebbutt. Mr. Henry King, architect:—

Jarrett	£1,800 0 0
Lose	1,600 0 0
Waters	1,590 0 0
Ward	1,368 0 0

For additions, &c., to a house in Monkwell-street, for Mr. Benjamin. Mr. N. S. Joseph, architect:—

Brass	£756 0 0
Browne & Robinson	721 0 0
Newman & Mann	569 0 0
Conder	498 0 0
King & Sons	466 0 0

For alterations and repairs to the Castle Tavern, Great Castle-street, Regent-street. Messrs. Bird & Walters, architects:—

Williams & Son	£1,246 0 0
Sprake	1,235 0 0
Newman & Mann	1,201 0 0
Brown	1,190 0 0
Saunders	1,173 0 0
Harvey (accepted)	1,039 0 0

For alterations, &c., Commerce House, Hackney, for Mr. Stiff:—

Foster	£1,184 0 0
King & Sons	1,044 0 0
Hearle	918 0 0

For works to be done at No. 101, Great Portland-street, for Mrs. Wood. Mr. John Dent, architect:—

Kelley	£457 0 0
Mashman	403 0 0
Stephens & Watson	398 10 0
Panton	385 0 0
Perkins	371 10 0

For three houses and shops at Penge, Surrey, for Mr. W. Thorp. Mr. James Tolley, architect:—

Hollidge (accepted)	£2,160 0 0

For a pair of villa residences and shops, at Snaresbrook, Essex, for Mr. Rowbotham. Mr. F. G. Widdows, architect. Quantities supplied:—

Mundy & Hutchinson	£2,465 0 0
Rivett	2,393 0 0
Henshaw	2,279 0 0
Tully	2,210 0 0
Cushing	2,145 0 0
Lose (accepted)	2,071 0 0

For house for Rev. John Lloyd, Castell Forwyn, Montgomeryshire. Proprietor finds all brick and haulage. Messrs. Poundley and David Walker, architects:—

Clark	£2,440 0 0 !
Morgan	1,424 0 0
Lloyd	1,382 0 0 !

For the erection of a house for Colonel Peard at Pennock, Cornwall. Mr. O. C. Arthur, architect:—

Bone & Son	£9,500 0 0
Clarke	9,230 0 0
Call & Pethick	8,740 0 0
Olver & Sons	8,200 0 0
Finch	8,195 0 0
Matcham	7,490 0 0

For a lodge, entrance-gates, and conservatory, &c., at Knowle Sidmouth, for Mr. R. N. Thornton. Messrs. R. & W. Best, architects:—

Stafford (accepted)	£1,140 0 0
Smith's Work.	
Garton & King (accepted)	140 19 0
Gas Supply.	
Ellis (accepted)	90 0 0

For new buildings for the Vieille Montagne Zinc Galvanized Iron Works at Evelyn Wharf, Deptford. Messrs. Bradley & Co. (Limited). Messrs. J. & Fisher, architects. Quantities supplied by Mr. Seyr Wright:—

Myers	£5,200 0 0
Simms & Marten	4,388 0 0
Mansfield, Price, & Co.	4,345 0 0
Brass	4,263 0 0
Nolan	3,960 0 0

For stable building, High-street, Kingsland, for Theobald. Mr. F. G. Widdows, architect:—

Flint	£320 0 0
Henshaw	319 0 0
Emary	300 0 0
Tully (accepted)	292 0 0

For repairs to house and offices, Bush-hill, Edmon for Mr. Barry. Mr. F. G. Widdows, architect:—

Patman, Brothers (accepted)	£948 0 0

For the erection of houseless poor wards, Tho street, Whitechapel, for the guardians of the Whitech Union. Mr. John Hudson, architect:—

Thackrah	£3,700 0 0
Dumsdale	3,440 0 0
F. & F. J. Wood	3,383 0 0
Read & Son	3,364 0 0
Rivett	3,353 0 0
Sabey	3,214 0 0
Little	3,159 0 0
Simms & Marten	3,115 0 0
Webb & Sons	3,091 0 0
Hunt	3,030 0 0
Archer	2,997 10 0
Myers & Son	2,989 0 0
H. & J. Johnston	2,920 0 0
West	2,892 0 0
Hill & Keddell	2,883 0 0
Tarrant	2,839 0 0
Nightingale	2,777 0 0
Wilkinson & Co.	2,680 0 0
Golding & Son	2,548 0 0
Johnson	2,390 0 0
Ennor	2,361 0 0
Longmead (accepted)	2,190 0 0
Read & Rathmell	2,000 0 0

For villa residence on the Oakfield estate, Croy Mr. S. Brookes, architect:—

Gillett & Wisbey (accepted)	£895 0 0

For new Congregational Church, New North- Messrs. Lander & Bedells, architects:—

Calls & Sons	£6,560 0 0
Sawyer	6,179 0 0
Webb & Son	6,152 0 0
Hill & Son	5,990 0 0
Ashby & Son	5,915 0 0
Dove, Brothers	5,875 0 0
Manley & Rogers	5,717 0 0
Mann	5,587 0 0
Browne & Robinson	5,379 0 0

For new Baptist Chapel, Upper Holloway. Mr. Ju Cowell, architect:—

Dabbs	£4,125 0 0
Scrivener & White	3,791 0 0
Sawyer	3,547 0 0
Mann	3,519 0 0
Carter & Sons	3,378 0 0
Glenn & Co.	3,333 0 0

For pair of houses, Lea Bridge-road. Mr. Thom Hill, architect:—

Gander (accepted)	£900 0 0

For pair of houses, Copeland Park estate, Walth stow. Mr. Thomas J. Hill, architect:—

Sabey	£838 0 0
Auley (accepted)	830 0 0

For sundry works 43, Old Change. Mr. H. H. Co architect:—

Newman & Mann	£1,633 0 0
King & Sons	1,597 0 0
Clarke & Mannooch	1,573 0 0
Emery & Co.	1,250 0 0

For villa residence, Croydon, for Mr. J. Nev Mr. A. R. Barker, architect. Quantities by Mr Vinall:—

Glaskin	£1,825 0 0
Turner & Son	1,610 0 0
Rhodes & Roberts	1,585 0 0
Dove, Brothers	1,535 0 0
Jarrett	1,340 0 0
Lose	1,300 0 0

For the erection of house No. 71, Walworth-road Mr. J. H. Mashu. Mr. R. Paris, architect:—

	House.	Shop F
Manley & Rogers	£1,450 0 0	£90 0
Williams & Smale	1,420 0 0	75 0
Terry	1,389 0 0	66 10
Sawyer	1,387 0 0	86 0
Aldred & Doulton	1,328 0 0	103 0
Tarrant	1,316 0 0	112 0
Warren	1,279 0 0	100 0
Henshaw	1,258 0 0	93 0
Cook	1,256 0 0	82 10
Johnson	1,250 0 0	90 0
Chutter	1,250 0 0	85 0
Marsland & Son	1,213 0 0	85 0
Perry	1,190 0 0	105 0
Cooper	1,160 0 0	97 0
Shilton	1,149 0 0	80 0
Nightingale	1,126 0 0	72 0
Wilkinson & Co.	1,120 0 0	90 0
West (accepted)	1,120 0 0	78 0
Sabey	1,113 0 0	89 0
George	1,079 0 0	87 0

As to tenders for the construction of a wha Plaistow for the London Wharfing and Warehou Company, we are requested to state that two or t contractors would not tender from the quantities provided, and employed their own surveyors. The que of "supply of quantities" is needing discussion.

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WANTED, in the South Eastern Counties, a RE-ENGAGEMENT as CLERK of WORKS, Builder's General Foreman, or Managing Foreman of Carpenters and Joiners only. Eight years in the latter capacities with present employer. Accustomed to prepare plans, quantities, working drawings, &c. and has a good knowledge of building work throughout. A carpenter and joiner. Good references.—Address, D. L. Post-office, Tunbridge, Kent.

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TO BUILDERS

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WANTED, PLASTERING, Piecework, by a person in the habit of taking Plastering by Yard, or otherwise. No objection to the country. Labour only.—Address, 203, Office of "The Builder."

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WANTED, EMPLOYMENT, by a good Plumber. Could fill up time painting, glazing, &c.—Address, PLUMBER, 4, Gilbert street, W.

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WANTED, a SITUATION, by a middle-aged Man, who thoroughly understands the Making and Repairing Mill bands, Cart Harness, &c. — Address, C. C. 100, Britannia, City-road.

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AN ASSISTANT, accustomed to the routine of an office, who has been engaged on large works, desires a RE-ENGAGEMENT. Good references.—Address, S. N. H. Messrs. Payne & Son, 11 and 15, Royal Exchange.

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A THOROUGHLY practical Man requires an ENGAGEMENT as ASSISTANT. Fair pay job preferred.—Address, A. B. Brown's Library, 364, King land-road, N.

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A STEADY, active Man, a Carpenter and Joiner by trade, wishes for constant EMPLOYMENT as OUT-DOOR FOREMAN to a Builder, or otherwise, understanding all the branches of the building trade; or to repair houses, same intended purposes, or where trust and confidence required. References can be given.—Address, G. H 68 Alb-rt-road, Carlton road, Kilburn.

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A GENTLEMAN, middle-aged, and of much experience in the wood trade, is open to an ENGAGEMENT. He has filled every position of trust, confidence, and responsibility appertaining to a merchant's connection; or he would undertake the wood department of a large Builder's business. Country not objected to.—Address, by letter, B. care of Mr. Slee, 9, Barretts-Grove, Stoke Newington, N.

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The whole of this property, excepting the first and most important Wharf, has now been let. This Wharf, which is walled in and roofed in, for immediate occupation, adjoins Messrs. Eastwood's premises, and is now occupied by them.

About two miles' distance from London Bridge. No tolls upon the roads, and canal charges very moderate. This property is to be let on a long or short lease, at a low rental.—For further particulars apply to Messrs. EASTWOOD, Belvidere-road, Lambeth.

FIRST-CLASS OFFICES and CHAMBERS to be LET, in Victoria-street, Westminster, near the Abbey, comprising spacious rooms suitable for bankers, insurance companies, clubs, solicitors, engineers, &c. &c. The Board of Directors of the Westminster Palace Hotel Company, Limited, invite offers, either for the whole or part of the offices forming the west wing of the hotel, at present occupied by the Secretary of State in Council of India, which will become vacant in August, 1867.—Applications to be addressed to LEWIS JEFFERIS, Secretary.

VALUABLE FREEHOLD BUILDING LAND TO BE LET, or SOLD, situated at Sunningdale, Vauxhall, Tunbridge, Camberwell, Denmark Hill, Bow, Teddington, Charlton, Epping, and Tottenham.—For particulars and terms, apply to Messrs. DRIVER & CO. Surveyors, Land Agents, and Auctioneers, 4, Whitehall, London, S.W.

BUILDING LAND, in VICTORIA STREET, S.W.—A commanding and highly eligible CORNER SITE, having a Parliamentary title, TO BE LET, with immediate possession. Is delightfully open Belgravia and the Houses of Parliament. The site is a large joint-stock hotel at each end of the street also a railway station at one end completed, and another shortly to be built close to the other end. A great part of the traffic from the Thames Embankment westward will pass through the street, which is in immediate proximity to a station (to be built) of the Metropolitan District Railway, putting it in easy communication with all parts of the metropolis and the suburbs. For business premises, or for bank or joint stock company, the site is admirably adapted, being of regular form, with good adjacent buildings.—Apply to H. & C. 28, Haymarket, S.W.

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MATTHEW HILL'S ESTAT LEWISHAM, KENT.—LAND TO BE LET for BUILDING purposes, situated on the north-west side of the Mid Kent Railway (near archway in Molesworth-street.—To Builders and Others.—The Trustees of the above estate hereby give notice, that they are prepared to receive TENDERS for LETTING the above-mentioned LAND for the purpose of erecting private dwellings, according to plan they have caused to be prepared. Forms of tender, with copy of plan, may be obtained of Mr. THOMAS MILES, at 28, York street, Westminster, S.W. on payment of 2s. 6d. which will be returned to persons making a Tender. Sealed Tenders to be delivered addressed "Tenders for Land at Lewisham, Matthew Hill's Estate," to THOMAS MILES, 28, York street, Westminster, S.W. on WEDNESDAY, the 31st SEPTEMBER, 1866, not later than TWELVE o'clock noon. No Tender will be received after the time specified, and which does not contain the names of two sufficient sureties to be approved by the Trustees, for the due performance of the works.—N.B. The Trustees do not bind themselves to accept the highest or any Tender.

TO CONTRACTORS, CEMENT MANU FACTURERS, BRICK and TILE MAKERS, BUILDERS, and OTHERS TO BE LET or SOLD, all the RIGHT of PICKING CEMENT-STONE on a large portion of the shore of the Manor of Minster, Isle of Sheppey, Kent. And all that the right of taking Grass from a considerable area of the sea shore opposite or near to Seager Gate, in the Isle of Sheppey. And also all that small Freehold Farm with the farm buildings and labourers' cottages thereon, called or known as the Quarr Cop for the manufacture of Cement, Bricks, Tiles, &c. situate at Seager Gate aforesaid. The above Property affords an excellent site for the erection of cement works, and has been selected for the purpose of manure, &c. There is every accommodation for water-carriage from the spot, and the materials for extensive business are at hand. It is one of the best available situations within fifty miles of London.—For further particulars, apply to Mr. S. JOHNSON, Solicitor, Town Clerk's Office, Faversham.

BUILDING LAND, at HOLLOWAY. TO BE LET, in an undeniably excellent situation for letting and selling Term 80 years. Ground-rent moderate. Books supplied at 2s. per 100, and can be obtained at 5 per cent. after 10 per cent. to responsible persons, if required. For further particulars, apply to Mr CLARKSON, Surveyor, 28, Great James-street, Bedford-row.

TO MANUFACTURERS, BUILDERS and OTHERS.—TO BE LET, in the Parish of Hillingdon, within half a mile of the West Drayton Station on the Great Western Railway, several acres of valuable FREEHOLD LAND, with extensive frontages, on a cut leading into the Grand Junction Canal, very suitable for the erection of manufactories requiring water carriage to London and the North; also, several acres with valuable frontages on the high-road to Uxbridge, some of which is in immediate contiguity to West Drayton station, appropriate for the erection of villas and shops. For further particulars, apply to Mr. WINDER, The Weir, West Drayton, who, upon previous communication, will meet parties, wishing to visit the above sites, at the West Drayton station.

VALUABLE FREEHOLD BUILDING LAND TO BE LET on LEASE, for 99 years, suitable for terrace of first-class private residences or of first-class shops, or partly of the former and partly of the latter. It is situated in the High-street of Harrow on the-Hill, near to Harrow School, being opposite the Red Lion Inn. Gas and drainage, and gas and pure spring water laid on. For particulars and terms apply to Mr. WINKLEY, Land Agent, Harrow.

TO CONTRACTORS, BUILDERS, &c. Spacious WHARF TO BE LET. Waterside premises, crane, &c.—Apply at 8, South-wharf, Paddington, W.

NEW-CROSS, DEPTFORD. — T Governors of Christ's Church Hospital hereby give notice that Commissioners will meet at the said Hospital, on THURSDAY, the 27th SEPTEMBER, 1866, at ELEVEN o'clock in the forenoon precisely, to consider PROPOSALS for taking on REBUILDING LEASES for 99 years, from Michaelmas, 1866, a very eligible PLOT of GROUND, situate on the north side of the Broadway, Deptford, and Lewisham, close to the New Cross and Margate Railway Line, and lately reduced. A plan of the property may be seen, and further particulars obtained at the Office of Mr. SHAW, the Hospital Architect and Surveyor, in the said Hospital. Tenders, endorsed "Tender for Lease," are to be left at the Counting-house of the said Hospital, on or before TUESDAY, the 25th SEPTEMBER, 1866; and all parties so tendering are requested to attend at the said Counting-house, in relation thereto, on the 27th SEPTEMBER, at ELEVEN o'clock precisely.

August 31st, 1866. M. S. P. DIPNALL, Clerk.

TO IRONMONGERS. — TO BE LE with immediate possession, in a fashionable and rapidly increasing watering-place, a handsome SHOP, with Plate Glass Front, together with House, containing five bedrooms, drawing and sitting rooms, kitchen, and others. Warehouse underneath.—For terms, apply at Mr. MARSH'S Office, 2, Charlotte-street, Mansion House.

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The Builder.

VOL. XXIV.—No. 1234.



*The Early Celtic Church.**

E are apt to disconnect the impracticable, impressionable, fiery, generous, passionate Celt of to-day with the race that played such a mighty part in the early history of Europe. We scarcely regard the modern Celt as the descendant of those heroes whose graves we come across on our moors and downs and desolate places, the owners of the flint arrow-heads, the stone, bronze, and iron weapons, the clay urns we are so careful to preserve. And yet they are the very same people. We attach a peculiar interest to the remains of races when they inhabit other shores. The Moors still to be found in some of the villages of Spain, the primitive dwellers in Les Basques under the shadows of the Pyrenees, not to mention the more familiar instances of the old Puritan families in America, or the North American Indians, we regard with curiosity and admiration. But for the Cymru, the Gael, and the Irish Celt few of us entertain much sentimental feeling; although there are doubtless ears upon which the prophetic "Wales was and Wales will be," and the pathetic "Che till ma tuille" of the Gael fall with mingled speculation, hope, and sadness. We could scarcely urge a stronger proof of the quickness of perception, energy, and general advancement of these people, when history takes them up, than by pointing out the comparative welcome with which they received Christianity. Whereas the history of the Church in the south of Europe is a tale of horror, of persecutions and inhuman cruelties, in the lands of the Celts it is scarcely more than one long list of peaceful conversions.

The Celtic Church had a predecessor, to which it owed much obligation. This was Druidism. There have not been wanting those who could see in its adjuncts, its groves of oak, its altars of unhewn rock, its rings of standing stones, an elaboration only of that primitive worship which survived the deluge, and was practised by Abraham, when he worshipped under the oaks of Mamre, and by Joshua when he took a great stone and set it up in Sichem, as a centre for the sanctuary of the Lord. Whether, or not, the source whence they took their use of groves and rocks in the celebration of religious rites is identical with that of the primitive Jews, it is clear that the Druids were both monotheists and moralists, and that they were likewise the depositaries of all the knowledge of their age. This cultivation prepared them to receive the seeds of the Gospel with understanding. Some of the earliest converts of the Celtic Church were the Druids; and their conversion carried with them the convictions of their people. The chief seats of Druidism hence became the headquarters of Christianity. On the western coast of Great Britain these were the islands of Anglesey, Man, and Iona. In Anglesey we may still trace the positions of their sacred groves, their altars, their residences; and in proof of the number of the Christian clergy upon the spot after their abandonment of this seat for that of the Isle of Man, we may count that it is divided into no less than seventy-seven parishes. This same attraction is shown in the choice of the Isle of Man as the centre of a bishopric; and again, in the island of Iona, by the plantation of a colony there by St. Columba. In the latter case, with all Scotland spread out before him, it is curious this missionary should have chosen an island so distinctly associated with Druidism that the lapse of a dozen centuries has not dissevered it from its Highland name, Innis nan Druidhean. We can only conclude that the learning of the Druids induced them to receive the Christian preachers with favour; and that the same cause that operated to make these islands the chosen abodes of the one, made them also selected by the other.

The Right Rev. the Bishop of Argyle and the Isles has just issued a volume, architecturally illustrated by the Messrs. Buckler, relating the history of the Celtic Church, or rather showing us a picture of the Celtic Church as it existed in the day of St. Columba. His lordship scarcely begins at the beginning, for he does not touch upon the claim of the Celtic Church to be about five years older than that of Rome; nor does he weigh the worth of the traditions set down by early writers respecting the visits of St. James with his mother Salome, St. Paul, St. Peter, Simon Zelotes, or of Aristobulus to our shores. He contents himself with the question of right, or deference to Roman authority, which he considers was neither urged, conceded, nor thought of in the early centuries. Celtic Christianity he traces from the East, or Jerusalem, through Asia Minor to the churches of Vienne and Lyons, and thence to Ireland and Britain, the earliest litanies extant making this Oriental descent clear. The Ossianic writings have furnished the bishop with some valuable information. From allusions in these early poems, it is evident that the Christianity with which their authors were familiar was of a monastic character, the "howling of priests," bells, "spotted sticks," and books mentioned, being more in accordance with the performance of the ceremonies of the convent than with the open-air preaching of the first teachers. But Celtic monasticism was of a very different description from that of the Roman Church. Matrimony was the rule among the followers of St. Columba. The priests seemed to have lived in separate cottages or cells, with their families, meeting for the performance of worship and partaking of food. This curious arrangement degenerated into the holding of Church property by families, as was evidenced in the fact of nine of the successors of St. Columba being nearly related to him. The clanship of the Celts, of which this circumstance is but an instance, must be considered as the result of the laws that knitted all the relations of a man together by making them answerable for his conduct.

Having thus seen the Early Celtic church established in the strongholds of the Druids, we come to the structures. And here we must find fault with the Messrs. Buckler as well as with the bishop. Neither seem to have made any effort to discover whether there are any remains of the fabrics erected by St. Columba and his followers. The latter mentions that the Irish annals describe them as being of the humblest description, and that "probably" there are no memorials of them "unless the remains on some of the lesser Hebrides, to which Mr. Muir draws attention, in his work on the Western Isles, be such." But neither he nor the Messrs. Buckler have gone so fully into the subject as to inquire for themselves whether these remains could be so identified, or whether they are memorials of the pre-occupation by the Druids. No portion of the beautiful ruin of the Abbey Church "on cold Iona" can be referred to an earlier date than the twelfth century, leaving between this period and the arrival of St. Columba, in 565, six centuries of occupation unrepresented by a single fabric or by any portion of one. We have the statement of Bede that the first church at Lindisfarne, which was established by Aidan, who was sent for the purpose from Iona, was built of wood thatched with reeds after the manner of the Scots; but as the historian was an opponent of the Celtic church, he is not likely to have put himself out of the way to praise its structures. As stone was used for huts, cists, and cairns, it is difficult to believe that it was not also used for churches. We should be correct, perhaps, if we deemed the wood building mentioned to have been but a temporary structure for use during the erection of a more substantial one, just as the first building at Durham was of wood pending the erection of the stone edifice. The name of St. Columba is connected with at least thirty-five churches in Ireland, and there are fifty-five in Scotland, which he either founded or was associated with. And his biographer adds, that at the present day there is scarcely a parish in the north and west of Scotland, or in the west and south of Ireland, in which his memory is not green. This activity, prosperity, and popularity clearly indicate the career of no ordinary individual. The armorial bearings of the see of the isles perpetuate one of the numerous miracles attributed to him, that of stilling a tempest by prayer; and his life, written by Adomnan, one of his successors, recounts many others. This Celtic author, who lived within a century after the events he described took place, mentions several buildings, as though the settlement was more than the cluster of huts it is supposed to have been. The monastery with its cells, the church, a barn near the monastery, a cross by the wayside, are mentioned in the narrative of the last days of the saint before he rose from his stone couch at midnight to prostrate himself before the altar and die.

The Messrs. Buckler give a plan of the remains of the abbey church and monastery, still standing. They mention, in their descriptive letterpress, several detached buildings, the chapel of the cemetery, a detached chapel near the chapter-house, three saints' crosses, two of which are in ruins, and the foundations of a small building "evidently of considerable antiquity," which is intersected by a modern inclosure wall, known as St. Columba's cell. About a quarter of a mile to the south of the abbey are the remains of a priory, priory church, and small parochial chapel; and, midway between these two ecclesiastical establishments stands a tall, richly-ornamented, round-headed Celtic cross. This goodly architectural "lode" is concentrated on an island not more than 2¼ miles in length and 1 mile in breadth. The area occupied by the roofless, ivyless walls of the abbey is rather more than three acres. The isolated locality of this structure determined one of the peculiarities of the church; for where no numerous congregation could be expected, none need be provided for, and accordingly we see that the nave is of the same dimensions as the choir. The church is cruciform. One side of the nave determined the size of the cloister, and the width of the north transept in like manner decided the dimensions of the range of building adjoining the chapter-house, which is only separated from it by the usual slype. But the position of the chapter-house would not be realized unless we added that it is recessed beyond this

* The Cathedral or Abbey Church of Iona: a Series of Drawings and descriptive Letter-press of the Ruins. By the Messrs. Buckler, Architects, Oxford. And some Account of the Early Celtic Church, and of the Mission of St. Columba. By the Right Rev. the Bishop of Argyle and the Isles. Day & Son (Limited), Lincoln's-inn-fields, London. 1866.

line of building very considerably. The slype was utilised as a calefactory, as the only fireplace and flue in the establishment testify. To this comfortless passage must the monks have resorted for artificial heat when the refectory was not available. As there are no traces of a fire-place in the latter building, the Messrs. Buckler conclude that the fire must have been made on the floor, and that the smoke escaped through a louvre in the roof. We may see that this building was spacious and handsome for there are considerable remains of it. It measures 63 ft. 10 in. in length, and 20 ft. 11 in. in width, very nearly the same dimensions as those of the nave of the church. Below the line of single and double lancets, with which the walls are splayed, are narrow slits or loops which are level with the pavement of the cloister outside. The chapter-house was also a fine structure, with its large closed porch and double entrance under two semicircular arches supported on corbels in the side walls, and reposing their springer upon a central massy pier. But, as is usually the case, the choicest work is to be found in the remains of the Abbey church. A band of those hardy sea-rovers, the Danes, is known to have landed at Iona in the ninth century and pillaged the abbey and destroyed it afterwards. But the earliest masonry identified by the Messrs. Buckler is a fragment of twelfth-century work. The great bulk of the present structure, however, belongs to the fourteenth century. This was evidently an enlargement upon the size of the twelfth-century edifice, although, from the peculiar style of the masonry, it is difficult to point out where any additions are made. The dressings alone indicate any lapse of time between the construction of the various parts. The main bulk of the walls is formed of huge stones, which have been gathered together and placed in layers without being touched by the mason's tool, and the interstices are filled in with slate-like fragments. Layers of thin stone are also laid between the blocks. These materials, once on the ground, it is needless to say, could be used over and over again, and no traces of their former purpose shown. The tempests of five hundred years have failed to make either fracture or settlement in their disposition. Wanton destruction has made what damage there is. The square tower, with its corbelled parapet, still stands its full height of 70 ft., the pack-saddle roof with which it was once surmounted alone being missing. The choir and south transept are also standing to their full height, making the destruction that has befallen the nave and north transept appear cruel. The aisles of the choir do not extend for its full length, hence there is considerable movement in the design of the east end, to which the steep pitches of the roofs must have further conduced. But those who cannot hope to see Iona for themselves, as it stands in its desolation, looking out upon the grey sea as though looking after the departed centuries when there were constant coming and going from its portals, would do well to consult the accurate illustrations of the Messrs. Buckler; for rare are the instances in which so much of the domestic buildings and general arrangements of an abbey are preserved as are here found. There are two leading facts that require remark: the first of these is, the vein of imitation detected in the fourteenth-century work, much of which adopts the ornament of the twelfth century edifice it was superseding. The second peculiarity in the workmanship is the substantiality of the tracery. A window in the east end of the south aisle has this quality in an eminent degree, and the tracery fills the opening from the head down to half-way between the springer and the sill. A profusion of carved corbels is also to be remarked, all representing human heads. The four square belfry openings present these characteristics especially. That on the east side is filled with a solid panel pierced with cusped trefoils, and in the centre of the inner side of this piece of perforation, invisible from the exterior, is a pillar, having a moulded capital, base and bands. What link could there have been in the mind of him who designed this panel, and the author of a similar one, only slighter in its construction, to be seen in the bay of the hall of Clevedon Court, Somersetshire?

On the north side of the choir there is a puzzling fragment. Here are two graceful arches, the mouldings of which are thickly set with dog-tooth ornament, high up in the wall. They are now partly built up with masonry, through which is a handsome semicircular-headed door-way, having double columns at the sides, and an inner arch to the door-head, which is cusped. It is clear that the space behind these arches was originally intended for an aisle, though subsequently walled off and turned into a sacristy. But it does not appear that the column between these arches ever descended to the pavement, for no traces of it are found either on or in the walling that cuts it off abruptly.

The sedilia are almost Oriental in their rich decorations. The arches are very acutely cusped and sculptured with flowing and intertwined ornament. They are surmounted by labels having heads for finials, and there are heads above the point of junction of each arch, as well as on the columns that separate the seats. Grouped with these is the piscina, the corbel and canopy of which are decorated with the figures of angels, the whole presenting elaborate but not refined richness. The sculptured ornament throughout the edifice is in tolerably good preservation. There is a considerable quantity of it, most of the capitals being carved, and the labels of the windows terminating and culminating in carved corbels. There are two consecration-crosses still standing. And, besides these enrichments, there are the effigies of two of the abbots in full canonicals, and another of an armed knight, with his feet resting on a couched greyhound. An incised stone, rifled of the brass figure of another knight, also calls to mind that the great ones of the earth once coveted burial in a spot hallowed by the memory of St. Columba, and that the surrounding soil must be full of their bones.

The Bishop of Argyle notes that for many centuries there was a "perfect *furor*" among both the Celtic and Scandinavian races for burial at Iona. More than forty kings have come in the silence of death across the trackless sea-path, to be laid for their long rest with the saintly company on the island. From Scotland, from Erin, from Norway, and from France came these solemn ocean processions, ever to be received, we may be sure, with the greatest attention by the Celtic brethren. As the seat of a library and centre of learning, the monastery attracted towards it travellers from all parts of Europe. Some connexion, too, with the universities of Paris and Padua brought the brethren into further context with the world. But it was the memory of St. Columba that attracted the great stream of pilgrims; for, disguise it as we may, either under the name of a pilgrimage or sight-seeing, scenes associated with the memory of the good and great have an irresistible attraction. The aspect of the founder of Iona, in the fulness of his work, is described as "red and fiery;" and it was doubtless royal to the hordes and wandering tribes who looked upon him, for he came of a race of kings; while his teaching and practice must have been singularly gentle, for he lived with his followers on terms which caused the establishment to be known as "the family of Hy" (Iona). He was pre-eminently a worker, as the number of churches he founded would alone testify. But with all his journeyings to and fro, his preaching and teaching, his writing of hymns and prophecies, he found time to copy St. Finnen's Psalter, which MS. is still extant, in a jewelled silver case, in the possession of Sir Richard O'Donnell. The word "copy-right" was not invented at that day, but the same strong feeling against the injustice of taking surreptitious copies of valuable works seems to have existed in the early Celtic mind as is now entertained in the breast of the Anglo-Saxon. St. Finnen so forcibly objected to the liberty taken by St. Columba, and their mutual partizans and monarchs threw themselves so heartily into the quarrel, that, with a strange relapse into Pagan pugnacity, a great battle was fought upon the subject, and much blood shed. The saint's penance, his work, and his virtues have met with a sympathetic chronicler in the bishop who now has spiritual jurisdiction over his favourite island,—1,300 years after his death on the altar-steps of the abbey church. A tone of regret pervades the page that deplores the Celtic exodus that is now taking place. The glens, the mountain coves, the dreamy shores, the green islands, all seem to echo the Highland sigh *Fuimus*. But we should bear in mind the Celt is only doing to-day that which his ancestors did of old,—pushing farther and farther westward.

THE HOUSES OF EMINENT MEN.—Commemorative slabs of marble have just been placed on the houses at Valladolid, which had been inhabited by Christopher Columbus and Cervantes.

DRYING OIL DRYERS: THEIR COMPOSITION AND THE CHEMISTRY OF THEIR ACTION.

THESE so-called "dryers"* are very peculiar and very mysterious things. We are perpetually hearing them talked of. We everywhere meet with them—everywhere encounter evidences of their existence or of their agency. An oil paint would seem to be but an imperfect existence if deprived of its inevitably associated dryer. One cannot get a few ships' stores for the yacht—paints, oils, turpentine, &c.—without an everlastingly recurring item in the invoice of "Patent dryers." One cannot send to the druggist for a pot of paint, with which to touch up the greenhouse in spring-time, without having had put into it a dab of one of these dryers. Without the touch of a dryer, a varnish with oil in it seems to lose its very vitality. There exist thousands of other things about us, in whose composition drying oils are essential, which, without those dryers, could either not be made at all, or, if made, would be useless.

Yet no one seems to be perfectly acquainted with these dryers, to be able to relate their history, or comprehend their action, or give us any reasonable explanation why it is their use is so prevalent; why it is they are deemed so indispensable; and yet why, at the same time, they are looked on with so deep a shade of suspicion. These dryers may, so far as our real knowledge of them goes, be veritable myths, instead of palpable realities. They are mysterious in their origin—mysterious in their influence. They are a puzzle when they benefit us; they are equally a puzzle in the mischief they too often work us. To the uninitiated their composition is a mystery. Even did one make a right guess as to the kind of materials they possibly are made up of, still is it left a mystery how these, their component parts, are put together; they are to all of us as great a puzzle as to a baby mechanist is the internal machinery of a watch. One cannot divine how they were first found out, nor when they were found out,—whether they were begotten of pure accident, the handiwork of some hap-hazard empiricism, or were the happier function of some process of reasoning hit upon in times long past.

It is not a question whether or not chemistry can indicate *à priori* how we shall make these dryers, or can predict their actions and effects, for on these topics chemistry is dumb. But it is a question whether their peculiar actions illustrate some already existing and known law of chemical philosophy, or whether their phenomena do not emanate out of some hidden order of affinities, or kinds of molecular actions, which have never hitherto been brought to light; whether, in short, science plays here the part of a teacher, or is waiting to be taught,—is the preceptor or the pupil.

Could some artist but paint himself when puzzled with his materia, his pigments and his vehicles,—wondering how best to handle them so as to have his work dry before the dust of his studio, or the glacier-like creeping down of his semi-fluid (viscous) paint on the perpendicular face of his canvas have ruined his effects;—paint himself fumbling with, perchance, Vandyke brown, or with gamboge, or some of the lakes which, among others of his materia, love to baffle and perplex his drying oils, and keep his work wet on his canvas for ever, pondering (amidst his dreams of immortality) over the possibility that, in a few brief moons, his work may decay, and all be lost; that, by the time his name may have reached the encyclopædias, his favourite work may so have shrunk and cracked (as the sun breaks up and cracks moistened clay) as to defy all the phraseology of geometry to describe the variety of forms it is split up into, and made to look like a modern railway map;—paint himself lamenting his deficient chemistry, and, like Cowper's spaniel with the water lily, "setting his [artist] brains to work to comprehend the case;"—could some artist

* This term, "dryers," was imposed upon the compositions in question during the Dark Ages, in the chemical history of the drying of an oil. It carries with it meanings which are inapplicable to the kind of actions it is intended to indicate. The ground dries after a shower of rain, and a piece of damp calico dries on being held before the fire, simply through the vaporization of the water which wetted them. An oil "dries," not by virtue of its vaporization, but through a series of complicated chemical actions which result in the solidification of the fluid oil, not in its disappearance bodily. A better term than "dryer" for the agent used in the solidifying of an oil would be "solidifier," or (if preferring the Saxon to the Latin) "hardener." But the sanctity of long usage will, probably, make us adhere to the older term.

work out this, he would be but giving expression to an every-day feeling with regard to the chemistry of oil-painting and the question of these dryers.

Yet all these vagrant and ill-understood dryers play a somewhat important part in their sphere among civilized existences. Without them we should have many a halt in the pace—many a "block" in this fast-going age. Without them (to select a few out of a multitude of like occasions and urgencies) many of our homes, many of our public offices, of our banking houses, our Regent-street show shops, our mighty Manchester goods warehouses in St. Paul's or Wood-street, our United Services, Carltons, and Athenæums, and many a fine specimen of our royal and our mercantile navy would be compelled to have their much-needed periodic renovations and beautifyings postponed *sine die*—deferred to the next season, or to the end of the next session, or of the next home voyage, or to the never-coming Greek Calends, but for the time-saving and potent influence of these mysterious dryers.

It seems to be a contingency inherent in oil painting that, in ninety-nine cases out of every hundred, the work must be despatched in a hurry. We always push on our house-painting with impatient speed. We look on this kind of thing as we would look on a surgical operation—to be dreaded, detested; but as bringing with it, when all is over, fresh life, health, and comfort. Few of us can so command it that during the fortnight's sojourn at Brighton or Hastings the house-painting shall be finished in town. Even the town house of the famous old lady of Threadneedle-street must (unless she trespass on the sacred hours of the Day of Rest) have its periodic painting (its interior renovation) completed between the short hours of four p.m. of one day and nine a.m. of the next. But decent time is given for the rebeautifying—inside and outside—of one of our big merchantmen in dock between the clearing out of one cargo and the taking in of another. For our shop-fronts and the outsides of our dwelling-houses, a still scantier and a more ticklish time is left between sharp showers and savage gusts of easterly winds laden with cutting dust, which alternate so provokingly in spring time on painting days in March and April. We must ply the paint-brush, as well as make hay, whilst the sun shines; else will the damaged work look us not pleasingly in the face throughout a whole year to come. Every thing and every one may take its or his time but carnal painting and carnal painters. We work for ever under high pressure. Time and time's urgencies are omnipotent and never-ceasing in exaction in this fast-going age; and time finds his readiest, if not his wisest executors, in these expedient, apparently indispensable, but too often mischief-working dryers.

A little consideration reveals what might otherwise escape the attention it demands,—the multitude of occasions which exist—the almost universality of occasions,—for the use of these peculiar agents. It reveals also the extent of the possible evils which an injudicious use of them may introduce into our every-day painting; evils which, of late times, have made decorative painters anxious, and led to no inconsiderable amount of pecuniary loss both to them and their patrons. It will hereinafter be demonstrated that certain novel malverse effects peculiar to recent paint-work, and frequently referred to in our own Journal,* are not always (as they have been generally, but erroneously, held to be) due to adulterations of the oil or bad quality of our modern pigments. It will be shown that the real and main cause lies much closer at hand, and is more general and diversified in its influence. Our rapid strides in (so-called) civilization enforce an unhealthy activity in all things; and this viscous unrest touches (as we have already urged) our painting enterprises very especially. Hence has there sprung up in these latter times an inordinate, unintelligent, and most injurious employment of these dryer agents.

We are everywhere and at all times surrounded by these dryers, or by evidences of their existence and effects.

The apartment dignified by the title of study (not studio) wherein this paper is being written, affords even within its circumscribed and unambitious limits, abundant evidence of the prevalence, verging closely on universality, of the use of these dryers. The oil-paint on the walls, a compound of lake, zinc white, and malachite green, with *refined* linseed oil as the liquifier, might have required a week before it became dry instead of only ten or twelve short hours (the actual time), and during this week's time would have had to encounter a variety of perils besetting it on all hands,—external and internal,—assaults from without and discords within,—from all which it has been delivered by the mere touch of its magical effects, of one of these dryers. It might, but for such an inoculation, have trickled down the face of the perpendicular walls perforce its own mere gravity, if left during a whole week in its original semi-fluid and mobile condition, and thus have left little unsightly channels or streaks on its surface. It might have become crisped,—have dried in wrinkles under the action of alternating changes of temperature going on day and night throughout all this week's time. It might have fermented (chemical action at work) internally, and thus have thrown out certain gases or vapours, and become blistered, because of the formation of a thin film of dried oil on the outer surface, whilst the mass below remained plastic or semifluid. It might, through so long a continuance of mobility and of chemical action, have had its carbonate of copper reduced to an oxide, and appearing in ugly brown patches here and there, have had its proper glossy surface disfigured by a coating of dust, or deadened by an accidental excess of hygrometric moisture in the atmosphere. But from all these, and perchance other mishaps, this very beautiful paint, with its remarkable light-reflecting powers, has fortunately been saved by the simple expedient of a judicious employment of one of these dryers.

In like manner, and with the same beneficial results, have these dryers been applied in the zinc white of the ceiling and its centre rose, in the colouring of the cornice, the priming and varnishing of the imitation oak graining of the doors and skirting-boards, and the maple-tree wood of the book-shelves. They have played an equally important part in the manufacturing of the imitation Morocco covering of the writing-desk; of the American leather-cloth of one of the easy-chairs and the couch; of the table baize covering of a side-board; of the strip of floor-cloth over the Brussels in the doorway. They are a component part of the Japan varnish of the coal-box; of the gold size underneath the gilding of the picture-frames; of the bronzing composition of the chandelier, and on the deadened parts of the polished steel fender. The elastic tube which brings the gas from the centre chandelier down to writing-desk could neither have been kept gas-tight, nor have been externally ornamented, nor could the conical shade poised over the desk gas-jet have been tinted a grass-green outside, and pure white inside, but for these all-pervading dryers. The Venetian-blinds, the frame-work of an aquarium, a flower-pot stand, a mignonette-box, the varnish of a patent leather courier-bag, may be added to the list (and still leave it far from complete) of dryer benificents to be found even in so modest and moderate-sized chamber as this.

If, then, within limits, and among objects so circumscribed as those of this little chamber, we find, when we come to look into the subject, these agents so unexpectedly prevalent, what, we naturally ask, must be the extent and multiplicity of their applications over larger and higher objects, and in more general and extended spheres?

This question of dryers concerns equally the spiritual painter and the carnal one—the creator of the "Descent from the Cross," and the designer of the paint ornamentation of the Crystal Palace. It was as important in Turner's "Venice," as in the last painting of Glyn's "Bank in Lombard-street;" in Murillo's "Purification of the Blessed Virgin," as to him who daubed the last Madonna's head for St. George's Cathedral; of as much importance in the getting ready of the reception-rooms for the last levee at St. James's Palace, as for the spring-time painting of a gardener's cottage on Clapham Common. The painting of one of the Claudes now in Trafalgar-square needed these dryers not the less than did the recent paint-decorating of Howell & James's shop, in Regent-street; nor will the rival boats for the next Oxford and Cambridge struggle be more independent of a touch of quick-drying paint than is any one of the big ships of the Mediterranean or the Channel fleet. Of the many thousands of tons of linseed oil, the produce of last year, which Messrs. Rose & Graham's circular tells us were reserved for home use, and which we know were, for the most part, in obedience to all kinds of civilized requirements, spread in thin films over millions of square yards of surfaces, every single grain of this huge quantity, and every square inch of surface this grain has been spread over, has been more or less under the action and influence (good or bad) of these mysterious dryers. Yet does no none give us any reasonable account of them.

Finally, of this imperfect summary of occasions, the kind of ink with which this paper is printed, and which kind will also, and on the same day print a myriad of other broad sheets, owes no inconsiderable portion of its many virtues to dryer agents. These are interfused with the oil forming the fluid element of printer's ink.

Imagine some unprecedented calamity befalling printing ink during a single night's publishing hours throughout our metropolitan newspaper offices. Some conjunction of evil atmospheric influences, such as an abnormal condition of its oxygen, or an undue preponderance of hygrometric conditions in it, under which the ink refuses to dry; the folded printed sheets become glued together, and such an amount of smearing follows as serves to obliterate every printed syllable of the whole morning's editions. A catastrophe of such a magnitude (like the killing of a bishop as a preventive of railway accidents), would prove an admirable incentive to a study of the abstruse subject in hand. Isolated and less intensified mishaps of this kind, and springing from the very same causes, are common enough.

* See *ante*.

ITALIAN NOTES.

ITALIAN academies and literary men had begun, before the commencement of the war, to take thought as to the best means for securing a worthy representation of this country's art at the Paris Exhibition next year; and now that the political tempest, with its absorbing excitements and agitations, is passed over, those peaceful interests resume their place, and we are hearing of arrangements being made, such as, so far as the outward action of constituted bodies can avail, may secure to this land's productive genius a rank worthy of its antecedents in the great aggregate. Not many days ago, we heard from Turin that the *Accademia Albertina* of that city had created a committee and sub-committee for collecting and judging works offered to be sent to Paris; the former of those bodies under the presidentship of the Marquis de Breme, who is the Academy's own president, and including, besides, seven counsellors, six painters, one sculptor (Signor Vela, who stands high in his art at Turin), and one engraver. This chief committee now invites artists to send in, prior to the 10th of October, to the offices of their secretariate, the works to be submitted to examination, and that most rigorous (*sensu romano*, as the phrase is), each to be accompanied with title, description, and indication of price if saleable; the aggregate of the admissible being ranged in the announcement, as follows:—1st class, oil paintings; 2nd, miniatures, water colours, pastel, enamel, majolica, porcelain, cartoons for fresco or glass-painting; 3rd, sculptures, medals, cameos, nielli, and cut gems; 4th, architectural drawings or models, restoration of ruins, &c.; 5th, engravings, plain lithographs, and chromo-lithographs; all copy work to be excluded. Next ensued the proceedings of the Florentine, now styled "Royal," Academy (which had already, as was proper, taken the initiative); and on the 29th of August was announced the formation of a sub-committee of professors representing the three sections—painting, sculpture, architecture,—charged with the task of judging and selecting works sent in, all to remain on the Academy premises during September, unless not easily transportable; in the latter case, to be examined *in loco*—*i. e.*, at the artists' studios. There is also a retrospective limitation of time, the competitors being required to present only such works as have been executed since the 1st of January, 1855. But how enforce this? On the following day, the 30th of August, was held the first meeting of the chief committee (some time since created by Royal decree), at the office of the Minister of Agriculture and Commerce, Signor Cordova, who himself opened the proceedings, but soon yielded the chair to the Commendator da Vincenzi, the gentleman expected to become president, though not yet officially declared such. On this occasion were present, besides the members of the committee,

the French Ambassador, Baron de Malaret, two Senators, and seven Deputies; but the result of the day's deliberations has not been made known. Prince Umberto has become honorary president of this committee.

Italian local exhibitions are, generally speaking, most disappointing, and quite below the standard one might form in expectation after making a round of visits to studios in the principal cities. This may be in part ascribed to the prejudice that prevails among artists of repute against such means of seeking public favours; for the fact is, that alike at Rome as at Florence, the most distinguished talents of the day are rarely represented on the walls, or in the sculpture-rooms, of annual exhibitions.

The question has been raised by Florentine journals whether the Dominican Convent of S. Marco ought not, out of regard for the many paintings by the Beato Angelico contained therein, to be left *in statu quo*, or appropriated to literary and artistic bodies after the friars have quitted. It is said, we believe on good authority, that such venerable monasteries, in retired or mountainous regions as are not required or suited for other appropriations, will be exempted from the enforcement of the law that condemns all alike to suppression, so that the monks of Camaldoli, Vallombrosa, and other similarly situated cloisters, may spend the rest of their days undisturbed, though not, indeed, allowed to recruit their numbers by receiving into the noviciate. At all events, this, we understand, is certain, that the Italian Government, through its minister at Constantinople, has informed the patriarchs and other chief prelates of the Armenian Church, that the celebrated establishment of their clergy at Venice will be respected, and left in enjoyment of all its wealth and privileges. That learned community, who took the name "Mechitarists," from their founder, Father Mechitar Pelusian, in the early years of the last century, are, in fact, Basilian monks, and have been settled at Venice since 1717, in which year they were driven from their original establishment in the Morea by Turkish occupation; at the Adriatic city, they were received with hospitality; and the republic granted them the possession of an island, S. Lazzaro, where hitherto had stood but a few fishermen's huts, and where eventually rose up one of the most pleasant and well-ordered among Italian monasteries, that seemed to us, when we visited it some years ago, as attractive a place as the lover of quiet and of learning could desire. Combining the character of the secular and ecclesiastical college with that of the convent, but exclusively for the Armenian nation, it was soon provided with the press that is still worked, and has produced some of the finest polyglot publications ever seen in Europe. The spoliation of the archives of Venice, both at the Frari Convent and St. Marcian's Library, by the Austrian authorities, has, as natural, excited the greatest indignation, and been reclaimed against by the Italian press in general. It is said that *all* the documents most important to local history have been removed from the St. Mark collection in the ducal palace; but we have the satisfaction of learning that a complete restitution as well of these as other treasures, artworks, reported to have been seized by the authorities about to quit the Adriatic city, is stipulated by General Menabria among the terms of peace between Austria and Italy. The iron crown, removed from Monza during the war in '59, is also expected to be, through the same means, recovered, for the land whose kings have right to wear it.

At last we are assured of sanction by highest authority, and of accomplishment within a given time, for the works towards the enlargement and embellishment of Florence, the plan of the well-known engineer, Del Sarto, long since approved by committees, having been adopted by royal decree, signed by the Prince di Carignano, on the 18th of August, which appeared *affiché* in this city's streets, with a preamble in the name of the municipal Syndic, on the 7th of September; one clause therein importing that, within ten years from the date of signature, this project is to be brought to completion. Meantime, the demolition of the walls at the northern side is continuing, after a period of suspense, and promising soon to leave an unobstructed view of the hills of Fiesole from that boundary, where hitherto a quiet walk along terrace-ground extended on the inner side of the useless fortifications now doomed to disappear.

On the 1st of September was opened the new General Post-office, at one extremity of the wing of the Uffizi nearest to the Loggia of Orcagna, in the same *locale* once occupied by the Mint, where a spacious cortile, under a high-hung glass roof supported by four octagonal carved pilasters, has been opened for the use of the public, affording the convenience of transacting under cover and at the same centre all postal affairs hitherto despatched at the very ugly establishment on the Piazza della Signoria, either in the open air, or in various offices to which applicants had to find their way without guidance. The new "Posta" is an appropriation rather than an additional building, and has in no way altered the architecture of Vasari at this end of the Uffizi structures, since by the opening of arched doorways garnished with stone reliefs of the four armorial shields of Florence and the Cross of Savoy, now become the device of the Italian kingdom,—a heraldic display further carried out within the glass-roofed cortile in the sculptured shields of the twelve principal Italian cities, including that with the wolf-suckled Twins of Rome. This interior, when lighted with gas, forms quite a brilliant scene, and on the night of the opening was crowded like the pit of a theatre for some benefit night. Elsewhere an antique, not a novelty, has of late excited much attention among the Florentines in the discovered details of long-concealed architecture at the palace once of the Buondelmonti, in earlier times of the Degli Scali family, and later appropriated in its upper stories as the library and reading-rooms of Vieusseux, chief reading-rooms of all English residents and visitors in this city. This mansion, on the Piazza Santa Trinita, and near the bridge of the same name, has long borne a completely modern aspect, its ground-floor fitted up with shops; and the removal of plaster from its lower wall-surfaces, in order to some new appropriations, has brought to light the mouldings round doors and windows, in dark-faced stonework, that announce the palatial architecture of a good period in Florence, simple and massive, the same character being recognised in some fine vaulting with intersecting ribs, now exposed to view in interiors hitherto cut up into shop-rooms. The façade is known to have been adorned with frescoes executed by Jacone, from designs of Andrea del Sarto, long since entirely concealed, if not destroyed.

The Piazza dell' Independenza, the amplest and one of the newest squares in Florence, is ere long to receive a central object in a colossal equestrian bronze of the King, executed by a Modenese artist at Bologna, and to be cast at the foundry here, from a model in scagliola, the transport of which, it is said, will cost no less than 8,000 francs; the entire sum granted by Government for this ornamental work being, we are told, 130,000 francs. *Another* statue of Victor Emmanuel, for some public place in this city, has been commissioned to the sculptor Consani; but as yet, it seems, this last project is not intended for the public ear, perhaps on account of some hesitation as to its fitness, seeing that statues of the same royal personage are already somewhat *de trop:* and there are those who hazard the objection that far too much has been spent of late upon monuments not absolutely of obligation for any interest or duty of patriotism. The bronze from Michelangelo's *David*, cast at the same foundry by the artist Papi, has been reported of with much commendation, and is soon to be exhibited, *perhaps* (though this is yet but conjecture) to be ultimately substituted for the marble original, in front of the Palazzo Vecchio; in which case the latter would be removed to the great vaulted hall in the "Pretorio," where a cast of it now stands, seen with the best possible effect against a dark background of ancient wall. The group by Fedi, long since finished, has not yet been raised on its basement in the Loggia of Orcagna. In the Uffizi, the compartment of portraits of artists, all by the originals represented, has lately received an addition in the half-length of Flaudrin, with his name, and the date 1853.

We have the painful intelligence that the artist Altamura, of Naples, known in the historic walk, has become affected in intellect, and immediately, as is said, owing to the severe criticisms passed on a picture he had executed either for the King or the Prince di Carignano.

The proceedings of the National Committee for selecting and forwarding works of Italian produce and the Paris Exhibition, are in an advancing state. On the 10th inst. were held two meetings at the Ministry of Agriculture and Commerce, Signor Devincenzo, who was president of the Italian Committee for the London Exhibition, acting in the same capacity for this occasion, as it had been desired that he, rather than any other, would consent to do. In the course of this day's business were nominated six new members; and, moreover, was formed an executive committee, consisting of five members, then and there elected, charged with the more active duties to be undertaken for promotion of the objects in view, one of this quorum being the Signor Targioni Tozzetti, a well-known writer. It is announced that the Dominican Convent of S. Marco, of which we spoke above, is to be declared "a national monument," and the quarter of the National Guard, hitherto sharing it with the Friars (who are not yet ejected), to be transferred elsewhere; while at the same time the public interest in those cloisters is met by the assurance that not one of the many art-objects within their walls has in any way suffered. Thither is to be removed from the Ricciardi palace, the Della Cruscan Academy, whose meetings have been hitherto held at that ancient residence of the Medici, and who, at their last gathering, were apprised of the change; this public *séance* of Della Crusca being of more general interest than usual, owing to the eulogiums, well delivered, of six lately deceased members,—Lord Vernon and the Marquis Cosimo Ridolfi among these;—also, the reading of a much-applauded discourse on the life and writings of M. Ampère.

MARINE STORE DEALERS AND THE RAG COLLECTORS' BRIGADE.

FROM time to time we have mentioned some of the chief causes which add largely to the criminal population—and to one or two matters connected with this important subject which require the greatest care we will again direct attention. Our readers know that the ill arrangements of the dwellings of many of the industrious classes, who have children, drive them into the streets, and subject them from an early age to the dangers of evil companions and temptation: this shows how necessary it is to prevent, as much as possible, facilities and inducements for the commission of crime. One of the most dangerous of these is the rag-shop. It is easy to imagine how such facilities as the rag-shops offer must lead boys to be tempted into the commission of thefts: one boy at play tells another, and it is difficult to estimate the extent of the mischief which has been done by these means, and amongst smaller children the effect is even worse—in poor neighbourhoods especially there are all manner of inducements held out. At these shops many of the roguish dealers, or their wives, will buy from children not taller than the counter the brass handles of doors, locks and keys, taps, pieces of lead piping, brass candlesticks, flat-irons, and other household matters which may be readily removed. By the ready opportunity of disposing of such articles as these many a boy has commenced a course which leads to utter ruin. It is true that the marine-store dealers are forbidden to buy things of children who are below a certain age, but it is a constant practice to do so, and the question arises as to whom this fault is to be attributed. We have not the least hesitation in stating that these shops should be far more carefully revised by the police than they are, and that offenders who act contrary to the law, either in the neglect of making the entry of goods in their books, or buying from those too young, should be brought to justice. The detective police might put their reserve on this duty for two or three months with the greatest advantage; for the prevention of receiving by the marine-store dealers and some of the worst kinds of pawnbrokers,* would be undoubtedly a means of preventing a vast amount of pilfering, both by children and those older: but for the means of disposing of goods which are so readily found at those places, many mature and practised thieves would find their occupation gone, and, perhaps, in their necessity would turn to some honest trade. But it is those who are younger who especially need protection; and for this purpose, we think that, besides enforcing attention to the present laws, the

* Although the laws of pawnbroking expressly state that no article shall be received, under the payment of a fine, from any person, male or female, who is not apparently sixteen years of age, it is a common practice with many pawnbrokers to take pledges from children of the age of eleven or twelve years.

dealers in marine stores should be especially licensed, and none allowed to practise this trade who cannot have a good character guaranteed by several respectable people.

But our chief object at present is to mention the rag-collecting brigade, which, instead of encouraging dishonesty, is the means of giving honest employment to youths who, from lack of employment, might be driven to do wrong. We remember a dealer in rags and old clothes who used to go through the streets crying in a loud and not unmusical voice, "Look them up, ladies! look them up!" Our readers know the working of this brigade, which, we trust, will soon have their trucks in all parts, and become a well-known feature of the metropolis, and lessen the marine-store dealer's trade. Therefore, we say, when neatly-dressed lads and the smart trucks of the Rag Brigade come in sight, "Look them up, ladies! look them up!"

OVERCROWDING AND DRUNKENNESS IN LIVERPOOL.

REGULATIONS as to lodging-houses having been submitted by the Mayor to the Home Secretary, on the part of Mr. Walpole Mr. Taylor in reply says,—

"The 2nd of these regulations appears to him to require modification in reference to the following points:—

1. There is no statement how children are to be dealt with in calculating cubic space.

2. A maximum cubic space is stated as small as, or smaller than, the minimum in other regulations submitted to the Secretary of State, and smaller than, in the opinion of the medical officer of the Privy Council, ought to be permanently sanctioned even as a minimum; but, in the face of the practical difficulties which exist, the Secretary of State is prepared to give his sanction to regulations requiring this space as a minimum for each person."

An elaborate report from Dr. Trench, in reference to the subject, has been submitted to the local Health Committee. In this report Dr. Trench says,—

"This subject is not to be determined as a question of mere abstract hygiene, nor is it to be propounded as a sanitary proposition, but it is to be practically regulated by data dependent on a knowledge and experience of *what is possible and therefore just, under all the circumstances* of each particular district or borough. Thus it has been ruled by some in London that 450 cubical feet of space are necessary for each individual adult and infant, and that rooms without this accommodation are injuriously overcrowded. As an abstract proposition they are probably right. If, however, the Secretary of State confirms a bye-law, making this space necessary in London, it will be well that the houses there are so constructed as to admit of it without grievous tyranny to tenant and owner; for the penalties are great, and a bye-law which is not enforced, but is merely enunciated as a theory, is worse than useless. The medical officer does not venture to pass any opinion as to what space may be rightfully required under penalties from the tenants of the small houses of Eastern London; but he unhesitatingly asserts that in provincial towns, and in Liverpool especially, a greater space for each individual than what has been accepted as sufficient by the Council of Liverpool would, in the present scarcity and dearness of houses, be *practically impossible*. This is a mere matter of measurement, which may and will no doubt be asked for, by some member of the House of Commons, in investigating the incidence of the provisions of the Public Health Act; or in tracing how far sanitary regulations have been made to fall with especial force on certain ranks of society and certain descriptions of property.

Upon telling my inspector that in London they ruled 400 ft. as the legal space in a sleeping-room, he at once shrewdly remarked, 'In many rooms in Liverpool, then, the mother would not only have to separate from her infants, but would have to leave the husband half-way out on the stair.' I assure the committee, that when I thought with what trouble the officials of the Privy Council had sent inspectors to report on the condition of Liverpool, and of what intimate knowledge they must possess of our physical and social position, I somewhat feared that they would advise the Secretary of State that the scale of 300 ft. and 360 ft. was not only a maximum, but a hazardous maximum to sanction under the penalties of the Act. The medical officer would respectfully suggest, that if the Secretary of State be willing to make your by-laws more stringent and coercive, he be requested to sanction,—firstly, that all persons of the age of fifteen be considered as adults. This is the age when both boys and girls can go to service or assist in earning their livelihood; and, therefore, we may reasonably demand that they leave a home which is over-crowded. Secondly, that two children below ten years of age, being the children or relatives of the chief tenant of the house, do count as one adult. If the chief tenant has a large family of children we have a right to demand that he, properly accommodate them before subletting his rooms."

The report was adopted, and ordered to be printed.

Some time ago the corporation purchased 22,000 yards of land at the north end of the town, intending to let it at very low rates for the erection thereon of improved labourers' dwellings on plans to be approved by the council. The state of the money market has prevented any offers being made, and the health committee have now agreed to recommend the town council to apply to the Public Loan Commissioners for 13,000*l.*, at 4 per cent., to be applied to the erection of a block of improved dwellings for workmen as an encouragement to other parties to do the same.

Extracts from the report of the committee of the Health Committee appointed to inquire as to the causes of the excessive mortality prevailing in the borough of Liverpool, and as to the best means to be adopted for mitigating the same, are given by the *Albion*. The statements of the witnesses went chiefly to show the intimate connexion between drunkenness and overcrowding, drunkenness and crime, and drunkenness and the excessive mortality of the town. On these subjects some of the revelations were of the most startling description. The witnesses, whose experience as relieving officers, estate agents, and ministers of religion, gave them opportunities of speaking from personal observation, agreed that drunkenness is greatly on the increase in Liverpool, caused in great measure by the multiplication of gin-palaces and beer-houses; that it is especially on the increase among the wives and the children of the labouring population of the town; that it is the great cause of poverty, destitution, crime, and death; and that the evil exists more among the unskilled than the skilled labourers—and more amongst that portion who draw their wages daily instead of weekly. The statements of several of the witnesses on this part of the inquiry are perfectly appalling.

CONDITION OF LIVERPOOL.

SIR,—Sanitary science in all its branches makes slow progress, as you have found out in your own experience. Few men have worked more earnestly than yourself, as the pages of the *Builder* testify now, and will continue to testify to future ages. You have provided a mine of facts, in which many men have worked to good purpose, and in which many more will work. But after laying down line upon line, and propounding precept upon precept, do you not almost despair when you find that, Sisyphus like, the sanitary stone you have been rolling comes back? Sisyphus must have been a sanitary reformer. Cesspits are foul abominations, breeding foul air and disease. This has been proved over and over again by medical men; and yet cesspits and cesspools are not only retained, but their continuance and use are advocated, and their multiplication recommended by men who ought to know better. Reading and Winchester have cesspools. Sewers have been spoken about for both towns; but the dirt party have up to this time prevailed. Leeds, Sheffield, Manchester, Liverpool, and some other large towns, count cesspits by thousands. In Manchester the officials plead that cesspits must be retained for cottages because there is no water to spare for soil-pans, and that the working men will abuse them if they are put up. In London cesspools and cesspits have been abolished by tens of thousands, and for open privies, in the working class districts, soil-pans have been substituted. All over the west end, in a population larger than either Liverpool or Manchester, water-closets are the rule. Neither sewers, drains, nor water-supply are perfect,—far from it; and some of the soil-pans are abused; yet we find that in London, as sewers, drains, water-closets, and soil-pans have superseded the open privy, cesspool, and cesspit, although the river Thames has been fouled, the health of the metropolis has steadily improved, until London, with its three millions of inhabitants, has become the healthiest city in the world. You know, sir, how much that is bad through gross neglect remains; your own writings detail frightful pictures of human squalor and premature death in overcrowded, ruinous, and filthy tenements. The word "homes" ought not to be applied to such dens of fever, misery, vice, and pauperism. If, then, London can show a reduced death-rate in the face of such gross sanitary neglect all over the southern and eastern portions, the rate of mortality in the western and better portions must be very low indeed; proving that large towns need not necessarily be unhealthy. What, however, do we find? Sheffield, Leeds, Manchester, and Liverpool, ranging, ordinarily, from 25 per cent. to 50 per cent. higher in their death-rates than London, and this summer and autumn Liverpool having a death-rate of upwards of 60 in each 1,000. Leeds has only consolidated her municipal power of governing this session, and Sheffield has only recently adopted the sanitary powers of the Local Government Act. Liverpool, however, boasts of having provided herself with sanitary laws sooner than any other town in England; and, if expenditure on sewers and waterworks alone could produce beneficial results, Liverpool, at this moment, ought to be the healthiest great town in Europe. Most assuredly no town in the world is richer, as regards corporate income. Nearly a moiety of the entire town is corporation leasehold property, and all the world hears of her merchant princes, of her magnificent public buildings, of her miles of docks, and of her vast fleets of shipping; but, at the same time, all the world hears of her dreadful death-rate, which apparently rises year by year. If sanitary science is not a vain thing, this expenditure of money on sewers, drains, and waterworks ought to have brought improvement; but in Liverpool, judging by results, sanitary science has taught in vain. Surely there can be no local want of legislation, sanitary or otherwise: any time these last thirty years Liverpool has never been absent from Parliament. Let Christmas turn, and the season commence, and Liverpool officials will be found crowded in the lobbies and committee-rooms. So far, all this vast expenditure has apparently only purchased Pandora's box. If Hope is at the bottom, the sooner it is reached the better. It has been said there may be too much of a good thing: can it be that Liverpool has too much money? and too many local Acts of Parliament? Liverpool may, for change, take to official fasting, stay at home for a year or two, and work might and main to try and find out wherein she differs from all other towns in the empire, to cause her to be a local and national disgrace,—a by-word and a sanitary shame? Manchester is poor in municipal property, as compared with Liverpool, and in some respects cuts her municipal coat according to her cloth. There are fewer officials in Manchester, and these are paid at a lower rate; but the local government will bear comparison, and a favourable comparison, with her very much richer neighbour. The Mayor of Manchester has no official allowance for municipal feasting, and the only corporate property consists of gasworks, waterworks, and market tolls. Liverpool owns waterworks, markets, and, as stated, almost a moiety of the land on which the town stands.

There is one significant sanitary difference betwixt London, Liverpool, and Manchester in connexion with main sewers and drains. In London the main sewers are abundantly ventilated. In Liverpool and in Manchester there is no such arrangement for ventilating the main sewers, as any person may verify by walking along the streets. All over the surface of the London streets ventilating grates open up the sewers to the air above, so as to allow the sewage gases to be continuously diluted. This, although a rude method of sewer ventilation, has been the salvation of London. The 1,500 miles of sewers have the sewage-gases regularly and continuously diluted, reducing the evil in proportion to the cube of the space and the motion of the surface atmosphere. In Liverpool and Manchester, for want of ventilation, sewage-gases may be concentrated until a deadly strength is attained. The main difference betwixt London and all other great towns, however, consists in the absence of cesspits and nightmen in London, and their continuance in Manchester, Liverpool, Sheffield, Leeds, and most of the other large towns of the north. The full meaning of "cesspit" and "nightmen" can only be understood and appreciated by those who have experienced and *felt* the all-pervading horrible stench. Words cannot describe the sensation. The weekly returns of the Registrar-General, however, show some of the deadly results.

Sanitary science teaches that purity, or the nearest approach to purity, of water and of air, is necessary to health. All refuse liable to become putrid should be removed from towns and houses as speedily as possible. Cesspits retain refuse in close contact with cottage houses until putridity sets in. This refuse, when being removed, poisons the entire atmosphere. London is free from this form of pollution, and her low death-rate vouches for this great sanitary fact. The gases of decomposition are continuously ventilated and diluted in London.

It is stated, as something to be proud of, that the heavy rains of the past fortnight have added largely to the stock of water in the Rivington reservoirs. The volume is put down at 652,000,000 gallons. This would supply London for about six days, Paris for about twelve or

thirteen days, and New York for about twenty days. Should a town of the importance of Liverpool be in this condition? All last year, and this year, so far, Liverpool has been short of water; on half-time allowance, in fact. Of the local mortality we have already spoken. Liverpool had need provide for more water.

CIVIL ENGINEER.

THE ARCHÆOLOGY OF EASTBOURNE, SUSSEX.*

THE design of this paper is to bring together, for the information of the members of our society and their friends, assembled upon this occasion, a short account of such objects of archæological interest as have been discovered from time to time in Eastbourne and its immediate neighbourhood, the different notices of which are at present scattered throughout the pages of our seventeen volumes of Archæological Collections.

I shall commence with a most valuable and interesting discovery which was made here in 1805, when, by the fall of a portion of the cliff at or near to the Wish, four Celtic gold bracelets, very similar to those which were discovered four years ago at Mountfield, were brought to light, the heaviest of which weighed rather more than 3 oz., and the lightest 16 dwts. and 4 grns. The first was found by a man led to visit the spot by curiosity, and who, not at all knowing its value, took it to Mr. Holt, then a silversmith here, who, to his great astonishment, gave him 3*l.* for it. This led the man to make a further search among the fallen chalk, which resulted in his finding two more, and a fourth was subsequently found. These Mr. Holt also purchased. An examination of the cliff where the slip had taken place, was afterwards made, when several bronze instruments were found imbedded in it, at a depth of about 10 ft. from the surface. These consisted of three celts of the kind called palstraves, two socketed celts, a sword, and three lumps of pure copper, showing that they must have been lost or hidden there by some native maker of such bronze instruments. This discovery reaching the ears of Sir Joseph Banks, he wrote to Mr. Holt about them, and through him they were exhibited at a meeting of the Society of Antiquaries in London, March 19, 1807, together with the celts and sword; after which Sir Joseph became the purchaser of them for 30*l.*; and they are now in the British Museum, having gone there from the collection of Mr. Payne Knight, in 1835.

Mr. Harvey, of Lewes, has an ancient British gold coin found here.

I shall now proceed to show the claims which Eastbourne has to be considered a Roman station. That it was so is clearly proved by the Roman remains which have been discovered in and around it. In 1717, a tesselated pavement of considerable size, a bath, and other indicia of these early invaders of this country, were discovered in a field by the seaside, now forming the site of Cavendish-place. The discovery was made by workmen engaged in repairing a post and rail fence. In digging the post-hole the tool made use of struck upon something that offered a strong resistance, and upon opening a wider space, to ascertain what it proceeded from, the Roman pavement was discovered. That eminent physician and antiquary, Dr. Tabor, of Lewes, who drew up an account of it, which will be found in the 30th volume of the "Philosophical Transactions," says that the whole field, which measured four acres, is supposed to be full of foundations. The length of the pavement was about 17 ft., and its width about 11 ft. It was constructed of coarse tesseræ, with a pavement of brick around it, the whole being so firmly cemented together that, as I have already said, the workmen had some difficulty in breaking through it. As Dr. Tabor does not speak of any figures, similar to those which so beautifully adorn the Bignor pavement, it was, I presume, quite plain.

Other remains of the same people were found here in 1848, by Mr. James Berry, an Eastbourne architect, at a point to the west of the "Sea Houses;" and but a short distance from Trinity Church, the direction of its massive walls, which varied from 2 ft. to 4 ft. in thickness, and which were constructed of Eastbourne stone, being north and south. Mr. Lower, who inspected it soon after it was opened, succeeded, with the help of Mr. Berry, in tracing its connexion, by means of a corridor, with the bath and pavement previously found. Besides fragments of pottery of various kinds—black, brown, and red—two coins much corroded, a flint celt, bones and horns of various kinds of animals, tiles of red earth, impressed with a variety of patterns, and a small bronze, were found upon the site. As portions of Pevensey Castle, from which Eastbourne is distant about four miles, are manifestly of Roman construction, and its claim to have been the site of the Romano-British city Anderida which Dr. Tabor claimed for Eastbourne, is now very generally admitted; the Roman remains discovered here were probably the foundations of the villa residence of some Roman officer, high in station and command there.

On the Downs, north-west and west of Eastbourne, Roman urns, one containing horses' teeth, and others burned bones, and skeletons which had not undergone the process of cremation, have been disinterred. The two fragments of Roman pottery now exhibited were found about two years ago, having been thrown out with the earth which it became necessary to remove for the extension of the esplanade towards the Wish. Mr. Harvey, of Lewes, and Mr. Emary, of Eastbourne, are both of them in possession of Roman coins found in and around Eastbourne.

In the spring of 1847, during the time the railway from Polegate to Eastbourne was in the course of construction, the navvies in making a cutting in the part that passes through Willingdon, discovered an ancient coffer. It is of cast lead, and measures 12 in. in length by 11 in. in breadth. Its depth is 6 in. It has at each end sockets for iron shifting handles. On the longest side it has a triangular device of interlaced work, including a cross; an ornament not uncommon on Runic monuments. The whole is enriched with corded work. Various are the conjectures as to its date and use. By the Archæological Society and the Archæological Institute it is considered to be Anglo-Saxon, and its date to be of about the tenth century. Of its original use no satisfactory opinion has been advanced. Mr. Roach Smith thinks that such leaden vessels were used by the Romans for coffins. Its resemblance to the leaden cists in which the bones of Gundrada and her husband, the Earl of Warren, were discovered under very similar circumstances in the priory grounds, at Lewes, are very remarkable.

Another object of archæological interest found at Eastbourne, but in what year I am not able to say, is an ancient bronze seal, bearing an armorial shield semée of cross croslets fitchee, a lion rampant, and the inscription

"SIG: IOHANNIS: LIVET."

In the sixteenth and seventeenth centuries there were Levetts residing at Warbleton and Salehurst in the eastern, and at Fittleworth in the western division. Mr. Walford, however, thinks it not unlikely that this seal belongs to John Livet, who was the certified lord of the township of Firle, in 1316.

Before I conclude my list of archæological discoveries in Eastbourne, I must not omit to notice the most remarkable one, perhaps, of all; namely, the gold coins, with Mohammedan inscriptions of the eighth century, which were found here about ten or twelve years ago. It has hitherto baffled the endeavours of the keenest archæological mind to discover to what fortuitous circumstances we are to attribute the cause of such coins being found here.

Of the two lost towns of Hidney and Northey, both of which were limbs or members of Hastings, as one of the Sussex Cinque Port towns, Northey was about four miles from hence, in the Liberty of the Sluice, near to that part of the coast where the whale was cast on shore two years ago; but Hidney is described as having been situated between Pevensey and Eastbourne. Of these two extinct Sussex towns, I shall say no more at present than that I have been for some time collecting materials for a history of them, the result of which I hope to be able to give to the Society in the next volume of our Collections.

Nothing need be said of the beautiful parish church of St. Mary, of the old parsonage-house adjoining the churchyard, or of the old crypt under the inn, for these we have just visited—the church under the able guidance of the vicar. Of the crypt I shall only add that the celebrated inn at Alfriston, and the well-known Star Hotel at Lewes, have, both of them, similar crypts under them.

I might go on to speak of the wonders of Beachy Head, or, as it is usually called here, "The Head," which is second only to that renowned cliff near Dover which Shakspeare has so beautifully described; of "The Charleses," which once were conspicuous landmarks, but which have been obliged to lower their heads in submission to the all-devouring hand of time, a fragment of one of the seven only now remaining to mark the spot where they stood, and this remnant tottering to its fall; and of that extraordinary artificial, but evidently ancient, cavern to the west of "The Charleses," the origin and date of which are unknown; such caverns, however, it may observed, are not uncommon in the cliffs on the coast of Scotland, and of great antiquity. The cavern of which I am now speaking is usually called "Parson Darby's Hole." Parson Darby was the incumbent of Eastdean about the year 1680, and was much in the habit of visiting this cave. Tradition, Sir William Burrell tells us, assigns two reasons for his doing so,—the one a very uncharitable, the other a very charitable one. The uncharitable tradition is, that the parson prepared this cave to retire to, when he became weary of the volubility of his better-half; for this scandalous tradition asserts that she was very subject to a disorder known in domestic life as an "infirmity of tongue,"—in short that

"The plague of his life
Was a loquacious wife."

So that he infinitely preferred the *clamor maritimus* to the *clamor domesticus;* doubtless feeling that the sea was sometimes calm and quiet—Mrs. D.'s tongue never. This talkative lady was the granddaughter of Sir William Seagar, Garter Principal King of Arms, and probably Mrs. Darby had no taste for heraldry. Such an improbable tradition as this must have originated in the spleen of some malicious person who had fallen under the lash of the parson or his lady. Far more likely, and certainly far more charitable, is that tradition which attributes his frequent visits to this cave to an anxious desire on his part to render assistance to shipwrecked mariners on this dangerous coast, in their distress; and that it was the means of his saving many lives. The Head, however, the Charleses, and Parson Darby's Cave, are all beyond our reach to-day.

I shall, therefore, conclude my narrative of the archæology of Eastbourne, with a brief allusion to two most remarkable customs, which, somehow or other, established themselves in this parish, and were very strictly observed for many years. The first was called "Sops and Ale," for a reason which you will presently see. The custom was this—that fourteen days after the birth of a child in the parish, an entertainment was given at some convenient place. Sunday appears to have been invariably the day fixed upon for its observance. There is something very amusing in the customary mode of proceeding in summoning the guests, and in arranging them, at the celebration of these feasts. The whole was under the direction of the oldest bachelor resident in the parish, who was called "the steward." The inhabitants were summoned to the entertainment by the steward going to the porch-door of the church during the morning service, and calling out three times in an audible voice—"Sops and ale at (naming the place) to-day, immediately after the evening service." When the guests thus summoned were arrived at the appointed place, they were seated at three tables in the following order: At Table 1, which was evidently considered "the high table," they were placed whose wives had blest them with twins, once at the least. This table was superior to the other two in all its appointments. The table-cloth with which it was covered was damask; the sops with which it was supplied were compounded of sweet cakes steeped in wine, sweetened with the finest sugar. The bowls in which these sops were served were of china, and the plates the same, the knives and forks being silver-handled. The parties entitled to sit at this table were addressed as benchers. Table 2 was supplied with sops made of bread soaked in ale, these also being sweetened with fine sugar. They were served in common earthenware bowls, the plates being of the same material. Here they sat whose wives had not been more than customarily blest. This table was covered with an inferior kind of table-cloth. Table 3 was not covered at all, and all the articles with which it was supplied were wooden. Here they were placed whose wives had not blest them at

* By the Rev. E. Turner, of Maresfield.

all, and the old bachelors. This was called "the bachelor's table." As an additional mark of degradation, the beer-sops with which they were supplied were sweetened with the coarsest sugar. That the observance of this custom led to much abuse may be inferred from the circumstance that, as far back as the year 1640, some of the inhabitants of Eastbourne petitioned Parliament for its abolition, which led, after a time, to an arrangement by which 20*l.* per annum were paid in lieu of it, which sum was to be applied to educational purposes. Toasts were given and responded to at these "sops and ale" feasts; and, when the clock struck eight, the party broke up, returning home, as I trust we shall do to-day, "cheerful and good-tempered."

The other custom was for the occupiers of the great tithes of the parish, which are in lay hands, to give a breakfast to the farmers and their labourers on the first three Sundays in August, each farmer being entitled to send two labourers for every wagon he had. The farmers themselves were entertained in the parlour of the old parsonage with a hot sirloin of roast beef, cold hams, and Sussex cheese; the farm-servants in the tithe-barn, with cold hams and Sussex cheese only. A quart of beer was allowed to each man. The breakfast commenced at ten o'clock, and ceased on the bells chiming for church. About a century and a half ago the sirloin was omitted to be supplied; but, upon an application to the Court of Chancery, was ordered to be again provided.

In the parish registers are two memoranda referring to the discontinuance of this entertainment. The first is dated April 17th, 1682, and is as follows:—"It was agreed and concluded, that Mr. Nicholas Townley shall hereafter pay 10*l.* in money, and 10*l.* in wheat, as the prices be at midsomer and at Christmas, in lieu of the 20*l.* formerly spent in breakfasts."—And July 31st, 1709, a vestry orders—"That there be paid out of the parsonage, in lieu of breakfasting, the sum of 6*l.* in manner and form following, viz.: 4*l.*, part thereof, to be given to a schoolmaster to instruct eight of the parishioners' sons in the Latin tongue; and 2*l.*, the residue thereof, to be given to a schoolmaster to teach four children, whose parents are not able to pay, to read and write; as witness our hands, W. Parker, Thomas Byssh, Vicar."

Sir William Burrell considers this custom to have had its origin in the necessity, at the time tithe was taken in kind, of making some kind of remuneration to the tenants of the land for any damage that might be done by the tithe owners in going upon their land for the exercise of their rights; and so keeping them in a good humour.

Mr. Chambers, in his account of Eastbourne, thinks that these breakfasts took place after the second lesson in the morning service; that an adjournment of the congregation then took place to the parsonage; and as soon as the breakfast was finished they returned to church, and the service was resumed.

THE STAGE.

"*King John*" *at Drury Lane.* — Errors, when not dwelt upon, may be allowed to pass into oblivion quietly, and without comment. When, however, they are put forward prominently for admiration, and vaunted as virtues, it becomes the duty of those who know better to point out their real character. The observation applies to art as well as morals—to the mimic stage as well as to the theatre of life; and we are led to act up to it with reference to the production of "King John" at Drury Lane. The newspapers, in recording this, speak of "the beauty and appropriateness of the scenery:" it is "admirably put on the stage," says one; "with extraordinary illustrations of scenery," adds another: the "careful and artistic way in which it is got up," is pointed to; and it is finally called by the most influential of the daily critics, "one of those grand revivals in which the poetry of Shakspeare is illustrated by the pencil of Beverley." Now, all this is untrue and hurtful. It is not admirably put upon the stage; the scenery is not appropriate, careful, or correct; in fact, it is altogether erroneous, and therefore very objectionable, and not to be admired; altogether unworthy, indeed, of Drury Lane, if it is to be considered as the chief of the metropolitan theatres. No school-boy needs reminding that King John died in 1216, when Pointed architecture was but beginning to appear; whereas the buildings shown in Drury Lane's "King John" are for the most part those of the latest developments of that style. One of the scenes is a representation of the interior of Westminster Hall, which did not take the form shown until 200 years after the action of the play; and the style of other scenes is even more recent still, so that any informed person who judged the date of the action from the architecture of the buildings represented would say, correctly, that it could not possibly be earlier than the fifteenth century. We give Mr. Chatterton full credit for a desire to present the drama properly, and Mr. Beverley had no earlier panegyrist than ourselves publicly to point out his merit, and award the heartiest applause. If, however, they are to be not merely permitted to make such an absurd mistake as the whole getting up of "King John" forms, but praised for it, and have the error set forth for admiration as correctness, we can scarcely expect any effort on their part to do what is really good. The tragedy is fairly acted, as well so, indeed, as present resources will admit of; but Shaksperean actors just now are scarce.

The Olympic.—For Mr. Tom Taylor's new drama, "The White Boy," produced with considerable care and pains under the direction of Mr. Horace Wigan, two effective and good scenes have been painted by Mr. Hawes Craven; one the ruins of an abbey in the Galtee mountains, by moonlight; and the other the interior of a rude Sheebeen house. The first will admit of more atmospheric effects than were attempted on the first (private) representation. Mr. Henry Neville, Mr. Dominick Murray, Miss Milly Palmer, and Miss E. Farren act in it excellently well. The latter very clever little lady plays a daft boy, dumb but not *deaf*, though the bill says so, with admirable pantomime. It is to be regretted that the character is not made of more consequence to the plot. The piece is interesting, but not strong.

Surrey Theatre.—The prize play, by Mr. Angiolo Slous, "True to the Core," fully justifies, as an acting drama, all we said of it after hearing it read. It is not so well acted as it might be; indeed, some of the parts are most indifferently filled, nevertheless it interests from beginning to end, and is drawing crowded houses every night. The costumes and scenery are very good; two of the scenes, indeed, are admirable,—"The Main Deck of the *Santa Fé*," and the "Eddystone" in the sixteenth century:—

> "When thunder'd the surge on that rock so lone,
> And never a lighthouse upon it shone,
> To save poor souls from drowning."

On the rock, in the midst of an extensive sea, are gathered the four survivors of the wreck, the setting sun briefly illumining the group before, like their hopes, it sinks. These scenes do great credit to the painter and builder, Mr. Gates.

CAPE TOWN SCHOOL OF ART.

A ONE-STORY building has been erected in the rear of the premises in Roeland-street, occupied by this institution, and by last advice was duly opened for use on the 9th of July, in the presence of a large assemblage of students and their relatives, and of many of the leading friends of popular education. The purposes of the institution, which is now in the fourth year of its existence, have been before stated in the *Builder*. They are not confined to art-education, but are intended for the education of persons of the working classes in various branches of knowledge. The house itself, which has been already occupied, has a frontage in Roeland-street of over 60 ft. There are two principal rooms in front on the ground floor, that on the right being used as a sitting-room for the students, well lighted, and supplied with chess, draughts, dominoes, bagatelle-boards, &c.; that on the left is a library, well supplied with current works of literature, and a collection of 500 works of history, art, science, poetry, and fiction. At the back of these rooms is a large hall, leading on to an inclosed court-yard in the rear of the house, about 60 ft. square, at the end of which is the new building, the front of which extends the whole width of the premises, and measuring, within the walls, 58 ft. by 26 ft., and from floor to ceiling, 16 ft. The building, consisting of two rooms, is from the design of William Inglesby, a student in the School of Art since its opening, and a relative of Mr. Inglesby, of Cape Town, the well-known builder, who erected the building. The rooms in the day are lighted by two glass doors and three windows, as well as from a large skylight for art-studies. The gaslights, arranged by Mr. Fell, are eighteen in number, and illuminate not only the rooms, but the entire courtyard. Besides the two principal rooms just described, there is another large upper class-room, 25 ft. long, approached by an outside staircase. The arrangement of the premises admits of complete supervision, even at night, and the accommodation is ample for 200 students. The introductory lecture was given in the new rooms. The Bishop of Cape Town presided, and Mr. Foster, the founder of the institution, delivered a lengthened address on the various purposes of the institution. As to the school of art, he stated that, taking every department of it into account, the institution had succeeded in arousing a feeling in favour of art education, and was communicating art instruction to 128 persons. The teachers' labours are not confined to the evening and morning classes. Mr. Lindsay had been trying the experiment of teaching the boys of an ordinary school in the day-time; and a large class of Mr. Close's pupils, twenty-eight in number, at the St. George's School, had made creditable progress under his tuition.

NEW FIRE-EXTINGUISHING CARTRIDGE.

M. AIMÉ MAURICE, and M. MUTERSE, a chemist, have invented a sort of cartridge, containing ingredients which are eminently capable of extinguishing fire. This is effected by the sudden development of a large quantity of hydrochloric (muriatic) acid gas, well known to be such an enemy to combustion, that even a small portion mixed with atmospheric air is sufficient either to prevent combustion or to arrest its progress, if it has already commenced.

This scientific principle has been known for many years, but it has never been put into so simple a practical form as in the present. These cartridges are like brown paper parcels, and are of two sizes. No. 1 is about 8 in. long and 2½ in. wide, and is intended to be thrown by the hand into the heart of the fire. A string is also attached by which it may be projected as from a sling. The cartridge is slightly explosive, so as to well disseminate to the greatest extent the substance producing the extinguishing gas.

No. 2, or the second-sized cartridges, are simply thrown (the cover being torn off) into the water of the engines, which they saturate with a substance producing hydrochloric acid gas as soon as the water touches the fire. Experiments have proved that one-tenth of the water that would have been necessary to extinguish a fire is only requisite when the cartridges are mixed with it, and that the saving of time is in the same ratio. They are very inexpensive.

No. 1 cartridges in some cases require no manipulation whatever, all that is necessary being to place a number of them at intervals in the most hazardous places of a workshop, a ship, or a dwelling-house, where fire may be likely to break out, and they will have the effect of keeping down any fire that may occur till the arriva of the engines.

It is well known that there are few fires (except those occasioned by explosions) that cannot be extinguished at the first outburst by a bucket, or even sometimes a jug, of water applied immediately before the fire is well alight. But water is not always at hand, nor can it be conveniently kept in every room in a house, so that a cheap "extinctor" like this, which may be placed anywhere at hand, in a cupboard or some corner, even if it be supposed to only lessen and keep in check the flame till the arrival of water, may save many an edifice and many a town from the horrors of a conflagration.

NEW EXCHANGE NEWSROOM, LIVERPOOL.

THE Newsroom, illustrated by us some time ago, is about to be placed in the hands of the decorators, and it is expected that it will be ready for opening before Christmas. The ceiling of the vestibule is formed of encaustic tiles of rich pattern, supplied by Messrs. Simpson & Co., of London. The walls are chiefly of Caen stone; the cornice is supported by marble columns and pilasters; the shafts being of Cork marble (red), with Sicilian (white) bases, and

Bardilla (blue) pedestals; and on the south side there are two chimney-pieces, also of foreign marble, the production of Messrs. Burke & Co., of London, to whom the marble work has been entrusted. Above the cornice are panels containing alternately the arms of our colonies and allegorical groups in bas relief, modelled by Messrs. Mabey & Sons, of London, and executed by Mr. Goodall, of Liverpool. The dome is of iron and strong plate-glass, with an inner ornamental glazing, with gold fret border and star centres, filled in with ruby and blue. The floor of the large room is to be of oak, teak, and pitch pine, laid in patterns, with a large star in the centre. On the south side of the room a niche is prepared for the reception of a colossal statue of her Majesty, which, it is hoped, will be provided to fill it. The whole of the works are progressing under the direction of the architect, Mr. T. H. Wyatt, and superintended by Mr. Parsons (who formerly was connected with the late Sir C. Barry in superintending the works at the New Houses of Parliament), assisted by Mr. Boult, the company's surveyor.

The chief contractors are Messrs. Holme & Nicol. The arrangements for warming and ventilating the room have been entrusted to Messrs. Price, Lee, & Co., of London. The system adopted is as follows:—As our readers are aware, the Nelson Monument is to be removed from its present position to a site a few yards nearer the townhall, where it will be central between the east and west towers of the new buildings, thus leaving "the flags" entirely unobstructed. The railings, which at present surround the monument, will be removed, and the monument will be placed on a handsome granite pedestal, 6 ft. high. This pedestal will contain several ornamental perforated panels, through which fresh air will pass into a circular shaft round the base of the monument, and thence by large ducts to the warming apparatus, situated underneath the four corners of the news-room. These apparatus consist of a series of hollow plates charged with hot water, supplied from two large boilers under the sale-room. The cold air is heated to the requisite temperature by passing between the plates, and is then discharged into the news-room through four ornamental gratings, placed one in each corner of the room.

NEW CUSTOM-HOUSE, BOMBAY.

The accompanying engraving shows the principal front of the new custom-house about to be erected in Bombay, from the designs of Mr. Cuthbert Brodrick, architect. It is intended to afford accommodation for all the usual business of the customs, also for the preventive service, wharfingers, &c. The general arrangement will be understood by reference to the plan.

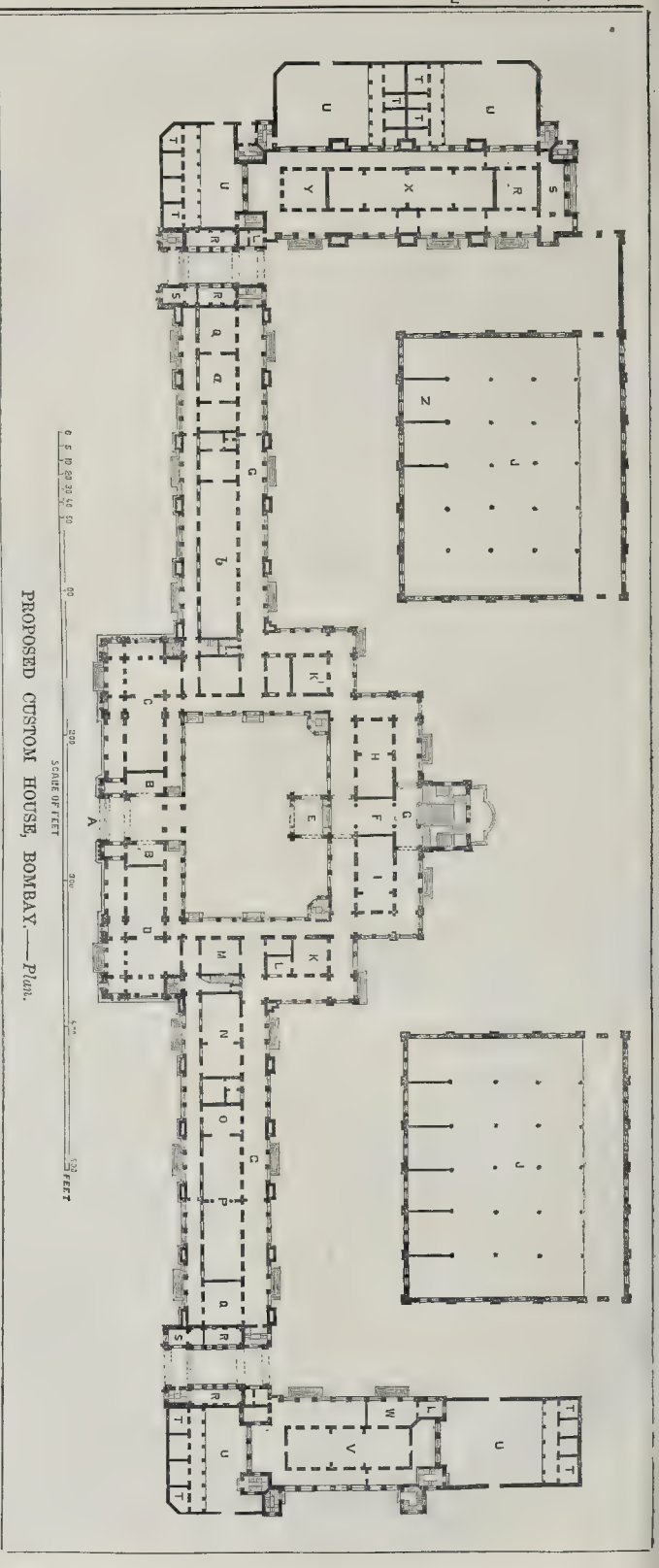
The style of architecture adopted is a mixture of the Hindoo and Mahommedan, which has been selected as much from its intrinsic beauty as from a desire to restore a style of architecture well adapted to the requirements of the climate.

It is intended to construct the walls of the building with Coorla stone (a native trap stone of a hard quality); all the pillars, arches, cornices, and dressings generally will be of Poorebunda freestone. The floors and ceilings throughout will be constructed of fireproof materials. Wide and spacious external corridors are provided to all fronts of the building, and access to all the rooms is afforded by these means. These arcades form conspicuous features in the external design, and are also indispensable in the climate of Bombay.

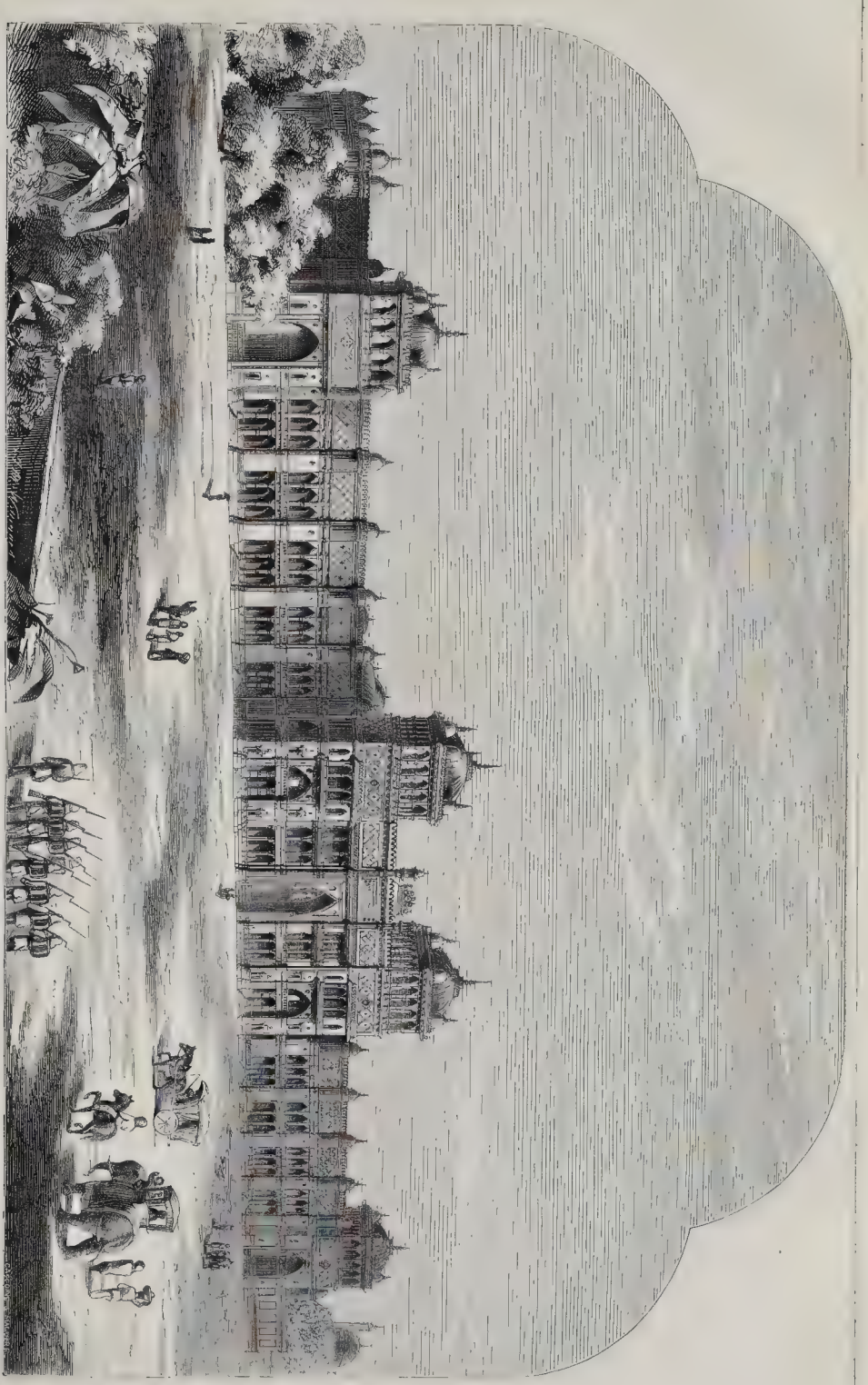
The building will be of great extent, being 970 ft. long, and the return wings 300 ft. deep. The cost of it, if carried out in the materials stated above, will be about 270,000*l*.

REFERENCES.

A. Gateway.
B. Guards' Room.
C. Sup. Preventive Service.
D. Deputy Sup. Preventive Service.
E. Porter.
F. Hall.
G. Public Corridor.
H. Petty Customs Export.
I. Petty Customs Import.
J. Goods' Shed.
K. Waiting-room for Gentlemen.
K.' Housekeeper.
L. Bath
M. Waiting-room for Ladies.
N. Baggage-room for Passengers.
O. Appraising Assistant's Room.
P. Appraising Import.
Q. Ticket Clerks.
R. Gatekeeper.
S. Peons.
T. Out-offices.
U. Court.
V. Gauging-room.
W. Private Office.
X. Appraising Room.
Y. Assistant's Room.
Z. Weighing Sheds.
a. Chief Appraiser.
b. Inspector for Drawback Office.



PROPOSED CUSTOM HOUSE, BOMBAY.—*Plan.*



PROPOSED NEW CUSTOM HOUSE, BOMBAY.—MR. CUTHBERT BRODRICK, ARCHITECT.

PARIS.

THE gardens of the Luxembourg are to be shorn of the northern portion by a street piercing a little south of the nursery-ground, and running east and west. The centre avenue, leading to the observatory, is, as we have already stated, to be converted into a public promenade, and the rest into plots for building purposes. The subsoil of the Luxembourg is peculiarly unsuitable for the erection of dwellings requiring foundations of any depth. There exists in the centre of the Pepinière or nursery, a well called the "Puits des Chartreux," about 49 ft. deep to the surface of the water; at 3 m. 50 (11·5 ft.) there is a side-door to be seen. This leads to the catacombs, consisting of a double "story" and a bone store (*ossuaire*). It will be impracticable to make building ground of this undermined soil, and impolitic: however cheap the land may be sold, constructors will not purchase a spot where no first-class house can be built. Better let the roses and dahlias hold their ground than meddle with these abysses.

The works of restoration of the Cathedral of Notre Dame are nearly completed. In the new spire (of wood covered with lead) are being placed the bells of the clock, so that they will hang over the centre of the cross of the building. The ancient steeple, demolished in 1808, and now replaced by the new spire, contained six bells. Those of Notre Dame were always famous; two of the largest were placed in the southern tower, seven other great bells being placed in the northern tower. The great bell of Notre Dame, which the wizard Michael Scott caused to toll by a stamp of his foot as he exclaimed—

"Michael Scott, of great fame,
Ask'd meat and got nane,"—

weighs 13,000 kilogrammes, or about a ton less than our Big Ben at Westminster, or that of Erfurt, in Saxony. It was cast, firstly, in the year 1400; subsequently it was recast—it is said, in 1686—with double the quantity of metal.

In the Gallery of Kings, the two last remaining statues are ready to be hoisted into their places, and the necessary plant for raising them has been installed at the foot of the northern tower.

Since the thirteenth century, the inhabitants of Paris were under the impression that (as old MSS. state in the Bibliothèque Impériale), the twenty-eight figures filling this gallery were those of the kings of France. Modern archæological researches, however, have clearly established that they represented, not the kings of France, but those of Judah. Preserving the ancient character of this gallery, M. Viollet-le-Duc has restored the statues of the regal patriarchs of Judah.

The administration of public health of Paris has published the following accounts of the state of the epidemic cholera during the last two months. In the commencement of July the epidemic made its appearance, and attained its maximum in a few days' time, without the number of deaths in hospital and in town exceeding, daily, 150. Since the end of July, the diminution of the epidemic was regular, the average mortality in the hospitals during the month of August having been 23. It was only 15 per day for the first nine days of September. Taking the present population of Paris as 1,667,841 souls, it is manifest, admitting the statement to be correct, that the malady has not raged very severely in the capital. The daily average number of deaths from cholera in town, since the 1st of September, has not exceeded 22.

THE NEW SANITARY POWERS OVER SUB-LET TENEMENTS.

THE extended power of visiting and inspecting sub-let tenements or lodging-houses, which the conductor of this journal long urged in the face of opposition, has at length become law, and is in practical and beneficial operation in London and elsewhere. At Liverpool, Dr. Trench, the medical officer of health for the borough, has, by order of the local health committee, made a "Report on the 35th Section of the Public Health Act, 1866," which gives this power, and proposes to commence the application of the enactment in those streets, the houses of which have already been found by the inspectors to be continually overcrowded; viz.,—Cavendish-street, Milton-street, Sawney Pope-street, Addison-street, and Hodson-street. He will add to the list, from time to time, the houses in other streets which have been or shall be found overcrowded.

As the practical working of the enactment is new and so far experimental, it will, in his opinion, be prudent at first to make its application restrictive and tentative.

When desirable that certain houses, let in lodgings or occupied by members of more than one family, should be placed under the regulations made by the council for the well ordering of the said houses, in accordance with the Act, he must notify the same by printed circular to the owners or tenants, and keep a register of all such houses, with the cubical measurement of the several rooms of each house.

Whenever there is in a house a separate sitting-room, not occupied as a sleeping apartment during the night, the number of persons allotted to the sleeping-rooms of such house is to be fixed on a basis of 300 cubical feet for each adult; whenever all the rooms in a house are used as sleeping apartments, the number of persons who may occupy such rooms must be fixed on a basis of 350 cubical feet for each adult.

The medical officer of health assures the committee that he will use his best endeavours to give practical efficiency to the provisions of this enactment; but experience has with him long since dispelled the hopeful illusion, that mere statutable laws, however stringent or honestly enforced, or mere sanitary inspections, however regular or continuous, will be able by themselves to check the evils of overcrowding in so large a community. He therefore reiterates the opinion formerly enunciated, that all efforts of the council and its officers to check overcrowding, and regulate the sanitary condition of sublet houses, will be a failure, unless systematically and loyally sustained by the co-operation of the owners and agents of such property; and that as the overcrowding of houses in any locality is a permanent menace and danger to the public health, so it is the duty of the public, by combined and individual exertions, and at some risk of capital, to increase the house accommodation so urgently required by the working classes of the town.

He thinks it would not be difficult to obtain for purchase or long lease, on easy terms, very many bad courts, admirably suited for the same experiment of renovation that was carried out in Wild-court and Tyndall's-buildings in London,—the former of which now yields 5*l.* 12*s.* per cent. per annum on the total investment; and he concludes his report by saying, "Even while I write I feel that many will regard the scheme as utterly Utopian; but we have before us this pregnant fact,—Liverpool is surpassingly rich, and Liverpool's death-rate this week is 53 in the 1,000, and the great primary cause of the sickness of Liverpool is the overcrowded and squalid condition of the homes of its working classes."

THE PURIFICATION OF WATER.

A DISCUSSION has been going on in the daily press as to whether water mixed with excrementitious matter is purified from that matter by boiling. The Registrar-General and Professor Falkland say no, because excrementitious matter was found in boiled water which was chemically examined in consequence of two persons having been seized with violent cramp and diarrhœa four hours after having taken tea made with this water. "V." in the *Times*, demurs to the conclusion that the water in this case was the cause of the illness, the evidence being merely presumptive, and urges that the cramps and diarrhœa may have been produced by some other cause, even although they did happen to occur four hours after having partaken of the tea containing the excrementitious matter. For our own part, all we care to note here is the fact, that it is of no use looking to the boiling of bad water as a security against excrementitious impurities. The evils attendant on the use of bad water do not require to be proved or disproved by the case in question; and we know that it is the opinion of a physician who stands very high in his profession, that in the science of health and disease "it is most difficult to extract the right conclusion from the lessons of *experience*, and that, in fact, *theory* has never been so fertile a breeder of *errors* in medicine as this so highly-extolled experience." Such is the opinion of Sir Thomas Watson, who was recently baroneted for his eminence in medicine. Were "V." even to prove, which he has not done, that boiling does purify water from sewage or other excrementitious matter mixed with it, he would go but a short way towards inducing the public to look to a judicious mixture of sewage and water well boiled as a satisfactory beverage, or a safe medium for the preparation of food and drink. We must keep out, and not boil out, our sewage from our water supply: we must have the pure water of nature, rather than water "purified" by any art.

It is stated, that a gentleman residing in the neighbourhood of the river Esk has, after repeated observation and experiment, discovered that the solid refuse of shale used in the manufacture of paraffin oil is a most perfect purifier of the filthiest water. A few days ago, says the *Scotsman*, a quantity of the sewage water of Musselburgh was experimented upon, by throwing into it some of this shale refuse. After being allowed to settle the water was found to have been completely purified. Two bottles, one of them filled with the sewage and the other with Crawley water, as used by the inhabitants of Edinburgh, were submitted to an eminent medical practitioner, who upon being requested to select the one preferable for drinking purposes, unhesitatingly chose that which had been purified by the shale refuse. This substance is at present thrown aside by the manufacturers of paraffin oil as valueless; but if it can be applied in sufficient quantity, and the operation be effectual in cleansing the water polluted by the paper-mills on the North Esk, it would obviate the necessity of their removal, or the expense of conveying the impure water out to sea by means of pipes.

ABBOTSFORD AND GALASHIELS.

A CORRESPONDENT in the *Builder* of Sept. 15, says the people of Galashiels "do not honour their poet much by encroaching on the beautiful seclusion of Abbotsford, instead of leaving a few acres, as pictured to the poet's eye. A puny pert baronial sort of a villa is now being erected on an elevated site directly opposite Sir Walter's cherished pile." The correspondent is wrong in drawing such a wide inference from one narrow fact; and he is not blameless for so writing without also taking into consideration the necessities of our community. Galashiels is built on a narrow haugh through which the Gala flows to join the Tweed about a mile below the town. For many years this haugh was sufficient for business premises and for the dwelling-houses of manufacturers, but the former has increased so much,—almost trebled since 1851,—and the operatives' dwellings have also increased so much, that the manufacturers have been forced, so to speak, out of the town. As was quite proper and very commendable, they have built villas on the hill slopes skirting the haugh, of a more pretentious style than the plain buildings in which their fathers dwelt. The sites have now been nearly all taken up, and the earlier occupied ones are now considerably encroached on by streets for the operatives. This has naturally caused an extension of villas in the direction of Abbotsford, and the "pert, puny, baronial sort of a villa" is simply the latest instance of that extension.

Buildings must go in that direction or the town must cease to expand. The direction is not from choice, but owing to necessity; yet your correspondent does not put in one word in defence of his townsmen when condemned by a couple of jabbering Yankees. From the long and intimate connexion between Sir Walter and the manufacturers of Galashiels, I infer that few things would have pleased him more than to see that success of their trade (for which he laboured so much) showing itself in a long line of villas, now running along the slope of the hill opposite Abbotsford; and, in point of scenic effect, they will more improve than detract from the beauty of Abbotsford, from which they are separated by half a mile's distance, with the Tweed betwixt them. If the truth must be told, I have no objection to state it; and I say, without any fear of contradiction, that neither in an architectural nor in any other sense, has Abbotsford one claim to veneration, except in as far as it was the work and residence of Sir Walter. It has no intrinsic excellence but what it takes from him. It is his memory only that gives it the charm drawing that endless stream of visitors to the shrine; and no one who looks on its pinnacles and the curious relics built into

its walls, ceases for a moment to connect them with the minstrel. The requirement of these worshippers is, not that surrounding hills nor fields at half a mile's distance should eternally remain as when the minstrel's eye last rested on them. Once within its gates, the outer world is altogether forgotten. Those who have seen the minstrel's character in his works find here such a harmony with the man who made it, and such a boundless number of points of attraction, that all outward gazing at hills and distant fields could never be dreamt of by any one, except, perhaps, those Americans to whom "J. K." refers. What a horrible depravity of taste, to utter bad puns within these grounds, knowing the bright day-dreams which lent the spring of infinite labour to the genius who made them enchanted ground; knowing the awful darkness of the storm before which the proud eye sank and the daring wing faltered; knowing the growth of the minstrel's visions as success drew his eye to yet more golden visions—visions collapsing into a very focus of darkness and disappointment. No, these are not the men to lay down a new canon of taste, and such men prostitute "the shrine" where the one eternal lesson—the vanity of human greatness—for ever is repeated in the saddest, most sorrowful language. Here are the material elements gathered for family greatness; but the family, where are they? The man whose fatherly and lordly heart made his very servants and dogs immortal, has but one frail descendant to lay a flower on the one sacred spot in Dryburgh's ruined fane! So the true heart feels in pacing these lonely rooms and looking on that fantastic pile; but the bitter sadness creeping around the heart gives place to the thought that the genius has his memory enshrined in the wider circle of his countrymen, that two continents send their pilgrims to the spot hallowed by his presence, and that if he has lost a family he has found a way to the heart of humanity. The manufacturers have never forgotten the claims on their gratitude for the exertions to foster their trade made by Sir Walter. The town has now reached a wealth undreamt of in those days, when Sir Walter's joyous and loving heart graced the one local festival of the simple villagers. We now have a municipal existence and a public hall; and the first portrait to grace its walls is a copy of Raeburn's Sir Walter, presented by the manufacturers to the municipality. Does this not show that neither in taste nor in sentiment are our manufacturers at fault with Sir Walter's memory? And if villas are run up within sight of Abbotsford, it is because no other ground is so convenient for the purpose.

J. W.

STREET FORMING.

IT would be a curiosity to know who form, or are entitled to form, our streets. They certainly have no notion of a straight line, nor even the *nous* to copy such a model as St. John's Wood! Scarcely any of the lines of street in Kensington are straight; Gloucester-road, for instance, Fulham end of King's-road, with its tortuous windings, now to be further developed by a street crossing it, with houses, one above the line of road, and then the road continued!

At Kensington, again, the monster houses are built in half dozens, and then a street is built *across* the bottom, thus effectually excluding the current of air and putting up a dark shadow over the other houses, instead of streets being formed at right angles, with one name instead of half-a-dozen between the two ends, whereby the identity is destroyed at the ends.

N.

ANCIENT STONE, WOOL CHURCH.

OBSERVING your report in the *Builder* (15th September) of the discovery of an object that has excited conjecture among archæologists at the church of Wool (Dorset), namely, a stone 8 in. square, with cavities at the four corners; I venture to suggest that it may be, in all probability as it seems to me, a portative altar, such as bishops are privileged to possess, and to carry about with them for celebration of Mass, in whatsoever place and under whatsoever circumstances. Only *two* cavities would be required for the cruets, wine and water; and the sacred salt, used at baptisms, would never be produced together with these sacramental elements at the eucharistic rite. These cavities in the stone, I conclude, must be such as served for the insertion of relics, indispensable to every Roman Catholic altar; and though it is true that but *one* hollow in the sacred mensa is generally provided, and near the centre, as the receptacle of such objects, it seems admissible conjecture that, in some instances, four may have been scooped in the stone in order that the enlarged supply for contents might invest it with the greater sanctity. It is well known that the disciplinary obligation of placing relics in altars, and immediately under the part on which the sacramental vessels rest, derives from the primitive usage of consecrating and communicating on the tombs of martyrs in the Roman catacombs.

Florence. C. J. HEMANS.

AS TO PORTLAND CEMENT.

SIR,—Will you kindly request some one of your chemical readers to inform me what Portland cement is? I do not mean how it is made, nor what the ingredients are which are employed in making it, but what is the chemical nature of the result? When clay, twenty to thirty parts, and chalk, seventy to eighty, are burnt together, after complete mixing, as takes place in the grinding and elutriation, we know Portland cement is produced. But what is it? Clays are for the most part oxide or silicate of aluminium, chalk carbonate of lime. What takes place in the process of burning? I suppose the carbonic acid of the lime is expelled, and the water, of both the clay and chalk, and an anhydrous compound is produced. When water is added to Portland cement, is heat produced, as when lime is slaked? If not, why not? These are chemical questions, for answers to which I have looked in vain into books on mortars, cements, &c.

AN AMATEUR BUILDER.

MARGATE.

THE DRAINAGE QUESTION.

PERMIT me to suggest to the town council the following inquiries:—

1. The number of houses with cesspools or pits full of soil with no existing drains.

2. The exact distance, in feet and inches, of such cesspools from any adjacent well; and the depth of such well.

3. Whether such cesspools are periodically emptied, or drain, or are absorbed, into the chalk.

4. The advisability of a direct water supply, with cistern and closets.

5. The construction of an outfall sewer and sewage reservoir, remote from the harbour and town.

6. The necessity of a total revision of the present system, and the substitution of house drains, with proper water supply.

The stench from some of these closets is dreadful, and conclusive as to the state of things, and the paramount necessity of a change. These remarks apply, with more or less force, to nearly every watering-place on the coast. It may, indeed, be doubted whether a visit to many is not fraught with danger in place of health.

A SURVEYOR.

IMPORTANT TO BORROWERS FROM BUILDING SOCIETIES.

IT may not be generally known that the Court of Bankruptcy requires the signature or consent of secured creditors (mortgagees) to deeds effecting arrangement with creditors in lieu of bankruptcy; and unless this is complied with, the deeds are held not to be good, and will not be received when tendered for registration.

In my capacity as accountant to the trade, I have recently had several cases in which I have had the arrangement with unsecured creditors totally upset through the perverseness of certain building societies* (there are exceptions), who, as they inform me, make it a rule not to sign or consent to any such deeds; the effect being to *compel* the debtor to go to the Court of Bankruptcy without an estate, as a foreclosure is contemplated in the refusal, and is invariably carried out.

I need only add, there is not the shadow of reason for secured creditors refusing their signature or consent (apart from that above named), as giving it in no way imperils their security, or is in any respect prejudicial to it; to refuse, therefore, is most illiberal, unjust, and tyrannical towards unsecured creditors, and the unfortunate speculator in their power, and at their mercy.

Before borrowing it is, therefore, advisable to inquire whether, in the event of misfortune, and arrangement with creditors being effected, or contemplated, they, although secured, would nullify it, and compel bankruptcy, against the desires of the unsecured creditors, or whether they would help and assist them by their consent.

T. J. HOGG, Accountant.

* The "Planet" refused me on the ground of it being their rule not to countenance deeds of arrangement, although their solicitors gave me a note to them, stating there was no legal cause for withholding consent.

COMPETITION COURTESIES.

SIR,—Allow me to ask whether a secretary to a building committee is not bound, in the fulfilment of the duties of his office, as well as in common courtesy, to supply intending competitors with every information in his power for their guidance in the preparation of their designs?

The secretary to the committee for building a new church in Yorkshire, a competition for which has been lately advertised, appears to have a different opinion, judging from the extremely curt and ambiguous replies with which he favours those who apply to him for particulars. Is it said that a relative of his is one of the competitors; if so, possibly that courtesy and generosity which we all know to be so common in the intercourse of members of the same profession may induce that gentleman to furnish inquirers with those details which the honorary secretary thinks proper to withhold.

FIGHT FAIR.

DRAINAGE AND IRRIGATION AT MONTROSE.

WE are glad to hear that the Montrose commissioners of police are proposing to have their town thoroughly drained. For that purpose they have appointed a committee of their number to procure plans, and have instructed it to consider at the same time as to whether the sewage could be applied with advantage to about 350 acres of arable land belonging to the town, and in its immediate neighbourhood. This land is very light; almost pure sand. At present it is let at about 20s. an acre to small farmers, who supply the town with milk, &c. It is very favourably situated for irrigation, because of its proximity to the town, and also because of its surface being nearly level. The committee propose to inquire into and visit places where they can see the sewage applied to agricultural purposes. If we are rightly informed, the first crop at Worthing, after the application of sewage irrigation, produced 20*l.* an acre.

BRISTOL ASSIZE COURTS COMPETITION.

THE following memorial has been presented to the mayor, aldermen, and common council of the city of Bristol:—

"We, the undersigned, beg to memorialize your honourable body in the matter of the Bristol Assize Courts Competition, in order to avert, if possible, the great injustice threatened by the vote thereon at your meeting of July 28th last.

We pray you to rescind that vote, and to adopt the report of the finance committee, dated the 19th of July last, so that justice may be done to the successful competitors." Signed by A. J. B. Beresford Hope, M.P., president of the Royal Institute of British Architects; the Earl of Limerick, president of the Bristol Architectural Society; and the following architects of London:—George Gilbert Scott, Ewan Christian, John P. Seddon, William Burges, T. Roger Smith, Owen Jones, T. Hayter Lewis, F.S.A., and F. C. Penrose, M.A.; of Bristol,—Charles Underwood, William Bruce Gingell, Archibald C. Ponton, Henry Masters, Charles J. Phipps, W. H. Hawtin, John Foster, Joseph Wood, and Samuel Thomas Welch; and Wilson & Wilcox, Bath.

THE PARIS CENTRAL SCHOOL OF ARCHITECTURE.

THE new central school is said to be doing good work in rendering the training of youths intended for architects more systematic and complete; but the very completeness of the plan creates difficulties in carrying it out. According to the *Society of Arts' Journal*, it has been found, on examination of candidates for admission, that many youths of good abilities have failed to satisfy the requirements of the school, not from want of ability, but because they have not sufficiently appreciated the importance of the preliminary knowledge required of them, or, in other words, from want of sufficient general instruction to enable them, according to the opinion of the examiners, to enter upon the special portion of their education with advantage. In order to prevent such failure in future, the council of the school has just issued a note on the method employed at these preliminary examinations. The candidates are submitted to three examinations:—1. Proficiency in drawing from copies and in architectural drawing entitles the candidate to a certain mark

each case, and the average of the two marks, hich are represented by numbers indicative of e amount of that proficiency, gives the value general proficiency in drawing. 2. The mathe-atical examination is divided into seven ques-ons, each of which gives a mark, and the aver-e of these marks, as in the former case, indi-tes the position of the candidate in mathe-atics. 3. The written literary examination d the oral examination in geography and nography give two marks, and the average the two indicates the candidate's acquire-ents in literature. The average of the three arks thus obtained gives, of course, the candi-te's general proficiency, and it moreover de-rmines his classification on entering the hool. The direction of the school has evi-ntly no idea of lowering its standard of mission, and of thus allowing its special ject to be thwarted by the general incompe-nce of any youths admitted within its walls.

FROM SCOTLAND.

Burntisland (*Fifeshire*).—The magistrates have der their consideration the necessity for in-easing the present water supply. The supply cently introduced has failed to yield the antity expected. The likeliest scheme pro-sed has been suggested by a successful effort obtain water to a mansion now in course of ection on the lands of Greenmount. A fine pply has been got out of the Bain hill, in the ar of this building; and the proprietor intends offer the overplus to the inhabitants. This, is thought, would form the nucleus of a much rger amount which the magistrates hope to aw from land belonging to the town, which djoins that of Greenmount. They are mean-hile conducting boring experiments under the rection of Mr. Sang, C.E., Kirkaldy.——The nstruction of the new pier for the ferry traffic the North British Railway Company is effect-g a considerable change in the aspect of the ace where the works were originally com-enced. Mr. Leslie, C.E., is about to complete e foundation of the pier at its deepest part, lly 14 ft. below low-water mark. Two diving-lls, with relays of eight men five hours in turn, e engaged in laying the outer foundations.

Dunkeld.—Soon after the death of the late ke of Athole, it was resolved, at a meeting ld at Dunkeld, to erect a memorial of him. It as agreed that the memorial should take the rm of a fountain; and the foundation-stone of e structure has been laid in Dunkeld, the site ing the centre of the Market-place. The sign accepted by the committee was that of r. Charles S. Robertson, architect, Perth. The se is a square structure, with steps, and having t each side a stone basin, one of which is tended for the use of horses. The main body the structure is carried upon four polished terhead granite columns, and is open in the ntre, in which a vase is placed for a display of ater. The upper part is thrown into an tagonal shape, the lower part being formed to an arcade, with polished Peterhead columns the angles. The structure, which will be in l about 40 ft. in height, terminates with a riated cross. The style adopted is mainly that the French Gothic.

Moffat.—Messrs. Forman & M'Call, engineers, aving prepared plans and specifications of werage works, advertisements for estimates to pply glazed clay pipes have been ordered. Plans d specifications of the water-works have been fore the local Commissioners, and advertise-ents are ordered for contractors for the cast-iron pes required. The springs which have been quired by the Commissioners afford an abundant pply of the purest water.

Montrose.—The special committee appointed y the local police commission as to the thorough rainage of the town has reported that at pre-nt, except a few minor drains, no sufficient eans exist for the removal of sewage; and they commend that in any system of drainage pro-sed for Montrose no sewage should be allowed run into the basin or into any part of the har-ur above the upper light-house, and that as much the sewage as possible should be converged one point, from which it could be made to flow ither to the lower light-house or northwards to he Links farms, should the latter course be found be expedient. The provost in moving the doption of the report, added a recommenda-ion to the committee to obtain what informa-ion they could as to the utilization of the sewage, and get what plans they might think necessary for the drainage of the town. The motion was at once unanimously agreed to.

Kirkwall. — The engineers employed by the Messrs. Laidlaw, who are contractors for the iron pier, were putting one of the connecting giders on to the piles, and for this purpose they used a large crane. While lifting the girder, which weighed about five tons, off a raft, one of the stays of the crane broke, and it fell over the side of that part of the pier already finished, and carried one of the labourers along with it. He was severely injured, and was carried to Balfour Hospital, where he died shortly after.

GAS.

THE report of the special gas committee of the London Court of Common Council has been adopted by the Council. The report congratulated the court and the public that although the bill they had introduced into Parliament for the purpose of enabling the Corporation to erect works of their own to supply the City with gas had been rejected, still their efforts before the Select Parliamentary Gas Committee had led to the satisfactory result of obtaining a report from that committee which entirely endorsed the opinion arrived at long before, by the citizens of London and the public generally, that the gas as at present supplied by the existing companies was deficient in quantity and in purity and illuminating power, and sold at an exorbitant rate, and that the late Home Secretary had expressed his intention of giving instructions that a Bill should be introduced into Parliament as speedily as possible, based upon the report of the committee of the House of Commons, and with a view to remedy the evils that were complained of. The report also stated, that the committee had been in communication with the present Home Secretary upon the subject, and he appeared to be fully inclined to carry out the views of his predecessor in office. The committee has been empowered to continue its labours. It is estimated that the different gas companies expended 10,000*l.* in opposing the committee's proceedings, and the expense incurred by the committee itself was about 8,000*l.*

The Birmingham Gas Light and Coke Company have declared the usual maximum dividend for the last half-year at the rate of 9 per cent. per annum on A and B shares, and 7½ on new ordinary shares. The profit for the half-year amounted to 10,365*l.*

Bassingbourn has recently been lighted with gas. The works were contracted for by Messrs. Stears, Brothers, of Hull. Mr. Veasey was the engineer, and Mr. Gimson the architect.

PROVINCIAL NEWS.

Brighton.—The work of transforming the Royal Stables into an Assembly and Concert-room has been commenced by the contractors, Messrs. Cheesman & Co., upon the plan of the borough surveyor, Mr. Lockwood, C.E. The stalls which went round the basis of the dome have been removed, and the whole space is now clear, with the exception of such of the pillars as are necessary for the support of the dome. The glass in this latter is being repaired. Externally the dome will present its usual appearance, but beneath it another lighted roof will be erected, in order to keep in the sound of the new Concert-room.

Pontefract.—The Town-hall at Knottingley has been opened. The cost of the whole undertaking, including the fittings, will be about 2,000*l.* The funds have been subscribed for in shares of 1*l.* each. The situation is central. The Town-hall is intended not merely to provide for the ordinary business of the inhabitants, but especially to supply the accommodation, which is much required, for the Mechanics' Institute, and also to afford suitable means for holding concerts, balls, &c. The architects are Messrs. Shaw & Wightman, of Rotherham and Wakefield. The principal hall is 69 ft. by 37 ft. (calculated to hold 1,000 persons), and close by are ante-rooms and cloak-rooms. The building is in the Italian style of architecture, of brick and faced with stone, and in the front is a tower which is not yet completed. A feature in the arrangements is the provision of a series of baths on the basement. A capacious balcony has been constructed in the front of the hall for the use of candidates at the occasional elections for the borough of Pontefract, which comprises Knottingley. The opening was celebrated by a *soirée*, at which there were about 800 persons present.

Newcastle-upon-Tyne.—The new temporary wooden bridge across the Tyne has been opened without public ceremony, and the old bridge is being pulled down. The wooden bridge has been built in a substantial manner, and is likely to last for several years. It has the same number of arches in the river as the old bridge, and is generally of the same dimensions. The length of the roadway from the approaches is about 660 ft.; width, 22½ ft.; width of footpaths, 6 ft. 3 in. each. The inclination of the roadway is 1 in 30. The roadway is causewayed, and the footpaths are formed of concrete and cement, while the retaining walls are of masonry with brick parapets. Between the piers the span is slightly varied, the narrowest being 59 ft. and the widest, which is situated on the Newcastle side of the water, being 66 ft. The piers themselves are about 10 ft. wide, and consist of a double row of piles of 6 ft. each, framed together, with heavy cutwaters. The piers support six framed trusses, over which are placed cross joistings, on which the roadway and footpaths are formed. The cross-joistings extend beyond the boundary-rails of the bridge on either side. The extension on the east side conveys two sets of water-pipes, one for the low, and the other for the high pressure service, belonging to the Newcastle and Gateshead Water Company; whilst the extension on the west side is intended for the pipes of the gas company. The bridge takes a considerable curve round the old one, which it closely adjoins at each end. The work has been carried out by the commissioners' workmen, from plans prepared by their engineer, Mr. Ure, and sanctioned by the Board of Trade.

CHURCH-BUILDING NEWS.

Aylesbury.—During the restoration of the Lady-chapel of St. Mary's Church some interesting remains have been found. On excavating for the new foundation, about 18 inches below the surface, two arches of very rude masonry, supposed to be Saxon, were discovered; also three openings to admit light into what it is thought was the crypt of a much earlier church than the present edifice. The vaulting and masonry of the crypt have been cut away, and it appears to have been turned into a charnel-house, as, in clearing it, upwards of fifty skulls and other human remains were taken out and buried in the church-yard. It is supposed by some that in this crypt the remains of St. Osyth were deposited when removed from Quarendon. On clearing away the plaster in the interior of the chapel, further objects of interest were brought to light, and, on the removal of a window, the jambs and portions of the tracery of two decorated windows were found, also a piscina, a triple sedilia, and a quantity of canopy and other work which had been used to block them up. Sketches have been taken, which, with other particulars, have been forwarded to Mr. Scott, the architect, with a view to the restoration of this portion of the ancient parish church.

Rochdale.—St. Mary's church has been re-opened. From all the central portion the old pews have been removed, and low benches of suitable style have been substituted; a middle aisle is secured, the chancel opened up, and the altar brought into view. A new font has taken the place of the old one. The style is Italian. The bowl is of Caen stone, generally octagonal in form, four sides being flat and four on the circle. On the square panels formed by the flat sides circular medallions are sunk, in which, in very high relief, are various devices. The bowl is carried upon a circular column, surrounded by four smaller detached columns of Connemara marble, with carved Caen stone capitals. The base upon which the font rests is a Latin cross of Kerridge stone. The work is from the chisel of Mr. Joseph Bonehill, directed by Mr. Henry Styan, of Manchester.

Aysgarth, Wensleydale.—The ancient church of Aysgarth has been most part rebuilt and restored, and is now open for divine service. The roofs and walls were, on uncovering, found to be in such a decayed and dilapidated condition, that nothing could be effectually done except by taking down and rebuilding them. It was intended to preserve the original arches and piers of the nave, but when the heavy oak roof was removed they were found to be out of perpen-

dicular to an extent not considered safe for re-roofing: consequently the church has been rebuilt, except the lower portion of the tower; all the original arches and piers, with their shafts, capitals, &c., preserved and restored. A new chancel arch, with shafts and foliated capitals, and adjoining the side-aisle arches, has been introduced, separating the chancel from the nave internally, and breaking the former disproportionate length of line in the roof from the tower to the east end. The clerestory, which had been lowered from the original, has been raised 3 ft., and is now pierced by six windows on each side, filled with geometric tracery, and glazed with Powell's cathedral glass. New windows with similar tracery and glass have been introduced with the side aisles. A large decorated east window lights the chancel, the whole of which is glazed with stained glass illustrating the leading events in the life of the Saviour, in ten subjects, having the Crucifixion in the centre. The design and workmanship were by Messrs. Clayton & Bell, of London. Mr. H. T. Robinson, of Edgley and the Cliffe, Leyburn, is the donor of this window, as a memorial to some of his deceased relatives. A stained window in the east end of the north aisle was presented by the Rev. J. Winn, M.A., vicar. The subject is the parable of the Good Samaritan. It is by Messrs. Heaton, Butler, & Bayne, of London. The east window of the south aisle is stained; the subject chosen for illustration being the life of Jacob; it is by Messrs. Lavers & Barraud, of London. One of the south aisle windows, also the work of Messrs. Heaton, Butler, & Bayne, exhibits in two lights the miracle of the man cured of the palsy. The remaining south aisle window has also two lights, and has two subjects from the Acts of the Apostles illustrating the laying on of hands. It is the work of Mr. Burrows, of Sand Side, near Kendal. This window is presented by the architect as a memorial of the restoration. The roof of the nave is of the old moulded oak beams so far as they could be used, and the rest of Baltic timber moulded to correspond; the pitch has been slightly raised, and Coniston slate substituted for the old lead covering. The chancel roof is also an open moulded roof with open tracery, and the whole is stained of dark oak and varnished. The entire church is re-seated with new red deal pewing, with low and sloping backs, having the bench ends and low doors filled in with tracery, and finished with carved finials, the whole stained and varnished. The chancel is decorated in the sacrarium by a reredos of mural painting, showing the four Evangelists, the sacred emblems and monogram, and the Commandments in panels, all having suitable borders and decorations. On the west or tower wall of the nave is a mural decoration, showing the call of St. Andrew (the patron saint of this church) and the fishermen to follow Christ. The decorations have all been carried out by Messrs. Heaton, Butler, & Bayne, and are the gift of Major Rhodes, of Bearpark and Rawdon Hill, Otley. The roofs are all finished with embattled parapets and crosses. The tower, which was of a very plain and bare character, and which had been raised a stage for the purpose of introducing four unsightly belfry windows, has been pulled down to this point, and rebuilt with four windows, enriched with tracery. To the four angles of the tower have been added angular buttresses, and the battlemented parapet is finished by eight crocketed pinnacles. The entire restoration has been carried out from the designs and under the superintendence of Mr. Green, architect, Portsmouth, near Todmorden. The contractor was Mr. Jones, Kirkby Stephen; and the clerk of works, Mr. John Woodhead.

Churcham.—At a vestry meeting recently held, it has been determined to raise 400*l.* by rate and 200*l.* by voluntary subscription, and restore the church as far as funds will allow. The builder is nominally required to complete the work by the 31st of October. The architect of the restoration is Mr. G. O. Haddon, of Hereford. His general idea is to renovate the interior, make good the outer walls, and renew the roof.

Leamington.—The Parish Church-completion Committee have entered into a contract with Mr. Marriott, of Coventry, builder, for the completion of the parish church, at a cost of 8,400*l.* The contractor has entered upon his work, and the south transept is now being demolished, preparatory to proceeding with the new buildings. The contract includes the erection of a new south transept, with a rose-window to correspond with that in the northern transept, and also a porch; the completion of the Evangelist columns, and the arches to support the spire. The work will be carried out in accordance with plans prepared by Mr. Charles Orton, builder, from the vicar's designs. Mr. Orton is clerk of the works.

STAINED GLASS.

York Guildhall.—This window, which was furnished by Messrs. Hardman & Co., of Birmingham, in accordance with the design of Mr. J. E. Doyle, of London, is one of five lights, and about 25 ft. in height. In the centre light is the figure of Mr. Seymour, who was Lord Mayor of York at the time of the late Prince's visit. On the right is a representation of the Prince-Consort, standing, in the act of addressing the assembled mayors at the great banquet in the Guildhall. The other figures in the window are those of Archbishop Musgrave, the Lord Mayor of London, Earl Russell, the Earl of Carlisle, Earl Granville, the Lord Provost of Edinburgh, the Lord Mayor of Dublin, and the mayors of Manchester and Cork, with the insignia of office, swords, and mace. Below these figures are the arms of the Prince-Consort, the city arms, impaled with those of Mr. Seymour, the Lord Mayor, the arms of London, and those of eight of the most important places in England. In the tracery are the arms of the principal nations of the world which took part in the Great Exhibition of 1851.

Washingborough Church.—The east window, which is in the Late Decorated style of architecture, and consists of five main lights, with various openings above, has recently been filled with painted glass, as a memorial of the late rector, the Rev. H. W. Sibthorp. The artists employed were Messrs. Ward & Hughes, of London. Each of the main lights contains two subjects, the upper and principal tier being the Last Supper, Christ before Pilate, the Crucifixion, the Resurrection, and the Ascension. Below these are the Fall of Manna, Joseph in Prison, Jonah Escaping from the Fish, and Elijah Ascending, thus forming type and antitype. In the tracery above the principal figure is a Majesty, or our Lord seated in Glory; and in the next largest openings are the archangels,—Gabriel on our Lord's right, and Michael on the left. At the base is the following inscription:—"Erected by the parishioners in affectionate remembrance of the Rev. H. W. Sibthorp, B.D., 48 years rector of this parish. Died 4th November, 1865." The arrangement of the design was given by the Rev. E. Trollope, who superintended the work.

St. James's, Clerkenwell.—A memorial window has just been placed on the north side of this church, near to the communion table, by the Rev. R. Maguire, M.A., incumbent, in memory of his deceased wife. The dimensions of the window are 5 ft. 6 in. by 6 ft. 10 in., and the subject is "Our Saviour and the Woman of Samaria at the Well," the text being taken from John iv., 15—"Sir, give me this water, that I thirst not, neither come hither to draw." The subject is of the German school, and executed in antique glass. The picture is inclosed in a border of coloured foliage. The artists were Messrs. Heaton, Butler, & Bayne, of Covent Garden.

DISSENTING CHURCH-BUILDING NEWS.

Rhyl.—The foundation stone of a new Welsh Baptist chapel has been laid at Rhyl. The plan of the building is a parallelogram, 54 ft. by 36 ft. inside, and contains sitting-room for 350 persons, and a gallery on the east end for 100 persons, such gallery carried over an entrance vestibule. It is to be lighted with four large windows on each side, filled with ground glass. The exterior part, facing Water-street, consists of a central projecting porch with gabled roof, and in which there is to be the principal doorway. The whole of the front, with turrets, is to be constructed of Wrexham stone, filled in with Yorkshire shoddies, and the sides are to be in character with the front, but carried up in brickwork. There is to be a schoolroom connected with the chapel on the same level, with a separate entrance from outside. The architect is Mr. Richard Owen, of Liverpool; and the contractor, Mr. J. R. Jones, of Rhyl.

Leeds.—Headingley Hill Congregational Church, Leeds, has been opened for divine service. The site is at the bottom of Cumberland-street, with a frontage to Headingley-lane. The church is in the Early English style of architecture, and has been built from a design by Mr. Brodrick, the architect of the town-hall. The spire of the church is seen from many parts of the town. The interior at present affords accommodation for 650 persons. The total cost of the land and building has been upwards of 6,000*l.*

Hinckley.—The foundation stone of the Borough Church, Hinckley, in the course of erection by the Independent congregation at present assembling at the Chapel in Stockwell Head, has been laid. The ground upon which the building is to be erected is in the Borough, in proximity to the Market-place. The plans have been prepared by Mr. F. E. Drake, of Leicester. When first consulted in the matter he was instructed to adopt the plans of the London-Road Independent Chapel, Leicester, in all respects except in the elevation, and that was to be altered by raising the height of the elevation by having six or seven steps. Mr. Drake carried out these instructions, and with the introduction of several other minor alterations the plans were adopted by the Committee. The Committee, however, afterwards decided to have a new design, and plans were prepared but were found to cost a little too much money, and the old plans were again resorted to, but the schools were altogether omitted. The Committee since the foundation stone was laid have again altered their minds, and have determined to adopt as far as possible the architect's own design to the old plans. The style of this design is Lombard Venetian, treated in a free manner. The whole of the front is of Attleborough stone, with Bath stone enrichments. The front is broken into three parts. The wings have each a lofty two-light window, filled in at the top with tracery: these windows are circular-headed. Over these is a moulded cornice, and the whole surmounted with a pierced parapet. The centre is gabled, and contains three entrance-doors approached by a flight of six steps. Over the doors is a row of seven lancet-headed windows with interesting hood mouldings, and in the gable is a large wheel window, filled in with quatrefoil plate tracery. The interior is divided into a nave and two aisles, the latter formed with rows of columns connected by semi-circular arches. There is an apse behind the preaching platform, in which the choir will be placed. The accommodation provided is for 800 people, and the pews are of the modern open description. The amount of the contract for the whole of the work is 2,040*l.* 10s., and the works are being executed by Messrs. Harrold and Son, of Hinckley.

Books Received.

Thorvaldson's Works in the Church of Notre Dame, Copenhagen. London: Marion & Co., Soho-square.

THE Church of Notre Dame, in Copenhagen, has a Thorvaldsen museum, containing as it does no fewer than fourteen large pieces of sculpture from his hand, namely, the Saviour, beneath a pediment supported by columns and entablature, above the altar; a kneeling angel holding the font; and separate figures of the twelve apostles disposed of against the piers on each side of the nave. These have been very well photographed by G. E. Hansen, of Copenhagen, and Messrs. Marion may be thanked for having published them in this country. Each photograph, without the mount, is 10 in. by 8½ in., large enough to show the figures properly. They are too well known to need criticism now; suffice it to say they form a noble series, and assert triumphantly the genius of the artist. The intention of the attitude of the Saviour is clear without the inscription on the pedestal,—"*Kommer til Mig.*" A view of the interior of the church is included in the collection.

VARIORUM.

Under the title of "Cholera, What it is, and How to prevent it," Dr. Lankester, F.R.S., has published a suggestive and valuable little manual (Routledge). The object it has in view is to place before the public what are thought to be the causes and the best means of preventing the terrible disease which still hangs over the country; and thus to lead people to adopt such measures, and such mode of life, as may render its attack less likely. The little volume cannot be read by any without advantage.——The new number of *The British Workman* con-

ains a large and effective engraving, enforcing ie notice to labourers and others against wearing set up in St. Paul's Cathedral by Sir hristopher Wren. Our own endeavours in is direction have not been wanting. — *The hildren's Friend* and *The Band of Hope Review* ontinue to pursue their useful course.——"Art-and," by Thos. B. Wood, is a poem (published y Hardwicke), the scope of which is shown by s title.

"Fill thy mind with Christian story,
Raise thy soul to Christian glory,
Steep thy heart in Christian beauty,
Vow thy life to Christain duty;
Bear a consecrated part,
Be th'apostle of thine Art."

—The current number of *Fraser* contains a valu-ble paper by Mr. Edwin Chadwick, C.B., on the Administration of Medical Relief to the Desti-ute Sick of the Metropolis." The writer urges onsolidation and the extension of *preventive* easures.

Miscellanea.

CO-OPERATIVE FÊTE. — On the 6th of next onth, during the meeting of the Social Science ssociation in Manchester, an excursion to halley Abbey, in connexion with a great co-perative fête, will be made to celebrate the pening of the co-operative Cobden Memorial ills, Sabden. Mr. Thomas Hughes, M.P., will reside, and several gentlemen connected with e Congress are expected to be present.

WEDDING WINDOWS.—A stained glass window as been placed in Yazor church to commemorate e marriage of Mr. J. H. Arkwright. In emory of a similar event, Mr. Jackson has put p a window by Heaton, Butler, & Bayne in the ollegiate Church, Wolverhampton. The sub-cts are taken from the life of Jacob. At the ottom of the window is inscribed, "A good wife from the Lord." The remainder of the window filled with light glass, as best adapted to a orth aspect. The sexton says it is delightful to nd people with such strong faith in the future.

CROYDON SEWAGE IRRIGATION WORKS. — Last eek the members of the Society of Engineers, ith a few visitors, proceeded to Croydon for the rpose of witnessing the method of sewage ilisation which is carried out there. On their rrival vehicles were awaiting to convey them to e waterworks. Dr. Carpenter spoke in very igh terms of the system of sewage utilization operation there, and attributed its entire suc-ss to the labours of their engineer, Mr. Bald-in Latham. The various fields were inspected, nd one of the most patent proofs of the sound-ss of the irrigation system is that the water h leaving the farms is very pure, only contain-g twenty-three grains of solid matter in the llon. The produce of grass is very good.

BOARD OF WORKS OFFER OF COMPENSATION.— n offer under section 88 of the Lands Clauses ct, of a sum of money for land and damage ust not be clogged with conditions, and must e such as a jury can deal with in the event of fusal. An offer of "100*l.* in full satisfaction nd discharge of all claims and demand on ccount of any damage or injury sustained by on through the said works in your said notice entioned, such sum to include all costs, charges, nd expenses of, occasioned by, or incidental to our said claim or the proceedings to enforce the me," was held by the Court of Queen's Bench be bad, and the claimant, having recovered by e verdict of the jury less than the sum offered, as yet entitled to his costs. This was the case *Bulls* v. *The Metropolitan Board of Works*.

THE DRAINAGE WORKS AT HULL.—By a storm f rain the West District Drainage Works, which ere to cost 21,000*l.*, were flooded. Worse dam-ge was done at the new West Dock works. he dock and basin are about a mile in length, nd about 120 yards in breadth. With the ater space, quays, and warehouses, the docks ere estimated to cost 1,000,000*l.* Mr. Hawk-shaw is the engineer, and Mr. J. M'Cormack, .P., the contractor. A large portion of the offer-dam, which extends along the Humber he whole length of the dock, gave way, and he works, with a water surface of 20 acres, ere inundated. The tide at this time was ising, and as it flowed it carried away ton after on of the embankment, until an opening ex-nded for a length of fully 50 yards. The ccident is attributed to "freshes" scouring he mud from the piles of the coffer-dam.

TYPHUS FEVER AT SOUTH SHIELDS. — Typhus fever in a very malignant form is said to be prevalent in certain parts of South Shields, and in several cases has proved fatal. Choleraic diarrhœa is also said to have occurred there. The sanitary condition of South Shields is not satisfactory.

RAILWAY POWERS.—It is recited in the new Metropolitan District Railway Act, passed in the last Session, that in many instances the works of the company interfere, or threaten to interfere, with the stability of buildings which are not necessary for the purposes of the company, and the safety of which might be easily secured without permanent interference with the occupation thereof. The company are now empowered, in order to avoid injury to houses and buildings within 100 yards, to underpin or otherwise strengthen the same, and, unless in cases of emergency, to give at least ten days' notice of their intention.

EARTH CLOSETS.—A suggestion of Dr. Hawksley to substitute earth-closets for water-closets has been causing a good deal of correspondence. Mr. Arnold, the resident Government Inspector of Public Works in Lancashire, remarks, as we have before urged, that such a change would be a serious calamity. He speaks from his own experience of a neighbourhood where the sewage of the dwellings is excluded from the underground drains, and says that the ashpits in which the sewage is detained are drained into sewers, and the sinks of the houses are connected with the sewers, so that the outfall is as poisonous as if it carried away all the sewage. As to the three-pail system, it is impracticable among a class which is so careless as the working class of our large towns.

NEW ACT ON PUBLIC LIBRARIES.—One of the last Acts passed in the late session was to amend the law relating to the formation of public libraries in England and Scotland. Some alterations have been made which will facilitate public libraries, especially as by one of the provisions, where a library or museum has been or may be established, a library or museum may be established in connexion with it under this Act. The Town Improvement Clauses Act, 1847, is not to apply to boroughs, and it is provided that the expenses of carrying the Public Libraries Act into force in boroughs are to be paid out of the borough fund. In boroughs a meeting is to be called at the request of the town council or of the ratepayers. Another improvement is that parishes adjoining boroughs may unite to adopt the Act. Instead of "two-thirds" at a meeting agreeing to adopt the Act, a majority of "more than one-half" will be sufficient. The Act may now be adopted no matter the amount of population. The Act is to be construed as one with the Public Libraries Act of 1855.

INTIMIDATION IN SANITARY MATTERS. — The attention of the Legislature must be drawn to the necessity of providing a remedy against a species of intimidation which is calculated to interfere very fatally with the carrying out of sanitary measures. A remarkable instance of this intimidation, carried to a dangerous extent, is recorded in a report of a meeting of the Worcester Board of Guardians in the local *Herald*, the editor of which paper calls especial attention to it. The case was that of a poor woman whose landlord's agent threatened to turn her and her maimed husband, laid up with a broken leg, out of their house, or to double the rent, because they had given information about nuisances to the proper authorities. The chairman said that "that was a matter that had nothing whatever to do with the Board." Surely he overlooked the fact that the Legislature has oftener than once conferred important powers on boards of guardians connected with the subject of epidemics; and that nuisances such as those denounced are intimately connected with cholera, typhus fever, and other scourges of humanity. Nothing, as the editor observes, can well be a more mistaken view than that boards of *guardians* of the poor have nothing whatever to do with the intimidation of poor persons who can give information against nuisances. The law justly punishes those who attempt to suborn testimony *or to intimidate witnesses*, and shall it be tolerated that where human life and health are at stake, persons, because they happen to be owners of cottages in which poor people must live, shall tyrannically intimidate their humble tenants and render them dumb in circumstances wherein it is the duty of all to speak out?

HERCULANEUM.—It is in contemplation to recommence the excavations at Herculaneum, which have been so long suspended.

PINS.—Fifteen million pins are said to be daily called for in this country, in which 2,727 lb. of brass wire are consumed. Some idea of the consumption of brass wire in the manufacture of pins may be gathered from the fact that one firm in Birmingham consumes 150 tons per annum, or 336,000 lb.

RAILWAY ODDITIES.—A constant traveller from London to Ipswich by the Great Eastern Railway tells us that the time occupied by the express train in that journey is twenty minutes more than by the ordinary morning train at ten o'clock, and he wants to know why he should be made to pay 3s. 9d. additional when he goes by the former and loses his time.

INDIA-RUBBER TYPE. — A manufactory for making printers' type of vulcanized india-rubber has just been started at Dalston. This kind of type is said to be as quickly and easily made, and to be fully equal in quality and durability to the common type, the cost price being only one-third of the latter. It can be remoulded when worn, and presents advantages for stereotyping. The invention is said to be American; but the idea was anticipated in the gutta-percha stereotypes which, it may be remembered, were exhibited, together with printed impressions from them, in the Great Exhibition of 1851.

INVENTION BY A WORKING MAN.—At the Industrial Exhibition in the Agricultural Hall, Islington, there is shown a plan by which the action of a shower of rain is made to close an open window. The window, when opened, stretches two indiarubber springs. These springs are prevented from drawing the window down by means of a curved rod fixed outside the sash, the end of which works up and down in a tubular bell-mouthed stand on the window-sill. A little piece of loaf sugar is inserted into the mouth of the stand, and the end of the rod is let down gently on to it. The sugar prevents the rod descending in the tube, and of course keeps the window-sash up. As soon as it begins to rain, the bell-mouth of the tube collects the drops, the sugar is melted, and no further obstacle being presented to the action of the india-rubber springs, the sash is drawn up.

THE NEEDLE LATCH AND THE NEEDLE LOCK. We have heard of the needle gun, but the needle lock rather took us by surprise. It is simple in its construction as it is composed of neither more nor less than steel wires,—call them needles if you like,—strung together on two stumps attached to the running bolt upon which they revolve, and they require to be lifted by the key to a position to admit of their being passed through certain holes in a plate of brass, and thus passing, carry the running bolt with them, which carries the real bolt. The needles move obliquely, perpendicularly, laterally, and indeed in any direction: hence the difficulty in raising all the needles with an instrument simultaneously to their required positions to run through their own apertures, and escape the many traps set for them in the shape of a number of holes pierced nearly half-way through the fence-plate of the exact size to fit the needles. In the more expensive latches, as we have only been describing the cheapest one, there are protectors and detectors. The invention certainly seems to deserve trial.

INAUGURATION OF THE STATLE OF THE QUEEN AT ABERDEEN.—The Aberdeen statue of her Majesty has been inaugurated in the presence of the Prince of Wales. The Queen is represented as a Queen of Scotland. The figure stands erect, with a diadem on her head. Her right hand holds the sceptre, pointed slightly upwards, and the left grasps the border of her Scottish plaid, which is fastened by a thistle brooch. On the fret of the garment the rose, shamrock, and thistle are cut. The height of the figure is 8 ft. 6 in., and it is placed on a pedestal 10 ft. 6 in. in height. The pedestal is of red granite, and consists of a rustic under-base, a polished base and die, with ornamentation round the top. On the front of the die is the inscription, "Victoria D. G. Brittanorum Regina, 1866." The statue is placed in the angle at the junction of St. Nicholas-street and Union-street, a space having been bridged over where a chasm to the roadway 20 ft. below formerly existed, and a pier built to support the pedestal and statue. The sculptor was Mr. Brodie, a native of Aberdeen.

A Field of Glass.—The glass required for the Paris Exhibition, next year, it is said, will cover an extent of twenty acres.

Idle Local Board.—In reporting the election of three members of this Board, it appears that a mistake was made in casting up the votes, and that our statement, so far as it affected one of the gentlemen, was inaccurate. Those who obtained the highest number of suffrages were Mr. John Stead (588), Mr. Amos Raistrick (576), and Mr. David Booth (570).—*Leeds Mercury.*

Woolton Local Board.—Mr. G. W. Goodison, C.E. (of the firm of Messrs. Reade & Goodison), has been appointed engineer to the Woolton Local Board. Mr. Goodison has held a similar appointment under the Walton Local Board for the last two years. It is said to be the intention of the Woolton Board to at once carry out a comprehensive system of sewerage in their district.

Premiums to Workmen.—In addition to the prizes offered by the Society of Arts, the Worshipful Company of Coach and Coach Harness Makers offer a prize of 3*l.* in freehand drawing, and a prize of 2*l.* in practical mechanics, to the candidates who, *being employed in the coach-making trade*, obtain the highest number of marks, with a certificate, in those subjects respectively.

Sale of Building Land at Worcester.—Mr. T. H. Wheeler recently offered for sale by public auction, at the Star Hotel, a freehold estate, situated on the west side of the Bath-road, nearly opposite the newly-erected residence of the Mayor. The land has been laid out in 118 building lots, varying in size from 450 to 1,400 yards. Most of the property fronts the Bath-road, and roads of 30 ft. in width have also been planned out, and provision made for draining. Those lots which were sold averaged about 3s. 9d. per square yard.

Coal and Petroleum Products of the United States.—In 1865 the total coal product of the United States was 17,417,617 tons, of which amount Pennsylvania produced 13,441,701 tons, leaving all the other states to supply only 3,972,913 tons. Of petroleum the total product of the United States in 1865 exceeded two millions of barrels, allowing 45 gallons to each barrel. All this, with the exception of less than 120,000 barrels, was the product of Western Pennsylvania. Thus far this year the foreign exports of petroleum amount to more than 34,500,000 gallons.

Work in the Workhouses.—The guardians of the poor of St. Pancras have resolved to introduce the sewing-machine into the chapel (used as the women's workroom) and the tailors' shop of the workhouse. By the use of the machines they hope to be enabled to discontinue the purchase of second-hand clothing for the paupers, and also to teach the young women in the house the use of the sewing-machine, as many of them state that they are sempstresses, and unable to get employment at their needle through the use of the sewing-machines. Paupers may thus be reconverted into useful members of society, and no longer a burden to the ratepayers.

Water and Cholera.—As bearing on this connexion the *United Service Gazette* says,—Bethlehem Hospital has not throughout all our successive visitations of cholera had a single case amongst its unhappy inmates, and Bethlehem Hospital derives its water-supply exclusively from an artesian well within its own grounds, pays no water-rate, nor has any connexion with any of the great water companies. It is singular that during all the recent discussions respecting the action of polluted water in producing cholera, the medical authorities of the hospital have not thought it their duty to give these two remarkable facts publication.

The Approaches to the New Palace at Westminster.—These approaches and alterations are rapidly progressing, and are expected to be completed by the meeting of Parliament. Palace-yard is to be encircled by an ornamental railing 7 ft. high. Ample means of ingress and egress will be afforded for the public and vehicles. A colonnade is now in course of construction, in unison with the architecture of the building, by the side of the Speaker's house, fronting Palace-yard, which will lead by a subway on to the Thames Embankment at the end of the now existing Manchester-buildings. It is intended to erect there an hotel.

A Village Hospital for Sevenoaks.—A movement, of which the Rev. H. F. Sidebottom, rector, is the promoter, is going on, for the erection of a village hospital in Sevenoaks. Lady de la Warr (Baroness Buckhurst) has consented, it is said, to erect a building for it near the police station,' for which a nominal rent will be charged, and a sub-committee has been appointed to consider the plans.

Protection of Wood Carvings, &c.—Worm-eaten wood may be saved from further ravages (says *Galignani*), by fumigating it with benzine, whereby the worm is destroyed. Another way is to saturate the wood with a strong solution of corrosive sublimate; a process which may be advantageously employed to protect carvings in wood. But as sublimate destroys its colour, it will be necessary to restore the latter by ammonia and then by a very dilute solution of hydrochloric acid. The holes made by the worm may then be injected with gum and gelatine, and a varnish of resin dissolved in spirits of wine should afterwards be applied to the surface.

Accidents.—The gable wall of the Queen's Hotel, at Mexborough, gave way, owing to some excavations being carried on close to it for the foundation of new houses. The proprietor of the hotel had only been out of bed some few minutes, when the wall fell, and the whole of the contents of the bed-room and the kitchen were precipitated into the street. No accident occurred beyond the killing of two greyhounds. ——A part of the brick-work of the arch of the bridge now in construction over the Aylesbury and Buckingham Railway on the Hartwell-road, has fallen in, the supports having been removed too soon. A labourer received some slight injuries, but was able to resume work the following day. The arch has since been restored.

Earl Grey on Strikes.—On Wednesday an address was delivered by Earl Grey at the opening of a Fine Arts Exhibition in connexion with the Newcastle-on-Tyne Mechanics' Institution. The object of the address was to show that mechanics' institutes had in no sense of the word proved failures, and that they were yet capable of doing a vast amount of good. Lord Grey alluded at some length to the disputes in the iron trade between masters and workmen, and said that within a very few weeks the loss in wages through those disputes had amounted to 150,000*l.* He looked to the mechanics' institute as one of the most efficient means of promoting a better feeling between the employers and employed; but he also expressed the opinion that if a really Christian spirit prevailed throughout the community, neither strikes nor locks-out would ever be heard of. He spoke at some length of the drunkenness which was at present the besetting sin of working men; but said he believed that by the means of mechanics' institutes and like agencies a change would be wrought amongst the working classes similar to that which had taken place during the last century amongst the upper and middle classes of the country.

Opposition to Sewerage at Rugeley.—The Local Board of this town having adopted the plans of Mr. Griffiths, the county surveyor, for the sewerage of the town, deposited them at the Shrewsbury Arms, for fourteen days, with the view of receiving any suggestions for their improvement which the ratepayers, after examination, might be disposed to make. A meeting was then held at the Town Hall, which was convened by a placard, which stated as its object—"To take into consideration the propriety of memorialising the said Board as to the necessity of postponing all further proceedings with relation to the contemplated drainage of the town." The hall was crowded; and it was almost unanimously resolved, "That this meeting is of opinion that the present state of the health of the town does not call for any further drainage than at present exists." Mr. J. Gray, surgeon, called upon by the chairman, said that in his opinion the town was perfectly healthy, and required no sewerage. Mr. E. H. Wright asked the meeting if they did not think Upper Brook-street required draining, and said he would not live in that street if he could do so rent free. Mr. George Cope stated that he had lived in the street for sixty-three years, and considered it perfectly healthy, which Mr. Thomas Gilbert confirmed. A resolution was then passed urging on the Board not to incur the great cost (4,500*l.*) of the sewerage in the present state of trade in the town, but to adjourn the matter for twelve months.

Railway Matters.—The traffic receipts of railways in the United Kingdom amounted for the week ending the 15th of September, on 12,624 miles, to 763,742*l.*, and for the corresponding week of last year, on 12,408 miles, to 757,771*l.*, showing an increase of 216 miles, and of 5,971*l.*

The Manchester Joiners' Strike.—We are informed from Manchester that the Manchester joiners' strike is ended. The masters and men met on the 26th, and agreed upon terms under which the men will resume work on Friday next. The wages are to be at once raised one shilling per week, and another rise of one shilling is to be granted next March.

The Intended New Bridge in the Harrow-road.—The Board of Works having surmounted all difficulties relative to this necessary improvement, have decided on demolishing the old brick arch which bridges the Regent's Canal, near the Lock Hospital, and replacing it by an iron bridge, which will continue the width of road and footway at each end. A temporary bridge has been constructed for the public traffic, and the old brick arch is disappearing.

Alexandra Palace and Park.—This structure, now in course of erection on the top of Muswell-hill, is fast approaching completion. The contractors, Messrs. Kelk & Lucas, have 1,200 men engaged. The works were re-commenced in September, 1865, and have been carried on with unabated energy throughout the monetary crisis. The Great Northern Company have purchased the Edgware and Highgate Railway, by means of which they will obtain a second line to the palace.

A Royal Railway Carriage.—The Great Northern Railway Company have built a handsome carriage for the use of the Prince of Wales, partly, it is said, after the Prince's own design. According to the *Doncaster Chronicle*, it is 27 ft. in length, and no less than 7 ft. 1 in. in height. Built of teak, the finest pieces of wood have been selected; and in the panels and framework the grain of these has been developed under successive coatings of varnish, and brought to such final perfection that the whole surface resembles a finely-polished looking-glass. The whole of the iron-work under the body of the saloon is painted in copper bronze; and the body itself rests upon India-rubber springs—a principle which has been found very effectual in securing steadiness and elasticity of motion. Over each of the ordinary metal springs of the carriage, there is also a large circular block of the same material, so that should a spring break the India-rubber will at once hold up the body, and act as a spring in place of the one dismantled. Block wheels are employed in preference to those ordinarily used in railway carriages. The interior of the carriage is divided into two equal compartments, a door communicating from one to the other. This is by desire of the Prince, the object being to have the children as near the Prince and Princess as possible. Hitherto they have usually journeyed in separate carriages, but here it is intended that one compartment should be occupied by the little ones and their attendants. The lining of the compartments is of Royal blue cloth, and the couches are in morocco of the same colour, whilst the roof all through is covered with a splendid white moir-antique—the rims of the lamp-holes being of silver. The couches draw out and form comfortable beds, fitted with blue silk cushions. At the extreme end of each compartment is a lavatory, the sides of which are of polished and panelled teak, and the furniture of massive and richly-carved walnut. The door-knobs are cut glass, and the mountings throughout of plated silver. Everything is good and nothing tawdry. Mr. Griffiths, the superintendent of the carriage department, has carried out the whole work.

TENDERS

For completion of Leamington Parish Church. Mr. Barry, architect:—

Grindrod & Hargreaves	£10,305 0 0
Hughes	9,875 0 0
Marriott (accepted)	8,400 0 0
Dutton	7,700 0 0

For building chancel, chancel aisle, and vestry to St. Luke's Church, Paddington. Messrs. F. & H. Francis, architects:—

Dove Brothers	£1,949 0 0
Myers & Son	1,934 0 0
Fish	1,830 0 0
Hill & Sons	1,766 0 0
Simpson	1,727 0 0
King & Sons	1,684 0 0

The Builder.

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The National Wallace Monument.

THE proposal set on foot exactly ten years since to erect a national monument to the "high-souled knight of Ellerslie," did not meet with universal favour, even in Scotland. Among Wallace's own countrymen, there was considerable division of opinion on the subject. In England, the scheme obtained very small support. It rather afforded matter for banter and ridicule: very few on this side the border "could see it." Those who took the trouble to actively oppose the project, did so on the grounds, first, that Wallace was the deadliest enemy England ever had while Scotland was as yet a separate and independent kingdom, and that he suffered an ignominious death as such at the hands of England; secondly, England and Scotland being now united, the erection of such a memorial would only serve to perpetuate feelings and sentiments which had better be allowed to rest in the grave; and thirdly, Is it not, asked the objectors, somewhat late in the day to make a fuss about a man six centuries after his death? To all this it was replied, that Wallace was the champion, *par excellence*, of the liberties of his countrymen, and although one of the very greatest of Scotsmen, no monument to his memory existed; that though the two countries were now happily one, Scotland had an independent history, of which she had good reason to feel proud, and that if the enterprise was late, yet better late than never. The lines of a great English poet were quoted to strengthen the Scottish position:—

> "The stranger comes, his eye explores
> The wilds of your majestic shores,
> Yet vainly seeks one votive stone
> Raised to that hero all your own."

It would be useless to discuss on which side the reason and argument rested. Enough to say that Scottish patriotism, if convinced against its will, was of the same opinion still. The undertaking was proceeded with. Five years, *i.e.* from 1856 to 1861, were spent in gathering subscriptions, and in considering the architectural designs of nearly one hundred competitors. At length, on the 24th of June of the latter year, being the 547th anniversary of the battle of Bannockburn, the foundation stone was laid under auspices which seemed eminently favourable to success; for although, as we have said, not a few pertinaciously opposed the thing, the promoters came out strong and enthusiastic on the occasion. Eighty thousand persons poured into the ancient burgh of Stirling, of whom 30,000 came from Glasgow alone. The official procession was three miles in length, and such a gathering of civic dignitaries, Masonic lodges, Odd Fellows, curling clubs, and volunteer corps, was never before seen in that part of the world. The proceedings were graced by the presence of the Duke of Atholl, in his capacity of "Most Worshipful Grand Master," by several lineal descendants of the hero's family, and by "The Historian of Europe," who was the chief spokesman of the day. And, as if to give further *éclat* to the ceremony, the master gunner of Dumbarton Castle (by the kind permission of the Duke of Cambridge), appeared bearing the sword of Wallace.

> "That sword which seem'd fit for archangel to wield,
> But was light in his terrible hand."

Then there was a grand banquet, as a matter of course, whereat an unconscionable amount of Scottish whisky toddy, and of Caledonian hurrahing, was got through before the arrival of the "Wee short hour ayont the twal," when the patriots separated to the tune of "Scots wha hae wi' Wallace bled." The erection was then begun energetically, and everything looked bright and promising. All of a sudden, however, the building operations came to a standstill from want of funds. And here we must confess we never rightly understood the exact position of affairs at this point. Several very handsome sums had been subscribed. One gentleman, for instance, gave 600*l.*; nearly 1,000*l.* came from Australia; America sent half that amount; two subscribers gave each 100*l.*; two others 50*l.* each, and one subscriber 60*l.*, and altogether about 3,500*l.* were subscribed at the date of foundation. But more than this, it was stated at the banquet by the secretary of the building committee, that a gentleman, already a liberal contributor to the memorial, had guaranteed the amount still required to complete it, namely, 1,200*l.* With this guarantee, why was the building not proceeded with and finished? Perhaps Dr. Rogers, the secretary, may be able to answer this question. A sufficient reason may exist, only we do not know it, nor we dare say do any of our readers. However it is now said, in a paragraph which is going the round of the papers, that a well-known Scottish baronet, who had promised the sum of 500*l.* to the undertaking (contingent on a certain interesting event happening in his family), has fulfilled his promise, and we are informed that the promoters will now be enabled to complete the monument forthwith. We trust that it may be so, for whatever difference of opinion may exist as to the wisdom of the project in the first instance, no one desires to see an unsightly cairn of stone disfiguring a scene of surpassing beauty like the Abbey Craig, — we may say one of the finest landscapes in the kingdom. Having been so far proceeded with, an effort ought certainly to be made to finish the structure. Dr. Rogers and his friends might have taken warning from that awful failure the so-called National Monument on the Calton Hill of Edinburgh.

Of the monument itself nothing need be said here. A pictorial illustration and particular description of it will be found in the *Builder*, vol. xviii., p. 57. This is the fourth attempt by his countrymen to rear a public monument to Wallace. In 1818 a Scotsman resident in London offered to bequeath the sum of 1,000*l.* for the erection of a tower to the memory of the hero on Arthur Seat or Salisbury Craigs, Edinburgh, if such an object could be accomplished, "but no action was taken in the matter." In the following year, William Motherwell, the poet, commenced an agitation for a public monument in Glasgow. At first it seemed likely that this scheme would succeed, but it ultimately fell through. After a great deal of talk, only 150*l.* were raised towards the object. Again, Patric Park, the late ingenious sculptor, with his usual enthusiasm, formed the idea of raising a gigantic figure of the Scottish patriot to be placed somewhere about Edinburgh — probably on the Calton Hill. But after preparing a magnificent model of a colossal statue, he abandoned the idea of proceeding further from want of encouragement, and destroyed with his own mallet the model which he had so ingeniously fashioned. Whether the present attempt is to prove equally abortive remains to be seen.

THE PRIORY OF HEXHAM.*

THERE has been so much said of late years about the Priory Church of Hexham (or Hexham Abbey Church, as it is commonly called), that it is with curiosity we perceive two more volumes have newly appeared relating to the history of this edifice. In the fulness of reading four comparatively recent publications upon the subject, we concluded, prematurely it would seem, that all that need be said about it had been said. The members of the Surtees Society, however, have thought differently, and have deputed their honorary secretary, the Rev. James Raine, to edit the two volumes now issued. At a meeting of the council of the society, held in the Castle of Durham in March, 1862, it was resolved that a volume relating to Hexham should form one of the now numerous publications of the society; and in June, 1863, at another meeting, it was agreed that the proposed work should form two volumes. It has now appeared, after the lapse of a long interval between the production of its first portly part, and its more slender successor; and we cannot but add that it proves to be a most valuable addition to the literature of the priory.

The new work is not strictly architectural or archæological, the members of the Surtees Society being antiquaries rather than archæologists. Neither is it confined to particulars relating to the church of the priory. It is more especially a collection and publication of the various documents extant concerning the history, customs, and possessions of the priory and its recluses. The public libraries of the universities of Oxford, Cambridge, and Durham; the choice collection of MSS. belonging to the Master and Fellows of Corpus Christi College, Cambridge; especially the stores of the deans and chapters of York and Durham; the registries of the Archbishop of York and of the Bishops of Durham and Carlisle, have been laid under contribution: the famous Black Book of Hexham is given at length; the Muniment Room at Castle Howard has been searched with the permission of the Earl of Carlisle; Sir W. C. Trevelyan's Blackett Papers have been placed at the disposal of the editor; and the Rev. J. A. Blackett Orde has lent him the ancient deeds relating to his ancestral estate. There are yet other papers concerning Hexham that have not been printed. Against the complacency with which Mr. Raine might regard the quantity of information he has collected there is a set-off in the vexation of not being able to trace some charters mentioned by Dodsworth, the antiquary, as being in the possession of Sir John Fenwick in 1638; and in the impossibility to give a chartulary relating to the Yorkshire property of the priory, owing to the fact that the small quarto in question has been mislaid by its owner, Mr. John Gough Nichols. The portions of the work with which we have to deal are, however, the very lengthy prefaces, no less than four in number, ingeniously divided into first and second parts to vol. i., and first and second parts to vol. ii. It is in these prefaces that the results of the author's labours are most tangible. In the matter of the recent so-called restoration, we consider the *Builder* to have been the fray-bell that called all good men and true together to prevent the loss of all ancient moveables, and the burial of all ancient sculptured stones that were used to cover pipes under the pavement in the transepts. The prodigality with which acknowledgments are dealt out to societies and individuals caused us to expect some mention of the circumstance as part of a full history of the restoration. In this we were disappointed. We were gratified to find that Mr. Raine endorses our opinion of the treatment of this ancient edifice. He says,— "It will be seen from the preceding pages that it

* "The Priory of Hexham: its Chroniclers, Endowments, and Annals." Vol. i. "The Priory of Hexham: its Title-deeds, Black Book, &c." Vol. ii. Published for the (Surtees) Society by Andrews & Co., Durham: Whittaker & Co., 13, Ave Maria-lane; T. & W. Boone, 29, New Bond-street; Bernard Quaritch, 15, Piccadilly; Mrs. Nutt, 257, Strand (foreign agent), London: Blackwood & Sons, Edinburgh.

has been cruelly dealt with." And, after remarking that large sums of money were munificently provided to preserve the characteristics of a building of which Northumberland was proud, he adds,—

"It is, however, very greatly to be regretted that modern architects are so fond of trying to displace by their own work the choicest remains of Christian antiquity. They never gain by the contrast, and the word 'restoration' is now, unhappily, only synonymous with destruction. In twenty years scarcely one old church will be left in the whole country."

We cannot take quite such a gloomy view of things as this. Indeed, we cannot but think that the fate of Hexham will act as a warning to those entrusted with the care of valuable fabrics. The portion of the preface that relates to the architectural features of the church is written by Mr. Walbran, and not by Mr. Raine. This change of pens is only to be discovered by reading steadily on, when the reader comes to an incidental mention of the fact in the text. It is with Mr. Walbran, therefore, with whom we must differ in the identification of the remains of the Priory buildings. English antiquaries, especially of the old school, are too apt to ignore the influence of the parent monasteries on the Continent upon all English founders or builders of branch establishments. They should bear in mind that the leading ecclesiastics were always in frequent communication with head-quarters. We may make ourselves sure, by inspection, that a similar disposition of the principal parts existed in most instances between the houses of a given order, whatever may have been that of their respective scales. Mr. Walbran has not realized this fact. There are evident traces of a building at Hexham adjoining the chapter-house. Because these remains have some slight ornamentation indicated, Mr. Walbran concludes that they are the ruins of a previous chapter-house to which the present splendid edifice was but the vestibule. He states that the present chapter-house was probably used when the Scots destroyed the superior edifice. The reason why a building of the class to which Hexham belongs should have been provided with a vestibule of such exquisite richness he does not explain. A reference to the plan of Clairvaulx would have shown him that the chapter-house there is in precisely the same sequence of sites as that at Hexham. Like it, too, it was composed of nine bays, and, with a still more exact correspondence, it consisted of two stories, the upper chamber having a staircase of approach in the south transept of the church. At Clairvaulx, this upper chamber was used as the grand library. Mr. Walbran thinks that some portion of that at Hexham, if not the whole, may have been used as a sacristy for the preservation of the sacred vessels and the vestments, *and many other purposes connected with the religious services of the convent*. Why not as the library? The exact structural correspondence we have pointed out seems to us sufficient to set aside the supposition that the rich and gracefully ornamented chapter-house of Hexham was once a vestibule.

Mr. Walbran believes the celebrated Frith-stool to be the cathedra of the Saxon bishops of Hexham. An illustration of this curious relic was published by the Surtees Society in 1837, which does not quite tally with its present appearance. On this matter Mr. Walbran remarks,—

"It appears that either then, or at some previous period when the drawing was made, a large concave moulding or cornice intervened between the sedile and its base, apparently of Perpendicular or Tudor character, and the base appears to have been formed of one stone. Be this as it may, I think it is questionable whether, in the original design, the lines of the ornamentation in front were not prolonged into another vertical stone below and returned at its base. I may remark here, more for the sake of future inquiry than otherwise, that on the sloping side of the elbow on the north side of the chair, I fancied I could feel some incised letters,—perhaps, after all, of no moment; which, in consequence of the dark situation, I was not able to observe by the eye."

It would be curious if the chair should be able to throw any light upon its veiled history. We cannot but feel that our author would have done well to have ascertained this point.

There is another suggestion of the probability of a new light to be thrown upon the Saxon remains here. The ancient historian of Hexham indicated the existence of more crypts than the one found in 1726. Prior Richard mentions underground oratories also. Mr. Walbran reasonably infers that we shall one day find these. The only descent now used into the crypt that has been found is down a shaft 2 ft. 7 in. wide and 18 ft. deep, by means of a ladder. When in the crypt the voices of persons in the church above can be distinctly heard. It is certainly to be regretted that some portion of the large sums spent on the recent *alterations* should not have been expended in opening out the convenient descent from the church, the steps of which are still *in situ*. This relic has been described so recently in these pages that we need scarcely make the observation that its interest would ensure numerous visitors if a less awkward mode of access were furnished. Both Saxon and Roman antiquaries are concerned as, it will be remembered, the subterranean fabric is built out of Roman remains.

Mr. Raine gives an interesting account of the Black Book of Hexham, or *Liber Niger*:—

"It derives its name," he says, "merely from the colour of the cover which it wears, like the Blue Books of the present day, which are familiar to every one. Similar appellations were common enough in old times. We have the Black and Red Books of the English Exchequer, the White Register of York, the Red Book of Durham, and the Black and Red Books of Hexham. The Black Book of Hexham is a carefully-drawn up rental of the possessions of the Priory."

It is a thin folio with black leather sides and a wooden back. The compilation of it appears to have extended over a period of some duration, for on the title-page it bears the date of the Feast of Pentecost, 1479; while among its contents are two statements that certain rents would become due for the first time at Pentecost, 1477. It is a transcript of an earlier document mentioned in it as the Old Roll, or, probably, an elaboration of it based upon fuller surveys made by the respective bailiffs than had before been given. It has never, hitherto, been printed. Mr. Raine states that it was usual to compile these surveys from the rolls of the bailiffs of each particular manor or estate, "who were probably desired to be more than ordinarily exact and minute in a stated year: the rolls would be examined as they were sent in, and the information they contained would be arranged by the terrarer." This mode of making a terrier accounts for the inequalities to be found in the descriptions, some of the bailiffs having the power of showing more photographically than others the property in their care. The priors possessed landed estates in the counties of York, Durham, Northumberland, and Cumberland. Mr. Raine computes their Northumbrian acres at twenty thousand. Besides these they had a herring fishery near Allerdale, and two salmon fisheries at Newburn. These large proprietors were generous and lenient landlords. Mr. Raine, who has examined all the evidence that has survived the lapse of centuries, handled their terriers, and seen their antiquated accounts in such forms as are left, says they divided their lands at each place among three sets of tenants, farmers, husbandmen, and cottagers, or else let it to one tenant, who subsequently sub-let it in a similar way. In these days of walls, fences, roads, &c., it appears wonderful that the bailiffs were able to indicate their possessions without such aid. Their plan appears to have been to draw imaginary lines between large objects, such as a tree or a standing stone, to serve as boundaries. Sometimes they were bequeathed a piece or share of unenclosed land in the middle of a moor, or piece of woodland, which it must have been difficult indeed to describe, but which the canons seem to have retained notwithstanding the inconvenience of doing so from a dislike to alienate anything left to the Church. The disputes which such entanglement entailed were referred to the verdict of a jury. Wayside crosses are sometimes mentioned in the black book as boundaries. Celtic standing-stones and the great Roman wall are also mentioned as land-marks. There are a few notices of unusual tenures. One of these informs us that the wife of the Lord of Dissington was bound to present at the high altar of Hexham on St. Andrew's Day two corporax cloths, an offering which it was understood would free the prior's tenants at Eastwick of moulter charge. Her husband was to rise and offer his seat to the prior whenever they met. Mr. Raine suggests that this enforced deference was to serve as an acknowledgment of the offence of Edgar, son of Earl Cospatric, and Robert and Uctred Fitz Meldred, who slew three of the prior's servants in an assault that took place at Dissington in the twelfth century.

Mr. W. B. Beaumont is in possession of a very interesting charter relating to the possessions of the canons. The Scots, in the reign of Edward I., destroyed the muniments of the priory. To secure their lands to the canons, the king issued a commission to inquire into their exact extent, and then confirmed them in their possession by the charter in question.

Prior Richard's history of the Church of Hexham, like the same prior's account of King Stephen and the Battle of the Standard, has been printed before; but Mr. Raine's careful and copious notes render this imprint very valuable. The Lives of the Saints of Hexham, by the Abbot of Rievaux, are refreshed with the same treatment. We can but thus slightly indicate that the latest work on Hexham is of more than local interest. The engravings and woodcuts of the Saxon remains are valuable to South-Humbrians, as well as to North-country antiquaries. The editor gives an interior view of the priory church; but eccentrically withholds any delineation of the exterior. There is a view of the town and country, in which St. Andrew's is minutely shown, overtopping the trees and houses; but wherefore no architectural illustration of this most picturesque fane?

MANCHESTER CONGRESS OF SOCIAL SCIENCE ASSOCIATION.

A special service in the cathedral on Wednesday afternoon, opened the public proceedings of the Congress, and in the evening the Earl of Shaftesbury, as president, delivered the inaugural address, in the Free Trade Hall. Of the success of the half-time system, in education, the president spoke decisively:—

"The alternation of work and study, in due succession and relief, the half-time system, as it has been called, is alike healthy and fruitful. The mind is not depressed by the labour, but the labour is invigorated by the refreshment of the mind. Do we not all feel the principle of it in ourselves? Its practical and most blessed effects we see in all the mercantile occupations governed by the provisions of the Factory Acts. We see it in numberless Industrial Schools in London and elsewhere. If you doubt the assertion, study the reports of Messrs. Baker and Redgrave and their efficient officers, the sub-inspectors; study it in the reports of Messrs. Chadwick and Tufnell, in their accounts of the Metropolitan Scholastic Establishments.

A short time back the excellence of the system came before my eyes in a very prominent way. I visited the Potteries in company with Mr. Inspector Baker, to whom we owe so much, so very much, of this successful issue. I need not describe to you the bodily and mental degradation, in former days, of that neglected district, the state of the places of work, the dust, the insupportable heat, the prolongation of toil through the day and through the night, the utter ignorance, the gross immorality, with all the evils that attend on a defiance of the material and spiritual laws of nature. They are all set forth at large in that true bill of indictment against the English nation, the five reports of the Children's Employment Commissioners. But how is it now? Though the test has, as yet, been only partially applied, the scene is changed. Two thousand children are at school on the half-time system; and two thousand children are thus exhibiting the results of mercy, consideration, and love. The evidence of the teachers who knew them before, and who know them now, is wonderful and heart-stirring.

The half-timers are equal, nay, oftentimes superior, to the whole-timers,—that is to say, those who study and work surpass those who study and do not work at all."

Farther on the speaker remarked,—

"I must dwell for a moment on the abomination of the Brickfields. Let the hardest heart that can be found in England visit those spots, and if he be not moved, he must at least be ashamed of his sex and of his country. There the female seems to be brought to the lowest point of servile ignorance and degradation. Hundreds of little girls, from eight to eleven years of age, half-naked, and so besmeared with dirt as to be barely distinguishable from the soil they stand on, are put to work in these abodes of oppression. Bearing prodigious burdens of clay on their heads and in their arms, they totter to and fro during many hours of toil. When I spoke to them they either remained aghast with astonishment, or ran away screaming, as though some evil spirit had appeared to them. I could not restrain my indignation, nor can I now, at this wicked scorn of female rights—this wicked waste of female excellence and virtue. Mothers and wives they can never be in the high and holy

sense of those words; and yet, were they trained to decency and truth, might there not be found some to equal the priceless heroism of Lady Baker, or the Christian intellect of Mrs. Stowe?"

On the health question Lord Shaftesbury said,—

"Essential, and, indeed, indispensable as is the section on public health in any meeting of our congress, it need not be dwelt upon in an opening address. The subject has excited a deep and general interest. Almost all the causes of mischief have been dived into, and brought to the surface; and remedies of various kinds have been suggested for their cure. The Legislature, too, by the Act of last session, has declared that a wider activity must be exercised by the Government, and larger powers be confided to it. But there are yet two points on which the executive is nearly impotent, and those of the greatest consequence to the labouring poor,—the wretched supply of water, and, in the widest sense that can be given to the term, the adulteration of food. Let us hope, and let us work, in this very congress, that another year may not elapse without an effectual abatement of these monstrous inflictions.

But the master-evil which nullifies every effort for the benefit of the working-people,—which leaves us no rest,—and on which let us take good care that the public also has no rest,—the evil that embraces and intensifies all the others, the hot-bed of pauperism, immorality, disease, and drunkenness,—drunkenness alternately the cause and consequence of disease,—the evil that is negative in preventing every improvement, and positive in maturing every mischief,—that lies at the root of nineteen-twentieths of the corruptions that beset our social state, and forms the crowning abomination of the whole, is the domiciliary condition of many thousands of our people. But, we must look not only to the pestilential character of the actual dwellings, but to the unventilated, fever-breeding localities in which they stand,—the dark, damp, and narrow alleys never visited by a ray of the sun, or a breath of fresh air. To describe these things is impossible. They must be seen, smelt, tasted, in person. Dirt and disrepair, such as ordinary folks can form no notion of; darkness that may be felt; odours that may be handled; faintness that can hardly be resisted, hold despotic rule in these dens of despair. There are hundreds where there should be tens; and thousands where there should be hundreds. The overcrowding is frightful,—it disgusts every physical and moral sense; and the more so when we see it as a growing, not a declining, evil. The numberless displacements, past, present, and to come, fill the poor people, and us too, with terrors and perplexity. And, as though this were not enough, the countless hosts in London ejected from their homes, and endeavouring to find shelter in dwellings already occupied, and abounding with life far beyond every limit of decency, health, and comfort, are encountered by some 40,000 immigrants annually, who are seeking the same accommodation, and contribute, along with other causes, to heap family upon family in these bursting tenements, to lower the rate of wage, and yet raise the rate of rent, for the great mass of the unskilled labourers.

Is there no remedy for this? None that I can see, except a new fire of London to sweep away all those filthy regions that must be destroyed to be improved; and then a vast and liberal contribution from all sorts and sizes of men to erect the City on a basis of health and humanity. Four-and-twenty years of experience in the matter have led me to no practical conclusions on a large scale. We have built model lodging-houses; and, so far as they go, they are a blessing to the people. But "what are they among so many?" They yield every return that a mere philanthropist can desire, but, financially, nothing that could tempt the large capitalists, who seek a remunerative investment for their money. The price, too, of land is rising mightily; and the great increase of wages among carpenters, masons, and bricklayers is a very heavy addition to the cost of building, and, by consequence, to the amount of the rents. Houses are springing up around the cities, it is true, but they are altogether for workmen of large weekly receipts. Suburban villages are proposed with penny-trains, but the objections made to them are endless,—principally by the women, who assign to me very sound and business-like reasons for refusing to quit their ordinary abodes; and, indeed, were they to do so, the public weal would be little served thereby, for the filthy tenements (unless a wholesome system prevailed to pull down in proportion as you built up) would instantly be seized by a herd of occupants, and all the mischiefs be perpetuated, and probably increased. It is necessary, moreover, that many classes of skilled workmen should have their dwellings within hourly reach of their principal and of each other. To these the suburban village and the penny-train are of small use; nor, in truth, to any but those who have fixed hours, fixed places of work, and good and certain wages. To the labourer who lives from hand to mouth, hunting around for a job, hanging about the docks, the yards, the shops, the courts, always uncertain of the amount of his gains, and sometimes uncertain of any receipt at all, "rising early and late taking rest," the railways and the residences are utterly worthless; and yet these classes are the vast majority of the ill-housed population. For these, our model-buildings have done nothing, and can do nothing; no one of the schemes hitherto propounded, no one of the Bills submitted to Parliament, holds out even the shadow of a promise. Suppose it be ordained that tenements shall be built: it follows, of course, that they must be constructed with everything that health and decency require. But who of this class of the people will be able to meet even the lowest rate of the new weekly payments for family houses? And, if constructed on a plan of single rooms, the utmost that these casual labourers are able to afford, we shall perpetuate, by law, a system of life, subversive of every moral and physical obligation."

On Thursday morning the various departments met in the Assize Courts and proceeded with the discussion of their special questions, various papers in each department being first read.

A BIT, YET EXTANT, OF FEUDAL OLD ENGLAND.

Amid the startling events of this memorable year, when the faculty of wonder becomes weakened by over exertion, when the same month witnesses the intellectual union of the continents of the old and of the new world, and dates the final dissolution of the shadow of the Holy Roman Empire; when new and mighty forces are coming into collision or combination, big with results that we can no more foretell than we can anticipate the form to be assumed by some untried chemical compound, it is not unnatural to long for some point of rest, some undisturbed station of observation, from which to judge of the tendency and the speed of the motion which everywhere surrounds us while for a season removed from its vortex.

If, for instance, we could steal a few hours from the unfevered leisure of our ancestors, if we could regard the political march, or rather rush, of events with the gravity of the counsellors of Elizabeth, if we could study the daily triumphs of the chemist and the mechanic with the meditative patience of the alchemists, we should not fail to deduce lessons of wisdom that we altogether lose in our anxiety for the latest telegram, or our speculation on the newest patent. If we could look from England of the sixteenth or seventeenth century on the England of the day, should we not look with nobler sentiments than that of mere wonder, or of unmixed self-gratulation.

To render such a survey for a moment possible, even in imagination, we must first be able to realize something of the life of the feudal times. In some parts of Germany, indeed, feudality, if not extant, has not been many weeks dead; and, no doubt, some of the ancient grafs, who are being so mercilessly unshelled by needle guns and field telegraphs, considered that their life was that of the great lord of the time of the Crusades. But Germany is not, for the moment, the most inviting region for a summer ramble, or for the scene of a philosophic meditation.

And, again, German feudalism is wanting in one great feature, essential to the vigour and the symmetry of the system as it flourished among the Norman chevaliers in France, England, Italy; it has lost the force of the law of primogeniture, the effect of which was the union of society in one connected hierarchy, and in the absence of which the difference between the noble and his peasants degenerates into a schism of caste or of class. When you hear of German villages in which all the inhabitants are noble, down to the ostler who condescends to hold your horse, you may think of the wild cateran painted by the author of Waverley as insisting on being considered as "shentlemans," but you trace no affinity to the Rohans or the Montmorencies. The towers of Warwick and of Windsor are not reared *ex quovis ligno*.

Turning to the other extremity of the map of Europe, you may look at Southern Italy, where the feudal laws were in operation when the present century was in its teens, and where, only six years ago, it was thought necessary, on the creation of any new title, to specify in the royal decree that authorized its assumption, that it was not to convey any right of feudal supremacy. And yet there you find but faint and vanishing reflexions of the Middle Ages. There are, indeed, the great mendicant orders; but their days are numbered, and the evil practice introduced by the Dukes of Savoy, of submitting ecclesiastical offenders to the sharp and undistinguishing process of the civil law has ruffled the plumage and lowered the crests of almost every spiritual person, secular or regular. The peasantry, in many places, are as rude and as ignorant as you can desire to see; but the physical geography of the country, by the large proportion of seaboard which it affords, tends to the percolation of this dense agricultural mass by seafaring and commercial men, whose views, strongly opposed as they are to those of the priest-led peasantry, are anything rather than Mediæval. Brigandage, indeed, is an institution; but it is a brigandage of a savage and popular kind, which would at once have been put down by the iron hand of the old feudal nobles, who would allow none but themselves to shear their own sheep. Thus of the lingering characteristics of the feudal times we can at present trace but those which are most obnoxious, and which, removed from the other influences by which they were formerly tempered, can give no correct idea of a former state of social life. One exception remains, and that a graceful and instructive one. The old territorial rights are abolished; the large hereditary properties are for the most part divided *ad infinitum*. Elbowed from their palaces by the speculators of the day, by Jew barons and shoddy millionaires, the owners of the historic names remember, and the peasantry remember, so much of the past as to be able to mingle on terms of patriarchal and affectionate familiarity. The peasant will take no liberty with the signiori; he will never overstep the acknowledged line of demarcation, and therefore the noble can enter the cottage as a guest; can treat his servants as if they were younger kinsfolk; and from the permanent effect of the marked distinction of rank can enjoy a simple dignity in the intercourse with those below him, of which those who have never been served by any but hirelings can form little adequate conception.

It is, then, neither to Germany nor to Italy that we now call the attention of our readers who would take a peep at feudal times. It is nearer home. Within a twenty mile radius of St. Paul's, on the borders of two inland counties, lies the scene to which we refer, shaded by timber that is the growth of centuries, and stretches in coppice and avenue and tufted wood, around one central patriarchal oak of at least five centuries growth. The name of Isel Hampstead, which appears on the ecclesiastical citations of the rector, is not to be found on the ordnance map, nor even in the ordinary county guide-books. Like not a few "*terres nobles*" of feudal times, such as Bourbon l'Archambaud, and Guerchi-Reignier, in France, and Kingston-Russell, in Dorsetshire, the estate annexed to its ancient name that of the family in whose possession it remained until, falling to the spindle, it came to swell the wealth of one of those great Norman houses that rose to a new and more towering importance when King Henry VIII. paid to the religious houses of his day, that same sore visitation that Victor Emanuel is now applying to the Italian monasteries. But unlike most other places which assumed, rather than gave, a patronymic, the name by which the village in question is recorded in "Domesday Book," has almost passed from the memory of man, and that of the old Norman house, extinct in Tudor times, alone is currently known as its designation.

From forty to fifty years since, this village might have been selected as a type of all that was most rural and all that was most neglected, in the country. The noble mansion, with its peculiar and unrivalled stacks of moulded and twisted chimneys, which had once formed three sides of a quadrangle, was half pulled down, and the remainder in part let out as cotters' tenements. The ivy that shrouded it seemed almost necessary to prop the old gables. The

church, with its family chapel, of Tudor time, lay in a neglected churchyard, hardly separated from the common, which was at once the playground of the village boys and the grazing-field of the parson's mare. The houses, cottages all, were old and ruinous; picturesque, indeed, exceedingly, but neither clean nor weather-tight. Blue-eyed children, with faces black with cherry or blackberry juice, stared rudely at the rare face of a stranger, or disappeared from his presence with whoop and with howl. Poaching and pillow-lace weaving were the chief industries of the place. The great lord to whom it belonged, had found his revenues, princely though they were, too strait for his requirements, or rather, it was said, for those of her grace. The axe rang constantly in the woods, and the ancestral beech were exchanged for counters on the card-table. The parson,—for the scene would be incomplete without reference to the most important figure on the canvas,—chiefly concerned himself in the preservation of game and of fish. He had a long and active feud with the villagers in consequence of his having inclosed the most beautiful portion of the common, and annexed it to the glebe. In order to protect the young partridges, he had offered a premium of a shilling for every cat's tail that was brought him, till one astute villager, who loved his cat and loved his shilling too, amputated this portion of the living animal, obtained the parson's shilling, and long preserved the active witness of his reverence having been outwitted. Indeed, the rector was said never to be known to enter the cottage of one of his poorer parishioners unless the culprit were ill advised enough to go twice to church on a Sunday, in which case he was pretty sure of a pastoral visit, with the inquiry as to why he aped his betters, and a strong hint not to do so again.

It is not possible to find a spot where a strong-minded improver, well up in his political economy and familiar with the resources of the share-market, could have wrought so great a transformation. The distance from London is such as to render any scheme, however bold, certain to answer if vigorously pushed. First, the woods were actually crying out to be converted into ready money. Far cheaper is it to buy Canadian or Norwegian timber than to grow your own. How much red deal or white pine is better for building purposes than beech! The axe, then, could reap a goodly harvest, and render the future steps of the speculation as easy as you like. Then a part,—say a very small part,—of the land thus summarily cleared would be enough to tempt the railway company, of which one of the feelers or single-line branches already protrudes within 4 miles of the village, to extend a branch, which the character of the country would render very inexpensive. The old house and the old chapel, at no very great expense, could be converted into attractive lions; and then, range after range of neat villas, with more or less of garden sloping down to the stream, with a few trees left to shade them, a good railway boarding-house, a judicious sale of tickets for the fishing of the trout stream, an enlarged church, with all that is most attractive in its services, and a properly-educated official, as at Paris or Naples, or places nearer home, to sell you pew-tickets at the door while service is going on, so as to save you trouble,—these are but a few of the steps which must suggest themselves to every competent mind as proper to be taken, with the absolute certitude of converting a neglected village into an attractive suburb, that would be yet more valuable to its fortunate possessor than a mine of gold.

Unfortunately for the lovers of speculation, it is not thus that the present rector, the near relative of the noble proprietor, has seen fit to deal with his cure. He has, indeed, rebuilt the village; but it is a restoration, not a desecration, of some of the most picturesque features of English cottage architecture that are anywhere extant. So perfectly does that which is new harmonise with that which is restored, that it is only by the stone slab which bears the date, together with the coronetted cypher of the builder, that the stranger can tell which is which. Every detail of the old timbered cottages, every peak of their porches, every corbel and mullion of the bay windows of great house or of cot, has been lovingly and carefully preserved. Bricks rubbed and pointed, stone quoins renewed, ivy trained and trimmed, but not torn down, the churchyard carefully fenced by a wall composed of alternate squares of Bath stone and flint rubble, the church restored in perfect taste,—such are the reforms of the present incumbent.

It is true that the encroachment on the common, commenced by his predecessor, has been rather increased than atoned for in these changes; but if the picturesque cottage which serves as a lodge to the rectory-grounds needs apology because it stands on that part of the old common where a peripatetic butcher's stall upon wheels was wont to rest in the days of the old rector, who would not allow a house to be let for the purpose of a butcher's business in the village, that apology is to be found in the presence of a still larger occupant of a part of the once privileged green—a school for forty boys and forty girls, which not only has absorbed the urchins that used of old to idle on the site, but has attracted scholars from the neighbouring parts of the county by its well-known excellence.

The parish church, dedicated to St. Michael, is a structure of flint rubble, the natural masonry of the chalk district, with Bath-stone quoins and voussoirs. The interior is rendered with a light brown stucco, that sets off the stonework, and gives a warm habitable effect to the building. It consists of a chancel, rather larger than usual in a village church, a nave, and south aisle, divided from the nave by four bays of columns and flat pointed arches, and a belfry tower, pierced with a large arch at the east end, so that it opens into the nave, and the ringers form a portion of the congregation. Parallel with the chancel, and extending down about a fourth of the nave, is the family chapel, which opens into the church by two carved and pierced screens, the one which opens on the nave serving as the entrance-gate. The windows are all of stained and figured glass of modern date, with verses written in church text, bend wise across those of the chancel. The fittings are of oak, simple and excellent, the candlesticks being remarkable for their elegant simplicity, consisting of oak rods, some 5 ft. high, each fastened by a bronze ring and socket to the upright of a seat, and supporting a group of three sockets for lights, of brass and bronze, with a brass fleuron at the apex. The candlesticks in the choir are of twisted bronze. The pulpit is old, of carved oak, but brought down from the pedestal common in country churches, so as to harmonise with the reading-desk and pews. The font is of old carved stone. No vestry is attached to the church, but the deficiency is supplied by a pierced oak screen, which shuts off a narrow strip from the east end of the south aisle, thus economising the only portion of the church invisible from the pulpit. Several ancient brasses, in good preservation, removed from their former position on the pavement, are built into the west wall of the nave and aisle, and in one fragment of ancient glass, let into the eastern window of the chancel, a flaxen-haired and purple-robed ancestress of the house kneels in perpetual prayer, *orate pro animâ ejus*.

The mausoleum or family chapel contains several interesting monuments, with escutcheons, banners, helmets, and iron coronets of the knights, barons, earls, marquesses, and dukes, whose arms are severally blazoned in the eastern window. A very fine alabaster monument, evidently of Italian workmanship, record the dignified and determined features of the first great noble of the house, high in the confidence of successive sovereigns, who was laid to rest in the second year of Queen Mary. A succeeding lord lies near, not only sculptured but painted as in life, as are the numerous escutcheons, and the grim supporters and crests that watch his marble slumbers. The first duke and duchess, with medallions of their nine children—of whom one, whose name is familiar as a household word to every reader of English history, was a well-remembered and regretted political martyr—form the subjects of a large group at the west end of the chapel, and the four windows on the north severally received the date and name of the cadet of the French house who first held territory in England by tenure of grand sergeanty under the Conqueror, of the first baron, the first earl, and the first duke, who, rapidly succeeding one another after an unrecorded interval of five centuries, were his lineal male representatives. The continuance of the same estate in the same male line and name from the time of the Norman invasion is most rare among our own, and even among the far more numerous French nobility. The roof of both church and chancel is of wrought oak, almost black with age, but clean and as free from cobwebs as the Irish oak roof of St. David's Cathedral. The principals are trussed as queen-posts, supported by large cantilevers, each containing a wrought arch, which is of the depressed Tudor form that characterises the windows of the building and the arches of the screen in the nave, but takes a semicircular form in the chancel and chapel, giving greater height to these roofs. The white plastering filled in between the dark lines of the rafters characteristically adorns the roof.

The old house is of brick, a two-storied structure, with corbelled bay windows, steep roofs and stepped gables. The battlements of a square tower, that peep indistinctly from among the gables and chimney stacks, seem to give traces of a fortalice older than the present Tudor structure. That portion of the house which formed part of the centre of the open quadrangle is buried in masses of ivy. But the great peculiarity of the great house is to be found in the chimney stacks. The chimney corner, common in wood-clothed and wood-burning counties, has here attained its apogee. Six immense stacks adorn the existing south wing, each of them resting on a projection of some 6 ft. by 10 or 12 ft., built as an annex against the blank wall that the south face otherwise presents, with independent stepped gables of its own, from the summit of each of which towers far above the roof of the house itself and the surrounding trees, a stack of two, three, or four lofty chimneys of cut and moulded bricks, an architectural feature which is imitated, at moderate distance, by most of the old timbered cottages of the village.

In architecture, Mediæval, and yet fresh and clean, in wealth of wood and avenue, in the verdure of that crisp, short, fine-leaved grass peculiar to the old parks and lawns of England, in rural and picturesque repose, we have lighted on a spot such as might have existed before a Stuart mounted the English throne. But the moral aspect of the village no less recalls the best features of the feudal times. There is no middle class—no pushing commerce, no self-asserting speculation. The few gentry of the neighbourhood, retired professional men and the like, harmonise as quietly with the tone of the place as if they had been the bettermost retainers of the great family. Everywhere you see the peasantry brought into close relation and frequent intercourse with the seigneur,—not, indeed, with the noble proprietor, who has no residence on the spot, but with his near relative, the rector, who thus both in his pastoral and his family relations, may be regarded as the ruler of the village. To his exertions may be traced the architectural and the moral restoration of the spot. Through his constant attendance on the school, the building for which is at this moment being enlarged, may be traced an effect on the scholars far more marked than that of the ordinary tuition of schools of far higher pretensions. The amount of knowledge imparted may be due to the capacity of a master, but the tone and manners of the pupils, the elimination of the strong provincial accent that was wont to characterize the place, the sweet modulation in which verse or catch in childrens' tone replaces the rude shout of the beer-house, or the oath of the poacher,—such effects as these are alone possible when, as in the present instance, a man of high rank, of gentle manners, and of college learning, is content to devote himself to the faithful discharge of the humblest and most pressing duties of the village pastor.

THE LIFE OF WEDGWOOD.*

A handsome and portly volume of 643 pages brings to a close Miss Meteyard's labours on the life and works of Wedgwood. We content ourselves at the present moment with announcing its publication, and giving a few quotations from it, touching interesting topics: before long we shall refer to it more closely.

As to Wedgwood vases and their varieties, Miss Meteyard says:—

"The ornamental vases produced at Burslem and Etruria may be divided into seven chief sections. The cream-colour and its variations, as those with blue necks and ornaments variously gilt; the black basaltes; the terra-cotta pebble and marbled bodies; the bronze antique; the encaustic Etruscan and Grecian; and the jasper. There are variations even of these; as the cane colour, ivory, and others, though they respectively belong to one of the sections indicated. The cream-colour vases may date from about 1765, when Mr. Wedgwood had

* The "Life of Josiah Wedgwood, from his private Correspondence and Family Papers." By Eliza Meteyard, with numerous illustrations. Vol. II. London, Hurst & Blackett, Great Marlborough-street. 1866.



THE WEDGWOOD MEMORIAL INSTITUTE, BURSLEM, STAFFORDSHIRE.

brought this body to a great degree of perfection; the basaltes follow, and were the results of laborious experiments which enabled him to prepare the protoxide of iron, from the coal mines, in a manner that insured a finer grain, a better colour, and a more perfect incorporation in the mass; the pebble and marbled specimens were, as we have seen, first sent to Bentley late in the autumn of 1767; the bronze antique and encaustic Etruscan followed, and were ultimately perfected in 1769; and our earliest notice of the term 'jasper' occurs in 1775. Exquisite articles were produced in this new body in the following year; and in 1777-8 absolute certainty in the firing of this delicate composition crowned Mr. Wedgwood's untiring labours. The term antique must be taken in its generic sense as applied to form, rather than to colour and decoration; though after 1769 it seems to have been more specially applied to the black or red bodies, on which were painted, in encaustic colours, designs taken from the vases of antiquity."

Concerning his flower-pots we have this:—

"The variety of the root-pots, flower-pots, and bough-pots in colour, form, body, and decoration, exceeds belief. At first the common red flower-pots, as those also of grey and white stoneware, were taken up and improved. The first by the addition of colours in various ways; the others by drapery or simple medallions in cobalt blue, or by moulded patterns. The famous green glaze was also applied to flower- and bough-pots; and when Mr. Wedgwood had brought his cream ware to perfection, flower-pots in this body were as popular as the dinner-ware. They were fluted or hooped; the hoops and sometimes the cross bands being of various colours, or else perforated or traced at the edges, festooned, dice-worked, or enamelled. Many of the patterns popular on the table-ware were represented on the flower-, root-, and bough-pots; and from his enamelling bills we find that much of Rhodes's exquisite skill was expended in this direction. The husk, the vine, and ivy were favourite patterns. Goats' heads, griffins' heads, masks, and dolphins were used for handles. The basaltes and terra-cotta bodies were next tried, and more classical forms adopted. Bas-reliefs in white biscuit were applied; and stands, pedestals, plinths, and tripods were variously used as supports."

Bentley had made attempts to carry out the highest artistic work—he had looked around him for a modeller—that modeller was Flaxman. Wedgwood's words in response, are memorable. "I am glad you have met with a modeller, and that Flaxman is so valuable an artist. It is but a few years since he was a most supreme coxcomb, but a little more experience may have cured him of this foible." This must allude to Flaxman's competition for the gold medal of the Royal Academy, and his subsequent disappointment. Reynolds, who knew comparatively nothing of sculpture, and too often depreciated its merits, showed little judgment in his award of the prize to an inferior artist like Engleheart. Time proved that Flaxman's certainty of success arose from no overweening conceit of his own merit, but from an intuitive perception, however offensively expressed, of his possession of high artistic power. But, as yet the world saw only an untutored stripling, in whom self-reliant genius wore the appearance of vanity. Wedgwood, who always visited the Academy's exhibitions, had probably caught the current story, and bore it as we thus see in his vigorous memory.

The subject of the bas-reliefs on the Portland vase, as well as its age and place of production, are still matters open to conjecture. Miss Meteyard says:—

"With respect to the first every critic has differed. The Italians and French first entered upon the discussion; and the introduction of the vase into England was a signal for the critics here. Mr. Charles Greville, who published some very fine engravings by Bartolozzi of the vase, considered the bas-reliefs typified the death and resurrection of Adonis. Darwin, who consulted Warburton's Divine Legation, and many other works, thought the bas-reliefs bore reference to the Eleusinian mysteries, and this, with some trifling difference, was the view adopted by Wedgwood in his pamphlet on the vase. Another critic, Dr. King, in entire ignorance of the arts of antiquity and their best periods, conjectured that these designs bore reference to the birth and acts of the Emperor Severus, whilst a far more learned and enlightened critic of our own day considers that one of the groups represents Peleus approaching Thetis. These critical differences might be repeated to a wearisome extent. It is on the whole perhaps safest to conclude, that the subjects of the bas-reliefs are simply a heathen and poetised allegory on the trials of human life, and its close. Such vases, as in the case of the Greek encaustic vases prepared for the Olympian games, may have been designed with a view to a general purpose, rather than a particular one. Of the vase itself, if it does belong to the best period of Grecian art, that prior to the age of Alexander, it may have formed a portion of those innumerable spoils which we learn from Livy, Plutarch, and other writers were poured into Rome, as proofs of subjugation and conquest."

Wedgwood discovered that the Portland vase had been broken previously and repaired, as also that the bas-relief head which forms the bottom had belonged originally to some other vase or fragment of antiquity, and that it had been ground down and then inserted by processes far inferior to those used by the original artist.

The volume of which we have here given a taste is illustrated with 178 engravings on wood, by Mr. G. Pearson; and a portrait on steel of Thomas Bentley: Mr. Justyne and Mr. Tomlinson are mentioned as the draughtsmen employed.

We are enabled to re-produce one of the illustrations as an example,—a view of the *Wedgwood Memorial Building* now in course of erection in Burslem, in Staffordshire, and intended to include a Museum of Ceramic Art, a School of Design, a Laboratory, and a Free Public Lending Library. The architect is Mr. Robert Edgar, of London; and the windows, doorways, and cornices will allow of the introduction of terra-cotta. Portraits of Wedgwood's friends and of celebrated potters painted in majolica colours will fill the spaces of the arched window-heads, and over the chief entrance panels in jasper ware will be introduced. A considerable variety of external colouring will distinguish the building.

SKETCHES ON THE SOLWAY.

BOATSWAIN.—Heigh, my hearts; cheerly, cheerly, my hearts; yare, yare! Take in the top-sail.—*Tempest.*

WHAT with wars on the continent of Europe, and rumours of war in certain provinces of Asia, we are afraid that "our countrymen" must be content to gratify their travelling propensities more at home for a time. We must confess that we do not see this necessity, so enforced, is altogether a sad one. There are thousands of unfrequented places and undiscovered nooks in the British Islands: silver lakes, gentle streams, mountain passes, highland forests, lonely moors, and impassable morasses, which in many respects are richer in the qualities of yielding health and pleasure, or even in furnishing the materials for philosophy or romance, than the much-vaunted regions of the Alps or the Rhineland.

Derwentwater may not be so large as Lucerne, nor so imposing as Lausanne, but it is equally beautiful, we think. Skiddaw is not so tall as Mont Cenis, nor is Helvellyn, take it all in all, so dangerous as the Matterhorn. But the true pilgrim of nature will find as much rational enjoyment at the English lakes, or on the Scotch mountains, as in the regions of alpine Switzerland; and if more danger be thought indispensable, he may traverse the rocky gorges of Ben Machdui, explore the solitudes of Asaynt or Glencoe; paddle a canoe in Corrivrechian, or pay a visit to Macleod's Maidens, in the Isle of Skye. And why should it be, let us inquire, that the Wicklow mountains and the

Lakes of Killarney should fall out of fashion so suddenly? The Fenians, we shall be told. Well, after all, the Fenians have not risen to the high strategetical standards of Italian brigands, who wage war on unfortunate neutrals, and carry off poor travellers as political prisoners, demanding a heavy ransom, under the pain of death.

For ourselves we confess that we are never so well satisfied as at discovering new beauties, or new channels of interest, or of industry, in our own country; and putting aside the question whether the landscape may or may not be surpassed across the Channel, probably the superiority of the human interest—the value of the figures in the foreground, so to speak—is always to be found within the high-water mark of the British Islands.

Such, gentle reader, were the sentiments which fired our patriotic breast as we set our faces northward the other day with the intention of rusticating a fortnight among the mountains. We first thought of penetrating into the Hebrides. But a sudden change of the weather, a fall of the barometer, and a heavy south-wester from the Atlantic, overtook us at Carlisle, and speedily produced a change in our intentions. In the long run, after some of the natural hesitation which is proper to such circumstances, we finally cast anchor in the old-fashioned but picturesque town of Dumfries on the river Nith, close to the northern coast of the Solway Frith. The general result of our information so obtained we shall now try to convey to our readers, under the impression that it is one of the great blessings of our modern civilization—of our railway system in particular—that we can always, within the limits of a single day's journey, procure such a change of air, of scenery, of food, and, when necessary, of exercise, as we did. The art of preserving the health has, in this way, become much simplified, and is unquestionably improved. We shall not at present enlarge upon this grand principle. But we cannot help, speaking from experience, pointing out that half the money people spend in treating medicinally their poor physical constitutions would be attended with far greater and more lasting benefit if spent in the country. It is only necessary, we will add, that an interesting part of the country be selected; and we are quite sure there are few places more interesting, take it all in all, than the Solway Frith.

Regarded as a marine water, or rather as a tidal estuary, the Solway Frith, in the depth of its channel, in the character of its beach, and, above all, in the phenomena of its tides, differs from any other frith in the British islands. There is, indeed, it is often alleged, no other tidal phenomenon of a similar character in the world, and we may try briefly to explain it. If we take our stand at the point where the estuary expands into the Irish Sea, or immediately off the Mull of Galloway, we shall find that the tides, which come in one slow and majestic current across the Atlantic, encounter the long point-blank obstruction of the island of Ireland, are divided and forced to take a lateral current in opposite directions, and sweeping round the ends of that country enter the space between Ireland and the opposing coast, and are again subjected to another revulsion. These opposing currents finally rush against each other, almost surrounding the Isle of Man, and directly in front of the Solway, producing a perfect tumult of collision and even in calm weather a surgy and stormy-looking sea. Moreover, there results from the confluence of the opposing currents a sudden *elevation of level*, which rushes up the Solway like a racehorse, to which it has been sometimes appropriately compared, and penetrates in one heavy tidal wave through the channels of the estuary.

Over a distance of probably about twenty miles from its head, the whole of its bed, excepting the narrow and canal-like channels of the Nith and the confluent waters which enter near the eastern extremity, is alternately a surgy brown sea, now misty with sand, and now tinctured with silt, oscillating with the rebound of the tide; and a naked, flat, unrelieved expanse of sand—a miniature Sahara, so to speak—interposing its dreary projection between the blooming slopes of Cumberland, and the finely-outlined and warmly-tinted lands of Scotland. Much of its beach, or rather of its bed, even its broader and more seaward parts, is of the same character; so very much, indeed, that were the frith estimated or measured only by the space it covers at low water, it would figure in exceedingly limited proportions. All its tides are rapid, and constitute rather a rush or careering race than a flow or a current of waters. A spring tide, but especially a tide which runs before a stiff breeze from the south or the south-west, careers along at the rate of eight or ten miles an hour. It is often heard by the people along the shores upwards of twenty miles before it reaches them; and it approaches with a hoarse and loud roar, and with a brilliance of physical demonstration, incomparably more sublime than if the whole sandy waste were covered with charging cavalry.*

There are, of course, different degrees of this remarkable phenomenon. During spring tides, says McDiarmid, and particularly when impelled by a strong south-wester, the Solway rises with prodigious rapidity. A loud booming noise indicates its approach, and is distinguishable at the distance of several miles. At Caerlaverock and Glencaple, where it enters the Nith, the scene is singularly grand and imposing; and it is beautiful to see a mighty volume of water advancing foam-crested, and with a degree of rapidity which, were the race a long one, would out-match the speed of the swiftest horses. The tide-head, as it is called, is often from 4 ft. to 6 ft. high, chafed into spray, with a mighty trough of bluer water behind, swelling in some places into little hills, and in others scooped into tiny valleys, which, when sunlit, form a brilliant picture of themselves. From the tide-head proceed two huge jets of water, which run roaring along, searching the banks on either side,—the antennæ, as it were, which the ocean puts forth, and by which it feels its way, when confined within narrow limits.†

Under such circumstances fatal accidents are very frequent on the Solway; and we believe the fact is that the oldest inhabitants are often taken unawares when they try to cross the sands. As to the mariners, their case is, if possible, a harder one. Intimate knowledge of the peculiar navigation is requisite to guide vessels at the recess and influx of so unwonted a tide; and instances have occurred at Glencaple and its vicinity, of masters, acquainted from their youth with the Solway, having suffered their vessels to be wildly played with by the careering invader, and even tripped fairly over, and laid on their beam-ends. The shifting sandbanks, too, render the channel extremely precarious; and, indeed, the navigation of the Solway, from the variety of its conflicting forces, both of winds and of tides, is often a dangerous and always a difficult task. We may add that the slowness of the ebb bears an inverse proportion to the speed of the tidal flow.

> "Love swells like the Solway,
> But ebbs like its tide,"

says Sir Walter Scott; and we have no doubt the description is true! In point of fact, the average flow of the Solway is four hours, and its ebb six hours.

There can be no doubt that this extraordinary force of tide is unparalleled in the British Islands; and if we except the stream-tides of the Bristol Channel, we have nothing at all approaching to it. But the local topographers are, we suspect, somewhat rash in pronouncing it to be unique; for undoubtedly the same thing may occur in any restricted channel, and the wave need not always be a result of the tides. In the Mediterranean, for example, that tempestuous wind called *Euroclydon*, by some commentators described as an east wind, but at all events that wind which drove St. Paul on the island of Malta, where he was wrecked, is quite an analogous phenomenon.‡ Such winds are common on the Mediterranean, and, in fact, are known by the modern nautical term of *Levanters;* and although, of course, there is no tide worth speaking of in that inland sea, the dynamical action of a powerful wind, even on still water, is quite sufficient to produce the same effect. Our object here is not to underrate the scientific importance of the Solway tides by any means, but to keep such phenomena within the boundaries of what may be described as the aberration of physical laws.

The geology of the estuary is full of interest, if this were the place to discuss it. We cannot, however, enter on the great subject of its physical conformation, which would lead to a long inquiry as to the nature of the rocks which constitute its headlands. We shall just mention generally that on the northern side a brown or reddish coloured sandstone, dipping generally toward the Solway, and supposed to be a continuation of the red sandstone formation of Cumberland, stretches athwart the southern part of Dumfries-shire; and proceeding northward, merges in a reddish-coloured limestone, succeeded by blue limestone and coarse white sandstone. Near Dumfries and Lochmaben the sandstone is red; near Langholm and Sanquhar it is grey; and at Cove, near Kirtlewater, it is of light colour and solid texture, affording a fine material for pillars. The sandstone, where it crops out, is frequently incohesive, and is called till-band; but by being followed in its dip, it is usually found sufficiently compact to be used for ridge-stones, lintels, and for all the higher purposes of building. In each of the three great divisions of the northern county, limestone is worked in large quantities for sale. In Annandale the quarries are most numerous, but are each greatly inferior to the quarry of Closeburn, in Nithsdale. On the Cumberland shore the clay slate and carboniferous formations are also very productive in an economical point of view. But the coast on that side is more silted up and unnavigable than it is on the northern coast. This silting up is a subject of very great importance. Viewing the estuary of the Solway as a whole, it is more than one-half choked up by drifted sands brought forward by inland drains on the one hand, and returned again to a tidal terminus on the other. From Maryport to Sandsfield, the beginning and the end of the Solway on the south side, there is an almost continuous tendency to the deposition of silt upon the coast of Cumberland. With the exception of a jutting point at Bowness, indeed,—which stands out boldly to the north, and presses on the red sandstone of the Scottish coast,—from the force of the figure of the estuary, and the tendency of diluvial beds to press upon rocks,—the entire line is favourable to the gathering of deposits, which constitute, of course, the main cause of the travelling beaches of shingle and shifting banks of sand. This line of the shore from Maryport to Sandsfield also corresponds with the zone of limestone and the coal measures southward, and is, in truth, a regular curve, with a breadth of ten miles intervening, through which the Wampool and the Waver flow from the uplands. To conclude this subject, it has been found, that estimating the Solway Frith from Maryport to Sandsfield, upwards of 100,000 acres of sandbanks are either dry at low water, or nearly so. Such a waste of British territory, and so much detriment to navigation on the narrowest zone of England, is surely deserving of the attention of our engineers and hydrographers, for the means of reclamation are simple, and the process is assisted by nature.*

We should explain, in order to save misapprehension, that geologists and hydrographers are not always at one as to the geographical limits of the Solway; and as to political boundaries, these are sadly at a discount in our day. But, for fiscal purposes, it is worth noting, that the Commissioners under the Salmon Fisheries Act have fixed the boundaries of the Solway at its embouchure—on the south as far as Whitehaven, in Cumberland; and on the north as far as Barrowhead, in Galloway.†

We may here also devote a few words to the celebrated Lochar Moss, which derives its existence from the same physical causes. It is not so celebrated as the Chat Moss, we admit; or, rather, we ought to say, it is more known in connexion with troopers than with ra lways. But it is a very remarkable moss for all that. It lies intermediate between the lower parts of Nithsdale and Annandale, Dumfries-shire. It stretches northward from the Solway Frith in a stripe, 10 miles long, and from 2 miles to 3 miles broad, and, over its whole extent, is nearly a dead level. Tradition asserts it to have been originally covered with wood; next inundated by the sea, and converted into a bay navigable to nearly its head; and next choked up by the wreck of vegetation and the deposits of the Solway tide,

* See the "Imp. Gazetteer of Scot.," under the head "Solway." It is strange that there is no reliable guide-book to the Solway Frith. Black's excellent tourist, generally so full and accurate, is very defective regarding this quarter of Scotland.

† See McDiarmid's "Pictures of Dumfries." A very stirring and picturesque, although, of course, exaggerated account of the Solway tides will be found in Scott's novel of "Redgauntlet."

‡ This term, "Euroclydon" (from Gr. *euros*, a south-east wind, and *klydon*, a wave, from *klyzo*, to wash or dash over), contains, it is curious to note, the etymon of the Clyde, both in Scotland and in Wales. For the account of the tempestuous wind raising great waves in the sea, which drove ashore on Malta the ship in which St. Paul was sailing to Italy, see Acts xxvii. 14, to the end.

* Some valuable hints on this subject will be found in a little work by Mr. Rooke, of Akehead, Cumberland, entitled, "Geology as a Science." London. 8vo. 1858.

† See Mr. Ffennell's Report, 1864.

and thus transmuted into a morass, at first impervious, but gradually consolidated into a bog. The peasantry around it preserve the tradition in the following couplet:—

"First a wood, and then a sea,
Now a moss, and aye will be."

This prophecy, like many other wise saws, ancient and modern, has turned out inaccurate; for the loch, or moss, as it is obviously called, is now in a great measure reclaimed and cultivated. But there can be no doubt it has been one of the most extensive morasses in all Scotland. Robert Bruce,—it is said, on some historic authority,—could not pass the moss in his progress from Torthorwald Castle to meet Comyn at Dumfries, but pursued the very circuitous route of skirting it round by the Tinwald hills. The moss, even so late as his time, seems thus to have been impassable; but it is now traversed by a railway and several lines of road, most of them excellent, but, to a stranger, sometimes curiously elastic beneath the motion of a heavy-loaded vehicle, particularly on the bye-roads. There can be no doubt, however, that this Lochar Moss will be finally subjugated; and it would be well for Ireland if her bogs were as securely solidified or in any other form utilised and made so available.

Whoever wishes to produce an exhaustive description of the Solway Frith,—a feat which we do not wish to undertake,—must devote a large amount of attention to the condition of its ports. Of these the two principal on the Cumberland shore are Maryport and Silloth; on the Dumfrieshire coast, Port Annan and Dumfries.

Some years ago, a fierce local controversy arose, more particularly between Port Annan and Silloth, as to which ought to be considered and made suitable as the central port on the Solway. The investigation for this purpose disclosed the long-neglected state of the Solway, and also its capacity for easy improvement. It might, in fact, said the enthusiastic Annanites, be made the Mersey of the Border districts, whose waters it has always drained, but whose sands now impede its navigation. Carlisle, then, was to be Manchester, and Annan was to be Liverpool. The truth is, that of the three great rivers, the Nith, the Annan, and the Esk, which drain into the basin of the Solway on the north, the Annan is the most suitable for the purposes of navigation; the others, from the fact that they widen out so much at their embouchure, and therefore being destitute of a thorough scour, make such prodigious deposits of sand and silt at their separate deltas, that they have caused the Solway to recede further and further from its shore.* Besides, Annan, from the circumstance, among others, of entering the basin at nearly right angles to the channel of the estuary,—as well as having a good tidal rise (18 ft. to 20 ft. in spring tides, 10 ft. to 12 ft. in neaps), which with the 8 ft. to 10 ft. of water in its channel gives a depth of from 19 ft. to 28 ft., according to the tide,—had all the engineers in its favour. The antiquaries, too, gave their vote and interest for Annan, for it is undoubtedly one of the most ancient towns in Scotland, having received its first charter from King Robert the Bruce, who, it should always be remembered, was lord of Annandale and feudal superior of the ancient and royal borough.† It had, to be sure, an awkward reputation in the matter of contraband commodities. But the duties on whiskey between England and Scotland were now equalised; and even the Isle of Man had ceased to be a depot for cases of brandy and kilderkins of hollands. These considerations were clear enough, and carried with them their own weight. Still, no friendly hand was extended to guide the Solway channel from Annan to the sea, as had been done so generously at the Clyde. The former channel, therefore, continued to take whatever direction shore works, river floods, storms, accidents, or other causes might give it; so that the "spits" or the shoals and sandbanks still appear and disappear in its seaward course.‡

With great reluctance, then, Annan was forced to yield to her English rival, Silloth, in the question of harbour and docks. But at length, about three years ago, the initiatory steps were taken of another railway extension scheme, which we believe will turn out of greater use, not only to Annan and the northern shores of the Solway, but to the nation at large; and, we may also be permitted to hope, to the spirited shareholders. We refer to the line known as the Solway Junction Railway, which consists of an iron bridge across this estuary from Annan to Bowness, and is intended to connect on the opposite shores of the Solway the railway systems of England and Scotland. Those who were acquainted with the force of tides in the Solway, and the shifting nature of its bed, at first pronounced the project sublime. Nevertheless, it presented few engineering difficulties. On a preliminary survey of a section of the river bed at its narrowest part, immediately opposite Annan, it was found that a few feet beneath the overlying sand there was a level plateau, partly of gravel and silt, and partly of clay, admirably adapted for the nature of the required works. Besides, Morecambe Bay had already been successfully crossed from the Westmoreland to the Lancashire coasts, and the engineer, Mr. Brunlees, was the same in both cases.* After a spirited Parliamentary campaign, in which comparatively small opposition had fortunately to be encountered, the bill passed both Houses, on the 30th of June, 1864, and the operations of construction were soon after commenced. This singular railway is intended to form a junction with the Caledonian at Kirtlebridge on the north, and with the Carlisle and Silloth and Carlisle and Maryport Railways on the south of the Solway. It will make a considerably shorter cut between the west of Cumberland and Glasgow and Edinburgh, and it will, it is expected, give greater facilities for the development of the mineral traffic on both sides of the Solway.†

An inspection of the operations on this line between Annan and Kirtlebridge, which we made during our visit, leads us to conclude that the portion of embankment yet to complete near Bell-springs,—about 60 ft. in length and of an average height of about 8 ft. or 10 ft.,—will be done in a fortnight or three weeks; and that the few yards of rock-cutting yet to excavate at the summit of Corsehill ridge will be accomplished in about the same period of time. When these two portions of earthwork are completed, the engines in use on the line will then have a continuous run of nearly five miles in length,—that is, from near the farm-steading of Williamwood to the tip of the embankment now approaching the beach at Seafield. We believe it is intended in the meantime to extend the embankment from the tip to Seafield at a considerably lower level than is shown in the section of the line, with the view of proceeding immediately with the formation of the embankment and stone-work that will intervene between the beach and the commencement of the ironwork of the viaduct. The completion of a continuous line from Corsehill rock-cutting to Seafield will enable the materials for this purpose to be brought down to Seafield with great facility by means of the two locomotive engines now in use on the line. In the course of another month, we believe, the driving of the foundation piles of the viaduct will be completed, when the erection of the superstructure will be rapidly pushed forward, the materials for that purpose being all in readiness. Owing to the difficulties which have been encountered in sinking the foundation piles, and the delays and interruptions thereby occasioned to the progress of the work, the formation of the line on the north side of the Solway is in a much more advanced state than that of the viaduct, which is unquestionably the most serious part of the undertaking.

The ironwork of the viaduct is 1,700 yards, and will consist of 165 spans or bays of 30 ft. in width, and an opening span of 50 ft., supplied with lateral gates or folding bridges,—made under the supervision of the Admiralty,—for the passage of shipping to Port Carlisle. The pier of each span will consist of six hollow piles of 12 in. diameter, which are sunk to a depth of about 12 ft. or 13 ft.—about 4 ft. or 5 ft. thereof being through sand, and the remainder through band-till or gravel. The piles rise to a height of 30 ft. above low-water level, and support lattice girders, on which a double line of rails will be laid. Screw piles were tried last year, but they were found so difficult to screw into the hard subsoil that pointed piles have since been used, which are driven by Sissons & White's patent pile-driving machine. The foundation piles are expected to be all driven before the end of this month, and the fitting up of the superstructure will then be proceeded with in three sections. The superstructure of about 30 bays has been completed. The formation of the embankment which is to form the approach to the ironwork of the viaduct will be commenced immediately, rails having been laid down temporarily up to the beach for the purpose of bringing down from the cuttings earth for the embankments and stones for pitching. The pitched embankments to connect the ironwork of the viaduct with the shore will be about 240 yards in length, and of the average height of 25 ft. on the north side of the Solway; and of 650 yards in length, and of the average height of 30 ft. on the south side. The estimated cost of the line was 315,700*l.*, and as the main line and branches would extend to about 24 miles, the cost of the line, including the viaduct, would, according to the parliamentary estimate, be little more than 13,000*l.* per mile. The engineer is Mr. Brunlees, of London; and the contractors Messrs. Waring Brothers & Eckersley.

We must now leave Annan for the opposite coast of the Solway, and point out what was doing all this time at the port of Silloth. People who object to the principles of free ports and free trade, and all those who are sceptical as to the natural development of local resources by the persons who are most interested, should study well the history of this prosperous little seaport; for the rise and progress of Silloth may well be compared to a flow of the spring tide in the Solway. The town overlooks the pleasant bay, from which it takes its name, on the Cumberland shore of the Solway Frith. Little more than a dozen years have passed since the site was still an unbroken waste—a dreary expanse of sand-hills, with no human habitation. The bay from time immemorial had been well known, and much frequented by mariners as a harbour of refuge; the only place of shelter in stormy weather, with deep water and sure anchorage, and accessible at all times of the tides, between the Clyde and the Mersey. Nevertheless, while ports much less favourably situated, as regards shelter and water, were springing into existence and flourishing on other parts of the same coast, the natural advantages of the Bay of Silloth remained unknown. For many years, indeed, a sleepy trade was carried on between Carlisle and various ports on the Scottish and other coasts, by means of a canal, 9 miles in length, communicating with the sea at Port Carlisle; and it was during the construction of a line of railway from Carlisle to the port, to supersede this canal, that the eligibility of Silloth Bay as a secure and highly advantageous haven for purposes of trade first attracted the attention of the mercantile community. This might be some fifteen years ago, when the want of a safe port on the north-west coast of England, which had long been felt, could no longer be delayed in its construction. It was under these circumstances that the Silloth Bay Dock and Railway scheme was launched in 1853. The promoters, who consisted chiefly of merchants and manufacturers connected with the trade of Carlisle, distinguished themselves by the enthusiasm and energy with which they pursued their aim. It was suspected that the project would be fatal to neighbouring ports, where a large amount of capital had been sunk, and where it was thought resources existed or might be found which would more than meet all the requirements of an extending trade. Notwithstanding these doubts and murmurs, the promoters lost no opportunity of publishing the "advantages" of Silloth Bay for the accommodation of shipping, as well as its favourable position for commanding an extensive coasting trade.

But these were not the only advantages on which they relied. A meteorological champion came to the front. The Rev. Francis Redford, M.A., incumbent of St. Paul's, Silloth, began those well-known series of observations—which have already attracted the attention of the Registrar-General;—and, in speaking of its salubrity, more particularly as shown by the great amount of ozone registered there, he described Silloth in glowing terms. Indeed, before a single sod had been turned, crowds of summer visitors were flocking thither. Silloth,

* Rept. of the Tidal Harb. Commission, 1848.
† *Vide* Chalmers in "The Caledonia;" and Kerr, "Hist. of Scot. during the Reign of Robert II."
‡ Comp. "Rept. on a Southern Railway from Hawick, and on the Establishment of a good Solway Port." Prepared by Mr. Sewell, at the request of the town council of Hawick. Mr. Stevenson, C.E., of Edinburgh, had also, in 1848, pointed out facilities for floating docks at Annan.

* The conception of such a project is not a new one. Mr. Cuthbertson, the ingenious editor of the *Annan Observer*, has pointed out in the geological work we have quoted by Mr. J. Rooke, of Akehead, Cumberland, a similar proposal, made so early as 1838. We need not refer to the Menai Bridge or the Plymouth viaduct, &c.
† Owing to the circumstance of seven of the leading townsmen of Port Annan being concerned in promoting and carrying through this important undertaking, they have since acquired the sobriquet in a collective capacity of the *Seven Wise Men of Annan!*

in fact, had become widely known by name before one stone had been placed upon another for the formation of the town. At length a railway was made to it from Carlisle; and the curiosity which the highly favourable descriptions had excited, led to numerous excursions and pleasure parties. The place then began to assume shape and form, although only at first by very small and barely perceptible degrees; and before many summers had passed, Silloth was able to boast of the possession of something more than a name. At the present moment the little port is one of the most attractive places on the shores of the Solway, and the growth it has attained in a dozen years or so has been sufficient to encourage hopes of greater extension. The only difficulty that we can foresee is the necessary and often vital antagonism which must subsist between a watering-place and a busy seaport. But that is seldom conspicuous in the infancy of a town, and need not operate unfavourably against the continued prosperity of the port of Silloth.*

There are many other interesting little towns and watering-places on the shores of the Solway, most notably Dumfries, to which we may return in another article.

THE SUPPLY OF SOFT WATER FOR COUNTRY HOUSES AND COTTAGES.

A supply of pure water is one of the first essentials to health: and while engineers are devising schemes for a better supply to the metropolis involving the expenditure of millions, a few words may not be out of place as to the provision for villages and isolated houses. The artificial condition of a large town requires artificial means to supply its wants, but in the country, where such causes do not prevail, a proper care of that which nature sends is all that is required.

No water is purer, more wholesome, or more economical in its use, than rain water, and sufficient of this falls on every house in the course of a year for the use of its inmates.

The want of water has been very severely felt by the poor during the last two dry summers. In this neighbourhood (the Fens) wells can only be sunk to a small depth, the lower strata yielding water that is brackish and unfit for use. These shallow wells depend for their supply on the "soc," or "socage," of rain water through the surface of the ground; and as a natural result in a dry season, the source of supply being diminished, the wells soon fail. In many places the farmers have had to lead every drop of water that was required for their yards and houses a distance varying from one to three miles, and the water thus obtained is exceedingly impure. The cottagers have been dependent on the good nature of those neighbours who possessed a water-cart, and instances have occurred where they have been obliged to give a penny and twopence a pailful for water that has scarcely been fit for use. All this has arisen from a neglect of the stores provided so amply by nature.

Even where such scarcity has not existed, and where a river, or deep wells have afforded a constant supply, the water thus obtained can bear no comparison for purity or wholesomeness to rain water. Taking it only as a matter of economy, as an actual money saving, the supply from wells and rivers is far inferior to that which comes direct from the clouds.

Water is soft or hard in proportion to the quantity of saline matter it contains, or, to speak more correctly, the quantity of lime or magnesia. The bi-carbonate of lime contained in hard water destroys soap, and the harder the water the greater quanity of soap required for washing purposes. The same applies to water used for brewing, and for making tea, coffee, or other decoctions.

Water falls from the clouds pure and quite soft; as it percolates through the earth to the rivers and wells, it absorbs various salts, which render it hard and more or less impure. Rain-water that has fallen, and flowed over granite rocks, which are insoluble and impermeable, has been found to contain only 2° of hardness. An average of the hardness of the water of eight streams and rivers, in different parts of the country, gives 14·80°. Of the water of ten wells sunk through various strata, and at different depths, including the London clay, gravel, chalk, new red sandstone, and carboniferous rock, the average hardness gave 34°. Of the London water supply, from the Registrar-general's returns, the hardness varies (Dr. Clark's degrees), from 17·78° to 9·59°, and the average of the nine companies is 12·39°.

Each degree of hardness requires ten grains of soap to overcome it. Taking the supply of a labourer's cottage for washing at 50 gallons per week, water with 14° of hardness would require extra soap to the extent of 52 lb. per annum, which, at 3d. per pound, would come to 13s.; or with water of 34° of hardness, 118 lb. of soap, of the value of 30s., as the amount to be saved by the use of pure rain-water. This, perhaps, is not the actual result in practice, soda being used to overcome the hardness; but taking the extra quantity of soap and soda, the wear and tear of the clothes by the rubbing required when they are washed in hard water, and the saving in tea and coffee, the loss in a labourer's family in the course of a year from using hard instead of soft water, cannot be put at less than from 15s. to 20s.

For drinking purposes, no water can compare with rain-water; its freedom from organic matter, and from salts that are deleterious to health, make it far superior to hard water however sparkling and bright and pleasant to the palate. The few impurities that rain-water may absorb in its passage from the roof of the house to the tank, and the slight organic matter that may be generated during the time it is stored up, and which imparts the flat taste that is generally considered objectionable, may be easily removed and the water made bright, sparkling, and fresh, by putting it through a filter containing sand or small gravel and loose pieces of charcoal. A filter may be constructed at a very small cost, in the following way. Take a large flowerpot, or vessel of similar shape; inside place a saucer with a hole in it, of such a size that it will fix itself about the middle of the pot. On the saucer put layers of sand, fine gravel, and charcoal in lumps about the size of walnuts. The water to be filtered should be allowed to run on this filtering-bed from another flowerpot placed over it, and the hole at the bottom filled with a piece of sponge, to catch the first impurities. The water may be retained in the lower vessel until wanted, by a cork fixed in the hole at the bottom. This will he a very good makeshift for filtering water for drinking.

Having thus shown the superiority of rain-water over all other sources, the next point to consider is its storage. Taking only a low average for the annual rain-fall, say 25 in., and that a cottage and buildings cover 400 superficial feet, the quantity available for use would be 5,207 gallons per annum, or about 14 gallons per day, an ample supply for all washing, cooking, and drinking purposes. Allowing for sixteen weeks' supply, or 25 hogsheads, a tank would require to be 7 ft. 6 in. in diameter, by 6 ft. deep. It should be built of two rims of brickwork in mortar, and cemented inside, the top domed over, with a man-hole covered with a York slab and iron ring. The cost of such a tank would, with pumps and lead pipe, be about 9*l.*, and the interest on this, at 5 per cent. would be nine shillings per annum, or a little over twopence per week, the amount generally charged by water companies for a supply of water to cottage-houses in towns. Of course, where several houses are together, one large tank for the supply of the whole could be constructed at a much less cost per house.

A 12-hogshead tank is generally considered sufficient to provide a supply of soft-water for a cottage; but in times of drought, when water is most difficult to obtain, these fail; and, from the above calculations, it will be seen that with so small a cistern one-half the rain that falls would run to waste.

These remarks as to waste of rain-water apply still more forcibly to farm-steads. How often may a whole range of buildings be seen without any provision for catching the rain, the water in wet weather running off the eaves, wetting the walls and soaking the foundations, rendering the whole place damp and unhealthy, destroying the mortar, and rotting the woodwork. And then, in dry weather, a man and horse have to be constantly employed in leading water for the supply of the buildings. Thus, for the want of a small outlay in the construction of a tank, pure, good, wholesome water is allowed to be a source of harm and injury to the structure of the buildings and the health of the inmates, and inferior water has to be fetched at a cost far greater than the interest on the outlay necessary to preserve the rain-fall.

W. H. Wheeler.

OUR RIVERS AND DRAINAGE.

"DOCTORS DIFFER."

I fear we are getting very much at cross purposes on the subject of the pollution of rivers, the best remedies that can be used for the prevention of the same, and the application of the sewage refuse for agricultural purposes; but Parliament, no longer satisfied with the conduct of the authorities of our towns, who turn a deaf ear to the repeated warnings and advice that are given to them, and still persist in discharging all their drainage into the nearest river or brook, regardless of the injury they inflict on the public health, and the misery they cause humanity, has, in the plenitude of its wisdom, taken a most important preliminary step by the passing of the "Thames Navigation Act," by which Act it is decreed that heavy penalties shall be inflicted on the authorities of those places which continue to discharge their sewage into that river, and pollute the water so bountifully bestowed by Providence as a blessing to man. The provisions of this Act were the result of an elaborate and pains-taking inquiry of the River Commission, when all the evils of river pollution were thoroughly investigated and sifted, and deductions drawn therefrom; and that same indefatigable Commission is now extending its inquiries and researches into other localities, having paid a flying visit to the Yorkshire rivers, whence it has gone to the south, in the neighbourhood of Swansea.

If every river is to occupy the time that has been bestowed on the Thames between the first inquiry and the ultimate legislation, much valuable time must elapse, and in the meanwhile the evils of further pollution are being carried on, and will be materially extended, in the absence of any enactment to the contrary, as works are now being laid out very extensively for continuing the system, regardless of the views of the Commission, or of Parliament, or any fear of Government interference or authority.

Much of this evil of passive inaction or obstinacy, in carrying out their ill-considered and incomplete systems of sewerage, arises in a great measure from the off-hand, ill-digested opinions given on the subject by *savans*, leaders of the sanitary movement, who are supposed to be *au fait* on every point connected with the public health, and I will call attention to an opinion given by one of them, Dr. Letheby, before the committee of the House of Lords, on the Sheffield Water-works Bill, wherein he stated that the accumulated and concentrated sewage of all Sheffield discharged into the river Don would not "theoretically," or sensibly, affect the supply of water derived from the same river for the inhabitants of Doncaster, some twenty miles off, as, by a process of self-purification, the water in its meandering

* We are indebted for some of these observations to a recent article in the *Scotsman*, from which we also select the following facts and figures as to the prosperity of Silloth.—An Act of Parliament was obtained in 1855 empowering the company by whom the scheme was started to make a railway connecting Silloth Bay with the line then in progress between the city of Carlisle and Port Carlisle, to excavate a floating dock of four acres area, and to construct a pier 1,000 ft. in length. The railway was opened in August, 1856. The dock was commenced in 1857, and opened, amid great rejoicing, in 1859, by the late Sir James Graham, M.P. for Carlisle. The dock was named the Marshall Dock, in honour of Mr. Wm. Marshall, M.P. for East Cumberland, who had taken an active part in the undertaking. Several first-class steamships at once commenced to ply between the bay and Dublin, Liverpool, the Isle-of-Man, Dumfries, Annan, &c.; so that now the steadily-increasing trade, both coasting and foreign, seems likely to lead to an extension of the dock accommodation at no distant time. More room is already required for the shipping than can well be afforded. There is a depth of water in the dock-sill to admit ships drawing upwards of 20 ft. The loading of the shipping, as well as the opening and closing of the dock-gates, which are 60 ft. in width, are all effected with great despatch by means of hydraulic machinery, invented by Sir William Armstrong, and fitted up under his personal superintendence. The arrangements for the conveyance of goods and passengers down to the vessels are very complete, as the rails of the line connecting the port with Carlisle, Newcastle, Edinburgh, &c., are laid on the quays. The line, in 1862, was leased by the North British Railway Company, who had done much to improve the trade of the port. A still further stimulus, it is expected, will be given to the trade in the course of a few years by the opening of the Settle and Carlisle Midland Railway and the Solway Junction Railway. By means of the former line, the bill for which has just received the royal assent, the large manufacturing towns of Yorkshire will be brought into direct communication with Carlisle and Silloth, and the Solway Junction line, which is already in course of construction, will open out "an important coal-field for the shipping of the port. It should be mentioned that the bay has the advantage of a natural break-water, to the west and south-west, in Silloth Bank and Robin Rigg, which overlap each other and arrest the ocean swell, so that in the heaviest gales there is little more than surface waves."

course, bubbling over gravelly shoals, or in the stagnant (subsiding) deep water of the bends of the river, it would deposit or lose all its feculent matter, and be perfectly pure and innocuous at Doncaster. But the learned gentleman did not consider, or, perhaps, was not aware, that the same river was a navigable one; and whatever feculent or solid matter was deposited or lodged on the banks, was being perpetually stirred up by the vessels navigating the river, to and fro, and the water delivered at Doncaster was in almost as foul a state as when the sewage entered the river at its *debouchere*.

The Doncaster Corporation, who most strenuously opposed the waterworks scheme, produced evidence to show there was considerable foulness and discolourization of the water of the river at Doncaster, and this foulness, there was not the shadow of a doubt, proceeded from the sewer discharged into the river from the towns situated above, on the course of the River Don.

This opinion, given by so well-known a man as Dr. Letheby, has been the subject of considerable local comment and discussion; and, I believe it has been the means of postponing or suspending the consideration of practicable and feasible plans for remedying the crying and grievous evils arising from the pollution of the River Don; as corporate bodies, from their inherent composition, are never at the best of times foremost in the ranks of philanthropic and good works, and they are delighted to find a plausible pretext for delaying the promotion of this very urgent and necessary measure.

Again, the pollution of the rivers was the subject of consideration and discussion at the meeting of the British Association at Nottingham, introduced by Sir J. E. Alexander. He pointed out fully the evils attending it on the Scottish rivers, destroying all life in the waters, and making the rivers dangerous to live near; and the discussion was continued by Dr. McAdam, who followed in support of the paper.

But I wish to draw attention more particularly to the observations of Professor Bennett, who said he believed it was a mistake to suppose that offensive odours were necessarily injurious to health, and from that mistake much energy was displayed by medical officers and boards of health in a wrong direction. He admitted the destruction of fish was a serious question, as depriving the people of an important article of food. He further observed, "This anxiety to get rid of offensive matter arose from the belief that it was injurious to health, and must be removed at any cost. He did not mean to say that bad smells are absolutely good things, but he maintained that excretal matter was not nearly so injurious to health as was generally supposed." "*Cesspools were otherwise.*" After saying that sewage and cesspool matter should be turned to the land instead of the water, and then we should have pure rivers, he advocated large manufactories for making sewage into guano near all large towns, as a matter of national importance, and if there was a little smell, we must not think it productive of evil, and therefore put it down.

If this doctrine be sound and logical, how is it that in those towns that are effectually and completely sewered and drained of all excretal and other matter, the rate of mortality is considerably less than in those places where partial drainage has taken place, or where the cesspool system still exists. The Registrar-General's returns show that this is the fact, and ought to convince the most sceptical that nothing but the most perfect and thorough drainage of our towns, with an ample and good supply of water, and other necessary sanitary measures, can make them fit and suitable places of residences. Remove every object that produces, or is likely to produce, offensive odour, and you remove the chief cause that creates a certain class of diseases. Give me, notwithstanding what Professor Bennett says, the pure air of heaven, and a clear atmosphere to breathe and live in.

As to the proposal of establishing manufactories near every large town, I believe it has been fairly tried at Leicester, Cheltenham, and other places, and has turned out a total failure; and I am of the opinion that has previously been expressed in the *Builder*, that the best system that can be devised for towns that are situated on the same drainage area is to unite and carry away their sewage by a common outfall to some point below, either in the delta of rivers, or on low, weak, uncultivated, and unproductive land, and there to dispose of it in a liquid state for agricultural purposes; or, if more advantageous, at times to deodorize and filter it, and manufacture it into a portable manure; and depôts might be formed on the course of the outfall to serve intermediate agricultural districts if thought desirable. Outlets should be provided to carry off an excess of rain or storm water, so that the sewage may be as full of solid matter and as concentrated as possible.

Another *ignis-fatuus* appears in the person of Dr. Hawkaley in the *Times* of September 14th. He proposes to substitute earth closets for the system now in use, and to close up all sewers and drains, so that nothing noxious should reach our rivers to pollute them.

This proposition comes rather too late in the day, after twenty years' practice of the present system, which certainly has not in all cases worked satisfactorily, but only because many of our sanitary works have not been well and correctly designed, and are left quite incomplete, as I consider the proper outfall and ultimate disposal of the sewage the *sine qua non* in all town drainage works.

I think it will require a considerable amount of argument and persuasion to induce us to revolutionise the plans and works as now adopted in our towns; and, instead of throwing difficulties in the way, it would be much better for all philanthropists and scientific men to combine and put their shoulders to the wheel, to help our town authorities out of that slough of despond in which they have unwittingly engulphed themselves.

As many of your readers may be aware, Dr. Hawksley's proposition is not original or new: in the year 1849, a similar plan was suggested by Mr. B. Stratton, of Bristol, the drawings of which are now before me, in which he proposes the use of portable W.C. and manure-pans, with closely-covered tumbler carts, and manure-tanks, &c., complete, and these were to be removed in the same way as suggested by Dr. Hawksley; but he does not recommend earth as a deodorizer,—he employed the ashes thrown to waste on the premises for the purpose. This plan, although extensively circulated, did not meet with much countenance or support, I presume on account of its novelty, as Englishmen as a rule are not too prone to adopt any new scheme that may be suggested, much less crude and ephemeral ones. Subsequently other plans for a dry earth closet were proposed by the Rev. H. Moule, who took out patents for the purpose of securing all the rights and privileges appertaining thereto, and the plans of this invention were described in the *Builder*, vol. xx., p. 794, and approved of so far as special cases were concerned; but it was thought the difficulties were too great, the system too complicated, and so liable to neglect and mismanagement, that it was considered neither advisable nor desirable to adopt the plan suggested, and thereby supersede the present system of sewerage of London and other towns.

And why, I would ask, should London abandon her present system of sewerage, &c., after she has spent four millions of money in that extraordinary and magnificent work—the outfall sewer. She has made heavy sacrifices to get rid of her sewage, and carried it away below London to a suitable distance, where it may be profitably disposed of should the agricultural interest evince sufficient spirit and enterprise to perfect and work out the problem.

Would it not be the height of folly, if not something else, to revert to the system of collecting the sewage from house to house, when by the present machinery the whole may be speedily, effectively, and cheaply carried away by a simple flush of water through the existing system of sewerage; and may thus in its diluted state be applied in the most effective manner to our barren and waste land, and thereby enable the earth to bring forth her increase, and, to use a flowery metaphor of the *Times* correspondent, "to blossom like the rose"?

As I am not one of those opposed to all change, if it can be shown to be beneficial, or to the inevitable and irresistible march of intellect, if the system should be submitted to a practical test as an experiment; I would suggest that Manchester is a place peculiarly adapted for it: she has but partially drained her myriads of houses, and lovingly retains her *odorous* cesspools (ashpits) in all their glorious *sweetness* and perfection; and the result of this fond feeling is their frightfully heavy mortality. Let the dry earth closets be tried there, as the dry ashes as at present supplied to the cesspools do not properly effect the object; and if Manchester can be purified, made clean, and healthy by the process, why the rubicon will have been passed and success achieved.

I do not agree with the Doctor in his sneer about that noble public work, the outfall sewer: it is worthy of all praise, and has been skilfully and admirably executed; but I fraternise with him in his pithy protest against the great water supply schemes of Hemans, Bateman, and Fulton for modern Babylon.

I do not approve of those extensive, absorbing, grasping schemes. I do not think that because Paris is said to be all France, London is all England; and why should she monopolize the important sources of water supply named for the north and west of England?

Those parts of the country are becoming thickly populated; and many of the petty, miserable schemes of water supply on which the towns of those districts depend, must be abandoned, and more pure and copious sources of supply obtained.

Let London economize the resources of her own district: the chalk formation on which she stands is not exhausted, nor are the Surrey sands; and if these fail, is there not the noble River Thames to fall back upon? The supply of that river from the rainfall, if economized, would produce a prodigious quantity of water; and with the facilities afforded by the "Thames Navigation Act" to prevent the pollution of the river, if the water were properly collected in storage and subsiding reservoirs, and thoroughly and effectually filtered, it is capable of supplying the wants of all the inhabitants situated on its banks.

If our population increases so rapidly that the rainfall of the country will not yield the necessary supply, and in dry seasons now there is a scarcity and shortness of water in many districts, it becomes a question of very serious importance for us to economize and appropriate our water supply in heavy rainfall districts, that ample quantity may be obtained in all seasons and for all places; and that populous, rich, and wealthy places may not stretch beyond a fair and reasonable limit, and, by a *coup de main*, monopolize to themselves a necessary of life that was intended by an all-wise Providence for the use and benefit alike of all His creatures. B. B.

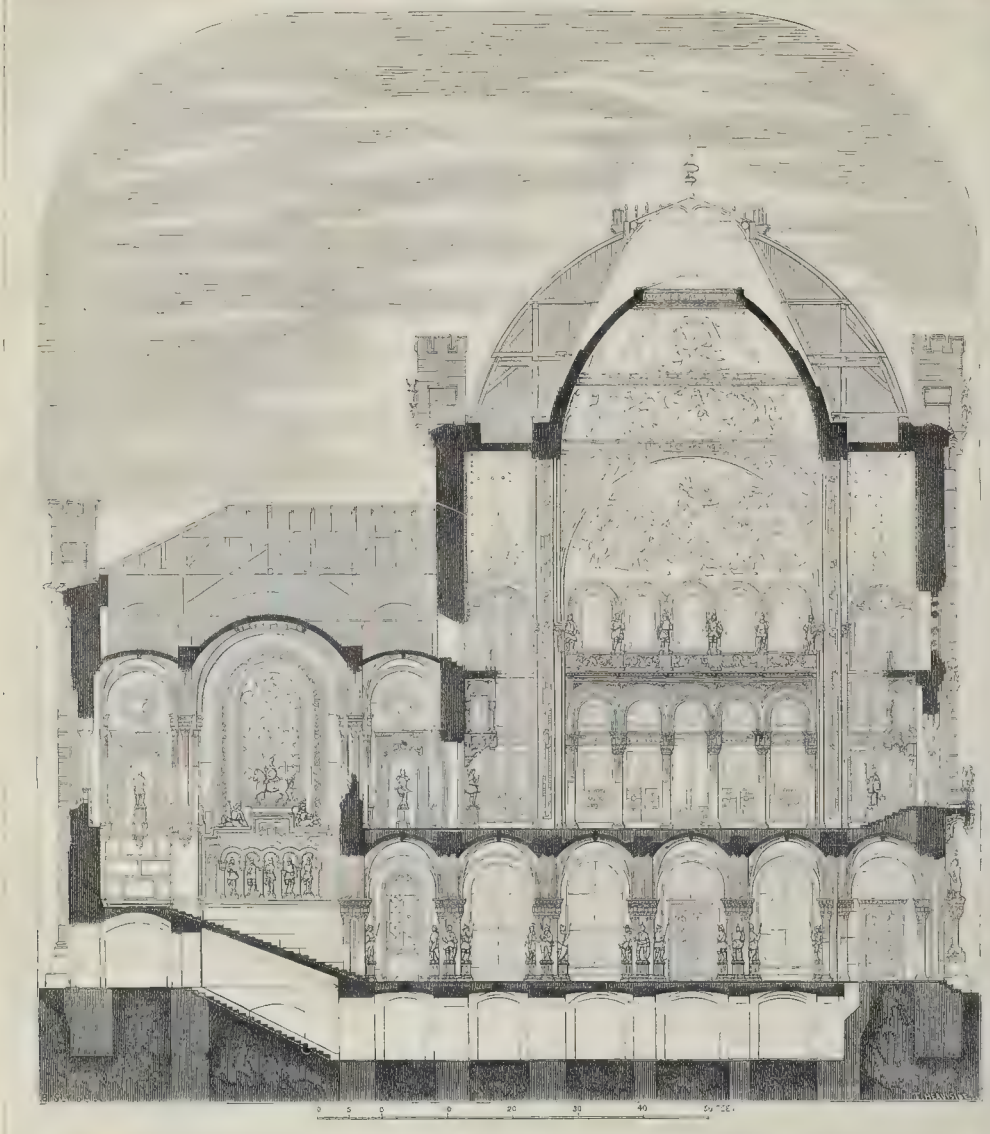
THE ATLANTIC TELEGRAPH.

GRAND BANQUET.

On the 1st inst. a grand banquet was given in the Law Association Rooms, Liverpool, to Captain Anderson, of the *Great Eastern*, and the gentlemen who have taken a leading part in the laying of the Atlantic cables. There were upwards of 200 gentlemen present, and doubtless as many more would have attended had an application for the rooms of the Town-hall been successful. The chair was taken by the President of the Board of Trade. Among the invited guests were Lord Stanley, the Bishop of Chester, Mr. S. Canning, chief engineer of the Atlantic cable; Mr. Henry Clifford, engineer of the same; Captain Anderson; Mr. Willoughby Smith, electrician of the Atlantic cable; Mr. Latimer Clark, engineer of the Atlantic Company; and many more, of well-known names.

The room presented a novel appearance. Festoons of the Atlantic cables, from which hung real seaweed and coral, were suspended round the cornices, and in recesses were placed gilt grapnels. In the centre of the room, a massive chain held suspended over the middle table the grapnel which finally raised from the bed of the Atlantic the long-lost cable of 1865. The lighter and more brilliant "effects" were produced by large mirrors fringed with evergreens and trophies of national flags—the ensigns of Great Britain and the United States being, of course, the most conspicuous.

The Chairman, after the banquet, read a communication from the Earl of Derby, conveying the sentiments and intentions of her Majesty with respect to the Atlantic cable expedition and its promoters. Her Majesty was desirous of testifying her sense of the merits displayed in this great enterprise, and had commanded his lordship to submit for special marks of her Royal favour the names of those who, having had assigned to them prominent positions, might be considered as representing the different departments whose united labours had contributed to the final result; and had commanded him to convey her congratulations to all whose energy and perseverance, skill and science,



THE MUSEUM OF ARMS, VIENNA.—*Section across Hall and Staircase.*

had triumphed over all difficulties, and accomplished a success alike honourable to themselves and their country. Her Majesty had accordingly directed that Captain Anderson, Professor Thomson, Mr. Glass, and Mr. Canning, should be knighted; and that Mr. Lampson, deputy-chairman of the original company, and Mr. Gooch, M.P., should receive the honour of baronetcy. If Mr. Cyrus Field received no such mark of royal favour, it was because her Majesty did not wish to interfere with what might seem to be the natural functions of the Government of the country to which Mr. Field belonged, and which he had served equally with this country in the work which had been done. The chairman in continuation said that Lord Derby had wished to confer upon Captain Anderson some further mark more immediately connected with his own profession, but he had been greatly disappointed to find that neither the rules of the naval service nor the statute of the Order of the Bath allowed him to do so.

Mr. Elliott expressed great regret that Mr. Glass was seriously ill. He also said that they would next lay a cable direct to New York.

THE MUSEUM OF ARMS IN THE ARSENAL, VIENNA.

We add to our illustrations of the new Museum of Arms in Vienna, the transverse section of hall and staircase, from the designs of Mr. Hansen. The elevation of this portion of the building, and representations of some of the internal columns and *antæ*, we have already given.* The statues around the columns represent eminent commanders.

* See pp. 706, 707, *ante*.

THE WHITEHALL CLUB, PARLIAMENT-STREET, WESTMINSTER.

The building represented by the annexed engraving has been erected in Parliament-street, at the corner of Derby-street, Canon-row, for the use of the Whitehall Club. It is, as will be seen, Italian in style, and the exterior is wholly of stone. It was designed by the late Mr. Parnell, architect, and has been carried out by his son, Messrs. Lucas being the builders. The amount of the contract was 20,246*l.*; the total cost probably 5,000*l.* more. The sculpture was executed by Mr. Tolmie. The accommodation within provides a morning-room and coffee-room, each 40 ft. long.

The club, although it includes a number of civil engineers, contractors, and others, having occasional business in the Committee-rooms of the Houses of Parliament, is not restricted to any special class, and is non-political.



THE WHITEHALL CLUBHOUSE, PARLIAMENT STREET, WESTMINSTER.

THE HOLBORN THEATRE ROYAL.

The new theatre, which has been built for Mr. Sefton Parry, is on the site of the old Post-office Stable-yard, and has the advantage of three distinct entrances—one from Holborn, one from Brownlow-street, and another from Jockeys'-fields. The pit is reached by a passage on a level with Brownlow-street, where also is the gallery entrance, while the access to the boxes is but a little above the level of Holborn, the stage entrance being from the rear in Jockeys'-fields.

Long before the walls of the building had attained the height of the enclosing wall, injunctions poured forth on all sides with reference to light and air. These proceedings, in some degree, delayed the building. After considerable difficulties in law proceedings, terms were ultimately arrived at, which restricted the building being carried up beyond a certain limit. These restrictions, to a great extent, precluded Mr. Parry carrying out his original intentions. The building is now of the following dimensions:—From foot-lights to the back of pit, 70 ft.; width of pit between walls, 52 ft.; from foot-lights to back of stage, 44 ft.; width of stage, 52 ft.; proscenium, 26 ft. by 23 ft.; the height from floor of pit to ceiling, 35 ft.

The internal arrangement of the theatre consists in four rows of stalls 3 ft. 6 in. from back to back; pit seats 2 ft. 10 in. from back to back. It was originally intended that the first tier should be devoted to the dress circle—in the manner of the Haymarket Theatre. The idea was afterwards modified by Mr. Parry, and four boxes were formed on either side—the dress circle, consisting of six rows of seats 3 ft. apart, facing the stage. The second tier has four slip boxes on either side, two rows of amphitheatre stalls, and at the back is a spacious gallery.

There are no proscenium boxes as in ordinary theatres, the space having been taken up by additional staircases.

The building is in the usual horse-shoe form. Of the accommodation afforded, and its fitness or otherwise for the purpose, we shall be better able to speak when we have seen it filled.

The style of decoration consists in bulged box front with projecting ornaments, and at intervals shields, containing allegorical figures; the ceiling is panelled out by projecting ribs, at the intersections of which are small pendants. The proscenium decorations consist in a dipha ground with circular ribs running round same; the tinted decorations are pale salmon, and white relieved with gold; the general effect is elegant and the colouring judiciously applied.

The building was carried out by Mr. Simpson; the composition works were executed by Messrs. Kettle & Balliscombe, of Marylebone-street; the tinted decorations by Mr. Honmann; the gas-fittings of the house and stage were entrusted to Mr. Jones, of Bow-street.

IMPROVEMENTS IN BELFAST.

So busy were the local builders during the past summer that every carpenter, bricklayer, painter, and mason was engaged, until several new buildings had to be taken by contractors at a distance; principally in consequence of Belfast builders not being able to spare men for them, and partly in consequence of strikes for increase of wages—the trade generally being so prosperous that operatives who, ten years ago, were content with 18s. a week, and could hardly get work to do at the price, struck during the past twelve months for an advance on 35s., or double the wages of ten years ago. House accommodation, says the *Northern Whig*, in giving an account of the local improvements, is now scarcely to be had, except at comparatively enormous rents, and this while the increase of houses in Belfast during the last six years has been at the rate of 1,200 a year. Of these, five out of every six were houses for the working classes, generally two stories in height,—the remainder being splendid palatial warehouses, manufactories of various kinds, or country seats in suburban districts of the town within the municipal borough. The portions of the town in which building operations have, for the most part, extended, are the north and north-west sides, in every part of which additions have been made, principally in consequence of the many manufactories which have been erected on the Falls and Crumlin Roads. Many of these houses are not built as they ought to be, and are wanting in many of the necessaries of cleanliness, and even decency.

The buildings, other than dwelling-houses, going on in Belfast, or that have recently been finished, continues our authority, are very varied and numerous. The new Roman Catholic semi-cathedral on the Falls-road, is almost finished, and will be opened in about three weeks. The new Methodist College on the Lisburn-road is far advanced towards completion. A new Roman Catholic parochial school is almost completed in Barrack-street. One of four new Episcopal churches in Belfast is rapidly approaching completion; and the building of four new Presbyterian houses of worship will be entered upon immediately. Large warehouses for various purposes, are being erected.

In addition to all these and other public buildings, there are great public improvements going on. The new docks, at a cost (including recent proposed additions) of upwards of 200,000*l.*; the new waterworks, at a cost of about 130,000*l.*; the new cemetery, at a supposed cost of about 20,000*l.* The works of the Central Railway Company are also being rapidly proceeded with. A contract has been entered into for 10,000*l.* for the paving of a number of the new streets. A sewerage scheme has been proposed, which it is almost certain will be carried to completion, at a cost of at least 100,000*l.* The council have authorised the expenditure of 50,000*l.* on a Town Hall and public offices.

GLASGOW.

A new hall has just been erected at the junction of Grove-street and Scotia-street, with its front towards City-road, for the use of the North-Western Working People's Institution, which may be described as a Christian brotherhood, banded together for spiritual and social improvement, chiefly through the instrumentality of a philanthropic gentleman, who devotes all his leisure to the cause, and has rallied round him a band of coadjutors. The edifice, in its several departments, accommodates upwards of 3,000 persons: the cost has been 5,000*l.* The style is Grecian, freely treated. The capitals of pilasters and other enrichments are all original designs. The motto of the institution, "Bear ye one another's burdens," appears on the pediment, within a carved wreath. In the interior, the ceiling and ends of the hall are elliptical; a gallery, of corresponding outline, with baluster-shaped front and open metal panelling, is supported on pillars having ornamental capitals of open foliated metal-work, and carved completely round the walls. The ceiling is formed into enriched panels, each having a large and effective centre flower, perforated for ventilation.

Mr. Alexander George Thomson, of Glasgow, is the architect; the superintendent of works, Mr. P. Ferguson; the mason, Mr. A. Fraser.

Mr. Thomson is at present engaged as civil engineer to the new slip-dock at the junction of the River Kelvin with the Clyde, Pointhouse, now constructing for Messrs. A. & J. Inglis, ship-builders. This dock is over 800 ft. long by 56 ft. in breadth, and is capable of accommodating vessels of 2,000 tons and upwards. Mr. Manuel is the contractor.

HETHERSETT CHURCH, NORFOLK.

The chancel, or rather quasi-chancel of this church (for the original one disappeared some 300 years ago), was re-opened for service on the 14th ult. The east window is of Late Decorated work, and was taken out of the old chancel, probably about the year 1536. It has now been restored, and filled in with coloured glass (supplied by Messrs. Heaton & Butler), consisting of quarries in diaper with medallions of foliated pattern, the effect produced being good. In harmony with the tone and design of the window are the decorations in the splays and on the adjoining walls, consisting of a text with coloured borders above the new oak reredos, and carried round the edge of the window. Texts similarly ornamented are carried round each of the four arches of the chancel, crosses and other emblems being sparingly introduced in the spandrels. The two wings of the new reredos contain the usual four tablets, which are of delicately-coloured slate, the lettering, in bold Lombardic type, having the *unusual* advantage of easy reading by the humblest scholar in the village. The eight spandrels over the tablets are filled in with well-executed carved foliage, surmounted by trefoils with backgrounds of rich blue. The central part is more elaborate, containing the symbols of the four evangelists in alto-relievo, sparingly picked with gilding, and with a background of blue. Above the communion-table is diaper work with trefoils, the centre one filled in with a foliated cross of pollard oak on a blue ground. The oak-wood carving was executed by Mr. Daynes. A new altar-railing, supplied by Messrs. Hart, and Minton's tiles, complete the restoration of this part of the church. The works were executed by Mr. Cornish, builder, of North Walsham, under the direction of Mt. Augustus E. Browne, architect, of Lincoln's-Inn-Fields.

RECORDS OF EMINENT LONDONERS.

"A Letter on Eminent Londoners and Civic Records, addressed to the Members of the Court of Common Council, by B. B. Orridge, one of the Members of the Ward of Cheap," has been printed for circulation. Mr. Orridge in May last made an unsuccessful endeavour to obtain a resolution of the court in favour of his views, and he now re-addresses them on the subject, pointing out, "That the library at Guildhall does not contain any record of the eminent men who have been connected with this city, neither does any such record exist elsewhere, and that the non-existence of such record is detrimental to the reputation of the Corporation of London;" also "That there are ample materials in the possession of the Corporation and elsewhere to assist the compilation of a civic biographical dictionary." With these facts before us, he adds, "I venture to ask whether you think it either right or politic to remain inactive in these matters; whether it is just to yourselves or to the intelligence of those we represent, or to the memory of those who have been before us? In our discussions we are often reminded by debators of the fame and influence of this great city. Is it right to forget the names and the deeds of those who made it famous and influential?" We will answer for the Common Council,—it is neither right nor wise.

THE MIDDEN SYSTEM IN LIVERPOOL.

The *Liverpool Albion*, commenting on a letter in our last impression on the Condition of Liverpool, says,—The disgraceful condition of the town, described by "Civil Engineer," has been the cause of repeated remonstrance; but it is likely to continue until the inhabitants themselves awake to the great danger. The continuance of the cesspit system is urged on two grounds by those in authority, who oppose the general substitution of the water-closet. Not a few contend that the open midden is not injurious to health. Even Dr. Shearer, whose evidence is so important in other respects, says, "Mere stinks, as far as we (the faculty) know, do not produce any specific disease;" "but," he adds, "we are not quite sure whether they produce disease. We believe they are not healthy; that to breathe them constantly would be prejudicial to health; but that they produce fever no one would venture to say, unless it be with regard to typhoid fever, and that is not properly proved." Owners and agents of cottage property assert that the midden is preferable to the water-closet, and this class of the community are not without their representatives in the council, who roundly declare that the cottages, with the closely-adjoining open middens, are more healthy than the houses which are supplied with closets. This order of intelligence is on a level with that of the witness in the recent Leeds pig-nuisance information, who stated that he preferred to live near the offending pigsty, and that, indeed, he had enjoyed better health since he had done so. If these fermenting cesspools be not prejudicial to the public health, if the emptying of them do not create a public nuisance, what ground had the Health Committee for proceeding against Mr. Ellison, the contractor for the removal of night-soil, for permitting the carts used in this process to remain in the yard, Soho-street, in such a condition as to be a nuisance? If the carts be a nuisance—and they are no doubt an intolerable nuisance—packed away together in a thickly-populated district like that of Soho—

how "all-pervading" must be "the horrible stench" when the nightmen are at their sickening work, or when the accumulations of refuse in the cesspits become putrid, and the offensive gases which are given off poison the entire atmosphere. Who can doubt that this is one of the many causes—some of them peculiar to Liverpool and to the readiness with which many of the miserable, fever-stricken, poor population of Ireland immigrate into Liverpool and find their way into our overcrowded districts—of our excessive, and, to the whole country, startling mortality. The remedy pointed out by "Civil Engineer," long ago suggested by common-sense, and now proved by the experience of London, requires, however, an unfailing command of water, and that cannot be permanently ensured until some further addition is made to our means of supply.

The *Times*, we may add, also brings the subject under the notice of its readers in the form of quotations from the *Builder* in an article extracted from the *Pall-mall Gazette*; and we are glad to observe that the Home Secretary has sent Mr. Taylor to report as to the necessity of a new Government inquiry into the sanitary condition of this borough.

TESTING STOVES AND LIGHTS: PARIS EXHIBITION.

We are glad to hear that a building will be erected in the grounds of the Paris Exhibition of 1867, for the purposes of testing various kinds of stoves, cooking apparatus, and modes of lighting; which building will be so designed as to afford the opportunity of exhibiting in use, metal vanes, ornamental bricks for chimneys, fastenings and furniture; pavements, lamps, and cottage furniture. We hope manufacturers will take advantage of the arrangement.

This testing of stoves was urged by a committee on the managers of the London 1862 Exhibition, but could not be brought about.

THE SEWAGE OF BIRMINGHAM.

A report upon the best method of dealing with the sewage of Birmingham, in order to turn it to useful account and to prevent the pollution of the river Tame, has been prepared by the local Public Works Committee for presentation to the Town Council. The committee, says the local *Journal*, have for a long time past been engaged in extensive and laborious inquiries into the systems adopted in various places with the view of utilizing town sewage; and they have finally decided to recommend the application of the plan which has been found so efficacious at Croydon,—that is, the deposition of the sewage matter upon the land, and the cultivation of crops of Italian rye-grass. For the purpose of experiment, on a scale sufficiently large to afford a fair trial of the sytem, the committee will recommend the council to acquire a quantity of land in the valley of the Tame, under the powers conferred by the Sewage Utilization Act of last session.

THE TRADES MOVEMENT.

London.—An aggregate meeting of society and non-society operative house painters and decorators was held on Wednesday, at Cleveland Hall, Fitzroy-square, Mr. Ward in the chair, for the purpose of inaugurating a movement for obtaining an advance of wages to 8d. per hour in March next. Ultimately it was agreed that twelve members should be appointed from each organization, who should meet and prepare a plan of united action, and submit the same to an adjourned meeting for carrying out the 8d. advance at the time stated.——A meeting of the brass finishers and gasfitters of London and its suburbs was held on Tuesday in last week, for the purpose of considering the best means of obtaining an advance of wages, and a reduction of the hours of labour.

Nottingham.—At a meeting of the master builders to discuss matters connected with the bricklayers' and labourers' strike, it has been unanimously resolved to adjourn the meeting for one month, "to give the operatives time to reflect upon the steps they have taken."

Huddersfield.—A meeting of the joiners of Huddersfield was recently held, and after some discussion it was decided to give their employers six months' notice of a demand for an advance of 3s. a week in their wages.

Glasgow.—It is understood that, at a meeting of the Greenock carpenters, it has been resolved by a considerable majority to resume work on the masters' terms. In this way the only obstacle to a settlement between the Glasgow carpenters and the Masters' Association is removed, and the strike may probably be considered at an end.

THE CHURCH TOWERS OF IPSWICH.

Every visitor to Ipswich is struck with the lofty tower and spire of St. Mary's, just now completed from the design of Mr. Phipson, architect. It has led to much discussion as to the height of other towers in the town, and Mr. Phipson writes as follows:—

Having recently had the whole of them very carefully measured, I am enabled to do this with great accuracy.

I should explain that the height in each instance is from the ground to the top of the battlements or parapet, and the square of the tower is measured *exclusive* of projecting buttresses.

	Height. ft.	in.		Square. ft.	in.
St. Mary's Tower (tower) ...	93	10	.....	24	6
Spire to top of vane	82	3			
Total	176	1			
St. Peter	93	6	.....	24	0
St. Lawrance	92	3	.....	21	7½
St. Clement	76	6	.....	16	6
St. Mary Quay	73	0	.....	19	0
St. Margaret	66	9	.....	20	6
St. Stephen	59	6	.....	18	6
St. Nicholas	57	2	.....	17	2
St. Matthew	53	9	.....	19	6
St. Mary Elms	53	6	.....	18	6
St. Mary Stoke	50	0	.....	18	4
St. Helen	44	3	.....	15	6

The weight of St. Mary's tower and spire, when completed, and the twelve-bell peal hung, will be as near as possible 2,683 tons; and as the footings or foundations are 1,042 ft. in superficial area, it follows that each square foot of the natural soil upon which the tower stands has to bear a weight of a little more than 2½ tons, or about 23 tons to every square yard. With such a pressure it is a satisfaction to be able to say that not the slightest approach to a settlement has taken place in any part of the work."

ACCIDENTS.

One of the labourers employed at the Thames Embankment, by some incautious movement, overbalanced himself and fell from the scaffolding, 31 ft. high. On his removal to Charing-cross Hospital it was found that he had sustained a fracture of the skull, and that his ribs and collar-bone were broken.

A stand on Walsall racecourse has fallen. The transverse bars supporting the spectators' gallery above the refreshment bar would seem to have been bolted to and strengthened by upright beams at the ends and in the centre, with the exception of the middle two, to which no central supports were affixed. Some of the occupants of the stand happened to congregate together just over one of the unpropped transverse beams, which, after a premonitory creak, gave way, and precipitated some fifteen or twenty persons into the refreshment bar below. Most, if not all, the precipitated spectators, and some of the persons in charge of the refreshment-stall, were more or less hurt, but none of their injuries were of a character likely to lead to fatal results.

West Hartlepool Dock Entrance has given way. Some months ago the dock gates at the entrance from the West Hartlepool harbour to the coal dock got out of order, and had to be removed for repair. It was necessary to dam the water, and a barrier was erected. The gates were repaired a week or two ago, and lodged in their places, but the "ways" on which they traversed required renewing, and to accomplish this it was requisite that the entrance-lock should be free from water. As a construction similar to the dam was expensive, it was considered that the "booms," which are used during stormy weather to protect the gates from the force of the sea, with beams of timber placed down the niches in the quay, about 3 ft. or 4 ft. distant, would afford sufficient resistance to water. They were put down, bolted, and plated, and the place between filled with clay, as a precaution against danger. When the gates gave way, the water at one side was about 20 ft. above them, and on the seaward side the tide had risen to 17 ft. The sea burst upon the dam with a report resembling that of a piece of ordnance, and rushed in like a deluge. Ropes and life-buoys were thrown down amongst the men, who were struggling for their lives. Some of them caught hold of chains and portions of the gearing used for moving the gates, and others were washed against the dam, and seized the nearest projection: all escaped.

The roof of a large saw-mill, recently erected at Hull, fell in last week. The proprietor, Mr. Neale, and another man, were dangerously injured.

The bridge across the new railway at Tow Law, near Bishop Auckland, has fallen. The fortunate circumstance of the workmen observing the dangerous position of the bridge prevented any fatal occurrence.

THE METROPOLITAN BOARD OF WORKS.

PROGRESS OF THE THAMES EMBANKMENT.

The Chairman, at the first meeting after adjournment, said, that during the recess arrangements had been made between Messrs. Brassey and Mr. Furness, the contractor, and Mr. Bazalgette, the engineer, had reported upon the matter.

Mr. Bazalgette then read his report, part of which we may quote:—

"North Side of the River.—Contract No. 1, between Westminster and Waterloo Bridges.—In the greater part of the interval between July and the 6th instant, the works may be said to have been partially suspended. For some time prior to the adjournment of the Board on the 10th ult., and for a considerable time after, negotiations were taking place with Mr. Brassey with reference to his pinning in the completion of the works under this contract. These negotiations having been at last successful, Mr. Brassey entered upon actual operations, and on the 6th instant the works may be said to have practically recommenced from that date. Since then the following supplies have been delivered on the works—14,500 bushels of Portland cement, 10,500 cubic feet of granite, 450,000 bricks; and other cargoes are, I am informed, on the way."

"Contract No. 2.—Between Waterloo Bridge and Temple Gardens.—Since the date of my last report the works under this contract have made fair progress. The length of cofferdam already removed is 800 ft., and a further length of 1,110 ft. is in course of removal, and which when effected will expose to view 1,810 ft. of the wall, including the Temple pier. The approximate value of the whole of the completed works and of the materials and plant upon the ground is 197,880*l.*, of which 6,512*l.* represent the progress in the past two months. The total approximate value of the whole of the completed work is 67,000*l.*, of which 17,000*l.* represent the progress made by Mr. Webster within the past two months."

The report was received and adopted.

Mr. Bazalgette stated to the Board that there had been great delay in connexion with the Pneumatic Railway.

The Chairman explained that the Board had no power to compel them to expedite the work.

AN ARTESIAN WELL.

The proprietor of the Kingston Brewery being desirous of obtaining a pure supply of water has recently had an artesian well sunk on his premises in Brook-street. At Southampton the boring was carried on till a depth of 1,317 ft. had been reached, but without getting a valuable supply of water. An attempt was afterwards made at Highgate, on the strength of geological theories, but it proved a failure, and geologists were forced to acknowledge that while their theoretical reasoning with respect to subterranean strata could present a certainty in saying what *would not* be found in any given place, it could not afford a guarantee of what *would be* found. It will thus be seen that to a certain extent the sinking of an artesian well, if not actually groping in the dark, is not unlike it, for after all the boring, it may be either that no water can be got, or in such a small quantity that it is almost useless. Of the well at Kingston, the *Surrey Comet* says,—it was commenced early in last November; the engineers being Messrs. Easton, Amos, & Son; the well-sinker being Mr. Tilley, of Cheapside. The first operation was to sink a shaft 6 ft. 6 in. in diameter, which was carried to a depth of 90 ft., and lined with 9-inch brickwork, set in cement. The top of the shaft, to the depth of 18 ft., was lined with iron cylinders to keep out the surface water, which would otherwise in time have percolated through. The shaft being completed, cast-iron pipes were erected from the base, to some height up, and there

a platform was erected. The work of boring was then commenced.

The pipes first used were 7-inch, and were sunk to a depth of 325 ft., when 4-inch were put down till chalk was reached; after sinking 40 ft. in that, the boring was proceeded with, but no pipes were used. This was in order that no springs might be shut out from contributing towards the supply. Directly the vein was tapped, water rose like a fountain 8 ft. above the surface. For the first 200 ft., when passing through soft soil, the pipes sank by their own weight as the earth was removed from under them; but, as the depth became greater, the pressure of the earth upon them became such that great pressure had to be exerted to force the tubes down. For that purpose the stageing down the shaft was used; on it was placed an hydraulic press, and a weight of ten tons had at last to be brought to bear before the pipes could be induced to descend. When the pump is not at work, from eighteen to twenty gallons flow away every minute. The steam-pump used at the brewery has three throws, and raises about seventy gallons per minute. To keep the whole establishment supplied with water, or, as called in a brewery, "liquor," this pump raises on an average 25,200 gallons daily, but yet for all that, and when at its greatest speed, the water in the reservoir—30 ft. deep and 5 ft. in diameter—is only reduced and kept down rather more than a foot. The quantity of water which flows every day will be 25,200 gallons added to that which runs away—eighteen gallons a minute for eighteen hours—equal to 19,440 gallons daily. The yield of the well may thus be estimated at 44,640 gallons each working day, a total of 293,760 in a week. The overflow—nearly 20,000 gallons daily,—is returned into the sewer, thereby flushing it considerably.

The strata through which the boring was carried, with their respective depths, are shown below:—

Kinds of Soil.	Depth. Ft.	In.
Loamy Clay	11	0
Gravel	2	0
Blue Clay	245	0
Coloured Clays	67	0
Marl	4	0
Loamy Sand	0	5
Marl	9	0
Loamy Sand	0	9
Marl	5	0
Dark Sand	12	0
Light-brown Sand	25	0
Chalk and Flints	99	0
Total depth	470	2

CHURCH BELLS.

Sir,—The deep and rich tones of the magnificent bells that call the people to church in Belgium, France, and Germany, are truly welcome to the ear. To say nothing of the melodious cylinder chimes, or of the pleasing effect produced by an occasional performance on the *carillons à clavier*. Very delightful, too, is the music that issues from many an old church tower in our own "ringing island." Englishmen love it well, and have often cause to exclaim,

"How sweet the tuneful bells' responsive peal!"

But, the "ting-tangs" and single bells, at too many of our modern churches, especially in this metropolis, give out noises so inappropriate and offensive, that they ought never to be used, except as alarm-bells in case of fire. I complain not that here and there a church has only one or two bells, for costly peals are not desirable at comparatively small district churches—though every large tower ought to possess one,—but I censure the quality of the bells. And having devoted much time and attention to the subject, I do not hesitate to say that the wretched things in question are a disgrace to the sacred edifices in which they severally belong.

Let no one suppose, however, that the art of bell-founding has ever been lost in Great Britain, or that I wish to depreciate the ability of any living founder. At the present moment there are well-known foundries at work, from which many good bells have been sent out from time to time, including peals that deserve honourable mention. And certain it is that we shall all never want model-bells, so long as the glorious peal—of ten—exists at the church of St. Mary-le-Bow, Cheapside; or the equally fine one—of twelve—can be found in the tower of St. Peter Mancroft, Norwich. If, therefore, people will only agree to pay fair prices, they may, I trust, still obtain fine-toned bells in England, as well as fine-toned organs. Moreover, the evils of which I have complained can easily be remedied.

A word on the use and abuse of church bells, concerning which I fought earnestly, and not altogether in vain, some years ago. Now, most persons know that our bells are used for various public and social purposes. To quote from an old inscription, they "Praise God, call the people, grace festivals, and mourn the dead." They rejoice with the joyful, and grieve with the sorrowful. The loudest and most joyous portion of bell music is produced by *ringing* in peal. And here I would observe that "scientific change ringing," as now practised by our "College Youths," and other societies, is "as fine an exercise for the body, as it is a serviceable one for the mind." It is, therefore, well calculated to unite men of various grades in society, who may join in it as heartily as in the manly game of cricket, or certain other of the scientific exercises practised in this country.

But the chief use of church bells is, or ought to be, to call the congregation to the house of prayer. For this purpose they should be *chimed*, and with precision; not by machinery, nor by any apparatus or contrivance other than the ordinary gear, but in the legitimate way by hand. Soft and melodious music,

"Clear and sonorous as the gale comes on,

is thus elicited from a fine peal of bells. In such a case, well may it be said that "no music can be more soothing, or affect the feelings so strongly, by old associations, as the sounds from the old church tower."

Notwithstanding all that has been said and sung, however, in praise of our "Cheerful Sabbath Bells," it is to be feared that among the thousands of peals in the United Kingdom, very few indeed are now chimed as they ought to be. In some towers, I know that peals of five, six, and eight bells are uniformly chimed in an excellent manner; but in numerous others there is neither ringing nor chiming, properly so called, but a *wild jangling* is kept up, producing an offensive "*clatter and clang*."

In conclusion, then, permit me to add the following statement:—Any person, being able and willing, can learn to chime in the legitimate way, by hand, in a very few days. I therefore maintain that wherever a church tower containing a peal exists, no reasonable excuse can possibly be made for not chiming the bells for divine service on Sundays, in the manner indicated,—that is, "decently and in order," so that the effect produced may satisfy the musical ear.

Thomas Walesby.

Golden-square.

FLITCH GIRDERS.

An unfortunate omission by the author occurred in working out the strain upon the iron plate in the article on "Flitch Girders," at p. 703. The result of the addition of the moments $\frac{fsd^2}{3}$ and $\frac{fsd'^2}{3}$ should have been $\frac{1}{6}$ fsD^2 instead of $\frac{2}{3}$ fsD^2, and consequently the value of W should have been 1·63 tons, instead of 6·54 tons.

SEWER VENTILATION IN WHITEHAVEN.

Sir,—Through the columns of your universally spread paper, I beg to draw your attention, and that of your numerous class of professional readers, to the system of sewerage ventilation about to be carried out at Whitehaven, in Cumberland.

At intervals along the streets and lanes are erected iron ventilators, communicating at once with the sewage in the pipes, no trap or airtight cover of any description. The main outlet sewer is a tunnel some three-quarters of a mile in length, about the level of low water-mark at both ends, consequently nearly level. It is proposed to erect an engine adjoining the harbour, in one of the busiest parts of the town, to pump the accumulated sewage into the said harbour during the time the main sewer is backed up by the tide at high water.

About seventeen years ago, this place effectually withstood the recommendation of Mr. R. Rawlinson, the sanitary superintendent, to have the town placed under the Health Act of 1848.

About four years ago the town was visited with a dire endemic, causing great mortality, attributed at the time to bad drains, pig-sties, filthy yards, &c. The present movement for general sewerage may, I suppose, be attributed to the above endemic.

The question is,—Is the present system of sewerage ventilation now being done likely to better the health of the town? Is it a proper system?

I am sure your opinion, or that of any of your professional readers, would greatly oblige many parties in this county. It were a pity that this place should be quoted as a precedent for other seaports similarly circumstanced, and where the sanitary measures have not yet been commenced.

Beta.

THE MANAGEMENT OF THE PATENT OFFICE.

Sir,—In your number for the 8th September an article under the above title appeared, giving an account of the last report of the Commissioners of Patents. In the concluding paragraph of this article you express gratitude for what the Patent Office has done, and in that expression those who know most about the subject will, I think, be most ready to join with you. I cannot, however, avoid feeling that as "an epitome of the Commissioners' proceedings since their establishment," your article in one or two particulars understates what has been effected, and I beg leave, with your permission, to endeavour to add to the information it conveys.

The Commissioners of Patents have for years past consistently and energetically pursued the policy of diffusing information connected with inventions, and especially with patented inventions, as widely and as freely as possible. In this policy they have been most ably seconded by their energetic officer, Professor Bennett Woodcroft, the superintendent of specifications, whose name you mention more than once, and to whom all inventors owe a debt of gratitude.

Previous to 1852 there was no clue whatever to the contents of the patents already taken out, and information was literally not obtainable, except by chance or through litigation. The original documents lay in several different repositories, where they could, it is true, be consulted; but it was only accident, or the good information of his patent agent, which secured any intending inventor from the mortification and loss of finding, when too late, that his invention had been anticipated.

The first step taken was the preparation by Professor Woodcroft, of a series of complete indices of all then existing patents, from the reign of James I. down to 1852. This was done very systematically and completely, in the form of (1) a chronological index, giving the patents in the order in which they were granted; (2) an alphabetical index under patentees' names; (3) a subject-matter index, giving the objects of the specifications, alphabetically arranged, collected into groups of allied subjects, and so tabulated as to facilitate references as much as possible; (4) a reference index, pointing out where the original specification could be consulted, and what publications had noticed or described the invention to which it referred. The three first indices, but not the reference index, are continued in annual volumes to the present day.

This was a great step; it at once rendered the identification of any patent on any subject possible and even easy, but still the document itself could be consulted only in the manuscript original, and at the place of enrolment. To place the specifications themselves within the reach of all those desiring or requiring to make use of them, it was determined to print and publish them; and not only was this done with new patents, but by degrees the same was done for all back patents. To render these as available as possible, not only were they sold at low prices, but the Commissioners have presented the entire series of their publications to any public library willing to make them accessible free, daily, to all applicants: such series include the patents themselves, indices, abstracts, and various other publications. Your figures prove that the printing has been a great undertaking, but its value fully justifies the outlay.

The abstracts of specifications are somewhat fully referred to by you, and therefore I need not dwell upon them. They are intended to serve the same purpose as an index and a file of patents combined, so as to inform the searcher after

nformation on any point exactly where he may find that point described in the specification of any patent applied for or granted.

The Commissioners have published other works of value besides those named. The most important is their "Journal," which has appeared twice a week since 1854. It contains lists and short descriptions of all patents as they are applied for or granted, or cancelled, or extended, as the case may be, together with other information of a character to be useful to inventors.

Your article refers to the library. It has been most disgracefully ill-housed, and the staff of librarians has not been numerous enough, though very competent, for the work. But the fact remains that it was the first library, and still, I believe, remains the only scientific library (with the exception of the Map-room of the Geographical Society) open free daily without any card, or introduction, or other credentials of admission, beyond the capacity to write one's name in a book, being needed. There is the nucleus of a most excellent collection of books, and the library is extensively made use of, considering the cramped space it occupies.

The museum is, as you observe, so crowded in its present location at South Kensington that half the objects can barely be seen, but its contents are most valuable, and probably there is no spot where so many objects of interest to those whose studies or occupations relate to mechanical invention, and the history of our wonderful progress, can be seen as here.

A complete building for a Patent Office, Museum, and Library, in a central situation is urgently needed and quite as essential is the adoption of your suggestions for the increase of the staff and the appointment of a head officer, who should efficiently fill the office of Clerk to the Commissioners, which is now vacant, and which it is now notorious has not been usefully filled of late. I do not so heartily agree with your recommendation of increased scrutiny before the granting of patents, but that is rather a matter of opinion on the working of the patent laws than of facts, and it is to some questions of actual fact that I have desired to confine myself in this letter. S.

A POST-MORTAR INQUIRY.

Sir,—Is not the modern compound termed *mortar* a mockery and delusion? I noted, recently, the demolition of a newly-built house; the *housebreakers* had an easy job; it was only dry dust and bricks, there was no cohesive difficulty, their anxiety seemed to consist in preventing it from coming down with *a run*. We all know the fate of the house built upon the sands. Why, half of the suburban residences are in the like predicament, and hopelessly *cracked*. I do not mean that they are demented, but they certainly are not cemented. How deplorable to see new houses propped up and middle-aged ones on crutches. How ludicrous to see weakly erections making a bow or curtsey as soon as they are asked to stand firm—"How are their poor feet?"—and let the public admire their facings, for they are to be sold. I remember living in a very nervous house, which trembled and shook when a vehicle passed. I am confident the shivering was contagious, for we all had it, especially the crockery; the windows had perpetual shivers, and a blue aguish mould formed on nearly everything in cupboards. I deemed it prudent to flit from the old house in its teens. Why not license them for a period? or, if unfit, condemn them before they collapse? We might then hope to live in secure and comfortable domiciles instead of the present card castles and colanders. R. T.

"VITALIZING AIR."

The "reflective writer in the *John Bull*," whom you quote (p. 714), as suggesting the application of Mr. Graham's discovery to the ventilation of rooms, has evidently not made himself acquainted with the real nature of the discovery referred to. In No. 86 of the "Proceedings of the Royal Society," an abstract of Mr. Graham's paper is given, from which it appears that "a thin film of caoutchouc has no porosity, and is really impervious to air *as gas*; but the same film is capable of liquefying the individual gases of which air is composed, while oxygen and nitrogen, in the liquid form, are capable of penetrating the substance of the membrane, and may again evaporate into a *vacuum* and appear as gases." The gases being unequally absorbed and condensed, oxygen passes through more readily than nitrogen. "The septum keeps back one half of the nitrogen, and allows the other half to pass through with all the oxygen."

He then goes on to describe the manner of performing the experiment. "One side of the rubber-film must be freely exposed to the atmosphere, and the other side be under the *influence of a vacuum* at the same time." The fact is, the air has to be *forced* through the india-rubber by a pressure of 15 lb. to the square inch,—a condition which at once prevents the discovery from being of use in the way the writer above referred to proposes. E. Wyndham Tarn.

QUANTITIES AND TENDERS.

Sir,—As the successful competitor for the works at Plaistow for the London Wharfing and Warehousing Company, I beg to say that my tender was not based upon the quantities as stated to have been supplied in your number of the 15th ult., but I employed my own surveyor, upon whose estimate my amount was founded.

J. Harris.

*** The question of quantities and "quantity-surveyors" is becoming a serious one; we shall have something to say about it before long.—Ed.

THE INCOME OF THE WORKING CLASSES.

Mr. Leone Levi has been making a fresh estimate or series of estimates of the income of the working classes in the United Kingdom. He includes all who are employed in manual labour, and brings the total to 418,000,000*l.* The number of workers he computes to be, in England, 7,466,000; in Scotland, 1,104,000; and in Ireland, 2,127,000: total, 10,697,000.*

The wages, details of which are given in connexion with each branch of industry, seem to amount to the following general averages:—

Ages.	England.	Scotland.	Ireland.
	s. d.	s. d.	s. d.
Males, 20 to 60	22 6	20 6	14 4
,, under 20	6 6	7 8	6 3
Females, 20 to 60	12 6	10 6	9 9
,, under 20	8 6	8 2	7 4
	16 2	14 10	11 9

And the total earnings he puts as follows:—

Ages.	England.	Scotland.	Ireland.	United Kingdom.
	£	£	£	£
Males, 20 to 60	217,300,000	29,000,000	43,500,000	289,800,000
Ditto, under 20	15,900,000	2,400,000	4,000,000	22,300,000
Females, 20 to 60	59,500,000	8,950,000	13,000,000	81,450,000
Ditto, under 20	18,800,000	2,350,000	3,600,000	24,750,000
	311,500,000	42,700,000	64,100,000	418,300,000

The distribution of the total earning, according to industries, he estimates as follows:—

	England.	Scotland.	Ireland.	United Kingdom.
	£	£	£	£
Agriculture	44,000,000	8,000,000	23,000,000	75,000,000
Textile Fabrics	33,000,000	6,000,000	8,000,000	47,000,000
Metal Manufactures	27,000,000	3,000,000	1,500,000	31,500,000
Building Trades	35,000,000	4,000,000	3,500,000	42,500,000
Shipping, Railways	25,000,000	1,500,000	1,200,000	27,700,000
Articles of Dress	21,000,000	5,000,000	7,000,000	33,000,000
Mining	13,000,000	2,000,000	——	15,000,000
Domestic Service	47,000,000	5,000,000	8,000,000	60,000,000
Labourers, indefinite	17,000,000	2,000,000	7,000,000	26,000,000
Others	49,500,000	6,200,000	4,900,000	60,600,000
	311,500,000	42,700,000	64,100,000	418,300,000†

From these estimates it appears that the average income of a working man is, in England, 22s. 6d.; in Scotland, 20s. 6d.; and in Ireland 14s. 4d. per week. Frequently, however, there are more workers than one in a family. In a family of five, generally two, or even three persons are earning something. Assuming, then that there are two earners in each family, and taking the average wages of men, women, and children as a basis, the average income per family may be estimated at 32s. 4d. in England, 29s. 6d. in Scotland, and 23s. 6d. in Ireland. These, says Mr. Levi, are the general results to come to. At best it is an estimate; but it is carefully calculated, and will be found as near the truth as the nature of such an inquiry admits of. I should add to the earnings by wages the income of the working classes from savings banks, a considerable portion of the 38,400,000 deposited belonging to them; from friendly societies, building societies, freehold houses and gardens, co-operative societies, benefit clubs, sick and burial clubs, &c.

* The estimated population in England and Wales, in the middle of 1861, was 20,119,496, and in 1865, 20,990,946. Increase in four years, 4·33 per cent.

† The annual amount of property and income charged with income-tax being incomes of 10*l.* and upwards, was in the year ended the 5th of April, 1864,—England, 276,514,250*l.*; Scotland, 27,137,918*l.*; Ireland, 23,123,333*l.*; United Kingdom, 326,775,501*l.* Assuming that a very small proportion, if any, of the income of the working classes is charged with income-tax, the total income of the United Kingdom thus ascertained would be—

Earned by Working Classes.	Assessed to Income-tax.	Total.
£	£	£
England ... 311,500,000 ...	276,500,000 ...	588,000,000
Scotland ... 42,700,000 ...	27,100,000 ...	69,800,000
Ireland..... 64,100,000 ...	23,100,000 ...	87,200,000
U.Kingdom 418,300,000	326,700,000	745,000,000

LAYING BRICKS PER THOUSAND.

At the Horsham County Court, in the case Miller v. Greenfield, plaintiff claimed 1*l.* 4s. 4d. for labour. Plaintiff stated that he engaged with defendant to lay bricks at 9s. per 1,000. During the time the work was going on there was some extra work, such as putting in sills, &c., and he sent to defendant to send a man to do it; and as he did not send any one, he left the job. Defendant said the plaintiff went on with his work very well so long as it was what was termed straight work, but when he came to the chimneys and he could not earn so much as he had been earning, he left the job, although he took it to do through out. Plaintiff said he undertook to lay bricks at 9s. per 1,000, and of course he could leave off at any time. The judge, addressing him, said, Of course you could not; and it is very evident you acted upon your own wrong impression, and I must find verdict for the defendant.

CHURCH-BUILDING NEWS.

Pontefract.—The foundation stone of a new church at Castleford, to take the place of the present All Saints' Church, which is an old cruciform structure, has been laid by the lord of the manor. The plans for the new building, the site of which is immediately behind the old church, have been prepared by Mr. Sheppard, architect, Leeds and Matlock. The style of architecture adopted is that of the fourteenth century, so as to preserve a uniformity with the northern part of the old church, which will be retained. The present tower will be also kept intact, but elevated some 25 ft. Accommodation will be provided for upwards of 600 sitters, the pews being open, the pulpit of stone, and the chancel fittings of oak. The total cost is estimated at 3,000*l.*, of which sum 2,000*l.* has already been subscribed. Messrs. E. Latham & Sons, of Wakefield, are the contractors for the mason work of the building; and Mr. Wilson, Pontefract, for the plumbing and glazing.

Coddington.—The church here has been re-opened. The whole edifice has undergone a restoration, at the expense of Miss Hope, of Bosbury. Mr. F. R. Kempson, of Hereford, was the architect, and the contractors were Messrs. Collins & Cullis, of Tewkesbury. The organ chamber on the north side, the entrance porch on the south, and the roof of the chancel and nave are new. The church has been re-seated with open oak sittings, the floor laid with Godwin's encaustic tiles, and the pulpit removed

rom the north to the south side of the church. The gallery at the west end has disappeared, nd now the tower is open to the body of the hurch. In making excavations the remains of Saxon structure were discovered; but there is roof enough to show that the present building as erected in the twelfth century.

Burnley.—The foundation-stone of St. Andrew's hurch, Burnley, has been laid. The spot fixed pon adjoins the new schools which have been rected on the Colne-road. The architect is fr. J. S. Medland Taylor, Manchester; and he contractors are Messrs. P. & J. Parker and . Astwood, of Burnley. The church, which is eing built entirely of stone, will seat about 30 persons, and will cost about 2,950*l.*

Jarrow.—The church has been re-opened for ivine service. The restorative work has been arried out in accordance with the recommenda- ions of Mr. G. G. Scott. The chancel and tower ave been restored, and the nave built anew and nlarged after the fashion of its former archi- ectural features. Formerly it afforded accommo- ation for only 300 persons, but more than twice hat number will now find sittings. The furnish- ngs of the chancel have been given by Lady ames. The east window, representing "The eath of Bede," is the gift of Mrs. Aylmer, a elation of Lady James: the family of the late r. Dickinson have erected a window to his emory: a memorial window of the late Mrs. hompson has been contributed by her husband; nd Mrs. Philp has erected a window in memory f Mr. and Mrs. Dunsford; all of these windows aving been the workmanship of Mr. Wailes, of ewcastle. The reading-desk, of carved oak, has een subscribed for by the Sunday-school eachers and pupils; a lady has contributed the otern; and the Rev. T. H. Chester has given he pulpit, the base of which is of Weardale arble, the upper part being cane-stained, sup- orted by serpentine pillars.

Harton.—The foundation-stone of a new church as been laid in the village of Harton, near outh Shields. The edifice, which is dedicated St. Peter, will be built of stone, from designs rnished by Mr. Hodgson Fowler, architect, urham. It will consist of a nave, 21 ft. 6 in. y 54 ft.; a chancel, 18 ft. by 28 ft.; with vestry ccommodation. The organ chamber will be on he north side. The nave will be lighted by wo-light windows, with large circles above hem. At the west end of the building will be wo-light lancets, with similar circles over them. he east window will be a triplet under an arch. he chancel will be separated from the nave by n arch supported by carved capitals. The hurch will be fitted with sittings for 221 per- ons, and will be in the French Gothic style f architecture; the cost being about 1,600*l.* lr. Hudspeth, of Alnwick and Jarrow, is the ontractor.

Gloucester.—A parish meeting to decide on the lans for the proposed church of St. Catherine as been held. The plans were discussed, and t seemed to be the unanimous opinion that those f Messrs. Medland, Maberly, & Medland, were he best. But it was feared that they provided r too costly a building, and the meeting was djourned for a month, that it may be seen whether enough subscriptions come in to enable he proposed tower and spire to be built, or whether it will be necessary to cut off these and other extras provided for in the present plans.

Penarth (Wales).—The new church of Penarth as been consecrated. It has been built upon he site of the old one, and is designed in the arly English style, somewhat freely treated. t consists of north and south aisles, nave, chan- el, and two transepts, with a tower 90 ft. high, t the south-west angle of the edifice. At the orth-east angle is a vestry, underneath which s an apparatus for heating water with which to warm the building. The roofs are covered with ed Staffordshire tiles, and the tower, which ontains a peal of six bells, by Mr. Taylor, of oughborough, has a saddle-back roof, in imita- ion of the old church. The nave is 87 ft. long, nd the chancel 37 ft., both internal measure- ment. The width of the nave and aisles is 51 ft. he fabric is built of Leckwith limestone, with ath stone dressings. The present number of eats is 700, but there will be accommodation r nearly 100 more. The pillars which form the rave are of red and white stone, in alternate ands. Between the arches are eight panels, in hich of which will be painted a Beatitude; two re already executed. Red and white bricks are sed in the facings of the walls. The east win- ow is a representation of the Ascension of our ord, by Mr. Gibbs, of London. The organ, which is being made by Mr. Walker, of London, will be placed in the north transept. The seats are open, and made of stained wood, and the roof is of open timber. Gas has been intro- duced. The architect is Mr. William Butter- field, of London. The builders were Messrs. Webb, of Birmingham.

Reading.—Another church is about to be added to the number of those which have during the past few years sprung up in the district of Beech-hill, and the chief stone has just been laid. The erection of the edifice will cost about 2,000*l.*, which sum will be jointly borne by Mrs. Forbes and her daughter, and the Rev. E. H. Landon, her son-in-law, Mrs. Forbes also pre- senting the sum of 4,000*l.* for the purposes of the endowment. The church is to consist of a nave, north aisle and chancel, with vestry and organ-room on north side, the *matériel* used being brick and flint, partly dressed with stone. There will be a bell-turret covered with shingles. The roof will be an open one; and the open benches will accommodate a congregation of about 180. The church, which is dedicated to St. Mary the Virgin, is to be erected from a de- sign by Mr. W. Butterfield, of London, archi- tect; and Messrs. Wheeler, Brothers, of Reading, have undertaken the contract.

Duston (Northants).—The parish church has been re-opened after a restoration. The whole of the edifice, including the chancel, has been new roofed. The walls, pillars, &c., have been cleaned from whitewash, a quarter of an inch thick. All the old chopped stonework has been left naked, but the rubblework has been re- plastered. In cleaning off the whitewash two wall paintings were discovered on the tower, one of them historical, the other a crucifix of a Byzantine character. All the windows are new. The old high-fronted and high-backed pews have been taken down, reduced, and re-placed. The reading-desk and pulpit are new, and, in accord- ance with the character of the church, are quite plain. The church is warmed by a series of fire-pots in the ground, with horizontal flues communicating with an upright flue in the tower. The fire-pots are lighted from the bottom. The chancel has been re-roofed and restored at the expense of Lady Palmerston, the patroness of the living, who also contributed 150*l.* towards the general restoration.

Wigan.—A new church has been consecrated at Poolstock. The edifice has been erected solely at the cost of Mr. Nathaniel Eckersley, M.P., for the lately constituted parish of St. James. The church has been designed by Mr. Paley, who has taken for his types several churches erected in England during the fourteenth and fifteenth centuries, the prominent features of which are traceried windows, ornamental parapets, and a tower, in place of the high-pitched roof and tapering spire. The church is built of Parbold stone. The height of the roof of the nave is 47 ft., and the height of the tower, which is 16 ft. square, is 110 ft.: the chancel is 40 ft. long, and the dimensions of the nave are 78 ft. by 53 ft. There are three stained-glass windows in the chancel, one in the tower, and one in the Eckersley chapel, to the south of the chancel, which is the only part of the church not unap- propriated. There are sittings for 700 persons, and the cost of the building is estimated at 14,000*l.* or 15,000*l.*

DISSENTING CHURCH-BUILDING NEWS.

Swan Village.—A Wesleyan new chapel has been opened here for divine service. The build- ing, which is partly of brick and partly of stone, is capable of accommodating between 400 and 500 persons. It has been built under the direc- tion of Mr. John Lees, of West Bromwich, the architects being Messrs. Loxton, Brothers, of Wednesbury. The total cost is upwards of 2,000*l.*, towards which sum Mr. Thomas Davies, of the Hollies, West Bromwich, and Mr. John Lees, each gave 100*l.* to start with, and afterwards, on the occasion of the laying of the memorial stone, about twelve months ago, added 50*l.* each to their former donations.

Stoke-sub-Hamden.—The new Congregational Chapel recently erected in the village of Stoke- sub-Hamden, has been opened. The chapel is said to be "in imitation of the Decorative style of architecture, which has not, however, been strictly preserved." The body of the chapel is fitted with open seats of stained deal of the ancient type. The chapel is 35 ft. in height, and the roof, which is partly open and partly ceiled, is supported by carved corbels of Ham- hill stone. It is lighted on each side by five single-light windows, and there are five dormer lights on each side of the roof. At the west-end is a seven-light window with flowing tracery, underneath which room has been left for the erection of a gallery, if necessary. At the ex- treme east end is a circular apse, in the front of which is the pulpit, enclosed within rails. This is raised about 2 ft. above the body of the chapel. Behind the pulpit and within the apse is suffi- cient space for an organ. The building will accommodate about 350 persons. Behind the apse a vestry-room has been erected. Under- neath is a schoolroom, which extends the entire length of the building. There are class-rooms, which are divided by partitions. The chapel spire is upwards of 90 ft. in height, and is fur- nished with a bell-turret. The walls are entirely of Ham-hill stone, the interior being stuccoed with Ham stone facings. The building stands within iron railings supported by Ham stone pillars.

York.—The trustees of the York Centenary Wesleyan Chapel, St. Saviourgate, in this city, have had some improvements effected in the seating of the area of the chapel, and the edifice cleaned, painted, and beautified. The contract for the latter portion of the work was let to Mr. Thomas, painter and decorator, and he has just completed the painting and ornamentation of the building. Mr. E. Taylor, architect, super- intended the work. Exclusive of the semi- circular termination at the west end, the ceiling is 100 ft. square, and is divided into thirty-five panels, 9 ft. square each. Half of these panels are plain, but the other half are ornamented in the centre with large rose-flowers. The facia around the panels is 5 ft. in breadth, and is painted a very pale green colour. The beams inclosing the panels are of a cream colour, and a golosh stencil decoration in gold colour is also introduced. The perpendicular sides of the beams which face the panels are embellished with Grecian fretwork in maroon. The ceiling is painted a tint of peach blossom, with a bead and real stencil ornament in cinnamon colour. The surface of the inner panels is painted pale green, and the sides are light pink colour, with Grecian scroll ornaments in green. The central rose flowers are painted in pale tint Naples yellow, and are relieved with white, green, red, and cream colours. The egg-shaped cornice around the gallery front is decorated in tints to harmonize with the ceiling, bead and reel, Grecian and stencil ornaments being employed for decorative purposes. The woodwork of the front part of the gallery and the pewing throughout the building are painted light oak colour, and the walls of the entrances of the ground-floor, and of the galleries and the stair- cases, are also painted in the same style to a height from the floors of 4 ft. 6 in. and there is a capping in imitation of mahogany to corre- spond with the cappings of the pews. The pillars supporting the gallery are painted in a style to resemble brass, and the capitals are of a soft green colour in the recesses, whilst the raised ornamental work is etched with gold. The walls of the chapel are painted in Pompeii and buff, and the stringcourse around the building is of a straw colour, with stencil ornaments at the intersections. The frieze is also of the same colour, backed up with soft red, and relieved upon each side of the moulding in pale cream colour. The blocks that support the cornice, which are in pairs and fixed at about 5 ft. apart, are in colour a pale cream, and the egg-and- tongue moulding is painted white, the back- ground being vermillion. Next is a stencil upon a pale cream-coloured ground, relieved upon each side with a moulding of pale straw colour, and then comes the facia, 5 ft. in width. Upon the ceiling alone there are 4,500 ft. of stencil ornament. The altar-rails and the balusters of the staircases leading into the pulpits are painted emerald green, and etched with gold. Mr. Thomas has also received instructions to illuminate the outer pipes of the organ. They will be stencilled in diaper work to correspond with the decorations of the chapel. The school- rooms, vestries, and other apartments connected with the chapel are about to be painted, and a little ornamentation will be introduced where required. The cost incurred in decorating and painting the chapel has been about 400*l.*

Newcastle-upon-Tyne.—Marlborough-crescent Baptist Chapel has been re-opened. The chapel has been almost entirely rebuilt under the direc- tion of Mr. J. E. Watson, of this town, architect, at a cost of 1,200*l.* The chapel being situated

between houses, the architect was not able to introduce side windows; but this want has been compensated by heightening the walls and introducing clerestory windows. The sittings are movable forms, so that the ground-floor may be arranged to suit any particular occasion. A gallery runs around the building, excepting at the end, reserved for the platform. The front panels of the gallery, and also of the platform, are filled in with ornamental ironwork. The roof is entirely open, the wood being stained, and is supported on light ornamental cast-iron columns, with floriated capitals; and the centre portion of the roof is raised above the side roofs in the form of a clerestory, and lighted with clerestory windows, which open for ventilation. The work has been done by Mr. Joseph Kyle, contractor. Behind the chapel is a large schoolroom, attended by about 200 scholars.

STAINED GLASS.

Sutton Benger Church.—A stained window memorial has been placed in this church. The subject is the Good Samaritan, executed by Messrs. Gibbs, of London. Since the restoration of the church, there have been several stained windows added.

Uxbridge Church.—A stained glass window has been recently placed over the altar in this church, in memory of the late Captain Price, son of the incumbent. This window is by Messrs. Hardman, of Birmingham. The figures represented are those of our Saviour, in the centre, St. Peter on the right, and St. Paul on the left; above, on a smaller scale, the angel delivering St. Peter from prison, and the conversion of St. Paul on his way to Damascus; the apex of the window displaying the emblem of the Holy Spirit.

Ilkley Church.—A memorial window to the late Dr. Smith, of Wells House, has been erected in this church. The window is situated on the east end of the south aisle, and consists of three bays, or compartments, separated by the stone piers. The centre one, which is the highest, is occupied by a full-length figure of St. Luke the Evangelist, being the principal feature in the window. The figure is surmounted by a canopy composed of architectural work and foliage ornament. On either side of the principal subject are the Good Samaritan and our Lord healing the sick of the palsy. The window was supplied by Mr. William Wailes, of Newcastle.

Clocaenoy Church, near Ruthin, North Wales.—A stained-glass east window has been placed in this church, designed and executed by Mr. Holland, Warwick, and containing the Crucifixion in the centre, and figures of St. John and St. Mary in side openings under rich canopies, with angels bearing scrolls, &c.

Locking Church, near Weston-super-Mare.—A painted window has just been placed in the south aisle of this church, to the memory of the Lady Henrietta Carlotta Law, who died the 25th of February, 1866. It is a three-light Perpendicular window, and the scene represented is the Resurrection of our Lord, the artist being Mr. Bell, of Bristol. In the centre light is our Lord in the act of leaving the tomb; on the right are the Apostles SS. Peter and John, and on the left the two Marys. At the base are the Roman soldiers. The upper portion of the window is filled in with canopy work, there being two angels on the outside holding scrolls. Immediately underneath the tomb is the text, "In the world ye shall have tribulation, but be of good cheer, I overcome the world." The tracery is occupied with heraldic devices connected with the family of the deceased.

Abbey Church, Selby.—This edifice has just received the addition of two stained-glass windows. The large Perpendicular window over the western doorway is the gift of Captain Parker. In the centre opening is the subject of the Crucifixion; on the left, the Holy Women; on the right, St. John, Joseph of Arimathea, and the Centurion, the figures being nearly life-size. Beneath are subjects on a similar scale (commencing on the left hand), the Agony, the Garden, Christ bearing the Cross, and His Burial. The windows being unusually long, architectural canopies of the period are introduced. In the tracery are figures of the Four Evangelists, with St. Peter, St. Paul, and the arms of the Parker family. The other window, which is placed in the north side of the nave, is the gift of Mrs. Whitehead. It is one of the Norman period, our Lord taken down from the Cross being the subject represented. The design is enclosed in a rich border; the drawing, execution, and all details are of an early character. The windows have been executed by Messrs. Heaton, Butler, & Bayne, of London.

Brancepeth Church (*Durham*).—In the beginning of last year the tenantry on the Brancepeth estate entered into a subscription to present Lord and Lady Boyne with a testimonial window for the east end of this church, in acknowledgment of their liberality in restoring the church. At the request of the committee, Lady Boyne selected the design for the window, which has been executed by Mr. Blackmore, of London. The principal figures represent Christ as the Good Shepherd, and the four Evangelists—St. Matthew, St. Mark, St. Luke, and St. John. The Holy Ghost, in the form of a dove, is seen descending on our Saviour, and above are the representations of the Annunciation and the Nativity. Under the chief figures are subordinate figures, representing the four Evangelists following their particular callings.

Ecclesfield Church.—There has been placed in the east end of the south aisle of the chancel of this church a window to the memory of the late Mr. William Smith and his wife, by his son, Mr. Smith, of Barnes Hall, and other members of the family. The window consists of four lights, and the Birth, Crucifixion, Resurrection, and Ascension, the principal events of our Lord's life upon earth, are the subjects represented. We understand that the first sketch for the designs was supplied by Miss Gatty. The work has been executed by Messrs. Hardman, of Birmingham, and Powell's glass has been employed throughout.

SCHOOL-BUILDING NEWS.

Taunton.—The foundation stone of Central National Schools has been laid in Magdalene-street. The new building is intended to form part of the Central National Schools for the parish of St. Mary Magdalene. It occupies the site of an ancient workhouse and police-station, and is contiguous to the existing school-rooms, which are to be altered. The ground-floor of the new building will be set apart for the infant school, and the floor above for the female classes; while the whole building, which is in a dilapidated state, will be re-roofed and fitted up for the boys. The boys' school will have a front ornamented with a 15-light Gothic leaded window, and also a new roof, with a turret. The infant and girls' schools will be lighted, the former by two three-light square leaded windows in front, and the latter by two Gothic three-light transome windows. Beyond this will be the class-rooms, projecting 2 ft., and forming a gable end, lighted by two four-light square leaded windows above one another. The boys will also have two class-rooms. The entrance will be between the boys' and girls' schools, which are detached, by a porch leading into a passage, and connected with both. The front walls will be of Westleigh stone, with Ham and Bath stone dressings, and the roof will be of Bridgwater stone. The estimated cost, including the alterations on the old building and the play-ground, is nearly 2,000*l.*, part of which has been subscribed. Plans having been furnished by Mr. B. Ferrey, of London, architect, and approved, the work has been commenced by Mr. Davis, builder, Taunton, whose tender was accepted, and the walls are rising.

Newmarket.—The members of the Independent denomination of Newmarket have just opened their new school. By them the site of the old palace in the centre of the front street was purchased, and a chapel built thereon. The cost of this chapel was 2,800*l.* Since that period the society conceived a plan for the further benefit of the Dissenting families of the town, namely, the erection of a schoolroom at the extreme boundary of the chapel ground. The building extends in length the whole width of the ground, and will afford accommodation for about 200 children. There are two fireplaces on one side, and in the centre of the opposite side is a large niche, in which is a platform intended for the convenience of school inspection and as a rostrum for lecturers during the winter months. At the south end is a room set apart for Bible classes, and a kitchen for anniversary and school-treat accommodation, the whole serving as an adjunct to the chapel.

Moston (*Manchester*).—The foundation-stone for a new Sunday-school, belonging to the Methodist Free Church, has been laid at Chai Bar, Moston, by Mrs. Harrison, of Dudley Hous The site of the new building is in the midst o an increasing population. The new building wi be a plain brick structure, with one large roo on the ground-floor, and two vestries behin The cost will be about 300*l.*

Eccles.—The new schools belonging to th parish church of Eccles have been formall opened. The schools are centrally situated i the village, in Albert-street, a few hundred yard to the west of the old church. The building comprise an infants' room, 74 ft. by 30 ft., whic is also adapted for parish meetings and othe gatherings. It will hold 300 children arrange on the Government plan, but 400 or 500 ma assemble in it. The work has been let in sepa rate contracts to Messrs. Bradbury, Griffiths Johnson, Pendlebury, Dovey, Wooler, Ward Harwood, and George Kirkley, who work unde the superintendence of the architect, Mr. J Medland Taylor.

Birmingham.—Plans for the proposed parc chial schools have been prepared by Messrs Martin & Chamberlain, architects, and approve of by the local General Purposes Committee The building will be three-storied, of brick, wit stone dressings, and will accommodate 750 chil dren, with dwellings for teachers, and the cos is estimated at 21,000*l.*

PATENTS CONNECTED WITH BUILDING

Safety Net to arrest the Fall of Person or heavy Bodies under Circumstances o Danger.—*L. E. Laurency.* Dated Novembe 18, 1865.—The object of this invention is th production of a safety net. In building, repair ing, or decorating buildings, the safety net ma be applied;—first, at the edges of roofs secondly, to builders' or decorators' scaffolds either inside or outside of buildings; thirdly beneath the flying or movable scaffold or ladder of painters, plasterers, and others who work o the fronts of houses or façades of buildings, an are daily exposed to accidents, which unfor tunately too often occur. The net is of more o less length, according to the size of the scaffold which it is to secure. The breadth, although variable, is usually about three yards, and i raised on the side towards the street. The body of the net is of rope, in squares of about 4 in. and of a thickness of about 2½ in. The centre is traversed crosswise by strong bands or straps 6 in. broad, and fixed to the framing. The two sides of the length are of double plaited bands and the extremities are composed of two sticks covered with tow and leather, and to which are fixed the rings for the ropes which suspend the net along the walls, and fix it at the desired height. Buckles or rings and cramps or catches serve to unite several nets. The net is upheld by the main rope, which at the corner seizes a ring by the aid of a galvanized iron hook, and passing round the stick, rises to the roof, and is there attached according to the facilities afforded by the building in the middle of the height. This rope carries a strong ring, from which starts an under rope which supports the net by the half, to guard against accident if the stick should break. It is held, like the other rope, by a hook. The same net, held up by shortened ropes, is placed at the edges of roofs having the greatest slopes, and forms at the bottom a wall of rope which preserves the slaters, plumbers masons, carpenters, or other workmen from danger.

Manufacture of Bricks or Building Blocks *L. G. Speyer.* Dated 17th November, 1865.—In making bricks or building blocks the patentee applies a compound consisting of slack lime reduced to powder, or of gravel or sand, two measures of ashes of charcoal or peat, two measures of heaped scoria, and one measure of Roman or Portland cement. The ashes and half of the scoria can be omitted by substituting for these substances an equal quantity of gravel but in this case the cement should be increased by half a measure.

Constructing the Treads of Steps or Stairs.—*G. Hawksley.* Dated 21st, December 1865.—The patentee employs a cast-iron frame having numerous openings in or through it, o the form of the tread of each step or stair, which frame may be cast in one piece or may be cast in sections. Into each opening is introduced wood —by preference, with the grain upwards, though some hard woods will admit of being used with the grain at an inclination in a horizontal position

Between the neighbouring pieces of wood there are channels or grooves left, which may be more or less filled up with bituminous or other cement, but it is desirable to leave channels or grooves to convey off any water deposited on the treads.

Making Building Bricks Impervious to Water.—*E. Taylor.* Dated 5th January, 1866. This invention consists in the application to bricks already burnt in a kiln, and bricks to be hereafter made in the usual manner, and also moulded of any irregular or ornamental shape, as circumstances may require for the ornamentation of the fronts of buildings and other purposes, of a glaze on their surface with a suitable glass or enamel to make them waterproof, and also to vary the colour of such parts of the bricks as are intended to be exposed if required to give them other than their natural colour for the external surface of walls, either for the outside or inside of buildings, and this will in a measure depend upon the clay the bricks are made of, but will be more often required for the inside walls, such glazing with one or more suitable colours being burnt on during the process of burning or passing such bricks through the necessary kiln. The said bricks, before glazing, can be marked with a pattern like paper-hanging.

Moulding Articles of Clay, Earthenware, or Porcelain.—*R. Jobson.* Dated 3rd February, 1866.—The patentee places in each of the joints of the mould (which he usually makes of metal) a strip of a soft or compressible material, such as leather, wood, or felt, for example, and thus the joint is made tight. The use of soft or compressible strips in the joint, as above described, offers great facility for moulding articles in plastic clay, as it allows the use of compound plungers, such as are described in the specification of a former patent granted to the present patentee, dated the 22nd of November, 1860 (No. 2862). He also, according to this invention, forms small grooves in the plungers by which the pressure is applied, so that any surplus clay which may be put into the mould may pass out through the grooves and escape from the mould, and by turning the plunger the strips so formed are at once detached from the moulded article.

Apparatus for Heating Conservatories, Apartments, or Boilers, by Means of Gas.—*T. A. G. Willington.* Dated 3rd February, 1866. The patentee employs two or more heating chambers or stoves, which are internally heated by gas jets. The heating stoves or chambers are connected together by a heating pipe or tube conducted round the place which is required to be heated. One of the chambers he makes larger than the other, and heats it with a greater number of gas jets, and this, to distinguish it, may be termed the inlet heating chamber; and he connects it by means of an inlet pipe with the open air. To the inlet heating chamber is attached one end of the heating pipe or tube, and when the apparatus is used for heating conservatories or other places of moderate size he fixes at or near the other end of the heating end of the heating pipe a second and smaller heating chamber or stove, in which a smaller number of gas jets are burned, and which may be called the outlet heating chamber, as it is connected with the open air by an outlet pipe. The action of the heating apparatus is as follows:—The combustion of the gas in the smaller or outlet chambers causes it to act as an exhaust, and draw a current of heated air through the connecting pipe or tube from the larger heating chamber. The latter, in which a larger number of gas jets is burned, is constantly delivering volumes of heated air, which heated air is urged and passed through the tube and drawn into the outlet heating chambers, and then passed on into the open air.

Books Received.

The Present State of the Drainage Question. By William Menzies, Deputy Surveyor of Windsor Forest and Parks. London: Longmans, Green, & Co. 1866.

Mr. Menzies is on the side of those who say, "the sewage for the soil, the rainfall for the river," to which view we have always strongly inclined, though, admitting the difficulties, we have yielded to circumstances. The writer treats the subject under the three aspects of,—

1. The Sanitary;
2. The Engineering and the Economical; and
3. The Agricultural;

and gives some strong statements in support of the view he adopts. The pamphlet is eminently worthy of calm consideration.

Useful Rules and Tables relating to Mensuration, Engineering, Structures, and Machines. By W. J. Macquorn Rankine, Regius Professor of Civil Engineering in the University of Glasgow. London: Charles Griffin & Co. 1866.

The title is quite correct: this is a volume of very useful rules and tables relating to engineering and construction. It is divided into nine parts: of these Part 3 relates to engineering geodesy, comprehending surveying, levelling, and the setting out of works; Part 5 relates to the balance and stability of structures; and Part 6 to the strength of materials; commencing with a series of tables of the resistance of various kinds of materials to straining actions of different sorts. The reputation and position of Professor Rankine give sufficient assurance of their correctness, and of the excellence of the selection.

VARIORUM.

"Christian Society" is "a monthly magazine of religious information and biography," published by Groombridge & Son. No. 1, now before us, includes a paper on "The True Site of the Holy Sepulchre." The object of the writer is to support the old belief in opposition to Mr. Fergusson's theory. In showing that the remembrance of the site was kept alive in the early times, he makes a quotation not heretofore referred to, as he thinks. He says, "Lucian, a presbyter of Antioch," who suffered A.D. 312, forcibly appeals to "the testimony of the spot itself," as a proof of the facts recorded in the gospels; "to the rock of Golgotha rent asunder by the burden of the Cross; and the cave which gave up the body restored to life, after that the gates of hell were torn away."*

Miscellanea.

Congregational Memorial Hall.—It is proposed to erect a Memorial Hall in London in connexion with the Congregational body. A freehold site has been secured between Bow-lane and the new street leading from Cannon-street to the Mansion House. The cost of the site and building is estimated at between 70,000*l.* and 75,000*l.*, and of this sum about 50,000*l.* have already been promised.

Intended Exhibition at Leeds. — The new infirmary in Leeds, the architect of which is Mr. Scott, and which is to cost 80,000*l.* or 90,000*l.*, will be completed next year. In order to add to the endowment fund, it was proposed to open it with an Art and Industrial Exhibition. On Thursday in last week, a meeting was held in the Town-hall on the subject, when the directors of the Mechanics' Institute (who are also building a new hall) and a strong deputation attended, claiming to have first conceived the idea of such a means of providing funds. It was decided that an exhibition should be held in 1868 in the new infirmary, and, as a solatium, it was resolved to offer the directors of the Mechanics' Institute 2,000*l.* out of the proceeds.

Open Spaces round the Metropolis.—There are yet remaining some 13,000 acres of unenclosed land within fifteen miles of London, the whole of which runs more or less danger of being enclosed, built over, or otherwise rendered inaccessible to the public. We trust that the commoners, in whom alone is vested the legal right to resist encroachments, will, for the advantage of the community as well as themselves, bestir themselves before it be too late. The matter, however, should not rest so; it is now ripe for legislative interference. It is no longer the commoners who are interested in resisting unlawful "approvements" by the lords of their manors, but the maintenance of these commons free and unenclosed is of vital importance to the public, especially the inhabitants of London; and the task of defending them from encroachment should not be left, much less restricted, to those comparatively few individuals who have at present the legal right to interfere.—*Solicitor's Journal.*

* Routh, "Reliquiæ Sacræ," iv. 7.

Proposed Water-works for Sudbury.—At a meeting of the local Paving Commissioners, the Committee appointed to consider the subject of a better supply of good water to the town reported that it is quite evident that a supply of good water is greatly needed, and that the whole expense would probably not exceed 2,500*l.* or 2,600*l.* With good management they believed this amount might in the course of 21 years be wholly paid off, without permanently increasing the present expenses of the town. The feeling of the meeting not being unanimous, the further consideration of the report was adjourned.

Midland Railway to Manchester.—Captain Rich, the Government Inspector, has certified as to the works on the Midland Railway, between Blackwell Mills Junction with the Buxton Railway and the New Mills Junction. Mr. W. H. Barlow is engineer in chief; Messrs. Campbell, Campion, & Langley, resident engineers; Messrs. Eckersley, Bayliss, & Ashwell, are the contractors. On a length of about 12 miles, there are seven tunnels, one being 1¾ mile long; four viaducts, one built of stone upwards of 150 ft. high from the foundations; and in addition, the difficulties of the route necessitated making the longest and most extensive rock cutting in England.

New Cottages at Windsor.—A block of Allen's improved cottages has just been completed adjoining those erected by the Prince Consort. They are the property of the Windsor Royal Society, the eight cottages having been built by the chairman, Major-General Seymour, and the committee, at a cost of 760*l.*, rather less than 100*l.* each. The materials used in their construction consist principally of white brick and Allen's patent stone, the latter being also used for the staircases, instead of wood. There are four dwellings on the ground, and four on the first or upper floor, each habitation being a sort of flat. The dwellings on the ground floor contain a living-room, a bed-room, and kitchen; while those on the upper have each an extra bed-room. All the cottages are let; the dwellings on the upper floor paying 4s. 6d., and those on the lower 3s. 6d. per week for rent.

Measuring Rules.—The box-wood of which rules are made is chiefly grown in Turkey, the English-grown box-wood not being of sufficient size and quality. Formerly, large numbers of rules were exported to the United States of America, but during the past thirty years they have been manufactured in the States, a prohibitive tariff having prevented the introduction of English-made goods. The way in which some nations—or rather, some Governments—regard the importation of rules into their territories, is rather strange. Some allow, at fair and equitable rates of duty, the importation of English-made rules, the measures being suitable to the use of their respective countries. But while one country will not admit them at all unless the measure of the country is surrounded by other measures, so as to make the rule a scale of varied measures instead of being only the legal standard of the country, another Government looks upon all rules coming to its ports as illegal measures because they have not the Government stamp upon them, and all so found are seized. The makers do not put a resemblance of the official stamp upon them; and, as there are no native rule-makers, and all the rules are imported, measures a little different from the legal standard are made, and being marked with the name of another country than that for which their use is intended, are allowed to be admitted: thus the greater part of the people are necessarily using an incorrect measure, at the same time that the true standard might be supplied to them as cheaply and more readily. The various countries and states of the world have at the present time about 150 different measures. Many small places, each containing only a few thousand inhabitants, have their own peculiar measures. At various times many of these measures have been changed from the duodecimal to the decimal division, still retaining the original standard of length; but within the past few years the use of the French metrical measure has become much more common in all parts of the world. Many nations now have a large proportion of their rules marked with the French mètre in addition to their own standard, and are thus, doubtless, gradually tending to the general adoption of so convenient and perfect a measure of length as the French mètre is admitted to be.—*Birmingham and the Midland Hardware District.*

The Pneumatic Despatch Company. — The report of the directors of this company states that a series of carefully recorded experiments as to the cost and facility of working has been made, from which it appears that 120 tons of goods can be passed through the tube per hour at a speed of 18 miles, the cost being under 1d. per ton per mile.

Electric Shot.—An Austrian chemist, M. Leinelbroek, has discovered a way of inclosing electricity in small glass capsules, which will explode under the influence of the slightest shock. The capsule is inclosed in a steel cone, so that, if shot from a rifle, it will enter the flesh, and the explosion which follows is sufficient to kill a man. Experiments, says *Galignani*, have been made on oxen and horses with perfect success, these animals having fallen down as if struck with lightning.

Fall of a Chimney in Manchester.—At the Broughton Grove Paper Works, Bury New-road, Manchester, a huge chimney, nearly 200 ft. high, in the course of being built, was blown down in the late gale. Misgivings were entertained even from the beginning of its erection that the foundation was not secure. For several days before its fall it gradually declined from the perpendicular, and the workmen discontinued their labours. The high winds accelerated its fall, and it came to the ground with a fearful crash. "The altitude of the chimney was 200 ft., and only a horizontal distance of the same length was reached. When it fell it would appear that a body composed of omnifarious parts acquired no centrifugal force in falling with a radius of 200 ft."

City Offices, Lombard-street. — The chief stone of the new premises of the City Offices Company has been laid in Lombard-street, by Mr. James Levick, Governor of the Crédit Foncier and Mobilier of England. Mr. Levick took up his position near the corner stone, and said that the site upon which they were about to build was one of the finest in all Europe, and occupied a superficial area of 15,000 square feet. The cellarage would occupy nearly one-third of an acre, and to talk of one-third of an acre seemed almost marvellous in the City. There would be in addition a very extensive basement. The ground-floor would be constructed as one large open space, which could be divided in any way, to suit the requirements of whoever might be their tenants. There would be four stories above the ground-floor. Upon a low estimate, it was calculated that they would realize a rental of from 20,000*l.* to 25,000*l.* a year. Messrs. F. & H. Francis are the architects; and Messrs. G. Myers & Son, the builders.

Metropolitan District Railway.—The report of Mr. J. Fowler and Mr. T. M. Johnson, the engineers, to the directors, states, that the contractors are now in possession of all the property required for the works, from the junctions with the West London Railway and from the Kensington joint station to Prince Albert-road, Kensington; from Sloane-square to Ebury-street; and from Belgrave-street South to Buckingham-row, Westminster—constituting a total length of nearly three miles. The works are in active progress upon the whole of this acquired property, including the stations at Richmond-road, Kensington High-street, Gloucester-road, Sloane-square, and Victoria. A portion of the property required for the St. James's-park station at Westminster has also been delivered to the contractors, and the station works commenced. The railway works are in a forward state across Parliament-square Gardens, and every possible exertion is being made to obtain possession of New Palace-yard and the streets adjoining, so that the work there may be completed before the next sitting of Parliament. The designs for the railway work opposite Westminster Abbey have been agreed upon with the Dean and Chapter of Westminster, and arrangements have been made for the immediate commencement of the work. The designs for the communication between the proposed station at Westminster Bridge and the Houses of Parliament, and all the work connected therewith, have been approved by her Majesty's Chief Commissioner of Public Works. The details of the Thames Embankment works have been for some time under discussion with the Metropolitan Board of Works, and, excepting a few points, agreed upon. The works opposite the South-Eastern Railway Company's Cannon-street station, about 225 ft. of railway, have been completed.

The Croydon New Bath Building.—It having been discovered that the walls of this building were out of the perpendicular, some remarks were made in the Local Board of Health, which Mr. Franklin, the architect, thought reflected on himself. He, therefore, addressed the Board *viva voce* on the subject, and read various letters exonerating himself from blame in the matter. Several members of the Board expressed their opinion that no blame was attached to Mr. Franklin in the matter, and no resolution as to it was passed.

Ely Cathedral.—Several works are now in progress at this cathedral. The reredos is undergoing a decoration by Mr. Hudson. On the former occasions Mr. Hudson's labours were confined to the embellishment of the foliated portions, while now he is engaged upon the statuary. A series of carvings in the canopies of the choir-stalls are approaching completion. On the north side a number of New Testament illustrations, commencing with the birth of our Lord and ending with His ascension, are complete, with one exception. These wood pictures are the work of M. Abellard, of Louvaine. The renovation of the galilee entrance to the nave is progressing.

Explosion at Woolwich Arsenal.—It appears that a few months since a magazine of immense strength was built near the canal, and bordering on the Plumstead Marshes, for the sole purpose of storing gun-cotton. The walls of this building were of very thick brickwork, having a vaulted roof, and it was considerably detached from any other structure. This gun-cotton magazine has been blown up, completely destroyed, and the *débris* scattered in all directions. The magazine was seldom open; and, in consequence of the nature of the material, the utmost care was exercised. An inquiry has been instituted as to the occurrence; and its cause is supposed to have been incipient decomposition with heating or increased temperature.

Middle-class Education for the Metropolis. The first school in connexion with the new and comprehensive scheme of middle-class education for the metropolis, towards which the merchants and bankers of the City of London have subscribed sums amounting in the aggregate to 55,000*l.*, has been opened. The scheme was propounded about a year ago by the Rev. W. Rogers, rector of Bishopsgate, who had long seen that there was a large middle-class, composed of clerks, tradesmen, and others, for whom there was no public education provided, they being unwilling to send their children to the ward or national schools, and were debarred by various circumstances from availing themselves of the advantages of the great foundations, such as Charterhouse, Merchant Taylors, &c. A site for a central school has not yet been obtained; but the French Protestant Hospital, in Bath-street, St. Luke's, being vacant, in consequence of the removal of the inmates to the new building at Hackney, it was selected by a committee for one of the outlying schools, and it has been adapted for the purpose at a cost of about 2,000*l.* The school will accommodate 500 boys.

The Proposed New Route from Islington to the City.—On Thursday in last week a meeting of the inhabitants of Islington, Shoreditch, and St. Luke's was held for the purpose of considering the desirability of having a direct communication (already described in the *Builder*) between Islington and the City, through Packington-street, Shepherdess-walk, Bunhill-row, Moor-lane, and Fore-street, by which, in the present two-mile route, a saving of nearly half a mile would be effected. Mr. Alderman Lusk, M.P., presided, and the meeting was well attended. The following, among other resolutions, were unanimously carried:—

"That this meeting, having heard the report read and explanations given by the deputation from the committee appointed for promoting the direct route, resolves that a deputation to the Metropolitan Board of Works be appointed for the purpose of waiting upon and respectfully urging on the attention of that Board the importance of the proposed direct route being proceeded with at once, not only on account of the rapidly-increasing wants of the public, but also because much of the property on the line being sold and some of the leases within a few months of falling in, prompt and energetic action at the present time is therefore of the greatest advantage on the score of economy; and further, that the committee be kindly requested to bring the above resolutions before their several vestries, with a view to co-operation by similar resolutions."

"That Messrs. Horton, Roberts, Pool, Hanson, Nobbs, and Hutchinson, with power to add to their number, be requested on the part of this meeting to make the necessary arrangements with the committee of the route for forming the deputation."

The Seaton Statue for Devonport. — The colossal statue in bronze of the late Field-Marshal Lord Seaton, by Mr. George G. Adams, with its granite pedestal, has arrived at Plymouth. The work is at once to be placed in the garrison of Devonport.

Paving in St. Pancras.—The Vestry of St. Pancras have approved and printed a report of their surveyor, Mr. W. B. Scott, as to the paving of St. Pancras-road, King's-road, and Hampstead-road; High-street Camden Town, Park-street, and Kentish-Town road. The estimated cost of the paving of these roadways was 51,150*l.*, and the actual cost 49,661*l.* Including footways and intersections of adjacent streets, &c., the total cost was 56,637*l.*

A Paving-stone Cutting-machine. — A machine, worked by steam, is now employed at a stone quarry near Marcoussis (Seine-et-Oise), for cutting paving-stones. The apparatus consists of a sort of bridge extending over the bed of stone, and provided with rails, carrying the machine, which sets a heavy steel rammer in motion, by which the material is broken into pieces of the requisite dimensions, the strokes being dealt in three directions.

TENDERS

For rebuilding warehouse, Queen's Head-passage, Newgate-street. Messrs. John Young & Son, architects:—

Brass	£1,695	0	0
Hart	1,690	0	0
Henshaw	1,669	0	0
Welb	1,647	0	0
Chessum	1,565	0	0

For City Offices Company's New Building, Lombard-street. Messrs. Francis, architects:—

Myers & Sons (accepted)	£57,567	7	6

For new chancel, chancel aisle, and vestry, for St. Luke's Church, Paddington. Messrs. Francis, architects:—

Dove, Brothers	£1,949	0	0
Myers & Sons	1,934	0	0
Fish	1,830	0	0
Hill & Sons	1,768	0	0
Simpson	1,727	0	0
King & Sons	1,684	0	0

For alterations to "Mercury" office, 98, Northgate-street, Gloucester, for Mr. C. Jeynes. Mr. H. James, architect:—

Clarke (accepted)	£148	10	0

For warehouse, Birmingham House, Westgate-street, Gloucester, for Mr. H. Bryan. Mr. H. James, architect:—

Meredith (accepted)	£400	0	0

For two houses, Bristol-road, Gloucester, for Mr. H. Fisher. Mr. H. James, architect:—

Smith (accepted)	£510	0	0

For rebuilding and repairing the boundary walls of churchyard, &c., for the churchwardens of Christ Church, Spitalfields. Mr. Tolley, architect. Quantities not supplied:—

Trayt, Brothers	£510	0	0
Myers & Son	330	0	0
Langmead	290	0	0
Tolley (accepted)	276	6	8

For certain works and alterations at the workhouse, for the guardians of the Whitechapel Union. Quantities not supplied. Mr. Tolley, architect:—

Rivett	£243	0	0
Golding & Son	240	0	0
Trayt, Brothers	240	0	0
Harding	232	0	0
Reed & Rathwell	220	0	0
Wilkinson & Co.	199	0	0
Johnson	198	0	0
Langmead	195	0	0
Palmer & Son	195	0	0
Crabb & Vaughan	194	0	0
Johnston (accepted)	187	0	0

For offices, &c., Lord-street, Liverpool, for Mr. Wm. Earp. Mr. H. H. Vale, architect. Quantities by Mr. J. N. Crofts:—

Dobson	£11,696	7	0
Denton	11,550	0	0
Horsman	11,530	0	0
Haigh & Co.	11,100	0	0
Witter	10,690	0	0
Roberts & Robinson	10,600	0	0
Hughes	10,590	0	0
Rome	10,550	0	0
Martin	10,198	0	0

For pair of villa residences, Breeze-hill, Walton, Liverpool, for Dr. James Johnson. Mr. H. H. Vale, architect. Quantities by Mr. J. N. Crofts:—

Mullin	£2,784	0	0
Burroughs	2,734	0	0
Tomkinson	2,695	0	0
Hughes	2,650	0	0
Hardy	2,634	0	0
Edwards	2,600	0	0
Litt & Wilkinson (accepted)	2,508	0	0

For house, offices, and stables, Littleport Vicarage, near Ely. Mr. William Smith Drummond, architect:—

Freeman	£3,700	0	0
Bell & Sons	3,578	0	0
Brown	3,409	0	0
Law	3,387	0	0

The Builder.

VOL. XXIV.—No. 1236.

Industrial History of Birmingham.

CONSIDERING the facilities of locomotion and the general spread of knowledge of all sorts in the present day, there are few towns whose industries are so little understood as those of Birmingham. The name given to it by Burke—"the toy-shop of Europe"—has been interpreted literally; it has been regarded as a depôt for steam-engines, lathes, steam hammers, and tools of all sorts; our belief as to the source of counterfeit coin is well expressed by calling it "Brummagem halfpence;" and whenever we wish to describe a style of ornamentation which is false, gaudy, and vulgar, "Brummagem" is the word which first rises to our lips. The expression "toy" has in Birmingham a special technical meaning; and a century ago the "toy trade" included buckles, purse-mounts, châtelaines, brooches, bracelets, and the endless varieties of steel watch-chains, sword-hilts, and other small wares in iron, or iron and steel. The erroneous impression that Birmingham is a place for steam-engines and such like, is due to the world-wide reputation of the Soho Works, which is, however, the only establishment of the kind of any note in the town. As a general rule, Birmingham steam-engines are not thought much of; the work turned in a Birmingham lathe is narrowly inspected, and an engineer is very properly sceptical as to the flatness of a surface produced by a Birmingham planing-machine. The remaining opinions which we have mentioned are, unfortunately for the town, based upon a much more solid foundation.

These remarks have been suggested by a work now before us.* To review in detail a book consisting of about ninety detached essays is obviously not a very desirable course to adopt. We shall, therefore, confine ourselves to a few general remarks on the trades of the town, referring our readers who wish to enter more into detail to the book itself, which is full of interesting matter, and is emphatically the work on the trades of Birmingham. As a rule, the reports are written by men who are not only practically acquainted with the subject, but are also engaged in the trade. This is an advantage, inasmuch as the writers are well suited for the task so far as knowledge goes, but there is a disadvantage because it is apt to produce a tendency to exaggerate the relative importance of a particular branch of industry. Again, some of the reporters are not only the first in the trade, but, like Mr. Venus in "Our Mutual Friend," they have the trade. These gentlemen are in this difficulty: they must either lay themselves open to the charge of egotism, or deprive themselves of the credit to which they feel they are justly entitled. To quote the words of him of Verulam, "a man can scarce allege his own merits with modesty, much less extol them, . . but all these things are graceful in a friend's mouth which are blushing in a man's own."

* "The Resources, Products, and Industrial History of Birmingham and the Midland Hardware District: a series of Reports collected by the Local Industries Committee of the British Association at Birmingham in 1865." Edited by Samuel Timmins. London: Hardwicke. 1866.

Nearly a third of the present volume is devoted to the trades of the district, the remainder containing a description of Birmingham manufactures. The notices relating to trades not specially limited to Birmingham and the vicinity are sufficiently interesting in themselves, but are of little value when compared with those which deal with the brass trade, the manufacture of guns, buttons, electro-plated and Britannia metal goods, and other industries for which Birmingham is known throughout the civilized world.

It has always appeared to us that the most interesting point in Birmingham manufactures is the immense amount of ingenuity which is expended on the production of trifling articles. Few have any notion of the hours of anxious brain work, and large outlay of money, which have been necessary to produce a pin, a steel pen, a screw, or a nail. The immense consumption of these articles has rendered it profitable to expend so much time and money on machinery for facilitating their production. The question has often been asked what becomes of all the pins; and it may well be repeated, seeing that one house in Birmingham consumes alone about 3 tons of brass wire, *weekly*, for the production of this useful little appliance. The steel-pen trade gives employment to 360 men and 2,050 girls and women, who turn out 98,000 gross weekly, for the production of which about 10 tons of steel are used. A gross of pens can now be sold for 1½d., a feat which is, perhaps unparalleled, seeing that each of the 144 pieces of steel has to go through at least twelve processes. On the other hand, some of the fine "crowquills" used for lithographic purposes, are sold for 6d. each. The machinery used for the production of the two million screws which Birmingham sends out every week is of a most costly description, and is highly ingenious. About 5,000 tons of wire are consumed annually in this manufacture, whilst more than three times that weight of iron is made into nails. This is exclusive of the metal used for the manufacture of wrought nails, which is not carried on in the town, but in the outlying districts. A good instance of the importance from a manufacturing point of view, of an insignificant and almost unnoticed article, is shown by the fact, that 500 tons of metal are annually drawn into wire for holding down the corks of soda-water and other bottles.

Amongst the severe things which have been said of Birmingham, we must not forget the accusation that it is "a town of lacquered shams." This is to a certain extent true; but, as we hope to show presently, Birmingham has not been backward in promoting the progress of genuine art. A large portion of the business of the town consists really in making inferior articles resemble those of a more costly description. As an example, we will take the "plated trade," as it is called, which was established in Birmingham by the celebrated Matthew Boulton, at Soho, in 1764. The articles were made so richly that the daily use of forty years has scarcely made them "bleed." "This," says Mr. Ryland, the writer of the report on this branch, "was, however, owing chiefly to ignorance, for it was not yet discovered how small a quantity of silver could be used in plating. Birmingham was not long in finding this out, and putting it into practice." This is admirable. If there is one thing in which Birmingham has succeeded it is in making a very small quantity of silver go a very long way. The skill of Birmingham platers has occasionally led them into trouble, as it did in the case we shall relate. At one time large quantities of a species of money known as "Manillas" were produced in Birmingham. It was cast of an alloy of copper, lead, and arsenic:—

"In an evil hour, however, a very sharp trader, not a little unscrupulous, animated by the desire to get speedily rich, conceived the brilliant idea of producing these objects in cast iron, and coppering them over by the electro-deposit process. On their arrival at their destination the deception was at once detected, the 'manillas' rejected, and they now lie bulked up by the side of the African river where they were disembarked, are 'taboo' to the Africans, and remain a standing monument, not to the honour and probity of the exporter by whom they were sent out. This gave the quietus to the manufacture of 'manilla' money in Birmingham until very recently."—p. 273.

Long before this, in 1797, there was a large issue of counterfeit "Boulton" penny-pieces, which were made of lead faced with copper. It is needless to multiply instances in which the town has been unpleasantly mentioned in connexion with issues of counterfeit coin and bank-note forgeries. We once heard of a Birmingham manufacturer supplying a large quantity of rifles for a foreign market, in which the rifling was represented by a few notches at the muzzle. We do not wish to convey the impression that this is the prevailing spirit of Birmingham manufacturers; but it is obvious that such an atmosphere is not the most favourable to the production of genuine work of any kind, artistic or otherwise.

There is another cause which has operated, and will continue to operate, powerfully on the general quality of Birmingham work, namely, the artistic inferiority of the methods employed. Stamped work will ever contrast unfavourably with beaten work, in consequence of the necessity of avoiding all under-cutting in the die. This defect is, of course, not so apparent in stamped works in low relief. So also with the multiplication of objects by casting, it is, as Mr. Aitken, who contributes nearly a third of the matter relating to the trades of the town, very truly says:—

"As all hand-work bears evidence of its origin, so also does machine-work. Molten metal flowing into a matrix by its own gravity can never rival the results produced by the skilful hammer-man. Cast iron as you may, carve or model patterns, mould them elaborately, produce relief by false coreing, the result will never be aught else but cast iron, fragile, snapping at a touch, each piece hateful to the artist's eye, from its stereotyped similarity to its fellows. Similarity produced by hand-labour is similarity with diversity, uniformity without monotony. . . . In cast iron we recognise only the machine-made copy of a copy; in wrought iron we feel the presence of the thought which the craftsman has stamped upon the work."—p. 544.

If we may be permitted the simile we should say,—

"As for some dear familiar strain,
Untired we ask and ask again."

So, also, in ornamentation, we do not tire of a beautiful *motif* when wrought by a cunning hand. But the wearisome repetition of the same air, however beautiful, on a street organ, like the lifeless reproduction of ornament by machinery, never rises above a dead level of mediocrity.

The essential inferiority of the process admitted, there is no reason why die-sinking should be the means of perpetuating the wretched designs for which Birmingham has an unenviable notoriety. As a rule, it costs little more to sink a die of a good design than of a bad one. When the question of the purchase of Shakspeare's house was being agitated, a Birmingham manufacturer introduced curtain bands and cornice ends in the shape of a swan, *i.e.*, that of Avon, from the beak of which dangled a portrait of Shakspeare in stamped brass. During the time that the rage for "La Polka" was at its height, the "Polka curtain band" made its appearance.

In spite, however, of the low art-feeling of the town, Birmingham men have been haunted by forms of beauty which, in some cases, they have succeeded in reproducing. The town is justly proud of its connexion with Baskerville, whose beautiful type has perhaps never been surpassed. He was not a native of Birmingham, but was born at Wolverley, a small village in Worcestershire; and, early in the last century, he started as a cutter of "gravestones in any of the hands." His window slate is still in existence, and shows, says the editor of the present work, "in a marvellous manner, the form and style of the 'letter' he afterwards delighted to produce. As a 'writing-master'

and a gravestone cutter, he passed his early days, became a japanner, and made a fortune by his trade." His success, artistically speaking, as a designer of types, is abundantly shown by his printed works. At his death the whole of the punches, matrixes, and types were, it is generally stated, sold to Beaumarchais, who used them to print an edition of Voltaire's works.

It is worthy of remark that matrixes from the original punches, cut in 1724 by the celebrated William Caslon, which are in our judgment inferior in beauty to Baskerville's letter, are now in daily use at the Caslon Letter Foundry. They were laid aside in 1772 as being out of fashion, and remained so until about 1830, when a few types were cast for Mr. Whittingham. It would, no doubt, be incorrect to attribute this result entirely to a growing taste for the beautiful. A part of it is unquestionably due to the restless desire for change.

Many will doubtless be inclined to smile at the mention of Birmingham in connexion with the revival of the study of Gothic architecture, but the two are not quite so unconnected as at first sight appears. About the year 1820 the late Mr. Thomas Rickman, author of the well-known "Attempt to discriminate the Styles of Architecture," settled in Birmingham as an architect, which profession he followed there for about twenty years. Judged by the present standards, his churches do not rank very high; but it must be admitted that his book, published in 1817, has had great influence on the Gothic revival. Mr. Rickman was, we believe, originally a commercial traveller, in which capacity he made many of the observations which he afterwards embodied in his work. His name will always be entitled to respect, as being amongst the earliest students of a subject which has so largely influenced the architecture of the present day. It is true that in one of Rickman's Gothic churches in Birmingham, namely, St. George's, the window tracery is of cast iron, as is the case also at Holy Trinity Chapel, of which Mr. Francis Goodwin was the architect; but it must be remembered that these churches were built more than forty years ago, when there were comparatively few masons who could work Gothic tracery. On the other hand, skilful pattern-makers and moulders were to be found within a stone's throw, and the architects yielded to the temptation.

There is another passage in the art-history of Birmingham which is of especial interest just now in connexion with the recent discussions as to the origin of the mysterious pictures which were produced at Soho at the end of the last century. About the year 1784 Francis Eginton began to paint glass at Soho (which was famous for other things besides heavy machinery), where he is said "to have brought his art to astonishing perfection." Specimens of his work are to be found in St. George's Chapel, Windsor, Salisbury and Lichfield Cathedrals, Magdalen College Chapel, Merton College Chapel, and Wanstead Church, Essex. In 1794 Beckford gave him a commission for windows amounting in value to 12,000*l.* for Fonthill. It is impossible to say much in favour of the artistic value of Eginton's works; but, as Mr. Powell, the reporter on the manufacture of stained glass, remarks,—

"We are constrained to feel grateful to the man who was the pioneer in our town to break out of the dreary blank of white light in which we were lost,—who did something while others did nothing,—who made earnest efforts, believing in his craft,—and who really produced large and imposing works under tremendous difficulties."—p. 52.

The most important work of Eginton's in the town is the east window of St. Paul's Church, "which was made by that celebrated artist, Francis Eginton, in 1791, at a cost of 400 guineas," says Hutton, the historian of Birmingham. It is thus described by Mr. Powell:—

"It presents to the spectator a sea of bistre, with a few finger-points of light and streaks of colour. It is not till the eye has become accustomed to the sombre tone that masses of huge brown limbs are discoverable; then a horse's head, then a herculean St. Paul daringly displayed across the centre light. Above, the figure of our Blessed Lord is seen falling through a bright rent in some very black clouds. On the dexter side is a group which may be intended to represent the Christian Church suffering under Saul's persecution,—brown flesh in quantities, with a few pieces of rich colour. . . . Nevertheless, there is a far superior tone about this window to that of most glass of the same period. It is a bold and great effort. Eginton could have been no mean or timid artist, and must have been well conversant with the works of the Italian painters of the seventeenth century."—p. 522.

The next step in glass painting was the establishment of Mr. Hardman's factory for the reproduction of Pugin's designs, to which we shall have occasion to refer presently.

This brings us naturally to consider a most important question, viz., the influence of art-education on Birmingham manufactures. There is probably no other town in the kingdom, or even in the world, where a correct appreciation of form and design is more necessary, and we shall not be too severe if we say that in no other place has it been less attended to. It is true that Flaxman, Chantrey, and Wyon made designs for Soho under Matthew Boulton, who, it was said, "would buy any man's brains," that the two first-named modelled for the Messengers, and that the name of Pugin is something more than a tradition at Messrs. Hardman's. But a good design is not everything. The less skilled the hands through which the article passes during its reproduction, the more does the artist's design suffer. One looks naturally to the School of Design for the artistic education of the workman, but Mr. Aitken tells us, and he is well qualified to judge, having been connected with Birmingham trades for the last quarter of a century, that—

"Anything like a real and abiding interest in the progress of the school does not appear to be felt, even by its committee, who, selected ostensibly to direct the studies of the artisan pupils or students to practical results, virtually fail to do so, and thereby ignore the intention of the school as a means of improving the manufactures of the town. The total number of students in the Birmingham school is at present 873, of whom 190 are females, 200 pupils of King Edward's school, and 483 are students of the artisan class, or those for the benefit of whom the school was originally instituted. Of the latter number, 30 were connected with the brass foundry trade, as modellers, chasers, and workmen."—p. 373.

The following return of the occupations of the students of the Birmingham School of Design is taken from the "Report of the Parliamentary Committee on Schools of Art," published in 1864. It refers to the year 1863, since which no detailed return has, to our knowledge, been published:—School boys and girls, 368; no occupation, 103; engravers and etchers, 71; mechanical engineers, 60; clerks and cashiers, &c., 57; die-sinkers, die and stamp cutters, 39; jewellers, 33; teachers, 28; builders and apprentices, 26; chasers and embossers, 21; draughtsmen, 19; glass-painters, 13; tool-makers, 12; brass-founders and coppersmiths, 10; modellers and moulders, 9; stone-masons and stone-cutters, 8; electro-plate workers, 7; japanners, 7; gold and silver smiths and refiners, 5; letter-cutters, 5; miscellaneous manufacturers, including mill-owners, 4; glass cutters and engravers, 4; students, 4; chandelier makers, 3: the total of which is 916.

What a beggarly account is this! The jewelry trades of the town give employment to about 6,500 hands, including jewellers proper, silversmiths, gold and silver chain makers, and gilt toy makers, who in the course of a year use up from 700,000*l.* to 850,000*l.* worth of the precious metals. The influence exercised by the School on the manufacture is represented by the training of just *thirty-three* workpeople, besides that due to the die-sinkers and chasers, some of whom are of course engaged, directly or indirectly, in the production of jewelry. Most of the writers in the work before us appear to be conscious that the school ought to exercise far greater influence than it does; and we find the author of the report on the saddlery trade saying that many of the saddlers engaged in the production of embroidered and other ornamental work "have had regular art-instruction in our School of Design." There were none there in 1863, at all events.

But a knowledge of drawing is not sufficient for the art-workman. It is necessary that he should see and become familiar with the works of great artists. It is true that their influence is often unfelt at the time, but if the eye has been trained to see, their silent teaching will most assuredly bear fruit when the student returns to his work-bench. It is, of course, too much to expect that a town like Birmingham should be able to form such a collection as that at South Kensington; but, still, something might be done towards the establishment of a permanent art museum, say at the Midland Institute, the present *locale* of the School of Design, which should not be without influence on the manufactures of the town. It might, at all, events, teach the true principles of using each material, and show the absurdity of attempting to imitate in cast iron the effects which can only be obtained with wrought, of which the hideous cast-iron gates and gallery-fronts at the Music Hall (now the Prince of Wales's Theatre) furnish a good example.

But not content with mistakes of this kind, a Birmingham artist was bold enough to erect an elaborate Mediæval altar tomb, all in cast iron, in Edgbaston Churchyard, some years ago.

There is also in Yardley Churchyard, situated a few miles from the town, a cast-iron memorial, intended to represent a classical sarcophagus, but which succeeds in being very much like a large coal vase. We have already mentioned the cast-iron tracery of the windows at Trinity Chapel and St. George's Church, Birmingham, and we narrowly escaped the introduction of cast-stone tracery. In 1851 a patent was taken out for casting slabs for steps, window-heads and cills, columns and capitals, &c., in basalt, which was shown by Sir James Hall, in 1798, to fuse at a comparatively low temperature. The process was tried at Messrs. Chance's glass-works, but it did not pay. Some specimens of the work are to be seen in the Edgbaston Vestry-hall, a building in the Anglo-Norman style, the whole of the columns, window-pieces, doorways, and ornamental steps of which are cast in this material.

The artistic history of Birmingham has, however, one great redeeming point—the revival of the true principles of metal working at Messrs. Hardman's, under the auspices of Pugin. It was in 1837 or 1838, that Pugin was introduced to Mr. John Hardman, who was well acquainted with all the processes of metal working, and was, moreover, an enthusiast. A close friendship sprang up between the two men, and it was only terminated by Pugin's death, about fifteen years afterwards. Mr. Hardman undertook to start a manufactory for the reproduction of Pugin's designs for metal-work and stained glass.

"Such was the beginning of the revival which has now developed an important branch of industry, and exercised an influence on metal working generally, closely akin to that of the Pre-Raffaelite movement in painting. It has had the effect of making metal-workers *think*, apparently, for the first time for some centuries, and has been the means of creating a superior class of skilled artificers, who claim for themselves a special department of metallic industry. Wherever metal-working on Mediæval principles is now practised, its origin can be traced to Birmingham as the parent stem, and a large proportion of the artisans first employed in it by other firms and manufacturers have acquired their skill and learned the secrets of their art at the works of John Hardman. It is honourable alike to the adaptive capabilities of Birmingham artisans and the spirit of Birmingham manufacturers, that this town, so often stigmatised as the centre of the production of 'lacquered shams,' should have been selected by Pugin as the field for carrying out his conceptions, and that under the guidance of his genius it should so nobly have taken the lead in the production of realities."—p. 538.

The progress of a revival of the kind may be compared to an agitation produced in the centre of a tranquil lake. The wave spreads until it reaches the banks, when it is reflected and returns to its point of origin. Here, however, the simile ends, for whilst the undulations gradually become fainter and fainter until they are altogether imperceptible, the returning wave of a revival like that under consideration gathers strength as it goes, and returns to its starting point in the shape of a demand for what is good and true. The waters must come and go and the waves beat many years yet before the barriers of conventionalism and bad taste, behind which Birmingham has entrenched itself, are beaten down. We shall not be doing the town an injustice if we say that the progress which she has undoubtedly made during the last few years is mainly due to pressure from without. Manufacturers have been content to follow the improving taste of the day, instead of aspiring to lead it.

It is impossible within the limits of this article to do justice to the subject of the "Trades of Birmingham." They are so varied in their nature, and present so many different aspects, that the topic is almost inexhaustible. We are compelled to omit all mention of the social condition of the workpeople and the sanitary state of the town, which appears to be not quite so satisfactory as popularly supposed. It would also be interesting to trace the effects of legislation, foreign treaties, and political events on the various branches of industry. The markets which Birmingham supplies are so numerous that a temporary cessation of orders from one locality is not so disastrous as it is to other towns. Again, the character of the wares is so varied, and so little is the town dependent upon any one branch of industry, that even war does not create a panic. On the contrary, the Birmingham manufacturers rise to the occasion, and are ready to supply either or both sides with the means of destroying each other according to the very latest fashion.

MANCHESTER CONGRESS OF THE SOCIAL SCIENCE ASSOCIATION.

The proceedings of the Congress since our last have been eminently satisfactory, and can scarcely fail to produce good results in various quarters. The president (Lord Shaftesbury) has been alike indefatigable and successful. Lord Brougham, too, though feeble in body, has shown much of his former vigour of mind; and the addresses of the four heads of Departments are all noticeable productions. The discussions were carried on with great animation, and contributed much to the right understanding of many questions. Of the Manchester Committee, which has worked well, we must especially mention the Rev. S. A. Steinthal and Mr. Duffield; while Mr. Hastings and the Rev. Walter L. Clay, as officers of the Association, have spared no indeavours to bring about a satisfactory result.

The Workmen's Meeting, always a special feature of the week, was a remarkable gathering. The Free Trade Hall, in which it was held, was crowded beyond its limits, nearly 6,000 persons being present—eager, earnest men; and some excellent speeches were made by Lord Brougham, Mr. Thos. Hughes, M.P., Mr. Daniel, Q.C., Mr. R. Rawlinson, C.B., and others, Lord Shaftesbury ultimately winding up. A working engineer, Mr. Iden, and a porter in one of the warehouses, Mr. Thos. Evans, spoke effectively in moving and seconding a vote of thanks to the speakers.

Many of the papers read, such as Mr. A. Trollope's, on International Copyright; Mr. Dudley Field's, on International Law; Dr. Lankester's, on Infanticide; the Right Hon. H. A. Bruce's address, on Education; and others, have rightly obtained full publicity. We must restrict ourselves, as usual, to some of the subjects discussed in the departments of Health and Social Economy. Touching

The Health of Nations,

We print a portion of Dr. Farr's address as President of the Health Section:—Health implies more than existence; it implies energy in strength and in intellect. As political economy rests upon the idea of value, so our science rests upon the idea of health, and it is as important to us to find a measure of health as it is to the economist to find a measure of value. That measure must be simple, and applicable to all countries. Now, the measure that is in universal use is the rate of mortality; a unit of life loses a certain fractional part by death every moment, and the amount of loss in a unit of time expresses the rate of mortality. The unit of time is always a year, and the rate of mortality is found by dividing the deaths by the mean numbers living multiplied into the time. The rate varies from 0·020 to ·040 in England; that is, in one place the deaths are 20, in another 40, to 1,000 living. Indeed, the range is still greater without a correction to which I will shortly advert. In a normal community, constituted of persons of all ages by an equal number of annual births, there is a fixed mathematical relation between the rate of mortality and the duration of life. Thus, if the average rate of mortality in two cities is 2 per cent. and 4 per cent., then the mean duration of the lives of the inhabitants is 50 years in the one city, and 25 years in the other. Therefore, in saying that rate of mortality measures, it is conversely affirmed that length of days measures the health of nations. As the population fluctuates, certain corrections are necessary; the rates of mortality are determined at various ages, and from these the probabilities of living year by year are calculated and set forth in a life-table that determines the path every generation passes over from rising to setting. The mortality is really a life-measure, for the people living to a given sum of births increases in exact proportion as the duration of life increases. Public health now engages the attention of every civilised State; so we can pass in review the principal populations of Europe, and from the researches of their own statists learn by this measure their comparative health. I take the population in the lowest stage of health first, beginning with Russia. That empire is emerging from barbarism; and its condition enables us to conceive the state of the population of Europe in the dark ages. The people of various races between the Caucasus and the Arctic Ocean, the Oder and the Ural Mountains, die at all ages, from birth up to 140 years, it is said, but their mean lifetime is only 25 years. The marriage rate is 10, the birth rate 45, the death rate 36 (per 1,000 is always understood, unless another scale is mentioned). Thus, birth, marriage, death succeed each other rapidly among the sixty millions of people diffused over nearly two million square miles of steppes, forests, farms, and river-side pastures. In Archangel, where the greatest extremes of cold are experienced, the mortality is nearly the same as in England; in Esthonia and Courland, on the Baltic, the rate is low; so it is in Finland; while about the Caucasus, the Black Sea, and the Caspian, it ranges from 40 to 52. Whenever the mortality is excessively high in any place, its causes can now almost always be discovered; they are familiar enough to us in England, but they take different forms in different countries, and are the subject of inquiry in Russia itself. Italy, extending from the Alps across the middle of the Mediterranean, offers a strong contrast to Russia; it is divided by the Appenines, breathes the air of the sea, is not frozen by hard winters, is the home of the arts, and inherits the renown of the empire of the world. But the Italian people suffer much; few live to their natural term; the death-rate is 30. I speak now of the new kingdom of Italy. The death-rate in Piedmont and Lombardy, and in the islands of Sicily and Sardinia, is 29; south of the Po, in Parma, 35; Modena, 31; Romagna and the Marches, 31; Tuscany, 33; Naples, 35. Umbria is the healthiest province of Italy, rate 27; and Rome, thanks to her aqueducts, is perhaps the healthiest city in Italy. Venetia, under the Austrians, was in health on a par with Tuscany, 33. It is a peculiarity of Italy that the population of the country is as unhealthy as that of the towns. This low standard of health is the fruit of the former state of things, as the new Government has had little time to do more than bring evils to light which luxuriated under small paralysing despotisms. As the science of Italy reveals the evils and their causes, the people will find remedies; and among the first will probably be the restoration of the great drainage works, and the magnificent aqueducts of their ancestors. Improved health will increase the military power of Italy. East of Italy is Greece—which holds only a fraction of the Greeks, about whom little can be said—Turkey, Syria, Egypt, North Africa. All known about these fine regions of the world is that they are desolated by diseases, are unhealthier than Russia or Italy, and are nurseries of the plague that subjects Europe to the vexatious oppression of quarantine. Spain, lying west of Italy, between the Mediterranean and the Atlantic, mountainous, and divided by deep-cut rivers, was, perhaps, when she colonised South America, the healthiest country of Europe. The death-rate of Spain is now 28. Between Italy and Russia, on the Danube, extending from the Carpathians to the Adriatic, lies the Austrian empire, full of natural resources, and pervaded to a considerable extent by the industry and science of Germany; yet the death-toll of Austria is high, it is 30. The mortality of Prussia is not quite so high, it is 29; in Bavaria, on the Upper Danube, it is 29; in Saxony, on the Elbe, 29. At such rates 72,000,000 of Germans and their associated races die. In none of these countries do the people live on an average 30 years. We now enter a healthier region of Europe, of which England is the centre; where the people live on an average 35, 40, or 50 years, and where a fuller life is enjoyed. Take Norway, for example, with its Udal proprietors along fiords and streams; there the mean lifetime of the people is full 50 years. The death-rate is 17, the birth-rate is 34. They are, as the old sagas teach us, at home on the ocean, and emigrate freely. In Sweden, as well as Denmark, the mortality rises to 22; and the mean lifetime of the Scandinavians is about 44 years. Sweden, I may remark, is famous in our science for furnishing Dr. Price with the data from which the first national life-table was constructed. In Hanover the death-rate is 23; and in Holland, on its canals and river deltas, where the greatest natural sanitary difficulties are found, the mortality is 26; the mean lifetime is 35. In Belgium other difficulties have sprung up; the population is the densest in Europe, thanks to its industry, but the death-rate little exceeds 22. If we ascend the Rhine to Switzerland, we there find several healthier cantons. In France, that various and beautiful land, lying between England and Italy, Germany and Spain, the death-rate was 23; in the last year or two it has fallen to 22, as low as that of England. No variation in the health of the States of Europe is the result of chance; it is the direct result of the physical and political conditions in which nations live. This is so well understood that the people of every country are associated with you in these inquiries, and are watching the progress of the great question of public health in England. In Germany, including districts under paternal well-intentioned sovereigns, some 300,000 men, women, and children are killed every year by diseases, in excess of the numbers dying of the same diseases in France. Under the indolent princes of Italy the annual life-loss in excess exceeded 150,000 lives annually. Not to save in some circumstances is to destroy. I now ask you to consider the sanitary state of the United Kingdom. The rate of mortality is 22. The rate is nearly the same in Scotland, England, and Wales. But how fares it with Ireland? Well, as far as official documents go, the death-rate of Ireland is 17; and, after every allowance for defects in registration, which has only been recently established, I do not think the death-rate of Ireland can be set higher than that of Scotland. From the English life-table we learn that the mean lifetime of the nation is 41 years (40·85), and this implies a corrected mortality of 24 (exactly of 24·47) annually, whereas by the ordinary method the mortality is 22 (or 22·45). The difference arises from the increase, which throws into the population a mass of young persons at ages when the mortality is below the average. The average age of the dying is reduced from the same cause: it is 29·4 years. Similar corrections of the mortality are required, and will ultimately be made in other countries. The mean age of the population by the life-table is 32 years; the mean age of the enumerated population in 1861 was 26½; the difference of 5·5 years arises from the same cause. If a normally constituted population has lived 32 years, it will live 32 years under the same law of mortality; but in England the age of the people is now 26·5 years; and they will live 35·6 years on an average. As they are younger, they have an ampler prospect of life before them than a stationary population. You are aware that more boys are born alive than girls, and the boys dying in greater numbers, this provision of nature brings the sexes nearly to an equality of numbers at the age of marriage. Thus of 1,000 children born in England, 512 are boys, 488 girls; 334 men, 329 women live to the age of 20; the excess of boys is reduced from 24 to 4; and, if there were no emigration and foreign service, the men of the age 20–40 would exceed the women in number. An unchanging million of annual births will produce, according to the law of vitality in England, a population of 41,389,940, consisting of 20,426,138 males, 20,432,046 females, large numbers differing quite inconsiderably. The births registered in the United Kingdom in 1865, exclusive of the islands in the British seas, amounted to 1,006,223, and this is below the actual number, as all the births are not registered in Ireland or England. The population of the United Kingdom, including the islands, is now estimated at 14,775,810 males, and 15,553,397 females. England differs from the other countries of Europe in this respect,—it has 250,356 men in the army, navy, and merchant service abroad, on the seas, and in English possessions. This leaves 14,525,454 males at home, against 15,553,397 females. The females exceed the males in the United Kingdom by 1,027,943. After deducting the men abroad having English homes, the number is reduced to 777,587 women. The proportionate number is greatest in Scotland, least in Ireland. Nevertheless, if our calculation is correct, the men must be somewhere in existence; and, in fact, in America and in Australasia alone, at the last census, the males found exceeded the females by nearly a million (972,530). Allowing for the share of other nations in the surplus, there can be no difficulty in identifying the men of which the 777,587 women at home complete the calculated couples. The men are in Newfoundland, New Brunswick, Canada, Australasia, and the United States, whither the women have hitherto hesitated to sail from home across the ocean; but, with constant magnetic communication, commercial intercourse, and the intimate union of the people on both sides of the seas, the equilibrium of the sexes cannot fail, in the end, to be re-established. It is gratifying to find that the health of the English race on the other side of the seas, so far as we can judge from imperfect documents, is not worse than it is in England; and that those rising communities are eager to adopt all the sanitary improvements of Europe. In some respects they have gone ahead of Europe. I may refer to the magnificent aqueduct pouring the fresh streams of a

mountain river into New York since the year 1842, when Paris and London were drinking polluted waters from the Seine and the Thames.

At the first meeting of the Health Section, Mr. W. Rendle read a very able and comprehensive report from the standing committee. The deficient water supply was commented upon, and it was insisted that private profit should not be made out of the supply of water, which should be distributed at prime cost by public bodies. The most practical suggestion made was, that a royal commission should be appointed, with a view to the simplification and consolidation of our sanitary laws, and securing their administration by good and willing men.

Mr. P. Holland moved a resolution calling the attention of the Council to the report, and particularly to the suggestion, that a royal commission should be appointed to facilitate the consolidation and the better administration of sanitary laws.

Mr. Godwin seconded the motion, and expressed the hope that the report would not be listened to only and forgotten, but that it would receive practical attention in Manchester.

The motion was agreed to.

The Smoke Question.

The special question was, "How far smoke and the products of combustion, arising from various manufacturing processes, were injurious to health? What measures ought to be taken to prevent the contamination of the atmosphere from such causes?"

Dr. Angus Smith initiated the discussion by reading a very valuable paper, to which we may be able to return. In opening the paper Dr. Smith remarked that the disinfecting power of smoke had not rid us of disease, nor did it prevent occasional pestilences. If it did good, it did more evil, and much of the mortality of Manchester must be attributed to smoke. It had been said that if the carbon was thoroughly burned the amount of sulphurous acid would be so great as to be intolerable; but when the blackness was removed the sulphurous acid seemed to escape more easily. The only sure mode he knew of diminishing the amount of sulphurous acid given out by chimneys is by burning no sulphur. This can be done, perhaps, to some extent, by burning less coal, and burning more economically; next, by not allowing the most sulphurous of the coals to be burnt in large towns. This latter is a simple mode of doing some good, and cannot in all cases be considered too great a demand on manufacturers.

Mr. P. Spence read a paper in defence of smoke.

Mr. Holland said that smoke was prevented in London by the imposition of penalties, which were doubled in amount for successive offences; what was accomplished by one man being made the standard for his neighbour. He could hardly bring himself to believe that Mr. Spence's paper had been prepared in earnest; it must have been read to provoke debate. There was no engineering difficulty about burning smoke; but it would be far better not to make the smoke than to do so much to get rid of it. Mr. Fairbairn had made one furnace consume the smoke of another, thus showing that smoke could be prevented by a good stoker. The comparison of different towns Mr. Spence had made was fallacious, because circumstances which affected their health had been lost sight of. Steam-engine smoke had been prevented, and therefore could be. It was stupid not to prevent it; and manufacturers had no right to expose the public to injury.

Mr. W. Fairbairn said, that thirty years ago he had no hesitation in declaring that it was practicable to prevent smoke, and since that time his conviction had been confirmed by the practice of several large establishments. If a certain quantity of air were admitted into our furnaces, we might have a nearly transparent atmosphere; and this would be accompanied by a great saving of fuel. An additional boiler would often enable a manufacturer to prevent smoke without difficulty; and in Cornwall, where smoke was not made, and had not been for fifty years, there were 50 per cent. more boilers in proportion to the engines than there were in Lancashire.

Alderman Cawley, C.E., said it was supposed that railway locomotives had been cured from smoking by legislation; but travellers knew better, and the defect in the legislation was that the penalty was not upon the production of smoke, but upon the construction of the engines.

Dr. Macadam, concurring generally with Dr. A. Smith, dwelt on the difference between dense smoke, containing a large quantity of carbonaceous matter which the air had not power to carry away, and the diffusion of gases which came into play when the carbon was more perfectly consumed; and, referring to the question of fire-grates *versus* stoves, mentioned the uses of chimneys in ventilating rooms.

Mr. Galloway recalled the *Builder's* suggestion of lighting a fire at the top, in order to prevent smoke, as one of several plans discussed in a paper, which he wished an opportunity to read.

Mr. Godwin wanted to know nothing about the best means for the prevention of smoke; it was an established fact that smoke could be economically consumed. The thing was settled and done with; and therefore it was a public misfortune that such a paper as that of Mr. Spence should have been allowed to be read in the section. (No, no.) The time had come for the outer world,—that outside the manufacturing circle,—to insist upon preventing smoke by Act of Parliament. In Manchester, besides health, buildings were destroyed; instead of beauty there was everywhere a dulness most depressing to the spirits. Happiness was no small thing; the happiness of the inhabitants of a town all their lives was no trivial matter; and he had little doubt that an immense amount of misery was caused by smoke in Manchester and other towns. The material results of its prevalence were quite lamentable to the eye of a stranger. Magnificent warehouses, in respect of which Manchester stood almost alone, were destroyed in appearance in three or four years. The noble Assize Courts were suffering already, and it was lamentable to compare a statue put up weeks ago with one that had been up as many months. There was an Act which said that smoke was illegal here; but it was not put in force, because those who ought to see it carried out imagined that they would suffer from its operation. What was required was an authority which would enforce the law.

Mr. Spence rose to reply to what he deemed almost personal attacks upon himself, twitting Mr. Godwin as being the representative of London, which we were to suppose was almost free from smoke, and remarking that the temper displayed by the disputants suggested a contrast between the happy state of mind enjoyed in Manchester and the irritability Mr. Godwin had brought from the metropolis. That gentleman, however, denied that he had given London so good a character, and affirmed that it was not half freed from smoke. Mr. Spence then admitted that he was convinced smoke could be consumed; but, he asked, *Cui bono?* Should we be in a worse or a better position? He maintained the relevance of the comparisons he had made between different towns, asserting that their conditions were similar, which several gentlemen denied.

Mr. Rumney emphatically denied the statement that the Act had been a dead letter in Manchester, and defended Mr. Spence, entering into the chemical argument, and dwelling upon the practical difficulties experienced in preventing smoke.

Dr. F. Crace Calvert, who had read a paper on the subject, delivered a spirited reply, vigorously contending that, as several classes of works were carried on without the production of smoke, such as puddling furnaces and mills, the question of possibility was settled, and confidently denying the assumption of Mr. Spence that it was pure carbon which floated in the atmosphere. It contained a large quantity of hydro-carbon and the products of the distillation of coal tar; and it was these carbonaceous matters which were so deleterious.

Dr. Farr wound up a good discussion by a few remarks, in which he quoted the evidence of Mr. Faraday before the parliamentary committee. Mr. Faraday said that there was no difficulty, as a natural effect, in obtaining perfect combustion of smoke. Imperfect combustion, or the ultimate production of smoke, in all cases depended upon convenience or ignorance. In large fires it depended more upon ignorance than convenience, and if a manufacturer were obliged to burn his own smoke, he would, in a short time, be able to do so without any pecuniary loss.

Pollution of Rivers.

The special question for consideration was,—"How can the pollution of rivers by the refuse and sewage of towns be best prevented?" Dr. Stevenson Macadam read the first paper. He pointed out the difference between the discharges from manufactories and works on the banks of rivers, remarking that a stream receiving liquid from works containing organic matter did not putrefy, providing it was in motion; but a stream receiving organic matter from sewers was liable to putrefy. He instanced three Scottish rivers, the Leven, the Water of Leith, and the North Esk, as illustrations in proof of this, and proceeded to consider the means of preventing the pollution of streams. He said mining discharges could scarcely be prevented, but they were not of so much importance, for the deposit settled on the stones. All practical means for the arrestment of the pollution from manufacturing discharges should be employed. It was a question whether some rivers should not be given up entirely to manufacturing interests; it being a condition that the discharges should not be prejudicial to the health of the neighbourhood. The most effectual method of utilisation was the system of irrigation which had been very successfully carried out at the Craigentinny Meadows, near Edinburgh. The system ought to be compulsory in inland towns; but as to towns on the sea coast, it was a question whether it was not better that the sewage should be poured into the sea, where it would at any rate assist the production of seaweed, which would feed the fish. This question would be best worked out by a local authority, under the direction or control of a royal commission, or a Government inspector; but sanitary measures should be compulsory, and not optional.

Mr. John Newton, C.E., read the second paper, in which he gave some details, showing that in several places sewage was utilised; and he argued thereupon that similar systems might be carried out elsewhere.

Dr. Hawksley read a paper on "River and Air Pollution, with Proposals for the Abolition thereof." He dwelt at considerable length on the facts and characteristics regarding the material which polluted rivers, and on the evil effects arising from the use of impure water. He said any attempt to patch up the present method of drainage would result in disappointment, and he recommended the use of Moule's earth-closets. He advocated compulsory legislation in sanitary matters, and the utilisation of sewage.

Mr. T. Clement Trapp read a paper, in which he condemned the use of water-closets, except in connexion with a system of irrigation, and expressed his regret that the Manchester City Council, in their new measures, did not stipulate for a greater area around buildings.

Lord Robert Montagu, M.P., in commencing the discussion, said he considered this subject lay at the root of sanitary reform. He proceeded to criticise the papers read, and referred to various manufactures and mining operations, to show that the refuse which had formerly been poured into rivers, causing pollution, was now in many instances utilised and found to be very profitable. In most of these cases this had only been done under compulsion, and he contended that by compulsory legislation the purification of our rivers might be to a great extent accomplished. He spoke at some length on the subject of irrigation, of which he was in favour; and he described the favourable results at Croydon and Worthing. He moved, "That while it is necessary to remove as speedily as possible the excreta and refuse from houses, it is advisable to procure compulsory legislation against the pollution of rivers by refuse or the sewage of towns."

Mr. Rawlinson said he would not speak of the papers, but would state a few broad facts. He would not for one moment advocate the pollution of rivers, but it was an advance in civilisation; and we must advance still further. When there were pure rivers in this country, before manufactures were established, there were no sanitary regulations in the towns. Sanitary improvement had swept away many types of disease which then existed. He urged that the discharge of effete matter into running water was an improvement on the cesspool or ashpit amongst crowded dwellings. Manchester had been examined by the late Dr. Southwood Smith and Mr. Holland, to find whether the most severe types of disease were attributable to foul rivers; and they were bound to come to the contrary conclusion. In 1859, when the Thames was so foul that Parliament sat with closed windows, there was a low rate of mortality. Riparian owners did whatever they thought fit with river frontage, and abused the water as they pleased for their own advantage. The rivers were made receptacles for all kinds of refuse, and in the course of time the bed of the river was raised, so that the river overflowed its banks, and great distress resulted. The

Commission on which he was engaged had found in Yorkshire that the manufacturers, without compulsory measures, were doing many things which tended to the purification of their streams. The washings of wool which used to pollute the streams were now cleared of the soaps and oils, and were by no means so injurious. They found the greatest willingness amongst the manufacturers to give them information, and their only plea for polluting the rivers was that it was of no use for individuals to go to great expense to improve the river, when others above them on the same stream were doing the contrary. The products raised on irrigated land were perfectly wholesome, but they were so rich that it was necessary that they should be consumed quickly; and the best method of utilising the grass was to give it to milk cows. Like the previous speaker, he would urge that the earth-closet system was impracticable in large towns. He hoped that the Royal Commission would lead to a practical result, and he was sure that Parliament would only receive such suggestions on the subject as would carry common sense with them, and could be carried into effect for the benefit of all.

Dr. Elliott (Carlisle) seconded the resolution.

Mr. Rylands (Birmingham) said the 49th clause of the Public Health Act gave compulsory power.

Mr. E. Potter, M.P. (Carlisle), spoke of the water around Warrington and in the black country, and of the Clyde, and said it must not be overlooked that if the streams were to be kept pure, there must be separate sewerage for the refuse from manufactories.

Mr. Bateman, C.E., said he did not know how the pollution of streams could be prevented better than by compulsory legislation, and he approved of the system of irrigation; but the difficulty was to know where to apply it in a country teeming with population.

Dr. Trench (Liverpool) said he considered the best mode of removing refuse was with water, by subterranean channels; but he was not wedded to the opinion that water was the only means, and that there should be further investigation before dogmatical opinions were expressed. Still it was wrong to have two systems in the same town.

Mr. Heron, the town-clerk of Manchester, said that the Corporation was wedded to no system, but with them he gloried in the fact that they had persistently refused to sanction the introduction of water-closets into small houses. (Mr. Holland,—"Shame.") He gloried in his shame. The ash-pit, not the cess-pool, was more innocuous in nine cases out of ten than closets inside houses.

The further discussion was sustained by Mr. E. Chadwick, Dr. Holdsworth, and others, and terminated with brief replies and explanations on the part of the authors of the papers, and Lord Robert Montagu, whose resolution in shape of a recommendation to the council, was carried unanimously.

We refer, under a separate heading, to one other subject treated of, and will return to the discussions next week.

CONDITION OF MANCHESTER.

At the Social Science workmen's meeting already alluded to (we avail ourselves in this instance of the report in the *Manchester Examiner*),—

Mr. Godwin said they were aware that the office of one of the branches of the Social Science Association was to inquire into the means of preserving the public health, the best modes of construction of the dwellings of the working classes and the poorer classes, and to obtain laws to protect us against the apathy, the ignorance, and the selfishness of ourselves: he said "ourselves" because all classes were very much alike, and where self-interests were concerned, they were all apt to button up their pockets and forget first principles. It was with reference to this department that he wished to speak to them. Without health the rich man was little to be envied; but without health the poor man had lost everything. But for our ignorance of the laws of health we should not overcrowd our houses in the way we do; we should not subject ourselves to inhale the bad gases that we do. In Manchester the people were breathing a poisonous air; and, when he heard it actually said that smoke was scarcely detrimental to health and happiness, he could not control his indignation at hearing such an observation, and he was told that the air of London had spoiled his temper. He urged them not to have too much objection to a little control in these matters. There were sanitary laws in the reign of Edward VI., and in the days of Elizabeth there was a law to prevent two families cohabiting in the same cottage, which it were well in some cases if we could have revived at the present day. He hoped they would not listen too readily to those who assured them that they would maintain their liberties by opposing the passing of sanitary laws. Money was only good for what it would produce. Draining and paving meant raising and saving, and money spent in these things, and in the adornment of towns, was money well spent, because they conduced to the health and the happiness of the inhabitants. In regard to the adornment of towns, and the importance of art, there seemed to be in Manchester the most suicidal disregard of the study of art that could be well conceived. It was distressing to find that the School of Design was not better supported. A knowledge of drawing at once advanced a man's position; and there were now plenty of opportunities for men to distinguish themselves,—public examinations and public rewards; whilst that which gave the eye the power to see beauty in the sky, in the leaves, and the flowers, tended to increase happiness, to raise aspirations, and improve health. He must state what he had seen in Manchester. He had been round the city that morning, not for the first time, and he had inspected batches of houses which were a disgrace to England and to civilization. He would not say whether there was machinery for getting rid of them, and whether any one ought to be blamed; but it was the bounden duty of all to see that some remedy was applied at once. In the yards between Verner-street and Back Verner-street, he looked into large holes filled with bubbling filth, giving off destructive gases, so that the whole neighbourhood was filled with an unendurable stench. To a practised eye it was almost unnecessary to search for filth, because the haggard faces of the women and the staring eyes of the children told at once that that was the locality in which it could be found. In "Gibraltar" again he had seen frightful places. Might the houses in "Gibraltar," like the fort of that name, never be taken! Unfortunately, however, they were taken, and a succession of tenants went in, in order to be prostrated by illness. In another part of the town which required to be attended to and improved, there was a house overlooking the Irk from which five cases of fever had been removed successively within a few weeks. So sure as any fresh family went into that house, the next week it would be stricken down, for the house was built over three public closets, and the air was unendurable. He implored the working men of Manchester to give their attention to these matters, to study the laws of health, and to help their lawgivers and the authorities rather than impede them; for money spent in sanitary improvement, instead of being a loss, was a gain and a blessing. An unhealthy population was a burden to the State; and, moreover, it tended to increase the criminal population, which was more costly and more injurious still.

In the Health Department a valuable paper on the Health of Manchester and Salford, by Mr. A. Ransome and Mr. W. Royston was read, and included a number of important tables. In the course of it the writers, seeking to explain the present high rate of mortality, said,—"No one cause will account for the full list of disease and death: there are many powerful foes to health at work. Notwithstanding what has been done, the reports which have recently been made to the Manchester Statistical Society by the sub-committee appointed to inquire into the sanitary condition of certain districts in Deansgate and Ancoats give a deplorable picture of those portions of the town. Thus, in Ancoats, within an area of about twelve acres, out of a total of 607 houses, no less than 398, or 65·57 per cent., are single houses, or houses having no passage through them and no back yards; and 'very many of the habitations are in such a condition—partly from the filthiness of the inhabitants, and partly from the smell of privies, drains, and animals, and the dampness of the walls, and, in some cases, the ruinous condition of the buildings—as to be almost intolerable, and totally unfit for human dwellings.' It has been calculated that there are 25,000 back-to-back houses in Manchester alone. This account is but a repetition of the description before given of the state of things fifteen years ago. There are good reasons why the sanitary condition of the cottage dwellings of the town should get worse instead of better. Every physical improvement of a public character involves almost in every case a large destruction of small habitations, which are swept away by hundreds to make way for new streets, railways, public buildings, or warehouses. Although many of the dwellings thus destroyed were in a miserable condition, the state of those which are left rapidly becomes worse. The poor cling to the old localities, and are thus driven to herd more and more closely together, and greatly to overcrowd the houses which remain. Again, although it is now illegal to erect back-to-back houses in and around Manchester, yet in some districts a custom prevails of substituting certain rooms, by which at times the law is practically evaded. By closing the door in the passage between the front and back part of the houses, and letting these portions separately, all the evils of back-to-back houses are equalled, if not exceeded. All ventilation of the houses is prevented, and the back apartments form miserable dwellings, opening upon a narrow passage, with ash-pits and privies close to the door. Giving full credit to the city authorities, and especially to its sanitary committee, for anxiety to amend this most objectionable state of things, the task is of such vast magnitude, and, by the present method of administration, authority is so much weakened, and responsibility so much diluted by division, that no real change for the better can be made without a complete remodelling of the sanitary department of the corporation, and the appointment of a responsible medical officer of health. Mr. John Leigh has recently contributed three most valuable papers to the quarterly returns of the Registrar-General, upon the 'Causes of the vitiation of the atmosphere of Manchester,' and therein shows most clearly what a powerful influence for evil is exerted day after day upon the inhabitants by the various impurities, solid, vaporous, or gaseous, with which the air of the town is laden. Dr. Angus Smith also has found that the atmosphere of Manchester contains an inordinate amount of carbonic acid, and a diminished proportion of oxygen, besides sulphuric acid and other irritating vapours, and probably, also, various organic compounds. It is impossible to enter adequately into this subject within the brief limits of this paper; but there are strong reasons for ascribing a very large part of the constantly excessive mortality of the town to this cause. Its influence is to be observed in the blanched and pallid looks of all the dwellers in the town, but especially of the children, who droop and become etiolated, like plants exposed to the same influences. But the effects of this polluted atmosphere are chiefly to be noticed in the prevalence in Manchester of affections of the lungs, the organs most exposed to its action. Not only phthisis, but other diseases of the lungs, such as bronchitis, influenza, and catarrh, occur much more frequently in proportion to other diseases in Manchester than in London. The small variation in the number of deaths over five years of age, as compared with those under that age, has already been pointed out by Mr. Royston in his paper 'On the Variation of the Death-rate in England.' It would almost seem as if any inquiry into the means of diminishing the excessive death-rate in large towns is reduced to a consideration of the causes of infantile mortality. It will be at once acknowledged that any unwholesome condition surrounding the inhabitants will tell with the greatest force upon the tender frames of young children; and hence most of the causes already passed in review must be held to be in part at work in producing the awful amount of mortality amongst these children. But there are special causes besides. In the year 1860, at the instance of a committee of the Sanitary Association, an abstract was obtained of the causes of all deaths under five years of age, which took place in the year 1859, in the different districts of Manchester. On comparing these with one another, it was impossible not to observe in the poorer districts the excessive number of deaths from such diseases as diarrhœa, whooping-cough, measles, and bronchitis, disorders which are seldom fatal amongst the children of those who are able and willing to take proper care of them. In Ancoats, in the year 1859, out of 1,493, the total number of deaths, 435 were of infants under one year of age, and of these 92 were caused by diarrhœa or dysentery, 109 by convulsions. A careful per-

sonal inquiry by a deputation of the above committee in the same district of Ancoats gave still greater force to this observation, and the conclusion was irresistible, that the excessive infant mortality of Manchester was mainly owing to 'want of care and want of knowledge on the part of parents in the management of their children.' These are some of the causes of the past and present unhealthiness of our town. To the future we must look forward with mingled fear and hope. There is a strong tendency on the part of our population to become more and more massed together; and so long as this continues, there is much reason to fear that the rate of mortality will not materially diminish. Still there is a better feeling abroad respecting measures of sanitary improvement; men's minds are continually turned towards the various methods of ameliorating the state of that lowest stratum of society, which at present is such an opprobrium, and such a source of future danger to the prosperity of the country. So far as knowledge constitutes power, we are in a much better position now for preventing excessive mortality amongst our town population than we were formerly. We know more accurately the effects of impure air, whether arising from simple overcrowding, from accumulations of filth, or from the noxious outpourings of our manufactories. We have learnt not only that it probably conduces to the spread of epidemic disease, by lowering the powers of life, and possibly by favouring the existence of the morbid leaven, but also, what is even more important, that it is a powerful influence predisposing to scrofulous or tubercular disease. We have learnt the value of good water, and know more accurately what dangers lurk in its possible impurities. The cotton famine also, with all its privations, has taught us what are the best and cheapest articles of food, and how they may be prepared and distributed most advantageously to the poor, by means of public dining-rooms and kitchens. We are also more ready to meet outbreaks of epidemic disease; for, if we do not know much more about the diseases themselves, we have learnt more of their mode of distribution and of the circumstances favourable to their progress, and, by taking precautions against infection, we can ride out the storm of infection until its virulence has passed away. Our first care should be to provide better and healthier homes for the working classes. The building of large numbers of well-arranged dwellings for the poor would not only be a right and benevolent undertaking, but, with care and proper encouragement, would also yield a reasonable profit upon the outlay. The corporations of Glasgow and Liverpool have recently proposed to expend very large sums in rebuilding the worst parts of these towns upon improved plans. It would be well if all towns were to follow their example. All back-to-back houses should be done away with by breaking through the partition-walls, and no division between the back and front portion of the dwelling-houses should be allowed. Cellar dwellings should be entirely abolished. Over-crowding should be prevented, not only in lodging-houses but all other dwellings. A complete reformation is needed of the present detestable system of privies and ashpits, either by the substitution of a well-arranged and well-ventilated water system, or by some other means of completely preventing the accumulation of filth and the formation of noisome exhalations. All streets or alleys closed at one end should be made thoroughfares, and all courts or 'wynds' should be opened out at both ends by streets, not by covered passages. Wide, open spaces should be left in different parts of the town. Any fouling of the atmosphere by smoke or by any kind of injurious gases from manufactories should be prevented as much as possible. Reception-houses for infectious complaints should be established in different parts of the town, and upon the occurrence of any epidemic these should be increased in number as the need may be felt. Some more efficient control should be exerted over the sale of intoxicating liquor. District nurses should be appointed in every part of Manchester, not only to tend the sick poor, who urgently need their care, but also to act as missionaries of sanitary truths, to teach the value of the laws of health, and especially to guide mothers in the nurture and management of their children. A medical officer should be appointed to superintend all sanitary improvements, and to be responsible for the proper carrying out of the necessary regulations. Last, but not least, all those who are able themselves to escape from the deteriorating influences of a town atmosphere, should earnestly co-operate with the sanitary associations and Education Aid Society, and with the clergy of all denominations; and what is most important, should endeavour, with care and tact, to bring their personal influence to bear upon the inhabitants of the poorer districts, and, in spite of all discouragements, should strive to raise them from their present depths of ignorance and wretchedness."

The discussion that followed we will notice hereafter.

THE CITY TERMINUS HOTEL, CANNON STREET.

In December, 1864, some time before the completion of the Charing Cross Hotel, we gave a full account of that building, and endeavoured to contribute to the elucidation of principles of planning applicable generally to structures of its class. Another hotel, by the architect of the hotel at Charing Cross, is now so far advanced towards completion, that we are able to present a view of it, and plans of two of the floors. The City Terminus Hotel, in Cannon-street, resembles the Charing Cross Hotel in the position with reference to a railway-station and booking-offices; so that some of the arrangements of plan in the two buildings are correspondent. In the details of the structures, and the fittings, there is so much resemblance as might be expected; whilst in the decorative character of the designs, there is just enough to show that the two works are from the same hand. But there were objects to be attained in the Cannon-street building, in some respects different to those in the other case; and the peculiarities of site, affecting the entrance, the staircases, and the lighting of the basement, involved even greater difficulty. The decorative resemblance is chiefly comprised in the facts that both buildings have pavilions at the ends of the principal front, with high truncated roofs, wherein ornament in zinc plays an important part; that they have each a Mansard roof to the portion between these wings, and chimneys having small columns at their ends; that in each case there are enclosed porches to the wings, and a pent-roof for the whole length between; that in each there are balconies with flower-vases on the pedestals, and with the supporting cantilevers of the same character of profile; that the nail-head ornament of the Charing Cross Hotel rustication is repeated in the later work; and that terra-cotta is used. Nevertheless in the main forms that are correspondent as described, there are important differences of detail.

The objects to be attained in the planning of the City Terminus Hotel differed from those in the other case insomuch as the provision for public meetings and banquets was to be a leading feature. Thus whilst the design includes a good coffee-room, and the other requisites for travellers and residents, it has also a great hall for public dinners and balls, and a large meeting-room; and it has a restaurant, as well as a chop-room and a luncheon-bar, and besides the refreshment-bar and the dining-room that are immediately attached to the station. Including the ground-story, which we have alluded to as being chiefly appropriated to the railway booking-offices, there are four ordinary stories in the principal front of the building, above ground, and two stories in the roof. Between the pavilions, however, only one story of dormers appears in front. The lighting to the top-attics is partly managed after the fashion of a clerestory, at the back, above the corridor,—that is, so far as regards the range of dormitories towards the front of the building. In the Charing Cross Hotel there are five stories of ordinary windows, including a mezzanine; whilst each pavilion has an additional story; and there are two ranges of dormers in the centre-portion of the front, and three ranges of dormers and lucarnes in the pavilions.

The frontage of the Cannon-street building is about 213 ft. in length: that of the Charing Cross Hotel is 227 ft.,—the railing in the Strand being 11 ft. longer. As, however, the Cannon-street building occupies merely the area of ground at the end of the station, or has nothing resembling the Villiers-street portion of the Charing Cross Hotel, the accommodation afforded is considerably less than that in the other case. In the Charing Cross Hotel, the Villiers-street frontage is of great importance for the lighting of the offices: for, as the street there descends, many of the windows, including those of the kitchen, are wholly above ground. But in the Cannon-street Hotel, windows of the ordinary kind could be got only at the two ends of the ground, or east and west; and the kitchen, which is at the east, had to be lighted from an area.

The site of the Cannon-street Hotel and Station is bounded on the east by a new access to the southern portion of Bush-lane, or westward of the present junction of that street with Cannon-street,—and on the west by Dowgate-hill. Between the limits, Cannon-street has a considerable descent from east to west; moreover, the site and platform-level of the railway-station had been so fixed, by the engineer, that there is a somewhat steep incline everywhere from the station to the street. These conditions have led to the peculiar disposition of the enclosure of the forecourt (not included in our plan,) along with the ways of entrance and exit, which are certainly less convenient for carriages than those of the Charing Cross station. It is not the arrangement of the single gate for entrance from the street, and one for exit,—the latter close to the other, and requiring that a carriage going westward should make several rather awkward turns,—that is to be regretted, so much as that of the steps (shown in our plan), which have to be ascended by every one who arrives in a carriage, and is set-down at the booking-offices. Persons hastening to catch a train, and not accustomed to the station, will be very liable to accident. The cab-exit way, from the station, of course enters the forecourt in the western half of the ground, or opposite a portion of Cannon-street that is lower, by 2 ft. or 3 ft., than the spot where the entrance-gate, opposite the booking-offices, is. In fact, there is a total descent of 9 ft. or 10 ft. from the platform-level, to the front in Cannon-street which is opposite the cab-exit way at the building,—the total descent to the north-western angle of the ground being as much as 12 ft. nearly. The doorways of the booking-offices are distant about 90 ft. from the Cannon-street line, and having the pent-covered footway in front of them, 13 ft. in width, and level from end to end of the building, excepting where cut through by the cab-exit way. Thus it was scarcely possible to plan any other route for the outgoing carriages than the circuitous one which got over the one evil, of a very steep incline. As regards the access to the booking-offices for persons arriving on foot, the inconvenience has been reduced to the smallest possible quantity; if indeed the conditions are not turned in every respect to advantage. A footway on an inclined plane leads from the north-eastern angle of the ground, or the highest part in Cannon-street, to the level of the booking-offices footway; and there is a similar incline, parallel with Dowgate-hill, at the opposite end, but in this case reached by a flight of twelve steps, required from the descent of Cannon-street. As regards the original incline opposite the centre of the building, and to be ascended by pedestrians who choose to cross the fore-court, it is surmounted by the help of steps, in all about 15 in number: half of them, leading up from the fore-court to the same level as that reached by the side-inclines, that is the footway to the doors of the booking-offices, are shown on our plan; and the other half afford the ascent to the fore-court from the street-footway. The feature of the steps up to the booking-offices being dictated, it has been skilfully seized hold of, and turned to account by the architect, for getting light and air to a portion of the hotel-basement that otherwise would have been quite dark.

The dimensions of the building on the ground, taking in all projections, except those of the porches, and areas, may be stated as 218 ft. by 92 ft., the latter being the dimension through the building. The middle of the Cannon-street front, which comprises eleven bays, is recessed 7 ft., taking the extreme dimensions. The porches project 14 ft. The area to the kitchen and scullery windows, at the east, is 5 ft. in the clear width; and there are an area and cellars under steps and footway of the booking-offices. But out of the space of which we have just given the dimensions, an area of about 92 ft. by 40 ft. is deducted from the upper stories and the attics; this space being above the roof of the great hall, and bounded on one side by a portion of the north end-wall of the railway-station. The height of the main portion of the building, comprising the four ordinary stories, is 76 ft. 3 in., measuring from the ground-floor line (which is 10 in. above the level of the rails), to the top of the cornice. Above this, to the highest part of the main roof is about 23 ft., and to the highest part of the pavilion-roofs, 32 ft. A tower at the south-east angle, containing a ventilating-shaft

and the kitchen-flue, rises higher; whilst the highest points of all are reached by the gilded metal-work finials of the spire-cappings of the two turrets which are grouped with the pavilions in the principal front. Beyond the area of plan that has been mentioned, and within the railway-shed itself, are, on the western side, the refreshment-bar for the station, and the serving-room, with the station dining-room over; and, on the eastern side, parcels' offices of the railway. In front of the building, a portion of the length of the eastern end of the forecourt, a narrow strip, is occupied by offices, one story in height above the ground, for the railway-company or other business-purposes; and here also there is an ascent by steps, affording access to the booking-offices platform direct from Bush-lane.

The whole of the basement, with its mezzanine, and one of the arches under the station, and the whole of the floors above the ground-story, are appropriated to the purposes of the hotel. Of the ground-floor, the only available space for the hotel consists of what falls within the western pavilion and its turret, and of the small space at the south-east angle of the ground, which has been appropriated to service-stairs, a store-room, lifts, and the kitchen-flue.

The entrances to the hotel are on two levels. There is an entrance from the front, which leads straight through the building to a second entrance which is from the arrival-platform of the railway. The latter entrance is close to the foot of the principal flight of steps of the grand staircase, near to which also are the rising-room for luggage, and the west service-stairs. The principal entrance to the hotel however may be said to be one that there is on the floor below. Dowgate-hill descends a story; and, corresponding almost with the basement of the rest of the building, stands clear above ground at the western end of the structure, and has its own basement below. The staircase in fact commences from the level of the Dowgate-hill entrance; and there, rather than in the forecourt of the station, carriages may be expected to take-up and set-down. A small office is placed on one side this entrance; and there is a messenger's closet on the other, with one window looking to the doorway, and one to the service-stairs. The rising-room for luggage is at hand; and opposite the entrance is a porter's room. Next Cannon-street, on the same level, and also entered from Dowgate-hill, are the luncheon-bar and chop-room, with a serving-room, and with lifts from the refreshment-room kitchen and scullery which are below; and which last are lighted from an area on the Dowgate-hill side. In the basement, here, are various cellars and cleaning-rooms, besides a communication by stairs to the railway refreshment-room. A thick wall separates this portion of the building from that which is under the booking-offices; and in its thickness are the principal lifts for beer and wine. They could not conveniently pass through the booking-offices. The manager receives wine, by one of the lifts, on the first floor, in his bar and room, which are placed opposite to a serving-room of the great hall, and are within short distance of the "restaurant dining-room" on that floor. Of the remainder of the basement, what is under the booking-offices contains coal- beer- and wine-cellars, a boiler- and engine-house, and an oven; places for stores; a plate-room, and a "strong-room;" a steward's room, a servants' hall, a servants' sitting-room, and an office; whilst in a mezzanine to this basement are some of the dormitories and bed-rooms for servants. A longitudinal corridor, 15 ft. in width, runs from the position of the western pavilion to that of the eastern pavilion, in which is the kitchen. It is lighted by a borrowed light, at the end, from the kitchen.

Owing to the peculiar requirements of the railway-station, there was the utmost difficulty in getting light to the basement-rooms which are between the pavilions, whether at the front or at the back. In the latter case, it might have seemed easy to contrive areas, with glass floor-lights in the station, as at Charing Cross. But experience shows that such lights are apt to be covered with luggage, or something less moveable. The arrangement at Cannon-street, therefore, on the station-side, has been one of an enclosure, to the area, formed by the structure of pigeon-holes in which the luggage-labels are kept. Some use, however, has been made of an ordinary arrangement of floor-lights: but, as regards the basement and basement-mezzanine rooms in front, the chief light is obtained by filling-in with glass the risers of the steps to the booking-offices terrace, (which steps appear in our plan,) the whole length of the front between the porches of the pavilions, and including the returns at the cab-exit way. Frequent apertures are left for ventilation. The glass is fixed in iron framing which carries the steps; and these steps, or treads, are so set in the framing, that they can be taken out at any time and renewed. By the arrangement of the risers, there is a well-lighted area beneath the terrace; and in the area there are larders, places for cleaning knives and boots, and various conveniences.

The kitchen, at the eastern end of the basement, measures about 42 ft. by 22 ft., exclusive of two large recesses, in one of which may be a serving-window. Attached to the kitchen are two large sculleries. The serving-lobby and lifts are close to the east service-stairs; which occupy the south-east angle of the building, as before mentioned. The cook's room is in a mezzanine at one end of the kitchen, over one of the sculleries; and at the same level is a large cistern. The arch under the station-platform is much of it appropriated to cellarage for the refreshment-room of the station. The coal-shoot is placed at the base of the eastern wall of the cab and carriage exit shown in our ground-plan.

On the ground floor, as our plan shows, the whole of the space, exclusive of the western pavilion, and of the east service-stairs, with the lifts and kitchen-flue, is occupied by appurtenances of the station. There are five or six sets of ticket-taking places served by three sets of clerks; that is to say, in the principal office the clerks are placed between opposite windows, or openings,—according with the system in use by some of the companies, but not on several of the older lines. At the east end of the ground are the telegraph-office, entered from under the porch, and the cloak-room, 42 ft. by 23 ft.: then there is the entrance-passage for luggage; and then follow one of the ticket-taking places and a passage to the trains, the space for clerks, the central space of the general booking-office, and then clerks and passage as before, but reversing the positions. The whole booking-office measures 78 ft. by 33 ft. A centre-passage leads from the principal booking-office, to the trains; and it has on each side of it the different waiting-rooms, the larger rooms being 23 ft. by 22 ft. each. A smaller booking-office is placed next to the hotel-portion of the ground-story, or separated from the other by the inclined roadway for the cabs and carriages leaving the station. Beside the roadway is a footway on the terrace-level, fenced in by an iron rail and granite posts. Over the cloak-room and telegraph-office is a mezzanine, with a sitting-room and three bed-rooms, probably to serve for residence of the telegraph-clerks.

As regards the hotel itself, there are, as already mentioned, two entrances on this floor, one from the front of the building, and the other from the arrival-platform of the station, besides the entrance on the lower floor. The corridor from the entrance that is in front, passes by a public dining-room, 42 ft. by 23 ft., called the lower restaurant,—there being over it, the "restaurant dining-room." At the north end of the "lower restaurant" is a waiter's bar, which can be entered from the exterior, under the porch, and which has attached to it different lifts. One of these is for wine; and the other communicates with the kitchen that is on the basement, or floor next but one below. The refreshment-bar of the station, and the dining-room over it, we may observe, have their separate staircases, including service-stairs. The steps and landings of the principal staircase are carried by wrought-and-riveted iron girders at the ends furthest from the wall; and they are of rough York stone adapted to receive treads of Hopton Wood stone, (which can be renewed,) and, similarly, covering to the risers, of stone or tiles. The bottom-steps of the principal flight terminate with a bold sweep or curtail; the balustrade is carried on a stone plinth or string; and the newel, at the foot, has attached to it a scroll-buttress. The space occupied by the principal staircase measures 38 ft. by 24 ft.

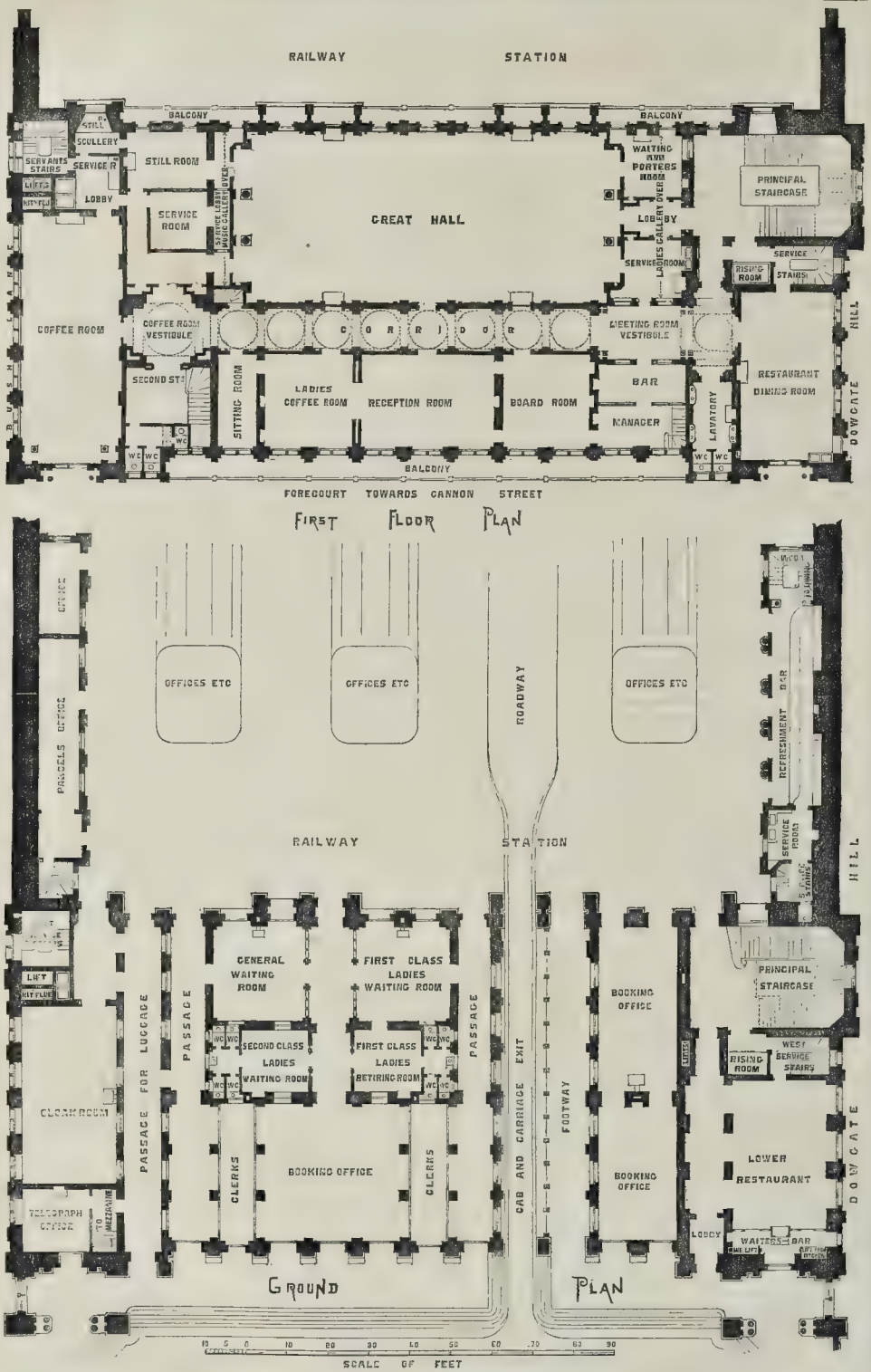
On the first floor, the bulk of the space is occupied by the Great Hall with its adjuncts. The Hall is placed between the principal staircase, and that portion of the building where the east service-stairs are, at the other end. The hall will measure 93 ft. in length, or about 114 ft. with the recessed galleries,—one for ladies, and the other for musicians; and it will be 41 ft. in width. The height to the ceiling in the centre will be about 36 ft. There will be Corinthian columns at the ends, and pilasters at the sides, carrying an entablature with cantilevers. From this entablature will rise a cove to carry the central *plafond* of the ceiling. The hall is lighted partly by double-glazed windows, in two tiers, from under the station roof,—the upper tier arch-headed,—partly by lunettes groining into the cove, and partly in the *hypathral* manner, somewhat as practised by Mr. Barry in the Halifax Town Hall, but improved. The glazing of the coffers will take the square-domical form. An outer roof, glazed, will be thrown over all; and the space between this latter roof and the ceiling will be in communication with the flue of the kitchen, that ventilation may be effected. There are balconies looking into the station from the windows of both levels; but should the noise of trains be found to interfere with uses of the room, the side-windows could be bricked up,—the lighting from the top being itself adequate. The principal entrances to this hall are one at the western end, or from the principal staircase, between a waiters' room and a service-room which are under the ladies' gallery, and one in the middle of the side from the main longitudinal corridor of the hotel. There are other entrances for the service, including what are at the eastern end.

The corridor, 10 ft. in width, leads from the restaurant dining-room, to the coffee-room; which latter occupies the whole length of the eastern frontage, excepting what is appropriated to the service-stairs, and the flue and lifts from the kitchen. The coffee-room is 59 ft. in length and 24 ft. 6 in. in width; and is lighted by five windows in the eastern side, and one at the end in the principal front. The restaurant dining-room in the western pavilion measures 42 ft. by 23 ft. One of its entrances is from the service-stairs attached to the principal staircase. Near to it, in the turret of the front, are lavatories, besides two of the W.C.'s. The longitudinal corridor, commencing from the restaurant dining-room, but entered by a transverse passage from the principal staircase, starts with a space called the meeting-room vestibule, which is decorated with Ionic columns in the angles, and is separated from the serving-room on one side, and the bar and manager's room on the other, by glazed screens. The wine-lift is within the bar: so that the service of wine can be conducted and supervised expeditiously and completely. The manager has a room in a mezzanine (of which the stairs appear in our plan), as well as a "bar-cellar," a place for stores, and a W.C. The corridor, running eastward, and having the ceiling formed as domes and pendentives carried by arches springing from pilasters, passes by a "board-room," 22 ft. by 21 ft.; a "reception-room," 32 ft. by 22 ft.; and a ladies' coffee-room, 22 ft. by 21 ft., which can all be thrown into one suite, and by a small sitting-room, and ends in the coffee-room vestibule. At this point, a second staircase ascends.

The windows of this first-floor, between the pavilions, have a continuous balcony, which is carried on cantilevers. From these last are projected the supports, which at the other end are tailed into the wall, from which is suspended the pent-roof over the doors of the booking-offices.

In the second-floor, the principal feature is a large meeting-room. It is very nearly 80 ft. in length, is lighted by seven windows in the front, and has attached to it a large business-room at one end, and a small ante-room at the other. The longitudinal corridor between two ends of the building is omitted on this floor: the way would be by the staircases, unless through the meeting-room. There is another business-room, over the restaurant dining-room; there is a large dining-room over the ladies' gallery of the great hall, and partly carried by suspending-irons from one of the girders over the hall; there are three small dining-rooms over the service-rooms of the opposite end of the hall; and there are two large dining-rooms over the coffee-room. The W.C.'s are in the turrets of the front; and next the western turret are lavatories, as on the floor below. At this level the principal staircase ends; but from the landing, a smaller staircase ascends to the third floor: this is additional to the "second staircase" and the two service-staircases. Over two portions of this floor are mezzanines, providing four small dining-rooms, two bath-rooms and a lavatory,—these reached from the second staircase,—and a linen-room, which is partly in the western turret, and is reached from the service-stairs.

On the third-floor, there is again a business-room over the restaurant dining-room; and there



THE CITY TERMINUS HOTEL.



THE CITY TEMPLARS HOTEL, CANNON STREET, LONDON.—Mr. E. M. Barry, A.R.A., Architect.

is one over the principal staircase. The remainder of the floor is filled with bed-rooms, dressing-rooms, and bath-rooms, along with four rooms that are intended for sitting-rooms. They are all lighted from the three fronts of the building, and from the open space which there is above the roof of the great hall. They are reached by a longitudinal corridor, 5 ft. in width, running from the landing of the second staircase, and by transverse passages which are connected with the other staircases,—one of them, in the western division of the building, passing near the rising-room for luggage. The corridor gets part of its light, borrowed, by an opening over the fire-place, in the wall of the west business-room.

In the fourth-floor, one of those in the roof, lighted by dormers, there is a billiard-room, in the south-west angle of the building, with lavatories attached.

The attics above, contain some ordinary bed-rooms, lighted from the space over the great hall, and servants' dormitories. The latter have a ceiling taking the slope of the roof; and their windows are placed looking in the same direction as those of the other bed-rooms, but just above their roofing and that of the longitudinal passage. This last is lighted from the top. In each of the pavilions there is a small space at the top of the roof, for storage.

The heights of the principal stories, or measured from floor-line to floor-line, in the hotel, are, for the ground-story 20 ft., the first-floor 20 ft. (the hall being of greater height, as stated), the second-floor 21 ft., and the third-floor 14 ft. 6 in.; whilst the fourth-floor, which is in the roof, may be 10 ft. or 11 ft., or 15 ft. in the pavilions. Those bed-rooms in the attics which have flat ceilings may be about 8 ft. in the clear height.

Much of the space in the building being devoted to rooms for dinners and meetings, there are few bed-rooms in proportion to the size of the structure, or as compared with the provision in the Charing Cross Hotel. There appear to be eighty-four bed-rooms, and dressing-rooms capable of being appropriated as bed-rooms; that is to say, twenty-seven on the third-floor, thirty-seven on the fourth-floor, and twenty in the attics, besides the servants' dormitories. These last, in the attics, are supposed capable of providing for forty-six beds, there being ordinarily four or six beds in a room, and about 800 cubic feet of space for each bed. The space is not more than necessary, considering that generally the ends of the beds have to be placed where the slope of the roof comes within 5 ft. of the floor. To this provision for servants must be added that in the basement, and its mezzanine, or perhaps ten more beds. There are five bath-rooms in the building.

The corridors of the principal stories will receive part of their light through doors of some of the rooms; which are glazed in the panels, besides having fanlights over. Mirrors will be placed in recesses where there are no doors, and where effect can be produced. The coffee-room will have large mirrors on one side, excepting in the middle where the door is, corresponding with windows opposite; and the ceiling will be divided in the length into five compartments, by beams with enriched soffits, each compartment being filled in with three circles, having a flower in the centre of each, and having a margin of enriched mouldings. The end of the room, where the large window is, opening on to the flat over the porch, is treated as a recess with Ionic columns.

Much of the internal plastering is still in progress. The drawings show that the great hall will be elaborately enriched in the ceiling and cove, as well as on the walls; where there will be four chimney-pieces to fire-places, as prominent features. For plastering the walls of the principal corridor, Keene's cement, second quality, is used, gauged with stone-dust. In the rendering of the plain faces, Portland cement is used; whilst the mouldings are prepared with Keene's cement gauged with one-half sand. In some of the ceilings the canvas-plaster is used, for lightness, and to escape slow drying. The quarter-partitions have three thicknesses of lath and plaster, or including one thickness which is worked in the middle, between the quarters. The corridor-floors, as well as the staircases, are of "fireproof" construction: the floors, generally, or of the rooms, are boarded.

On the exterior of the building, much more use is made of cement than in the case of the Charing Cross Hotel. This must be regretted. Terra-cotta is extensively used. Amongst the leading features are, the spire-capped turrets, and the continuous balconies; which latter, to the windows of the first and second floors, between the pavilions, are carried on bold cantilevers. Also distinctive of the building is the mullioned-and-transomed filling-in of the window-openings, in these floors, and the carrying the nail-head ornamentation on to the faces of the dividing members of the opening. The pilasters on the piers between the windows of the first-floor, are enriched somewhat in the manner of the Renaissance: the piers of the story above have columns. The top-story below the cornice is treated as a range of coupled lights, arch-headed. The pedestals of the crowning balustrade have rusticated obelisk-formed terminals, or of Elizabethan character, in terra-cotta; each one having a small gilt ball at the top. The dormer-windows in the centre of the principal front are arch-headed; and the slates between them are cut ornamentally. It is, perhaps, a slight defect that the crowning balustrade of the building interferes somewhat with outlook, or excepting at the pavilions. The windows of the pavilions are emphasized by added columns, or pilasters; that is to say, these members are coupled. The dormer window is made an important feature,—two arch-headed lights, with pilasters and trusses, carrying a pediment whose tympanum is enriched. Similar windows are repeated in a row at each end of the building. That angle of the pavilion which is the same as the angle of the building, has in each story a broad *anta*-pilaster with enriched capital; and at the top, the angle is crowned by a small turret, or tabernacle, with domical capping and a gilt spike-finial. In the upper part of the pavilion-roofs there are lucarne-lights. The roofs are ornamented at the angles, and at the edges round the flat top of each pavilion, by very bold ornament in stamped zinc, executed, like that of the other hotel, by French workmen. The turrets of the principal front serve as the bonds of union between the decoration of the centre, with which they most assimilate in detail, and that of the pavilions to which they belong by position. Each of them terminates in a belvidere-story, open, above the cornice, and with a domical covering, ending in a spire,—the whole being square on the plan,—and the domical portion and the spire being in zinc, in the latter formed as scales. The porches are plainer than those of the Charing Cross Hotel; but we prefer them as to design. The inclosure of the fore-court, with lodges, steps, and stone-posts, will be much better in effect than the inclosure at the West-end hotel,—however inferior in point of convenience may be those arrangements which have been governed by the railway-engineering. The front of the hotel looking into the station has three lofty and bold arches as its leading features, each spanning three bays of the balconied windows, and having coffers in the soffits enriched with rosettes,—the whole being very effective, though in cement. We may add that taste is shown in some of the decorations of the refreshment-bar of the station. The whole building, exclusive of the booking-offices, as also of the station, is likely to cost about 100,000*l*. The work is being executed by Messrs. Lucas, Brothers, under Mr. E. M. Barry's direction, Mr. M'Gill being the architect's clerk of the works.

The building is likely to be completed soon after Christmas, so that the hotel may be opened early in the spring. At present, in the great hall, much remains to be done.

ITALIAN NOTES.

The other day we enjoyed a private view of the bronze *David* cast by Papi, from the original of Michelangelo, at the foundry, an establishment that dates since the change of Government in Florence, where various other works are now to be seen on application. It is not too much to say that the impression received from that colossal statue is completely *new*, and the sense of beauty it raises in the mind almost such as to eclipse that received from the original in marble; this being, perhaps, due to the advantage of seeing the bronze at a level, so much more suitable for appreciation than that from which we look up to this marble statue on its high basement before the Palazzo Vecchio, whereas, in the foundry, we may either examine the figure from the level where it stands, or from a flooring above, at a height little lower than the knees. Especially were we struck by the power of grandeur of the head, the expression of indomitable energy, combined with characteristics of youthfulness, to a great degree lost, and from a distance entirely so, in the original marbles as now placed beside the clumsy *Hercules* of Bandinelli. That celebrated colossal statue, one of the few left complete, by Buonarotti, which has stood where we see it in open air for more than three centuries and a half, was ordered by the *Signoria* as an intended symbol of the force and justice of the Florentine Republic in her resistance against oppression (see the archæological papers in the *Calendario Fiorentino*, a valuable but defunct periodical), was commenced in 1501, and erected before the palace in 1504, the great artist having had the disadvantage of working a block of marble already used (in 1463) by another sculptor, Agostino de Guccio, ordered to prepare some other gigantic figure for adornment of the principal piazza, but which, it seems, was abandoned soon afterwards both by employers and employed. In a popular tumult, excited by hatred against the Medici, that broke out on arrival of intelligence of the siege and sack of Rome, in 1527, the Palazzo Vecchio was attacked, and in defence some missiles hurled from above struck the statue, breaking off the left hand, with part of the arm, afterwards fastened on (with the original pieces, fortunately in no part lost), by contrivance but too conspicuous at this day. Otherwise the marble has only suffered through some discolouring and a partial duskiness, the natural effect of exposure, and the project has been deferred to a committee to have it removed to the museum in the "Pretorio," that the bronze may succeed to its place in the open air,—a question not yet decided, public opinion being, as we understand, in favour of the removal. At the foundry we also see, at present, beside the *David*, a statue almost alike colossal, in the transitionary stage before casting in bronze,—namely, a clay model covered with a coating of yellow wax, by Cassiano of Turin, and destined for some public place in that city, as a monument to Colonel Lamarmora (brother of the General), who fell in the Crimean war, here represented in act of combat, with drawn sword in hand and plumed hat on head, the costume that of an officer of "*Bersaglieri*." Not well for the artist's reputation was it to place this figure beside the majestic creation of Buonarotti, for its conception is vulgar, its action not only violent but furious; and, if the gallant Colonel could speak in effigy, we should expect some tremendous oath from his lips! From such a work we turn with relief to others on exhibition at the foundry;—bronzes from the *Perseus* of Cellini, reduced in scale; the *Venus*, wringing her hair after the bath, of Gian Bologna (original at La Petraja, the royal villa near Florence); another head, in all its appreciable grandeur, of the *David*, and several fine specimens of *ornato*. On the 19th inst. the "Sindaco" of Florence signed a contract with the firm of Laidlaw (Glasgow) for the construction of the aqueduct, long since projected, to supply this entire city with water; the firm having deposited 10,000 francs as first instalment for security, which will finally amount to a revenue of 40,000 francs before the works are completed; the water to be brought from mountain sources, and certainly most desirable, as the present potable supply in Florence is inferior, hard, and unrefreshing to taste. Except in the Boboli Gardens, the ornamental fountain is a feature here unknown. On the 18th ultimo appeared, *affiché* in the streets, a proclamation from the Royal Commission for the Paris Exhibition, signed by the President Devincenzo, setting forth the importance to the national honour and interests of the object in view, and calling on all local authorities zealously to co-operate; and on the next day was published a circular from the same Board, addressed to all prefects of provinces, expressing the regret for the limitation of time and scantiness of financial means, but not the less the confident assurance that all responsible will answer worthily to the calls of duty and patriotism. Allowing for the usual superfluities of rhetoric that characterise Italian profession and promise on all occasions, we may conclude that the steps taken by this committee have been, on the whole, judicious, the proof of aroused energies satisfactory.

An architectural novelty here (Florence) is the large edifice, now nearly complete, on the Piazza S. Marco, for the Ministry of War, built round a quadrangle in three stories above the ground-floor, of imitation stonework, with considerably projecting cornice, dog-tooth and other mouldings between the window-ranges, and horizontal

frontispieces to the windows themselves; altogether a thing of which we cannot report favourably, wanting relief and character,—in spite of scale, insignificant. The Corsi Palace, by the architect Buonajuti, has been also criticised for want of relief, but leaves the other contemporaneous performance quite in the shade. We may expect improvements and added dignity to the Piazza della Signoria from the decreed demolition of the plain and ponderous building once the post-office opposite the Palazzo Vecchio, and from of old known as the Tetto die Pisani.

The following, which has gone the round of the Florentine papers, may be read with interest:—"Out of regard for justice, it should be stated that the pictures of the Doge's palace, referred to in the letter from the Venetian Institute to General Menabrea, published in several periodicals, have been restored in consequence of the energetic remonstrances of the conservator of the same palace, Signor Paolo Fabris."

THE THEATRE.

New Holborn Theatre.—In our brief notice of the new theatre, last week, we omitted to say that the architects were Messrs. Finch Hill & Paraire. We gladly supply the omission.

Haymarket.—Mr. and Mrs. Charles Mathews have brought back the "Overland Route," Mr. Buckstone also playing his original part, and this, with "The Critic," suffices to fill the house. In the latter play, the double personation by Mr. Mathews, is a masterpiece of art. A new comedy is promised.

At the *Princess's*, Mr. George Vining has revived "The Triple Alliance," a neat and interesting comedietta, he himself playing with excellent effect the principal character. "The Huguenot Captain," admirably acted by every one concerned in it, maintains its attractiveness.

The *Royalty Theatre*, in Dean-street, under the intelligent direction of Miss M. Oliver, steadily improves its position. The house has been very pleasingly decorated by Mr. E. W. Bradwell, a name long honourably known in connexion with theatrical decorations.

Gallery of Illustration.—Mr. and Mrs. German Reed and Mr. John Parry have re-opened with the "Yachting Cruise," and the inimitable "Wedding Breakfast." A novelty is in preparation, but will scarcely be needed for some time.

THE NEW THEATRE IN LIVERPOOL.

The Prince of Wales Theatre and Opera-house, built by a limited company, will be opened on Monday next. For the particulars now given we are indebted to the *Albion*. The site selected is in the centre of the town, adjoining the principal railway and the leading hotels. Mr. Salomons, of Manchester, was the architect. The building has a front to Lime-street, which is of the Italian order, faced with fire-brick and Stourton stone, while over the middle windows are carved busts of Shakspeare and other great masters of the drama and of opera. There is a separate entrance to each department of the house; and a covered carriage-drive running the entire length of the building. The entrance from the carriage-drive leads direct to a commodious crush-room, attached to which are gentlemen's retiring-rooms, including a smoking-room. There is also an entrance to this crush-room from the centre of the front in Lime-street. The room will be decorated. From this apartment a staircase, 12 ft. wide, leads to the Foyer, on a level with the ground-floor of the theatre. This Foyer, which it is intended shall be handsomely furnished and decorated, will form an apartment for introductions and conversations during the intervals between the plays or acts. Adioining, to the right, are the ladies' retiring-rooms, while a short staircase leads to a refreshment-room beneath. From the Foyer there are two doors leading into the body of the theatre, which, contrary to the usual practice, is devoted to stalls, dress circle, and private boxes, the pittites having been promoted to that which is usually the dress circle, principally with the object of affording space for greater numbers than the body of the theatre can conveniently accommodate, the seats being there 800, while in the body they are only 400. They, too, are supplied with a roomy Foyer, and with retiring-rooms. The entrance to the pit circle is from the right of the front in Lime-street, by a broad and decorated stone staircase. There is a sufficient space between the Foyer and the dress circle for a promenade.

The entrance to the gallery is from the rear, in Padsey-street, and the stone staircase is wide and lofty. The gallery itself is light, airy, and commodious. It will seat 1,000 persons. Every seat in the house, unless it be a few in the private boxes, is said to command a perfect view of the stage. The decorations in all parts of the house have been entrusted to Messrs. Jeffery, and are being superintended by Mr. Pantenius. The ceiling will bear portraits of the great masters of the drama, and gilt and tinsel and rich colours are being applied with effect. The proscenium is about 29 ft. square; but it represents only a third of the width, and not a fourth of the height behind. The machinery of traps, ropes and drums, and slides, is of the most elaborate kind, much of it new in idea. There are drums and pulleys in the flies, 75 ft. above the stage, and pulleys and drums in the cellars, 25 ft. below it. The stage has been constructed under the superintendence of Mr. H. Drummond. Above the level of the proscenium there is a scene-painting room, wherein scenes of the largest size may be painted and lowered direct to the stage. Another arrangement, the invention of Mr. Salomons, the architect, is that by which a single person, placed in front of a system of taps, effectually controls all the gaslights of the stage and of the house, and he can, by a touch of an electrical button, relight instantly, if needful, every burner in the house. Another new and excellent arrangement is that in regard to the footlights, which are sunk slightly below the stage level, but by a system of reflectors throw a strong light upon the stage, while the glare of the lights themselves does not dazzle the spectators. The manager's offices, treasury, &c., are at the rear of the theatre, and have entrances from Padsey-street.

ACCIDENTS.

At Peckover-walk, Bradford, a stonemasons' shed, under which fourteen or fifteen men were working, suddenly fell last week, crushing most of the men beneath it. One man was killed, four or five were severely injured, and the rest were slightly hurt. The framework of the shed was too weak for the heavy stone covers. The shed had been built by the workmen themselves. The witnesses were at some loss to assign any sufficient cause for the accident, but in the opinion of some among the jury, it had arisen in consequence of the rafters not having been firmly secured to the supports in the rear of the shed. A verdict of "Accidental death" was returned, but the contractor was cautioned by the coroner to take care that in future the erection of such structures was superintended by a competent person.

At Bradford, also, an inquest has been held on the body of a man who was killed at the works of Messrs. James Wilson & Son, joiners and builders, by the fall of a portion of the cornice of an engine chimney, then in the course of erection. The cornice, which had been moulded at a firebrick manufactory, and consisted of four courses, the upper and outer one containing twenty-four segments, weighing about 4 stones each, was being laid at the time of the accident. An examination of the chimney had been made by Mr. William Moulson, contractor, who stated that, in his opinion, if the first and second courses had been properly jointed with dowels, it would have been impossible for the cornice to have fallen. Mr. Robert Pollard, of Leeds, the contractor, who was on the summit of the chimney at the time the accident occurred, was not examined. The jury returned a verdict of "Accidental death," but added that, in their opinion, the contractor was not free from blame, and he was suitably admonished by the coroner. Mr. Pollard expressed his regret that the accident should have occurred, and his determination always to make use of dowels in similar work for the future.

At Derby a labourer had just taken his shift in a sewer, 13 ft. deep, that is being made from Osmaston-road to Normanton-road, when, through the sides of the sewer not being propped, a great quantity of earth fell, and buried him underneath. The men engaged on the job at once made every endeavour to rescue him; but, just when their efforts were being crowned with success, there was a second fall of earth, and then a third fall. It was two hours before the poor fellow was extricated, and life was then quite extinct. He was in the employ of Mr. Jackson, local board of health contractor.

A correspondent of the *New York Herald* gives an account of a terrible catastrophe that occurred in San Francisco on the morning of the 17th August. He says,—"A building known as the Summer-street House, in Summer-street, a few doors west of Montgomery, used as a boarding-house, fell to the ground about two o'clock in the morning, burying in the ruins nearly all the occupants. The exact number in the establishment at the time is not correctly known, but it is thought to be between thirty and forty. Already eight persons have been taken out dead, and fifteen to twenty wounded. The accident appears to have been caused by the following piece of gross carelessness: A cellar was being dug alongside the building, and those employed upon the work the day before went so deep as to undermine the east wall of the building to a degree that left it almost without support."

PROPOSED GOVERNMENT INQUIRY INTO THE CONDITION OF THE METROPOLIS.

It will be remembered that at the recent meeting of the Metropolitan Sanitary Association, a resolution was passed, urging the appointment of a Government Commission to inquire into the sanitary condition of the metropolis, with especial reference to the present attack of cholera, and that a deputation was named to see the Government on the matter. An appointment having been sought for that purpose, a letter has been received from Mr. Walpole, stating that the Committee of the House of Commons appointed to inquire into the Metropolitan Local Government is about to deal with the whole of the subject; and Mr. Walpole, therefore, "thinks that it would be superfluous, and, perhaps, disadvantageous, to recommend that a Royal Commission should be appointed to make a similar inquiry; and under these circumstances, he concludes the Association would not wish him to receive a deputation on the subject."

NEW WEST PIER AT BRIGHTON.

The new pier, built under the direction of Mr. E. Birch, C.E., was opened last Saturday. The capital raised for constructing the pier by the company was 25,000*l.*, and the contract price was 21,890*l.* Messrs. R. Laidlaw & Son, of Glasgow, are the contractors, and it is stated that they will sustain a loss on their contract of from 10,000*l.* to 12,000*l.* The structure is 1,115 ft. in length, and extends into 8 ft. of water at low spring tides. The abutment or first portion of the structure in 290 ft. long and 140 ft. wide; the second portion, reaching to the head, is 560 ft. long and 55 ft. wide; and the head, or seaward end, is 310 ft. long and 140 ft. wide. The foundations consist of cast and wrought iron screws, fixed in the bed of the sea, and upon these are raised cast and wrought iron columns and piles, which sustain the whole superstructure. These columns and piles are braced and tied, to obtain the greatest amount of stiffness with least amount of resistance to the sea; and immediately upon them are placed the main wrought-iron girders and transverse wrought-iron girders, for the support of the roadway, which is of close planking, covered with a light coat of asphalte. On the top of the main girders, and along the entire length of the structure on either side, ample and continuous sea-accommodation for 2,000 to 3,000 persons is provided. The entrance to the pier from the Esplanade is 265 ft. wide, with ornamental gates and the necessary toll-houses, &c. The area of the abutment is 33,000 ft., and being of a higher elevation than the rest of the structure, the lower level is reached by a flight of easy steps 90 ft. in width, provision here being made for perambulators and Bath chairs, by an incline on either side of the roadway of the abutment. At the end of the abutment are erected two ornamental houses available for shelter; the area of the portion between the abutment and the head is 31,000 ft., and at its junction with the head occur two more ornamental houses. The head of the pier has an area of 39,000 ft. (making altogether over 100,000 superficial feet of promenade), and at its seaward end are placed two ornamental

houses. The main feature of the head, however, is the erection of ornamental weather-screens. These are so situated that promenaders can sit down sheltered from the wind in whatever quarter it may be, as the back of the seat is composed of glass, which gives the additional advantage of affording a view of the sea as well as what is doing on the extended area of the head. These screens are also roofed to protect visitors from the rains and the heat of the sun. Underneath the head of the pier convenient landing-places for steamers and boats, at all stages of the tide, have been provided, protected by fender piles of timber.

In addition to the "toll-houses" there are six octagonal-shaped erections, two of them,—those at the extremity,—being for ladies' and gentlemen's retiring-rooms. The two at the other corners of the head are for refreshment-rooms; and the other two nearest the shore for toy or fancy businesses. In each of these houses is a spiral staircase leading to the roof, from which a panoramic view of the town and coast can be obtained.

OPENING OF THE NEWS ROOM OF THE BRADFORD EXCHANGE.

The news-room of the Bradford Exchange, the only portion of the new exchange yet completed, was opened for business on Monday, the 1st of October. Its dimensions are 64 ft. in length by 27 ft. 6 in. in breadth, and 18 ft. in height. It is lighted by six two-light windows. The ceiling is divided into compartments, with elaborate enriched cornices, and with centre flowers. There are two Caen stone chimney-pieces with serpentine shafts and carved caps, executed by Messrs. Mawer & Ingle, of Leeds. The chandeliers are of Mediæval design, by Messrs. Skidmore. The decorations have been executed by Messrs. Briggs & Mansforth, and the fittings are executed in oak inlaid with ebony, by Messrs. Mills & Backhouse. Messrs. Lockwood & Mawson are the architects. The general building is approaching completion; and, with the exception of the "exchange-room," will probably be ready for occupation in about a month: the latter room, we understand, will have an encaustic tile floor, by Messrs. Maw, the laying of which will occupy at least two months.

PRIZES TO WORKMEN.

The Épinac Collieries Company have announced their intention of giving every year the sum of 2,000 francs as prizes for the best kept houses and gardens belonging to the men in their employ. The money is divided into six prizes—two of 500 francs and four of 250 francs each; and the awards are to be made on the 19th of August in each year, by a jury of colliers. The Company have already instituted ten prizes of 25 francs and 40 francs each for lads under 18 years of age who have distinguished themselves by their good conduct and attention to work.

BASINGSTOKE SANITARY IMPROVEMENT SAVINGS.

A meeting was held in the Corn Exchange in this town, on the 28th ult., to take into consideration the advisability, or otherwise, of adopting the Local Government Act, with an efficient and thorough system of drainage and waterworks, when one Mr. Blunden, an alderman, and who should be a chemist, the champion of non-drainage, argued it to be the healthiest town anywhere, because cholera had only appeared in one isolated instance, and that the rate of mortality would bear comparison with any town of the same size, if the years of fever epidemic were left out, which unfortunately occur about once in seven years, and are peculiarly fatal to children, many families losing two or three; also arguing the water as the purest, sparkling like champagne; but it is these ever-recurring epidemics, of preventible diseases, the friends of the poor and supporters of drainage have to deal with.

Mr. W. F. Smith, member of the town council, moved the inexpediency of taking any steps towards drainage for another year, in a very kind and feeling speech for the pockets of the poor ratepayers. This was seconded and carried with an uproarious majority.

Mr. C. Haslam proposed, and Mr. R. Wallis seconded, that a committee of burgesses should be formed to investigate the whole matter, as to the cost and carrying out of a proper and efficient system of sanitary improvement for the whole town. This was lost by a large majority, because the mayor could not promise the burgesses this inquiry should be conducted free of any cost to them.

One ratepayer named Webb, more fearful of his pocket than his children's health, said his partial-drained street was more unhealthy than the undrained one; he had *only lost a wife* and one child the eighteen years he had resided in the town.

Mr. Soper, a councillor, pointed out to him the probability of the gully grate and drain leading to his house being more the source of mischief than the undrained street, and said the corporation were the conservators of the public health. They were the jurists between the rich and the poor, and the present condition of the whole place,—open cesspools, ditches, and stagnant waters,—was a monument of disgrace to the town; mentioning as a fact that three principal streets were partially drained and emptied their contents of sewage into the head of a beautiful spring, thence to traverse again through the whole length of the lower part of the town, giving out all its poisonous exhalations to all the poorer inhabited district, many having no other water to use. One other drain went through the main thoroughfare to the railway, collecting matter from butchers' shambles and slaughter-houses, public yards, and W.C.s, and emptying its contents into one arm of the canal, almost in the centre of the town, the matter having so accumulated as to fill up this arm of the canal with thick sewage, so that it was with difficulty a barge could be drawn into it, and in hot weather the stench was most horrible. He maintained the case to be too flagrant with injustice to the poor to be suffered to remain a day.

The fact is, the town is divided between two powers,—the paving commissioners, who have no funds or the means of raising any; and the corporation, who are desirous of adopting the Act, but who are met with the whole force of this almost defunct commission and the holders of numerous hovels called cottages, who know, if the Act is once brought to bear, they must alter the present state of things. Eight resident doctors have thoroughly examined the town, in four sections, each section giving a separate report; and it is a fact, the evil is so glaring that the corporation are ashamed to print the report, or to read it to the meeting, only laying the same on the table. There are about 800 cesspools or open closets in the town, and these are interspersed with about the same number of wells, many not more than 6 ft. apart; and yet this is pronounced by this meeting to be a very satisfactory state of things, and money is more dear to them than improvements for the health and social condition of the inhabitants. Such a state of things needs interference.

WATERING-PLACE BALCONIES.

An inquest has been held at the Sussex County Hospital, touching the death of a servant, who had died from injuries received by the fall of a balcony. Deceased was servant at No. 30, Cannon-place, Brighton, and on the 29th ult., while shaking a rug from the balcony in front of the drawing-room floor, the part she was standing on completely broke away from the remainder, and she fell with it into the area, a depth of nearly 30 ft. One of her thighs was fractured, and the other injuries she received brought on pneumonia, from which she died at the hospital. The occupier of the house had called the attention of a man named Attree, a painter, who did the repairs for the landlord, to the unsafe state of the balcony. Three years ago it was repaired, but the old woodwork was put back, and the tenant had it further strengthened. Three months ago the tenant complained of the unsafe state of the balcony, and the landlord (Mr. Tamplin) and Attree tested it by going on it with two other persons, but they found "no vibration whatever." This year he had painted the balcony, and then did not notice anything wrong with it: it "seemed all right." In answer to the coroner, a servant next door, who saw the deceased fall, said the flooring of the balcony was so rotten that it crumbled under the touch. The jury returned a verdict of "accidental death," adding "that Henry Pagden Tamplin (the landlord) and Charles Attree (his workman) were both and each of them negligent—though not to an extent to make them criminally responsible—in not looking to the safety of the said balcony." One of the jury observed that every householder ought to have a practical surveyor to examine and testify to the substantial condition of the balconies. Visitors would do well to demand such a certificate before trusting the lives of themselves and families to these erections.

METROPOLITAN BOARD OF WORKS.

A meeting of the board was held last week, for the purpose of opening tenders by parties who should be willing to contract for the construction of an arched viaduct, with paved roadway thereon, 858 ft. in length, or thereabouts, with other works in connexion therewith, comprising a similar length of subway, partly of iron and partly of masonry and brickwork, situated upon the foreshore of the river Thames, between the eastern end of the Inner Temple and Blackfriars Bridge. The chairman announced that he had received seven tenders, which he proceeded to read, as follows:—Messrs. Hill & Kiddle, 302,000*l.*; Mr. Thomas Pearson, 265,000*l.*; Messrs. Hitchcock & Williams, 344,700*l.*; Messrs. Brassey & Co., 305,000*l.*; Mr. A. W. Ritson, 239,000*l.*; Mr. Joseph Thackeray, 320,000*l.*; and Mr. William Webster, 268,000*l.*

QUANTITIES AND QUANTITY SURVEYORS.

Sir,—It must have been observed with satisfaction by all who regard an unsatisfactory subject with unsatisfactory views, that you have latterly twice indicated your intention of noticing the salient question of "quantities and quantity surveyors,"—*i.e.*, those who estimate the mechanical and fine-art work of edifices.

How many of this singular calling could take an ordinary degree in mathematics, or pass an easy examination in fine art, may be fit subjects for inquiry when the more important matters indicated below have been fully explained. You remark, sir, that "the question of quantities and quantity surveyors is becoming a serious one." It may become more serious unless some quantity surveyor can anticipate your animadversions on a system of sometimes increasing the cost of building ten to thirty or more per cent., by stating:—

1. The tender being based on the bills of quantities, and the contract on the drawings and specification, what is the legal link between the sets?

2. Suppose the quantities are excessive or deficient, where is the equity of the system towards the client, seeing that, on the one hand, deficient quantities will probably be discovered by the contractor; and, on the other hand, excessive quantities will probably not be discovered by the client.

3. What is the meaning of the builder, instead of the client, paying the quantity surveyor, adding the sum to the estimate? Is this method as fairly in the interest of the client as in that of the builder?

4. Is it true or untrue that some surveyors give "full" quantities, and are favourites with builders, while other surveyors get little to do, because, being strictly accurate, builders refuse their quantities, on the pretence that they are unknown or unqualified?

5. The quantity surveyor being liable for deficiencies, what is the check on his not unduly protecting himself in this respect?

It is clear that satisfactory answers to these plain questions are in the interest of clients, architects, builders, and all honourable quantity surveyors. The last may possibly deny their system *increases* the cost of building; but they can scarcely contend it does not sometimes *obscure* the cost, after the wondrous tenders, differing by about one-half, which cannot always be imputed to faults in builders, and in respect of which there should be neither false delicacy nor ambiguity.

Edward L. Tarbuck.

P.S.—Probably some of your readers may be able to explain the systems adopted on the Continent and in America.

THE EARLY CELTIC CHURCH.

Sir,—The Early Celtic Church is a subject on which much has been written, though it is to be regretted that it has been made a field for ecclesiastical dispute rather than archæological investigation.

Permit me to notice shortly one or two points in your review of Mr. Buckler's work which seem to call for remark.

That the Druids were favourable to the introduction of Christianity, as you suggest, is scarcely to be maintained in face of the uniform evidence of Adomnan, Bede, the Irish Chronicles, &c., who all represent Columbas as constantly disputing with and confounding the Druids by prayer, miracle, or stratagem.

That he so easily obtained possession of their chief seat in Iona can be better understood if we remember that the brethren came in the train of the conquering Dalriad chiefs, with whom his high birth and sacred profession made St. Columba perhaps the most powerful man of the tribe. That he should have selected an island seems natural. The Druids as well as the Christian brotherhood found it necessary for their safety that they should be removed some distance from the mainland, where constant warfare would lead to constant depredations. Similar reasons, no doubt, led the pioneers of our religion in Britain to seek such retreats as St. Serf's Isle Lochleven, Inch Colm in the Firth of Forth, Holy Island, Isle of Man, Anglesey, &c.

Another reason for the choice of this particular island may be found in the uniform practice of the Early Church in their conversion of the heathen. The principle was to guide rather than confute;—to adopt such circumstances of the ancient religion as could be changed or assimilated to the new faith. St. Paul's happy reference to the "unknown God" whom the Athenians "ignorantly worshipped" is an early example. Nothing would, therefore, appear more suitable than to occupy the island rendered sacred by the ignorant worship of the Druids, and to dedicate it to the worship of "God made manifest."

As to the materials used in the building of the earliest Celtic churches, it appears that these were wattles or wood, till the influence of the semi-Roman College of Whitherne introduced amongst them the "Roman manner." The church of Whitherne, founded by St. Ninian, was

undoubtedly of stone, and in its erection the brethren may have been assisted by the Roman legions who then occupied Valentia, and had been engaged in the erection of frontier walls and other large works. The church or college founded at Abernethy in 455 was of wood; but in 711 builders were sent from Jarrow to build a church of stone in "the Roman manner." It is not improbable that to this latter date we may assign the round tower there remaining. No such tower is to be found at the previous settlement in Iona; but in the subsequent foundation of Brechin and St. Andrew's we find similar round towers were erected. That at Brechin remains, and the square Norman tower of the church of St. Regulus. St. Andrew's, from its unusual proportions, was doubtless built to replace a more ancient round tower. There are few well-authenticated remains of Celtic masonry; but Wilson, in his "Prehistoric Annals of Scotland," refers to a very interesting example recently discovered on Inch Colm, close to the remains of the beautiful priory.

I have made these remarks principally with a view to induce some of your readers who have interested themselves in this subject to communicate the results of their researches, and to provoke such discussion as may illustrate the interesting but rather obscure province of primitive architecture. COLUMBA.

"A POST-MORTAR INQUIRY."

UNDER this head we have a letter in the last number of the *Builder*, wherein the writer very justly calls "the modern compound termed mortar a mockery and delusion."

This could not be said of a mortar known to the ancient builders composed of lime, sand, and pulverised bricks. I have found this compound in many ancient buildings that have stood for ages.

The boundary-wall of Pevensey Castle, in Sussex, was built of a mortar composed of the same materials, and it is almost impossible to separate the masses of masonry that have fallen.

The aqueduct of Nismes, built by the Romans, was coated on the inside with a mortar composed of the same materials, and it is now equal to the hardest stone, after its exposure to the action of water and the atmosphere for over sixteen centuries.

The round towers of Ireland that have stood over 3,000 years, and are likely to stand as many more, were built of similar materials, and some of them were built of a concrete or artificial substance resembling bricks, and their cohesiveness may be estimated from the fact that in the year 1786-7 a powder-mill exploded within 24 ft. of the base of the Clondalkin Tower, when it firmly stood its ground, though every other structure within the influence was shivered to annihilation, and extended its violence so far as to shatter the windows in some of the streets of Dublin.

It would be doing good service if you, or some of your numerous readers, would favour us with a paper on this subject, giving the analysis of these ancient mortars, and how we should be able to make a similar mortar that will not crumble to dust in a few years. T. H. L.

PROVINCIAL NEWS.

Bisley.—Among very many recent improvements in the ancient town of Bisley is the erection of a court-house, for the use of the public, for meetings, lectures, concerts, &c., by Mr. J. E. Dorington, the lord of the manor. This building has been formally inaugurated.

Coventry.—The top stone of the Leigh Mills, Coventry, has been laid by Lord Leigh, with Masonic honours, in the presence of a large assembly. The site of the new building lies at the top of Hill-street, and is immediately connected with the buildings of the old Worsted and Woollen Company, which have not been occupied for some time past, but have lately been purchased by the proprietors of the Leigh Mills, and amalgamated into one establishment. The dimensions of the building will be 203 ft. in length and 112 ft. in breadth, and the estimated cost is 4,500*l*. The building is of brick. The builder is Mr. Marriott, of Coventry, and the architects are Messrs. Lockwood & Mawson, of Bradford.

CHURCH-BUILDING NEWS.

Norwich.—St. John's Sepulchre Church has been re-opened. Internally, the old pews have been superseded by deal benches, and the galleries at the west end, and at the north transept, have been removed. Two new windows have been inserted, and four others have been reglazed with cathedral glass. A plain oak pulpit has been supplied, and the organ has been removed from the west end to the south transept. The chancel fittings are of oak; the open communion rail is of the same material and new, with the chairs and fauld-stools. A vestry-room has been appended to the south side of the chancel. The tower is now thrown open, and the new window, with its insertion, adds to the appearance of the church. Externally, some of the buttresses have been rebuilt, a new doorway made to the north transept, and the coping repaired. The contract was carried out by Mr. Wright, of Lakenham. The total cost is between 400*l*. and 500*l*. Connected with the restoration was the discovery of a rood-screen, the panels of which, though the prominent mouldings are somewhat mutilated, retain their paintings in a tolerable state of preservation. The saints represented are St. Jerome, wearing a cardinal's hat, and holding an open book; St. Blase, habited in pontificals, holding his pastoral staff in his left hand, and his distinguishing emblem—an iron comb—in his right hand; St. Ursula, crowned to show her royal descent, and holding an arrow; St. George, wearing a plumed turban, and a mantle over his plate armour; St. Etheldreda, represented as an abbess crowned, and with her pastoral staff in her right hand; St. Gregory, habited in alb, tunicle, dalmatic and chasuble, pall, and cope. A piscina was also found during the restoration, and some years since a consecration cross was discovered.

Wansford.—The foundation-stone of a new church at the little village of Wansford, on the banks of the Driffield canal, and about three miles distant from that town, has been laid by Sir Tatton Sykes, bart., of Sledmere. The entire cost of the church, which will have a burial-ground attached, will be defrayed by Sir Tatton. The site selected is that on which the old chapel stood some 400 years ago, and it is intended to dedicate it to St. Mary the Virgin, after the name of one of the patron saints of the same ancient edifice. It will stand near a school, erected a few years ago by the present donor of the church. The architect is Mr. G. E. Street, of London; and Mr. James Kirby, of Scarborough, is contractor of the works; Mr. Thomas Cloutman, clerk of the works; and Mr. G. Wells, of Scarborough, master mason.

Melton.—The foundation stone of a new church at Melton, has been laid. Mr. F. Barnes, of Ipswich, prepared the designs. The church will be in the transition style from Early English to Decorated architecture, and will be built of Kentish rag with Caen stone dressings. There will be a tower with a spire of Caen stone. The sitting accommodation will be about 400. The total cost will be somewhere about 3,500*l*., the contract (taken by Mr. Henry Luff, Ipswich), being about 3,000*l*.

Mendlesham.—The church here has been re-opened after partial restoration. The recent alterations were confined to the interior. Formerly, some oak benches, with a good deal of carving about them, were covered up by pews. The latter have been removed, and the former revert to their original position. New benches, of plain and stained deal, have been added. The walls were replastered. Next the roof was found to be in a dangerous state, and then it was decided to have an entirely new roof for the nave. Those of the aisles remain as they were, with their primitive struts and rafters, ill-consorting with the appearance of the rest of the church. All the roofs are open. There are six Norman arches on either side of the nave, and these have been rubbed up, and the font has been refaced. The western gallery has been removed, and by means of the western arch the tower (which contains five bells), is laid open to the nave, and this, with lowering the west entrance door nearly 2 feet, is one of the principal alterations. Nearly the whole building has been new floored. An oak screen, with some of the old tracery taken from some of the old benches laid in the panels, forms a vestry at the east end of the south aisle. The pulpit has been lowered. It now stands upon a stone base, and is approached by a short flight of stone steps. The reading-desk and lectern for the most part are new and of oak. The organ, formerly in the west gallery, now stands at the bottom of the south aisle next to the chancel, which was repaired some time ago by Mr. Rednall, of Stowmarket. The designs for the alterations were by Mr. Christian, architect, London; Mr. F. Betts, Stowmarket, was the builder; and the cost of the work is upwards of 1,000*l*. In cleaning the walls, a recessed monumental tablet was discovered in the east window of the north aisle. Years ago this was blocked up by some parochial bricklayer.

Tur Langton.—The new chapel of ease of St. Andrew's, Tur Langton, has been consecrated and opened. Formerly the religious services of the villagers were celebrated in an old chapel at the west end of the village, but that had become so dilapidated that it was no longer considered safe to assemble a congregation within its walls. The ground upon which the new edifice has been erected was given by Sir C. Isham, bart. The style of the church is Early English. The edifice consists of a nave, aisle, chancel, transept, and vestry, a tower, and spire. The nave is 60 ft. in length, and 21 ft. in width; the aisle is 47 ft. in length, and 11 ft. in width; and the chancel is 21 ft. in width, the same as the nave, and 33 ft. in length. The transept and aisle are on the north, and the vestry is on the south side. The church is built of pressed bricks, relieved by coloured bands and patterns, and is lighted with pointed windows of plate tracery in Box Bath stone. There are five windows on the south side. The west window is a very lofty one, with three lights. The roofs of the nave and chancel are open and high pitched, and are supported by principals, stained and varnished. The principal entrance to the church is on the north side of the tower, and consists of a stone arch, carried by six columns with red stone shafts. In addition to this entrance there is also a priest's door on the north side of the chancel. The tower and spire are about 115 ft. in height. The chancel is terminated by an apse, lighted by five lancet lights, three of which are filled with stained glass, supplied by Messrs. Heaton, Butler, & Bayne. The north side window has a figure of the Good Samaritan. The window on the south side exhibits the Prodigal Son. The centre light is emblematical of Christ blessing little children. The church is seated with open benches of red deal, stained and varnished. The stalls of the chancel are stained with a lighter varnish. The fronts are filled with carved work. The pulpit is octagonal in shape, and carved, and is placed on the south side of the nave. The woodwork of the church was done by Mr. John Loveday, of Kibworth. The contract for the brick and stone work, slating, &c. has been carried out by Mr. G. J. Fox, of Atherstone; the plumbing and glazing by Mr. Hill, of Leicester; and the staining, &c., by Mr. C. Bryant, of Kibworth. The chancel-floor is laid with encaustic tiles from the establishment of Mr. Whetstone, Coalville. The altar-rails are of oak, supported by ornamented wrought-iron standards, by Mr. Stone, of Leicester, who has executed the whole of the ironwork. We should have stated that the walls inside are faced with pressed red bricks. The building is heated by Porrit's apparatus. Messrs. Goddard & Son, of Leicester, were the architects, and Mr. W. Clifton, of Leicester, clerk of the works.

Books Received.

Sanitary Measures, and their Results in Exeter. By THOMAS SHAPTER, M.D. Second edition. Exeter: Clifford, High-street.

IN 1832 the virulent cholera was solely predominant and fatal in those districts of the city of Exeter whose sanitary state was eminently imperfect; and, after the subsidence of cholera, a new supply of water and other sanitary improvements were effected, and a general sanitary supervision was established. The result, on the recurrence of cholera in 1849, is thus summarized by Mr. Shapter, who is the senior physician to the Devon and Exeter and other hospitals:—

"The total deaths from cholera in Exeter in the two epidemics of 1832 and 1849 amounted to 465; of these 402, or 90 per cent. took place, with the concomitants of bad drainage and a deficient water supply; while with, in great measure, an absence of these conditions, the complementary number of 63, or 10 per cent., only occurred. Can any more convincing statement be offered of the beneficial influence of sanitary improvements?"

A similar lesson is confidently anticipated by the author in 1866.

The chief portion of the pamphlet treats of cholera in its medical aspects.

Miscellanea.

Railway and Omnibus Revenues.—The traffic receipts of railways in the United Kingdom amounted for the week ending the 22nd of September, on 12,624 miles, to 756,614*l.*, and for the corresponding week of 1865, on 12,408 miles, to 742,189*l.*; showing an increase of 216 miles, and of 14,425*l.* The yearly revenue produced by the railways of the United Kingdom is nearly 50,000,000*l.* The yearly revenue of the London General Omnibus Company is about 500,000*l.*

Archæological Excursions.—The members of the Norfolk and Norwich Archæological Society have had an excursion through the Depwade Hundred. The programme commenced with Tasburgh Church and Roman Camp, where the party, numbering about sixty, met. Here the Rev. C. R. Manning made a few observations on the church. The following places were afterwards visited, namely, Stratton St. Michael, Fritton, Skelton, Hardwicke, Long Stratton, Aslacton, Forncett St. Peter, where the rector read a paper, and Forncett St. Mary.——The members and friends of the Suffolk Institute of Archæology have held a meeting at Thetford, and made excursions thence to various places of interest in the neighbourhood. Lord A. Hervey, the president, was with the party.

The New Street from Blackfriars to the Mansion House.—In the Common Council in reply to questions put by Mr. Alderman Lawrence, M.P., Mr. H. Lowman Taylor, one of the representatives of the City at the Metropolitan Board, said he could inform the court that 235 claims for compensation for property that had been taken were finally settled, and that 111 freehold and leasehold claims were still under consideration. He believed that the Board had resolved not to pull down the property in small patches, but to wait until they could clear a considerable space of ground, and thus afford an opportunity for erecting large buildings such as were intended to be built in the street. By the beginning of next year the works would be commenced. It was a prophecy that he would not venture on, to state the period when the street would be thrown open.

The Bath Stone Company (Limited).—An ordinary general meeting of this company has been held. The chair was taken by Capt. Brickman. The second half-yearly report says:—"The directors congratulate the shareholders upon the steady progress of the Company, and the position it is acquiring in the trade. At the date of the half-yearly meeting in March last the arrangements of the Company were completed, but the actual working of the quarries had scarcely commenced. The Box Ground stone quarry and the Corsham Down quarry are now well opened, and the stone in these quarries is turning out satisfactorily. By arrangements made upon the retirement of Messrs. Myers & Sons from their quarry business, the directors have acquired quarries and plant at Box Hill, Kingsdown, and Pickwick, upon very advantageous terms. The Company now have seven cranes at work in their various quarries. Some trade has been profitably done in buying stone for re-sale."

Desiccation of Crops.—Mr. Nicholson, a Nottingham land agent, makes a suggestion. Why not (he asks) dry your corn by sending through it currents of hot air of a temperature ranging from 100 degrees to 120 degrees? Timber, paper-hangings, &c., are often dried in this way. From 10 to 15 per cent. of water can be taken out of wood by driving hot air through it at a hurricane rate, say 45 miles an hour. Corn can be thus treated without injury to its germinating power. Mr. Nicholson has proved this by experiment. The effect of the hot currents is very different from that of the dormant heat of a kiln: it only hardens the outer surface, rendering the grain less likely to reimbibe moisture. The corn can thus be dried on wire kilns if the air is set in motion. If we mistake not, some such process was suggested in the *Builder*, and has long been in use in Russia. To Mr. Nicholson's suggestion we may add another. Why not cut off the heads of corn in wet seasons, and dry or desiccate them alone, where there is want of space or time for drying the whole crop? Much rather save the valuable grain than lose both grain and straw. Besides, the straw will not spoil by sprouting as the grain will in wet seasons.

A new "Pacificator."—A man of the name of Perrot offers, with a new machine which he has invented, which is moved by steam and exploded with gas, to kill at the rate of 60,000 men per day of twelve hours.

A Village Hospital.—Lord Chesham has just presented to the Nuisance Removal Committee at Chesham a site of ground whereon to build a cottage hospital for the reception of patients belonging to the labouring classes, and his lordship has also supplemented his gift by a donation of 200*l.*

Newspaper Press Fund.—At a numerous meeting of the executive, held at the offices, 24, Cecil-street, Strand, on Wednesday last, Mr. T. H. Taunton, graduate of Oriel College, Oxon, secretary to Lord Wharton's Charity, and late assistant-secretary to the Royal Provident and Benevolent Institution, was unanimously elected secretary to the fund. There were more than fifty candidates for the office. Mr. J. A. Froude, M.A., Mr. Theodore Martin, Mr. David Keane, Q.C., Mr. S. C. Hall, and other vice-presidents were present.

Bursting of a Large Water-tank.—Messrs. Bass & Co. recently erected on their premises at Derby a new water-tank, at a cost of several thousand pounds. A few days ago, shortly after the men employed in the tank had finished their day's work and retired to their homes, the basin, containing upwards of 100 tons of water, in the upper story, burst, precipitating the whole upon the under-story basin, and so on, with increased violence, to the bottom, or first story. Thus upwards of 400 tons of water rushed out, carrying with it strong beams, solid ironwork, and masonry. The interior of the building is a complete wreck.

Proposed Scheme for securing Hampstead Heath to the Public.—At the Marylebone vestry, a communication from St. Pancras was read on the subject of securing Hampstead Heath and adjoining lands for the public benefit, and suggesting that negotiations should be entered into before the next session of Parliament by the Metropolitan Board of Works with Sir Thomas Maryon Wilson, bart., and also soliciting the appointment of members from the Marylebone vestry to co-operate with them in taking energetic measures for the purpose. Seven delegates were appointed to co-operate with the vestry of St. Pancras in the matter.

Liverpool Architectural Society.—The first meeting of the session has been held at the Royal Institution, Colquitt-street. Mr. T. J. Kilpin presided. The president alluded at considerable length to the late Mr. Stubbs, president of the society up to the time of his death. Mr. Boult gave notice that at the next meeting of the society he would move the following resolution:—"That, in the opinion of this meeting, the position selected for the equestrian statue of his late Royal Highness the Prince Consort is eminently unsuitable, as its close proximity to St. George's Hall is extremely prejudicial to the effect of both works of art; that this meeting hopes the subject may be reconsidered by the town council, and that the statue may be speedily removed to a more eligible situation—one in which the excellences of the sculptor's achievement may be more advantageously displayed without occasioning any injurious competition."

Drapers' Hall, London.—A considerable portion of the premises belonging to the Drapers' Company, in Throgmorton-street, is being pulled down, for the purpose of erecting new reception-rooms on the west side of the old quadrangle, in place of the picture-gallery, which, on account of its narrowness, was found to be inconvenient. According to the *City Press*, it is proposed to form a handsome staircase of approach to the new drawing-room on the site of the clerk's house, in Throgmorton-street, which affords the opportunity of a suite of rooms from Throgmorton-street to the garden, a length of nearly 170 ft., and of proportionate width and height. The quadrangle is to be preserved. It is proposed to build a new façade towards Throgmorton-street, of Portland stone, of a Palladian character. The present contract, of 28,000*l.* has been taken by Messrs. Barnsley & Sons, of Birmingham. It is probable that, after the present works are completed, the dining-hall on the east side of the quadrangle may be rebuilt, of a size more suitable than the present hall to the number of the Livery. The designs are by the architect of the company, Mr. Herbert Williams.

Explosion at the Main Drainage Works, Clapham.—A serious explosion has taken place at the main drainage works in course of construction in the Park-road, Clapham, whereby three men employed in forming the sewer have been seriously injured. It appears that a number of workmen were engaged in excavating at a considerable depth from the surface by the aid of a lighted candle, when from some cause at present unexplained, but supposed to be an escape of gas, an explosion, which was heard for a considerable distance, took place.

New Market and Street Improvements for Bethnal-green.—Among the local Acts of the late Session was one for the establishment and regulation of a market near Columbia-square, Bethnal-green, and for the opening of a new street and the improvement of other streets. It recites that the market would be of public benefit to the labouring classes, and that Miss Burdett Coutts was willing to undertake the same with the land she possessed, and to purchase other land for the purpose. The Legislature has conferred by the Act the necessary provisions on that lady to establish the market, and to continue the same to her assigns, so that it should remain a public market.

Consecration of a Capuchin Church at Peckham.—On the "Feast of St. Francis," the Capuchins stationed at Peckham opened their new church, from the design of Mr. Welby Pugin, which has been erected in the Lower Park-road. The church consists of a nave and chancel, but under a continuous roof, north and south aisles, chapels of "Our Lady" and St. Francis. The chancel is marked by two gables, which rise from the nave walls above the aisle roofs, each gable being perforated by a rose window. Large rose windows also pierce the eastern gables of the nave, as well as the eastern wall of the "Lodge" chapel. The aisle windows are arcaded in single lights the height of the church, although it has no clerestory. There is a Calvary, painted in natural colours, over the altar, but this is only temporary. The altars of the chapels are of Irish marbles, and were worked in Ireland.

The Iron Trade.—According to the *Iron Trade Circular*, the trade is torpid; the same inaction which pervades the Continental markets being visible throughout all those of this country. The range of prices is tending downwards in every direction. Prices are quoted as follows, at works, unless when otherwise specially mentioned:—Manufactured iron—South Staffordshire: Prices unaltered; marked bars, 8*l.* 10s.; sheets, singles, 10*l.*; doubles, 11*l.* 10s.; angles, 7*l.* 15s. to 9*l.*; gas strips, 8*l.* to 8*l.* 10s. The commoner makes of our district in bars are being quoted at 7*l.* 5s. to 7*l.* 15s. at works; puddled bars, 6*l.* 2s. 6d. to 6*l.* 7s. 6d.; scrap bars, 6*l.* 10s. to 7*l.*, according to quality. North Staffordshire: Bars, 7*l.* 10s. to 7*l.* 12s. 6d., delivered into this district, Liverpool and Manchester; best, 8*l.* to 8*l.* 2s. 6d.; best best, 8*l.* 10s. to 8*l.* 12s. 6d.; best angle iron, 8*l.* to 8*l.* 2s. 6d.; best T iron, 9*l.* 2s. 6d. to 9*l.* 5s.; bridge and tram rails, 8*l.* 5s. to 8*l.* 10s.; best plates, 9*l.* 5s. to 9*l.* 10s.; best boiler plates, 9*l.* 5s.; best sheets, 9*l.* 10s.; best hoops, to ordinary gauge, 9*l.*; rivet iron, 9*l.* 5s. to 9*l.* 10s.; puddled bars, 2 in. to 6 in., 6*l.* 5s. to 6*l.* 7s. 6d.; 11 in. to 15 in., 6*l.* 7s. 6d. to 6*l.* 10s.

Panic at Tottenham Court Road Chapel.—On Sunday night last a panic was created in Tottenham-court-road Chapel, under the following circumstances:—The Rev. J. W. Boulding was preaching to a congregation of about 2,000 persons, and had proceeded some little way with his sermon, when the chapel-keeper, according to his usual custom, proceeded to lower the centre gaslight. In endeavouring to turn the gas as low as possible, he completely extinguished the majority of the burners. Some, however, were still alight, and an escape of gas from the others became the consequence. The smell in some parts of the chapel was so bad that numerous persons quitted their seats. The burners which had remained alight having also been extinguished by the gas being completely turned off at that particular main, other lights, supplied from a second main, were still burning. By this time, however, a cry of "Fire" had been raised; shrieks of alarm resounded from all sides; and a large proportion of the congregation were seized with panic. In the crushing several persons fainted, but no serious accident occurred. Order, however, was restored, and the service was continued as usual.

Manchester Exchange Competition.—More than fifty sets of designs for the proposed exchange have been sent in, and are now being hung for examination.

Gas.—The Folkestone Gas and Coke Company have declared a dividend of 3 per cent. on the profits of the half-year, which, with 5 per cent. declared at the last half-yearly meeting, will be at the rate of 8 per cent. per annum.——The Dewsbury and Batley Gas Company have declared a dividend of 10 per cent. per annum on old shares, and 7½ per cent. on new shares, and carried a balance of 781*l.* 15*s.* to their reserve fund.

Prizes in Archæology offered by the French Government.—A prize of the value of 60*l.*, or two or more making together an equal amount, is offered for the best work or works on Archæology, published in the memoirs of the learned societies of the departments or sent direct to the Minister. A prize of the same amount is offered to the society that shall furnish the best memoir on the following subject:—Indications respecting the Commerce and Industry of the Middle Ages, derived from authentic documents, referring either to a province or to a town, with special reference to the practices and rules of trades; the condition of workmen, employers, and dealers, &c.

New Congregational Church, Upper Holloway.—The memorial stone of a new Congregational Church has been laid in the Junction-road, Upper Holloway. The edifice will be erected from the designs of Mr. W. F. Poulton, of Reading. It will be in the Decorated style, with adaptations for the purposes of Congregational worship. Accommodation will, for the present, be provided for about 700 persons; and provision has been made for the erection of galleries, whenever necessary, by which some 250 extra sittings will be obtained. The basement will afford space for a large Sunday school, a lecture-room, and class-rooms. The total cost, including the purchase of the freehold, is estimated at 7,400*l.* The present contract has been taken by Mr. Sawyer, of Dulwich, for 4,716*l.*

Another New Motive Power.—B. J. B. asserts that he has discovered an "extraordinary method of producing motive power capable of doing all that steam-power can do, entirely free from danger or the fear of it: neither fire nor water is required; it occupies but little space, and requires very little attendance; feeds itself, and continues in powerful action at less than one-twentieth part of the cost of steam-power. In short, a better substitute for the costly murdering steam-power cannot be reasonably desired. When the power of capital can be brought to act with mechanical knowledge and skill, the destruction of coal to produce motive power will cease, self-interest will put an end to it." We have been told the same thing so often before, that we must ask for evidence before we give more space to the statement.

Building Bye-laws for Shrewsbury.—The following memorial from the architects and builders of Shrewsbury has been presented to the Town Council:—Resolved: "That, in the opinion of this meeting, the time chosen by the Corporation for the framing of bye-laws affecting the formation of sewers, drains, water-closets, cesspools, and other matters which are tolerated therein, is most inopportune, inasmuch as no general system of sewerage exists in the borough, and would entail unnecessary expense and vexation to the building trade and their employers; and that the subject of the consideration of bye-laws affecting their interests ought in all fairness and equity to be postponed until the laws providing for the main sewerage of the town have been carried out. That even if measures so strong and coercive in character were considered necessary by the Corporation, this meeting would respectfully suggest to the Corporation that they should contain specific and definite regulations with respect to the supervision of buildings, the classification of houses, the height of the various stories, and the consequent thickness of walls, the mode and materials of construction, provisions for the alterations and additions to old buildings, rebuilding of old structures, the division of old buildings separated by irregular partitions, recesses, and opening timber in external walls, party walls, construction of roofs, rules as to chimneys and flues, fire-pipes, habitable rooms, arches, projections, limitation of areas, open spaces near dwelling-houses, and the construction of public buildings."

Miles of Burning Trees.—One of the largest pine forests in Corsica has been burning for a week. Millions of trees, it is said, have been destroyed, and the resinous nature of the wood seems to defy all attempts to put out the fire.

A Great Engineering Work.—A gigantic work is on the *tapis*, nothing less than the drying-up of a great part of the Zuyder Zee, of bacchanalian celebrity. The extent of the land proposed to be reclaimed is 380,000 acres, and the cost of the work is set down at 10,650,000*l.* Were it beer, perhaps the German topers could do it at a cheaper rate.

The Metropolis Water Supply.—A conference of members of the various metropolitan vestries has been held in the Vestry-hall, Upper-street, Islington, to consider what means should be adopted to procure for the population of London a constant supply of water. Mr. Harvey presided, and the following resolutions were passed:—"That Mr. Hankey, M.P., be informed of the resolutions passed at the former and to-day's meetings."—"That it be referred to the various vestries and district boards to empower this committee to prepare a Bill and give the necessary legal notices with a view to obtaining an Act of Parliament requiring a constant supply of water to the metropolis and its environs;" and "That a memorial to the Secretary of State be prepared and signed by the chairman of this meeting, urging upon him the necessity of removing the difficulties at present existing, owing to the provisions of the Water Companies' Acts in obtaining a constant supply of water; and that a deputation be appointed to present the same, and support the views of the memorialists."

Ecclesiastical Demolitions.—The first union of City parishes, under the Bishop of London's Act of 1860, is just about to take place. The parishes to be amalgamated are those of St. Benet, Gracechurch-street; St. Leonard, Eastcheap; and Allhallows, Lombard-street. St. Benet's Church, at the corner of Fenchurch and Gracechurch streets, is to be pulled down. The church of the three united parishes is now to be Allhallows, Lombard-street. From the proceeds of the sale of the site a new church and district are to be formed in Stepney. 1,500*l.* are to be devoted to building a home for the rector of the united parishes, and 4,000*l.* to repairing and re-pewing Allhallows. The site of St. Benet's Church is generally contended to be worth from 40,000*l.* to 50,000*l.*, standing as it does in the centre of the City. For a small piece of ground the Commissioners of Sewers have agreed to pay to the Ecclesiastical Commissioners 3,000*l.*, in order to slightly widen the entrance to Fenchurch-street.——The site of the Congregational Chapel, New-court, Carey-street, having been taken by the commissioners for the New Law Courts, this place of worship finally closes after the services next Sunday.

Sulphurous Acid Gas as a Disinfectant.—We have occasionally recommended burning sulphur, or sulphurous acid, as a disinfectant of old standing and established utility. This is the substance which our own and other governments long used in quarantine fumigations, if it be not in very general use for such purposes even yet in various countries. Dr. Dewar, of Fifeshire, in Scotland (where, by the bye, there is or was a quarantine establishment in the vicinity of Inverkeithing), strongly recommends its use in cattle-plague, and states that the treatment led to results of unexpected importance. Dr. Dewar's cows were fumigated four times a day for four months; and he, as well as some of his neighbours, discovered that the animals enjoyed the treatment, so much so that it has been continued, irrespective of the disease; and they consider it to be demonstrated, that exposure to the fumes of sulphur is highly beneficial to cattle at any time, by reason of its recognised tonic attributes and its disinfecting properties. It appears also to be a specific against other diseases to which cattle, and horses as well, are liable. But the most striking results were that the men who attended to the fumigations ceased to be troubled with various ailments. A groom, far gone with consumption, and who had more than once been reported as dead, having made an effort to superintend a course of fumigations, found himself surprisingly relieved within one week; and within two months he gained two stone in weight, and was fit for any ordinary stable-work. Similar beneficial results, Dr. Dewar adds, have been produced in others afflicted with chronic phthisis, and diphtheria has been stayed.

Dwellings for Working Classes in Liverpool.—At the meeting of the Liverpool town council on Wednesday, the Health Committee applied for permission to borrow from the Public Loan Commissioners a sum of 13,000*l.* to be spent in erecting dwellings for the working classes. In the course of a discussion which this proposal evoked, it was stated that the main cause of the unhealthiness of Liverpool was overcrowding, many districts being far more densely populated than any other town in the kingdom, not excepting the east end of London. In one district, where there had been an increase of 7,800 persons, only ten additional houses had been built—the demolitions under the Sanitary Acts being 114, and the new houses only 124. The proposed dwellings, so far as mere cost was concerned, would be built as cheaply and plainly as possible, in order to set an example which private builders might be induced to imitate. The recommendation was agreed to.

TENDERS

For the erection of schools and class-rooms at Lower Norwood. Fittings not included. W. H. Rawling & Sons, architects. Quantities supplied:—

Cooper	£387 0 0
Palmer	380 17 0
Wilkinson	375 0 0
Dover	354 8 0
Harris	325 0 0
Gibbs (accepted)	310 0 0

For the erection of a house and shop, for Mr. Ralph Bower, in Oldham-street, Manchester. Mr. Herbert E. Trjou, architect:—

Neill & Sons	£1,090 0 0
Cochran & Co.	1,041 0 0
Clay	1,038 0 0
Thompson	985 0 0
Harrison & Shaw (accepted)	948 0 0

For the erection of a new station, at De Beauvoir Town, for the North London Railway Company:—

Rigby	£17,895 0 0
Myers & Son	17,380 0 0
Sims & Marten	17,278 0 0
Axford	16,950 0 0
Hedges	16,900 0 0
Hull & Keddel	16,516 0 0
King & Sons	16,430 0 0
Webb & Sons	16,285 0 0
Watts	16,058 0 0

For building the superstructure of the Wedgwood Memorial Institute, at Burslem, Staffordshire. Mr. R. Edgar, architect. Quantities supplied by Mr. T. Nixon:—

Woolrich & Sidley	£4,143 0 0
Dennett	4,126 0 0
Trow & Sons	3,849 0 0
Matthews	3,671 0 0
Burkett	3,500 0 0
Barlow (accepted)	3,500 0 0

For additions to town-hall, Bewdley. Mr. H. Rowe, architect:—

Poutney (accepted)	£420 0 0

For taking down, rebuilding, and decorating front walls to the City of Lichfield Tavern, 44, Mount Pleasant, Elm-street, Gray's-inn-road, for Mr. B. Taylor. Mr. W. F. Potter, architect:—

Honour	£200 0 0
Perkins	175 0 0
Hatchman & Son	153 14 6
Aylett (accepted)	140 0 0

For public-house, in Great Knollys-street, Reading, for Messrs. Field & Co. Mr. Jos. Morris, architect. Quantities not supplied:—

Kendall	£461 14 0
Ball	460 0 0
Carter	458 0 0
Harris	454 0 0
Simonds (accepted)	437 16 0

For house, at Earley, for Mr. Burton. Mr. Jos. Morris, architect. Quantities supplied:—

Bricklayer, Mason, Slater, and Plasterer's Work.	
Strong & Son	£446 10 0
Higgs	422 4 10
Searle (accepted)	389 11 6
Carpenter, Joiner, and Smith's Work.	
Matthews	359 0 0
Sheppard	299 0 0
Dunn (accepted)	289 15 0

For general sewer works, for St. Pancras Vestry. Mr. W. B. Scott, surveyor:—

Williams, 30 per cent. above schedule prices.
Faulkner, 5 „ „
Mann,* 16½ per cent. under schedule prices.
Crockett, 17 „ „

* Accepted. Last year, the committee of works rejected Mr. Mann's tender when it was the lowest, because he was so dilatory in sending his vouchers, and accepted that of Mr. Crockett, which was the next lowest. This year they accepted Mr. Mann's tender, as above, to make amends for his rejection last year. The tenders are subject to the approval of the vestry.

For sewer, in Mansfield-road, for St. Pancras Vestry. Mr. W. B. Scott, surveyor:—

Faulkner	£1,633 0 0
Bloomfield	1,357 0 0
Crockett	1,240 0 0
Mann	1,025 0 0
Haddock (accepted)	750 0 0

The Builder.

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The London, Chatham, and Dover Railway Finance Expedient.

JOHN BULL'S practical sense has given to that respected personage an habitual dislike to dealing with Boards. With those artificial entities he finds it difficult, if not impossible, to adopt the *ultima ratio*. In language common enough half a century ago, but too strongly savouring of the vernacular to be transferred undiluted to our pages, he has been known to ground the reason of his dislike on the fact that a Board has neither a body to be kicked nor a soul to be endangered. The phrase, once formulated, has become classical. It might be written up with great propriety, on the walls of many a Boardroom, and, if not thus actually inscribed on the chimney-piece, the spirit of the maxim no less religiously is observed in a majority of cases. It appears to be connected with the peculiarities of the national idiosyncrasy. Respect for numbers takes a peculiar form among Englishmen. We are apt to venerate anything that calls itself a house, or a committee, or a firm. Jones, Brown, and Robinson are individually men of no weight, and are habitually treated accordingly. But they appear as a deputation from Brownsville, and doors fly open before them. Cabinet ministers wait for them at their offices, and the awful porter whispers in the ear of Robinson, as he makes for his cab, the insinuating question whether he wishes the interview to be mentioned to the newspapers.

The corporation-worship of the Englishman reaches its apogee in his regard for his Parliament. The House of Lords is not a fair example, for that august assembly is an aggregate of men notable for at least some one eminent quality, and wealth, rank, birth, and genius are no less respectable in the many than in the individual. But the House of Commons! We speak with all due fear of the Sergeant-at-arms before our eyes, or, rather, with that fear we are silent. Yet no one can fail to have had opportunities of remarking the change that comes over the country banker, the prosperous merchant, the zealous lecturer, when once he inherits M.P. after his name. It is not as a personal elevation that the change is wrought; it is the direct action of the corporate spirit. See the reverence with which every one speaks of "the House." Mark how Mr. Speaker, instead of lecturing like the president of certain chambers not five hundred miles from Westminster, professes himself the humble servant of the House. See how the man who, as philosopher and as thinker, is content with the inconvenience of being a-head of his age, and calmly waits for the judgment of posterity, gaggets into the advocate, and loses all his cooler and clearer logic under the eye of "the House." Mark,—most incredible of all phenomena!—that the House, in spite of that intimate acquaintance which it must necessarily possess with its own constitution, seems actually to believe in itself, and to consider itself an apt machine for constructing a never-ended legislation.

We seem likely to have an opportunity of testing how far the immunity attendant on the corporate principle can be actually stretched. Men of that clear and impassive intellect which regards all phenomena from a scientific point of view, and which hesitates neither at vivisection nor at any less cruel and more satisfactory mode of putting Nature to the question, must feel a great debt of gratitude to the directors of the London, Chatham, and Dover Railway, for the practical lessons to be drawn from their conduct. To a certain point our information is ample. We know that many actions, highly reprehensible if committed by an individual, are venial, or even held deserving of laudation, if performed by a Board. What is considered in one case unwarrantable harshness or greediness, in the other becomes due care of the interest of the shareholders. What in the individual is termed by the harsh and coarse name of swindling, in the case of the Board is termed,—we do not know the exact euphuism, but we fear it may be,—"the ordinary course of business."

The further light that the disclosures of the past few days promise to throw on this interesting subject will carry our scientific acquaintance with the immunity of bodies corporate a step further. Among those amusements which the uncompromising law of this country has grouped together under the genus *mala prohibita*, is one which goes by an ugly name. If all morality be conventional, perhaps there are people who would object to rank it among the *mala in se*, and there are consciences,—or rather people have what they call consciences,—that make a wide difference between these two methods of transgressing the law. Thus, regarded from an artistic point of view alone, the exact imitation by B of A's handwriting is a proof of B's ability, of his acute power of observation, of his command over his hand and pen, of his highly-developed phrenological faculty of imitation, and the like. Still, English law brands this exercise of ingenuity with the ugly name of forgery.

Now, as a body corporate has no hand to write, it might *prima facie* be supposed that it was incapable of committing the artificial, law-made, crime of forgery. But if a company cannot forge, it can secure the result promised to himself by the forger as the result of his labours. The company cannot sign its name, but it can affix its common seal. The question on which we are likely to have some information is—how far the body corporate, or the individuals composing the body corporate, or acting as the servants of that entity, are free from any troublesome consequences after affixing the common seal of the company, or giving in any formal manner the assent and sanction of the company, to documents or transactions that are prohibited by express law.

It is not necessary for this purpose to wade through the gigantic puzzle of the accounts of the London, Chatham, and Dover Railway, to dissect the difference between their sixteen millions of nominal capital and ten millions of nominal expenditure, or to attempt to arbitrate on the trivial difference of five hundred thousand pounds on the account between the Company and the contractors, as the same is stated by the Chairman on the one hand, and by Sir Samuel Morton Peto on the other. For the shareholders, indeed, these are important questions. But the shareholders, it is now discovered, are to a great extent as mythical and irresponsible a body as the Board itself. *Mutato sub nomine* they are the contractors. There is another body of proprietors of whatever in this colossal muddle may deserve the name of property, who seem to have found whatever money was found, and it is on the method by which these well-fleeced goats have been induced to descend into the well for the benefit of a very crafty fox that public attention will be deservedly fixed.

It is well known to all familiar with the subject, that the Imperial Parliament, in making over the civil and military communications of the country to speculators, in encouraging or insisting on large outlay on the part of the original railway companies, and in then refusing to defend the moral rights for which they thus heavily paid from the most wanton encroachment, yet insisted on some one or two provisions on behalf of the public. It was rendered illegal to borrow money on mortgage of railway property until such property had a *bona-fide* existence to a certain extent. Debentures were only allowed to be issued to the extent of a portion—generally a third—of subscribed capital. The security was not much, for the specified capital might have been unproductively expended, but it was definite. The trustee or the unspeculating investor who purchased a railway debenture in the market was therefore entitled by the law to the somewhat vague assurance that somebody else had agreed to spend two hundred pounds on the property on which he was to lend a third hundred, the return for his venture being secured on the whole value purchased by the entire outlay.

This slender and long-established check on the borrowing capabilities of the great corporate money-needing interests has been leaped over at a single bound by the directors, financiers, and contractors of the London, Chatham, and Dover Railway Company. The method is so simple that it can hardly be considered to claim the merit of ingenuity; for its value consisted in its being kept secret. As far as the public was concerned, the simple sale of stamped paper acknowledgments of debt to any person who would give anything for them, irrespective of legality or of anything but the convenience of the moment, would probably have answered quite as well. It would be curious to inquire whose and what sort of a conventional conscience required this novel kind of salve. It must surely have been a lawyer who contrived the scheme, because it is natural to the legal mind to consider a matter proved to be a fact, if uncontradicted evidence to that effect is adduced. The directors of the London, Chatham, and Dover Railway Company therefore took steps to provide themselves with uncontradicted evidence that they had fulfilled those requirements of the law which they had not even attempted to fulfil. The evidence, it is true, was not incontrovertible, but that was probably thought of minor importance. It was uncontroverted; and in order that it might remain so, it was curiously concealed.

The expedient in question, which in an individual might have seemed no less clumsy than dishonest, was this. The company gave the contractor a stamped receipt for some four hundred and thirty thousand pounds. They did not receive the money. It does not even appear that the further step of handing them a "bogus" check for the amount was gone through. But they provided evidence to show that they had received it. In return, the contractor handed to the company a receipt to a similar amount, stating that he had received the same sum on account of his contract for works. It is not clear whether any such contract existed. It is probable, however, that it did, as the existence of contracts for works involving a certain amount of profit, into which the debenture holders may feel a curiosity to inquire, appear to have been the very *ratio entis* of the London, Chatham, and Dover Railway. On the exchange of these highly imaginative pieces of writing, the company proceeded gaily to issue as many, and a few more, debentures, as the subscription of a *bonâ fide* sum of 430,000*l.* would have enabled them legally to accept.

Now sharp practice is part of the natural experience of life. The sharp practitioners have their own accounts to settle, if such old-fashioned notions as honesty, honour, or the like give them any more trouble than so many ghosts. But it is by being thus practised upon that no small portion of what is called knowledge of the world is gained; and the only limit that society seems content to draw between clever men and roguery is the limit of the law. Let a man induce you to buy as a good investment the property which he is himself, through a third party, selling at any loss to get rid of its risk,—let him depreciate by any false alarm the property which you have to sell, in order that he may buy it at a third of its value,—let him accumulate a fortune by a long series of such transactions, and he will be looked at rather with admiration than otherwise by a large majority of men who wear well-brushed coats. But let him technically err, let him tell his lies in a court of justice, instead of in his more constant and safer haunts,—let him not only give you fictitious information on the authority of some one else, but feign that other person's authority in writing, as he has done in speech, and then, *if he be found out*, society turns its back upon him. Instead of a down-right clever fellow, he is called a convict. The conventional conscience of speculative men is outraged, and virtue is at once avenged.

Now this wide and charitable limit, it seems to us, has, in this instance, been overpassed. Those who would say, "*a fico* for morality," will look grave at a sheer negation of law. The question will then make itself unpleasantly urgent,—on whom is the blame to fall? Shall the common seal of the company be sent to prison, or even broken by the common hangman? Shall the Court of Chancery involve the whole concern in its voluminous and fatal coils? Will shareholders, and debenture holders, and creditors, agree to an act of amnesty, pure and simple, make over all landed and other property to the original fathers of the line, wish them joy of their offspring, and good speed in its progress? These and many other pertinent questions must now be solved by the stern logic of fact; and, however great the suffering brought upon thousands by the whole history of an enterprise which, from the beginning to the present time, has been one series of wanton attacks on the property of other people, the British nation, as a corporate body, can well afford the sixteen millions thrown in this instance, not to the dogs but to the vultures, if it lead to the certain affixing of the penalty to illegal actions, whether the actors be one or many—whether they call themselves contractors and financiers, or huddle together in the attempt to avoid the reprobation of all honest men under the title of a Board.

HEALTH AND SOCIAL ECONOMY AT THE MANCHESTER CONGRESS.

DWELLINGS OF THE WORKING CLASSES.

To introduce this subject several papers were read. The first, suggesting the appropriation of railway arches, we have printed *in extenso*.

Mr. Thomas Worthington, architect, followed with a very interesting *résumé* showing the present position of the question. In the course of it, he said,— the dwellings of the labouring classes are very generally altogether insufficient, and constructed in a manner often opposed to all sanitary principles. Public improvements and railway companies sweep them away wholesale, such as they are, no suitable habitations are provided, and over-crowding is the necessary result. It is absolutely certain that the present condition of things cannot continue. The heaping up and the crowding must have a limit, and Parliament must care for those it unhouses; and, moreover, homes must be provided for a very considerable proportion in the old localities. Here is again a new difficulty. The available area in the centres of towns is gradually diminishing. We are hardly prepared to adopt the most recent Parisian experiment of building eleven stories high, without staircases, the only access to the upper stories being by means of a hoist or lift, which is to work up and down by hydraulic pressure every three minutes. The houses, however, must be forthcoming. It must not be allowed to continue that the landlords shall be able to extort double the rents for dens unfit for human habitation, or that where one family had lived two must live for the future. A remedy must be provided, and that very soon, or the strong men and the active among the artisan and working class, unable to house themselves decently, will leave the old country for new fields of labour, and we shall be left with our great warehouses and palatial mansions on the one hand, and a population of helpless poor on the other. It is true that, in the suburbs of the metropolis and of our larger towns, we may see new roads and streets spreading out into the green fields, lined with cheap cottage buildings of the worst possible class, erected by speculating builders for the purpose of sale, and not for *bonâ fide* investment, in which a certain limited number may take refuge; but this class of house is not fitted for the poorer working men, to whom it is essential to live near the scene of their labours. It appeared to me that the bill brought forward during the past session, by Mr. Thomas Hughes, to compel railway companies and others who for their own purposes demolished large numbers of dwellings, to replace such dwellings, was a most just and enlightened measure, and would have met many of the difficulties which are likely to be so widely and so painfully felt. Before the close of the session another measure was introduced, and became law, which seems to promise substantial assistance to corporations, public companies, societies, or associations, desirous of acquiring land and erecting buildings which are *bonâ fide* intended as dwellings for the labouring classes. This Act, 29 Victoria, c. 28, of which the rules and regulations have recently been issued from the Treasury, empowers the Public Loan Commissioners to make loans on such lands and buildings to the extent of half their entire value, or on the security of the rates, or of unpaid-up capital. The rate of interest for loans is to be 4 per cent., repayment of the loan being spread over a term of forty years. A payment of 5*l.* per cent. for forty years will repay both principal and interest of the loan, so that if the borrower invest the loan so as to produce an annual profit of more than that payment, or, in round numbers, of more than 5 per cent., any amount beyond that rate will be extra profit, and at the end of the forty years the building will become his sole property. The conclusions he arrived at were:—That the dwellings of a large proportion of the labouring classes are such as to render it all but impossible for them to maintain the common decencies of life;—that the demand for additional dwellings is urgent and imperative;—that experimental buildings have clearly proved that the labouring classes gladly avail themselves of such opportunities of improving their condition;—that such buildings have produced dividends equal to those of most railway companies, and that, in one instance, where a considerable capital has been invested, it is believed that a dividend of 6½ per cent. may be steadily maintained, so that, with the aid of the new Government loan, the desired profit may rise to 7 or 8 per cent.;—that, as a considerable number of working men must live in towns, where the value of land is high, it will probably become general on urban sites to build blocks of dwellings of many stories, planned on economical principles, with flat roofs for recreation and play-ground, with external galleries to save house duty, and in some situations shops may beneficially occupy the ground-floor;—that suburban villages for such working men as can live out of towns may with advantage be established in suitable situations on lines of railway or otherwise;—that, owing to the increasing scarcity of sites for urban dwellings, and for other obvious sanitary considerations, it is exceedingly desirable, as far as practicable, that manufacturing establishments, should be removed from the great towns to situations where land is of less value, and that employers of labour should build in connexion with them dwellings of good construction for their work-people, as in the case of Saltaire;—that large employers of labour might, on the principle adopted by Mr. Akray and Sir Francis Crossley, give facilities to their work-people to obtain good dwellings for themselves on advantageous terms, by the aid of building societies; or on the plan adopted by the manufacturers of Mulhouse;—that on the co-operative principle, the large savings of the working classes now invested at 2½ per cent. in the Funds might be applied far more profitably in the erection of such establishments as the Familistery at Guise: the money deposited in savings-banks, amounting to an aggregate of little less than 50 millions, might, if judiciously laid out, provide healthy and comfortable homes for nearly all the working men in the kingdom;—and that every other facility, means, or agency which can be suggested should be made available to promote the erection of well-arranged and well-constructed dwellings for the labouring classes.

The Rev. W. L. Clay, one of the secretaries, read a paper by Miss Octavia Hill. The paper described the authoress's experience with the tenants of some leasehold property which she, with the assistance of Mr. Ruskin, bought in London about a year and a half ago. By taking an interest in the social condition of the tenants, Miss Hill had been enabled to improve their position, and in a pecuniary point of view the work had been successful. After making every allowance for repairs, redemption of capital, and every other demand, there was a clear profit of at least 5 per cent. The paper urged the importance of a knowledge of the laws respecting such tenancies, and of dealing with the working classes firmly, but fairly, in all the relations that existed between the landlord and tenant. In social matters, the paper urged that the efforts of the tenants should be supplemented rather than substituted.

Mr. Beggs followed with a paper, wherein he said, a number of earnest and able men, impressed by the magnitude of the evil, and the hopelessness of overcoming it by voluntary effort, invoke the aid of the State, and ask the Government not only to give facilities for the erection of dwellings, but actually to erect them. They seek, in fact, that houses for the poor should be built out of the rates. In the last session of Parliament, Mr. Torrens, who has made this subject one of special inquiry and study, introduced a Bill which went to this full extent. He seeks to obtain compulsory powers to obtain sites, placing the powers in the hands of the existing local authorities—that is, the vestries and district boards of the metropolis are to take the initiative; they are to erect dwellings and maintain them by a rate levied for the purpose. This Bill was submitted to a select committee, and, after passing that committee, was, in an amended shape, brought again before the House of Commons. From the pressure of public business it was withdrawn for the time. That was a result at which I am sure the promoters of the measure will rejoice, when they have fully re-considered the whole case. With so much public feeling on the subject, and after so many years of arduous labour, it would be a grievous pity to throw opportunities away, and reap disappointment through an act of hasty legislation. I feel assured that such a measure, if it became law, would be a miserable failure. In the first place, I demur to the principle of the Bill, so far as it places the power of erecting dwellings, and levying rates for that purpose, in the hands of local governments. I cannot see that it is within the province of any government to supply dwellings for the people, any more than to supply them with food and raiment. It is not the business of Government. This is an established economical and political principle. But then it is said that occasions may arise when Government may step out of its province, and give a start to some public funds; and direction to private enterprise, and find money for the purpose out of the public funds; and I think Mr. John Stuart Mill so far relaxes a principle he strongly insists upon as to admit of such occasional interference on the part of a Government. I am not aware whether he would accept this case as one of the favoured exceptions. The case of the cotton famine is one that all men would accept, and, I apprehend, would justify, to the fullest extent, the prompt action which the Government introduced. The work of erecting dwellings for the people is altogether another thing—and I object to the postulate that private enterprise has failed in the accomplishment of the work. In this field of labour private enterprise has not had fair play. It would be well to inquire into the reasons why private enterprise has not kept pace with the demand. In a country with a redundant capital, and numbers of persons eager to employ it in every field of exertion where it promises a reasonable chance of profit, why have dwellings for the people not kept pace with the demand? If we look at the metropolis, we find buildings in all directions, springing up as if by enchantment. It always will be so; for there is something strangely attractive in building operations for a certain class of people; but yet we find only few attempts to build houses for the humbler classes;—and why is this? We may ask, also, whether local governments would be likely to enter upon an undertaking where private enter-

prise has not found profitable employment with any better chances of success. The difficulties are these—the costliness of such structures, arising mainly from the high price of land, and the trouble arising from the loose and irregular habits of the smaller class of occupiers. Would a vestry, armed with the powers of erecting dwellings, be more able to cope with these difficulties than a private company or individual? That vestry would require the compulsory provision to obtain sites for the erection of the dwellings; and with such powers extended to them, a private company or individual would rise superior to a vestry in ability to construct the dwellings, and to regulate the letting and collecting of rents.

The Earl of Shaftesbury, in opening the discussion, said the difficulty in providing houses for the working classes was not so great when they came to deal with the skilled artisan—the man whose wages varied from 25s. to 40s. per week. The great difficulty was in the provision of domiciles for the large population who had no fixed place of work and no fixed wages. Those who had to hang about the docks or the streets waiting for a job, must be perpetually on the scene of work, and could not afford to go to a distance, and could only afford to pay a small pittance for the lodging they enjoyed. Model lodging-houses had been built, but even though they had done much good, they were none of them what they should be. They were contracted in dimensions, low, and unfit for large families. In some there were but two bedrooms, which he held were insufficient for families. In building houses with the proper accommodation, however, they had great difficulties to encounter. The price of land was very great in London, and there was a constantly-increasing element of expense in the wages paid to masons, carpenters, and bricklayers. This had now risen so high that in wages alone the expense of building was more by twenty-five per cent. than it was some three or four years ago. In the country land was certainly not so expensive, but still the general expenses were high. He had no end of letters from architects and others interested in the matter sending him suggestions to propose to erect dwellings at 200*l.* or 220*l.* the pair. This was all very well, but they must look more carefully into the matter. He had an estate near to a brick-kiln, and the bricks were within three minutes' walk of the buildings he wished to erect. This of course was one item, but there was another part of his estate where he would have to convey the bricks fifteen miles. He had, however, undertaken to build a pair of cottages, with three bedrooms—and no dwelling should have less—a back kitchen, and a front kitchen, with all the appurtenances necessary, with the proper specifications as to height and width, and this could not be done under 320*l.* for the pair. For this outlay there should be a return of 25*l.*, or certainly 21*l.*, but he only got for it 5*l.* The position of the agricultural labourer was very much the condition of the street labourer in the town in point of weekly wages; and how was it possible, until they could find some means of construction at a much cheaper rate, to provide houses for the thousands, tens of thousands, he might almost say the millions, requiring better domiciliary accommodation? With regard to suburban villages, he did not think they could get large numbers of persons willingly to go out of town, but he thought these suburban villages would be of great value to intercept the population going into the town. The number flowing into London was from 40,000 to 50,000 every year, and if these could be intercepted much good would be effected; and while he thought this might be done, there were incalculable difficulties in the way of removing people already in the town. He had no doubt that some great remedy for all these evils would be devised; but in taking the matter into consideration, it was necessary to bear in mind that the leading difficulty was as to the large class of the population who had no fixed hours of work and no fixed wages, and who could not afford to pay more than 1s. or 1s. 6d. a week for lodging, and to this point the attention of the Association ought to be specially directed.

Mr. Torrens, M.P., the chairman of the select committee of the House of Commons, by which this subject had been considered, drew attention to the difference between the Bill recommended by the committee, of which Mr. Beggs was a member, and that recommended by the select committee of the House of Commons, and strongly enforced the claims of the latter to support. All that the Bill asked was that the Legislature should enable the local authorities to do what was required, in order to improve the homes of the people, and to give the ratepayers power to put the officers of health in motion if the authorities neglected their duty. The Bill proposed to lend the authorities money at an extraordinarily low rate of interest, to enable them to make the necessary improvements, and held them morally and socially responsible for the existence of fever nests. The select committee of the House of Commons recommended a compulsory measure, because they believed no other would succeed, and because they felt it to be their duty to do to others, when they had the power, what they should wish others to do to them were they in reverse positions. Mr. Torrens spoke at some length, and said he was quite willing to receive suggestions for the improvement of the Bill.

Mr. Edwin Chadwick strongly recommended the use of non-absorbent materials in the erection of buildings, as a means not only of lessening the cost of erection, but also of securing the health of the inhabitants, and stated the results of some recent experiments on concrete used for walls. He desired to guard the section against the assumption that the present qualities and prices were an inevitable condition of house building. He considered the bricks now used for building purposes extremely absorbent, and that such a material as concrete would be a cheaper and more healthy substitute.

Professor Gairdner (Glasgow) directed attention to the legislative measures that had been obtained by the municipal authorities of Glasgow, for the purpose of effecting improvements in that city. It was calculated that those improvements would cost one million and a quarter, and they were to be effected by pulling down houses, with the reservation that no more than 500 people should be displaced by one operation, and that the sheriff should be satisfied that for every one of those 500 house accommodation could be found elsewhere. He suggested that power should be given to the medical authorities in each town to close any tenement which had been decimated by fever until the proprietor had satisfied those authorities that disease no longer remained in the building. There were cases in Glasgow where fever had been known to affect a house as long as three years.

Mr. Godwin said the suggestions thrown out by Mr. Emanuel, Mr. Worthington, and others, might all be used; the extent of the evil was so enormous that one remedy was insufficient. He advocated cheap railway trains for working men; but much more was necessary: called attention to the badly-placed houses in Manchester, some of which, he said, were a disgrace to civilisation; and concluded by supporting Mr. Torrens's Bill.

Dr. W. A. Greenhill (Hastings) instanced experiments in that town and in London of a similar nature, but on a more extensive scale than those of Miss Octavia Hill. The pecuniary return was about 5 per cent.

Mr. H. W. Rumsey (Cheltenham) suggested that whatever course the reformers of dwelling-houses adopted, whether their efforts were made publicly, privately, or in associations, the areas of habitations should be extended. He considered it a great objection to the buildings erected by the trustees of Mr. Peabody, that they provided accommodation at the rate of 625 persons per acre, which was about seven times more than the proportion per acre in the densely populated town of Liverpool. He looked on the suburban settlement and the penny train as the great way of escape from the evils they complained of.

Mr. T. Chatfield Clarke recommended the purchase of houses on repairing leases.

Other gentlemen having spoken, the chairman (Sir J. K. Shuttleworth) closed the discussion. Without depreciating the efforts of those who desired to improve the material condition of the poor, he was convinced that there could be no ultimate permanent success unless those efforts were accompanied by great intellectual and moral change. If the poor of any large city on the Continent, say Berlin, or Paris, could be elevated for a few days, so as to occupy the palaces of their richer neighbours, was there anything in their intellectual condition that would prevent them converting those places into absolute sties? He believed there was not, and therefore he looked for a more perfect remedy in their moral and intellectual change.

The Health of Manchester and Liverpool.

After the reading of Mr. Ransome's paper, reported in our last,—

Dr. Martin read a paper on the cause of the high rate of mortality in Liverpool. He pointed out the efforts which had been made in Liverpool during the last twenty years to improve the health of the town, and their eminent success in reducing the death-rate from 36 per 1,000 in 1846, to 25 per 1,000 in 1860. Since that period the rate has risen year by year until during the last quarter it has reached the rate of 50 per 1,000. He said the cause of this increase could not be owing to over-crowding, because, owing to the thinning of the population in the worst districts, by its spreading to the out-townships, this evil, instead of increasing, had greatly diminished. Indigence, another reputed cause, operated even more strongly in the other parts of Lancashire, but the public health improved there, instead of deteriorating. The sanitary condition of Liverpool was perfection compared with many places. Intemperance appeared to be the most powerful cause of the evil. Whilst in the rest of Lancashire there was a diminished consumption of intoxicating liquor, in Liverpool, owing to the great development of the licensing system, and the increased competition caused amongst the publicans, there has been a great extension of intemperance. The Liverpool Health Committee, recognising these facts, had recommended the council to apply to Parliament for an Act to control the sale of intoxicating liquors.

In the course of the discussion that ensued,

Lord Shaftesbury said he hoped there would be the most stringent law that was ever passed interdicting hereafter houses being built back-to-back. He trusted a law would be passed prohibiting the construction of any block of houses through which there was no complete thoroughfare, for purposes both of ventilation and morality. He had seen two or three instances in London where the opening of a thoroughfare had resulted in a general improvement in the whole character and demeanour of the people. The people living in these horrible lanes and courts, many of them never emerging from them, were as wild, savage, and as inaccessible as if they were in the heart of Timbuctoo. He believed that the habits of intoxication of our country arose as much from disease as disease did from intoxication; they acted and reacted upon one another. If they wished to do that which was best for the moral condition of the people, they would improve their domiciliary condition, and in doing this they would take away the appetite, and, in some cases, the want of these liquors. They could not do better than institute such amendments as those proposed in Mr. Ransome's paper. The writers pointed out very truly that certain officers should be nominated to carry these great amendments and provisions into effect. That was a very good suggestion, but it was only upon paper, until they informed the public who was to appoint the officers. If the officer was to be appointed by vestries, local boards, or any of those who had an indirect or direct interest in these abominations, he would be only a cloak. Therefore, he ought to be appointed by some independent authority; and they should make him as reponsible as they pleased, and give him a noble salary, and so secure the best services in the country.

Mr. W. Rendle (London) said it was an abomination that Manchester had not long since had responsible health officers. He considered that health officers should be appointed by a central authority, and supported his argument by stating his reasons for resigning his post as officer of health for St. George's, Southwark.

Dr. Trench touched upon the importance of removing the dead from the living without delay, and stated that, in Liverpool, mortuary chapels were to be provided, and that for the Irish Roman Catholics, among whom prevailed the infectious diseases by which the death-rate was swollen, a Protestant gentleman, Mr. Hutchinson, late mayor, would build a mortuary chapel, so that the offices for the dead could be performed in accordance with the Catholic religion. He also illustrated the difficulty of enforcing the Common Lodging-houses Act to prevent overcrowding, in the cases of large and destitute families.

Mr. Godwin had visited what had been named to him as the best common lodging-houses in Manchester, and in more than one instance he found four beds in a room, each occupied by two, and sometimes by three persons, the space for eight persons giving 105 cubic feet each! This was illegal, and the fact was a reproach to the inspectors, though, doubtless, much could be said as to their difficulties. In some other

houses rooms were occupied by men and women indiscriminately; and in one room there were eleven persons, men and women, and in a room opening out of it, a woman who had just been confined. It was a monstrous fallacy to say Manchester could not be better sewered; he had looked into places that were fearful to contemplate. As to saying that Liverpool was perfectly sewered, its engineer (Mr. Newlands), who was present, would repudiate the idea. [Dr. Martin, whose paper was alluded to: "Comparatively."] Comparative perfection! There were many things Mr. Newlands would be able to improve. [Mr. Newlands: "Certainly."]

Mr. R. Rawlinson said he denied that Liverpool and Manchester were well sewered. It had been said by the engineers of Manchester that it was not practicable or advisable to do away with cesspits. The man who said so, and used his influence to retain them,—the blood of Manchester be on his head. He said that advisedly. Why could not they be removed in Manchester? In London, with ten times the population, it was done; and as the foul cesspits had been removed and the refuse drained away, the health of London had risen until it was the healthiest great city in the world, because for its population it had the fewest number of those fermenting cesspits. The refuse passed away within twenty-four hours. Let it be retained twelve months, and a class of fermentation would be set up, the effects of which nothing but the breaking up of the place, and the grubbing up of the land, to get away the putrid matter, would remove. With regard to sewer ventilation, it should be so arranged that nothing could put it out of order. At the beginning of the century there were cesspools everywhere in London, and there were no sewers to remove effete matter. Until Mr. Chadwick came into authority, it was illegal to do anything but drain the overflow from the cesspits into the sewers and drains in the streets. Between 1830 and 1840, as the sewering advanced, typhoid fever and typhus became rife in the streets sewered, and an investigation took place, which led to ventilation of the sewers being insisted upon. It cost Manchester 10,000*l.* per annum to retain the cesspit matter, and to remove it into great poison mounds, and to pass it into the country. If this were looked upon as interest on capital necessary to carry out a different system, Manchester might be sewered on the most complete scale, and the improvement would reduce the rate of mortality down to that of London, and perhaps they might bring it down to that of its suburbs. They had had mentioned to them the enormous prevalence of disease in Liverpool; but in the suburbs and surrounding districts — Birkenhead, Tranmere, Wallassey—there was not that mortality. Was there a special atmospheric influence there different from that of the town; or did the mortality arise from some considerable and gross sanitary neglect connected with its machinery or apparatus? It was the same with the suburbs of Manchester. A few years ago the death-rate of Broughton was 18 per 1,000. He maintained that Manchester, Liverpool, and Salford, with proper sanitary regulations, might have their mortality reduced, at least so as to be parallel with London. Was there not in London as degraded a population as they had in Liverpool? He did not believe in impossibilities, and he recommended those whose duty it was to look after these matters to do so without prejudice, and not to say that it was utterly impossible in Manchester to remove the cesspits, or use soil-pans. In London the soil-pan was used by a working population twice as large as Manchester, and the result was most beneficial.

Mr. E. Chadwick would undertake to contract for the results of sanitary reform in Liverpool and Manchester, because what he would propose to do had been done, and there was no reason why it should not be done again. The first step towards the cure of London was the removal of the middens, which resulted in a reduction of the death-rate, without any alteration in the habits of the people. Give him power to get rid of the middens, provide sufficient water, and prevent overcrowding, and he would reduce the rate of mortality by one-half. That there was no special reason why he should not, was shown by the low death-rate in the Salford prison, where a recent outbreak of dysentery was ultimately traced to a drain polluting the prison well. Suppose Manchester rid of its corporation—clear of its drains and cesspools, and of cesspool-minded men—he would provide self-cleansing sewers at 2d. per house per week, fresh water at 2d. per week, and, for another penny, he would remove the middens and provide self-cleansing apparatus. Even a penny a week would provide for the distribution of water. Twenty years ago, Dr. Lyon Playfair estimated that the cost of preventible disease in Manchester was not less than a million a year. That could be removed, because it had been done elsewhere, and nothing stood in the way but an ignorant local administration. Our administrative arrangements were in a state which hereafter would be regarded as a reproach to the time, and were suggestive of barbarism.

PROVISION OF DWELLINGS BY APPROPRIATION OF RAILWAY ARCHES.*

The want of good and sufficient accommodation for the labouring classes in the metropolis has been felt more within the last few years than at any other previous time, and has at length attracted public attention to the means for its redress. It is unquestionable that the evil has been caused to a great extent by recent metropolitan engineering works, and particularly by railway extensions. It is estimated that 20,000 people have already been evicted, while 100,000 more will be dispossessed by the various schemes now on foot. No further argument than this statement is needed, to prove the necessity for prompt action.

Whilst it is clear that that scheme is the best which, if capable of being practically carried out, would make the cause of the evil the means of its removal, it follows that no such perfect scheme can be devised as the one which would make it the *interest* of the railway companies (which turn out the poor wholesale) to find means for their accommodation.

To compel railways, by direct legislative interference, to give house-room to the poorer classes whom they evict, would be impracticable. The principle has already been attempted to be enforced and it has signally failed. As matters stand at present, and with the strong opposition which railway companies can raise in Parliament to an unpalatable scheme, it is a matter both of policy and of necessity to endeavour to adopt other than compulsory measures. If, then, a feasible scheme could be shown by which the railway companies would increase their revenues, and by which the poor would be housed and benefited, the interest of the railway companies would be, not to oppose, but perhaps to further that scheme.

In and about London there are thousands of railway arches belonging to the various companies. Some few of these are used as shops, a few more as warehouses and workshops; but the great majority are, at the present moment, totally unoccupied and unproductive.

To convert these existing arches into labourers' dwellings and to provide for similar accommodation in all future viaducts built in the neighbourhood of great cities, will at least provide for a large proportion of those now ejected.

It is the object of this paper to discuss the means which can be taken to best carry out this scheme, and the advantages or otherwise arising from its adoption.

For each dwelling that is built inside a railway arch, two side walls and a roof are already constructed. It will immediately suggest itself that an advantage is gained in point of economy of construction over the same amount of accommodation anywhere else; and this saving may be calculated at about 30*l.* each arch, or 5*l.* per room.

It may be urged in opposition to the idea itself, that tenants could not be obtained for this class of dwelling;—that the noise and vibration arising from the traffic overhead would render such arches practically uninhabitable. It is believed that this objection, though popular, is groundless. A *very* few of these arches *are* fitted up and occupied as dwelling-houses, and the author during the investigation of the past few months into this subject has met with and questioned the occupants of most of these—the experience of some ranging over a period of six years. They have been unanimous in the statement that no great inconvenience is experienced. Indeed, it is a fact that the noise and vibration arising from the passing trains is more felt in the houses by the side of the railway than in the arches themselves; and if further evidence be required it is possible to point to shops, restaurants, &c., where business is carried on with no more disadvantages than if the premises were streets distant from the railway.

It may be a matter of surprise that such an obvious expedient as the utilization of the arches should not have been previously carried into effect. It is probable that had they been the property of individuals they would long since have been so utilized. But although the idea has, doubtless, been suggested before, and notwithstanding the difficulty of the dealing with any new idea by a railway company, other causes have had their effect in delaying the scheme. The causes which have prevented private individuals from taking the arches from the companies and converting them as proposed, are somewhat numerous; but, as will be seen, are matters of practical detail only.

One of the most important preventive causes is the policy of the companies, hitherto, in refusing to grant long leases. Many of them will give only a yearly tenancy—the most liberal a 7, 14, or 21 years' lease—while all insert clauses reserving power to regain possession by a 3 or 6 months' notice.

This policy, if persisted in, would be fatal, for it would prevent capital being employed by private individuals on such a precarious tenure. But as posses-ion is only likely to be again required by the companies in case of a desire to widen their lines, it would meet the requirements if a short lease only were granted, and compensation be given in case of eviction, for the money laid out in fitting the arches as dwellings.

Again, the present arches vary a great deal in size, and, therefore, in adaptability to the purpose. The best type is an arch about 25 ft. to 30 ft. frontage, about 30 ft. deep, and 20 ft. high to crown. In each of these arches could be built five rooms, a wash-house, yard, and offices, as shown in the accompanying plan. But only a small proportion of the whole number of arches closely approach this type. In the construction of a railway viaduct, the requirement insisted on by Parliament is a headway of about 17 ft. where the arches of the viaduct cross public roads. For purposes of economy, the height of the arches is reduced directly the roadway is passed. The consequence is that the generality of arches do not average nearly 20 ft. in height. Those on the London, Chatham, and Dover Extension system average only about 14 ft. from ground to crown of arch.

Again, there are also many arches under four lines of rails, where a necessary depth of about 50 ft. for this purpose would render them too closely approaching tunnels, for the light and ventilation essential to a dwelling-house. Though then a double dwelling-house *can* be constructed, with six rooms in each arch of such a railway as the London, Chatham, and Dover, yet the accommodation in point of economy of building, of light, and of ventilation, would not be as perfect as in the dimension of arch shown in the plan. It is necessary to add, however, that a very large number of arches of the latter type are at present in existence round London.

Again, it may be objected that the smoke arising from the chimneys would be likely to be a nuisance to the passengers on the railway. The few chimneys which now exist without complaint are at the level only of the top of the parapet; but if future inconvenience be experienced, it will be a slight matter to carry the chimneys up to above the level of the carriage tops. If this is found to be inefficacious it will be possible to use one of the numerous smoke-consuming grates or stoves; or the principle (which has been carried out in some of the buildings of the Metropolitan Association for Improving the Dwellings of the Industrial Classes) of conveying the smoke from a number of flues into one large common shaft may be applied. In any one of these ways it is possible to obviate any objections on this head.

The difficulty of access to some, and the absence of water-pipes and drainage, have also hitherto acted as a slight drawback to the utilization of arches as dwelling-houses.

The above are the principal objections which can be urged against the scheme. It is believed that the whole of them are matters of detail which can be satisfactorily solved by the introduction of clauses into future railway Acts without the opposition of the companies themselves if (in order to disarm this opposition and to prove to the companies that they would not be prejudiced, but, as before stated, benefited by it) private enterprise first showed the value of the proposed scheme.

It is accordingly in contemplation to try the experiment by a private association on (say) twenty arches. Such an experiment can in no event be a very bad, and it is possible that it may be a good, investment.

If the latter is found to be the result it will then be possible, without the opposition of the railway interest, to introduce into future private Acts some such compulsory clauses as the following:—

(1.) Compensation, *pro rata*, for outlay in building to be given to tenants of dwelling-houses under arches, in case of summary eviction.
(2.) Where a viaduct is required to be wider than 30 ft. (or two lines of railway), to build a second viaduct at a distance from the first.
(3.) Sufficient land to be bought, to get access on one side (say 15 ft. in width), and light on the other side (say 6 ft. in width).
(4.) Standing orders to be altered to a compulsory minimum height of 20 ft. to crown of arch.
(5.) Fire-places and flues to be constructed in piers and parapets.

These clauses, though entailing an extra cost upon the railway companies, would repay them in the rent obtainable from the dwellings.

In all future railway schemes which come before Parliament for sanction, the policy also should be in favour of constructing *aboveground* rather than underground railways. In all of the latter class, with the exception of those under carriage roads, property is destroyed without an opportunity for provision being made for those dispossessed. In those of the former class, it may be possible to provide dwellings for nearly the whole number evicted.

The author has now indicated what he believes to be the best means to adopt to give good house accommodation to large numbers of the labouring classes at the present time, and to provide for future wants as they are created by the chief cause of the wants. It remains now only to prove that the commercial value of the scheme claims for it that support which its higher results demand.

The following figures are taken from a tenement of this nature on one of the existing lines of railway, and which is within the author's knowledge.

The tenant, who is also lessee, a working builder, took the arch six years ago, and built himself a house within it, consisting of two sitting-rooms, three bed-rooms, kitchen and washhouse combined, and offices, and states the cost at 100*l.*,

which, at 5 per cent., gives	£5	0	0
Rates and taxes	2	0	0
Insurance	0	13	0
Add cost of collection of rent (say)	1	0	0
And repairs per annum (say)	2	0	0
Total outgoings per annum (exclusive of rent of arch)	£10	13	0
Now, at an estimate of 8*s.* per week for rent of the dwelling, the income from each arch, per annum, would be	20	16	0
Leaving a net income to the railway company on each arch, per annum, of (say)	10	0	0

On the thousands of arches in existence and in contemplation in and about London, the increase of revenue to the railway companies may at once be seen.

But taking the arches as worked by private enterprise, and each therefore as subject to an additional charge to the company of ground-rent, and taking this ground-rent at an average of 4*l.* (an example charged to cover the ground-rents of five-roomed dwellings in the district where these are contemplated), a further deduction of 4*l.* would be made on the above net income. This would leave an interest of 11*l.* per cent. on their outlay to any lessees under the company; and a simultaneous profit free from risk of 4*l.* per arch per annum to the companies themselves on the thousands of arches which they will be in a position to lease.

In many districts in London large blocks of buildings have been erected with new materials, and on a scale which should not be attempted in this scheme; and yet at a cost of 160*l.* per tenement (capitalising the ground-rent in the same way as has been done above), 5 per cent. is paid to the shareholders of the company over which Alderman Waterlow presides; and this instance is from buildings in the City-road, where ground-rents are certainly higher than in the out-districts where the railway arches would be utilized.

* By Messrs. Davis and Emanuel. Read at Manchester Meeting of Social Science Association.

OFFICIAL SUPERVISION.

The frequent recurrence of accidents on railways and of casualties to ships in our seas and rivers, demands consideration, and requires a remedy. That the numerous railway accidents, collisions at sea, shipwrecks, and boiler explosions are the result of what is called "inevitable accident," only those interested as directors or owners will attempt to argue, and no one will be prepared to admit. Now, how to avert these casualties and this incessant waste of precious human life is another of the many unsolved questions of the day.

There is one class of political economists who would place a reliance for protection on Government supervision and Government offices, whilst there is another who would throw Government inspection to the winds, and rely for a remedy on increasing the responsibility of the owners and their servants. The class who look upon Government interference as a panacea for all evils and who condemn the Government for these terrible losses of human life, are the more respectable in point of numbers; whilst those who look for a remedy in the unfettered and healthy development of science, and the increased responsibility of the owners and their servants, are the respectable in point of intellect, and are, perhaps, on the whole, less interested. It is quite probable that the true remedy in this case, as in most others, is to be found between the extremes.

We do not intend either to advocate a wholesale interference on the part of the Government on the one hand, or a *laisser faire* system on the other. It would be a bad day for this country if the responsibility of our great engineering and shipbuilding firms were submitted to the withering blight of irresponsible Government officials, and it would be equally bad if, by withdrawing Government interference altogether, unprincipled speculators were to be allowed to indulge in reckless and dangerous undertakings.

We are satisfied that this most important subject must shortly be submitted to searching parliamentary inquiry; and we have no doubt that the present Government, having their attention roused, and being free from the trammels of official precedents, will take some active steps in the matter. The question will have to figure in the budget for administrative reform, upon which the Conservatives must rely for the support of the country. Perhaps the best service we can render at the present moment is to explain the arguments for and against the existing system as far as it applies to navigation, and to show its weaknesses, rather than to advocate positively any specific remedy.

This system, then, has been said by one of its ablest administrators, Mr. T. H. Farrer, secretary of the Board of Trade, to be a "mongrel" system; and this term is, perhaps, the best and most expressive that has ever been applied to it; for, whilst by statute it compels certain equipments and restrictions, and requires certain statutory surveys and inspections, it expressly renounces any desire to interfere with the responsibility of the owners and their servants. But, in actual practice, such a system cannot last lead, and recent decisions by coroners' and other juries show that it does lead, to the responsibility being removed from the owners. We must, therefore, look upon it and discuss it as a system founded on the assumption that safety is to be sought in supervision.

As the strength of a structure is that of its weakest part, and as the one weak joint in the armour forfeits the life of the warrior, so in any system of supervision one weak point, one thing left uninspected, one incompetent official, will bring the system to ridicule and grief. The advocates of Government control and supervision say we have comparatively few accidents in this country; and it is to supervision that we must look for this happy result. They assume that all engineers and owners want looking after; and that, because they are looked after so much and so well, the casualties in this country are below the casualties in other countries; and they take as an instance for comparison the frequency of boiler explosions and railway accidents in the United States.

The opponents of Government interference meet this by saying it is true that we have, as compared with the United States, few accidents; but it is also true that the really serious casualties we do have in this country are casualties to vessels which *have* passed the Government survey, whilst the casualties to ships that do not pass the Government survey are as nothing in their attendant loss of life. They say that before a steam-ship can go to sea with passengers, she must always be surveyed, and is surveyed, by two surveyors appointed by the Board of Trade, and superintended by a surveyor-general; and in the case of ships going long voyages and carrying mails and passengers, a survey must also be made by the surveyors of the Emigration Board and of the Post-office; and yet, with all these inspections and inspectors, a *London* and an *Amalia* are lost, a *Times*, a *Tonning*, and a *Talbot* explode, and an *Osprey* and an *Amazon* come into collision; and this, they say, is the result of interference and inspection, because the ingenuity of the people interested is employed, not in providing first-rate articles and boilers, but in providing articles and boilers that will pass the Government inspection. They go on to say that owners obtain the inspectors' certificate, and carry it triumphantly; and, if they come to grief, they shelter themselves under it, and wrap themselves up in it, and the coroner's jury brings in a verdict of "Accidental death," or a Board of Trade inquiry acquits everybody of all blame. Indeed, it can scarcely be otherwise, because the Board of Trade inquire into the loss of a ship which they themselves, through their officers, have declared and certified to be sufficient; and it is not likely that they would condemn themselves for passing her.

Then the advocate of Government inspection immediately says that you cannot show that there would not be as many or more accidents if there were less Government inspection. This really is the strong point of the advocates of supervision. No one can deny the difficulty of answering it, but the anti-inspectionists meet it in this way. They say, if an owner is made really and truly responsible by the action of an unfettered common law, he must and will guard against casualties from explosions and misconduct by his servants as he will have to answer to the law. They go on to say, we cannot show that casualties would be fewer, but we believe that they would, because the owner must employ practical people to do his work, whereas in the appointment of Government inspectors merit and competency may or may not be the grounds of selection. Inspections naturally become matters of routine; and inspectors must, from their gradual retirement from active operations in the work-shop and building-yard, inevitably get behind the times in their knowledge, and become obstructive, because less competent than the persons whose handiwork they have to inspect, and upon which they have to pronounce judgment.

But perhaps the best approach to an answer was that given by Mr. Thomas Gray, of the Board of Trade, on the discussion of his startling paper at the Society of Arts, when he demonstrated that all compulsory legislation of the sort referred to tended to depreciation rather than improvement, since "the minimum of efficiency" becomes the "maximum of necessity;" and where he pointed to the statute law of the United States, and showed that whilst it imposes supervision and inspection the most complete and minute, and whilst it interferes with the build and equipment of steam-ships and the construction and working of machinery to an extent compared with which the restrictions in this country are as nothing, the explosions and loss of life in the United States exceed in frequency and horror the explosions and loss of life in British ships in a like proportion.

We now leave the subject in the hands of our readers, as one well worthy of their careful consideration. In doing so we wish to express one opinion, namely, that for a public department entrusted with the safety of the lives of the seagoing public to appoint or even to allow a boiler-maker to pass his own boilers and give a certificate as a public inspector under the Act, betrays a want of intelligence and an absence of common sense which we hope never to meet with again. This remark is *àpropos* of the recent explosion on board the *Talbot*. We give Mr. Coates, the private boiler-maker and official inspector referred to, every credit for the very honest and straightforward manner in which he has acted, and we believe that he did his duty conscientiously and ably; but all surveyors similarly situated might not have acted as he did, and it is to him personally, and not to his superiors at the Board of Trade, that this favourable expression of opinion is due.

WEDGWOOD AND HIS WARES.

In the first volume of Miss Meteyard's elaborate account of Josiah Wedgwood and his Wares she promised that the second volume would be "a perfect shrine of the masterpieces of Wedgwood's art;" and she has certainly redeemed her promise. The volume now under notice* not only gives an account of his various processes so far as they are recorded, but is profusely illustrated with engravings of Wedgwood masterpieces.†

Having, in our notice of the first volume, devoted our space chiefly to biographical matter, we shall in the present instance glean our materials mainly from the details of his processes and his art-works, with which the second volume abounds.

The realization of Wedgwood's art ideas may be said to have dated from the year 1768. He had prepared himself for this new phase in his career, and he was not long in impressing the minds of the art-public with the conviction that he was a genius in his way.

Coincident with steps taken to secure clay of a superior quality from Carolina in South America, a research of far greater moment resulted, after a series of long-continued experiments, in Wedgwood's finest discovery, his crowning feat, as a philosophic chemist; that of the art-use of the terra ponderosa, the *spath fusible* of the French chemists, or the carbonate of baryta, and ultimately its sulphate, in the body or material of pottery.

Silently, too, in his busy Liverpool surgery, Dr. Turner was compounding varnishes, fumigations, bronze powders, and other chemical appliances for his friend at Burslem. "Dr. Turner's varnish came safe to hand, and is too cheap," writes his friend to Bentley. "One of the fumigations is a most excellent enamel colour; so fine a yellow, that I have some hopes of the *great work* being perfected, and that we shall be able to turn even the dirt under our feet into *gold*."

Hand-in-hand went onward improvements in the lathe, as respected fresh adjustments and counterpoises of pulleys and weights, ovals, tudicles, and rosets. His turner's experience in the bearing of the tool upon the work, soon did full justice to Plumier's anticipation of the slide-rest; though two-thirds of another century were to elapse before this most valuable mechanical invention was to lend a new hand, as it were, to the arts. Mr. Wedgwood's delicate manipulations in the line of ornamental variation also required tools of exquisite construction and fineness; as punches, spatula-like instruments, and gravers. Of these he invariably drew the outlines with his own hand, and then consigned the necessary fabrication to the workmen of his friend Mr. Wyke, of Liverpool, and occasionally to those of Mr. Stamford, of Derby.

As yet few of Wedgwood's *chefs-d'œuvre* in ornamental art had appeared; for, as he himself said, his "vases were still in a rude state," and seem to have been principally confined to those of marble and cream-coloured bodies, varied by gilding, and occasionally by necks coloured to resemble lapis lazuli; and yet, through a little good management, they were eagerly bought up. As to the cream-ware table-services, their sale by this date was something extraordinary, although comparatively simple in their decoration; line borderings, and landscapes, *printed* upon the glaze being the most customary ornaments.

From the beginning of 1768 a regular series of invoices furnish an elaborate and authentic history of the successive stages of improvement, and of creative effects in ornamental ware. In the useful ware, so far as related to the cream-colour body and its brilliant glaze, further perfection was impossible; and beyond occasional changes in form, variations in engine-work, as in the edges, and after the establishment of the works at Chelsea of a preponderance of enamelling over printing, and of borderings chiefly derived from the antique for dinner and dessert services of the best quality, the cream ware continued much the same through a long subsequent period; although a whiter ware was brought into the market about 1778. Its sale was always increasing. In the trade with Russia, Boulton and Fothergill began at this date to take a considerable share. They bought largely from Etruria, and exported the ware on their own account to their consignees at Cadiz, and in the ports of the Baltic. Of this universal

* "The Life of Josiah Wedgwood, from his Private Correspondence and Family Papers." By Eliza Meteyard. Vol. II. London: Hurst & Blackett. 1866.

† For a few examples of these see p. 778.

taste for cream-ware, we have Mr. Wedgwood's own testimony: "The demand for the sd *Cream-colour*, alias *Queen's Ware*, alias *Ivory*, still increases," he tells his friend. "It is really amazing how rapidly the use has spread allmost over the whole globe, & how universally it is liked."

For some time Mr. Wedgwood had been experimentalising on marbled bodies in terra-cotta, as we find him even as late as January, 1768, sending trial-pieces of this nature to Bentley, in Liverpool; and, whilst bidding him observe the great variety of effects to be derived therefrom, he prepares him for some necessary sacrifice by saying, "Lord have Mercy on our old stock, say I." But there was in reality no sacrifice after all. By the end of 1768, throughout 1769, and several subsequent years, the fashionable admiration for this class of ornamental ware, stimulated by the more exquisite products of the bronzed and Etruscan vases, became such as to include in it almost everything which bore the shape or name of a vase or jar; and to meet this demand, vases of the old stocks were mounted on different plinths—sometimes even wooden ones—stopped, retouched, polished, or changed from cream-colour into marble by various processes of varnishing, veining, and enamelling. The connoisseur has, therefore, in respect to this class of ornamental ware, to heed well whether the body be a true terra-cotta from its incorporation in the mass, or has received its surface polish, glaze, or veined effects from subsequent applications. The difference is precisely that which exists between true marble and its enamelled or merely painted imitations.

Till somewhere towards the close of 1769, when Mr. Bentley was fairly embarked in the London business with Mr. Wedgwood, the invoices give no distinction between useful and ornamental ware. The whole is consigned to the London warehouse under the one head of "Cream-colour."

The first Etruscan bronze vases were produced at the close of August, 1768; but more than a year elapsed before the bronzing, as an application burnt in, and thus made homogeneous with the body, was brought to perfection. The like date also gave success to a series of experiments in connexion with the preparation and use of gold powder. Shortly after, Mr. Wedgwood obtained his patent for these processes, as well as for painting in encaustic colours; and as soon as he had secured a body of skilled artists and workmen, trained under his own eye, and many of them by his own hand, his visions in respect to his beautiful art were in a measure realised, so far as this stage of its development could go.

From some cause or other, bronze vases are now of great rarity: even accustomed dealers in Wedgwood ware know nothing of them. It may be that in the majority of cases the metallic lustre of the bronzing has become effaced. But statuettes, busts, tripods, lamps, candelabra, and medallions are seen by a few specimens in most collections; and the bronze medals in historic series have a place in every medallist's cabinet.

But the bronzing in its encaustic form, or as an after-coating applied to various coloured bodies, was neither extensively used nor gained the popularity of the black basaltes. It is in *this* body, polished or unpolished, that we find many of the masterpieces of Etruria. It was converted into every possible form; from the homely teapot and cream-jug, to the vase and bas-relief. Busts, statuettes, sphinxes, tritons, tripods, lamps, pedestals, medallions, intaglios, were only a portion of this variety.

Of this body the vases were the great specialty. The example we give will serve as an illustration. It is probably of early date.

The invention of the crystalline terra-cotta body, which, by slight variations, imitated natural jasper, agate, marble, lapis lazuli, and, at a somewhat later date than 1768-9, porphyry, seems to have been contemporaneous with the improvements in the black Egyptian. It was principally used for vases, flower-pots, and candlesticks; though tea-ware and other articles were sometimes formed in it. But in vases its varying beauty shone best; and where the form was good, and the ornaments were simple and not overdone with gilding, the effects of soft hues and delicate veining are often very striking. We give an example from Mr. Mayer's collection. These vases, however, seem never to have gained the popularity of those in the black basaltes, or baryta jasper body.

The body used for the Etruscan vases, and later for others more distinctively Grecian in character, was the black basaltes, with such a shade of chemical difference as gave a tone of blueness to the black. On this groups, figures, borders, and other styles of decoration, were painted chiefly in red. More rarely the vases and other ware had a red body, with the decorative effects in black.

Before either the opening of the ornamental works at Etruria, or the settlement at Chelsea, Mr. Wedgwood had laid the foundation for a body of superior enamel-painters; but he saw that many others would be wanted, not only for the Etruscan encaustic vases, but for enamelling with antique borders, and more modern floral designs, the cream-ware table services. At this date, June, 1769, the proprietors of the porcelain works at Worcester were discharging a number of good hands, and some also from Derby were seeking employment. With some of the latter Mr. Wedgwood entered into a treaty, and throughout the remainder of the year 1769, and during the year succeeding, painters were sought for in Liverpool, Birmingham, Worcester, Derby, Bow, and Lambeth, and many were hired.

The London business being still on the increase, the Brothers Adams were applied to as to renting one of their large houses, then being built at the Adelphi; and although the intention was not carried out,—

"Mr. Wedgwood nevertheless [says Miss Meteyard] kept up a genial intercourse with the Adamses. He wished to introduce terra-cotta ornaments both for the internal and external decoration of houses; and he was aware, from the wide range of their employment, they had much power in this respect. Individually, as Wedgwood says, the brothers were well inclined, and occasionally he prepared them slabs or other pieces with enamelled grounds upon unglazed biscuit; but, as a body, the architects opposed what, in the narrow dogmatism of their art, they considered an innovation. Even Sir William Chambers, who as the royal architect could have effected so much in this respect, passed by unheeded this noble source of architectural ornament; and in one instance especially, that in the building of Lord Melbourne's house, where full liberty had been given to him to introduce at will any striking yet simple style of decoration. Occasionally a gentleman of wealth and taste, who was not a slave in the hands of his all-wise architect, had recourse to this class of ornament, as in the case of Sir John Wrottesley, in a fine room he added to his seat in the autumn of 1772. Mr. Wedgwood told him of the difficulties thrown in his way, but Sir John replied, 'he pleased himself and not the architects.' At a later date we find these ornamental tablets more in request, and Wedgwood busy with fresh designs and new amalgamations of colours, as a white upon a black body; but public taste, and the architectural accessories necessary to any truly artistic use of terra-cotta, were not sufficiently in advance to give encouragement to the great potter's designs in this respect. Here, as in so many other of his artistic ideas, he was far greater than his age. Yet he seems never to have lost faith, that clay as the plastic medium of what was most exquisite in ornament, would yet fill a great void in architectural decoration; and though our own day but sees the faint beginning of these things, and recognises but obscurely the true laws of colour and form in ornament, the first steps have been taken, and there may be yet realized, in an architecture more adapted thereto, some of those conceptions which as a great artist only moved before his ideal vision in phantasmagoric beauty."

Notwithstanding its artistic tone of colour, its exquisite glaze, and its wide-spread popularity, both at home and abroad, there were those who wearied in time of the Queen's ware; and, through the retail dealers, and often at the manufacturers, themselves, began to inquire for a new sort of table-ware which should approach, or, indeed, excel, stoneware in whiteness. Improvements in manufacturing processes, too, are usually in themselves a cause of change. The substitution of Derbyshire chert for boulders of blue granite, in the process of grinding flint, necessarily purified and slightly whitened the ware, from the absence of all particles of granite from the ground substance; and with this purer colour, Wedgwood, after much consideration, was content for a farther period. Three plans floated in his mind,—one to continue his manufacture of the cream-colour as heretofore; a second, to deepen the colour, "so as to make it as deep a straw-colour as possible;" and a third, to make a ware entirely white. After much correspondence with Bentley on the subject, and elaborate calculations on the cost of manufacture, he decided on improving, as far as possible, but not altering, the colour of the ware his skill and industry had raised into a staple.

A white biscuit body, variously compounded, had long been in use in the Potteries; and Wedgwood, at an early date, turned his attention to its improvement, by the use of purer clays and other substances. He therefore sought farther amongst the class of spars for what he required, namely, a substance which should possess a porcelainous texture, intense whiteness, and the ability to give density and hardness to large and compact masses. It was probable that at that day of imperfect chemical knowledge the distinction between the sulphates and carbonates of a mineral substance was but little understood, and that the terms were indifferently applied. Wedgwood had rather to conceal than to publish the processes and results of his chemical experiments; and therefore there is no clue as to whether he made his discoveries through exhaustive analysis, or by happy but empirical induction. Priestley, there can be little doubt, supplied, hints that were valuable. He had tested the carbonate of baryta, and found, as seen, its characteristics too variable to form any efficient basis of a manufacture; he therefore turned to the sulphate of the same substance. A variety of this, locally called *cawk*, was abundant in Derbyshire; and this, after repeated tests, was found to answer in a pre-eminent degree all the purposes required. The carbonate, however, was not then wholly discarded. It formed a fractional portion of the true jasper, and was variously applied in other mixtures.

Wedgwood soon discovered an important property in his new composition,—that of porosity, by its ready incorporation of certain metallic oxides, of cobalt especially. Hitherto colours had been applied to these gems, by ground-laying enamel colours; but this fine property revolutionized many of these laborious processes; and whilst thus lessening the manufacturers' and artists' labour, cheapened the article itself.

Bentley, considering the great importance of his friend's experimental advances with the new white body, and as enthusiastic as himself in the desire to place it in exquisite forms before the world, pressed upon Wedgwood's attention the desirableness of having tablets made of a proper size for chimney-pieces, and the consequence it was likely to be of in extending their trade in ornamental ware. Wedgwood at once responded by work and words. In reference to these suggestions as to chimney-pieces, he says,—"Having tried all the hands I have who were likely to execute them, but in vain, I have taken the business up myself, and am not much afraid of being able to complete it to your satisfaction, but stand in need of your directions relative to the blocks and ovals to the tablets." Bentley had already secured Flaxman, however, as a modeller.

When first brought into use, the supplies of cawk fell often short. On one occasion Wedgwood with characteristic energy set off by himself to the mines, near Matlock, where it had been hitherto procured. Here he obtained a large quantity, and of excellent colour, his scientific knowledge enabling him to direct the miners rightly in their search. With part of this he filled his chaise and returned home: the rest was sent to London, there to be pounded to a fineness sufficient for disguise, and thence to be despatched in casks and boxes, by wagon or canal, into the Potteries.

The first time we hear the new body called by the name of jasper is in November, 1775. Considering that Wedgwood already applied this term to one variation of his crystalline bodies, it is to be regretted that another more distinctive had not been found. Onyx would have been a more relative and appropriate name. But except to the student and connoisseur, the crystalline jasper is unknown; whilst the latter use of the term is immortalized in a thousand forms of beauty and utility. A few months later we come upon the revelation of the ingredients of the new body. It is quite clear that Wedgwood prepared it under several formulas. "You desire," he writes to Bentley, "to have a mixture. Will you be content to have part of it now, and the remainder another time? It is too precious to reveal all at once . . . ." The ingredients are then given, though afterwards carefully struck out with a pen. Bentley, however, writes them fair on a blank part of the letter, as though for his own use. As written by Wedgwood, they are in French, thus:—"17—Cailloux. 22—Argiles des Potiers. 20—Albatre, ½ part. 24—Saphire. 74—6;" or, in plain words,—Flint, potter's clay, carbonate of baryta, a quarter-part—zaffre and sulphate of baryta, a sixth part; for by the word *albatre* is undoubtedly meant the carbonate of baryta, or terra ponderosa. In a succeeding letter Mr. Wedgwood writes, "Our jasper is one of 17—six of 74—three of 22—and a quarter of 20. You can hardly conceive the difficulty and trouble I have had in mixing two tons of this composition and leaving everybody as wise as they were."

Continued practice and unwearied patience produced their true result. With occasional failures almost every firing produced finer and finer things, till, by the end of 1776, absolute perfec

ion was nearly attained, except in the case of he largest tablets. The difficulty with them lay a the firing, and to conquer it, Wedgwood, in nly, 1777, built a kiln on purpose. From this ate, therefore, till Wedgwood's death,—a period f seventeen years,—the finest things in the jasper ody were produced, both in ornamental as well a useful ware.

The early jasper body was first tried in large ablets about the autumn of 1774, and from this ate we find Wedgwood earnestly bent on introucing these ornaments more and more as ecorations of the domestic hearth. But imense and, for a time, as it seemed, insuperable difficulties stood in the way of success; and it as not till he had hardened the composition, nd built a kiln on purpose, that pieces so large nd massive could be produced without defects. leanwhile, however, they were made in the rdinary biscuit body, and then sent to London o receive enamel grounds, or in the black basaltes, hich required no colouring.

Boulton had at this time taken up the trade a chimney-pieces; and, unlike Wedgwood, won he patronage of the builders. The cornice, rieze, and jambs were of wood, decorated with n ornaments, which, when painted as one with me wood, had the effect of fine carving.

But by slow degrees Wedgwood advanced, and s he mastered the science of firing large masses, his branch of his art grew more a possibility; hd no sooner had he prepared some ornaments f this character in the jasper body, than a himney-piece for Longton Hall was ordered. f this we give an illustration.

The centre tablet represents the Apotheosis of irgil. The frieze, jambs, and entablature are, like with the centre ornament, in the jasper body. The frieze, which merely represents an ntique border, and the somewhat unmeaning anding to the trophies on the jambs, show an arly stage in this style of decoration, although ne Medusa's head at the corner of the jambs, hd the tripod altars bearing the sacred flame at ne feet, were repeated afterwards in chimneyieces of higher pretensions.

By the autumn of 1778 every difficulty in iring was conquered, and an attempt to win the ood will of Lord Gower and his architect, rown, was soon afterwards successful, and ord and Lady Gower fixed upon a tablet and ro friezes for their library, the subject of the iezes being Apollo and the Nine Muses. A w days later Wedgwood saw Brown himself:—

"I had an hour's conversation with him [he writes to entley] upon the subject of tablets, &c. . . . . We d nothing to fear be said from the opposition of the chitects, for such things as those must come into use reen seen. Mr. B. & L. Gower objected to the blue ground nless it could be made in Lapis Lazuli. I shewed them a s green and some other colours, to which Mr. Brown said ey were pretty colours, & he should not object to ose for the ground of a room, but they did not come up his idea of the ground of a tablet, nor would any other lour, unless it was a copy of some natural & valuable one. All other color'd grounds give ideas of color'd per, painting, compositions, casting, moulding, &c.; if we could not make our color'd grounds imitate arble or natural stones, he advises us to make the whole tate, as like to statuary marble as he could. This is rtainly orthodox doctrine, & we must endeavour to fs it by it."

Wedgwood's partner was also won over to this rthodox doctrine," for all the finest chimneyeces extant are in this colour.

"In my opinion" (wrote Wedgwood, a few days ter this interview) "white polish'd tablets will liked better for chimney-pieces than any lour'd grounds we can make. . . . . If we n bring over the architects in one good article, me of the others will follow of course."

But the architects were not to be persuaded, ys Miss Meteyard, though Bentley's efforts ere unceasing. Men of cultivation and taste e Stuart were to be won over to things hote-lox simply because they were new in the test sense; but the architects, with a few nourable exceptions, and headed by Sir Wm. ambers, talked them down. The latter perhaded the Queen that Wedgwood & Bentley's blets were not fit for chimney-pieces.

Wedgwood's bas-relief chimney-pieces, hower, were widely, if sparsely, scattered all over eat Britain and Ireland. In London a few w-built houses of the nobility and gentry were corated with them. An attempt was made to n over the architect of Mrs. Montague's new use in Portman-square, but it is unknown if ccessfully. At a somewhat later date, when dgwood added friezes for ceilings to his other naments in jasper on a large scale, a fine one s executed for a room in the house of the ntess of Cork in Grosvenor-square. In rbyshire a chimney-piece still exists which Wedgwood executed at this period for Lord Scarsdale. In Ireland the taste for these ornaments was even more general than in England. Many of them are still extant in town and country houses; and, if sold, find ready purchasers if consigned to this country. The chimney-piece, with its tablet of the Apotheosis of Homer, lately shown at Alton Towers, and the property of Mr. D. C. Marjoribanks, M.P., came originally thence, where it had beautified some noble room for many years.

In one way or another, but especially in this of chimney-pieces, the business relations between Etruria and Soho became extensive, though eventually personal and table ornaments gave place to most other articles. The chimney-pieces in wood with tin ornaments of Soho were the toys of an hour; but the cameos, the vases, the tripods, and the light-bearing articles of Etruria were sterling, and could outlive competition. More and more Boulton became absorbed in the steam-engine and his partnership business with Watt; till at length, as Wedgwood wrote to Bentley, "Certain steam-engines have lifted a good friend of ours above his watch-chain & sleeve-button business."

Red ware had long been made in the Potteries, and some of Wedgwood's earliest portrait medallions and bas-reliefs were in this body. He made the former at Bentley's suggestion, but he wrote—"My objection to it is the extreme vulgarity of red wares. If it had never been made in Tpots & the commonest wares, my objection w[d] not have existed." Subsequently, at the suggestion of Sir William Hamilton, some vases were made of red, slightly tinged with yellow; but even this tint failed to bring the colour to the fineness of that of antiquity. Modern attempts have been in a certain degree more successful. But the secret of the marvellous glaze is still a desideratum.

The first trials for cane and bamboo colours were made towards the close of 1776, and such articles as flowerpots and teapots soon became popular. But the body had many defects, and when it was tried as a material for busts, Wedgwood found that these were irremediable. He therefore tried the cane colour in an entirely new body, and with success; and during the period which elapsed between this date and his death, many articles were produced in this ware, and its variation in the bamboo tints.

The copper glaze or gold bronze ware took its rise from a receipt given to Wedgwood by Dr. Fothergill in 1776. It was first tried by Bentley with great success. Upon hearing this, Wedgwood wrote—"The Dr.'s idea was to apply it to frames, but I trust some more profitable purpose may be secured by this discovery." He took the matter in hand, made experiments, and the results were shown in numberless beautiful articles. The example we give of the gold bronze ware is a pitcher-shaped vase in Mr. Bohn's collection, although from the absence of the metallic tinge in the engraving half the beauty of the original is lost.

From the close of 1785 may be dated all the finest and most elaborate of the ornamented articles in jasper; as also probably many of the bas-reliefs. Another change took place about the same period in regard to the jasper ware generally considered. A jasper dip or wash was substituted for colouring in the mass, or for a body wholly jasper; Wedgwood having by experience and a series of special experiments, perfected this easier, and, probably, less costly method. At the same date, 1786, another improvement was introduced: the jasper ornamental ware, as tea-things, were polished within in the manner in which agate and other stones are polished. Of the jasper tea-ware we give an example from the South Kensington collection.

An example of jasper work has been recently produced at Etruria in the form of plaques with fern-leaves in bas-relief for the adornment of a monument in Kew Church to the memory of the late Sir William Jackson Hooker.

Miss Meteyard has done her work well, and her publishers have placed the result beautifully before the public. We recommend it cordially for a wide reading. Schools of art and public libraries especially should feel bound to buy it.

WINTER EXHIBITIONS.—We understand that the Institute of Painters in Water Colours, 53, Pall-mall, will open a winter exhibition of sketches and studies on the 5th of November next.

THE CONDITION OF BUILDING OPERATIVES.

IN the course of some communications on "The actual Condition of the Working Classes," by Professor Leoni Levi, to the *Daily Telegraph*, there is one on "The Builders," which will interest many of our readers. We give the pith of it:—

Though in many respects the various branches of the building trades stand upon the same footing and are affected by the same circumstances, there are several points in which they materially differ. For instance, considerable difference exists as regards the cost of the tools required by each of them. A bricklayer's tools only cost 20s., and a small additional expense of 5s. per year. A mason's tools cost 30s., but there is no further expense. The plumber will pay 40s. for his, and he will expend 10s. per annum in addition. A carpenter's tools will cost 5*l.*, and they always cost 25s. more per annum. A plasterer's tools will cost some 60s., and 10s. additional per annum; and a joiner's tools cost as much as 20*l.*, and sometimes a great deal more, with probably 35s. per annum besides. The degree of education required by each, and the method of acquiring practical knowledge of the trade, are also different. The bricklayer is seldom apprenticed. He begins to work as a boy at fourteen or fifteen, and becomes a bricklayer, getting full wages at twenty-one or twenty-two years of age. A plumber usually first works as a plumber's labourer, and, after three or four years becomes himself a plumber. The mason, in most cases, serves a good apprenticeship of seven years; but a mason's labourer, generally an Irishman, will seldom, if ever, become a mason. The plasterer springs from a plasterer's boy. There is much difference also in the continuance of labour. The bricklayer, who works always outside, and cannot work during frost or wet, if severe, loses nearly a fourth of the year in compelled idleness. A daily uncertainty as to wet or dry renders his work most uncertain, in winter time especially. The carpenter, too, is stopped in his outside work by wet; but he has a good deal to do under cover, and therefore he will lose from that cause about six weeks in the year only. The mason may lose in the same way about four weeks; and the joiner, who always works within doors, either in the shop or in the house, needs not lose any time, and he seldom practically loses more than two weeks. The painter, however, who can only work in summer, gives himself in winter to another employment, frequently that of a tallow-melter or cab-driver, earning perhaps the half of the usual amount.

As to wages, there is scarcely any difference now between the different classes. A considerable rise has been granted in all the wages in the building trades of late years. After having received for a long time 5s. 6d. a-day, or 33s. for a week of 58½ hours, or at the rate of 6¾d. per hour, the builders of London, and practically throughout England and Wales, have now succeeded in getting 8d. per hour for 56½ hours per week, or 1*l.* 17s. 8d., second-class men receiving 7d. and 7½d. per hour; the work being daily from 6 in the morning to 5·30 in the evening, or 11½ hours less 1½ for meals, leaving ten hours work, except on Saturdays, when they cease working at 1 p.m., all overtime after ten hours with masons, and after twelve hours with other trades, being paid as time and a half—that is, one hour counting as one hour and a half. It is doubtful, indeed, how far the system of paying by the hour may be considered a fair and satisfactory arrangement. First, it is quite an exceptional method, payment by the day or by piecework being the uniform practice in all other trades. Secondly, although it may seem justly to apportion the wage to the work, it puts the labourer at a disadvantage in case of broken days in winter; but, what is still worse, it indicates a want of confidence between masters and men.

In Scotland the average wages of carpenters are 26s.; masons, 30s.; and slaters, plasterers, and plumbers, 33s. In Ireland they average as much as 32s., children receiving 6s. and 8s. per week. As compared with the practice in Paris, the London builders stand greatly in advance. The usual time of work in Paris is from 6 to 6 in summer, with two hours for meals, and from daybreak to dayset in winter, with one hour only for meals. And the average wages in 1860 were four francs and a half per day, though probably now, with the extra pressure for public buildings, they may average five francs. The quan-

tity of labour performed being the same, the Parisian builder gets 4s. 2d., and the Londoner has 6s. 3d. per day. The cost of living for that class is certainly cheaper in Paris than in London; still it is worth noting that, although the Parisian neither gets his half-holiday on Saturday, nor a full holiday on Sunday, and thus works all that time more, he does not get as much as the London builder. It is evident, moreover, that though a person may stretch his forces to the excess of working seven days a week, without interruption, nature will not endure it long, and the chances are that it may find a corrective, either in a greater disposition to idleness, or in more frequent illness and a speedier exhaustion.

Collectively the income of the building classes is considerable. Taking builders, bricklayers, carpenters and joiners, masons, slaters, painters and paperhangers together, the number at this moment in the United Kingdom, exclusive of labourers, may be placed at 457,000 adults of 20 to 60 years of age, and 93,000 under 20. As for the children, it is not much that they do earn. In most cases they help their fathers, and, if they are apprentices, they pay a premium, which goes far to reduce the wages which they get. Still, when we take the entire period from fourteen to twenty, the amount earned by them is considerable. Even at 6s. a week their wages amount to 1,450,000*l.* As for adults the wages of men in London are, as we have seen, 8d. per hour for first-class men, and 7½d. for second-class and less efficient men. One of the leading employers, maintaining upwards of 3,000 workmen, paid last week, in wages, an amount corresponding exactly to 30s. a week, but nearly the half were labourers, and there were a certain number of boys. If we extract the earnings of labourers and boys, the average earnings of the artisans was fully 35s. per week. In the country the full wages of 8d. per hour are seldom obtained, though the railways have done much to equalise the rates everywhere. Taking the entire number, I might safely assume 7½d. per hour as an average, but probably I am safer if I take 30s. per week; and at that rate, the 457,000 builders, &c., of 20 to 60 years of age, will earn 35,700,000*l.* per annum, or, with the children, upwards of 37,000,000*l.* per annum. In this calculation I make no allowance for overtime, which is considerable, though greatly discouraged by trade societies, and I do not include anything for the earnings of all men of 60 years and upwards. But these two items must go against the loss of time which is experienced by most of these artisans, and also for slack time, ill health, and numerous other emergencies, which necessarily happen in the course of the year to reduce the year's income.

The wages of this class of workers are certainly ample and liberal; and it is to be regretted that it does not appear that, as a class, they are better off now than they were many years ago. Employed in a kind of work requiring much expenditure of strength, the builder needs much nutritious food, and many of them will eat more than one pound of meat a day. But this is just the dearest article at the present time. A great inconvenience attending such industry is the liability to constant change of residence—the mason, bricklayer, and most of the builders, being required to move about from place to place where they can find work. If the man prefers avoiding such constant shifting with his family, he must devote a good deal of time and expense in going to and from work in the morning and evening. Hence the importance of the extension of railways to neighbouring places, and the introduction of labourer's fares on all the railways, as on the Metropolitan and London, Chatham, and Dover. If, on the other hand, the worker lives at much distance from his work, he must get his breakfast and dinner at or about the works, which is more expensive than if he could get it at home, or if he could have his food sent from home. The migratory character of such occupation renders the living more costly, setting aside the great temptation of the public-house, often the only place of shelter the labourer can get. Besides the increased cost of food, and the outlay occasioned by the change of residence, the builder usually pays dear for his house-rent or lodging. In London especially, whether for single or married men, house rent is very dear; and it is rendered doubly so to builders by the frequent change from district to district. A leading employer in the trade favoured me with a statement showing the number of householders and lodgers among fifty carpenters and fifty labourers, taken promiscuously in March last. Of the fifty carpenters, thirty-three were married men and seventeen single men; fifteen of them were housekeepers and thirty-five lodgers. The householders rented houses at the average annual rental of 36*l.* 15s. 4d., some as high as 55*l.*, some as low as 10*l.* The lodgers occupied apartments, for which they paid 4s. to 5s. for one room, and 4s. 6d. to 6s. 6d. for two rooms, some paying 7s. per week for three rooms. Of the fifty labourers, nine were housekeepers and forty-one lodgers. The married men were living in houses rented at the average annual value of 19*l.* 10s. 1d., the highest being 32*l.*, the lowest 13*l.* The lodgers were living in apartments rented at 3s. to 4s. 6d. for one room, and very few at 3s. 6d. to 5s. for two rooms. From these authenticated facts, we may see that the expenditure for rent alone among the better classes of workmen is at least 5s. per week for a single man in London. The expenses connected with the trade unions are of some consequence. Between the ordinary subscriptions, the constant liabilities to fines, and the contributions the members are called to make, sometimes voluntarily, sometimes under compulsion, for the men out of work or on strike, one shilling a week will hardly cover this expense only.

But allowing for all this, when, on looking over the wage-books of a large employer, I find the receipts of the men, with overtime, ranging at seldom less than forty shillings a week, sometimes a great deal more, and consider how comparatively free are such workers from taxes or other burdens imposed by rank or society, I cannot help imagining that many of such artisans ought to be able to save a handsome sum every week, were they more thrifty in their habits, more assiduous in their work, and more careful of their savings. In fact, it is quite evident that, if few of them have any money left for an evil day, either of accident, illness, or slack time, it arises more from want of care than from want of ability. There is reason to fear that the practice extensively prevails among the building classes of consuming the earnings weekly as they are obtained, be they scanty or be they ample; and of measuring the amount of work to be performed rather by the amount of the daily or weekly requirement than by any regard to providence and economy. For instance, the largest houses in the building trade have a sick fund for the benefit of the workmen; but it could not be maintained were it not for a very large contribution by the masters themselves. In the accounts of one of such funds now before me, out of 572*l.* paid in, as much as 132*l.* were paid in by the masters. So long, then, as this carelessness or apathy exists, no saving is likely to be made, whether the wages are at thirty or forty shillings a week. It was well said on the subject by Mr. Felkin, of Nottingham, in an address to the British Association upon the appropriation of wages by the working classes:—"If any one intends to improve his condition, he must earn all he can, spend as little as he can, and make what he does spend bring him and his family all the real enjoyments he can. The first saving which a working man effects out of his earnings is the first step, and, because it is the first step, the most important step, towards true independence. Now, independence is as practicable in the case of an industrious and economic though originally poor workman, as in that of the tradesman or merchant, and is as great and estimable a blessing. The same process must be attended to, *i. e.*, the entire expenditure being kept below the clear income, all contingent claims being carefully considered and provided for, and the surplus held sacred, to be employed for those purposes, and those only, which duty and conscience may point out as important or desirable. This requires a course of laborious exertion and strict economy, a little foresight, and possibly some privation. But this is only what is common to the acquisition of all desirable objects."

In intelligence and morals, builders are fully equal to any other classes of labourers or artisans. The largest proportion of them are quite able to read and write, and many of them are readers of works by no means of a light calibre. The newspaper is constantly in their hands. Ever since the penny paper has been introduced, few of them are strangers to what is passing in internal or external politics. Essentially of a town industry, they see life in all its phases; they mingle with men of all classes; they are the first to participate in all the progress which the nation is making in art and civilization; and they may be seen attending classes at the Schools of Art—the mason aiming at being a sculptor, and the carpenter obtaining a sound knowledge of mechanical science, especially all that relates to the communication of pressure, the composition and resolution of forces, and the strength of materials, in order that he may adapt his work to the strains it will be required to resist. A considerable effort has been made of late years in extending instruction of practical value among artisans, and many of the builders have reaped abundant benefit.

NEW THEATRE ROYAL, BRIGHTON.

The Brighton Theatre has been re-constructed and was opened to the public on Monday evening last. According to particulars officially furnished, the auditory is approached by four entrances in the New-road. The plan on the dress-circle level may be described as a semi-circle of 28 ft. diameter, opening by curves of a contrary flexure to a width of 40 ft. at the first column of the proscenium. There is a private box on each of the three tiers between this and the stage opening, flanked on either side by a double range of coupled columns.

The curtain line is 38 ft. from the front of dress circle, 41 ft. 6 in. from that of boxes, and 42 ft. 9 in. from that of the amphitheatre; each tier therefore presents the feature of the French "Balcon." The ceiling is a circle 37 ft. 6 in. in diameter, slightly domed, and 44 ft. high from the floor of the pit. This height, it is stated, allows the audience at the extreme back of the gallery to see the top of the scene on the stage. A cornice, 9 ft. deep, fills up the space from the top of the proscenium to the ceiling, the frieze of which is decorated with figures. The seating accommodation provided is as follows:—dress circle, 175; orchestra stalls, 50; ten private boxes, 65; boxes, 200; amphitheatre, 100; gallery, 700; pit, 610. Total, 1,900.

The lighting is effected by a sun-burner in the centre of the ceiling. There is an iron ventilating shaft over the burner to take off the combustion from the gas and extract hot air from the auditory. In the ceiling also of each tier are ventilators with flues carried up to the roof, and fresh air is brought in through apertures in the side walls. With a view to the prevention of fire, all the walls dividing the corridors are of brick, and the stage is parted from the auditory by a solid brick wall 18 in. thick, carried by an arch over the proscenium opening through the main roof; thus completely cutting off all connexion between the two parts of the building.

The machinery of the stage is by Mr. Stoakes; including the float lights, which are of novel construction. This float, which, together with the sun-burner, has been manufactured by Messrs. Strode & Co., of London, consists of a row of argand burners, with the light reversed, and burning downward; all the combustion is drawn away through an iron tube under the stage and communicating with a brick flue, running up by the proscenium columns. The reflector is 6 in. above the stage.

The enlargement of the proscenium opening to 30 ft. wide by 28 ft. 9 in. high, has necessitated entirely new scenery.

The decoration of the auditorium has been executed by Messrs. Green & King, of London, and consists entirely of ornamental painting, plaster ornaments being dispensed with. Gold is used both on the ceiling and box fronts, but it is employed sparingly. The general tone of the decorations is light, the colours employed being chiefly a warm delicate purple for the arabesques, on cream-coloured and light buff grounds, encircled with occasional masses of red or blue of various intensity, with gold ornaments on them. The ceiling itself consists of a flat dome surrounded by a level margin. Immediately surrounding the sun-burner is a geometric border, and beyond this again some arabesque ornaments on a red ground, so arranged as to form a large twelve-pointed star. From each of these extremities proceed radiating lines of severely treated leafage, which, at some distance from the circumference of the dome, terminate in arabesques on a somewhat richer red ground, and are united by a geometric leafage-border of reflex curvature. The main portion of the ceiling is thus divided into twelve compartments of a form resembling the divisions of the *velarium*, and these are coloured a very faint buff, powdered over with gold stars in geometric arrangement, and edged with a border of blue and gold. The oblong spaces, formed as it were

by the springing back of the cloth, are of a neutral grey green, with a faint red ornament.

A special feature of the decorations is the introduction of a series of figures in the entablature that surmounts the proscenium and private boxes. Something of this kind was adopted at the New Theatre, Nottingham (which employed the same architect and the same decorators); but, in that case, it consists of one large subject, treated in a somewhat pictorial style, and in the manner of the Venetian school. In the present instance, the treatment is strictly decorative, and more after the model of the Greek; the figures forming one long procession along the frieze (some 3 ft. or 4 ft. deep), which forms the middle part of the entablature. The figures represent the various muses, each with an attendant group of followers, moving towards the centre to do homage to Apollo, who is represented as the "Leader of the Muses."

Mr. C. J. Phipps was the architect; and Mr. G. R. Tasker the clerk of the works. Mr. David Bland, of London, has had the general contract; and Mr. Reed, of Brighton, supplied the iron and gas work. The gas apparatus for the stage lighting has been executed by Messrs. Jones, of London.

The parties concerned in the erection were thus alluded to in verse, which will probably not be immortal, pronounced by the manager last Monday night:—

> "For this result, my warmest thanks are due
> To many—let me mention one or two.
> There's Phipps, so clever, affable, and——Bland,
> Who's well accomplish'd all his leader plann'd.
> Green, too, and King deserve congratulations
> Upon the beauty of their decorations.
> And in his act-drop, Gordon has delighted us
> With the sweet scene to which he has invited us.
> For just one more I must approval ask—
> Bravely our Tasker has got through his task."

GLASGOW ARCHITECTURAL SOCIETY.

At the general meeting of this society, a report was read, showing the funds to be in a satisfactory state.*

The new president, Mr. John Honeyman, jun., in the course of an opening address, said, he had no hesitation in asserting that this society had already been productive of the best possible results, and he put it to any one present if he could imagine that architecture would have occupied the same place in the estimation of the citizens of Glasgow that it now did if no Architectural Society had existed during these nine years. He could not help remarking that, although the enormous sum of a million and a half was about to be spent in city improvements and the building of the new college, the whole will be carried out without a single Glasgow architect being a bit the better for it in a pecuniary point of view. He made no comment on this, but merely said, in passing, that it was worthy of remark. Then, as to the college, it might no doubt be advantageous for them in this provincial city to see a building designed by Mr. Scott placed on Gilmorehill; and he might, for himself, say, that he knew of no man better qualified to design such a building than the distinguished architect to whom it had been intrusted; nor had he any doubt whatever that the new college would prove a monumental work of which Glasgow might well be proud. But, whatever might be said in defence of the course which had been followed in this instance, he wished, with all earnestness, to warn them that all the labours of such societies as the present were vain, and every effort of their profession here to rise above mediocrity must prove abortive, if their corporate bodies and influential citizens systematically passed them over when any noble work was required. Not so have those communities acted whose magnificent buildings most truly indicate the prevalence among them of high intellectual culture, refined taste, and a just appreciation of art. Their architects were identified with themselves, cherished and esteemed as the exponents of their own noble aspirations, and thus by every elevating sentiment impelled to greater efforts in the work which they felt was not merely their own. Of course he did not mean to say that if their architects were despised no grand buildings would be erected here. If Glasgow flourished, as he hoped it would, we must have grand buildings, we must have art; but this he said, that what there was would be theirs, not by creation, but by purchase — the slave of their pride, not the pride of their affections; indicating no more of knowledge or love than the Murillos or Turners in the galleries of the parvenu, who only knows that he paid handsomely for them. Sincerely did he trust that the day might yet come when the citizens of Glasgow would be proud not only of their architecture, but of their architects—not only of their art, but of their artists. Judged by recent events in connexion with architecture and sister arts, Glasgow was still sadly lagging behind. He had no fear that her architects would fail her, if their energies were evoked and stimulated by encouragement; but if discouraged and treated with contempt, there was not merely a chance, but a certainty, that the citizens would soon have no architecture of their own worthy of the name, and nothing thus to indicate their advancement beyond the sordid, money-seeking, vulgar stage of a community's existence. It would not for a moment be imagined that in speaking thus he advocated anything like a monopoly for native artists. Nothing, he assured them, was further from his intention, for he was convinced that nothing could be more prejudicial to the best interests of art or commerce, or anything else. What he contended for was simply this—was it too much to ask—a fair field and no favour. But while this was all that they asked, it was not all they expected.

Bailie Salmon then, in the name of the society, presented Mr. William Maclean, hon. secretary, with a black marble and bronze French clock, with side-pieces. In doing so, he adverted at some length to the services which Mr. Maclean had rendered to the society—how he had served them with the greatest faithfulness, making their arrangements and providing for their necessities with the legal acumen which he had shown he was possessed of during the last seven years. Before sitting down, Bailie Salmon said he wished to make a remark in reference to the admirable opening speech of the president, more especially to the portion in which architects and city architecture were spoken of. Of the million and a quarter sterling which the citizens of Glasgow were about to expend in city improvements, he did not believe one shilling would ever go into the pockets of any architect in Glasgow. He did not know who was to blame for that—perhaps he was so far to blame, being a very small unit of the corporation; but if he was to blame, he was to blame entirely against his feelings, his heart, and his very soul. He thought it was most disgraceful to see the corporation act in such a way. There was no city in the empire with anything like the number of inhabitants or half the influence, which had treated their noble profession with such contumely, disrespect, and neglect as had the city of Glasgow.

* The following gentlemen were elected to be the office-bearers of the society for next year; viz.—Presidents—Mr. John Honeyman, jun., architect. Vice-President—Mr. Campbell Douglas, architect; Mr. Walter Macfarlane, ironfounder. Hon. Secretary—Mr. Wm. MacLean, writer. Hon. Treasurer—Mr. James Howatt, measurer. Councillors—Mr. John Shields, measurer; Mr. Alex. Thomson, architect; Mr. John Hay, ventilating engineer; Mr. James Salmon, architect; Mr. James Henderson, architect; Mr. John Mossman, sculptor; Mr. Horatio K. Bromhead, architect; Mr. C. Carlton, painter; Mr. James Boucher, architect; Mr. Wm. Clarke, architect; Mr. Alex. Marshall, wright; Mr. John Gordon, architect; and Mr. John J. Stevenson and Mr. Robt. Taylor, late vice-presidents.

THE NEW BATHS IN BRIGHTON.

The first instalment of the "system" of Brill's Brighton Baths Company (limited) is approaching completion. The building depends chiefly for its effect on the artistic use of yellow and red bricks; the latter marking the upper arches (some of them pierced for windows), from which will spring the dome that is to cover in the building. The architect is Mr. Gilbert Scott.

Passing through a reception-room, we come upon a circular passage of communication, on which open, as in a theatre do the box-doors on the lobby, the "cabins" which are to receive the bathers. These "cabins" are fifteen in number, and encompass rather more than one side of the oval or elliptical figure which the bath itself forms. The dimensions of this latter are 52 ft. in its longest diameter, and 32 ft. in its shortest. The depth of water it will contain will vary from 6 ft. to 4 ft. The height of the building from the surface of the water, when the bath is filled, to the extreme point of the dome lantern which is to light it, will be 48 ft. A set of rooms above, corresponding to the "cabins," will be devoted to hot-water baths.

The architectural effect of the interior lies chiefly in the archways of the "cabins," with their granite shafts, Plymouth marble capitals, pointed arches of red brick, bosses of carved stone which divide the arches of each "cabin," together with Minton tiles above and below the coping.

The archways facing the "cabins" are bricked up, to secure privacy to the bathers opposite whilst dressing or undressing. The dome, which will be formed of brick and iron, with wood lantern, will be supported by another set of pillars above the second.

The chief tint of the interior, as of the exterior, is yellow—the colour of the bricks (the same as are used in the Thames Embankment) of which the walls are constructed, and which act as a foil to the red-brick arches, the stone shafts, and marble capitals, and the Minton tiles. The builders are Messrs. Jackson & Shaw, and the clerk of the works, is Mr. F. Edgar.

THE DRAINAGE OF BELFAST.

A report on the drainage of the borough of Belfast, by the borough surveyor, Mr. J. J. Montgomery, has been printed. In this report the surveyor proposes a system of intercepting sewers analogous to those of the new metropolitan drainage, with outfall below the town in the deep water of the Lagan estuary. There would be two intercepting sewers on the west or main town side of the river, one a high level along the base of the rising ground, which would relieve the lower districts of floods, and convey them by gravitation to the sea: the other, a low-level sewer, clearing the river from sewage and conveying it to a small lift worked by steam-power, and raising it into the high-level sewer near the outfall. There would be reservoirs for the storage of the sewage till after high water, and the sewage would be allowed to go out with the tide till it fell to the invert of the outfall sewer and the bottom of the reservoir, so that it would be carried out to sea before the turn of the tide. On the east side there would only be one intercepting sewer required, which would also discharge into deep water under similar conditions. The western low-level sewer would be 7 ft. in diameter, and the high-level 6 ft. 6 in. The eastern sewer would be 5 ft. in diameter. The cost of the whole drainage system on a rough estimate would be 150,000*l.*

PARIS.

The upper portion of the circular pedestal in white marble of the column of the Bastille is being scraped and refaced, as it was in a worn-away condition. Some of the best structures in Paris are suffering from a want of knowledge and foresight in the choice of stone. The Pont de Solferino, scarce four years old, has had its pedestals and entablature cooked up by a sort of mastic, and now looks like the side-scene of a farce. The stone chosen for the piers of the balustrade was the juracalc, a yellowish-tinged, strong, and well-crystalline marble in one bed, but in others it is very far different. Cracked in all directions, the stone of the balustrade of the Solferino Bridge has had these apertures continually enlarged by rain, so that the filling up by putty has become a matter of requisition as regards solidity. The substance is thus applied. Red in itself, and of a nature to set immediately, it is spread with a sort of spatula, and worked into the worn cavities. All the block, of a uniform red colour (that of the besmeared mastic), is then scraped and repolished, so as to resemble veined marble, the cracks filled up being red veins, and the rest of the stone a yellowish ground.

The elevated portions of the Saint Chapelle are under course of repair, and the rich sculpture of some of the pinnacles is being rechiselled in portions which have been ravaged by time. Sculptors are also busy at the Église de la Madeleine scraping and fitting up the faded portions of the ceiling ornamentation of the portico, and repairing the upper portion of the façade. The south entrance-doors have been tinted with verdigris, which gives to the bronze plating an antiquity that it does not possess.

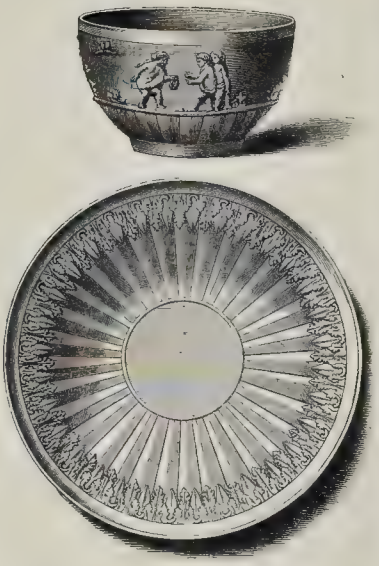
The porch of Saint Germain l'Auxerrois is being repainted and regilt by the very artist who half a century ago produced this work of restoration.

a

WEDGWOOD WARE.



Chimney-piece, Longton Hall, Staffordshire.



Cup and Saucer. White and Lilac Jasper.



Black Basaltes.



Gold Bronze Ware.



Crystalline Jasper.

ST. MARTIN'S DISTRICT CHURCH, KENTISH TOWN, LONDON.

The land between Camden Town and Kentish Town within the last few years has been laid out in streets and squares; and houses have sprung up in every direction, so that all traces of that once rural district are now gone. Within this area stands the Church of St. Martin, with its parsonage-house, the gift of one benefactor, and showing by its important size, a liberal donation to the wants of the district.

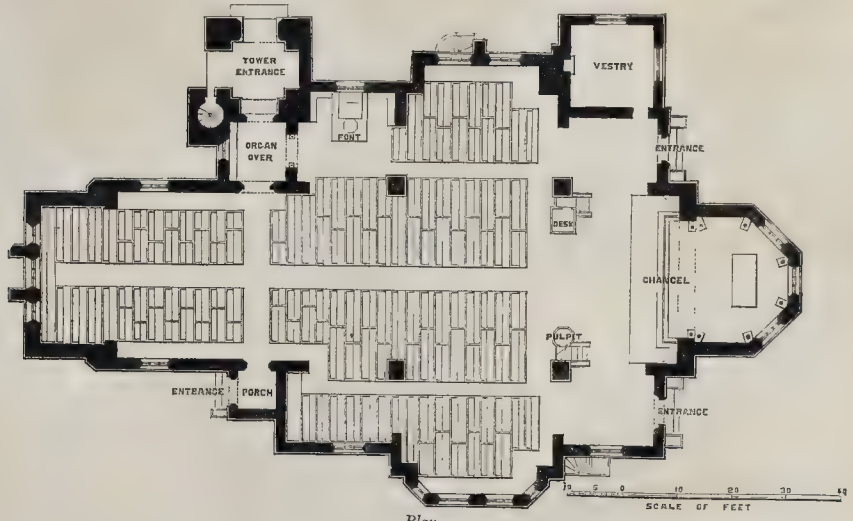
The building consists of a nave, chancel, aisles, and north and south transepts, and when filled will seat 1,000 persons. At the north-west angle is a tower, 130 ft. high, under which is the principal entrance; and at the north-east corner is a vestry.

The seats are all open, with carved ends. The font is placed in a recess on the north side, near the entrance, and is large, and elaborately carved. The pulpit and desk are also carved. There is a large fine organ, by Bishop; and in the tower hang six bells, by Warner. The east window is filled with stained glass, by Clayton & Bell, and in the other windows there is stained glass, designed by the architect, and painted by Heaton, Butler, & Bayne.

The internal arrangement of the building is different from that usually adopted: as, instead of



ST. MARTIN'S CHURCH, HAVERSTOCK HILL.—Mr. E. B. Lamb, Architect.



Plan.

the nave and aisles being separated by a series of stone piers and arches, the cruciform character of the church is defined by the intersection of the nave and transepts; and at their junction the roof is supported by four stone piers, from which the arched ribs, of wood, spring, these supporting the centre of the roof; giving a large open space in the centre of the church, so that an unobstructed view is obtained from the pulpit and desk. At this point the minister can be seen and heard from every part of the church, and nearly from every seat. The chancel is short: it is enriched by its octagonal form and the detached columns carrying the roof. At the end of the nave, adjoining the chancel arch, the sides stand at an angle of 45°, sufficiently large to contain panels of the same form and design as the east windows, in which the Commandments, Creed, and Lord's Prayer are placed. The chancel-arch is supported by detached columns. The interior of the building is paved with Hassock stone, with Bath stone in the windows, doors, and decorative parts; the roof is open-timbered, with arched ribs and panes, boarded, stained, and varnished. The interior is lighted with gas, in six simple rings suspended from the roof.

Externally, the building is constructed with Kentish rag stone, with Bath stone in all the windows and other principal features. The roof is covered with plain tiles.

The style of architecture adopted is that which was in general use at the time of Henry VII.; but the building must be considered rather a characteristic expression of that style, than as a reproduction, for it would be difficult to find an absolute precedent for any portion of the work.

The parsonage-house is an unpretending building, and is designed to harmonize with the church. Both were built from the designs of Mr. E. B. Lamb, architect; and the church was consecrated by the Bishop of London in December last.

THE TRADES MOVEMENT.

Sheffield.—Another villainous trade outrage has been committed at Sheffield, which has long been notorious for such incidents. It seems that a saw-grinder had left the union connected with his trade. At an early hour in the morning a shell, improvised in the usual Sheffield mode by filling a can with gunpowder, was flung into his cellar; and his house, in which seven persons were asleep, was blown about his ears. An adjoining house was also much damaged, but fortunately all escaped uninjured. The perpetrators of this dastardly crime have not been apprehended. A very large reward (1,100*l.*) for criminatory information has been offered. The executive of the organized trades have taken "steps to vindicate their association from any complicity in the attempted assassination." The only effectual steps will be the discovering and giving up of the would-be assassins to justice: all else is mere talk.

Middlesbrough.—A letter sent to the Rev. A. Burns, Roman Catholic priest at Middlesbrough, has been published, in which the writer threatened to shoot the rev. gentleman for the part he had taken in trying to induce the men to return to work. A reward of 25*l.* is offered for the discovery of the writer. Several other ministers and gentlemen in Middlesbrough have received letters written in the most ruffianly style.

Stockton.—A strike of more immediate importance to the public than usual is threatened in the North. The engine-drivers on the North-Eastern and Stockton and Darlington Railways have demanded that six men, who are under notice to leave, from the managers of the latter railway, in consequence, it is said, of their being prominent members of the trade-union, shall be re-engaged, and that all the drivers shall in future be paid per day instead of per mile. Four of the men under notice have already been reinstated, and it is expected that the rest of the demand will be conceded, as it would be difficult to replace the men who would strike, and who, it is understood, would be joined by their fellows on the Great Northern lines, in case of necessity.

Macclesfield.—The members of the Macclesfield branch of the General Building Trade Association have held a dinner at the Angel Inn, at which the principal employers of labour in the joinery, building, painting and plumbing trades, &c., in the town, sat down, under the presidency of Mr. Councillor Blackshaw, Mr. Anderson occupying the vice-chair. In course of the speeches which followed, the chairman said, the object of the association was not to pull down wages, but to keep up the character of the trade, so that satisfaction may be given to those who employ them, and those employed by them. Since the commencement of the association, between thirty and forty towns have joined, and in all probability before long every town of importance would be with them.

Wolverhampton. — The annual dinner of the Wolverhampton Operative Carpenters and Joiners has been held at the Noah's Ark Inn, and was partaken of by about sixty members and friends. Mr. Humphries, the secretary to the society, said that the past year had been a fruitful one, for the union had been increased by thirty-six new lodges, and 2,000 fresh members, and now numbered 20,000 members. They had had a vast call on their funds by strikes in various parts of the country, and they paid a good deal in sick-pay.

Canada and the States.—It is announced from Canada that a large emigration has been going on all this year from the British provinces to the Western States of the Union, mechanics especially thus changing their homes; over 1,000 carpenters having left Quebec during the present year.

THE STATUE IN LEICESTER SQUARE.

Never did statue cut a more comical figure than did, on Wednesday morning last, that of George II., which, maimed and propped, stands sentinel at the Alhambra, and watches wonderingly the no progress made in rebuilding Saville House. The whitened king was surmounted with a monstrous pointed hat as high as himself, and the horse, spotted with black, with blackened nose and pie-bald tail, had on its ears similar appendages of smaller size. The arms on the pedestal below were rubbed over with red, and upreared at the side was a whitened pole, to which a broom was attached, inviting a purchaser. Shades of Hogarth and Reynolds, one-while occupants of the Square, did ye ever look on such a picture? Every one has heard of "the statue that enchants the world:" in this case wicked wights had enchanted the statue. The effect was truly supernatural. The object of the perpetrators of the joke was probably to bring affairs to a crisis, and compel interference and amendment. If it have that effect they will have done a public service, for the present condition of the Square altogether is a reproach and disgrace which should not be suffered to exist another week.

DRAINAGE AT ST. LEONARDS-ON-SEA.

The tenders (eight in number) for the construction of an intercepting sewer and other works, lately advertised in the *Builder*, were opened at a special meeting of the town commissioners, on Tuesday. The plan was prepared by Mr. Bazalgette, and his estimate was 5,500*l.* The tenders were all found to be greatly in excess of that sum, and the commissioners resolved not to make known the names or amounts at present; but to forward a list of the same to Mr. Bazalgette, and to ask his advice or suggestion as to the acceptance of either or the rejection of the whole. It was also resolved that the further consideration of the tenders be delayed until a reply had been received from Mr. Bazalgette. Local surveyors affirm that the propounder of the scheme is not quite correct in his estimate; and it is believed the highest tender will be in excess of 14,000*l.*, whilst the lowest will reach 8,000*l.*

A WRITING TELEGRAPH.

A young *employé* of the Central Telegraph Office in Paris has invented a new instrument said to be capable of transcribing every species of writing and drawing; but, instead of, as in the systems of Bonelli and Caselli, using chemically prepared paper, he simply employs a wide strip or ribbon of the most ordinary paper, on which the despatch is printed in printing ink of any colour, blue, red, or any other. The great drawback to this invention is that it only pretends to transmit *fac similes*, 5 centimètres (1·96 inch) broad, the width of the tape; but in compensation for this fault it is stated that the length of the band is unlimited, and that apparatus can transmit forty messages per hour. The transmitting instrument consists of a cylinder 4·78 in. long, and 1·6 in. in circumference, round which is wrapped the despatch to be sent, written in ordinary characters upon tinned paper. The message, in turning round the cylinder, presses against a point which traverses it in the direction of its length.

The receiving apparatus is composed of an endless screw 1 ft. 6 in. long, the thread of which, making rather less than one revolution, rubs against an inked roller and turns round above a band of white paper, which unrolls with the same velocity as the point travels at the despatching apparatus. Both instruments work by means of weights, the movement being, as in other apparatus of this nature, controlled by electricity, isochronism being indispensable between the movement of the point and the turning of the endless screw. When the current passes, an electro-magnet holds the paper at a distance from the screw; but when the current is intercepted, in consequence of the point having touched the non-conducting ink of the despatch, the band is pressed by a spring against the spiral screw, and a dot is made corresponding to the part of writing traced by the point at the other end of the line. The director-general of the administration of the telegraph lines of France kindly placed at the disposal of M. Meyer 360 to 380 kilomètres of a very circuitous route for the essay of his apparatus, and the success has been greater than was anticipated.

ST. JOHN'S GATE, CLERKENWELL.

The son-in-law of the late Mr. B. Foster, the author of "Ye History of ye Priory and Gate of St. John," has purchased the freehold, and being imbued with his relative's veneration for the old building, and viewing it with a like "reverence," exhibited by Dr. Samuel Johnson, has entered into a contract with Mr. Sealey, to expend 350*l.* upon its further restoration, viz.;—to clear away the modern staircase on the west side, and to restore the rooms to their original size;—to scrape and varnish the old oak moulded beams;—to restore the oak staircase in the north-west tower (this staircase winds from top to bottom with solid oak steps, and an oak newel);—also to restore the old stone doorway, formerly the entrance to Cave's printing-office in the same tower, and containing figures which the *Gentleman's Magazine*, for 1788, says are intended to represent a cock and hawk, and a hen and lion, to its original proportion; the continued raising of the street paving, having shorn this doorway of its fair proportions by 3 ft. of its height. The works are under the care of Mr. W. P. Griffith.

ST. SAVIOUR'S CHURCH, ABERDEEN PARK, HIGHBURY GROVE.

This church, built mainly of brick, and from the design of Mr. W. White, architect, was consecrated on the 10th inst. In plan it is cruciform, with a central lantern groined in timber and boarding, about 55 ft. high from the floor. The extreme dimensions of the building inside are 100 ft. by 44 ft. The height of the nave to the ridge of the timber roof is 52 ft. The clerestory consists of two bays of couplet windows, each of two cusped lights, with cusped circle in the head. The height of the clerestory itself is nearly one-third of the whole. There are aisles to nave and chancel, but the latter are very narrow, and are more for communication with the chancel from the transepts than for purposes of accommodation. The organ stands in the north chancel aisle, which is somewhat higher, in order to receive it. The eastern bay of the chancel is also groined in woodwork. The reredos is in three panels, with carved canopies, and is decorated with subjects. The whole of the interior is left in pointed brickwork, which is chiefly of a dull red, but ornamented in various parts with patterns in buff and black. On the east wall, on either side of the reredos, a small portion of decorative painting, simply on the red brickwork as a ground, has been done, showing the proposed treatment for subsequent decoration generally. The whole of the brickwork is constructed with somewhat wide joints, the size of the bricks being 10 in. by 4¼ in. by 2½ in., and giving a character quite

different from modern work. The whole of the arches and dressings are in moulded brick, stonework being used only for the caps and some of the bases and the tracery of the windows. The accommodation of the church is for about 400 persons, and the total outlay about 4,500*l*. The wrought-iron fencing in front is finished from the hammer. The two bells are hung in recesses formed for the purpose in the western gable.

UPPER TOOTING SCHOOLS, SURREY.

These schools have recently been completed, and consist of a boys' school, 50 ft. by 19 ft. 6 in.; girls' school, 34 ft. 6 in. by 17 ft. 4 in.; and infants' room, 23 ft. 3 in. by 14 ft., with master's residence attached. The general materials of the walls are grey stock bricks, the heads of the windows having plate tracery of Bath stone. Red brick is introduced in the arches, over the doors and windows, and in bands round the building. The roofs are covered with plain tiles, and a bell-turret surmounts the girls' school, its spirelet being covered with cleft oak shingle, and its base with lead. Internally the walls are coloured a warm tint, and the building is warmed by hot water. The roofs are of open timber (fir), and are stained. Painted glass, by Messrs. Lavers & Barraud, has been given for one of the gable windows of the boys' school. The architect is Mr. Ferrey; and the builder, Mr. John Edney, of Upper Tooting.

METROPOLITAN MUNICIPALITIES.

On the 14th of February, 1866, Mr. Hare read a paper before the Social Science Association, at the rooms in the Adelphi, London, "Upon an Improved Constitution of Local Governing Bodies," in which, after giving an able review of the present position of the several local bodies constituting the present governing power of the metropolis, he proposed and recommended the adoption of a Bill for creating a large constitution or corporation for the whole of London. A discussion took place, and the opinion seemed to be in favour of some such division of the metropolis as would give to each Parliamentary borough a municipality; and finally a committee, consisting of Mr. John Stuart Mill, M.P.; Sir J. K. Shuttleworth, bart.; Messrs. James Beal, Hare, E. Dresser Rogers, Storr, Beggs, and Horton, was elected to take the whole question into consideration, and take such action as they might deem fit.

This committee met several times, and with the assistance of counsel, framed a Bill, which was presented to the House of Commons by Mr. Mill; and the course of the legislation on the Reform question stayed its consideration that session.

To assist the movement, a larger body was formed, called the Metropolitan Municipal Association, whose offices are at 6, Whitehall, and which has been joined by some hundreds of influential local gentlemen from all parts of London, and numbers as members some twenty or thirty members of Parliament. In the coming Parliamentary session, it is expected that the question will be one of the first brought forward, deserving, as it does, the earnest consideration of every one who desires some effectual alteration of the present very unsatisfactory vestry management.

GREAT MUNDEN CHURCH, HERTS.

On Tuesday, the 9th inst., this church was re-opened for divine service by the Lord Bishop of Rochester. A great change has been effected in the edifice. It had fallen into ruin: damp and undrained, the walls had become decayed, the stonework had tumbled to pieces and been patched up with cement, and the roof was in a dangerous condition. All this, however, has now been set right so far as concerns the nave and chancel; the walls externally have been faced with uncut flint, the stonework is renewed, the walls within are made comely, and new seats throughout give increased as well as more fitting accommodation to worshippers. The old pulpit has been re-arranged and set up with a new oak reading-desk; the stone arcade dividing the nave from the aisle has been rebuilt, and the whole church is paved with tiles in patterns. The foundation of the building is very ancient, and remnants of the Norman structure are seen in the north doorway of the nave and at the chancel arch. The body of the church is mainly of the Decorated period, with some windows of the Perpendicular period interpolated.

A stained glass window has been placed on the south side of the chancel by Mrs. Henry Dawson, in memory of her husband the late rector.

The works have been very well executed by Mr. Gibbons, of Buntingford, from the designs and under the superintendence of Messrs. G. & H. Godwin, architects. The parish have reason to thank the rector, the Rev. C. Maude, through whose exertions the necessary funds have been provided.

The tower is in a dilapidated state, and should be next attended to.

EXHIBITION OF ECCLESIASTICAL ART AT YORK.

The Church Congress at Norwich last year was taken advantage of by the admirers of high ritual and elaborate vesting to exhibit examples of vestments and church furniture, ancient and modern. The effort proved successful, and this year the experiment has been repeated at York on a still larger scale. Seven smaller rooms and the large hall of Castlegate House are filled with ecclesiastical utensils, jewelry, and appointments of various kinds—some ancient, but the bulk of them modern. One thought strikes the most casual observer, and that is, the vast extent to which the ritual movement has attained in a few years, as is shown by the great number of vestments collected from various churches in all parts of the kingdom, from Cornwall to Aberdeen. Amongst the articles exhibited there are silk and satin stuffs, cloth of gold, damasks in silks, worsted, and various other materials for chasubles, copes, burses, maniples, alms-bags, hoods, birettas, chalice veils, and surplices. Laces of the most expensive materials, and of a cheaper kind, present themselves in the most gorgeous and the most modest colours, designed in simple forms, and in those of the greatest artistic beauty. In many instances the designs are from the pencils of architects such as Scott, Street, Burges, Pugin, and Blomfield: and, to make the show more complete, there are finished examples of the various garments into which the stuffs can be fashioned, many of them resplendent with jewelry and embroidery. Of course, too, there is metalwork of all sorts, in the forms of jewelled pastoral staffs, bronze lamps, chalices, and censers.

THE PAVING OF LONDON BRIDGE.

SERMONS IN STONES.

You have done much, sir, in the way of "showing up" abuses and nuisances of all kinds and degrees, and among the rest our street paving, with all its inherent defects and attendant discomforts during the too frequent tearing up and putting down. Permit me to offer a word or two upon the subject generally, and more particularly on the paving of London Bridge.

It is about twelve months since that bridge was repaved (as all who ride or drive from the south into the City may well remember). What the state of that paving now is would hardly be credited, unless seen; and for its effects on the poor horses every driver will bear testimony. And here it may be proper to inquire, what are the causes of failure in general? I submit for consideration two, in chief; first, the absence of a really good concrete of uniform density as a substratum; and, secondly, the imperfect and irregular form of the stones. I have often stood to observe the paviers handle and turn over stone after stone to find one of the right gauge in width and depth to suit the course and *fit* the *bed*; or, failing in this, a little fine gravel (or *dirt?*) put in, or a dig into the concrete, as the occasion required, made all fair and square *above board!* Then follow the finishing touches: the *surface* is deluged with grout, and finally sprinkled with clean gravel. The casual passer by indulges himself in the luxury of "deliberately" walking over the newly-laid paving, thinking (sometimes saying), "how nice it looks," and greatly enjoys riding over it. In a few months the spell is broken; the once fair gravelled face now exhibits some ugly lopsided indents, certain stones feel uneasy in their bed, it has become *lumpy*, they want it *made afresh!*

And now to get a sound road:—First, with regard to the depth of concrete, no rules can be laid down as strictly applicable to all soils, but 12 in. may be taken as an average under ordinary circumstances, and "whatever the component parts may be," must be well consolidated, floated *parallel* with proposed line of road, when finished, and on no account be broken up on the surface. The granite paving, say 12 in. long, by 10 in. deep, and 4 in. thick (or other suitable dimensions), uniform in size for 7 in. from the base upwards, and thence splayed on all sides to an area of 11 in. by 3 in. at the top. The sides, ends, and base of each stone should be worked fair for *close* jointing (could not this be done by machinery contrived for the express purpose?), the upper surface to be roughly worked, and the interstices or grooves formed by the splay filled in with asphalte or other non-absorbent; for no roadway is well made, or can last long, that is not tolerably waterproof. I am of opinion that the extra cost to work and lay the stones as suggested, would be amply compensated for by their durability. W. H.

THE NATIONAL WALLACE MONUMENT.

Sir,—As your leader of the 6th inst. seems to be written in a not unfriendly spirit, perhaps you will find room in your columns for a few explanatory statements and remarks such as you appear to desire.

I confess that, looking to the manner in which a *certain class* of English writers had come to treat the memory of Wallace, representing him either as a "common robber," whose capture, by treachery or otherwise, mock trial, and so-called "ignominious death," were just and righteous acts; or, as a "mythological personage," whose achievements existed only in the fancy of his countrymen, I was one of those who considered that the time had come when Scotsmen should, once for all, record, in a permanent and conspicuous form, their protest against either view of the case. I may add that I went into the movement also under an impression that liberal-minded Englishmen would see no offence in it, but would be found of the same opinion as the eminent English poetess whose eloquent words you yourself quote. In saying so much, I believe I express the views and feelings of the great majority of those who became subscribers to the monument. However, as you justly remark, "whatever difference of opinion might exist as to the wisdom of the project, in the first instance, having been so far proceeded with, an effort ought certainly to be made to finish the structure."

The movement, as you say, began in 1856; and a design having been chosen in 1860 or 1861 out of a great many presented, it was resolved to proceed with its erection. The estimated cost was to be 7,000*l*., while the funds actually on hand amounted only to about 4,500*l*. The then acting committee certainly made two mistakes;—first, in supposing that a design once chosen and begun, funds would naturally flow in; and second, in supposing that the actual design could possibly be erected on the summit of the Abbey Craig for the sum named. That subscriptions did not come in as expected, was owing to a combination of circumstances which it is bootless now to discuss; and that the work has already exceeded the estimate is one of those occurrences which are too common, even in ordinary circumstances, to excite much surprise.

Before the proprietors of the Craig would allow the work to be begun, they stipulated for a guarantee that other 1,200*l*. would be raised for its completion; and Mr. Wm. Drummond, of Stirling, gave this guarantee. Thereupon a building committee was named, and the foundation-stone laid, under circumstances somewhat like what you describe, but unintentionally exaggerated. Whether there was "an unconscionable amount of whisky-toddy and Caledonian hurrahing at the banquet" I cannot say, as I was not present.

The work went on for a period of about two years, when the contractor found himself unable to continue it, and abandoned the contract, surrendering to the committee his steam-engine, plant, and materials, in respect of over-advances he had received. A full report was then made up and published, from which it appeared that the total income had been 6,046*l*. 13s. 10d., and

the expenditure 5,803*l.* 0s. 1d.; leaving available only 243*l.* 13s. 9d.

A new building committee were then appointed, who commenced the collection of subscriptions, as it were, *de novo*; and, with the aid of the architect, and an intelligent superintendent, the committee have carried on the operations since. They have regularly published reports of their whole transactions. In course of the summer of 1865, this committee found themselves in the painful position of being in advance to the extent of 716*l.*, and were consequently constrained to suspend operations. The effect of this was to produce a spontaneous effort, chiefly among the working men in Glasgow and elsewhere, by which the committee were enabled to pay off the advance, and resume operations, which have been going on vigorously during the season. The committee are presently in the position of having a sum of 800*l.* in hand, and now feel quite confident about the successful completion of the work, as they cannot doubt their countrymen will come forward with any balance necessary. At present, the architect and superintendent are engaged in making a careful estimate, so as to ascertain how much this may yet be, the result of which I shall be glad to communicate.

From these explanations, you will see that the "guarantee" never became operative, — the 1,200*l.* having been raised by subscriptions. But, you will also observe from the first report, that the gentleman referred to put down his name first on the new subscription list for 100*l.*! The story about the 500*l.* to be given by an hon. baronet was simply a newspaper *canard*.

And now, sir, the building committee would appeal to their countrymen, among your readers, to aid them in a work, the completion of which is now essential to the character of Scotsmen.

A Member of Committee.

P.S. I may add that the present secretary of the committee is Mr. Eben. Mallison, writer, Stirling, who, I am sure, will gladly answer any inquiries.*

"POST-MORTAR INQUIRY" AND THE ROUND TOWERS OF IRELAND.

Sir,—Your correspondent, "T. H. L." (p. 766), asserts that many of the round towers of Ireland have stood 3,000 years; are built of materials similar to the Roman aqueducts at Nismes, and the Roman walls of Pevensey Castle, *i.e.*, as he describes it, with mortar composed of sand, lime, and pulverised brick; and further, that some of the round towers are built of a concrete resembling bricks. As one who has seen every one of these Irish towers, except one foundation only just discovered, allow me to ask how "T. H. L." has discovered the peculiar features of their construction, which I have certainly failed to notice, *i.e.*, the presence of brick, brick-dust, or any resemblance to it; and how he knows their age to be 3,000 years, a point on which I think it would be wise to differ from him some 2,000 years. G. M. H.

LIGHTING BILLIARD-TABLES.

Sir,—I shall be glad to hear from some of your correspondents the best mode of lighting a billiard-table in a place where gas is not obtainable. Such lamps as I have generally seen used cast a shadow, entail the risk of a leak, by which the table would be damaged, and have other inconveniences. J. P.

PORTLAND CEMENT.

Your insertion of the query of "An Amateur Builder" (p. 728, *ante*) suggests to me to continue the subject as follows. I have firstly to give some information, secondly to ask a question.

Let it be supposed that my reader has a wooden barn, or paling, or piece of lattice work, which for the sake of durability, he has had tarred over; and that his eye is displeased with the funereal grimness of the hue of the tar: I will tell him how cheaply to alter it. Yielding the tar-brush into the artist's own hand, let his labourer prepare Portland cement, sand, red lead, red ochre, yellow ochre, burnt umber, in one or many parcels, according to the number of tints required. Mixing the powders dry, let the water be added the last thing, to postpone the setting of the cement, and place a bucket of water to thin it with as required; and, now, let the artist proceed as if he were the ghost of Turner, or of David Roberts, to dash, splash, smudge, and scumble the cement over the tarred surface until it is of the colour of the roof of Westminster Hall, or of the sail of a barge in one of Stanfield's pictures. If the tar be well set, and the weather cool, the cement will dry light: if the tar be new, and a hot sun shine out, the cement may become engulphed in a sea of tar, and the effect be too dark; so these probable contingencies must be balanced.

Now, I come to my question; for though I have performed the above operation, I have not the sanction of time for its durability. Will the cement protect the tar from the weather and lengthen its duration? or will the cement corrode both the tar and the woodwork under it?

G. M.

SEWER VENTILATION.

In reply to some comments on a letter in a recent number of our journal we give the following from the writer of it:—

Main sewer ventilation should not be complicated in its arrangements, but ought to be at intervals not greater than 300 ft. apart, so that there will be some seventeen points of escape for sewer gases in each lineal mile of main sewer. Down-spouts may be used in addition, but should never be entirely relied on. Sewers cannot be properly ventilated in long lengths, neither by chimneys, nor by fires, because there are necessarily numerous side connexions and openings into sewers, such as house-drains, &c., which are not under the control of an engineer as air-ways in a mine are. Traps of all forms and kinds are a delusion and a snare if relied on to confine gases in cesspools or in unventilated sewers. Use traps for house-drains, sinks, and gulleys, but do not rely on them entirely. Charcoal may be used in connexion with sewer ventilation so as to disinfect the foul gases. The current of sewer gases will be impeded by the intervention of charcoal, more than in the London plan, which consists of direct communication from the sewer to the air above. This will not, however, be any disadvantage, as the numerous points of outlet will offer in the combined ventilators a cross-sectional area for the escape of gases far above the cross-sectional dimensions of the main sewers on which these means for ventilation are placed. No town sewers can be safe which are not abundantly ventilated. There may be too little, there cannot be too much.

Civil Engineer.

P.S. The Local Government Act Office furnishes minutes of instructions, with plans and sections for main sewer ventilation and charcoal disinfection. These minutes are supplied to local boards of health on application to the secretary.

WOLVERHAMPTON CORPORATION BUILDINGS.

The committee for the selection of designs finding that none of the plans chosen could be carried out for 15,000*l.* have obtained fresh designs from Mr. Bate (Manchester), Mr. Veale (Wolverhampton), Mr. Griffiths (Stafford), and Mr. Lloyd (Bristol), each gentleman to receive 25*l.* for his plans, independently of the committee's decision upon their merits. These gentlemen had previously been competitors, and their plans more or less approved of. Mr. Bidlake, whose design would have been chosen could it have been carried out for 15,000*l.*, declined to send in a second. The committee have not yet made their selection.

MASTERS AND JOURNEYMEN.

Hartshorn v. Young.—This was an action in Bloomsbury County Court (before Mr. C. L. Russell), brought by the plaintiff, Harry Hartshorn, a journeyman carpenter, against the defendant, a master builder, carrying on business in the Marylebone-road, to recover the sum of 2*l.* 5s. 3d., balance of wages due for work and labour done, and payment of lodging.

In February last, defendant having to erect a private mansion at Broadstairs, engaged plaintiff as one of the workmen, at the usual daily rate of wages. At its finish, after the lapse of seven weeks, there was a balance so alleged due to plaintiff for the amount now sued for, which included, as defendant thought, an excess of 6d. per week in lodging money and the charge of 6s., being 3s. each way, to and from Broadstairs, for the conveyance of his box of tools. Those claims were disputed, and hence these proceedings to try the question.

In answer to his Honour as to why he resisted the claim, which appeared to be just, defendant said it was the rule of the trade to allow their journeymen only 2s. 6d. a week lodging money; and as to the carrying of tools, he had nothing to do with that.

The plaintiff in reply to this, said that men, on going on country jobs, could not stipulate as to the sum they could obtain lodging at, and he swore he had paid what he had charged; and as for the payment of the carriage of tools, masters were always liable: in proof of which he would call Mr. Thomas Gladwin, builder, of many years' standing, Paddington-street, Marylebone.

Eventually, the judge, after some consideration, deducted 6s. 6d. of the amount claimed, being the sixpences lodging-money and one way's carriage of tools; judgment being entered for the remainder, with plaintiff's costs.

METROPOLITAN BOARD OF WORKS.

METROPOLITAN WATER SUPPLY.

At the last meeting of the Board, Mr. Freeman moved the resolution of which he had given notice:—"To refer the question of the water supply of the metropolis to the Works and General Purposes Committee, with an instruction to report on the present state of the law as regards a constant supply to each house, contained in the several companies and metropolitan Acts, on the system of constant supply now in operation in Glasgow, Nottingham, and other towns, and to bring up suggestions for such an amendment of the law, and improvement of the existing means of distribution, as would ensure a constant supply of water to every house within the jurisdiction of the Board."

In course of the discussion which followed, Mr. Collinson said a very important suggestion had been made by the Southwark Water Company to the trustees of the parish of St. George the Martyr, and which was now under consideration. The water company offered to supply a tank at the cost of 7*l.* to small courts, which they would fill with water constantly, free of charge; and as this tank would be hermetically sealed, with a pump placed in it, the poor could at all times have water of a pure and wholesome quality. As it was to be covered over, it could not be tampered with, and as an experiment the parish were about placing one of the tanks in a crowded court, and he had no doubt that it would be thankfully received by the poor inhabitants. If this subject were referred to a committee, he felt sure they would have the co-operation of every parish in the metropolis.

Mr. Le Breton thought the motion of Mr. Freeman was not so large in its scope as it ought to be, and, in no hostile spirit, he should move an amendment to it, which was "That the question of the water supply of the metropolis be referred to the Works and General Purposes Committee to report thereon, with such suggestions as they may deem advisable for the purpose of obtaining an increased supply and of a better quality."

The amendment of Mr. Le Breton was carried unanimously.

THE IRON SPIRE OF ROUEN CATHEDRAL.

A report upon this interesting work was read at a recent meeting of the General Council of the Department. We give the pith of it:—

"The extraordinary delay in the completion of the spire of this cathedral is a great disappointment to the inhabitants of Rouen and the department, and of which they hope each year to see the end. The General Council will remember that not only had the Ministers of State resolved that the work should be completed, but the Emperor, during his late visit to Rouen, also spoke in favour of its completion, and yet nothing has been done.

We believe the time has arrived to inquire again into the causes that have thus paralyzed the efforts of the committee, although assisted by the best authorities of the city.

The distinguished architect who has restored, to the admiration of all, the Cathedral of Paris, M. Viollet-le-Duc, has for a time been opposed to the use of cast iron in architecture, and he has several times urged that the tower upon which the spire has been commenced will not support the weight which it is proposed to add to complete the spire. Without any doubt the want of solidity, if proved, would be a decisive cause for not completing a work evidently of so dangerous a character; even if fears were entertained of a settlement in the fabric, there would be reason in stopping the further progress of the works.

But whatever may be the value of the opinion given by M. Viollet-le-Duc, we may be allowed to produce calculations made by most competent persons,—we allude to M. Barthélemy and to M. Démarest. We have before us a statement made by these architects to the Archbishop, and which shows, in a most peremptory manner, that the tower of our cathedral supported, previous to the fire of 1822, a weight of 423,000 kilogrammes more than there would be if the proposed spire were completed. To the experience of these two gentlemen we add the name of M. l'Abbé Robert, who has with great labour demonstrated how unfounded are the apprehensions of M. Viollet-le-Duc.

We will recall to your notice the fact that the tower of the cathedral of Rouen has already had no less than four spires, two of which were of stone and the others of timber. According to historians, the second and third were by far the highest. The two stone spires were destroyed by lightning, and the timber ones were burnt down: the one previous to the last was the highest of the four, and was named the 'Needle of Rouen:' this was thrown down by a violent storm in 1353; and, in spite of all these vicissitudes, the old tower has remained unshaken and unharmed; in fact, can we not say that it has been well proved?

After the destruction by fire of the last spire in 1822, M. Allavoine, the architect, had the whole of the foundations opened and examined, and all portions of the upper part of the walls damaged by fire carefully removed; and, thanks to this foresight, the tower will in reality have a

* We have received another letter on the subject from Mr. M'Adam, the vice-chairman of the present committee, but its publication is now unnecessary.

weight of 423,000 kilogrammes less after the completion of the proposed spire than it had previously. How is it possible then, we ask, that you should not be completely reassured as to the stability of the tower?

We have shown that our ancient cathedral has witnessed the destruction of four spires; is it, therefore, unreasonable that the fifth should be constructed with a material which from its nature will escape the very causes which destroyed the previous ones? This ancient monument, we hope, will therefore resume its aspect of other days; the cumbersome and inexplicable scaffolding which seems to weigh down the old tower, instead of crowning it, must be removed, and the wishes of the Emperor accomplished.

We propose, therefore, that our president, the prefect, and three members of the council solicit from his Majesty and the Ministers of Religion the completion of the spire of Rouen Cathedral."

FROM SCOTLAND.

Edinburgh.—The town council have finally decided, by a majority of 22 to 12, and after a four hours' debate, to carry out the Lord Provost's plans. The necessary Parliamentary sanctions will be at once applied for. In the Edinburgh Chamber of Commerce the proposed sanitary improvement of the city has been the subject of a long discussion, terminated by a vote showing a majority of two to one in favour of the scheme.

Lasswade.—The old church tower of Lasswade lately showed signs of giving way, and steps were taken to preserve it. Workmen, under the superintendence of Mr. M'Gibbon, Edinburgh, were endeavouring to put in a new foundation, when the tower fell to the ground. Fortunately, at that hour no person was near, and the wooden supports around the structure prevented its fall from doing much damage among the tombstones.

CHURCH-BUILDING NEWS.

Tettenhall Wood, near Wolverhampton.—Christ Church, Tettenhall Wood, has been consecrated. The church has been built from designs and under the superintendence of Messrs. Bateman & Corser, architects, their plans being selected in a limited competition of local architects. The style of architecture adopted is decorated Gothic, of simple character. The church consists of nave, north and south aisles, with north and south porches, chancel and chancel aisle, with vestry in tower and organ loft over. The length of the building, including chancel, is 100 ft., but it is intended at some future time, when accommodation is required, to add another bay to the end of the nave, which will increase the length about 16 ft. The width, including side aisles, is 60 ft., and the height to the top of the ridge 75 ft. The whole of the roofs are open timbered. The nave is separated from the side aisles by four arches, and each aisle is covered by four span roofs, the gables of which add to the character of the exterior. In each aisle are four three-light tracery-headed windows. At the west end of the nave is a large five-light window. In the chancel, which is apsidal, are three three-light windows, with external gables over each. The part of the chancel within the communion-rail has been laid with Minton's tiles. The pulpit and reading-desk are of oak. The font is of Caen stone, with red stone columns. The exterior walling has been built with Codsall stone and Bath stone dressings, as also the internal arches and piers. Accommodation is provided for 700. The works have been carried out by Mr. John Cockerill, of Wolverhampton. The church has been warmed by Mr. Messenger, of Loughborough, with hot water pipes. The gas fittings have been supplied by the Wolverhampton Gas Company. The total cost, including boundary fences, exceeds 3,000*l.*, exclusive of spire and the upper part of the tower, which yet remain to be completed.

Semley.—The chancel of St. Leonard's Church has been consecrated. The chancel has been rebuilt at the sole expense of the Rev. H. Hall, the rector of the parish. Though originally Early English in character, it has been rebuilt in the Decorated style. The restoration of this part of the church was rendered necessary by the damp condition and general decay of the old building. The chancel was lengthened 5 ft., and it was widened about 3½ ft. The facings and dressing of the buttresses and windows are of Tisbury stone, and the walls are of the old green sandstone worked to a smooth surface and pointed; the white and green stones having a better effect than if the work were done all in one stone. The chancel is in the Decorated style, and the east window is of three lights, with flamboyant tracery above, the interior having a hood, running round the arch, supported by Devonshire marble columns, with moulded caps and bases. The shafts which form the pendants from the roof between the corbels are also of Devonshire marble. There are one two-light and one single-light window on the north side, and one single-light window on the south side. On the south side of the chancel is an arch of Bath stone, having an iron screen or grille, decorated, which separates the chancel from the organ chamber, which was formerly used as a chantry chapel, but which is now thrown open to the south aisle of the nave. The internal walls of the chancel are of Bath stone, and the carvings of the corbels were all done by London artists. The roof, which is lofty, is panelled and stained, with bosses richly carved, to represent various flowers and leaves. The roof of the chancel is at present higher than that of the nave, and the ridge is surmounted by an iron crestwork, painted in dark blue to correspond with the circular cross at the east end, which is decorated with blue and gold. The reredos is formed of tiles from Maw's manufactory. The seats or stalls, which are of solid oak with carved poppy-heads and pierced fronts, are the gift of a personal friend of the rector. Mr. T. H. Wyatt, of London, was the architect; and Mr. Thomas B. Miles, of Shaftesbury, the contractor.

Bristol.—For the contemplated restoration of the nave of Bristol Cathedral 11,000*l.* have in all been promised. Mr. Thomas Daniel has signified his intention of subscribing the sum of 1,000*l.* towards it.

Capel.—The ancient parish church of Capel has been re-opened, after restoration. The very dilapidated condition of this church, which is probably one of the most ancient in the south of England, having been built in the year 1240, induced the Rev. T. R. O'Flaherty, the perpetual curate of Capel, to make strenuous efforts to restore the building and make it suitable to the wants of his parishioners, succeeded in raising sufficient money to permit of the work to be commenced. The architect to whom this was entrusted was Mr. Woodyear, and the builder to carry out the contract was Mr. Mitchell, of Shalford. The old-fashioned close seats have been replaced by open ones of stained wood, and the church is warmed by pipes running under the aisles. A font in black marble and a reredos were presented by Mr. E. Kerrich; and a stone pulpit with marble dressings has been given by Messrs. Webb, of Clapham, who also have presented to the parish a stained glass window. The total cost amounts to 1,800*l.*

SCHOOL-BUILDING NEWS.

Nottingham.—The foundation-stone of a new Grammar School, which is to be erected in a field near the Arboretum, was to be laid on Thursday, the 18th inst., by Lord Belper. Mr. Thomas Simpson, of Nottingham, is the architect of the new edifice, which is of a Gothic character, suitable for a collegiate institution. Besides school and class rooms, there will be a residence for the master.

Newcastle-upon-Tyne.—The British schools for the children of workmen at Tyne Dock have been opened. The site for the schools has been given by the dock company; but the erection of suitable premises will cost 1,500*l.*

PROVINCIAL NEWS.

Ilkeston.—The foundation of a new Town-hall has been laid at Ilkeston. The building will be erected on a site at the west side of the Market-place fronting the church, the approach into the building being through an arcade of three arches. Over these will be an ornamental balcony of pierced stonework supported on carved console brackets, the whole being surmounted by an ornamental parapet, decorated at each angle with urns or vases. The erection will be of Italian character, and consist of two stories, and built of red brick with stone dressings. On the ground floor will be various offices, which it is expected will be occupied by the solicitors and other legal gentlemen of the town. The first floor will consist of a large hall for public meetings, and during the day the room will be used as the police-court. This room will be about 60 ft. by 30 ft., with a covered ornamental ceiling and pilasters placed round it at proper intervals. The right wing — for the building is planned to consist of a centre and two wings— will be occupied entirely in the front with a house for the superintendent of police, and in the rear cells for the custody of prisoners, residences for the police, and accommodation for fire-engines. The masonry work will be done by Mr. Warner, of Ilkeston. The architect is Mr. R. C. Sutton, of Nottingham.

Stalybridge.—The foundation-stone of a new market-hall has been laid here. The market will be on the Castle Hall ground, on the Cheshire side of the borough, and between Holy Trinity Church and the River Tame, over which ultimately the new market will be connected with the old market and town-hall by a bridge.

Books Received.

VARIORUM.

The *Bombay Builder* continues to be published. The principal article in the September number is an illustrated account of the operations in blowing up wrecks in the river Hooghly.——"The Cabinet Lawyer, a popular Digest of the Laws of England," having passed through twenty-one editions, it is only necessary for us to mention the publication by Messrs. Longmans & Co., of the twenty-second edition. It is a compact and well-printed volume, and would please Lord Chancellor Bacon, by giving every man the opportunity to know as much law as will enable him to keep himself out of it.——Valle Crucis Abbey; its Origin and Foundation Charter. By Morris C. Jones. London: Russell Smith, Soho-square. In this paper, which was read to the Cambrian Archæological Association, in August last, the author points out reasons for his belief that the interesting old Abbey of Valle Crucis, in Wales, was an offshoot or cell from the less famed Abbey of Strata Marcella, also in Wales.——"A Synopsis of Heraldry." By C. N. Elvin, M.A., F.G.H.S. London: Hardwicke. This little treatise gives a brief and easy method of acquiring the art of blazon, and it is illustrated with upwards of 400 heraldic engravings. This appears to be a useful substitute for far more costly works.——"A new Treatise on Carr's Patent Disintegrator," contains a trade description, and recommendation, of a new sort of mill, for disintegrating various materials, mixing mortars, &c. It is on the centrifugal principle, and appears to be an ingenious invention, though not capable of grinding substances to fine powder.——"Arithmetic Step by Step." By H. Combes & E. Hines. Part I. London: Longmans & Co. An endeavour is here being made to supply a book from which scholars may acquire a thorough knowledge of arithmetic, not merely to work sums, but to turn questions into sums, to work them out in various ways, and to understand the answers.——"The Writer's Enchiridion; or, the Orthographer's Friend." By J. S. Scarlet. Carter, Paternoster-row. This is a useful collection of perplexing verbs having their consonants doubled, whether final or otherwise, on taking *ed*, *en*, *est*, *eth*, &c. It is alphabetically arranged, and therefore readily referred to as a little dictionary.——"Mind your H's and take care of your R's." By C. W. Smith, Professor of Elocution. London: Lockwood & Co. This also is a very useful little book, which we especially recommend to our fellow-citizens. It contains exercises for acquiring the use and correcting the abuse of the letter H, with observations and additional exercises on the letter R. Its very appropriate motto is Byron's well-known lines beginning with,—

"'Twas whisper'd in *Heaven*, 'twas mutter'd in *Hell*."

In minding our "H's" and taking care of our "R's," by the way, we may as well also take care of our inverted commas and mind our points. Why should our "H's" and "R's" be unnecessarily put into the possessive case, when points would enable us, in a much better way, to avoid the appearance of false grammar? It is quite as easy to print "H.s" and "R.s," as "H's" and "R's." Were we to speak of "H's abuses," which, though not singular in one sense, must be regarded as singular in another, the inverted comma would be right, but "H's" as a plural instead of "H.s" looks very like false grammar. There are writers, however, who,

were the printers to allow them, would put every plural—every word to which *s* is added to form its plural—into the possessive case by means of the inverted comma!

Miscellanea.

Stained Glass at the Paris Exhibition.—For the first time in the annals of international exhibitions, a gallery has been expressly prepared for the exhibition of the art of glass-painting. It is in the principal entrance from the Pont d'Iena. The British manufacturers in the exhibition of 1862 were rather disgusted at being mixed up with the refreshments and ginger-beer and porter; but they will not be exposed to any such indignity in Paris.

Fatal Fall of a Church Tower.—In order to improve the appearance of the Roman Catholic church at Stockholm, subscriptions had been raised for the construction of a massive tower, which was approaching completion. The other day the structure suddenly fell to the ground, burying in its ruins a number of workmen, 21 of whom were horribly mutilated. The king and queen were full of attentions to the victims of this unfortunate accident, and their example was followed by all classes of the population.

Church-building in the Congregational Union.—Mr. Hadfield desires to promote the erection of five new Congregational chapels in Sheffield. To this purpose he devotes 1,250*l.*, or 250*l.* each. This sum he is ready to invest in the names of trustees, and as each chapel shall be built, it will receive its share of the money—namely, 250*l.*, with such accumulation of interest as may then have accrued. He makes the further offer that towards each chapel that may be built during his lifetime he will give the additional sum of 250*l.*

Dwellings for the Poor at Oxford.—The Dean and Chapter of Christ Church, Oxford, have in course of erection near the Hamel, in the parish of St. Thomas, in that city, a block of dwellings for the poor. The block consists of twelve residences in flats, three stories high, there being four separate dwellings on each floor. Each dwelling is complete in itself, is approached from an open staircase, has one sitting-room, scullery, water-closet, ashpit, sink, separate supply of water from a cistern which is independent of the water-closet supply, and three bed-rooms.

Ancient Bricks.—Professor Unger, the celebrated Viennese botanist and palæontologist, has recently published some remarks on the bricks of the ancient Egyptians, especially those of the pyramid of Dasbour, which was built about 3,400 years before our era. One of them being examined through the microscope by the professor, he discovered that the mud of the Nile, out of which it was made, contained not only a quantity of animal and vegetable matter, but also fragments of many manufactured substances; whence we may conclude that Egypt must have enjoyed a high degree of civilization upwards of 5,000 years ago. Professor Unger has been enabled, by the aid of the microscope, to discover in these bricks a vast number of plants which at that time grew in Egypt. The chopped straw clearly discernible in the body of the bricks confirms the description of the manner of making the latter, such as we find it in Herodotus and in the Book of Exodus.—*Galignani.*

Act for the Purification of the Thames.—A Local Act, passed in the recent session, for the purification of the river Thames, by the diversion therefrom of the sewage of Oxford, Abingdon, Reading, Kingston, Richmond, Twickenham, Isleworth, and Brentford, and for the collection and utilization of the sewage, has been issued. The preamble recites that, under existing arrangements, the sewage of towns situated on the river Thames above the metropolis is carried into the river, and thereby the waters of the river are polluted, and the health and comfort of the inhabitants of the valley of the river below these towns are affected, and that it would be of great local and public advantage if the sewage was diverted from the river. Hence the present Act, of 68 sections, pointing out the mode and manner of its operation. There are provisions as to disturbance of the river, the depths of the main pipe, also protection to the railways and waterworks that may be interfered with in carrying out the Act to purify the Thames.

The Leeds Exhibition.—The sum of 54,000*l.* has been subscribed as a guarantee fund for the exhibition which it is proposed to hold at Leeds in 1868.

Opening of a New Vegetable Market in Newcastle-upon-Tyne.—The market for the sale of vegetables having been completed, it has been opened for public use. The contractor was Mr. John Simpson. The width is 132 ft. and the length 188 ft. There are four entrances,—two from Clayton-street and two from Green-court. It is intended that a roof shall be erected and other improvements made as required.

Dublin City Architect.—On the 1st inst. an election for the office of city architect (in room of the late Mr. Hugh Byrne) was held. There were only three candidates for the post,—Messrs. John Sterling Butler, Edward H. Carson, and Charles Geoghegan. According to the *Dublin Builder*, the first-named gentleman was declared elected. The appointment is for one year, at a salary to be fixed by the committee.

St. Winefrid's Well.—The Local Board of Holywell have obtained the sanction of the Secretary of State for the borrowing of 1,000*l.* upon the security of the general district rates, for carrying out improvements in St. Winefrid's Well. The plans, which were prepared by Mr. Morris, of Chester, have been approved of by the Home Secretary, and the work will commence as soon as possible. Application has been made to the Commissioners of Public Works for the loan of 1,000*l.*, to which will be added 500*l.* by the Marquess of Westminster.

Sewage Conference.—A congress and conference on the subject of the sewage of towns, with a view of arriving at a satisfactory solution of the question, will be held in the Royal Pump-room, Leamington, on the 25th and 26th instant, under the presidency of Lord Leigh; and the vice-presidents are the Earl of Warwick, the Earl of Aylesford, Lord Willoughby de Broke, Lord Charles Bertie Percy, Rev. Lord Charles Paulet, Mr. G. W. J. Repton, M.P., Sir Charles Mordaunt, M.P., Mr. H. C. Wise, M.P., and Mr. Arthur Wellesley Peel, M.P. Mr. Hitchman, M.R.C.S., of the Arboretum, is secretary.

Lincoln Cathedral.—Lincoln Cathedral is to be lighted with gas. The *Lincolnshire Chronicle* says:—"We are happy to learn that the Dean and Chapter have resolved that in future the nave and transept of the cathedral shall be open to the public, between morning and evening services, throughout the year. This will entail considerable expense on the Chapter. Persons who desire to inspect other parts of the cathedral must apply to the vergers as heretofore; and if the services of these officers are required, no one can be so unreasonable as not to make some gratuity to intelligent and attentive guides."

Excavations at the Louvre.—Excavations are going on in the court of the Louvre to ascertain the site of the foundations of the fortress built by Philip Augustus, the plan of which had been nearly reconstituted from a minute examination of a considerable number of printed documents. Such was the precision of the orders given to the workmen, that at the very first strokes of the pickaxe the trench was discovered which corresponded to one of the principal entrances. By continuing the line, the workmen soon reached the foundations of the two towers flanking that entrance. These towers were constructed of excellent stone, well hewn and in a perfect state of preservation.

Church Extension in Hants and Berks.—The foundation stone of a church to be erected in that portion of the parish of Strathfieldsaye, Hants, known as Beech-hill, has been laid. The founders of the church are Mrs. Forbes, her daughter, and son-in-law, the Rev. Edward Landon; and Mrs. Forbes also presents the sum of 4,000*l.* for the endowment. The site, which is close to Beech-hill common, is given by Mr. H. Lannoy Hunter, who has likewise undertaken to provide the repair fund. The church will be built from a design by Mr. W. Butterfield, of the Adelphi, and the contract has been undertaken by Messrs. Wheeler, of Reading. One or two new churches are in course of erection in Berkshire. The old church at the pretty village of Mortimer has been pulled down, and is to be rebuilt at the cost of Mr. Benyon, M.P. for Berkshire. A few days ago the parish church of Little Marlow, Bucks, was reopened, after having been closed for some time, during which period considerable alterations were effected.

The Sheffield Main Drainage Scheme.—At a recent meeting of the town council it was moved "That the Highway Committee be requested not to proceed with the main drainge of the borough until an arrangement has been made with Doncaster and other places which may be affected by the drainage of this borough being conducted into the river Don." After some discussion, however, the motion was withdrawn.

New Hotel at Torquay, Devonshire.—The new hotel at Land's End, Torquay, is just completed, and will be opened at once. It is fitted up like the London modern hotels. There are lifts for luggage, lifts for dinners, and lifts for frequenters of the coffee-rooms. The bells have indicators, that exhibit the number of the room, and close when the bell is answered. The corridors are 100 ft. long, and inlaid with mosaic-work. The cost is roughly estimated at over 30,000*l.* The hotel contains 135 rooms and water-closets. Of the rooms, 58 are bed-rooms, and 48 sitting-rooms.

Hertford Villa Residence Company.—The first annual meeting of this company has been held. The report states that the directors have contracted for the purchase of about 21 acres of freehold land on Port-hill, immediately adjoining the town, and suitable for the erection of better-class villa residences. The estate has been purchased for 4,020*l.* The directors propose to proceed with the building as soon as practicable. They urge the shareholders and others interested to exert themselves in disposing of the remaining unallotted shares. Rather more than 600 out of the 1,000 shares have been taken.

The Brighton Town Maps.—The surveyor has reported the completion of the town maps, commenced in 1846, one laid out (in forty-eight sheets, 8 ft. by 5 ft. each sheet) upon a scale of 20 ft. to the inch, enabling the house frontages, lamps, gratings, house-drains, &c., to be distinctly shown; and the other laid out (in four sheets) upon a scale of 80 ft. to the inch, on which the main survey lines and the contour levels are laid down. The completion of these maps, the surveyor estimates, will occupy three or four years, at a cost of from 2,000*l.* to 2,500*l.* The local authorities have resolved "That the present maps of the town be completed under the superintendence of the borough surveyor."

Reform in Funereal Rites.—A "Guild of St. Joseph of Arimathea" has been formed at Liverpool, by lay members of the Church of England, with the object of "assisting the clergy in their endeavours to promote a reverent performance of the rites of Christian burial, and to bring the surroundings of a funeral more into harmony with the hopeful and ever-joyous spirit of the office 'for the burial of the dead.'" The guild undertakes to provide, at a very moderate cost, coffin, bier, pall, and everything necessary for the funeral of a deceased member, and to make *all* arrangements for committing the body of the departed to consecrated ground. The guild consists of members and associates, and is governed by a council consisting of seven members. Members pay an annual subscription of 5s., and associates of 2s. 6d. The secretary's office is at 5, Dale-street, Liverpool.

The Stoppage of the Chester Town-hall Building.—The *Chester Chronicle* complains of the stoppage of these works by the strike amongst the workmen, and advises the dismissal of the clerk of the works, to expel whom, for some cause or other of dislike, the men had insisted. The hands who dismissed themselves so suddenly, it seems, are pretty nearly all engaged in other employ, but their influence appears to be quite sufficient to deter others from taking work at the Town-hall. "The cause of the clerk of the works," remarks the writer, "may be ever so just, but it would evidently be absurd to persist in retaining his services when he has nothing to do but put his hands in his pockets and walk about. In this case, as in many others, the men may be acting capriciously, or even tyranically; but they evidently have might on their side, and under these circumstances it may be necessary to blink what is strictly right." Though quoting this, we do not wish it to be considered that we approve of thus allowing expediency to override principle. From what the *Chronicle* says, there seems to be no distinct reason for believing the clerk's "cause" to be unjust; and, if just, the just cause surely should be supported to the last.

Aberdeen Waterworks.—Last Tuesday the Queen opened the Aberdeen Waterworks. The works are designed to supply 6,000,000 gallons of water per day. We will give some particulars.

Fire at the King's Palace, Brussels.—The King's palace at Brussels has narrowly escaped being burnt to the ground. A fire which had been smouldering for several hours during the night was perceived on Saturday morning about seven, when it had burned away the flooring of one of the rooms, and destroyed several valuable pictures, amongst them one representing the Saviour, by Rubens.

Cradling in Hay-cribs and Mangers.—An old stable, with 100 infants in the horse-troughs and hay-cribs, is rather a novelty, but is to be seen in the locality of Union-street, Borough-road, London. The work has been undertaken by the Rev. George Aldington, who has secured an old stable to form a nursery, and has fitted it up, for taking care of the young children of women obliged to go out to char or work away from home.

Magnetism in Iron Shavings.—M. Griess has discovered a new source of magnetic iron in the shavings of iron and steel, and especially the long spirals produced in turning on the lathe, which, he says, are highly magnetic, especially in the case of soft iron. This magnetism is permanent, and M. Griess has observed that the south pole is always at the end which is first touched by the tool. This discovery may shed some new light on the curious phenomenon of vegetable spirals, although we should conceive these to be formed under the joint influence of the diamagnetic and the magnetic forces.

Proposed High-level Bridge Hoist, Newcastle-upon-Tyne.—It is intended to construct a hoist to lift passengers and goods from the level of the Close to the level of the road and footway of the High-level Bridge. The corporation has it under contemplation to widen the Close on the south side; and, when this improvement is carried out, and the proposed hoist is constructed, great benefit, it is believed, will result to the public. In the proposed scheme, foot-passengers and carts will each have separate hoists. Carts and horses will be lifted up in a body without incurring any danger. The plans of the proposed scheme have been prepared by Messrs. Shelford & Robinson, of London, civil engineers. The hoist will be worked by hydraulic power, upon a principle already practically applied.

Fuller's Computing Telegraph.—This is the title of an instrument (of American invention) designed to obviate the necessity of working out intricate calculations on paper. It is described to be an adaptation and improvement of the sliding rule, the rulers consisting of one circle revolving within another. By a very simple process, it is said, the principle of which is easily learned, the "telegraph" may be used to perform, instantly and with precision, any calculations required by business men, engineers, bankers, or others whose occupations involve the necessity of rapid and accurate dealings with figures, weights, or measurements. It is said to be extensively used by the Bank of England, and in leading commercial and financial establishments. Professor De Morgan, it appears, voluntarily wrote to the *Athenæum* to say that he has it constantly in use, and finds it of the greatest possible advantage. Attached to the "telegraph" is another instrument to calculate time distances, whether in days, weeks, or years.

Union Cement and Brick Company (Limited).—At a meeting of the shareholders of this concern, held to consider the present position and prospects of the company, and the offer of Messrs. Glover, Abbott, Marsh, & Horner, to purchase the good-will, stock-in-trade, plant, machinery, &c., of the company, Mr. Horner explained that if the proprietors would at once put 2,000*l.* or 3,000*l.* into the business, it might be made remunerative to the shareholders; but in the present state of the money market it was not easy to get additional capital, and it might be made the nucleus of a good private concern. It was proposed that the shareholders, exclusive of the board of directors, should receive 10 per cent. on 4,000*l.* for ten years, and at the end of ten years should receive the principal sum of 4,000*l.* Ultimately the meeting expressed its opinion of the advisability of carrying out the proposal of the Messrs. Glover, Abbott, Marsh, and Horner, and appointed a committee to confer with the directors on the subject, and for settling the contract.

Architectural Association.—We would remind our readers that the opening *conversazione* of the session will take place this (Friday) evening, the 19th inst.

New Church in Malta.—On the 20th ult. the foundation-stone of an English Protestant church was laid at Sliema, Malta, in the presence of several hundred English residents, by the acting Governor, Major-General Ridley. This church, the architecture of which is to be Early English, together with an adjacent parsonage, is estimated to cost about 4,000*l.*

The Sanitary State of Northampton.—The local Improvement Commissioners have appointed a committee to act in conjunction with the Sanitary Committee of the Town Council in conferring as to the sanitary condition of the town, particularly as to the water supply, and to adopt sanitary measures for removing any existing nuisances and remedying any deficiency in the water supply.

Instinct.—The *Pungolo* of Naples of the 1st inst. mentions that a disease has broken out in the canine race, having all the symptoms of cholera, in the province of Poggia. The local medical men seem puzzled at the self-treatment followed by these intelligent dogs, who find a remedy against the diarrhœa in a sort of earth which they swallow eagerly, and know where to look for it also.

The Mortality Rate.—The annual rate of mortality last week was 23 per 1,000 in London, 24 in Edinburgh, and 38 in Dublin; 14 in Bristol, 20 in Birmingham, 39 in Liverpool, 25 in Manchester, 28 in Salford, 19 in Sheffield, 30 in Leeds, 25 in Hull, 35 in Newcastle-upon-Tyne, and 27 in Glasgow. The rate in Vienna was 94 per 1,000 during the week ending the 29th ult. The 1,007 deaths included 672 from cholera.

Royal Academy of Music.—The Lord President of the Council, the Duke of Buckingham, has requested the Earl of Derby (as president of the Commissioners of the Exhibition of 1851), Earl Granville (as chairman of the Finance Committee), and the Earl of Wilton (as chairman of the Directors of the Royal Academy of Music), to act as a committee for considering the application of the Royal Academy for new premises at Kensington, and they have consented to do so.

The Welsh Ironmasters.—Some of the Welsh ironmasters suffered severely during the late crisis, and had it not been for their great wealth, failures would inevitably have been the result. By the suspension of Liverpool and other houses one maker lost over 300,000*l.*; and it appears that fully two-thirds of this large amount is entirely lost, and the remaining 100,000*l.* will, perhaps, be recovered in four or five years' time. The fact that these enormous losses can be borne without any visible inconvenience is a proof of the stability and wealth of Welsh houses. —*Herapath's Railway Journal.*

The Baths and Wash-houses for St. Pancras.—Some time back the vestry granted the commission power to borrow 10,000*l.* in furtherance of the object in view. On Wednesday the commissioners presented a final report to the vestry, recommending the adoption of an estimate for the construction of the building required for 9,500*l.*, and asking for further borrowing powers to the extent of 8,500*l.* Ultimately, an amendment by Mr. Nodes, that the borrowing powers be increased 2,000*l.*, instead of 8,500*l.*, was carried. According to the tenders, which we give in our present impression, the proposed building will cost a much larger sum.

The Holborn Valley Improvement.—On Monday a meeting of the members of the Improvement Committee of the Corporation was held at Guildhall, for the purpose of receiving from Mr. William Haywood, the engineer of the Holborn-valley improvements, a number of plans for new streets in connexion with the works now in progress at Holborn valley; also a plan for the plotting out of surplus ground; and to receive the report of a sub-committee relative to street improvements by the Commissioners of Sewers; also for the consideration of claims for compensation of lessees, occupiers, and others in Bartlett's-buildings. The plans submitted were examined and approved, and orders thereupon made; and the surplus ground will be utilized without delay for building purposes, the whole of the sites being of a most eligible character.

TENDERS

For a house, in Tufnell Park, Holloway. Mr. George Trueflit, architect:—

Patrick	£6,595	0	0
Bywater	6,480	0	0
Stimpson	5,880	0	0
Longmire & Burge	5,647	0	0
Carter	5,460	0	0
Macfarline	3,996	0	0*

* Altered to 5,202*l.* and withdrawn.

For re-making, channelling, and draining the Lea Pale-road, for the Guildford Local Board. Mr. Henry Peak, surveyor:—

Ayers	£207	3	9
Patrick	171	18	6
Carroll	141	2	6
Garnett (accepted)	139	0	0

For residence (in carcass only), at Langley Park, Worplesdon, for Mr. Thomas Oborn. Mr. Henry Peak, architect:—

Garnett	£816	0	0
Bristow & Burdett	798	0	0
Mason & Son	770	0	0
Pollard	761	10	0
Goddard & Sons	748	0	0
T. & J. Lee (accepted)	715	0	0

For the erection of the first portion of a master's residence and school, for the Rev. J. Walter Spurling, Wellington College, Berks. Mr. Edwin Clare, architect. Quantities supplied by Mr. Waymouth:—

Hollis	£4,500	0	0
Barnicoat	4,392	0	0
Norris	4,355	0	0
Allen	4,280	0	0
Lovatt	4,020	0	0
Lawrence	3,960	0	0
Foster	3,858	0	0
Dove, Brothers	3,695	0	0
Pither	3,445	0	0

For the erection of shops and offices, Talbot-court, Gracechurch-street, for Messrs. Innes, Brothers:—

Coleman	£18,977	0	0
Longmire & Burge	17,743	0	0
Rider	17,435	0	0
Lawrence & Sons	17,433	0	0
Hill & Keddell	17,280	0	0
Conder	16,980	0	0
King & Sons	16,960	0	0

For alterations and additions to house at Old Shoreham, for Mr. Scott Stonehewer. Mr. H. N. Goulty, architect:—

Sawyer	£692	0	0
Nightingale	643	0	0
Sims & Marten	617	0	0

For alterations and additions at Hazelbank, South Norwood, for Mrs. Topping. Mr. G. S. Temple, architect. Quantities supplied:—

Holliday	£850	0	0
Thomas	625	0	0
Unwin (accepted)	595	0	0

For labourers' dwellings, for the Croydon Labourers Improvement Society (Limited), at Croydon:—

Nicholson	£6,000	0	0
Myers	5,817	0	0
Scrivener & White	5,649	0	0
Saunders, Brothers	5,500	0	0
Mansfield & Prew	5,490	0	0
Browne & Robinson	5,385	0	0
Piper & Wheeler	5,350	0	0
Colls & Son	5,200	0	0
Hart	4,954	0	0

For St. Pancras Baths and Washhouses. Messrs. Messenger & Gundry, architects. Quantities supplied by Messrs. Widnell & Trollope:—

Palmer	£14,700	0	0
Bence & Pope	14,460	0	0
Mann	14,445	0	0
Walton	14,397	0	0
Newman & Mann	14,095	0	0
Manley & Rogers	13,526	0	0

For sundry fittings, &c. to the Railway Tavern, Fenchurch-street, for Mr. Forster. Mr. Nunn, architect:—

Sillick	£556	0	0
Wells	525	0	0
Thompson	385	0	0
King & Sons	385	0	0
Worms	365	0	0

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J. TUNGATE, Secretary.

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M. F. CARTER, Clerk to the said Boards.
Newnham, 13th October, 1866.

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October 15th, 1866

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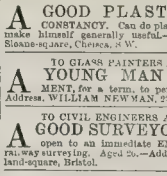
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VOL. XXIV.—No. 1238.

English Barns and English Harvests.

THE barn is a well-known feature of the English landscape. Without pretension to architectural beauty, its homely outline harmonises well with the tufted luxuriance of our park and hedgerow timber, and with the neat business-like forms of our orchard-trees. When the cherry-tree or the apple-tree is sheeted with snow-white blossoms, or laden with the deeper-hued and variegated burden of autumn, the quaint, heavy gables of the barn cut the sky in lines contrasting with the constant curves affected by all vegetable growth, and denote that the care and labour of man have been exercised, in due prevision, to prepare storage for the bounties of nature. Loftier than any rural building, except the tower or spire of the parish church, or the roof of chancel or of nave in the more important of these edifices, the barn takes its share, in the mute æsthetics of landscape, in directing the eye and the thought of the observant lover of rural scenery to the source of rain and fruitful seasons, and is significant of the promise of food and gladness.

The absence of the barn, *more nostro*, strikes the eye in contemplating the flat-topped or domed structures of Southern Europe. In Belgium, on the contrary, where everything connected with draught is so much heavier and so much stronger than among ourselves, the barn attains gigantic proportions, and may be seen to tower above the richly-cultivated level surface of the country like the castle of some old marauder,—more noble in its office as a true citadel of rural wealth.

The cause of the simple and universal form of the barn is to be found in the permanent and unchanged requirements of the simple method of cereal culture that has been handed down to us from the earliest historic times. The cereals, in our climate, have always been gathered in bulk, so as to collect at the same time not only the chaff together with the grain, but a large proportion of the straw also. A variable and treacherous climate demands a large storehouse for the cereal produce of an ordinary farm. And the one main idea of the agriculturist for so many centuries—the saving of outlay, and the discharge of the duties of the busiest portion of the year by the same number of hands that he has to sustain through the dullest and idlest season—has further determined the prescriptive form of the barn, by requiring that its gates shall be high enough to admit a loaded wain to be drawn on to the floor itself, or so close to the mow or store part of the barn as to allow the sheaves to be tossed from the carriage, and thus to be handled as little as possible. For this purpose, and on the theory that a penny saved is a penny got, the barn is a favourable specimen of the wisdom of our ancestors.

That prudential and time-honoured maxim, however, is no longer set as a copy for the scholars of our competitive examinations. In many occupations and callings of life we have changed all that. The merchant who pays his pound a word for the transmission of a telegraphic message, will tell you by his practice that the old saw cannot even be penny wise, since it is pound foolish. The idea of large and profitable expenditure is rather that which predominates among us. The idea of saving as a source of wealth is almost, or altogether, exploded. What the steamboat has done for foreign commerce, what the railway is doing for internal trade, what mechanical skill is doing for manufacture, has struck the more intelligent agriculturist with the desire to apply the results of modern science to his own department of labour, and to a certain extent he has begun to do so. Steam cultivators now speed the plough in another sense from that of the good old country toast. Extinct generations of sea-birds, in the opposite hemisphere, have been laid under contribution to fertilize our fields, at the same time that we are industriously disposing of the natural elements of fertility in poisoning and destroying our rivers. Chemistry has been called from the abode of the manufacturer to shed light on the question of the adaptation of soil to the production of vegetation, and perhaps the most idle and the most wasteful of the old and time-honoured processes of agriculture are gradually disappearing from before the enlightened farmers of the nineteenth century.

All agricultural improvements, however, labour under the immense disadvantage, as compared with commercial and manufacturing improvements, of being attempted in spite of the habits of thought and of action of those who are expected to adopt them. When a subject is new it is most likely to improve. Old customs, like old people, are apt to shake off innovation. The ships in the Levant have the same rig that they had in the time of Columbus. When the compass was introduced as an aid to navigation, the trireme was superseded by the sailing vessel. But the best form, or, at all events, a practical and satisfactory form, of sailing vessel once attained, it became stereotyped till the application of steam. The variation and novelty of forms in which steam could be adapted to navigation then became the subject of experiment, and marine architecture has varied more since the date when Napoleon would have invaded this country, had such a bridge over the channel as now exists been known, than it did for centuries before. In the ancient processes of agriculture, therefore, processes that require to be carried on somehow year by year, at the risk of famine, and that therefore may be thought less able to afford room for experiment, than less necessary operations, change is sure to be slow, to be difficult, and to be unwelcome.

It is on considerations of this kind alone that we can account for the fact that in an age when chemistry has exerted so magical a power in turning to the service of man the inorganic kingdom of nature, with an economy so wonderful that we wash our smoke for the sake of the vaporised metal which it contains, and make the same quantity of heat available over and over again for motive-power,—an age when we have made the lightning run on our errands, and have recovered a thread from the deep-sea bottom of the Atlantic,—we should be content to sit stupidly aghast at the not unusual phenomenon of a rainy autumn, and grumble and sigh, with our hands in our pockets, while our food for the coming year is helplessly left to the mercy of our capricious climate. If we were Egyptians our conduct would be excusable, although even in Egypt, 3,400 years ago, there were those found who removed their cattle to places of shelter on receiving warning of a phenomenon almost without example within their knowledge,—a storm of hail. But in England, where the prevalence of daily greeting is framed with direct reference to the ever-changing weather; in Ireland, green with the mists of the Atlantic; in Scotland, where, to the question whether it always rained, was given the naïve reply, "Na, whiles it sleets and snaws," such an unthrifty helplessness in presence of circumstances that occur twice, three times, four times in every decade, is as inexcusable as it is unaccountable.

Very many readers will accompany us thus far with sympathising assent, who will wrinkle the brow and shake the head at any attempt to remedy an admitted evil. That such a remedy is beyond the reach of science will, of course, be the easy faith of the great majority of English men. That any proposed remedy is empirical, theoretic, crotchety; that it won't work, that it won't pay, or that it may be all very well, but that you won't find any one to try it, will be the first expressed opinions of the more thoughtful minority. With their good leave, we will run the gauntlet of their criticism.

The cereals, as we have before intimated, are harvested in a manner different from that in which we collect the other fruits of the earth. The reason is, that the crop has a double value. It consists of two distinct portions, one less bulky and more precious, destined for the food of man and of beast; the other, more bulky and less precious, used for litter, for thatch, and for similar purposes. The unthrifty economy of the farmer seeks to grasp this double harvest at the same operation, and, in so doing, causes a double loss. He loses in his straw, because he cannot mow it so close to the ground as he does his hay, for fear of the loss of grain by the fall, particularly in wheat, and if the ear be fully ripe. He loses on his grain because he handles the plant in bulk, shaking the ripe ears at every operation, and, more than all, because the difficulty of dealing with the crop in unfavourable weather is so much increased by its weight.

Now if the farmer would be content to deal with his grain as he does with his other fruit, to take the trouble of a double ingathering, to crop ears of corn as he would basket cherries or bin hops, and then to mow his straw as he mows his hay, he would incur a first expense perhaps double of his present. If, when the corn arrived at the proper stage of maturity, irrespective of barometer or weathercock, he were to turn all available hands, women and children more profitably than men, on his well-eared fields, each provided with a basket such as that in which seed corn is carried, slung round the neck, and a small knife, or a triangular piece of iron, worn like a tailor's thimble on the fore finger, the whole of the corn would be rapidly secured, being plucked or rather bent over the knife immediately beneath the ear, dropped at once into the basket, and never suffered to touch the ground, nor knocked about to the loss of a single grain, before it was safely deposited in the granary; then, if wet, it could be readily and inexpensively subjected to a simple process of drying, a process which, if once adopted, would be likely to become universal, whether the corn were ingathered wet or dry, as it would entirely obviate the painful and clumsy process of thrashing. If the ears of corn were placed in baskets or wire trays, tier above tier, so that a strong and sustained blast of air were driven through them, whether set in motion by a fan or by the draft of a lofty chimney,—the great power of which is well known to those who have had to deal with really high stacks,—not only would all superfluous moisture be rapidly absorbed, but the ear would become so dry as to cease to retain the grain, which would fall from the basket as from a sieve on the slightest motion. The precious part of the crop thus secured, the farmer would take his own time for mowing the straw, or cutting it by machinery; at least he would so do until practice in drying the wheat itself should teach him that it was a false economy to lose either straw or hay in unfavourable weather for want of proper arrangements for drying these valuable crops.

If the cost of reaping were, as we said, doubled, without making any allowance for the increased quantity of straw, or for the saving in

grain by hand-picking, and setting the expense of drying against that of thrashing, we can admit that 3d or 4d. a bushel would be added to the cost-price of wheat. Against this what has the farmer to set? The deterioration of the crop by bad weather, and the risk of almost total loss. The present harvest, so promising a few weeks since, is estimated to have lost a tenth of its quantity, besides deterioration in its quality, by the not unusual bad weather. Would 3d. or 4d. a bushel be a price at which the country would hesitate to ensure its crops of cereals. If a crop could be under-written at that price, when just beginning to ripen, would a merchant hesitate so to cover himself against loss. But this additional cost would not be loss, but fairly remunerative expenditure; and when we consider the manner in which inexpensive labour would be available in the first instance, the saving of bulk, which would diminish the cost of all subsequent operations; the saving of grain from percussion at every stage of its storing; the avoidance of risk and of subsequent processes, by carrying a thoroughly dried sample of corn instead of a damp or partially dried sample to store; and the increase in quantity of straw, it is a question whether the increase of cost would be really sensible, apart from the vital question of assurance against total loss.

The Austrian Government are known to have adopted complete and satisfactory methods for the drying and preserving of store corn in the great fortresses of the Quadrilateral. Those familiar with Southern Europe will bear in mind the constant occupation of the roofs of the houses in some districts in drying and re-drying grain, and in exposing the precious seed to the vertical rays of the sun. It is incredible that in our climate we should yet have to learn such a lesson. The carter in Æsop's fable, who called on Hercules to aid him when his cart stuck in the mud, was a more faithful type of the English than of the Italian peasant, in respect, at all events, of his mode of storing his corn. It is strange what a pleasure men take in throwing blame on a superior power, and in laying on God's providence the fault of their own breach of God's physical laws. When man has to do all, he generally does it well; but when part of his task is done to his hand,—when the way is prepared for him by the beneficence of nature,—he generally not only does ill, but takes credit for piety in so doing. The winds and the waves are beyond human control. Navigation was as long dependent on wind and tide; and the man would have been held to be impious who spoke of defying this mode of the operation of the Divine will. What should we think now of a messenger who would remain for six weeks at Dover, rather than commit the impiety of stepping on the deck of a steamer, and thus defying the storm?

One of the fathers of electrical science was once asked if he did not consider it impious to attempt to bottle up lightning,—a query to which he replied by a counter question as to the impiety of bottling up rain-water. We are apt to plume ourselves on an immense moral superiority over the Greeks of the time of Æsop. That wise moralist, however, in blaming his neighbours for a thriftless, helpless outcry for the aid of Heaven, did not think it necessary to add as a point to his satire that the clown blamed Jupiter for causing the mud in which his cart stuck fast. That view of the case is reserved for the edifying resignation of our own days. The helpless idleness into which we subside when it happens to rain is only one instance of the manner in which we are apt to lay on chance or on Providence the fault of our own self-indulgence, want of foresight, or want of industry. Of all human errors none is more grotesque, few can be more pitiable. Who will believe hereafter that a people so ready to forge blades and to cast cannon for the defence of their coasts against any human enemy, could be content to let their poor fast three days in the month—for to that at least is the actual rise in the price of bread equivalent, whenever such a rainy summer as may be expected to recur every third or fourth year takes place—and then to solace themselves by the assertion that the weather is beyond human control.

We speak with all respect of the farmer. We hold that no persons deserve the more emphatic reprobation of all good citizens, and of all honest men, than those who endeavour to divide our common weal by setting class against class, whether it be the poor against the rich, the labourer against the employer, the manufacturer against the agriculturist, or the idle and prating in any rank of life against the industrious and the contented; and if there be any calling in life that would seem to demand the respect of all other members of the body politic more than another, it would certainly seem to be that which provides the bread we eat. In that ancient law which the criticism of the day holds to be inspired by justice alone, and to some extent wanting in the gentler attribute of mercy, it was forbidden to muzzle the ox that performed the duty of thrashing in a mode even ruder than our own. But it is not as grudging a fair, or even an ample return for the labour and the capital of the farmer that we remark that he has been, to a considerable extent, deprived of that wholesome stimulus of competition which has urged the labourers in other departments of production to such vigorous and successful effort. We must eat. There is, as yet, no substitute for bread and meat, for cheese, and milk, and butter, for oats, for barley, or for hops. That chemistry will hereafter supply us with food, unelaborated by the slow process of vegetation, is our firm expectation; but the time is not yet come. The farmer, therefore, possesses in some sort a monopoly,—and a monopoly of a peculiar kind. At times the variation of the seasons is such that a bad harvest in this country coincides with a fruitful season in the other corn-growing districts which partly supply our markets. In such cases, while the general productive result may be undisturbed, the English producer will, for the year in question, be a loser, and the foreign producer will pocket a share of the natural average profit of the English farmer. But it is, perhaps, more frequently the case, as in the present year, that the distribution of weather over the corn-growing latitudes of our northern hemisphere is more impartial, and that the harvest suffers alike in England and in America, in Belgium and in the fields bordering on the Danube. It is calculated, or rather estimated, that a tenth of our harvest has been lost owing to the wetness of the summer. But the foreign harvest is no better than our own. The food produced for the supply of the coming year has fallen short, to a greater or less extent, all over the world; and every farmer, let us assume, has sent nine, or even fewer, sacks of corn to market, instead of the ten on which he counted in July. But the loss does not altogether, if at all, fall on the farmer. It looks as if it were the other way. Nine quarters, or even eight quarters of wheat, at 60s. a quarter, represent a higher money return than ten quarters at 40s.; and, without making more than a rough approximation to quantity and to price, the result to the farmer of a bad harvest may be thought not unfrequently to take this form. If corn were paid for, like coal, by its food-producing power, the onus of the seasons would fall upon the farmer. While corn is paid for in inverse proportion to its abundance, the loss arising from bad weather, and from a quiet submission to all the ill effects of bad weather on the supply of food, falls chiefly or altogether on the consumer. It is not, therefore, a farmer's question that we are now attempting to solve; it is a question that comes straight home to every man who knows what it is to look at the loaf on his table, and to wish that it were larger or cheaper. It is above all to the poor that we give the counsel so to gather up the fragments of the store offered by the bountiful hand of nature that nothing be wanting.

To gather up the fragments! to leave nothing then for the gleaner! to leave no room for that picturesque and affecting industry, of which we can trace the history for nearly four thousand years—to substitute the iron grasp of scientific thrift for the time-honoured common law of humanity, older than the twelve tables of Roman law, and passing from an unwritten to a written form, at the same date as the decalogue itself, that law which forbade to "wholly reap the corners" of the field, or to "gather the gleanings" of the harvest? We would deal reverently with this vested right of the poor and the feeble. Yet does not its very existence speak loudly as to the wasteful character of our present mode of harvesting? The more precious to the poor is the right of gleaning, the larger is the waste which the gleaner prevents from being total. But the true reply is that we would raise the dignity, and would raise the emolument of the gleaner. It is those who now glean scattered and fallen ears whom we would send out with knife and basket to gather corn. We would substitute a fair day's work for the public, fairly paid, and well worth a fair payment, for a desultory day's work for the individual, the hazardous remuneration of which depends on the largeness of the farmer's heart, or the looseness of the reaper's grip. We would bid the gleaner to sit down, an equal guest, at the harvest-home dinner, not to gather up the scraps beneath the table, and to dine on what she can save from the rooks.

Great and advantageous changes have been made since we, years ago, urged the necessity for improvements in our farm buildings, and showed the wastefulness and injuriousness of parts of our farmyard management. It is to be hoped it will not be long before we may be able to say the same thing in respect of our present protest against the existing helplessness in the face of bad weather.

WORCESTER CATHEDRAL AND MONASTERY DESCRIBED BY A MONK.*

One of the noticeable features of the day is the application of the principle of division of labour to topographical literature. In our own day a town suffices for a theme; and still more frequently a single building is found amply sufficient to furnish material for a couple of volumes. In Mr. Noake's "History of the Monastery and Cathedral of Worcester," we have a new example of this concentration or mental centralization. In a former work he rambled over the whole county, but in this effort of his mellower experience he has confined himself to one group of buildings in it. Growing to man's estate under the walls of the cathedral, he early formed the intention of writing the history of the venerable structure, and of depicting the past glories of the uprooted monastery. It is a good thing to give new examples of the possibility of doing anything we determine to do. Every such narrative is as friction applied to the phosphorus which is a component part of man, and renders more luminous the realization that the reason some of us are unsuccessful in our aims is because we do not pursue them with sufficient determination. In the present case, Mr. Noake has wrought out his intention, or, as he terms it, day-dream, creditably; and has placed upon his page a careful picture of the mode of life of those who once inhabited the monastery and worshipped seven times a day in the cathedral. Out of dusty parchments, rolls, ledgers, registers, and other documents, he has portrayed the Worcester monks at their daily tasks. A fragment of one of their illuminated missals gives us a veritable sample of one class of their work. Extracts from their books tell us how the income of 1,219*l.* was apportioned among the different officers, what allowances they received, the cost of their livery or clothing; entries tell us of the dainty fare the hospitable priors placed before their guests, of entertainments at which players, minstrels, jugglers, and singers visited the monastery and were paid for their services; of royal presents and visits, and of the number and nature of the inmates. Mr. Noake was so fortunate as to find among the papers to which the dean and chapter gave him access a diary of one of the priors. This valuable source of information has been overlooked by previous historians, and is, therefore, new to the antiquarian world. It is made a conspicuous feature of the book, and, as an authentic record of the private expenses and proceedings of the last prior but one, it is very well worth examination.

This newly-found journal of Prior Moore informs us that he lived to the great age of four score years and ten, half a century of which period he was a member of the fraternity, and a quarter of a century a pensioned prior, living in one of the manor-houses belonging to the monastery. He was "shaven into ye religion" in 1488, being then sixteen years of age; in 1518 he was elected prior; in 1535 he retired from the office with a pension, residence, and attendants assigned him; and in the course of the long period in which he enjoyed his leisure in the half-timbered manor-house, with its spacious court, with its ample allowances, geldings, silver goblets, cups, salt-cellar, and spoons, table and bed linen, fuel and bedding, all specified in a document signed in the chapter-house 8th May, 28th of Henry VIII., he saw the Reformation become an accomplished fact. The accounts of the prior are very methodically kept. They are hebdominal, and are dated according to feasts of

* "The Monastery and Cathedral of Worcester." By John Noake, author of "The Rambler in Worcestershire." London: Longman & Co. Worcester: J. Noake, *Herald* Office. 1866. Price 10s. 6d.

the Church, beginning with the Feast of St. Michael and All Angels, and counting so many weeks after it till the first week in the Nativity occurs, and successively the Annunciation of the Virgin and the Nativity of St. John, our present quarter-days. They relate to the expenses of his house, clothes, furniture, plate, jewelry; the cost of different items required for the services or ornaments of the church; presents made to relatives, friends, and servants; his travelling expenses; the cost of the cure of his bad leg, surgery to his arm, his broken ribs; the funeral expenses of his parents; and among such miscellaneous information is mention of otter-hunting, fox-hunting, bear-baiting, banquets, visits of players, minstrels, and jugglers, and his own visits to his different manor-houses and the metropolis. All this gives, as may be supposed, some curious facts. When in the metropolis, the prior made many purchases for the monastery. Mr. Noake, who has a pictorial style, shows him shopping in the narrow streets of gabled over-hanging houses followed by his train of attendants and serving men. At one store he buys a stock of spiceries, groceries, and preserved fruits, that must have made his cavalcade odorous on its road home to Worcester. At another of the small, dark, open shops he buys a pair of "kervyng knyffs," and a pair of candlesticks; and pursuing his way, amidst inquiries of "what d'ye lack?" from rival apprentices, occasional stoppages are made for the purchase of calander for a cowl, sheets, kerchiefs, a carpet of verdure, "lethern bottells," a "satten" hat, three bonetts; his shopping finishing for the day with a long visit to John Cranks, the goldsmith. This prosperous tradesman was engaged in making a new mitre for the prior, set about with great stones, "medyll" stones, small stones, six ounces of pearls, and embellished with seventy-six ounces of silverwork, besides the result of six weeks industry on the part of a broderar, whom Master Cranks paid xij^{d}. a day, and furnished with "mete and drynke." His bill for this "item" came to 49l. 15s., a sum representing many times the value it does now, and contrasted with the 4s. the prior paid for his satin hat, and the 4s. 6d. for his "bonetts," must have been considered a large expenditure. The goldsmith's shop had a strong attraction for the art-appreciating prior, for there are entries in his diary of many purchases, most of which we should now, doubtless, admire as handsome works of art, such as a gilt standing cup with a cover, an ale-cup gilt with cover, pots of silver, and "parcell gylt" chalices, several rings, several gilt spoons, with "ymages at ye ends," &c.; and not the least curious would be the "peyr of balance" he bought with which to weigh these treasures at home.

It was the privilege of the open-handed prior to entertain Queen Mary when but a tiny princess, five years old, and again for several weeks about four years afterwards. On these occasions, he records, he sang high mass at "ye hie awter," instead of deputing this task to another, and the princess and her lady-in-waiting, my Lady Salesbury, made offerings of "crownes of gold" and tapers. There is also mention of entertainments he gave to the mayor and corporation, "all in skarlet gowns," in the Guesten Hall, and of others to which the "wyffs" of the bailiffs and other citizens were invited. The feasts were supplemented with malmsey, osey, red wine, rumney, sack, pyment, hippocras, claret, and Rhenish wine; and followed by amusements that have run so far down in the social scale as to be now out of religious circles, such as those afforded by "chyldren yt tumbled," minstrels, "ye kyng's jugeler," and his blind harper, "popet pleyers," besides singers of "carrells," and players from Gloucester and Coventry. The prior bought his wines of his brother, a merchant at Bristol, and remembered family claims in many other instances. Judging by the expenses he incurred at the funerals of his parents, particularly at that of his mother, and the gifts he gave on the anniversary of her death, he must have been a dutiful and affectionate son. All this art-patronage, hospitality, merriment, and filial generosity, would prove that the prior had a good time of it, were it not for one document Mr. Noake gives, which is written by a monk, to the Right Worshipful Master Secretary and Lord Visitor, calling himself "your lordship's owne pore wreche yn prson yn yowr monastery att Worcettr, I. Musard." This unfortunate writes to head quarters to be removed to Westminster, as he is unable to bear up against the ill feeling he has created against himself at Worcester by exposing and complaining of the prior's extravagance, disregard of the state of the fabric, and absorption of the means of the convent. But for this shadow, and the plaisters and surgery to his limbs and frame, the prior's life seems to have been like a bright patch of sunshine on the cloister walls: as it is, it is none the less a picturesque and instructive biography.

There is a curious illustration of the transitional condition the surnames of individuals were in about Prior Moore's time, to be seen in his diary. Some people owned only their trade as a surname. Mention is made of William Barbur, the barber-surgeon, who attended to the "helyng" of the prior's leg; Thomas Poticary, who furnished him with medicines; Richard le Mercer; "W'm. ye m'cer," who gave him a fine hand-napkin for a new year's gift; John Taylor, who lined a pair of his sleeves for 6d.; William le Lewter, who sang and played in "Chrismass wicke;" Richard Synger; Wm. Beggar, a "pore young mann," to whom he gave two shirts; Edmund Glassyar, who painted the figures of Mary and John on the lower windows of the chapel at Crowle for 4s. 12d.; and Thos. Peynter, employed in putting the same house in repair previously to the prior's retirement to it. Other people, again, are duly provided with a surname, and have their trades mentioned as well, as in the case of Thomas Penrice, Kervar, who made two tabernacles and figures of Our Lady and St. John for the church at Grimley; John Clare, pewterer, who from time to time repaired and renewed "ye hoole tale" of platters, pottingers, and saucers in the four establishments maintained by the prior; and John Cranks, "ye ole smyth," who furnished the richly-jewelled mitre, the tall standing cups, the jewelry and plate, that added so considerably to the expenses of the prior and the discontent of I. Musard. Occasionally one name sufficed by which to identify a man:—

"To Bartram for crosse and other worke to my mother's grave at Grimley iiis. ivd."

This want of certainty or exactness is still more clearly shown in the fact that the prior writes of his mother as Anne Peers, and of his father as Rd. Peres. In rare instances the names of individuals to whom money is paid are not recorded at all, possibly on account of their being unknown in the neighbourhood:—

"Item to a man for drawing of a platt for a stoune from London yt is leyde before J'hus awter for me to be beryde under, which stone cost xli.

To a man of London besyds ye carage & ye makyng of ye platt iijs. ivd."

In his chapter devoted to the cathedral Mr. Noake disavows any intention of giving an architectural description of the fabric, on the grounds that this has been done by previous writers, and quite recently by Professor Willis. This resolution is to be regretted, as his work would have been much more complete with a definite description of the plan and leading features of both this structure and the domestic buildings. The foundation-stone, so to speak, of an account of a building seems missing when there is no plan; and when there is neither this nor a view, the head corner-stone appears absent too. With the exception that these bases are not present, Mr. Noake has availed himself of every means to enable readers to follow his guidance as he leads them from place to place. He takes up the history of the church when it was a community of married presbyters, before the installation of St. Oswald's monks of the order of St. Benedict, and the building of the church and monastery on the present sites, and mentions the successive enlargements and conflagrations that culminated in its renovation, under Bishop Sylvester, when King Henry III., with a large gathering of nobles and clergy, were present at the opening services. The various additions and rebuildings that occurred subsequently to this, and which began only six years afterwards, when the east front was taken in hand, are carried down to the fifteenth century, after which period destruction and removals only were the order of the day. Mr. Noake declares that the sweeping away of the score or so of altars and shrines, the rood-loft, images, and stained-glass windows, was nothing like so injurious to the integrity of the fabric as was the damage wrought by the troops of Essex in 1642, and those of Cromwell in 1651, and even less so than the renovations of the last century. Two cuts from Stanley's "Guide to Worcester," are made use of to illustrate the curious carvings that enrich the *misereres* seats that still remain. They are curiously grotesque; one representing a man sitting on a stool, with his shoes lying on the floor beside him, whilst he is engaged warming his feet and stirring the contents of a large "pottinger," on a small fire, with two sides of bacon hanging behind him, and a cat looking on before him; the second looking like a parody of the legend of Coventry, as it shows a nude figure carrying a hare, perhaps to indicate timidity, over which a very openwork net is fastened, riding on an extra large goat. Two additional cuts from the same source indicate that carvings of an identical character, though of different subjects, are existing in the priory church at Gt. Malvern. Where so much has been lost, it strikes us as curious that anything should be left. The chief objects of desire on the part of pillagers were the materials that could be melted down and used up in new forms. After objects made of the precious metals, or adorned with them, lead seems to have been in the greatest request. The roofs of the cathedral and prebendal buildings, and the water-pipes, were soon carried away in the "warres;" and, by the time affairs became settled again, and the dean and chapter began to think of repairs, the great demand for bullets had run up the price of lead beyond that known in the memory of man. They deputed their treasurer to go into Derbyshire to make the best bargain he could for them. Accordingly, accompanied by Jos. Clarke, a plumber, who was to have eighteenpence per diem, he went to Matlock, where he purchased twenty fother of Henry Wigley, which was to be delivered at Derby for 322l. 10s., a sum that represents considerably more than 2,000l. of our money; and this expense was increased by about 300l. (present value) for the carriage to the Severn at Bewdley. This price, with the expenses of the treasurer and plumber, would have made the lead a very costly article; but this did not prevent the purchase of similar quantities in the following years. Once the treasurer, who is the Rev. Mr. Oley, went "a great journey" to his living in Huntingdonshire, and thence into Cambridge and Yorkshire, upon private business, to which he had not attended for fourteen months, owing to the repairs, and returned by way of Derbyshire, so that he might get more lead for the church; and besides the great cost of the lead, and Mr. Oley's travelling expenses, he and his servant had to go to Burton-upon-Trent, and carry the 312l. there, in "canvas baggs," which cost 3s. 3d., "because he could not pay it at London." Several other curious particulars Mr. Noake brings to light about workmen in the building trades. They all received a small payment when they were engaged, like a soldier does now when he enlists, and like north-country domestic servants still claim, and a gift at parting, which was usually, Mr. Noake says, a shilling, then worth much more than it is now, although there is mention that some Gloucester masons employed on the great east window,—those "nine stately raysed panes,"—had but one penny. A contract to supply stone was called "articles for stone." In the course of the vigorous repairs made under this active Mr. Oley, when the men were taking down broken pinnacles and decayed battlements, "Nixon's son fell out of a cradle in the south aisle and was killed; and Jelly's son also fell out." The three chirurgeons who were called in on this occasion received 6l. 5s. The plumber employed appears to have offended his fraternity, for the plumbers of the city indicted him, and he was in danger of being carried away to "goole," when he wrote to one of the prebendaries, informing him of the fact and asking protection; but whether he was assisted does not appear. The expenditure incurred at this time was but little short of 30,000l. estimated in our present coin. "So," says Mr. Noake, "Professor Willis is not quite correct when he says that 'at the restoration little appears to have been done except cleansing the church and repairing and concealing the mutilations and wanton mischief of the Puritans.'"

The present dean and chapter are emulating Mr. Oley—let us hope wisely and not too well; for there is as much danger of overdoing a restoration as there is in stopping short. Terrible accounts have been put in circulation asserting that they have gone to work in a benighted manner, depriving the ancient work of its vigour and originality, and toning it down and filling it in to a surface of unmeaningness; and that like Aladdin's wife, they have been so dazzled and bewildered with the prospect of new bells, that they have been induced to part with the old peal. All this has been contradicted by the local organ. Nothing has been frittered away, except whitewash; no mouldings have been tampered with, save where they required to be

relieved of the coatings of this superficial disguise; no ancient stones have been removed, unless they were hopelessly decayed; and all the old sound stones taken down to make the necessary repairs were marked and replaced in their original positions. Mr. Noake, who sides with the dean and chapter in rebutting the charges of injury to the character of the sacred fane, estimates the present works as likely to cost 60,000*l*. The extent of the work mentioned by him is very large for this sum. He enumerates the "almost entire recasing of the walls and tower; rebuilding of the walls and windows at the east and west ends; restoring the windows of the choir aisles from the Perpendicular insertions to their original lancet shape; scraping and cleansing the walls, piers, and roofs internally; re-arranging and refitting the choir and sanctuary with more appropriate seats and furniture; removing the screens between the choir and its aisles, also the organ and its gallery; paving and warming; erection of new clock and bells (a separate scheme, promoted by the Rev. R. Cattley); re-opening the west doors," &c. Leaving this very pretty quarrel as it stands, we must note that the present authorities have pulled down several blocks of the monastic buildings, the most considerable being the great Guesten Hall; the Prior's Hall (for a drawing of which Mr. Noake refers his readers to the *Builder*, 1848), and the Priory, which was pulled down in 1845, when an arrangement was made for the dean to occupy the episcopal palace near the cathedral, and the bishop to remove to Hartlebury Castle.

A great many curious facts are given in our author's chapter on "The Refectory, Cooking and Feasting." The great number of feasts made the plain fare of the monks on ordinary days not more of a hardship than was necessary for a wholesome re-adjustment of over-taxed digestions. The style of living was looked up to so admiringly by lay eyes, that many people made bargains with the convent to be supplied with the viands sanctified by being dressed in the monastery kitchen. Mr. Noake quotes the terms of some of these agreements to be parlour-boarders of the monks. The library, literature, and school of the convent are also treated of agreeably with much condensation of laborious reading. Lady Godiva, of Coventry, left the Worcester monks the Bibliotheca, in A.D. 1057, and the great value then set upon books doubtless caused this to be regarded as a valuable legacy. It was usual to draw up a deed when a book was borrowed, and sometimes a deposit of money or plate was made as surety for their return. Among the lines often written on them to remind borrowers to return them are the following:—

"Thys boke is one and GODES kors ys anoder:
They that take the on, GOD gefe them the toder."

Worcester library contains many curious MSS., some of which are given by our author to show the literature most in esteem in the monastery. He also gives eight cuts of a selection of the numerous "notarial marks" attached to many of the deeds. These were a sort of formal attestation on which considerable pains were bestowed. The crosses usually made by the general public, elaborate into the most fanciful and sometimes punning designs, such as would show the trade of the attestor. The professional scribe, however, went even further, and some of them resembled, in intricacy and intertwining of flourishes and other set patterns, the initial letters of illuminated missals. As a volume for popular use Mr. Noake's will be heartily welcomed in Worcestershire and by every one who loves to look upon the past. He has certainly been most painstaking in his endeavour to preserve and group into pictures all that can be now ascertained of the extinct recluses of Worcester. His work is a book of their days and ways. From such grave matter as their discipline, government, and possessions we may turn to minor details, as their great use, at one time, of saffron for colouring food, which caused them to grow great numbers of crocuses in their trim gardens; and their large consumption of mustard with their salted meats and fish. In fine, those who will may follow Mr. Noake round the monastery as they would follow a guide through an existing convent. We turn over a page as though we opened a door, and there is Coquinarius in his goodly kitchen with "*le potinger*" and the "*guestencoke*," pressed into his service, and a score of less accomplished assistants, preparing countless steaming savoury dishes of meat and birds, amongst which are lapwings, peacocks, and cygnets, for the entertainment of King Henry VII., who with his queen, son, and mother, are on a visit to the monastery. In an apartment, under the control of the chamberlain, are a couple of tailors, who are making up the dark cloth, called Northfolk cloth, for the prior and his gentlemen, while a coarser serge lies ready to their hand for the monks' wear, and piles of linsey-woolsey shirts and sheets have been brought in for repair. In the refectory sit fifty monks, with their hoods drawn down to their eyes, silently eating their respective pittances, as a lecturer reads aloud, and a little crowd of pensioners is waiting at the great gate for the remains of their repast. Passing the closed carrels in the cloisters, where several of the monks have been occupied in copying and illuminating, we may follow him to the infirmary, not to examine too critically the condition of health of occupants unable to withstand the seductions of extra diet and leisure, but to hear the infirmarer descant upon the merits of his wonderful and illogical remedies. We could not leave the "ghostlie faders" in a pleasanter place than their garden, with its brilliant crocus-beds and plots of sweet-smelling herbs, with the Severn as a boundary, and the majestic tower of the cathedral, and the stately groupings of their domestic buildings, as a background.

THE ARCHITECTURE OF THE CITY OF LONDON.

Our recent notice of buildings in the City ended with an intimation that we might soon continue our review; and, now, the number and importance of the works of even two years past, combine to show us that yet we have scarcely got beyond the opening of our description of architecture as it is in the quarter of London where, almost exclusively, as compared with other quarters, art is generally felt to be a requisite in building, by those who have to erect buildings.* Towards the end of our last notice we were speaking of the structure at the entrance of Tokenhouse-yard, when we referred to one that is next to it, the Auction Mart. Tokenhouse-yard, we should say, for the benefit of those not well acquainted with the City, is the court, with narrow carriage-entrance, which leads out from Lothbury,—the latter being the line of street in which is the northern front of the Bank of England.

The removal of some of the scaffolding from the Italian Gothic building that we partly described, now enables us to see that the eastern front, which we barely mentioned, has some very well executed carving. We may particularly instance the capitals, or imposts, of the piers between the windows of the ground-story, formed of leaves of the acanthus-type, and the capitals to columns. The latter capitals have each a small head of an animal, rendered with much force of expression. Also well carved are the finials to the ogee-canopies, and the ornaments in the place of bosses, or pateras, in the spandrels, which are formed of four projecting acanthus-leaves; but, for the matter of design and art, all this ornamentation, however well executed, is still but copyism from what is not the best school. The foliated work itself, the forms of the ogees, and the relations of proportion between the finials and the mouldings which carry them, in the eyes of persons acquainted with the Gothic of England and France, are stamped with their inferiority: they are, therefore, productive of dissatisfaction, rather than of an idea of variety, which would be the result of the introduction of a new form not so stamped. Much of the effect in this front, as in that towards Lothbury, is produced by the grouping together windows of different stories within a marginal notched moulding. Inside the building, the ornamentation is weak and poor in effect; but in the staircase there is a suggestive mode of treating the solid stone steps, in the soffit of the stairs, the angles being worked in the form of a roll-moulding in a hollow.

A similar arrangement to this last described,—a different moulding being used,—is to be found in the Auction Mart, the building adjoining, which we have mentioned as by the same architect, Mr. G. Somers Clarke, but as being of a very different character of architecture. Whilst the building of the General Credit and Finance Company is a reproduction of the Italian Gothic, the Auction Mart is of the sixteenth century Italian character, varied by some details of the earlier Renaissance, and some few that are suggestive of Gothic. These last will be considered, by some observers, the inharmonious features in the front; although the more important of them occur in parts, as the base, where there is work that is perhaps the most to be admired in the building. The front, altogether, is highly effective,—even with the disadvantage, so common in lanes and courts of the City, of space that is insufficient for getting back to take in the whole height at one view, and for appreciating duly the really clever treatment here of the top-story. The front consists of three ordinary stories of windows, with those of the cellarage; the latter, as usual in the City, having their heads considerably above the level of the street-footway. There are seven bays in the length of the front, the central feature being a very effective doorway. Red Mansfield stone is used for the base of the building, for the door-way, and for projecting panels which there are to the piers between the windows of the top-story. The rest of the front is in white stone, or excepting features of certain pateras that are in the panels. There are bold projections from these paterae, in the position of the boss of a shield: these are of serpentine. A base-mould to the building, formed of carefully profiled and admirably executed mouldings, is returned on the sides of the projections of the basement-windows, and cut off at the front,—so that the window-architrave and the plinth have the same face,—as in Gothic work, such as that of many parts of the Palace at Westminster. Above each window-head of the base, or in the dado of the podium to the ground-floor window, is a line of pateras, of bold and truly-turned mouldings. The windows of the ground-story and the second-story have each architraves, and cornices, of the Roman-Italian character, without pediments; but, upon the architrave, small square pateras or bosses, somewhat like those of the Perpendicular Gothic, are introduced, closely set. The doorway corresponds in character with the windows: it has little ornamentation, excepting the elaborate mouldings; and has no pediment; but is prominent from being executed in the red Mansfield stone, and from its general excellent treatment. A bronze panel, with the words Auction Mart, is inserted in the door-head; and the same words, in incised and gilt letters, appear on the door-post. The effect of the doorway is aided by these additions,—the letters being well formed: indeed, the case deserves to be quoted as a valuable lesson. An inscription on a building is almost always worth having, for the use of the thing: but it can be a blotch on the whole front; or it may be "a thing of beauty,"—and that, without the slightest ornamentation, or approach to illegibility. The modern French letters, or narrow in proportion to their height, rather than those of Roman inscriptions, seem to tell the best; and these are what are used at the Auction Mart. Few draughtsmen can draw such letters, or space them in inscriptions, so as to appear equal to typography; whilst it is the very best type-founders' letter, and printers' spacing, that should be aimed at. The windows of the second story, in the Auction Mart, vary from those below, inasmuch as in each cornice there are three trusses. These correspond in position with columns and pilasters which are the main features of the fenestration of the top-story. Between the two stories, however, is a broad space carved as a plaited ribbon, and finished at top with a cornice-moulding whereon rest the bases of the columns and pilasters. Each window-opening of the top-story is divided in the middle by a column; which stands detached, the wooden mullion of the cased-frame for the sashes being behind it. It is somewhat of the Roman Doric character, and has the shaft fluted for a portion of the height. At each reveal, or angle, is an anta-pilaster; and on the pier between the pilasters of two windows is the upright panel, in red Mansfield stone; which has already been referred to. It is bordered by mouldings and fluting, which have a good effect. In this panel is the circular patera, or shield, with the boldly projecting feature that we have spoken of as in serpentine. During the progress of the building, many persons, after looking at these features, asked the clerk of works the use of them. The fact of the question points to what may be deemed a defect. The forms and projections are not obviously ornamental; and the idea is natural, that they are either useful members of the structure, or that together with the pateras, which are like shields, they are emblematic; but they are neither the one

* See pp. 641 and 677, *ante*.

thing nor the other. Utility is the legitimate aim in a building: so, alike, there may be ornament, or emblems, to any extent, when the idea of the actual use is served, or not interfered with, by them; but here we have mere *conspicuosity*; for, the feature is neither beautiful in itself, nor of meaning, nor positively required for drawing attention to the upper part of the building. The front is crowned by a cornice, having the peculiarity of cantilevers and modillions alternated. Some of the cantilevers are coupled; and all are ornamenned with small plain paterae on the face, larger paterae occurring in the spaces between the modillions and cantilevers. There is some good joiner's work in the interior of the building, of decorative character, freshly designed, including that of the different *rostra* for auctioneers. The sashes and doors are of wainscot; whilst architraves and skirtings are of deal, stained and varnished. This work being well done, the effect is good, helped by the contrast. The stairs to the top-story have turned balusters, a square dwarf-column for the newel, and a framed and panelled soffit-lining; the whole being of wainscot, and made effective by the decorative treatment. As regards the exterior, the entire masonry of the front is a capital specimen of work.

Next to the Auction Mart, on the same side of Tokenhouse-yard, is a front of very different character, but marked by an amount of decorative effort that at least draws attention to it. The decoration however is chiefly in cement: it appears to have been much of it designed for the occasion; and it is altogether better than cement-ornamentation is generally; but, as usual when the material is used, it errs by excess. The front is one of four stories, and of ten bays in length, counting in the three upper ranges of windows. The ground-story is like a range of shop-fronts, only broken by a doorway from which steps lead direct from the footway, to the chambers of the upper story, and by the opening of a way through to King's Arms-yard, Moorgate-street. The windows of the ground-story come down to the floor-line; which is raised, as usual, to get light to the basement. The front-wall of the upper stories is carried on seven stone piers, including those of the ends. The capitals are elaborately carved; but in design they are not good. A Corinthian capital, newly executed, is becoming a rare thing: carvers seem to be allowed to try their hands any way at invention; and they produce what is different, but generally what is not good, and what is markedly inferior to Corinthian. The piers we were describing have a carved imitation of a rope, on each angle, in a chamfer. The effect of this is very bad. The piers at the ends have trusses to stop the ends of the line of bressummer, with festoons; and they carry lions' heads: these are somewhat better than the other work. The spaces between the stone piers are filled in with glass, in wainscot sash-bars of decorative character,—the opening being divided by a wooden mullion, or post, having capital and base. The windows of the principal stories have dressings, with trusses, cornices, and pediments, in cement, and with festoons and other enrichment, all redundant as we have said. The dressings project but slightly from the wall-line; but the windows are set-in with double reveals: the outer reveal is enriched with ornament, in the cement; and the inner reveal with a coloured pattern in tiles, marone-red, on a white ground. The general walling, of brickwork, has at every four courses a line of small nail-heads, with a bordering of dark red lines,—one thin line above, and another below, and in strong contrast with the general brickwork. Messrs. Wimble & Taylor are the architects.

We may mention that, following the way through, we find in King's Arms Yard, at Nos. 11 and 12, some window-dressings in red-brickwork, that are worth noting. They belong to one, or perhaps more than one, of those old City residences that are fast disappearing.

Continuing this route, and crossing Moorgate-street, we get into Coleman-street, where, at No. 53, there is a good stone-fronted building, of which Mr. John Collier was the architect. It has five stories above the basement, and is of the ordinary width of a front with two windows, or the number which actually there are in the two top-stories. The front is chiefly characterised by the pyramidization, so to speak, and grouping all together, of the window-openings of the three lower stories; whereby, the effect of great weight carried on a sheet of glass is almost got rid of. Supplementary supports of iron, two in number, are placed to the entablature, between the piers at the ends of the ground-story; and these supports are judiciously varied in their form from that of the common lanky and undecorated shaft, which seems even weak. Any upholsterer, in the form that he gives to a wooden bed-post,—however bad really he makes the details,—shows better perception of certain requirements in the forms of slender columns, than does the ordinary designer resting on the classical and Mediæval precedents of base, capital, and plain shaft. There are Renaissance shafts that would be more suggestive, indeed that have been so taken. In the building in Coleman-street, the iron-supports are fashioned approximating to the baluster-form in the lower part of the shaft. Owing to the position of one of them being fixed by the doorway, which is at one side, they could not be arranged with reference to any features of the superstructure; but one of them divides the window into two halves; and there is hardly any want of harmony to be observed. The piers carrying the ends of the bressummer are simply panelled, and have capitals; whilst above the capitals, and stopping the ends of the entablature, are well-carved lions' heads, with escutcheons and monograms of the letters C. & A. M., the initials of the proprietor. In the story above, these end-piers are enriched with carving of flowers in the panels; and the piers are continued to the top of the front, decorated in somewhat plainer character. Much of the effect, however, of the front, is given by the arrangement of the windows of the two stories next above the ground-story. In both cases the windows are Venetian, or of three lights; and on the second story (the first above the ground story,) the outer architrave-lines are joined with the horizontal-lines of the entablature below, and with the supports at the ends, by the help of ornamentation in the shape of small scroll-buttresses. The *motif* may be compared with that of features in the old house in Bishopsgate-street Without, bearing the name of Sir Paul Pindar. Each window has some carving on the face of the mullions, an enriched frieze, and a pediment to the centre-light, in one case segmental, and in the other of the ordinary form. In the fourth story, where there are the two windows of ordinary width, regularly spaced with the piers, each opening has plain architrave-mouldings, an enriched frieze, and a cornice and segmental pediment carried by trusses. In the fifth story, the windows, which are square, come within the height of the cornice; which has, for its main features, large, bold, and effective cantilevers.

In Princes-street, by the Bank, are two examples of the sort of conversion of frontage, in a ground-story, of which we spoke in a former article; and which is sometimes made without any regard for resultant general effect of a front, and for harmony between the several parts. In one case the proprietors of the Bank of Hindustan, China, and Japan, Limited, have been doing what they could to interfere with the symmetry of the building at the northern end of Princes-street, opposite the Bank. In the other case, the ground story of the front next to the garden-enclosure of Grocers' Hall, south, has been dealt with by Messrs. Roger Cunliffe, Sons, & Co. Here, the front in the upper stories is three-windowed, with piers of ordinary width; and originally the openings received some decorative treatment of a character worth preserving. The ground-story is now composed of a couple of columns, in the face of glass, two end-piers having columns attached and corresponding with those detached, and an arch-headed entrance-door-way. The ornamentation of these features certainly is very good, or much of it. It has a Byzantine or Romanesque character. The columns stand on very lofty plinths, or pedestals,—plain blocks, excepting that they are octagonal in the upper part,—corresponding with the height of the basement-windows; and the richly-carved capitals carry square blocks, whereon rest the ends of the lintels of the three openings. These lintels are chamfered and ornamented on the lower edge, between the blocks; and above each of the latter, or on the face of the work, is a circle with ornament. The doorway is made very effective by surface-ornamentation to the convex-filling of a large chamfer, and the ornament stopping the ends of the chamfer, as well as by a good console.

Parallel with Princes-street runs the Old Jewry. Here a very large building, to be let chiefly as offices, is being completed. Mr. John Whichcord is the architect. It has a stone front, with quite the usual amount of window-decoration. There are four ordinary stories, besides attics,—the dormer-windows not visible except from Frederick's-place,—and besides the basement. In the length of the front there are seven middle-bays of windows between two slightly-recessed ends. The most conspicuous features in the building are chimneys which are placed on the cornice, each chimney over a pier of the centre portion of the front. In the ground-story, internally, there are three fireplaces below windows of the front. The chimneys are finished with cornices, and are panelled on the faces of the shafts. The windows of the basement, ground story, and second and third stories, are grouped together in each bay. The windows of the ground and second stories would be described in similar terms: though there are details in them that are different. Each window is arch-headed, and has its archivolts springing from three-quarter columns which have capitals of Corinthian character. The different stories in the front are separated by cornices; and to the windows of the third story is a podium filled in with slender balusters. The windows here also have columns with Corinthianesque capitals; and they have pediments. The windows of the top-story have plain architraves; and the *cornicione* above, starting from a rich scroll as one of its lower members, has cantilevers, and in the spaces between them circular panels. The two doorways have Roman Doric columns as their chief features. The premises are of considerable extent on the ground,—extending through to Grocers' Hall-court at the back. The ground-floor, as at present, is arranged with two large rooms, whereof the room in the front is provided with seven fire-places. The flooring over is carried by iron columns. This is the present City disposition of plan; by which either large rooms, or small ones enclosed by wooden framed-partitioning, can be readily provided according to the demand after the substantial structure is complete.

The new building for Messrs. Corbyn & Co., in the Poultry, briefly mentioned in our last article, is now occupied on the ground-story and the two stories of basement which there are. The ground-story is appropriated to the shop of the firm, who are druggists, and to the entrance to the chambers above. The arrangement differing from that of the upper stories, at once destroys the appearance of symmetry: though the effect of great weight of glass is to a great extent overcome. Indeed, with whatever the defects that we adverted to, there is much merit in many of the details. Messrs. Beck & Lee are the architects. The structure is one of five stories; and the lower stories above the shop-front are of five windows each; whilst each of the two top-stories has six openings, which are coupled, or two together. The shop-front has three elliptical arches which spring from the enriched entablature or blocking of narrow-faced piers; which last have polished slate-coloured granite shafts. The doorway has a fanlight filled in with ironwork of scroll-pattern, and with a carving of "the Bell and the Dragon," the ancient sign for a druggist's shop. In their counting-house Messrs. Corbyn have preserved an old carving of the same subject, that was found in the front of the building taken down by them. This building dated from little after the Great Fire of London; but the carving seems to have belonged to a house that was destroyed in the Fire. The lintel that carries the present sign, in the building erected, is chamfered on the lower edge; and the chamfering is filled with rich carving of flowers and other products. A somewhat similar form to that of the heads of the three openings of the shop-front, is given to the top of the doorway of the chambers, by its arch-label. The chief effect of the front, in ornamentation,—passing over the notching of the cornice, and the deeply-sunk interspaces of its block modillions,—is given by the very deeply-cut lines which mark the forms of panels to the pilasters of the ends, in the principal stories, and the method adopted in the carving of the capitals of the piers, where the interspaces are cut in, and the forms of leaves left of the original face. For this characteristic, the building well deserves to be taken note of as to effect in future years after exposure to London dirt. The whole of the ornament to the building is not of this *intaglio* sort; and above the second story there is some very rich running ornament, to a string-course, which is executed as ordinarily, but well executed. The windows in that story, as they are in other stories, are only double-chamfered, but have quadrant-corners at the top. On two of the piers, polished red granite balls are introduced, in each case as features of a

panel; and there are similar balls in the key-stones of windows of the third story. Over the centre-window of the second story, a balcony to the window above projects on trusses, and has beneath it an escutcheon and a festoon. The cornice before spoken of, and which has an attic-story above it, is of slight projection, and is crowned by antefixæ. The attic has pilasters, with carved capitals, and has coupled windows like those of the story next below the cornice; and the whole front is crowned by another cornice, and by four terminals, tall, square on plan, and having their faces carved as antefixæ. It is to be regretted that decoration did not extend more to the ceiling of the shop. When the place is lighted up, the interior looks plain compared with the exterior. Perhaps the proprietor had, at first, preference for plain effect internally.

Going away from the Bank and the Exchange in any direction, there is much to notice; and this noteworthy work we must look at on a future opportunity.

MANCHESTER MEMS.

Going through the Manchester warehouses, few things are heard of that surprise strangers more than the amount of the salaries paid in some of them to the heads of departments,—1,000*l.*, 1,500*l.*, 2,000*l.*, a year. The special talent required is, we may suppose, rare. The amount of money paid annually to France for designs must be very great. One printer alone pays from 1,800*l.* to 2,000*l.* a year to designers in Paris. It would probably not be overstating it if we were to put 30,000*l.* a year as the amount annually sent out of the country for designs, by Manchester alone. This should be a stimulus to activity in the local School of Design. The present position and results of the school are scarcely what they should be.

The *Albert Memorial*, in Manchester, designed by Mr. Worthington, and of which we have given a view, shows a considerable amount of carving, very well executed by Messrs. T. R. & E. Williams, of Manchester. The designs were modelled on the spot by Mr. Evan Williams. There is a great deal of heraldic decoration introduced in the panels of the basement and the main piers. These show the armorial bearings of the late Prince Consort, together with the different crests of his royal highness's dominions in Saxony. There are figures representing art, science, commerce, and agriculture, supported in the middle stage by minor figures illustrative of painting, architecture, sculpture, music, astronomy, chemistry, geometry, mechanics, and literature. Among the names remarkable in science and the arts, which are here figured in stone medallions from portraits, are Michel-angelo, Beethoven, Mendelssohn, Sir Christopher Wren, Goethe, Schiller, Inigo Jones, Milton, Shakspeare, Raffaelle, Tasso, and Dante. Mr. Leppoc, and the committee over which he presides, may be congratulated on the near approach to the end of their labours.

During the sitting of the Social Science Congress, the *Pavilion Hospital for Chorlton Union*, of which we gave illustrations some time ago, was opened. Of this also Mr. Worthington was the architect. The building consists of five pavilions, connected by a long arcaded corridor. Each pavilion is 124 ft. long by 24 ft. wide, containing three floors, and ninety-six beds for patients, in addition to the small rooms for the nurses adjoining the wards. The wards are entirely warmed by open fireplaces, three in each ward, and each 5 ft. wide and 4 ft. 6 in. high. They project 3 ft. into the wards. The windows are 4 ft. 8 in. wide, in three divisions, the two lower portions opening like an ordinary sash, and the top part being pivoted. The windows reach from 2 ft. 9 in. above the floor, to within a few inches of the ceiling. Each patient will have an air-space equal to about 1,350 cubic feet, which is in excess of the quantity defined by the Poor-law Board. There are fifteen baths, supplied with hot and cold water, and each ward has a small kitchen and nurse's room attached. The corridors are spacious and handsome, the one connecting the pavilions with the workhouse is of great length. A second corridor strikes at right angles from the middle of the other, and connects the hospital with the kitchen, which is of great size, and through that with the workhouse. A balcony looks over a wide extent of green fields, and is a valuable provision for convalescent patients. The statement of the actual expenditure, including the probable further cost of these hospitals, exclusive of the value of the land, is 30,032*l.* The difference betwixt the statement of cost and the original estimates is said to be owing to the fact that certain items were introduced into the account which did not necessarily belong to it.

The foundation stone of a building for the *Manchester Ragged School* was laid during the same week. It includes, also, a day school for infants, and a reading and preaching room for adults. The cost will be 2,000*l.*, of which 1,500*l.* have been provided.

The Chorlton and Ardwick Free Library was also inaugurated. The building contains, besides the lending library, a newsroom and lecture-room, and is in all respects well fitted for the purposes for which it has been erected. It has three branches, for Hulme, Ancoats, and for the population near the Rochdale-road; and it is computed that the circulation of books from those three branches is upwards of 1,000 a day.

An unfortunate failure has occurred in a house in *St. James's-square*, Manchester, recently covered in. This building is a corner house, and on the ground story has arches in both fronts. The arches are flat, and the abutment being insufficient, the angle has yielded, as might have been expected.

In *Peel Park* (great boon for the city) a foundation has been prepared to receive the statue of Cobden.

Recently the new *schools* for the township of *Prestwich*, a suburb of Manchester, have been opened. These schools, which have been designed by Mr. A. Waterhouse, comprise an attractive group of buildings, facing the Bury New-road. They are Gothic in style, and built of brick with stone dressing. In the centre is a campanile, to the right and left of which are the gables of the boys' and girls' schools. Through the tower access is obtained to a vestibule, out of which open doors leading to the schoolrooms. The boys' schoolroom measures 60 ft. by 32 ft.; and the girls' room is slightly smaller. At the rear of each schoolroom is a spacious class-room. In the centre of the group is a library and reading-room measuring 36 ft. by 20 ft. All the rooms are covered with open timbered roofs. The walls of the schoolrooms are boarded to a height of 4 ft. from the floor, the brickwork above being simply whitewashed. The two large schools have windows at the ends towards the road, and also at the sides, and at night they are lighted by elegant gas coronæ. The library is fitted with opaque glass in the roof; and the gas is supplied through brackets from the walls, which are lined with varnished bookcases. The school buildings and library are warmed with hot air, in addition to which open fireplaces have been provided. The work has been executed by Mr. J. Robinson, jun., of Hyde, at a cost of nearly 3,000*l.*

The corporation committee have been visiting their *Gas-works*, an annual incident. The growth of the works astonished many of them. The consumption of coal is at the rate of 1,500 tons per week at each of the stations—Rochdale-road and Gaythorn. A new meter was shown in the course of construction. A large one by the side of it is said to be capable of registering 100,000,000 cubic feet. The total storage for gas at each station is about two millions and a quarter of cubic feet; but at the Rochdale-road works they have the capacity, if required, to manufacture 3,500,000 ft. of gas per day. They are now making about 2,000,000 per diem. The daily consumption of gas is about 4,200,000 ft. In the dark days during the winter months the consumption is estimated at 6,500,000 cubic feet per day.

At the pipe-yard are kept in stock 70,000 ft. of service-pipe. The pipes vary in size from 30 in. to 2 in. in diameter, and in weight from 35 cwt. to ¼ cwt. Each pipe is tested by hydraulic pressure, of from 180 lb. to 200 lb. per square inch. At Gaythorn, the new retort-house is partially completed. The building is 390 ft. in length, and 60 ft. in breadth. The gas-works were first established in 1820-21. They were originated as a private undertaking, and passed into the hands of the Commissioners of Police in 1824. The connexion of the gasworks with the city council dates from 1843, in which year the consumption was about 210,000,000 cubic feet. So rapid has been the increase, that from 240,000,000 in 1843-44, the amount has reached 1,160,000,000 in 1865-66, and it is estimated that, for the year ending June, 1867, it will reach 1,280,000,000.

The *Exhibition* of the Works of *Modern Artists*, now open in the Royal Manchester Institution, is one of the best lately seen out of London. It includes a small number of admirable pictures lent by owners.

The Manchester Exchange Competition has been decided by the award of the first and second prizes, 500 guineas and 200 guineas, to the designs of Messrs. Mills & Murgatroyd, architects, of Manchester (No. 11, distinguished by the motto, "*Qui serit metit;*" No. 15, with the motto, "*Semper fidelis*"), and the third, 100 guineas, to that of Mr. Lowe, also of this city (No. 13, "*Mens conscia recti*"). Messrs. Mills & Murgatroyd have been long the architects of the Exchange committee, and many thought in the first instance that they should have received the commission without competition. All the selected designs may be described broadly as Italian. No. 11 has an advanced portico towards Cross-street, coming up to the boundary of the land, on either side of which are flights of steps, filling up the space between the boundary-line and the face of the flanks of the building, which are terminated by a tower at each angle, one having a clock, the other a wind-dial. The other fronts generally carry out the ideas of the main front: those to Bank-street and Market-street have the main walls forming the side of the large room thrown back for a portion of their length, forming open-air balconies, for the use of the subscribers, on the roofs of the shops below. The main room itself occupies, with the exception of one or two offices, nearly the whole area of the site, and by this arrangement of space, not only is a great area secured for the use of the subscribers, but it has windows on all sides, looking into the four streets surrounding the site. The ceiling is supported without intermediate supports across a clear area of 120 ft. in span; in the report attached to the drawing, it is asserted to be the largest room in the world roofed over in one span. In addition to conversation-recesses, pay-desks, lavatories, and cloak-rooms, and the open-air balconies, there is a reading-gallery provided. The alternative design under this motto shows a central tower over the portico, and an arrangement of plan different from the other, inasmuch as the span of the roof is lessened, to allow of offices being constructed over each side of the room.

There are fifty-three sets of drawings, several of them of much merit; but it is surprising how many competitors have ignored the fact that one part of the building has to be erected and occupied before a street can be absorbed, and the old building pulled down and the site added. Thus the class of designs with a central dome, or nave and transepts, could not be executed because the land is not at present available on which to build half of the supports. We have already received several letters complaining of the result of the competition. The mistake appears to have been, going to competition at all.

ITALIAN NOTES.

Venice, whose annexation is the great event and triumph of the day for Italy, has naturally become the object of all public regards and of eager interest, her past and present, her actual temper and prospects being now a staple theme for journalists and correspondents of the press. Perhaps much exaggeration has been current in the reports as to Austrian spoliations, but a basement of fact has certainly existed. The other day a Florentine paper gave a long list of all the documents, and other matters, officially removed from the Venetian archives to Vienna, comprising forty-nine cases, with contents no fewer than 1,000 original protocols, compacts, treaties, &c., on parchment, all having seals and signatures, and referring to palmy epochs of the Adriatic Republic, besides numerous "Relazioni" from ministers accredited abroad, deliberations of the Senate, decrees of the Inquisition of State; total, 1,336 volumes: and, moreover (so far does the charge extend), fifty-three other miscellaneous volumes of deliberations in the procedure of that senate, from March, 1332, to February, 1421; and 135 volumes of *secreti*, *i.e.*, daily discussions of the same body from April, 1401, till the end of June, 1630. If we may believe another report, 110 pictures, some by the first masters, as Titian, Tintoretto, Veronese, Bonifazio, have been at intervals, and perhaps not always with official sanction, removed from the imperial palace of Venice, some to find their way to Vienna, and others to be sold at whatever, even at the lowest, prices!

Already has been prepared the state barge for

the triumphal ingress of the king, with *cortège* of gondolas; and it may be expected that the *festa* of that occasion will prove one of the most picturesquely brilliant ever beheld even by her who was once "the revel of the earth, the mask of Italy." Art, too, has begun to correspond to the public feeling; and we have just seen at the studio of Pozzi (sculptor of the Dante monument), a figure lately finished and cast of the Adriatic city, personified as a female seated on a lion, the ducal crown placed under one of the creature's paws, gathering her regal mantle over her bosom, and apparently about to rise, but withheld by the affliction that seems to oppress her,—for the artist's idea is to show what she *was* ere events had so fortunately combined for her deliverance, anterior to which his work had been undertaken. At Padua was held a patriotic festival on the 27th ult., for re-erecting a memorial column and epigraph, overthrown by the Austrians, to record the repulse by Venetian arms of the Emperor Maximilian in 1509, and the same inscription was replaced which had cost the author exile, and to the previously-erected column destruction in January, '59.

We are still hearing much of the efforts made towards securing a worthy representation of Italy at the Paris Exhibition. A few days ago appeared a circular from the Royal Committee, prescribing the course and system requisite to all the *Belle Arti* Academies in Italian cities—*i. e.*, at Florence, Naples, Milan, Genoa, Palermo, Messina, and Bologna (no mention, of course, of Rome, the severed one); and soon afterwards a notification from the Milanese Academy announced the prolonging of the term for admitting demands on behalf of works for transmission till the 10th of November, and that for consignments till the 31st of January. A piece of artistic literary intelligence we rejoice to give is that made public respecting a work, long projected, by the Cavaliere Milanesi, director of the Archives of State at Florence, a history, namely, of Italian miniature-painting, greatly to be desired, and hitherto wanting. The same learned gentleman was one of the editors, together with Signor Carlo Milanesi and Signor Pini, of Vasari, with comments and appendices (that admirable edition, from Le Monnier's press, completed in 1857); and in the 6th volume of the publication supplied an appendix of nearly 200 pages, "New Investigations, with Inedited Documents relating to Italian Miniature Painting," the fullest notice on the subject yet produced in the language, supplying descriptions and biographic details for this branch of art-history from the fifteenth century. His ampler undertaking he had been obliged to defer during years of unfavourable circumstances, but at last, on applying to the Minister of Instruction and Commerce, received from him not only encouragement, but the promise of a subsidy, 800 francs per annum for either three or four successive years, towards the expenses of travelling in search of all requisite material, under the obligation, however, of restricting his artistic pilgrimages to the single month of the autumnal vacations, limits (we should say) all too narrow. Signor Pini, his colleague in the able editorship of Vasari, and a well-known connoisseur, is to accompany Milanesi in these useful expeditions.

The Florentine archives, so admirably re-arranged and made accessible by the grand-ducal government shortly before its fall, have lately received an appreciated present from the English Government, consisting of 109 volumes, royal 8vo., of "Chronicles and Memoirs of Great Britain and Ireland;" and 39 volumes of *Regesta*, or documents of State from the Rolls, the series published by official sanction since 1855.

The portentous revolt at Palermo has caused a species of recrudescence of hostile feeling against the unfortunate religious orders, all of whose members, it is said, are to be at once ejected from that city's cloisters. Scarce credible things are now reported in Florence—disgraceful if true—respecting the disposal of art objects in certain convents; that, as Government has hitherto neglected to obtain inventories of all such and other properties, many of artistic class have been, and are being, sold *pêle-mêle*, to pawnbrokers or any purchasers that may present themselves, as in the case cited of a fine relief by Luca della Robbia, on the point of being knocked down for a few francs, but that some intelligent by-stander interfered to prevent the bargain and report to the authorities. If such things have been going on in rural convents, through the fault of ignorant friars, it seems indeed impossible that they can have taken place in any Italian cities, or with cognisance of any responsible persons in office.

For some days successively crowds have been assembled in Florence to witness the slow transport of Fedi's colossal group, "Pyrrhus sacrificing Polyxena," from the studio on the Arno's left bank to the loggia of Orcagna, where, after a journey of a week (inclusive of the Sunday spent in repose), it was raised on its basement, the removal being accomplished on the principle of the tramway and by other mechanism, and the numerous labourers employed, all (we understand) English, chosen from those now at work on the railways. As this group still remains in its enormous case, though raised to its final elevation, and is to be left thus during the subordinate works for completing and encrusting its basement with marble, we need not dwell on it for the present in any reference to merits; but merely add that its location, seen from the front view within the archway of the loggia nearest to the Palazzo Vecchio, *would* be most advantageous but for the interposition of the "Perseus" of Cellini, which stands above the parapet immediately before it, so as partly to conceal the group from the spectator at a right line with its centre. A high wooden shed has been erected around it, for withdrawing from the public gaze whatever labours are yet to be accomplished.

An English company, at the head of which is Dr. Davis, the gentleman distinguished for his excavations at Carthage, and his very interesting work on that subject, had commenced before the war an undertaking, which (we understand) was brought to suspense solely by those public events ensuing, for working certain quarries of the Saravezza marble, far more prized and more softly-tinted than the Carrara, the abundance of which in the region near that former town has been well ascertained, and for which purpose the company have been induced to acquire the property of an entire mountain, the promising site of their labours; the intention being to make railways for the furtherance of these works and the requisite transport; the results to be anticipated, are apparently of highest value.

Florence.

THE ENIGMA ON THE LETTER H.

I observe in your current number a review of a *brochure* on elocution, in which the following passage occurs:—"Its very appropriate motto is *Byron's* well-known lines beginning with,—

"'Twas whisper'd in Heaven, 'twas mutter'd in Hell.'"

I seize this opportunity of correcting the deep-rooted mistake which attributes those lines to Lord Byron. They were composed at my father's,—Mr. Thomas Hope's,—seat, the Deepdene, Surrey, by Miss Catherine M. Fanshawe, a well-known literary spinster of the past generation.

As I am writing this, the original MS. stands open before me, contained in the "Deepdene Album" (a very curious collection of literary autographs), headed "Enigma written at the Deep Dene, 1816," and signed "C. M. F." I may add that I have a distinct recollection of hearing, while a child, my father, who died in 1831, speaking of the misapprehension which assigned that enigma to Byron.

I may add that the first line runs in Miss Fanshawe's original—

"'Twas in Heaven pronounced, and 'twas whisper'd in Hell."

A. J. B. Beresford Hope.

CONDITION OF THE GOLDEN-LANE DISTRICT, LONDON.

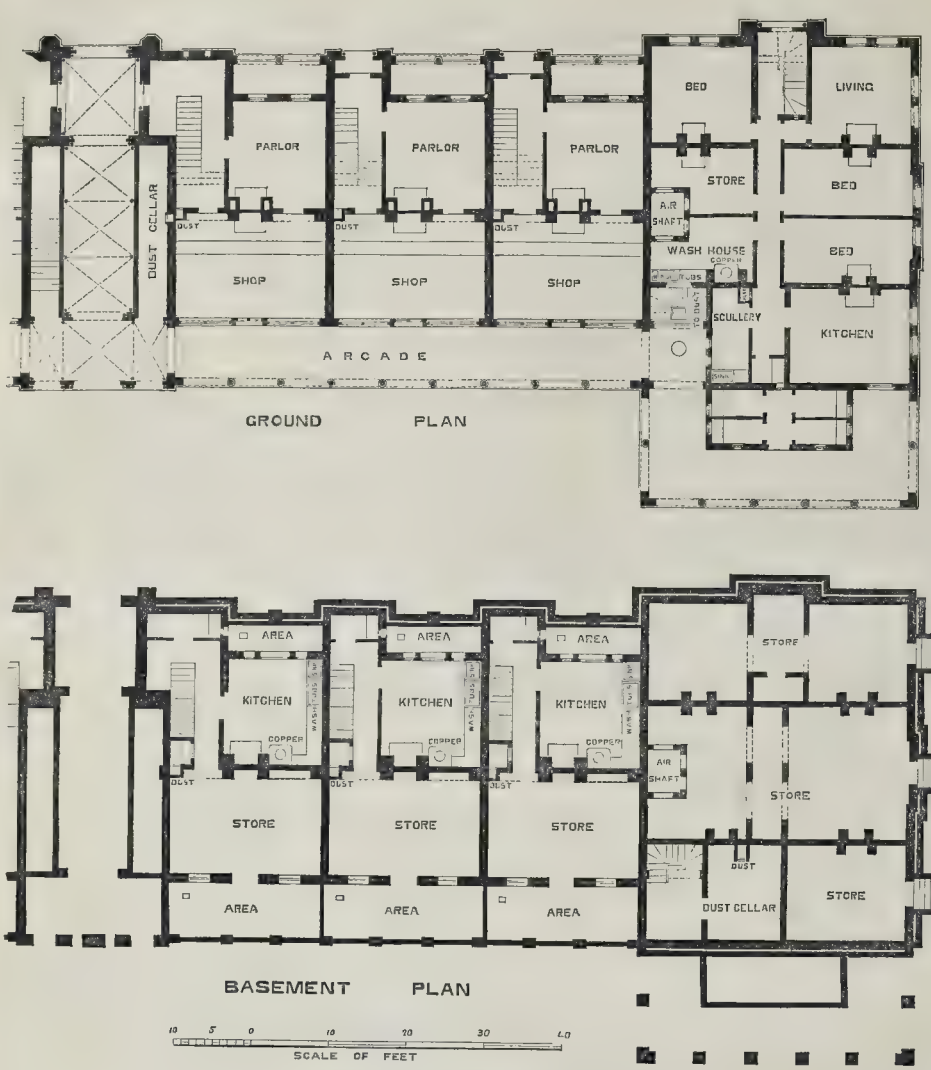
Between Aldersgate-street and Bunhill-row, from west to east, and Barbican and Old-street, south to north, there is a parallelogram of half a mile one way and a third of a mile the other, fuller of narrow streets, courts, and alleys, the majority without any thoroughfare, than any similarly large area in London. The condition of the crowded part is shown by the fact, that while in Finsbury, with a population of 13,000, the deaths in the year had been 281, in Golden-lane district, with a population of 15,000, there had been 525 deaths! The startling inference from which was, as drawn by one of the speakers at a meeting held there last week, that if all the inhabitants of London had been living under the same conditions as the dwellers in Golden-lane district, the deaths would have been more numerous than they were by 45,000! The meeting in question was called through the exertions of the incumbent of St. Mary, Charter House, the Rev. M. Walrond, and was very numerously attended. Mr. W. T. McCullagh Torrens, M.P., presided, and resolutions, expressive of the wants of the district and of the metropolis generally, were moved, seconded, and spoken to by Mr. Harris, one of the churchwardens, Dr. Bruce, Mr. Godwin, Mr. Banks, Mr. Gordon, Mr. G. Brooke, Mr. R. Earle, M. P., Mr. Otway, M.P., Mr. Whitbread, Mr. Moreland, and others. Great earnestness was displayed, and some strong expressions in favour of the principle of the Bill introduced last session by Mr. Torrens were made. We heartily appland Mr. Walrond for what he is doing, and trust he will not relax in his endeavours to improve the physical condition of the district under his charge.

MISS BURDETT COUTTS'S NEW MARKET, BETHNAL-GREEN.

We mentioned recently that an Act of Parliament had been obtained conferring upon Miss Burdett Coutts and her heirs and assigns powers for the construction and the regulation of this market, and for making a new street (which will run from the Hackney-road by the north side of the market), and improving existing thoroughfares. One of these is Crabtree-row, on the south side, which is to be widened to 50 ft. The Act, which is entitled "The Columbia Market and Approaches Act, 1866," contains twenty-seven clauses. The market is to continue a public market, the promoter to take stallages, rents, and tolls, according to a tariff set forth in the schedule; to have power to apply the same to her own uses, &c. The term for the compulsory purchase of lands is limited to five years, and provision is made that not less than eight weeks' notice shall be given before the taking, for the purposes of the market or approaches, of fifteen or more houses occupied wholly or partially by the labouring classes. Such a clause may appear quite unnecessary, considering how much interest Miss Burdett Coutts has shown in the poor; but it proves that the Legislature is becoming alive to the serious inconveniences which poor people have had to suffer in the metropolis in consequence of recent improvements.

The market is now growing into shape. The form is a quadrangle, the east and west sides being 285 ft. long, and the north and south 255 ft. The west block of buildings is completed. It is composed of a central tower and two wings. Between the tower and the wings on either side there are three double-fronted shops, with suitable residences. In each wing there are four "flats," or dwellings, containing sitting and bed-rooms, scullery, and other offices. The entrances to the shop residences, and to the private dwellings in the wings, are on the side of the building which is furthest from the Market-square; *i.e.*, in the building just finished (the west building), they are on the west side: in the building approaching completion (the east building), they are on the east side. The west front of this block will be devoted to private dwellings, the shops being at the east side, access to the shops and wings being obtained by a covered way. The east block of buildings, which will be of a similar character to the west, is rapidly approaching completion. The style of the buildings is Domestic Gothic. From the central towers in each wing water will be supplied to the market. The material used is brick, relieved by bands of lighter colour. Stone facings and terra cotta are freely used. The architect is Mr. H. A. Darbishire; the builders are Messrs. Cubitt & Co., Gray's-inn-road; and Mr. H. Weller is clerk of the works. On the north side of the quadrangle there will be a spacious market-hall, with a residence for the clerk of the market. The market-hall will be 104 ft. long by 50 ft. wide (inside), and 56 ft. high from the paving to the underside of the groining of the roof, which will be executed in wood, and will spring from twelve slender clustered shafts of red and grey polished granite. This hall will contain twenty-four shambles on the ground-floor, with small office attached, furnished with fireplace, sink, &c. Above the shambles, and approached by internal staircases, will be galleries arranged for the sale of flowers, roots, &c.

The hall will communicate with the colonnades, which surround the Market-square, by groined archways leading to a large inclosure or



MARKET BUILDINGS, BETHNAL GREEN.

yard, on its north side, where the heavy traffic of the market will be carried on.

The south side of the Market-square, *i.e.*, that towards Crabtree-row, will be occupied by two colonnades, 35 ft. wide and 170 ft. long, on either side of a central building, which will serve as the principal entrance to the quadrangle, and afford accommodation as residence and offices for the clerk of the market. The west pile of buildings is named "Angela Gardens," and the east, "Georgina Gardens;" nor will they be misnomers, for gardens will face the dwellings. In the centre of the quadrangle there is to be an ornamental fountain, and surrounding this will be ample space for a large number of stands and stalls. On a scroll on the tower of the west wing is the appropriate motto, "Study to be quiet, and to do your own business."

Suitable trees will be planted round the quadrangle, at such distances as will prevent their being any obstruction to the traffic of the dealers whose stalls will occupy its area.

In conclusion, we may mention that the market has been arranged to meet, as far as possible, the requirements of six distinct classes of dealers, viz.:—

1st. Those who rent the shops and their adjacent dwellings.

2nd. Those who rent the shambles in the market-hall.

3rd. Those who rent the stalls in the galleries of the hall.

4th. Those who rent standing space underneath the colonnades.

5th. Those who rent standing space in the open square.

6th. Those who hire barrows and trucks for the purpose of disposing of their goods about the streets.

The last-named class at present pay very highly for the daily hire from those who have stores in the neighbourhood, of their barrows, because they have no place wherein to store them at night.

The dwellings in the wings are intended for the accommodation of clerks and others employed in the city. They possess accommodation far superior to that supplied in Columbia-square. These dwellings are let at reduced rentals, until all Miss Coutts's projected improvements to the neighbourhood are carried out, and the market itself is open for traffic.

We have not spoken of the market by the title popularly applied to it, because there is reason to believe it may receive some other name than "Columbia" when it is completed.

We append the basement plan and ground plan of half one of the blocks: the view we give represents the outer front of the building,—not that next the Market-square.



THE LIVERPOOL ARCHITECTURAL SOCIETY.

The second meeting of the session has been d in the small library of the Royal Institution, quitt-street; Mr. T. J. Kilpin, President of the iety, in the chair.

Mr. Boult moved the following resolution, of ich he had given due notice:—"That in the nion of this meeting the position selected for equestrian statue of his late Royal Highness Prince Consort is eminently unsuitable, as its se proximity to St. George's Hall is extremely judicial to the effect of both works of art; t this meeting hopes the subject may be re-sidered by the Town Council; and that the tue may be speedily removed to a more suitable ation—one in which the excellences of the lptor's achievement may be more advantage-ly displayed without occasioning any injurious ppetition."

Mr. Hornblower proposed a direct negative to Boult's motion, by moving "That the thanks he Architectural and Archæological Society iven to the Town Council of Liverpool and he professional gentleman—whoever he was ho selected the site in which the statue had n placed."

fter some discussion, the President put the ndment and the motion, when there appeared or the amendment, 3; for the motion, 10.

he evening's proceedings were brought to a e by the reading of a paper by Mr. Huggins, escriptions of the Buildings of a (supposed) r Capital of Australia, with illustrations and tches taken on the spot."

METROPOLITAN BOARD OF WORKS.

t the last meeting, the state of Leicester-are came under consideration.

Mr. Tite urged that, if possible, the statue uld be removed to some situation of security, the consent of the freeholder. In the ds of a respectable sculptor the statue might estored.

he Solicitor said:—"The special case for ng the opinion of the Court of Queen's nch respecting the rights and power of the rd over Leicester-square is of great length. pe it will be set down to be heard soon after 2nd of November, and also that, before the th is over, we shall get the decision of the rt upon it. Meantime, I cannot see any oulty in applying to the owner to remove any ance."

Mr. Le Breton said the solicitor's remarks wed that the Board was not responsible for state of Leicester-square.

he Chairman made the following state-t in reference to the proposed new street Blackfriars to the Mansion House. He there were 161 original freehold claimants, all those claims, with the exception of 13, been settled; therefore very little remained e dealt with. Of the lessees' and sub-ees' claims, about 86 had been dealt with, ing 105 cases to be disposed of. As far as were at present able to judge, he thought anuary next year they would be in a con-n to take down the houses and make an ing in that direction. In answer to a ques-, the chairman said it must be a matter of ideration as to which end of the line the ing down of houses would commence at, but arrangements were the most advanced at Earl-street end.

YORK SCHOOL OF ART.

The annual meeting of the friends and sup-ers of this school has been held in the Art and Industrial Exhibition building. Beresford Hope, M.P., presided. The report the committee stated that for the first since the establishment of the school the surer's account showed no item of direct uniary aid afforded, whilst the direct sup-had been considerably diminished. The mittee had been compelled entirely to re-el the terms of admission to their classes, had to increase the terms in some of the ses to twice their former amount, without pting materially the attendance; yet in the ian class, by raising the fees one-half, the ndance had been diminished by one-half, ough the fees were now less than the aver-age of other schools. The attendance of the pupils at the central school had been 72, compared with 100 the previous year; the receipts from school fees were equal to those of former years. The abstract of accounts showed that the receipts had amounted to 235*l.* 9*s.* 6*d.*, and the expenditure to 247*l.* 0*s.* 5*d.* The chairman, in alluding to the building in which the meeting was held, said that as one who had made architectural proportion the delight and study of his life, he was struck with the breadth, height, and general grandeur of the pile; and when he went round it and saw its convenient galleries and courts branching right and left from it, and yet not violating the unity of the central hall, he saw that indeed this was a master's building; and he said this because he could not disconnect it from the School of Art, which had attained the mature age of twenty-three years. If they had not been trained up by the art school, they never would have come up to the mark which was stamped upon the city by the Exhibition building.

THE TRADES MOVEMENT.

Nottingham.—At the Borough Police Court, recently, five young men made an application to the magistrates respecting the building trade strike. One of the number said they had all been sent for from Yarmouth by Mr. Hollingworth, stonemason in this town, who had said the strike was over. They had worked with Mr. Slinn, but they were afraid to do so any longer. They had no money left to return to their homes. The magistrate told them that while they were at work they would be protected by the police, but he had nothing to do with the actual strike; and if they were destitute, they had better apply to the relieving officer of the Union.

Barnsley.—At a meeting of the carpenters and joiners it has been resolved that they ask for a reduction in their hours of labour, namely, to start work at seven o'clock in the morning, instead of six, as at present, they considering that, as the masons and plasterers have it, they are justly entitled to it also; the same to come into operation the first Monday in April, 1867, as also the shilling already promised. We understand that this reduction, together with the advance recently promised and other advantages, will be equivalent to an advance of about 27 per cent.

Sheffield.—The file-manufacturers have agreed to advance the wages of the cutters 5 per cent., and to give a partial advance to the forgers. These advances are offered conditionally on the men agreeing to the introduction of machinery into the trade, and withdrawing the restrictions on apprentices adopted in 1864. The spirit of outrage in Sheffield does not appear to have been satiated by the explosion in New Hereford-street, which has created much excitement in the North. Two masters in the town have received threatening letters, one referring in no vague terms to another blowing up. A free pardon has been offered, besides the rewards, to any accomplice not the actual perpetrator of the late rascally deed. This ought to bring some information to the surface.

EXHIBITION OF THE INTERNATIONAL SOCIETY OF FINE ARTS.

There has been an exhibition of foreign pictures open for some months in London under this title. The idea of an exhibition in which the art individualities of the European schools should be brought together was derived from the great exhibitions of London and Paris, and is now sought to be annually perpetuated on a small scale.

The present exhibition contains no historical works, and several clever pictures of *genre* by Willems, Willems and De Noter, and Knarren have been withdrawn to be exhibited in Belgium. There is, therefore, a dearth of figure subjects. But it is very great in landscape. (48) "Morning after a Storm," by Valentin Ruths, is a grand work, solidly painted. Nos. 21, "View in Holland," and 22, "After the Storm," by Edmund De Schamphelur, are admirably painted, and the artist not only shows his power to portray nature in its average aspect, but under storm effects; these two pictures are very complete specimens of landscape painting. Less definite in their aspects, because aiming to represent Nature in her veiling and unveiling mists of evening and morning, but charming in colour and treatment, are, (43) "The Dunes, Boulogne-sur-Mer, Sunset," by Victor Papelen; and (69) "Mist on the Marshes of Genck, the Campine," by Theodore Tscharner. In the same category may be included several drawings in water-colour by P. J. C. Gabriel, (95) "Twilight," (298) "After the Rain," (297) "Early Morning," (310) "Sunset," which are admirable for truth of tone; we must, however, take exception to (94) "A Flemish Farm." There are two very pleasing landscapes by François Keelhoff (36 and 38). Nor must the beautiful little picture by J. Kindermans, (39) "The Heath, Stormy Weather;" the vigorous seascape (279), "A Dutch Vessel wrecked on the Banks near the Texel," by Heemskirk; and the spirited "Fox," by E. Ockel, be overlooked. Then we have several skilful little works in water-colour, (93) "Still Life," by David De Noter; and (91) "Hospitality," by Charles De Groux, fine in sentiment and execution. There are also several vigorous, clever, cattle pieces, by P. Stortenbeker, and many other very good pictures, besides drawings, etchings (which have had considerable sale), and engravings, which, were our space less limited, we should have been glad to refer to in detail. We hope the next exhibition will, for the sake of the contributing artists, take place in the London season, and that the Society will grow into one of our established exhibitions. But to do this it must be well managed and divested of all semblance of a commercial project.

THE RATING OF MANUFACTORIES.

Last week a case involving an important question as to rating machinery in silk mills and similar factories was decided at the Essex sessions at Chelmsford. Messrs. Courtauld, silk and crape manufacturers, appealed against an advance of the rate on their mills at Halstead from 613*l.* 15*s.* to 2,400*l.*, by the union assessment committee The Solicitor-General was specially retained by the appellants. The question was whether, besides the steam-engines and shafts which created and conveyed the motive power (which it was admitted were rateable), the other machinery which utilised the power was liable to assessment. There were the winding, throwing, warping, and other machines, and also the power-looms; and because these were fixed to the floors, as it was said, for the simple purpose of steadying them, it was contended they became permanent improvements of the freehold, essential to its working and value, and therefore rateable. Witnesses were called from the manufacturing districts, who all stated that this class of machinery was never rated; they did not know a single case of rating of the kind at Manchester, Macclesfield, or Congleton; and it was admitted by the respondents that they could not produce a case in which it was rated, but they now came to establish the principle that it ought to be. The Solicitor-General argued that the winding and other similar machines, and the looms, were chattels not rateable, and, notwithstanding their being screwed to the floor for the purpose of steadying, they remained chattels as much as a looking-glass or a carpet. The court said the evidence was not sufficient to satisfy them that this machinery was so attached to the freehold, and so essential to its working, as to render it rateable. On the application of the respondents, however, a case on the point was granted for the Court of Queen's Bench. The rate was reduced from 2,400*l.* to 613*l.*

STEAM AND MACHINERY IN AGRICULTURE.

The use of steam and machinery in agricultural operations is making progress, although there remains much to do ere this branch of manufactures will rival spinning and weaving by steam-machinery. Mr. William Smith, of Woolston, Bletchley, writes to a contemporary to express his surprise that ploughing by steam is not more generally adopted. He says he has practised it for eleven years, and that within the previous 12½ days he had worked 90 acres, doing the seeding into the bargain, and had thus taken advantage of the last fine fortnight. The consumption of coal

had been 5 tons 3 cwt., at 15s. per ton. "Here am I," he adds, "at the end of this wet season, with the principal part of my wheat-seeding done, and the first planted coming up well."

The East Lothian Agricultural Society have passed a formal vote of thanks to the Rev. Patrick Bell, of Carmylie, Forfarshire, the inventor of the reaping-machine, who has never received any benefit from his invention since, nearly forty years ago, he received the prize of 50*l.* on account of it from the Highland Society. How great the benefit which his invention has conferred on British and American agriculturists can hardly be exaggerated. There never was a more fitting occasion for a suitable testimonial of gratitude; and we hope that the vote of thanks is only preliminary to some more substantial expression of them.

Some of the Scottish papers mention the introduction of a new reaping-machine, of English invention, manufactured by Messrs. Burgess & Key, which is stated to effect a considerable saving of manual labour. It is a self-acting back-delivery reaper, and is described in the *Haddingtonshire Courier*. Instead of a man seated on the implement, rake in hand, to tilt off the sheaves, this important part of the work is done by the action of a "clam," moved from the driving-wheel, which raises and depresses the tilting-board at regularly recurring intervals, and lays off the sheaves, it is said, as neatly and evenly as if done by hand-labour. The raking is effected by a wooden reel of light construction, one of the flanges of which is toothed to catch the grain and press it firmly against the cutting-knives. The self-action necessitates no greater expenditure of horse-power, if as much, as in the case of the ordinary back-deliverers. By the use of a machine of this character, the services of one, two, or three hands, according to the number of machines employed on the farm, could be set free for work of the harvest field.

DUBLIN.

A STATUE in bronze of the late Earl of Eglinton and Winton was, a short while since, unveiled without appropriate ceremony. It is placed on a pedestal of granite, in a favourable position on the north side of St. Stephen's Green, in this city. The figure is a fine work of art, representing the late earl robed in the full dress of the order of St. Patrick. The statue is the work of Mr. P. MacDowell, R.A.

An admirable life-like statue of the late W. Smith O'Brien, brother to the present Lord Inchiquin, has recently been modelled by Mr. Thos. Farrell, R.H.A. The statue will be executed in Carrara marble, and placed in a conspicuous position in a leading thoroughfare of this city.

Extensive additions and improvements are to be made to Grangegorman Prison. It will be remembered that the alterations in this prison formed matter for a competition about two years since, in which Mr. E. H. Carson was successful. One half of the building has been completed. The new works comprise the remaining half of the prison, which is to be reconstructed to correspond, together with new laundry and hospital buildings. The probable cost is 10,000*l.*

DESTRUCTION BY FIRE OF THE STANDARD THEATRE.

ON Sunday morning last, at six o'clock, the Standard Theatre, in Shoreditch, was discovered to be on fire, and in three hours or less it shared the ordinary fate of theatres, and was reduced to a heap of ruins. How the occurrence originated, no one knows. A burlesque of "Der Freischutz" had been acted on the previous night. Although a large water-tank stood on the premises, the watchman could not get at the hose: he did not watch by night, but slept on the premises; and, by the time he was awakened by the police and others, it was too late to get at the hose. Want of water outside, also, on account of its being Sunday, was complained of.

Except a small dwelling-house, the surrounding property remains comparatively intact. Scenery, dresses, stage, and fittings of all kinds were destroyed. Mr. Douglass was insured, but only to the extent of about 9,500*l.*, which, it is said, is not one-half of his estimated loss.

The Standard Theatre has been known as such for the last thirty years, previous to which period there was a diminutive place called, and still remembered, as the Curtain Theatre, from the circumstance of its being approached from Curtain-road, which runs parallel with High-street. Diminutive though it was, Grimaldi favoured it on one occasion with his presence. It is nineteen years since Mr. Douglass became connected with the property, and twelve years since he erected the building which has just fallen a prey to the flames.

IMPROVEMENT OF THE BROMPTON ROAD.

WE are very sorry to hear that the Metropolitan Board of Works, with reference to a suggestion made to them that advantage should be taken of the circumstance of the house No. 188, Brompton-road, having been recently burnt down, to widen the road, have determined that they do not consider it a case in which the Board should take any steps.

At the time of the 1862 Exhibition this road was materially improved. The desirability of setting back the shop in question was then felt strongly, but the want of funds prevented any endeavours being made. It is to be hoped the parish will effect some arrangement with the owner.

BELGIUM.

Statue of a Mayor.—The erection of a statue of a mayor in this country is rather an uncommon occurrence. The citizens of Brussels have, however, just inaugurated a fountain, in memory of the late M. Charles de Brouckere, who first filled the office of mayor of that city in 1848. The organization of the present water-supply and the construction of several new streets were due to his energy. In Parliament he was the consistent and able advocate of enlightened sanitary measures, and an important law to facilitate the acquisition of property for sanitary purposes was almost entirely due to him. The ceremony was attended by M. Vandenpeereboom, Minister of the Interior, and several other officers of state. The work is the joint production of M. Beyaert, who designed the architectural portion, and of M. Fiers, who executed the bust which forms a part of the memorial. After the removal of the screen, M. Beyaert received the cross of the Order of Leopold at the hands of the Minister of the Interior. The benefits which sanitary reformers confer upon the community are not too well recognised, and it is gratifying to find that the inhabitants of Brussels are sufficiently enlightened to perpetuate the memory of a man who did so much to improve the condition of their city.

Brussels Exhibition.—Amongst the exhibitors decorated by the king, are Mr. Frith and Mr. Stanfield, who have been made Chevaliers of the Order of Leopold.

Agricultural Implements.—At the show of the Royal Society of Belgium, lately, at Arlon, the first prize (great silver medal and 50 francs) was awarded to Woods & Cocksedge, Stowmarket, for iron horse-gear and horse-power thrashing-machine; also the prize medal, with 25 francs, for field-rolls.

LIGHTS IN THEATRES.

Brighton Theatre.—The official account was not clear as to the parentage of the new float-lights in the Brighton Theatre, and we are asked to say that these were introduced to the architect as well as manufactured, by Messrs. Strode & Co., gas engineers.

Prince of Wales's Theatre, Liverpool.—The float or foot lights here are on a plan patented by Messrs. J. Defries & Son. It consists "in enclosing the jets of gas within a box formed of a series of compartments (cast in about 2 ft. lengths) joined together, and the back forming a tube, with openings at its upper part, within the box. The top of each compartment is double-cased, in order that the float may always remain perfectly cool. From the main gas-pipe beneath the stage branch pipes rise into the several compartments, there being six to each compartment, —their arrangement being very novel and simple. That face of the tube or back of box which is towards the stage, slopes backward at an angle of about 45 degrees, the branch pipes following this angle, each alternate pipe ri higher than the preceding; thus, when the g lighted, there are two rows of jets, one higher the other, the lower one being at an angle to stage, which will throw its light almost hori tally; and the other at an angle which throw it almost vertically, so that the formers can stand over the float without any of accident. The top of the float does not more than 3 in. above the rake of the stage sheets of glass in each compartment comple enclosing the flame on the face towards stage: the tube at the back carries off al heated air from the flame: the oxygen neces for proper combustion arrives at the open tom and a slight space is left between the t each sheet of glass and the top metal p The glass mediums by which coloured lig thrown over the stage are raised in a fi raised and lowered like a window in grooved ports, worked from the prompter's box, enal him to give different mediums in each scen required." This theatre is the first that adopted the system.

Electricity on the Stage.—In the remarl compound called *Les Parisiens à Londres*, being performed at the Porte St. Martin The Paris, a number of girls appear wearing crowns, consisting of a fillet of metal whi certain moments is placed in communication a galvanic battery. By means of wires inv to the audience, a series of breaks are arrang the course of the current, so that when co is made with the battery a number of lum points appear on the crown, giving it the ap ance of being studded with stars.

DOBROYD CASTLE, TODMORDEN

The corner-stone of this "castle," whi now in course of erection for Mr. John Fie on the upper heights of Dobroyd, was laid o 11th inst. by Mrs. John Fielden; and alth the ceremony was of a private character, four or five hundred of the workmen an habitants assembled to witness it. Afte ceremony, Mr. John Gibson, architect, upon the stone and declared it well and laid, which was responded to with some h cheers for the worthy founder. Appro speeches were made by Mr. John Fielden, th L. Taplin, Mr. Beechy, and Mr. W. Glover. edifice, which will hold a commanding sit in the locality, will be built with ston ternally and bricks internally. The ston be quarried and the bricks made on the The works are being executed by Mr. Davis, contractor, of Malvern Wells, M Glover being clerk of works.

THE EAST LONDON WATER SUPP

A "REPORT of the chief Surveyor t Vestry of Mile-end Old Town on the Supply of the East London Waterworks pany" has been printed. Mr. Knigh directed by the vestry, traversed the length of the river Lea from Old Ford to ford, and the river Stort from its junctio the Lea to the town of Bishop Stortford his opinion on the whole survey is,—

"1. That the water of the East London Water Company is polluted to a very large degree by the d of the towns and villages upon the banks of the ri from whence they draw their supply.

2. That an abundant quantity of water, even character at present supplied, is not to be obt the summer without storing it for several months ponds.

Lastly. That pure water in sufficient quantity present and the probable future wants of the distr not be obtained, in my judgment, from the presen of supply at all."

In speaking of the Hertford drains says:—

"The town of Hertford has a complete sy drainage. The sewage flows into tanks constru the purpose about a mile below the town, w situated on a marsh.

On approaching these works we feel at once th in a region abounding in nightsoil, and an examin the tanks displays a vast quantity of human ordu sewage is here filtered, and the liquid flows by a constructed for the purpose into the river at a di about a thousand yards.

At the time of my visit the stream was flowin rate of 119 ft. per minute, and had a sectiona 2,625 ft. It therefore follows that the quantity di amounted to 121,826 gallons per hour, or 20,468,76 per week, which is about one-sixth of the total said to have been supplied by the East Londo Works Company up to the outbreak of cholera.

Assuming (which I am informed is a fact) that in the months of June and July, the Company could only just raw from the river sufficient water for the wants of their onsumers, and that that quantity was about 124,000,000 allons for the week, it follows that, leaving out alto- ether the other sources of pollution, the town of Hertford wage, to the extent of one gallon in every six of the ater supplied for use, was diffused over the East London ater Company's district for the supply of their stomers.

I have every reason for believing, having my informa- on from a reliable source, that so soon as the Company, ter the outbreak of cholera, were enabled to do so, ey increased the water supply from about 124,000,000 allons to 162,000,000 gallons per week, which increase as available for sanitary purposes, and from that time e disease began to decline."

It is to be hoped this report will accelerate he movement in favour of a totally new and omprehensive system of water supply to the hole metropolis.

SANITARY MATTERS IN BASINGSTOKE.

We have received a letter from Mr. Henry Downs, chairman of the Paving Commissioners' ommittee of Works, denying the correctness of r report of a public meeting lately held in asingstoke (p. 765, *ante*), at which Mr. Downs ys he was not present, and requesting the me of the author of the report, "in order that roceedings may be immediately taken against im." The value of the threat we should be nite willing to leave to Mr. Downs's own private dgment. Mr. Downs says that, in the month September, with a population of 4,600, only deaths were registered, the ages being 72, 76, nd 88; but this proves nothing against our re- ort of the meeting. Mr. Downs further denies at there is any difference of opinion on the bject of the sanitary improvements necessary etween the Paving Commissioners and the cor- oration, and adds,—"The meeting was unani- ous in crushing the crotchets of two or three ealthy but eccentric individuals, who will per- st in it that this is a very unhealthy town." An id sort of unanimity certainly. We may add at the accuracy of our report has not been uestioned by the "wealthy but eccentric indi- iduals" who desire to improve the condition of eir town. We are glad to know that the num- er of such eccentrics is increasing.

BUILDERS AND ARCHITECTS.

At a special committee meeting of the eneral Builders' Association, held at the Cla- nce Hotel, Manchester, on the 15th instant, r. Alderman Neill, president, in the chair, a rm of circular to be addressed to the Archi- ectural Societies, and Architects severally, of reat Britain, was agreed upon. The Associa- on are dissatisfied with existing arrangements nd customs, mode of making specifications and rms of contracts, and have been considering for me time the desirability of calling for changes.

A deputation was appointed to visit various owns in Scotland for the purpose of extending e Association; and a sub-committee was amed to consider the present unsatisfactory ethods of measuring timber at some of the nt-ports. The union of class against class now oing on is calculated to make the thoughtful rave. It is quite legal, and shows that people re wise in their generation; but what will ome of it who shall tell?

THE NEW CATHEDRAL AT INVERNESS.

The foundation-stone of the new cathedral to e styled the Cathedral of Moray, which pro- ises to be a credit to the Scottish Episcopal hurch, has been laid at Inverness by the Arch- ishop of Canterbury.

The site of the edifice is on the west side of he river Ness, some distance above the suspen- ion bridge. The building is contracted for at 2,000*l*. This sum will fit it for being occu- ied, but it is expected that sufficient funds ill yet be forthcoming to enable the original haracter of the building to be greatly improved pon; for instance, by filling the large windows ith a richer variety of stained glass, finishing he interior with appropriate decorations in colour n the ceiling and walls, and also to place a hime of bells in the towers, which have been onstructed so as to admit of this being done.

The dimensions of the building are,—extreme length, 165 ft.; width, 80 ft. at west end; external height of ridge, 80 ft. Accommodation is at present intended to be provided for 800 persons, without using the transepts, which, should occasion require, could be made to accommodate about 200 more, giving room for 1,000 people. The architect is Mr. Alexander Ross, Inverness.

GAS.

London.—A crowded meeting was held on Wednesday in last week, in St. Clement Danes vestry-hall, Strand, to endeavour to secure a reduction in the price of gas to 2s. 9d. per 1,000 cubic feet, and also the repeal of the Metropolitan Gas Act (1860), which destroyed competition in London gas. Mr. J. Tyler, churchwarden of the parish, occupied the chair. The following resolutions were carried:—1. "That this meeting is of opinion that the price of gas in this parish ought to be reduced to 2s. 9d. per 1,000 cubic feet, being the rate at which it is sold in Plymouth and elsewhere." 2. "That the Metropolitan Gas Act (1860) is detrimental to the interests of the public, and ought to be repealed." 3. "That the London Gas Company be requested to reduce the price of gas supplied to this parish from 4s. to 3s. 4d. per 1,000 cubic feet, being the rate at which gas is now being produced in London by the Independent and South Metropolitan Gas Companies." 4. "That the vestry of this parish be requested to consider the propriety of petitioning Parliament for the repeal of the Metropolitan Gas Act, and also in favour of the bill now being promoted by the Corporation of London for the purpose of increasing the quality of gas from 12 to 18 candles, and reducing the price from 4s. to 3s. per 1,000 cubic feet."

Longton.—The chief stone of new gas-works has been laid here. Mr. A. Barlow is the contractor.

CASES UNDER METROPOLITAN BUILDING ACT.

Surveyors' Fees.—At Marlborough-street Police Court, Mr. Addis, hot-water pipe ironmonger, was summoned by Mr. Kerr, district surveyor of St. James's, for neglecting to pay surveyor's fees to the amount of 2*l*. 15s.

Mr. Kerr stated that a house was being built in Piccadilly. The usual notice and fees had been satisfied by the builder; but since the roof had been put on the defendant had placed certain hot-air pipes in the building without having given notice or paid a fee.

Mr. D. Jones (for the defence) contended, if Mr. Kerr's reading of the Act was to prevail, that no one could put down even a hearthstone in a building without being called upon for a separate fee. His view of the case was, that the original notice and fee covered all such works as putting down a hot-water pipe in a building.

After a long argument Mr. Knox said his impression was against the defendant. He thought that a surveyor ought to have surveillance over such appliances as hot-water pipes in a building. To decide that after the builder's fee was paid the surveyor should have no power to see that nothing was done inconsistent with the public safety, would be practically to render the Metropolitan Building Act of no utility. His order was for the claim to be paid.

THE WATER SUPPLY OF ROME.

The following is from the Rev. R. Burgess, B.D.:—In your number of September 8, there is a brief account of the prosperous beginning of the Anglo-Romano Water Company. It must be very satisfactory to the promoters of this enterprise to be able to state that all the shares (20*l*. each) which had been apportioned to Rome were subscribed for in three days. But, with reference to some remarks made upon a paper which I had the honour to read before the Royal Institute of British Architects, impugning the correctness of my statement that Rome was well supplied as to quantity with water, I feel bound to maintain that assertion, while at the same time I wish all success to the Anglo-Romano Company, and the "*Aqua Marcia*." Upon the authority of the Marchese Melchiorri, I stated at the Institute that the three great aqueducts which now supply Rome pour into their capacious basins collectively 180,500 cubic mètres of water every twenty-four hours! If the population, which in the year 1840 was 150,000, be now taken at 180,000, then each individual soul living at Rome has a cubic mètre (let us say a cubic yard) of water for use every day; of course the unequal distribution of this immense supply does not enter into our question. The Marchese Melchiorri, at the time he wrote his "Methodical Guide," made a comparison of the water supply of Rome with that of Paris, and he found that each inhabitant of the French metropolis had not more than one-twentieth part of the supply which flowed into Rome, and he exultingly adds, "*Abbondanza prodigiosa!*" I am only concerned, Mr. Editor, in maintaining the accuracy of "the observations publicly made by one esteemed and reverend gentleman at the Royal Institute," but having done this, I say that I am much interested in the scheme of the Anglo-Romano Water Company. Although the present supply of water is abundant, it is far from convenient, and incapable of reaching the higher levels of Rome. The *Aqua Marcia* will have two special advantages, it is the purest water for drinking that Rome or any other city ever had, and when again brought into the city, it will be a *high service*. Before many years elapse, Rome will probably double the number of her inhabitants; and when the Sovereign Pontiff reigns over the Leonine City on the Vatican Mount, and the King of Italy over the Seven Hills on the Capitol,—with this redistribution of seats there must be a more abundant distribution of water.

Allow me to remain, your

"Esteemed and Reverend Gentleman."

*** Without stopping to question the statement of the Marchese Melchiorri, which we are disposed to consider erroneous, the list we gave of those who in Rome had taken shares will suffice to prove that water is really wanted there. We may add to that list the name of Professor Poletti, the engineer to the municipality,—a sufficient proof of itself. We are informed that two-thirds of the houses in Rome are unsupplied with potable water.

HOUSES ON SPECULATION.

Sir,—I recently visited an old friend of mine in the Barking-road, who informed me that houses were being run up in the undrained, swampy marsh, and that in very soft places they stamped shavings and straw into the mud as a *foundation* to lay the first course of bricks thereon. I went to see this atrocious work. It was indeed quite true. (I should like to have stamped the instigator in as a warning to others.) A district surveyor is unknown there, so they do as they like—build anywhere and anyhow, for the demand is great. In these wretchedly damp abodes labouring men are constrained to exist, till stricken, perhaps, to die from evils engendered there.

Is there no help,—are there no means to remedy this slow murdering of hardworking poor? Were an action to be brought on behalf of some widow and orphans (no legal jugglery of appeal to higher tribunals to be allowed), it might tend to stop such diabolical speculations. R. T.

THORWALDSEN'S STATUES IN THE CHURCH OF NOTRE DAME, COPENHAGEN.

Sir,—You have recently mentioned the very good set of photographs of these statues, recently published, and they have been brought into further publicity by the *Illustrated News*. I am impelled, in consequence, to ask you to let me express the opinion that these figures have been over-praised. Peter seems to me much the best: the head is excellent. The Simon Zelotes is dignified and satisfactory. In Thomas the drapery is very admirable, and the expression of the head is good; but the head itself seems somewhat large for the body, giving a rather top-heavy appearance to the figure. John looks more like a woman, "heroic-size." For a man, the upturned beardless face is inappropriate to the well-developed shoulders and limbs. The eagle has a head more like a quadruped than a bird. Philip looks like a "*pose plastique*," very uncomfortable in his situation; but turning his robe over the left shoulder gives a happy variation of drapery in the figures. James, the brother of John, reminds one of Christian and his bundle of sins, in "Pilgrim's Progress;" and how tired his poor left foot must be in that uneasy attitude! Paul is a personal affront, like a caricature of a dear friend. Fancy that learned scholar and polished gentleman, as he must have been from his writings and his brave bearing before his accusers, represented by this effete old man, with

a round pudding chin. Bartholomew is spoiled by the knee being placed so low down, which always gives weakness to a figure. The roll of drapery in the left hand suggests some hard mass which the knife in the right has refused to cut. Matthew—the law-giver!—entirely wanting in grandeur, might be a merchant adding up his gains in the bag at his feet. Andrew is very tolerable, only he looks as if conscious that he was being photo'ed. The "angel font" is a pretty nothingness; but it looks better seen in front than as shown in the large photograph. The Christ in the large is very unsatisfying, wanting in force and dignity. James the son of Alpheus is the same as to figure, but the head is good, and all the draperies are very admirable. To sum up; I find in these statues plenty of study and knowledge, but very little of the mind and heart that speak *to* mind and heart. R.

CEMENT AND TAR.

Sir,—Will you be kind enough to insert the following answer to "G. M.'s" inquiry as to the cement he has applied to his woodwork in the form of colour-wash? He asks, will it protect or corrode the tar and woodwork? It will do neither. In the first place, the cement will not set or crystallize, but simply dry on the surface; in the second place, the tar will have a tendency to not only corrode but entirely destroy the cement. For proofs let any one closely examine any mortar or cement, or the joints on any wall, or the soft bricks in any wall, to which tar has been applied, and I think that he will come to this conclusion, that tar, instead of protecting, destroys mortar, cement, or bad bricks. A Worker.

"POST-MORTAR INQUIRY."

Analysis of ancient mortar shows there is nothing remarkable in its composition. The badness of modern mortar is owing to the dishonesty of builders using screened rubbish or road dirt. What is essential for good mortar is *thoroughly* burnt lime, and clean sharp sand, in the proportion of one of lime to two of sand. The lime should be slacked as soon after burning as possible, only sufficient water used to work it, the mortar to be well beaten, and after being made to be kept from the air. If kept (the Romans, it is said, kept theirs two or three years), covered up in pits, and rebeaten before being used, its hardening properties are said to be much increased. P. E. M.

CHURCH-BUILDING NEWS.

Wickham St. Paul's.—This parish church, which has been undergoing very considerable alterations, has been re-opened for divine service by the Lord Bishop of Rochester. The alteration consists of an addition to the buildings of a new north transept and vestry, communicating with the chancel. The walls are built with flint rubble, with Lancaster stone dressings. Considerable alterations and improvements have been made internally by the removal of the gallery, which blocked up the tower arch and west window; the nave roof has also been repaired and re-plastered, and the chancel roof boarded and divided into panels; the old pews have been replaced by open benches of deal, stained and varnished; the old pulpit and lectern by new ones of English oak; and the ancient oak screen has been restored, and a new chancel arch added. The architect employed was Mr. A. W. Blomfield, of London. The contractors for the work were Messrs. Parmenter & Son, of Braintree. Mr. Polley, of Coggeshall, did all the new wood-carving, and cleaned and restored the ancient screen.

Asby.—The new church of St. Peter's, built at the sole expense of Miss Hill, of Castle Bank, Appleby, lady of the manor and patron of the rectory, for the use of the parish, has been consecrated by the Bishop of Carlisle. The style of the structure is decorated Gothic, and from the front springs a tower, 50 ft. in height, surmounted by an ornamental cross. The stone used in the erection was found in the immediate neighbourhood, and is warm-looking and durable; and the roof is covered in with green Westmoreland slates. Between the two buttresses is a pent-house for the use of the bell-ringers. There is a bell gable, containing two bells. In two orders of red and white stone interiorly round pillars divide the nave into three bays; and an arch composed of the same material separates the chancel from the nave. At the base of the north jamb is placed a sculptured stone pulpit, and at the opposite side stands the reading-desk or lectern. The roof is constructed with laminated ribs, the whole opened to the ridge and varnished. The pews are open and formed of pitch pine; and the floor of the building is composed of tesselated pavement. On the south side the edifice is lighted by two low windows of ten lights, and a single light opposite the front. The north wall is lighted with lofty decorated windows of two lights each, and a three-light window illumines the east or chancel gable. The exterior measurement of the building is 85 ft. by 37 ft., and the interior 50 ft. by 32 ft. 5 in. The chancel is 25 ft. by 18 ft. 6 in., and the porch 12 ft. square. The building is calculated to seat 250 persons; and the cost of the whole will be over 2,000*l.* The architects were Messrs. Hay, of Liverpool; and the contractors, Mr. W. Grisnthwaite, of Penrith, Mr. J. Dawson, and Messrs. Martindale & Jackson, of Appleby.

Stockton-upon-Tees.—The foundation-stone of what will be the church of St. James has been laid by the Rev. F. J. James. The architects for the building are Messrs. Pritchett & Sons; and the contractors, Messrs. Simpson & Co., of Hull.

Ardwick.—The chief stone of a new church, to be called St. Matthew's, at the corner of Devonshire-street and Hyde-road, has been laid. The axis of the church is parallel with the Hyde-road, and the chancel is turned in an easterly direction towards Devonshire-street. The accommodation provided is for about 850 people, and the cost will be about 6,000*l.* The materials are stone for the whole of the exterior. The interior is to be lined with red and white bricks in bands and patterns. The style is Early Decorated. The foundations up to the ground line have been put in by Messrs. Ellis & Hincheliffe. The architect is Mr. J. Medland Taylor.

Merton (Surrey).—The ancient parish church of Merton, Surrey, has recently been re-opened, after being closed for more than a year during the addition of a north aisle, and general reparation, more especially to the chancel. The old work, where disturbed by the alterations, has been preserved and reinstated, where necessary, including the ancient Norman north doorway, with its richly-clasped metal-work, and the wooden Tudor porch. The materials of the new walls are field-flints, with Bath stone dressings. The roofs are covered with local plain tiles, the gables finished simply as verges, as the whole character of the ancient church is of the simplest type. The lath-and-plaster ceiling of the chancel has been opened out, and an effective roof of the time of Richard II. has thus been disclosed. New encaustic tile paving has been laid in the chancel, and a prayer-desk and open benches with perforated posts have been added. A stone pulpit of simple design has replaced the "Churchwarden's" Gothic one. The architect is Mr. Ferrey, F.S.A., and the contractor Mr. Jarrett, of Croydon.

Hopton.—The new parish church here has been consecrated. The site of the old building has been abandoned in favour of a more central position, the new church being erected contiguous to the turnpike-gate at Hopton, and in close proximity to the school built in 1861. It is in the Early English style of architecture, and consists of nave, chancel, transepts, and central tower. It is built of flint, with Bath stone dressings. The massiveness of the tower, combined with its want of elevation—being but 63 ft. high—gives it a somewhat dwarfed and heavy aspect. The dimensions of the building are as follow:—Entire length, 95 ft.; width, including transepts, 46 ft.; width of nave, 27 ft.; transepts, 9½ ft. The church will accommodate 280 persons. The estimated cost is about 3,300*l.* The architect was Mr. S. S. Teulon, of London; the builders, Messrs. Browne & Bailey, of Norwich; and the clerk of the works, Mr. J. W. Randle.

Northampton.—All Saints' Church has been re-opened, after having been closed for fifteen months, during which time it has undergone a restoration. Extensive alterations have been made within. The pillars have been set free from the galleries which encumbered them; the galleries being set some distance back. The chancel screen has been removed. The pews have been re-arranged, but the lowering of them exposes an unsightly base to the pillars. The two pictures in the chancel, attributed to Sir James Thornhill, have been restored by Mr. Monson. One of the local papers protests against the style of decoration which the committee have adopted. The whole labour of the decorator, it is remarked, has been devoted to the ceilings, with no thought of the other parts of the structure.

Tring.—Aldbury Church has been restored and re-opened. During the last two years it has been in course of repair and restoration, under the superintendence of Mr. E. Browning, Stamford, architect. The cost of the works has been about 2,500*l.*, and they have been executed by Mr. Cook, of Berkhampstead, and Messrs. Perkins & Bradshaw, of Stamford. There are several painted windows. The east window, the gift of the rector, and a memorial of his mother-in-law, contains representations of the principal events in the life of our Lord. A large window on the south side of the chancel is in two compartments, and contains illustrations of Scripture subjects. This window is also the gift of the rector. The small window on the same side, the gift of Mr. Blackmore, of London, under whose superintendence four of the windows have been executed. The subject is "The Lost Sheep." The two windows in the Leeds Chapel are the gift of Earl Brownlow. The larger one is in three compartments, the subject being the two disciples at Emmaus. One of the windows was manufactured in Brussels. There are also two windows one on each side of the west door, presented by Mr. R. Bright and the Rev. Dr. Jenks. The new organ has five stops, and was erected by Messrs. Gray & Davison. The seats are of oak, and open. The floor is paved with red and black tiles, and the south porch and chancel with encaustic tiles. The church is warmed by a hot-water apparatus.

Thetford.—St. Mary's Church, after being closed since the first week in July, for alterations and repairs, has been re-opened for divine service. The alterations comprise the removal of the organ gallery at the west end, which throws open the tower arch, and a west window of the Perpendicular era. The ancient west entrance is also re-opened. In the chancel the high pews have been replaced by carved oak benches; a reredos of stone has been erected, and the floor paved with Minton's tiles. The old east window has been taken out, and a memorial window of the Perpendicular period inserted. The glass, representing the Crucifixion, was prepared by Messrs. Ward & Hughes of London, who also supplied three other designs for the south and west windows. An organ, by Mr. Walker, of London, has also been purchased.

Luddenden.—The church here has been re-opened, for divine service, after having been closed four months, during which time the interior has been re-modelled. Mr. Joshua Appleyard has enlarged the chancel, and put in a stained-glass memorial window. The body of the church has been made, in some measure, to correspond with the new chancel. Mr. Nicholson was the architect employed. A pulpit of Caen stone, inlaid with diverse coloured marbles, and a carved oaken lectern have been presented by Mr. John Murgatroyd, of Oatsroyd; a font also of Caen stone and inlaid with marble, is the gift of Mrs. Appleyard, Clare Hall, Halifax. The has been introduced. A warming apparatus has been laid down, and the floors tiled. The east window is filled with stained glass, by Messrs. Hardman, in five lights, containing the following subjects;—The Annunciation, the Birth of Christ, the Crucifixion, the Resurrection, the Last Appearance on Earth, with four smaller subjects in the quatrefoil above, taken from the New Testament. The body of the church has been re-seated. The pews are all free, but assigned by the churchwardens to individuals or families provided always that the continuance of the assignment be dependent on the habitual attendance of those in whose favour it is made.

DISSENTING CHURCH-BUILDING NEWS.

Swansea.—The chief stone of a congregational chapel has been laid here. The edifice will present a side elevation instead of a front to the main road (Walter-street). At the south-west corner a tower will appear, 65 ft. high to the foot of the spire, the latter rising 50 ft. above. 115 ft. in all The entire scheme includes a chapel, capable of seating 1,000 adults, and measuring 95 ft. by 50 ft. within the walls; a school-room, 60 ft. by 30 ft.; a lecture-room 44 ft. by 24 ft.; an infant's class-room, 24 ft. by 17 ft.; two vestries, and other apartments. At present, however, it is intended to erect the chapel only and the vestries, &c., in immediate connexion with it. When the group, including chapel and school, is completed, it will present a line of building facing Walter-street, 135 ft. in length. All the constructive timbers in the interior of the building will appear to view, and be stained and varnished. The walls will be of native stone, faced with dressed wall stones

vel courses, and all the windows and doorway nd all external angles will have dressings of ath stone. The style of the building is geo- etrical. All the details are simple and inex- ensive. The works are being executed by day- ork. The architect is Mr. H. J. Paull, of Manchester. Provision is made for warming the uilding by means of Messrs. Haden's apparatus, nd ventilation and extraction of foul air will be ffected by means of the tower and spire.

Knutsford.—The new chapel for the Congre- ationalists has been opened for divine service. he building, which is situated on elevated round on the Macclesfield road, just outside the own, is in the Early Gothic style of architecture f the French type, is of red brick with blue ands, with dressings of white Alderney stone, nd is built to afford sittings for 350 people, the eats being all on the ground floor. The struc- ure consists of a nave and south aisle with a hancel; and there are two transepts, the one n the north side being for the organ. The isle is separated from the nave by Mansfield one columns, with carved caps, supporting oulded brick arches, of which there are four, he position of the fifth being occupied by the ower and spire. The principal entrances are hrough the tower. The seats are open benches. he pulpit is of Bath stone, and placed on the orth angle of the chancel. There is an east indow, of stained glass (the gift of Lady Watts). This is of three lights, the centre ne being occupied by a representation of hrist Blessing Little Children. There is also Geometric west window, of four lights, of thedral glass, with patterns on the quar- es. The glass of all the other windows is cathedral quarries of two tints, with border alternately blue and ruby. The schools are the back of the church, and though on a wer level the whole building seems to form ne structure. The edifice has been erected om the designs of Mr. J. C. Gilbert, of Notting- m. Mr. T. Read Clements, of Knutsford, has perintended the works. Mr. James Paul, of nutsford, was the contractor, the stonework ing executed by Mr. Henry Gannon, and the umbing and decorating by Mr. Wm. Steel, also Knutsford. Mr. Gladwin, of Stoke-upon- ent, executed the carving. The stained-glass indows are from the establishment of Messrs. dmundson, of Manchester.

Books Received.

ason's Uniform Series of Photographs of English Cathedrals. London: 28, Old Bond-street.

is series begins remarkably well, with three ews of Norwich Cathedral (two interiors and e exterior) and descriptive letter-press. The ges are larger than the views seem to de- and; still this will make the volume the ndsomer.

luminated Texts. T. Nelson & Sons, Pater- noster-row.

DOZEN texts in colours and gold on cards ith an ornamental wrapper, and all for 6s., are rtainly not dear. The lettering is rightly on loured or gold backgrounds.

VARIORUM.

THE current number of *The Quarterly* con- ins, *inter alia*, an illustrated review, or rather, ccount of Mr. Fergusson's admirable "History Architecture in all Countries," of which at esent only one volume is published.——The th number of Miss Braddon's new magazine, *elgravia*, includes some amusing writing, but general appearance is not up to the *Cornhill* andard. It must be improved if it is to run a inning race. Under the title, "An Adven- rous Investigation," the condition of lunatics attered over the country is forcibly set rth.——*The Fine Arts Quarterly* sustains its sition by No. II. Mr. Rae, the Baron de riqueti, Mr. W. M. Rossetti, Mr. Beavington kinson, Mr. W. W. Lloyd, and Mr. J. C. obinson contribute in it.——Maunder's *Scien- fic and Literary Treasury* is so well known that e have only to mention the publication by esrs. Longman & Co. of a new edition, which s been revised and improved by Mr. James ate Johnson. Mr. Johnson claims to have dded 1,000 new articles. It is a cyclopædia in iniature.

Miscellanea.

THE Norfolk Estuary Company have completed another embankment of a mile and a half in length at Wolferty, adjoining the lands of his Royal Highness the Prince of Wales and the Hon. Mrs. Mary Greville Howard, which was commenced in March last, reclaiming another 300 acres of land in "the Wash." This now makes a total of about 500 of the 32,000 acres to be recovered from the sea, for which the necessary funds were raised by the authority of an amended Act of Parliament in 1849.

IMPROVING MINERAL AND OTHER PIGMENTS.—A mode of improving the brilliancy of pigments, by changing their mechanical qualities and freeing them from gaseous and other impurities, has been patented by Mr. Stuart Gwynn, of New York. He first prepares a bath of oil, superheated steam, or other suitable fluid, in which the pigments to be treated can be stirred and heated, during which heated air, gases, or vapours are injected into them. The heat required will vary with the pigment under treatment. The pigment is now removed to a pneumatic, hydrostatic, or mechanical press, and subjected to a concentrating power of from two to eight tons per inch of area, in elastic bags, strong cylindrical vessels, or open-ended steel tubes, out of which the pigment will be discharged, after the manner of maccaroni.

TRIAL OF THE STONE-CUTTING MACHINE AT SOUTH SHIELDS PIER.—On Tuesday, a number of the River Tyne Commissioners and other gentlemen assembled at the high end of the south pier for the purpose of witnessing the trial of a stone-cutting machine, an ingenious construction for the purpose of cutting stone, recently erected in connexion with the pier works. The machine is from the firm of Messrs. Munroe & Co., engineers, Arbroath, and consists of two steel discs, 7 ft. in diameter, with pieces of steel set in the edges standing right and left. In these pieces little steel bolts are fixed, and each of these bolts forms the cutting portion of the machine. The machine cuts upwards; and by means of screws the stone is kept up to the machine. The whole of the machinery is strongly built; and from the trial on Tuesday, it is evident it will answer the purpose for which it is intended. On Tuesday, several large stones were put under the machine, and in each case the cut was clean and rapidly effected. It is calculated to cut 5½ inches per minute; and besides being a great saving of time, the face of the stone is rendered much more even than by hand dressing; and as an additional virtue of the machine, the pieces of the stone, instead of being broken up and useless, are, as left, equally as useful as the larger ones. The trial was considered by all to be highly successful and satisfactory.

MONUMENTAL.—The Prince Consort Statue at Liverpool has been inaugurated. Mr. Thornycroft, as we have before said, was the sculptor. The statue is of solid bronze, cast by Messrs. Elkington, of Birmingham, and weighs three tons. The height is about 14 ft. The horse was modelled from one lent by her Majesty from the stud of the late prince. It is proposed to erect out of the corporate funds a statue of her Majesty the Queen. The amount to be appropriated for the statue is about 5,000*l*. ——Beside the town-hall about to be erected in Todmorden, a site has been chosen for the bronze statue of the late Mr. John Fielden, M.P., the work of Mr. Foley, R.A. The statue was completed three years ago, but the erection of it has been deferred until the present site was prepared. —— Mr. Adams, the sculptor, has received a commission for a marble statue of the Right Hon. W. E. Gladstone. The statue, which is to be ready in eighteen months, will represent Mr. Gladstone in his robes of office as Chancellor of the Exchequer, and will be placed in one of the niches of St. George's Hall.—— A movement is being promoted in Nottingham for raising a public monument to Lord Byron, if possible, in Poet's Corner, Westminster Abbey; but in the event of this being found not practicable, it is proposed that a bronze statue of the poet should be placed in Market-street, one of the principal thoroughfares of Nottingham. A meeting of gentlemen favourable to the movement is shortly to be held.—— Nearly 30,000*l*. have been subscribed towards the Keble Memorial. More money, however, is wanted to carry out the intention of founding a new college at Oxford.

ANOTHER ARCHITECT FOR THE "HOUSE."—The Conservative party of Belfast are putting forward Mr. Charles Lanyon, of the architectural firm of Lanyon, Lynn, & Lanyon, as the successor of Sir Hugh Cairns.

FREE LIBRARIES (BIRMINGHAM).—The Free Central Reference Library was to be opened to the public on the 26th of this month. The foundation stone of the Gosta Green library was to be laid, and the Deritend Free Library opened, on the same day.

ST. JAMES'S CHAPEL.—The renovation of this chapel has been at length completed by the Board of Works. The painted ceiling, charged in its various compartments with the portcullis and other devices of the Beauforts and Tudors, has been cleansed and repaired.

THE TOMB OF GEORGE HERIOT.—In proceeding with the enlargement of the National Gallery, the authorities have acquired St. Martin's Workhouse, in which is a disused graveyard, containing the bones of two rather celebrated men, though in quite different walks,—George Heriot, the surgeon, and Jack Sheppard, the scoundrel.

THE ATLANTIC TELEGRAPH.—Information ha been received through the Atlantic Telegraph that a body of 200 men have been set to work on the land portion of the New York and Newfoundland telegraph, for the purpose of putting the line into a state of thorough efficiency. The receipts of the company, according to the *Railway News*, continue very satisfactory, the average of from 900*l*. to 1,000*l*. per day being fully maintained.

RAILWAY COMPENSATION.—The plaintiff, in the case of *Johnson* v. *The Edgware, Highgate, and London Railway Company*, was lessee of land required by the company under a lease which provided that the lessor might resume such land for the purpose of building, planting, accommodation, or otherwise. It was held by the Master of the Rolls, that after the company had given notice to treat for the land, the lessor had no power to resume it by virtue of such proviso, and that the company must pay compensation to the plaintiff.

EXTENSION OF THE LIVERPOOL DOCK SYSTEM. The special committee appointed in February last by the Mersey Dock Board to consider the necessity of extending the system of docks and warehouses, and making improvements in accordance with some scheme of the kind, have presented a report to the Board. In a series of elaborate and detailed recommendations they counsel the Board to apply to Parliament in the ensuing session for an Act to enable them to borrow 850,000*l*. for new dock works and warehouses, and 250,000*l*. for the purchase of lands in the neighbourhood of the Board's property. Another provision of the proposed Bill is to throw back the cost of poor-rates upon the surplus funds of previous years.

THE LONDON, CHATHAM, AND DOVER RAILWAY.—At Vice-Chancellor Stuart's chambers an important application has been made connected with the affairs of this company. A new bridge near Victoria Station was ready to be opened, and would yield 8,000*l*. a year; but the question was, who would pay money first required. The line was paying the Brighton Company 100*l*. a day to pass over their bridge, and if 1,500*l*. were paid to Messrs. Saxby for signals, it could be opened. The other question was as to surplus land. There were 80,000*l*. ready to be paid; but could the receivers be authorized, or must it be paid to the company? The chief clerk sanctioned the payment of the 1,500*l*. to open the bridge, and the question of the surplus land would be heard before the Vice-Chancellor. Order accordingly.

THE NEW WORKS AT THE BRISTOL DOCKS.—The Docks Committee of the Town Council met specially to receive tenders (which had been advertised for) for the construction of a new junction lock, about 350 ft. long and 62 ft. wide, with adjoining quay-walls, near the upper end of Cumberland Basin; also a new entrance-lock, with quay-walls, between Cumberland Basin and the river Avon (the lock-gates and machinery of these locks not being included); and for certain intended improvements of the bed and banks of the river Avon, with contingent works. There were three tenders submitted,—from Mr. Gibb, of Aberdeen; Mr. Brotherhood, of Chippenham; and Mr. Tredwell, of Birmingham. The tender of the latter, who is the contractor of the Bristol and Portishead Railway, being the lowest, was accepted by the committee, and will in due course be reported to the Council.

The Crystal Palace Classes.—The seventh session of these classes for ladies has been commenced. The list is very comprehensive. Last session the names of 200 ladies, it is stated, were on the books of the school.

Architectural Association.—By a slip of the pen in our last it was made to seem that the *Conversazione* would take place on the 19th inst. instead of on *this* Friday, the 26th, when, it is to be hoped, there will be a good muster.

Cannon-street Hotel.—We are asked to say, in addition to our recent account of this building, that the zinc work was executed by Mr. J. W. Tyler. We do not think it necessary on every occasion to give the names of all the tradesmen employed on buildings.

Royal Tombs.—Excavations of some interest are now going on in the choir of Rouen Cathedral, and, according to *Galignani*, have already brought to light a statue of interest to our country, viz., that of the eldest son of Henry II., King of England and Duke of Normandy. In 1838, the sepulchral statue of Richard Cœur de Lion had been dug up near the same spot, thanks to the researches of the director of the Rouen Museum, M. Deville.

Houses for the Very Poor.—Dr. Allbutt, of Leeds, has lately proposed a scheme for the radical prevention of typhus, by establishing wholesome dwellings for the really poor. The houses are not intended for artisans and others who can pay good rents, but for hawkers, costermongers, and unskilled labourers of all kinds. The rental is 1s., 1s. 6d., and 2s. per week. There is now an "Industrial Dwellings Company" started in Leeds on this plan with a capital of 50,000*l.*, and a block of fifty tenements is nearly completed.

Labourers' Dwellings in Liverpool.—The local Health Committee of the corporation have resolved that a block of dwelling-houses, in accordance with plans already approved, shall be erected under the powers of "The Labouring Classes' Dwelling-houses Act, 1866," and that an application shall be made to the Public Works Loan Commissioners for a loan of 13,000*l.* for their erection. The plan comprises about 120 dwellings, with rents from 3s. to 5s. a week, and they will be erected between Ashfield-street and Sylvester-street.

The Maidstone Surveyorship.—The following six candidates were selected by the committee of the local board of health for the office of surveyor:—Mr. Edward Buckham, three years assistant to borough surveyor, Blackburn; salary required, 150*l.* Mr. Wm. Ground, ten years surveyor to Durham Local Board; 250*l.* Mr. James Lund, four years surveyor to Sheerness Local Board; 250*l.* Mr. William J. Newton, surveyor and sub-surveyor to Local Boards for four and five years, at Bath, Oldham, and Crewe; 170*l.* to 200*l.* Mr. James Pearson, eight years assistant-surveyor at Leamington; 160*l.* Mr. J. R. Rogers, eleven years assistant-surveyor to Bristol Board of Health; 250*l.* Mr. Buckham was almost unanimously elected.

The Putney and Fulham New Bridge.—An Act of Parliament (29th & 30th of Victoria, chap. 332, local) was on Wednesday issued for authorising the extension of time for the compulsory purchase of lands and the completion of works by the Putney and Fulham Bridge Company. In the reign of George I. an Act was passed to build a bridge across the Thames from Fulham to Putney, and in the reign of George II. the Act was amended, and in 1863 an Act was passed to incorporate a company for making a new bridge. The Fulham Bridge was to be purchased and a new bridge erected. By an award made in August, 1864, a sum of 40,000*l.* was to be paid for the bridge and other property, which money, the Act recites, has not been paid. "And, whereas, since the making of the said award the tolls taken for the traffic passing over the said bridge have considerably increased, and may still further increase, and it is fit and reasonable that the said proprietors should have the benefit of such increase so long as the said purchase remains uncompleted." The object of the Act is to enable the company to raise by means of rent-charges a sum to pay off the proprietors of Fulham Bridge, or to raise the same by a creation of shares. A further period of two years is now granted for completing the new bridge, the company to maintain Fulham Bridge until the opening of the new bridge.

Proposed New Synagogue in London.—We are told that the greater portion of the amount needed (about 4,500*l.*) for the erection of a new synagogue, to take the place of a building near the Elephant and Castle, has been obtained by the Jews of South London since the opening of the year.

The Poor of Newport, U.S.—Mr. Alexander T. Stewart, of Newport, U.S., has announced his intention of giving 1,000,000 dols. for the erection of dwellings for the poor of that city, on condition that the necessary land shall be provided. His plan is similar to Mr. Peabody's in his gift to London.

Working Men's Club Festival.—On Wednesday evening a festival was held in the Lecture-room of the Agricultural Hall, Islington, by the members of the working Men's clubs in connexion with the Working Men's Club and Institute Union. The hall, which is capable of holding upwards of 600 persons, was filled with working men and their families. The chair was occupied by Mr. M'Cullagh Torrens, M.P., who made an interesting address. The programme of the evening's entertainment consisted of songs, instrumental solos, and recitations, the performers being members of the clubs.

New Thames Subway Act.—A local Act, passed in the recent session, has just been printed, to make a subway under the Thames, from Deptford to the Isle of Dogs. It is declared that a subway, with the necessary approaches, would be of great local and public advantage. It is to be completed within five years, and the compulsory purchase of the land is to take place within three years. The Sunday ferries—Deptford, Poplar, and Greenwich—are to be continued. Where fifteen or more houses of the labouring classes are taken, not less than eight weeks' notice is to be given. It is to be cited as "The Thames Subway Act."

Widford Church. — This parish church, erected some few years ago, is now being beautified in the interior. Messrs. Lavers & Barraud have been intrusted with the execution of a series of wall decorations, which are now being carried out under the superintendence of Mr. George Castell. At the east end is a wall device, in varnish, of corn and wine, with the inscription, "I am the bread of life and the true wine." The wall round the east window is diapered in the water-glass process, with an inscription round the window, "Holy, holy, Lord God Almighty." The side walls of the chancel are diapered with a simple border round the windows. Over the chancel arch is the inscription, "Yield yourselves to the Lord, and enter into His sanctuary."

The Old Walls and Towers of Norwich.—We regret to observe that the City Council of Norwich seem to think it necessary for the safety of the citizens to pull down parts of the old city wall on Chapelfield, including one of the towers, which it is, nevertheless, admitted could be made safe. Surely their resolution requires reconsideration, at least as to the tower. A desire to level the ground seems to have quite as much to do with the resolution as the public safety. A proposal to let the matter stand over to another meeting was negatived by a vote of 19 against it to 19 in its favour; and the resolution to proceed was carried by a majority of 20 to 17 against it. The citizens ought to protest against so summary a measure on so small a majority.

The Sixty-Ton Crane.—The following are the principal features in connexion with the recent application of steam-power to the 60-ton crane, Quayside, Newcastle. The cylinders are two in number, 10 in. in diameter, 14 in. stroke, bolted to side-frames, and geared direct to the existing gearing. Behind the crane is placed a strong wrought-iron platform, forming a receptacle for coals and water, upon which is placed a boiler of the vertical description. The turning gear is arranged so as to make a complete revolution in three minutes. Formerly, when using manual labour, this ponderous mass required sixteen men and about one hour to make a revolution when loaded, and about the same number of hands when lifting. With the present arrangement, weights up to 60 tons can be lifted at the rate of 3½ ft. per minute, and swung round with the greatest ease, only requiring the attention of one man. The machinery has been constructed by Messrs. Black, Hawthorn, & Co., of Gateshead.

British Archæological Association.—A meeting of the council of the British Archæological Association, held last week, it was decided that the annual meeting shall be held at Lud next year. Sir C. H. Rouse Boughton, bart., elected president.

The Drainage of Canterbury. — The s drainage committee of this city have rec mended the appointment of Mr. Pilbr engineer, to examine into the existing syste drainage in Canterbury, and report thereon, as to any new system which he may suggest.

The Ten Hours Movement amongst Milliners and Dressmakers. — The sec ordinary general meeting of the company for by various ladies for the abolition of night-w among dressmakers and milliners has been h at 74, Grosvenor-street, Grosvenor-square, un the presidency of Mr. W. H. Le Fenvre, chairman of the company. The report wh was read stated that excellent results followed the working of the company during first ten months, the net profit being 2,274*l.* 1 out of which a dividend was declared of 10 cent. per annum, and in pursuance of the phil thropic object with which the company formed, 15 per cent. of the net dividend pro after providing the first 6 per cent., was place the disposal of the ladies' committee for distri tion amongst the most deserving of the *employ* It is gratifying to add that during the bus part of the London season the limited ten ho of daily work had been strictly adhered proving that a profitable return for capital be obtained without straining upon the labou young persons. In addition to the dividen surplus of 1,117*l.* remained in the business. report was unanimously adopted.

A Middle-class Co-operative Experiment The "Civil Service Supply Association" i co-operative society which originated with a post-office clerks. It now extends to others, possesses good premises in Monkwell-str Falcon-square. The lower rooms are used fo store or shop. The first floor is let off to a f which sells stationery to the members at wh sale prices; and on the second and third flo the members can obtain all kinds of hosiery similar terms. At the store can be purcha almost, if not quite, every article of food wh is not of a perishable character, as well as m things which are required in housekeepi Here at the present time upwards of 20,000 year are taken over the counter. Of tea, ab 50,000 lb. a year are sold; of coffee, ne 20,000 lb.; of moist sugar, 100,000 lb.; of sugar, 80,000 lb.; of candles, 50,000 lb.; of r 23,000 lb.; and of soap, 120,000 lb. Memb may buy in any quantity so long as they pay ready money, for not an hour's credit is gi to the most influential. The prices at the st are about 20 per cent. lower than the usual re rates. Customers can have their purchases s home by the Parcels Delivery Company, reduced rates. There are also nearly 100 fi in either wholesale or retail business connec with the association. From the wholesale fi the members obtain articles at wholesale pri from the ordinary shops they purchase at a duction varying from 10 to 20 per cent. association numbers at present more than 4, members. One firm alone received from mem last year 10,000*l.*, and another 12,000*l.* association has also professional men of its There are physicians, surgeons, lawyers, st brokers, and even architects, who have spe and low rates of charges for the members. the recent half-yearly meeting it was announ notwithstanding all other advantages, that t was a balance in hand of about 800*l.*

TENDERS

For re-building the "Fox and French Horn," street, Clerkenwell, for Mr. J. Lambert. Mr. W Hills, architect. Quantities supplied:—

Cole	£3,255 1 0
Sheffield	2,579 0 0
Terry	2,490 0 0
Langmead & Way	2,387 0 0

For erection of school-room and premises in Blenl grove, Rye-lane, Peckham, for the Committee o John's Mission. Messrs. H. & J. D. Matthews, tects:—

		For match-boa
Cannon	£835 0 0	£15 10
Gammon	783 0 0	13 0
Sewell & Son	747 0 0	8 10
Newman & Mann	725 0 0	12 10
Colls & Son	724 0 0	10 0

The Builder.

VOL. XXIV.—No. 1239.



The Public Health in the Third Quarter of 1866.

MORE than a usual amount of interest is possessed by the Registrar-General's Quarterly Report, relating to the births and deaths registered in the three months, July, August, and September last. It is needless to say that it is the information relating to the results of the present cholera epidemic in various parts of the country which gives the additional value to the report just published.

Before entering, however, upon these details, it will be well to look at a few of the more general results to be derived from the tables and matter of the report. The estimated population of England and Wales (for the other portions of the United Kingdom have each their own Registrar-General, and their own quarterly report) in the middle of last quarter was rather over 21,237,000, or nearly a million and a quarter more than it was at the last census of 1861! The births registered in this population during the three months, although nearly 2,000 less than in each of the two previous corresponding quarters, give an annual rate of 33·4 per 1,000, being almost identical with the average rate in the ten corresponding quarters of 1856-65. The natural increase in the population of the country during the three months, by excess of births over deaths, was 62,156, and considerably below the average,—a result due as much to the excess of deaths as to the deficiency of births.

The annual death-rate to 1,000 persons living in England and Wales in the three months was 21·8, and higher than in any of the ten previous corresponding quarters. The nearest approach to it was 21·7 in 1863, and the average of the rates in the same quarter of the ten years 1856-65 was 20·0. The actual excess of deaths in the quarter, allowing for increase of population, was 10,720, which nearly agrees with the number referred to cholera; and the general impression, no doubt, will be, on learning the extent of the ravages of this disease in England and Wales during the three months, one of relief and satisfaction to find it no heavier; but of this more presently.

The Registrar-General gives us the means of comparing the respective mortality in our urban and rural populations. In a population amounting in 1861 to nearly eleven millions, or more than half the total population of England and Wales, and comprising all the chief towns, the mortality last quarter was 25·2 per 1,000, largely in excess of the rate in any of the ten previous corresponding quarters, and 2·8 per 1,000 above their average rate. In the remaining population of the country, including all very small towns, as well as the whole of the rural districts, the annual death-rate during last quarter did not exceed 17·6, a rate which was exceeded in four of the ten previous corresponding quarters, and was only 0·2 per 1,000 above their average. These figures are abundantly conclusive in fixing upon our town populations almost the entire excess of mortality which prevailed during last quarter.

Weekly returns are now published of the vital statistics of ten of the largest towns in England and Wales, which at the middle of this year were estimated to contain 5,197,064 inhabitants; the quarterly facts relating to these ten towns will enable us further to trace a considerable portion of the excess of deaths last quarter in our town population. In the table below, these towns are arranged in the order of their annual rates of mortality during last quarter, from the lowest:—

	Annual death-rate to 1,000 persons living in Sept. quar., 1866.	Annual death-rate to 1,000 persons living in Sept. quar., 1865.
Birmingham	19·2	23·5
Bristol	2·7	20·4
Hull	32·4	30·3
Sheffield	24·0	27 8
Salford	26·3	29·7
London	29·2	21·9
Manchester	30·6	32 9
Leeds	31·0	31·7
Newcastle	31·6	30·8
Liverpool	50·5	33·7

By reference to this table, it will be seen that the death-rates during last quarter in these ten towns differed most remarkably, from so low a rate as 19·2 in Birmingham, to 50·5 in Liverpool; in the aggregate population of all these towns it was rather over 30 per 1,000.

Only two of these towns, London and Liverpool, suffered from cholera in a severe epidemic form during the three months, and the favourable season, combining a low temperature with abundant rains, rendered diarrhœa far less fatal in many of the towns than it had been in previous seasons: this was especially the case in Birmingham, Hull, Sheffield, and Manchester, in each of which towns the death-rate prevailing in last quarter was very considerably below that of the corresponding quarter in last year. Newcastle, although it escaped a visitation of cholera, suffered most severely from an epidemic of scarlatina, which even now, a month after the expiration of the quarter, continues unabated. It is exceedingly probable that the energy of the local authorities, which was so greatly stimulated by the impending danger of cholera, exercised a most beneficial influence upon the mortality in many of our towns, and that the dread of this disease in inducing a more general treatment of diarrhœa in its earlier symptoms, was not without its effect. The sanitary arrangements and precautions in both Bristol and Hull, were organised and carried out with triumphant success, for each of these sea-port towns was, during the past season, exposed to more than the usual amount of risk by the importation of cholera cases of a malignant type. Bristol has had the services of a most efficient medical officer of health, with which assistance too many of our large towns have to the present time neglected to provide themselves.

The mortality in Liverpool, which culminated in an annual rate of 50·5 per 1,000 during last quarter, has been most disastrously high since the beginning of the year. In the first quarter the death-rate was 45·9; in the second, 37·9; and in the third, 50·5, giving an average rate of 44·8 in the first nine months of the year. During this period of nine months the deaths registered in this town actually exceeded the births recorded by 1796; whereas, had the average excess of births over deaths, in the ten years 1851-60, prevailed, it would have amounted to nearly 2,000, showing a waste of life nearly equal to 4,000 persons. We are glad to see in the recent weekly returns a rapid decrease of this high mortality, and that a balance of births over deaths is now being again maintained.

In the metropolis, with its over three millions of inhabitants, the terrible mortality from cholera, which for a time prevailed in the eastern districts, has not, to anything like the same extent, raised the general death-rate. Fortunately it was only in about a fifth part of the population of London that the disease committed serious ravages, the other four-fifths remaining tolerably healthy for the time of year; but it is somewhat discouraging to find how thoroughly powerless the utmost efforts of our large staff of medical officers, inspectors, and their assistants, proved to stem the torrent of the disease. It tells a sad tale of the favourable ground into which the seed had fallen.

The returns from the local registrars show that during last quarter in the whole of England and Wales 10,365 deaths from cholera were recorded, in addition to 9,570 from its kindred disease, diarrhœa. It will be found that the number from the latter is not largely in excess of the average from this disease in the third quarter of the year. Of the 10,365 from cholera, 4,714 occurred in London, 1,603 in Liverpool and West Derby, and 1,074 in four Welch towns—Swansea, Neath, Merthyr Tydfil, and Llanelly; thus are accounted for 7,391 of the total deaths; and if we were to exclude also the fatal cases in West Ham (380), those in Portsmouth and Southampton, and their neighbourhood (389), those in and about Exeter (264), the cases in a few more of the towns in South Wales, and in Chester and its locality, we should find that considerably under 2,000 of the deaths from cholera occurred among the whole remaining population of England and Wales. In spite, therefore, of continued alarming paragraphs in the newspapers during the past three months of serious outbreaks of the disease in so many various parts of the country, the epidemic turns out not to have been very widely spread, and what is perhaps its most encouraging feature, it only established a severe hold upon those places whose known sanitary condition rendered them vulnerable points of attack. It must be borne in mind that these cholera cases include all those returned as "Asiatic cholera," "English cholera," or "choleraic diarrhœa;" and that of the something less than 2,000 cases which occurred in localities where the disease was not severely epidemic, a very large proportion are of the milder type, and doubtless include many which in another season would have been returned simply as diarrhœa.

This cholera return, therefore, on the whole, may be considered, sad as has been the loss of life from the disease, reassuring and satisfactory; but it forms another overwhelming proof, should one now still be wanted, of the heavy responsibility which rests upon the nation, to speak generally, speedily to alter the condition of so many of our large towns, so that an epidemic may not always find them ripe for its ravages. There are features in the lingering decline of the present visitation, terribly suggestive of the probability of the re-appearance of the disease next year. Let not the valuable months which intervene before next summer be allowed to slip away before the three great problems, upon the solution of which depend the permanent reduction of our town death-rates, are taken in hand and carried out with that energy and promptitude which questions of such national importance should command;—they are cleansed rivers, a pure and abundant water-supply, and the wholesale rebuilding of more suitable dwellings for the labouring classes.

Since the commercial panic in May last, the nation has exhibited a timidity in investing its savings, and shows symptoms of hoarding: both the last two requirements present a fruitful source of safe and profitable investment; which, besides offering a moderate but certain return, would be at the same time immeasurably contributing to the wealth and prosperity of the country, by preventing the present waste of life in our centres of industry, and to a still greater extent abating the loss of energy by sickness and impaired health.

THE ENGLISH QUADRILATERAL.

ANOTHER heat has been run in the great race, on the issue of which the eyes of those who care for the honour and stability of their country are so anxiously bent. Another round has been fought in that contest for the championship which, since the Prussian troops shouldered their needle-guns, and marched on their journey homewards, has had a deeper and a truer interest for the student of contemporary history, than the chariot race of the Olympic games had for the ardent and sympathising Greeks. Attack and defence have again crossed weapons in measured lists. Attack is the victor. A gun of manageable size, with a drilled iron shot, has penetrated the most formidable armour that has yet been opposed to the assault of heavier projectiles, an armour of which the great thickness of 23 inches of iron and teak may be taken to approximate to the maximum strength which it is possible for human skill to set afloat.

We have always been, and still are, of opinion, that in this struggle for the means of maintaining the peace, or obtaining the rule of the world, the attack must ultimately prove most formidable. We do not for the moment speak of fortresses, which, if erected in a situation where nature aids the efforts of science, may still be fairly considered as irreducible except by famine. But in that which more especially concerns a maritime people like ourselves, the proportion to be established between the penetrating force of artillery that can be used by sea-going vessels, and the strength that can be given to the sides of those vessels to resist projectiles in their turn, it has always appeared to us that the gun must win. Analogy is a dangerous weapon to employ in lieu of argument, but in the history of offensive and defensive arms, we have something more than analogy,—we have the solution of another case of the same problem which now engages our attention. The personal protection of life and limb is the subject which, in stormy times, most pointedly comes home to the care and attention of every one. No pains, no cost, no skill is spared to secure the means of safety, and in the beautiful damascening and inlaying work yet to be seen in some suits of ancient armour, we find as great proofs of luxury as we do of science in the temper of the metal, or in the ingenious character of the joints and fittings. So long as attack and defence met on equal terms, so long as the blow of the keenest blade that the smith could temper, wielded by the strongest hand that careful physical education could instruct, or the impetus of a lance point borne at full gallop, was the worst impact to be resisted, that resistance was fairly maintained. It was not till the resources of chemistry were called in to aid the utmost efforts of animal strength that blows would be delivered so hard that no steel plate that was portable by man or horse would withstand them, that the conditions of the struggle were changed, and that armour disappeared from our walls, the great weight, when no longer affording an impenetrable panoply, proving an intolerable burden.

The use of armour-plated vessels is only a fresh experiment under conditions very closely similar. In each instance, for a time an impenetrable defence has been provided. We have seen in the American war great results obtained by the sudden appearance of armoured vessels, which, while far from being perfect in their structure, were for the moment invulnerable,—that is to say, they were impervious to any projectile at the command of the enemy for the moment. The *Merrimac*, when hastily plated with railway bars, or the more formidable gunboats that dictated their own terms to New Orleans, appeared, like the panoplied knight of old in the midst of the knives of the Jacquerie, invulnerable to the weaker arms of any single opponent: the ironclad was master of the situation. It is true that such superiority was brief; but in war, time is an element of the very first importance. A temporary but irresistible superiority at the point of attack is the very key of the science of modern warfare. Campaigns are, for the most part, decided by battles; and the fate of a battle may turn on a decisive half-hour, or on the unexpected event of a yet briefer period of time.

It is for this reason that we have so often insisted on the necessity of keeping up with the progress of the hour rather than wait for the slow perfection of military science. If a country be armed at all, it is because it may possibly be attacked. If, therefore, defence be contemplated, it is necessary that such defence should be efficient. And as the politeness which dictated the old invitation, "Gentlemen of the French Guard, please to fire first," is not an element of the tactics of the day, as a possible enemy cannot be expected to wait till one is fully prepared to receive the attack on equal terms, but may rather be expected to prefer a less prepared moment; it is the first duty of those charged with the maritime and military defence of the country, and responsible (theoretically responsible) for the expenditure of the large sums annually voted for that purpose, to see that at every moment we are up to the improvements of the day,—not liable to see our muzzle-loading troops exterminated by a rapid breech-loading fire, or our costly broadsided floating castles smashed or sunk by some impenetrable turreted turtle-ship. That constant readiness is as necessary as is the scientific investigation of all questions of artillery and of armour. To determine the best form in which wood and iron can be framed for the sides of a vessel,—to solve the question whether penetration or smashing blows be the most efficient mode of attack,—and to decide on the best gun in either case, are points that well deserve all the care and cost that we are bestowing on the subject. Only, if the importance of the solution be real and practical—not a mere question of scientific interest or of professional *amour propre*—it is as foolish and idle to wait for the results as to shut the stable-door when the steed is stolen. It is as much incumbent on us to be safe against insult or surprise, by being, from day to day, as well armed as the best of our neighbours, however sure we may feel that such armament will, by and by, be superseded by a better, as it is to study how to turn to best advantage the unrivalled facilities which the mines, the factories, and, let us add, the talent and practical engineering eminence of Great Britain, afford for giving us better ships, better guns, better forts, than any neighbouring power.

It is this double necessity of daily preparedness and of future perfection that leads us to regard with so much interest any advance in military and naval engineering. No step in such a progress can be considered as conclusive, to whichever side the balance may for the moment incline. The enormous cost of such experiments as alone can be considered as decisive, and not the cost alone, but the difficulty that attends any effort to conduct such experiments without the intervention and aid of a slowly-moving and reluctant body of officials, will, no doubt, protract the solution of many most vital questions beyond the term of ordinary expectation of life of many who now eagerly discuss the relative merits of contending claimants. But, with all these elements of uncertainty fully admitted, it yet appears to us that we have reason for predicting the ultimate success of the gun over the ship, and the probable future abandonment of iron ships of very enormous weight and strength, more direct than the argument to be drawn from the abandonment of body-armour that followed the invention of firearms.

A shot projected from a gun against the sides of a vessel is a massive body set in motion between two masses which are at rest. The force which sets the projectile in motion may be considered to act, or to cause the shot to act, as a wedge, or as a means of separating and tearing apart the two masses between which it is driven. The advantage, in the first instance, is in favour of the breech of the gun, because the impact produced by the explosion of the powder, and its successive, though very rapid expansion, is less severe than the impact produced by the immediate stoppage of the course of the cannon-ball when it strikes the target, allowance being made, of course, for loss of velocity by distance traversed. But, if the first advantage be thus in favour of the gun, especially at short distances, this advantage is capable of almost indefinite augmentation. The thickness of the side of a vessel is limited by the power of flotation: the strength of the breech of a gun may be increased almost indefinitely. Thus, of the two opposing masses between which the force and the resistance, the blow and the recoil, are necessarily confined, the one which is placed in the most favourable position can be strengthened to any requisite amount; the one which is most likely to be damaged has already reached its maximum strength. The question of absolute invulnerability may, therefore, be considered as disposed of, or rather, as certain to be disposed of.

If, however, there be good ground for anticipating the final triumph of the penetrating over the resisting power, as regards sea-borne artillery, the questions of detail that remain for solution are many and grave. Among these that of distance is, perhaps, foremost. An iron vessel may be impenetrable at a distance at which the guns which she carries could readily pierce a wooden opponent. Penetration by shot is, however, less fatal to maritime warfare than penetration by shell, and it is in the comparative immunity from the latter danger that the crew of an ironclad finds its chief advantage. Again, we are far from certain, as yet, of the relative advantage of the penetrating and smashing action. The American artillerists advocate ponderous shot, fired at low velocity, and at short range, with the object not of penetrating the enemy, but of so shaking and loosening the sides of his armour as to afford a ready entrance to the water, and to sink him by the small but numerous leakages of the shaken joints. This system has the advantage of requiring less resistance in the breech of the gun than is necessary for the generation of higher velocity. But, on the other hand, it involves fighting at short range, so that the great advantage of armour in the present state of science, its invulnerability at long range, is lost by the American system.

Objections have been raised to the remark that iron is not a natural material for ship-building. There is no doubt that for many purposes, such, for instance, as for the construction of river steamers, iron has been substituted for wood with great advantage, and a positively lighter vessel, for the same displacement, has been built of the heavier material. But for warlike purposes the difference in the specific gravity of iron and of wood is not to be left out of sight. A vessel built of cork, and depending for its flotation not on the displacement of its shell, but on the actual displacement due to the bulk of cork employed in its structure, would not be sunk by shot, unless so many were lodged in its hull as to sink it by their own weight. The wood used in ship-building is nearly or quite of the specific gravity of water, and is quite insufficient to float a vessel by displacement when once the water can enter. Still, it has not, in such a case, the direct sinking effect of iron plates. And repairs of all kinds are comparatively easy in wooden vessels, and almost or altogether impracticable in iron ships. Thus, when the shell of the latter is cracked, as in the case of the *Re d'Italia*, or when the joints are strained, as we presume to have been the case with the *Affondatore*, the vessel founders with a rapidity that allows no time even for escape.

The form of vessel, then, that seems to us to loom in the future as the mistress of the waves, takes the shadowy resemblance of a wooden vessel, built chiefly for rapidity of movement, and with so much of armour as should protect a central battery from the effects of shell. Any attempt to dogmatise on the subject is absurd; but there are certain lessons already plain, and, by keeping them in view, we may hope better to read those that as yet have to be given. No structure, and no armature, can compensate for want of sea-going capacity in the vessel, or, still more, in the crew. Recent events have taught us that maritime supremacy is not likely to desert an instinctively maritime people. An admiral in command of a fleet manned with good sailors may expect successfully to contend with better armed and better protected vessels, if ill found as to their crews. To no people on earth is this fact so important as to ourselves.

Absolute invulnerability, we next observe, is not to be attained. The impenetrability of a vessel will depend on the range at which she can be brought into action, as well as on the power and range of the enemy's guns. Invulnerability, no longer regarded as absolute, therefore becomes one of those requisites of a good ship which must be more or less regarded as it can be combined with other necessary qualifications, — especially those of speed and sea-worthiness,—and in taking the resultant of these combined and opposing elements, the question of protection of the crew from shell will stand out in distinct relief from that of the protection of the hull from shot; and the possibility of stopping leaks, and of withdrawing a crippled ship from action in a more seamanlike manner than by letting her drop to the bottom of the sea, must be duly borne in mind.

Lastly, we may take occasion to feel somewhat reassured as to the possible protection of our coasts by land fortification. In speaking of the relative powers of resistance of gun and target

we have confined our remarks to naval warfare, because it is by the quality of flotability that the strength of the sides of the vessel are limited. In land forts, on the other hand, the power of resistance is limited only by the engineering difficulty of expense, or by the skill of our iron masters in producing those planks, or rather balks of iron or of steel, which are riveted into such formidable walls. It would seem that the case is here reversed, and that the defence will beat the attack. For while, on the one hand, we may increase the actual strength of a fortress indefinitely, or may take an advantage of position that may confer almost a natural impregnability, so, on the other, may we expect to mount on these land defences ordnance of a calibre and a range far exceeding those that are practicable for sea-going purposes. Well-chosen and well-armed fortresses, therefore, with the aid of the torpedo at the entrance of harbours, may be expected to give a good account of the best naval force sent to attack them, and to defy any thing but a regular investment and the slow energy of famine. And it will be remembered that the vessels best able to avoid, or to withstand, the fire of heavy ordnance from a land fortress, are not those of the best sea-going capacity; and that it is very questionable how far a monitor or turtle-ship is calculated to stand on and off in heavy weather, or to take an efficient part in a siege or a blockade.

We see, then, no cause for alarm except in one direction, and that is from within. The fortress most impregnable to English enterprise and to British energy, that against which the greatest number of brave hearts is likely to be broken, is neither Brest nor Cherbourg. It is that famous quadrilateral of which one of the citadels is named Somerset House, another is called the Admiralty, another the Horse Guards, and a fourth the War Office. It is true that the English quadrilateral is not a Comorn. The fortresses in question are not virgin. They have been, and often may again be, taken by storm, or abandoned by the sheer weakness of their defenders. But then they always capitulate. The garrison go out with drums beating and colours flying; no isolated defence is attempted; and the incoming governors are as severe in their watch against interlopers, and as imperturbably stolid in their secular resistance to the host of pestilent inventors, and improvers, and administrators who, from time to time, have worked such mighty changes in the face of our country, as were any of their predecessors. While we may be in doubt as to the relative powers of the weapons of Whitworth, of Armstrong, of Parrot, of Mackay, or of any other artillerist, there can be no question as to the terrible efficiency of the weapon universally discharged by the defenders of the great Government citadels. It consists of a civil letter, thanking you for the information you have communicated. Formerly this letter was a lithograph; but as it looks more civil to be in manuscript, and the civility of the repulse is an integral part of its fatal character, it is now served out as a manuscript, which no doubt has its advantages in the internal discipline of those forces of which no mere mortal outsider can conjecture the disposition or the occupation. So long as the defence of this great citadel is thus maintained (and it is not a question of politics, but of human nature), every foe to this country has a most efficient garrison in our very midst, and any sudden and well-ordered attack has four chances out of five of success.

Since the above remarks on the English quadrilateral were in type, although awaiting publication from the press of other matter, a fresh instance has occurred of a very obstinate and characteristic defence of one of the fortresses of this great system, on which the attention of the public is now intently and deservedly fixed.

The name of the assailant in question was Snider. He possessed no claim whatever on the attention of the Government, for he had neither official connexion, parliamentary influence, nor aptitude for making his voice heard in the newspapers. On the other hand, he possessed positive disqualifications for any dealing with a bureaucratic system. He had genius—that practical genius which detects a great want, and points out the mode of supplying it. He had that untiring patience, which is so seldom joined to the quick insight of the inventor,—and patience is even a worse foe than genius to the repose of a public office. Worst of all, he had success; for the English Government adopted his invention, and committed the defence of the British army, and of the British empire, to the Minerva that sprang, fully armed, from his brain.

It must be evident to all right-minded people that Mr. Snider ought to have rested content with so signal a triumph. Was not the honour enough for him? For a man who new-armed the British army for a few shillings per head, the proud satisfaction of having done so was surely its own reward.

Poor Mr. Snider did not think so. He had the audacity to ask for more. Further, he had the meanness, when asked what he meant, to send in his bill; and he had the folly so to formulate that bill as to present the most ready opportunity for bureaucratic dissection.

Had he taken his bill and written thus,—"The British Government debtor to J. Snider for one fourth of the saving of the cost of so many hundred thousand Enfield rifles converted into breech loaders,—say 150,000*l.*," it is probable that, after due delay, the genius of red tape would have been content with cutting down the one-fourth to the one-tenth, and would have congratulated itself on its economy in getting rid of the inventor's claims at the cheap rate of 50,000*l.* or 60,000*l.* But as the man only asked for 2,700*l.* it was thought liberal only to cut him down to 1,000*l.*, with such further reserve as to deferred payment for patent right as the inventor's life proved too short to ascertain.

Of the 1,000*l.* so munificently handed to him, without even deducting 6s. 8d. for Mr. Clode's trouble in drafting the receipt in full, it is said that not a penny reached his fingers. How pleasant to the War Office must be the reflection, that he was nailed up, morally speaking, over the pediment of that respectable building in Pall Mall, as a kite is nailed by a farmer over his barn-door, to deter similar offenders from following his audacious example,—until even a sterner creditor than the law officer of the Crown closed the proceeding, so far as the inventor was concerned, by his untimely fiat.

We think all parties are to be congratulated. We congratulate the British public on the consistent encouragement given by their governors to those who carry great and improved inventions to be dealt with at Westminster rather than at Paris. We congratulate the family of the late Mr. Snider on the eminent position their relative has attained in the noble army of martyrs of science and of mechanical improvement. Above all, we congratulate the able and liberal mouthpiece of the War Office, and those by whose permission he "writes to the *Times*," on this new and brilliant proof that no consideration of mercy, of justice, or of decency, can avail to unloose a single knot of red tape, or to prevent those in charge of the English quadrilateral from doing the utmost in their power to deter any inventor or improver from ever attempting to set foot within their sacred limits.

THE MANCHESTER EXCHANGE DESIGNS.

Since our notice of last week, we have further examined the competition drawings for the Manchester New Exchange, and append a few additional remarks in reference both to the premiated and other designs. Before doing so, however, let us note the objects the committee had in view when making their selection; they were,—the largest amount of area for the exchange-room; beauty of design; and largeness of revenue. Perhaps it might have been as well to have placed revenue first, for Manchester has not often shown a disposition to make any pecuniary sacrifice for the sake of art, or even in many cases for the requirements of a large city. Keeping these points in view, we think that the chosen design meets these requirements more than any other; and this, as we stated last week, is accounted for by the fact of Messrs. Mills & Murgatroyd knowing intimately the wants of the committee. For this reason, but few of the Manchester architects (only five, and amongst these only one or two of the more eminent) competed, they well knowing how matters stood; there was, besides, a feeling amongst them that Messrs. Mills & Murgatroyd ought to have had the work without competition.

In our last week's impression it was not clearly stated that the exterior design chosen was the alternative one, and certainly the better of the two. There is always an unsatisfactory result in a composition in which there is not some dominant feature, and this was corrected in the alternative design by employing a central tower instead of the two; although, we must say, it is too insignificant for such a building, which being surrounded by four not very wide streets, the tower could hardly be seen at all. We hope, also, that more care will be given by the architects to the proportion and details of the columns and portico. The design that took the second premium, also, as stated last week, by Messrs. Mills & Murgatroyd, has some points superior to the other. The portico is set back with a flight of steps in front, thereby practically widening the street, and giving a better opportunity for seeing the façade. We presume that the third premium was taken by Mr. Lowe because the plan and general arrangement were similar to the other premiated designs, the floor of the great room being placed, as in the other instance, some 12 ft. above the level of the street, shops being formed below. Mr. Lowe probably had the same opportunity of knowing the requirements of the committee, he being related to one of them. With the exception of the tower, which is well designed (and that would have appeared better had not the dome, if we may so term it, been somewhat out of drawing), we cannot say much in recommendation of the elevation: it is commonplace, the details particularly so, and perhaps we should be more correct in saying that there is a general want of detail. The interior has, however, considerable merit, although the same fault as above stated applies also to this. Some of the other designs that are more worthy of notice are,—

2. F. Boreham, of London.—The design is bold and novel in treatment, but not well proportioned. The interior, moreover, is not equal to the rest: the drawings are very well executed.

4. "*Ego sum.*"—Massive and simple in its parts, the great room rising from the centre of the pile of buildings forming an imposing feature; the interior is also very satisfactory, the arrangement being after the Hamburg Exchange, which certainly is a very good model. There are many other designs similar in character.

5. T. H. Watson, of London, has given a very novel interior, and in many respects very excellent. The exterior, although very meritorious, is wanting in repose; the entrances are not important enough. The drawings are beautifully executed.

6. "Key-stone." — The composition well massed, with a good tower; the upper part, however, not so satisfactory. The interior is good, but has the fault to which we have before now alluded,—that of placing a detached entablature between the capital and the spring of the arch: the plan does not appear to be economically arranged.

14. Messrs. Darbyshire & Fisher, of Manchester, give both a Gothic and Classic, or rather Italian, design, showing much originality and power, but it reminds one of a Russian church in plan, and is therefore totally unfit for the locality. It might look well in an open space of some acres in extent. The interior, also, is too church-like in appearance,—nave, aisles, chancel, transept, all complete.

16. Mr. W. H. Crossland, of Leeds.—The best Gothic interior exhibited, broad in treatment, and delicate in detail. The architect has succeeded in making a purely Gothic design, suitable to an exchange. The exterior is not quite equal to the interior; the principal front, however, is well carried out, and would look imposing. The principal entrance is stunted, and not important enough.

20. "Lancashire."—Has no name attached to it; but we think we should not be far wrong in assigning it to Mr. C. Brodrick. The design is Venetian, very richly treated, and well adapted for a building surrounded by streets, a fact which most of the competing architects seem to ignore. The interior is novel and good; but we do not like the arrangement of the capitals of the piers from which springs the groining. There would also be a great difficulty in executing this design at different times.

22. T. Turner, of Glasgow and Belfast.—Design in general very good. The sunken effect of the portico, however, between the two projections at the angles, is not satisfactory.

36. Gothic design.—A great variety of detail, which helps the general effect and intention;—not often the case.

39. J. Robinson, of London.—Perhaps the most carefully studied,—with the exception of No. 52,—amongst all the designs. The parts are well proportioned; in fact, Mr. Robinson appears to be one of the few who has attended to this all-important point,—so many depend for their effect upon mere variety of

outline and details; but, unfortunately, the architect has not known the requirements of the committee, and shows no income from shops, and but little from other sources.

No. 52. Hennicke and Vonder Hude, Berlin.—What a pity that such talent, thought, and labour should be thrown away for want of knowledge of situation, requirements, and so on. The interior, elliptical in plan, is, in our opinion, by far the finest in the collection.

The following are also worthy of commendation: No. 9, by W. Harvey, of London; No. 12, G. A. Dunnage & P. G. Smith, London; Nos. 17, 18, and 21; No. 25, "Experientia"; No. 27, W. Lee, London; No. 51, L. Hall, Bolton.

What has been the result of this competition? Although there are better designs than those premiated, at least some eight or ten of the rooms are superior; still Messrs. Mills & Murgatroyd have fairly gained their position, from the simple fact that they knew better than any other architect the requirements of the committee. If the latter had seen nine-tenths of the designs when the first sketches were made, they could at once have said how unsuitable they were, and saved the architects the great cost in thought, labour, and money, which the drawings must have entailed upon them. And what does this prove? Only what we have before frequently advocated, that (supposing competition desirable at all) they, the committee, should have invited architects to have sent sketches, and by these have made their selection for the future competition. It would, also, have saved an immense amount of labour if they had defined the style, for doubtless the majority of the committee had made up their minds to have what is usually termed a Classic design. Let us hope that the City Council of Manchester will not commit the same errors in the intended competition for the new town-hall, on which building they will probably spend 200,000*l*.

A scheme is on foot for a considerable extension of the original intention as to the Exchange, involving an enlargement of the site.

JINGLING PIANOS.

Amongst the minor troubles to which music-loving mortals are liable, a jingling note in the piano must assuredly find a place. It is a very small matter, it is true, but it is excessively annoying, and the more so as it generally baffles all endeavours to find out the cause. Many of our readers have doubtless spent an hour or so in such an investigation, perhaps on more than one occasion, and without success. One jingling note in a piano is quite sufficient to spoil the effect of the finest piece of music, and instead of soothing has rather the effect of irritating the savage breast. Under the circumstances, it will not be unprofitable to consider the subject a little more closely. In the first place, it must be recollected that the ear is exceedingly defective in the power of judging of the direction of a sound; and it is upon this defect that the ventriloquist depends for the marvellous displays to which we are accustomed. We must also remember that a body capable of producing a sound of a certain pitch may be set in vibration by sounding the fundamental note of the body. Thus the glass globes of a chandelier may be caused to sound simply by singing the note which they respectively give out when put into vibration by a blow; and it is said that a singer with a very powerful voice is able to break a wine-glass by merely singing the fundamental note in close proximity. The particles of the glass are caused to vibrate so powerfully as to overcome their cohesion, thus acting in precisely the same manner as a sharp blow. The vibrations thus induced are called sympathetic vibrations; and it is on this principle that most of the jingling in pianos and other stringed instruments is to be explained. In fact, the noise is not in the instrument at all, but is due to some object in the room which is caused to vibrate sympathetically whenever a certain note is struck. We have already noticed the difficulty of ascertaining the origin of a sound and the willingness of the ear to be deceived, and the two notes being blended are both referred to one source, viz., the piano.

The subject has recently been investigated by Professor Page, of the United States, who is well known for several ingenious electro-magnetic experiments, and also for the discovery of the fact that a soft iron bar, when suddenly magnetized, gives out a musical note. The results of his investigation into the cause of the jingle of certain notes on the pianoforte and other musical instruments have been communicated by him to the *Scientific American*. Professor Page relates an instance of a new piano which had a jingling note, which for some time defied all efforts to discover the cause. Whilst one person continued to strike the offending note, another went about the room touching everything which could possibly be set in vibration. At last the cause was found to be in a clock on the mantelpiece. The striking part had run down, and upon winding it up the jingle ceased. In another case the cause was found to be due to two loose panes of glass in the windows. Where the loose squares were wedged up the instrument gave a perfectly clear note, and on the removal of the wedges, the jingle instantly recommenced. In some cases a slight change in the position of the piano will stop the noise, or transfer it to other notes. To account for this, Professor Page says, "It is probable that absolute unison is necessary to produce the sympathetic sounds to any notable degree, and that the motion of the instrument upon the floor produces a change of tension, either on or in something without the instrument, so as to affect the result."

In case of annoyance from a jingling piano, it would be well, before condemning the instrument, to make careful search amongst the window panes, chimney ornaments, lamp shades, and other objects capable of being put into vibration. A few minutes will generally be sufficient to remedy the evil.

THE END OF THE AGE OF STUCCO.

AN ARCHITECTURAL REVERY.

At a moment when the "age of stucco" is passing rapidly away, as a phase in the progress of the modern architecture of England, it may not be altogether unprofitable to take a rapid survey of its rise and fall. A stucco age in art, judging from past examples, would seem to belong essentially to a period of decline. It may, however, represent a decadence destined, through the new influences of a transition period, to lead to a revival in a renovated form, or it may be a final declension of a national art, destined to rise no more; yet many of its leading features may reappear in other nationalities rising out of it, and in fresh schools of art founded upon its own ruins. Such was the career of the stucco age in Roman art. It attained to its greatest development in that period of general artistic decadence, the age of Constantine and his immediate successors, when vast edifices, not only decorated, but in great part actually constructed with stucco, arose in many of the great cities of the empire. The rebuilding of the Temple of Peace in the Roman Forum may be cited as a well-known example of the method of structure, and of the architectural style of Roman buildings of this kind. The walls of such buildings were generally of brick and tile, coated with stucco, while the wagon-roof, with its simulative soffittings, was often constructed entirely of stucco, ready-moulded masses of ornament being built up as pieces of stone might have been, the interstices being filled with fresh cement. Leaving out of the question the monotonous effect produced by compartments of ornament repeated hundreds of times from the same mould, and also the inferior quality of the design and workmanship, many buildings of this class, from the grandeur of their dimensions, and from the fact that their general forms were still mainly those of a former and better period of art, were made to wear a very majestic aspect to any eye other than that of a trained student. But when brought to the ordeal of a really critical examination, these stately buildings are found to be wanting in all the qualities of true art They formed, however, the best available substitute for it in an age when true artistic refinements were no longer appreciated, and when the practice of art has consequently ceased to form a career worthy of men of talent and education. Yet, while a love of display still prevailed, and cheap and showy substitutes for true art had to be obtained in any available manner, the stucco principle in architecture became at all events a useful one; for at such a period skilful workers in stone and marble and metal were difficult to find, and those few who might be termed skilful were only mechanically, and not artistically so. Many, for certain, were able to make tolerable copies of some of the architectural features of well-known buildings from which stucco castings could be taken; but few could have reproduced them in their original materials, and no existing Roman architect or sculptor could have designed and executed original ornaments of any real artistic merit. As a melancholy proof of these assertions, we find that, in any buildings of the Constantinian age in which columns, cornices, and relievos in marble are displayed, those features have been removed from former buildings, torn from the temples for the decoration of the churches. But, while the older and higher classes of architectural art were thus dying out, that of the construction of vast buildings, chiefly in stucco, developed itself as a new though inferior class of art with some spirit and success; yet the reign of stucco in Rome, like that of modern stucco in London, was of brief duration. It required the ready command of a number of mechanical appliances which, in the disturbed periods that marked the decline of the empire, were no longer available; and when barbaric art began to establish itself on the ruins of the Roman, it resorted to the simple processes of building in brick or stone, the latter system, so soon as decoration was required, leading naturally to a legitimate revival of true architectural sculpture, beginning with imitations of the debased Roman art, from which it evolved styles of treatment and features of construction stamped with an entirely new artistic spirit, and marking the advent of an altogether new era in art. Such was the course of the stucco period of Roman art. There had, however, been a really fine period, both in Greek and Roman art, during which both stucco and terra-cotta played permanent parts; but that was when each ornament was modelled individually by the hand of the artist, and had nothing in common with a wall-plastering and ornament-casting period, arising from want of skill in the higher methods, or from the necessity of practising a greater degree of economy. In our own times a stucco period has run a somewhat similar course as to brevity, but with, in some respects, an almost opposite *dénouement*. As it did in Rome, stucco appeared in London at a period when all kinds of architectural decoration had sunk to the lowest possible state of degradation, lower even than Roman art ever sank, even in its basest form; and this state of things occurred about fifty years ago. In the very last stages of Roman architecture, ornament of some kind was deemed as essential to a building as its more obviously necessary features; but in England, during the latter portion of the reign of George III., towards the close of the last century, all kinds of architectural decoration, domestic or monumental, may (with a few remarkable exceptions) be said to have utterly died out; for the trumpery little street porticoes of ordinary dwelling-houses, and even the mean attempts at ornamentation in the wretchedly meagre and starveling style, if style it could be called, of the period, cannot be said to have constituted decoration, even in the humblest acceptation of the term; and if decoration of an original kind may be said to have thus died out, the wretched attempts at the imitation of that of former periods, especially of the Gothic, was still more contemptible.

The story of the progress of a kind of modern stucco commences, however, in a more legitimate form with the decay of art in the matter of the interior structure of roofs and ceilings. When the artistic feeling decayed, which had possessed the power of making the structural features of these portions of a building ornamental, and such parts, being no longer decorative, were shut out of sight by lath and plaster, the first symptom of a stucco age had manifested itself. This was, however, a natural field for lath and plaster, in which it could be turned to account in a more or less legitimate way; and whenever such is the case, no method or material can have an altogether deleterious influence on art; for this natural field for lath and plaster led to the admirable devices of the flat ceilings of the Elizabethan period, as well as the effective filling up of the interstices in the picturesque framework of the façades of the timber buildings of the fifteenth and sixteenth centuries. In the last-named position, plaster played a natural, useful, and often a decorative part; for there are many very interesting examples of ornamental borderings and other decorative features, traced in the plaster while wet, which evince a true artistic feeling; and a well-known building at Ipswich, and one or two at Shrewsbury and

Coventry, might be selected for citation among others as illustrative; but where either plaster or stucco became a substitute for something else, and especially where it became an imitative substitute to replace stone, the result was necessarily of a debasing character. Long before the "Roman cement," or true stucco period, many very tolerable results had been achieved by plaster, even where it had usurped the place of carved timber roofs. For instance, as above suggested, some of the plaster ceilings executed in the reign of Elizabeth and James I. displayed a considerable amount of decorative merit, and but for the fact that such works had displaced the direct ornamentation of true structural features, they might be cited as the legitimate results of art. For a true Roman cement or stucco period, however, no such excuses can be framed, and though it has its conveniences and even advantages, as we shall see, it yet must be regarded as an unmitigated "sham" of the most flagrant character, especially as developed in England during the first half of the nineteenth century.

A truly wholesale display of sham stone, sham columns, sham capitals, and sham cornices, was exhibited in our first great street improvement of the century—the Regent-street. The agreeable contrast offered by the new material to the dingy old brickwork of the surrounding neighbourhood, caused the somewhat sudden innovation of a new system of building on so large a scale to be favourably accepted by the general public, with but slight opposition, notwithstanding the decidedly conservative principles which have generally governed the decisions of English taste, and which especially prevailed at that period. The effect of the lighter colour, produced either by the material itself or by the superadded whitewash or paint, was found desirable enough in our not over-clearly illuminated atmosphere; and so the new street, partly from its greater width, and partly from the light colour of the buildings, and their low elevation in comparison to the width of the roadway, produced a lightness and cheerfulness of general effect which contrasted favourably with the more sombre effects of the favourite old Bond-street; and soon led even the oldest and most obstinate adherent of the traditional "loungers" of that long-favoured thoroughfare to transfer their promenade to the new ground.

Yet there was a substantialness, a real something about the old brick-built street that continued to hold its own against the fashionable stucco of its upstart opponent. And then the brick houses of Bond-street and other neighbouring streets were more lofty in proportion to the width of the respective streets than the houses of Regent-street; and this characteristic, with some others, served to prevent them from sinking into entire insignificance by the side of their pretentious rival. It was, perhaps, on this account, that brick structures never quite lost their prestige even in the fullest rage of the stucco mania, which had been written up, and talked up, and lectured up, long before its potent demonstration in the creation of the great new street. Whether this be so or not, brickwork was one of the first genuine classes of building to reassert itself as soon as the fashionable rage for stucco began to subside, — a rage which the utilitarian instincts of the day had fanned into a popular flame, by utterly ignoring the artistic bearings of the question, and deeming the mechanical erection of buildings by an economical process a real triumph of the ingenuity and progressive tendencies of the age. So well did such ideas coincide with the general instincts of the period that the stucco rage did not subside by any means rapidly; and, in fact, it is rather remarkable that it has passed through the active vigour of its reign so soon as it has, for it possessed many advantages: inferior brickwork, porous and damp-absorbing, could be converted into a good, sound, and dry wall by a coating of the famous "Roman cement," which, greatly superior to common plaster, became nearly as hard as stone itself, while architectural features of an imposing character would be superadded very cheaply, which, when not examined too critically produced an effect vastly superior to that of the utterly unornamented and tasteless brickwork of the houses of most of our ordinary streets. The fluted Corinthian pilaster, and the detached or three-quarter detached column, were at once profusely used, and in the terraces of the new "Regent's Park," they produced a certain palatial effect, which could not fail to make a great impression on the not over-fastidious taste of the multitude. So satisfactory, indeed, was the result considered, even by *soi-disant* people of taste, that edifices, in the erection of which economy was no object, and luxury the professed purpose, were carcassed in rough brickwork, with the special intention of being coated and decorated in stucco. The Senior United Service Club, and even the temple of taste and literature (the Athenæum Club), were both actually constructed in this fashion, and still remain monuments of the age of stucco. The new fashion soon travelled out of London, spreading itself far and wide, and not only stucco villas, but even stucco castles, sprang up on all sides,—a true mushroom architecture, invading all parts of the country. This was the architectural epoch of the last of the Georges. In the next reign stucco spread from the West-end to the City, and Moorgate-street and King William-street sprang up with a similarly rapid fungus growth; columns and pilasters sprouting up capitalled and corniced complete, with a suddenness truly surprising; so rapid was the construction of the examples serving to illustrate the capacities of this new school of architecture in the eastern portion of the metropolis. So abundant, too, were these rapidly raised works in stucco, that the reign of the new material seemed destined to become permanent, when a mere accident, so often the cause of some great and sudden advance in art, or even in science, became the principal means of bringing the reign of stucco to a much more speedy close than it was otherwise destined to. But then it was an accident on a large scale,—nothing less than the burning to the ground of the seats of the national Legislature—the utter destruction, in a single night, of the Houses of Parliament. The catastrophe in question was a fortunate one for architectural art in this country; and it was followed by another circumstance almost as unexpected, but equally fortunate, that of the announcement of an open competition for designs for the projected new building, a course so little to have been hoped for at that period, that the day of its fortuitous adoption (in the face of such a host of long-established prejudices and "vested rights") ought to be kept as an annual festival by the whole of the architectural "profession." The end was, that a young man of real genius was brought to the front rank; a man deeply impressed with the true secret of the grandeur and magnificence of the style recommended for adoption, the Gothic. He knew that in the artistic perfection of its decorative details, and in the crowd of subordinated statuary, and the richly-canopied thrones and niches constructed to receive them, lay one of the great and commanding charms of the architecture of the Gothic period. His designs, and the influence of his strong convictions on this point, proved sufficient to overcome all scruples as to cost, provided that plans of such self-evident magnificence could by any possibility be carried out. Suffice it here to say, they were carried out; whether with the full and satisfactory result that might have been expected, is not now the question; but in that carrying out, a national school of masonic sculpture was of necessity created, and the country once more became possessed of a body of trained and skilful sculptors of architectural detail and ornament, from the regal statue to the decorated capital, or the merely enriched moulding, such as had not existed in England since the fall of the Plantagenets.

It is to this suddenly created body of masonic sculptors and to the race of rising young architects who have known how to utilise their skill and genius, that we owe the rapid declension of the age of stucco and the substitution of one of marble, stone, and granite. The stucco period had not within its influences or wants the means of calling into existence the powers of those architectural sculptors, without which highly decorated buildings in stone cannot be constructed. It was the fortuitous call for such a class of artists for the decoration of the vast structures of the new Houses of Parliament that called forth a positive army of artistic workmen; and it was the necessitous calling into existence of this array of specially skilled artisans for a special purpose that rendered a return to the "stone period" of our national architecture possible at a much earlier period than could otherwise have been either probable or possible.

The difficulties of procuring decorative work of the kind required were, for a time, thought to be almost insurmountable; for the very last germs of masonic sculpture, as an established school of art, had absolutely died out. The decided and rapid decay of every branch of art (with a few individual exceptions) which had marked the course of Hanoverian influence had been more fatal to architecture than any other branch of art; and yet the eventual and urgent want, when it came, at once created the supply. At first, the efforts of the newly taught in the line required were so inferior that they might also be pronounced bad; but emulation and the continuous demand gradually, and even rapidly, developed a striking progress in the quality of work produced, and at the same time a corresponding increase in the number of the artist-workers. The steady progress in excellence may, in fact, be traced, in a very instructive manner, by a careful survey of the decorative features of the vast pile, which even now is scarcely completed. It will be found, in such a survey, that the first portions of the decorative features are by no means worthy of the place they hold in such a structure; but great progress marks every step in the work; each compartment surpasses the preceding one, till great, and even triumphant, success at last crowned the labours of our new school of mason-sculptors in the latest executed portions of the building.

It did not seem probable that the artistic developments brought about by the erection of the new houses of legislation should at once affect stucco art, and yet the first serious blow struck at the sham and pretentious splendour of stucco was the erection, by the architect of the Houses of Parliament himself, of the noble structure of stone built for the Reform Club,—by the side of which the neighbouring stucco of the Senior United Service and Athenæum Clubs shrank into a poverty of character and effect that at once sealed the fate of stucco in an artistic point of view; and it became evident that no more compo clubs or stucco castles could be built. But stucco was not yet dead. The treatment of the material was forced into the adoption of many improved characteristics; more original designs were adopted for stucco façades, bolder projections of mouldings were devised, along with a greater variety of ornament, and a greater height and better proportion in the general building; a really fine neighbourhood of private houses, of a very superior class, springing up in the Bayswater and Kensington regions, which have much to recommend them. Yet as a substitute for stone, and the effects to be legitimately produced by stone, and by stone alone, the reign of stucco, in an artistic sense, had ceased. As a speculative building material in the production of private houses it found for a time a suitable refuge, which may, in some respects, prove a permanent one; and it has, moreover, performed a most important rôle in our recent artistic advances; for it would have been found very difficult to induce our building public to jump at once from the old economy of the brick front and tile roof to the monumental and costly edifice of stone, unless tempted forward by the intermediate link of the showy effects of stucco. But, in buildings of the slightest artistic pretension, its day was rapidly waning. The noble civic architecture of the palaces of Rome, Florence, and Naples, in which the grandeur and beauty of the works of the Italian cinquecentisti are displayed, had been keenly perceived by our younger architects after Barry had struck the key-note in taking the Palazzo Farnese as the type of his design for the Reform Club; and as a race of decorative sculptors had suddenly sprung up, mainly through the urgent requirements for the Houses of Parliament, though other contemporary causes doubtless assisted to some extent, it became once more possible to erect stone buildings in styles requiring profuse decoration; and Club-house after Club-house, each more ornate than its predecessor, arose in the clubbing region of Pall-mall and St. James's-street. These new structures, which were now invariably built of stone, were frequently enriched with the addition of polished granite columns, both grey and red; this last feature having no doubt been suggested by the disclosures which occurred during the recent restoration of our cathedrals; for, in removing the successive coats of whitewash which had long covered up their mural paintings, and other internal decorations, it was found that many of the lesser columns concealed in the sheet of white, in which they had been so long doing penance, and which had been supposed to be simply stone, like the rest of the building, consisted of polished Purbeck marble, or some analogous material. The erection of Club-houses of richly-sculptured stone soon led the way to

buildings of other classes, and many of the West-end trading firms pulled down their old brick premises, and replaced them by fine structures of stone, often at a cost which would seem inconsistent with the purpose; but which was seldom found to be a bad investment in the long run. Buildings of this class, springing up as they did, by twos and threes, in nearly all the leading streets of the West-end, became, as it were, samples of what might and ought to be generally done in our street architecture, and seemed to be exhibited from point to point as patterns, to which the intermediate spaces of dingy and diminutive brick would have to work up as soon as convenient.

At the east end of London a similar process was taking place. The City Club, which had raised its neat and well-executed façade in the heyday of stuccoism, and which made the sombre dwarfish bricks and mortar of the neighbourhood sink from its former pride of place and circumstance into a more humble position, was in its turn dwarfed by the rise of vast structures of genuine stone in its immediate neighbourhood, by which it was at once very closely shorn of its beams of previous importance; and it is further observable at a glance, to a moderately trained critic of architectural progress, that the advances in the character, design, and execution of the stone architecture, both of the West-end and the City, has been most rapid and remarkable. The first buildings in which stucco was wholly and successfully abandoned for the true material are already far surpassed in boldness and novelty of feature, as well as in the fluent and artistic execution of their ornamentation, by the later works of the same class; a marked advance in these particulars being plainly traceable year by year; the works of the present season surpassing very distinctly in many of their leading features even those not yet a twelvemonth old. For instance, the City Bank—quite a recent building—with its bold entrance and finely-rusticated columns, seems already *passé* and *rococo* for want of sufficient originality of treatment; and is put out of court, as it were, by its near neighbour the Ocean and Marine Assurance Office, the noble doorway and finely-panelled pilasters of which, enriched with appropriate and strikingly-executed symbols and ornament, entirely surpass it as an architectural work; while the Whitehall Club—just figured in the *Builder*—far surpasses both in originality of general treatment in those features which are usually allowed to assume a conventionally fixed character, requiring both genius, courage, and determination to break through. As if to demonstrate the intrinsic and always current worth of works in a true material, the Bank of England, with all its defects, still has a noble bearing among its lofty modern neighbours, which are crowding round and overtopping it; and though the merit of the carved crowns of its columns is only that of being fairly good copies of a well-known antique original, and while most of the minor ornamentation consists of that humble but distinct seal-mark of the Soanean genius, those incised lines which critics of the period described as the "scored pork" school of ornament,—a style profusely indulged in in the house in Lincoln's Inn, now the Museum, yet, the general effect of the old Bank, as being genuine, will always possess a certain nobleness; and a similar verdict may be passed on the more recently rebuilt Royal Exchange.

The great hotels may be cited as among the buildings which first marked the culminating point, and then strikingly indicated the downfall of stucco. The Great Western Hotel, for instance, the first of its race, of this grand class of buildings, was of stucco, of the capacities of which it formed a noble example. But then came the Grosvenor, a structure partly of stone, and richly embellished with profuse decorations, large portions of which were genuine sculpture. The ornamentation of portions of this building was certainly overcharged, and in some details disproportioned in scale, but its generally good effect very mainly helped to give the *coup de grace* to the stucco school. It was followed by the Charing Cross, a generally acknowledged architectural success. Then came the Langham; and, lastly, by far the best specimen of the class, the Canon-street Hotel, attached to the City terminus of the South-Eastern Railway, a magnificent building, in which that peculiar phase of French Renaissance art, known as the Louvre style, has been adopted, in a free well-individualised feeling. It is but some seven or eight years ago that, with the exception of the then recently-erected Great Western Hotel, we had no buildings of that kind fit to compare for a moment with the Parisian Hôtel du Louvre, and several others, or with the great hotels of America, either as structures or institutions; and now, by the excellence just achieved in one or two buildings of this class, we surpass both America and France in a style of structure and institution which both those countries had succeeded in making quite national specialties.

Many of the new commercial buildings of the City might be described here as having taken the place of what, if rebuilt only a few years ago instead of now, would have been brick shells cased in a garment of stucco, instead of being the magnificent structures of stone, and granite, and marble, which we now see them. Many of these have been recently described in the *Builder*, in special articles; nevertheless, a few of the most remarkable may be alluded to *en passant*. Among these is the National Provincial Bank, which, although of a strict Corinthian order, is yet so enriched with appropriate and novel details, and by the sculptured mouldings which frame the finely proportioned windows, that it at once assumes the character of original design; while the interior, with its pillars of Devonshire marble, and its highly decorative three-lighted roof, recalling the peculiar lighting of the Madeleine, makes the internal structure as remarkable as the exterior. From the centre of each of the ceiling lights is a perforated pendant, serving both for ventilation and for the picturesque constellations of gas, which furnish light at those hours when the surrounding skylight is dark. Then there is the Bank of Australia, with its decorated pilasters, that emulate those of the Certosa of Pavia; and the Chartered Mercantile Bank of India, London, and China, with its array of decorative windows flanked by colonnettes of granite and marble, and which, for the want of a more effective crown, in the shape either of a cornice or balustrade, only just falls short of being very splendid. The new pile of offices, nearly completed, in Broad-street, by the City Offices Company; the offices of the International and General Credit Company, in Lothbury; and many other structures of both public and private character, all tend to prove that, for buildings of any pretension to artistic importance, a casing of stucco will no longer be accepted.

A still more fatal symptom of the decline of stucco-art is the wholesale adoption of stone for the erection of ordinary private houses of superior character in the streets and squares of the metropolis. The first example on an extensive scale of this superior kind of building is now developing itself in Belgravia, in the magnificent new square about to be entitled Grosvenor-gardens. The style of these buildings is founded on that section of the modern Continental schools which takes for its basis the style of the French Renaissance,—a style of which the recent extension and completion of the Louvre forms such a striking example. The new buildings in Grosvenor-gardens are fully equal to the finest private buildings of a similar class at present in progress in the French capital, notwithstanding the superior advantages possessed by the French architects in the beautiful stone which they obtain from the closely adjacent quarries of Montmartre, a mine of building wealth which has always preserved Paris from the necessity of resorting to brick or stucco, or any other artificial material, and greatly tended to impart to the French metropolis that noble and monumental air for which it is so justly celebrated. In the buildings in Grosvenor-gardens it is not only the façades which are designed and executed with artistic feeling, but, as in the higher class of French buildings (as now imitated in our great hotels), the roofs also are made a feature, and their form and decorations fitly and carefully studied. This adoption of stone as the material for private residences, built by the street at a time by speculative builders, would seem to point to the speedy disuse of Roman cement even for street houses of a superior class; but its advantages, where artistic effects are not required, are so great that it cannot, for a long time to come, fall into total disuse; and during the present rage for the superior artistic qualities of works in stone, it is only destined to find its proper place, and be made to retire within the suitable limits of its application.

One of the best points of view from which to take a general survey of a stucco street still perfect, except at one place, where demolition has commenced, and to obtain glimpses at the same time of new stone buildings recently perfected, is the centre of the crossing opposite the Mansion House, whence, protected by the central lamp and the surrounding barriers, a leisurely survey may be taken, which will embrace all the following objects. To the right is King William-street, still perfect in all the snug neatness and respectability of stucco, which, though scarcely thirty years old, is yet destined, it would seem, to pitiless destruction. Immediately opposite the spectator is the pretentious stucco edifice, with its Corinthian pilasters still extremely perfect in all their moulded neatness, and still bright with the clearest stone-coloured paint, which was lately the Globe Fire Office, but now undergoing rapid demolition to make way for some monumental edifice worthy of Florence, or Rome, or even Venice. Beyond, up the vista of Lombard-street, the line of old brick houses is in full view, broken at short and frequent intervals by new Banks and other Offices of stone and marble, that make the impending fate of the intervening brick tenements not difficult to guess. But still more striking is the view up Cornhill (also seen from this spot), where the lofty building occupied by the offices of the Credit Mobilier Company reduces the old trade dwellings on either side to very pigmies; and its example is followed by other buildings, at short distances from each other, of still more striking character, both as to design and dimensions—leaving even the comparatively recent structure of the Royal Exchange so dwarfed in aspect and monumental importance that it reminds the spectator of those earlier temples of ancient Rome, the dimensions of which were afterwards so out-grown by the palaces of her private citizens that they might have been placed as an antique curiosity within the atrium of the private palace of a Lucullus or a Crassus. A curious kind of regret creeps over the mind of the spectator as he sees the streets of London gradually assuming this grand monumental aspect—a regret that the artistic surprises of foreign travel will be no longer possible—and a feeling that the tourist's eye will no more be gladdened as by splendid novelties on beholding the unaccustomed splendours of foreign cities. The Roman Corso, the Neapolitan Toledo, or even the glories of the Rue de Rivoli, or the Boulevard Sebastopol, will be overtopped and out-vied by the continuous line of merchant palaces in Cornhill, and Lombard-street, and Bishopsgate-street, and Cheapside, and even by the new edifices of Cripplegate, and a dozen other City streets one seldom hears of at the West-end; all of which are now destined to become more monumental in their materials and proportions, and even more picturesque in their architecture, than the once-deemed matchless streets of the grandest old German towns, or even the glorious canal-ways of Venice herself. Such is evidently to be the sequel to the passing away of the age of the English stucco. H. N. H.

CONVERSAZIONE OF THE ARCHITECTURAL ASSOCIATION.

The opening meeting of the Architectural Association for the session 1866-7, and the annual *conversazione*, were held on Friday evening, the 26th of October, at the House in Conduit-street. The President, Mr. Robert W. Edis, was in the chair.

Letters expressing regret for inability to attend having been read, twenty-five new members were proposed to be balloted for at the next meeting.

The first prize in the class of design was awarded to Mr. Walter Lonsdale, the second to Mr. Isaac Jones.

The prize offered by Mr. Tite, M.P., for the best design of a street elevation and details of a shop front was awarded to Mr. T. W. Willis.

With reference to the President's prize for the best series of sketches made during the year, it was announced that only one member had sent in sketches. The high merit of these was acknowledged, but as there was no competition the prize could not be awarded.

In the figure-drawing class the prize was awarded to Mr. John Johnson. The next drawings in order of merit were those of Mr. Lewis and Mr. Keates, which the examiners reported to be exceedingly good.

The prize offered for the best essay was not awarded, there being but one essay submitted.

The prizes respectively having been handed, amid much applause, to the successful competitors above named,

The President then proceeded to deliver the opening address: we give the latter portion of it:—

The new streets now being made by the Board of Works are opening up or destroying much that was old and ugly, and already in one of these are rising up large and magnificent buildings that bid fair to make it one of the finest streets in London. Whether it would be better for us if we were tied down in a manner, like our neighbours across the Channel, to a certain uniformity of design in our new streets and public places, is a question that has more sides than one.

Certainly I think we must admit that the magnificence of some of the modern boulevards and streets in Paris, and other large towns on the Continent, is much enhanced by the comparative oneness and uniformity of the buildings, which may perhaps be somewhat monotonous, but which never lack, in my opinion, either refinement or grace in much of their design and proportion; and which will give to France of our day and time an individuality in its architecture which, I fear, we shall not attain, or at all events have not yet attained to.

Then, again, there is the late Prince Consort's Memorial in Hyde Park; the new Foreign and India Offices, now fast approaching completion; the new theatre in Holborn; and many other public and private buildings too numerous to mention here.

Whether in these great days of public companies and public smashes we are always to be liable to such hideous sights as that which is offered by the ruins of the commenced, but never finished, Strand Hotel, or to the hideous monstrosity of Leicester-square, is a question, I suppose, that time only will tell.

One work, especially, we shall one day be proud of, I mean the Thames Embankment; and those who live to see it and its accessories completed will, I believe, see the realization of one of the most important conceptions of modern times.

It is somewhat curious to find that Wren, than whom no more grand conceiver of grand things ever lived, had in his mind the idea of something of the kind of work that is now going on; for, to quote Allan Cunningham, who says in his life of this great man, "he had planned a long and broad wharf or quay by the waterside, from Old London Bridge to the Temple, where he designed to have arranged all the halls belonging to the several companies of the City, with proper warehouses for merchants between, to vary the edifices and to make it at once one of the most beautiful and useful ranges of structure in the world;" and now, after the lapse of more than 150 years, we are seeing this magnificent work actually in progress, on a scale more grand and more important than Wren could have thought of even in his days of greatest royal favour.

I am glad to say that a great stride is being taken in the improvement of the dwellings of the poor; and, thanks to Mr. Peabody's noble gift, and the indefatigable exertions of such men as Alderman Waterlow, Mr. Torrens, Mr. George Godwin, and others, large blocks of buildings are being erected in various parts of London, replete with every comfort and improvement; and too much importance cannot be attached to such a step as this, which, by effecting the external comforts of the poor, by giving them better and more healthy homes, is likely to improve them morally, socially, and intellectually; and, *if* manhood suffrage *is* to be the order of the day, then pray God this improvement may be entirely effected first.

The works at the Holborn Viaduct are proceeding rapidly, under the energetic superintendence of Mr. Haywood; and when this great work and its intendant improvements are completed, I doubt not it will prove of immense convenience to the toilers by the land in this great city.

The new stations and hotels at Charing-cross and Cannon-street are all steps in the right direction, though perhaps a little less plaster and a little more reality might have been good; and ere long, I hope, we shall be able to compare favourably the gigantic terminal stations of our city with those of Paris.

The new Freemasons' Hall, in Great Queen-street, by Mr. Cockerell, is certainly one of the most noteworthy of the buildings of the year, and exemplifies how much can be done by an educated and refined taste in classic work, without making it a mere copyism: the symbolic figure-carving and the statuesque work, which are as good as can be done, exemplify how much a building is improved by figure subjects.

New bridges are spanning the Thames and our streets in all the glory of their practical straightlininess. I suppose railway bridges must be ugly; the lines of wrought and cast iron are probably fallen on bad places, for certainly lattice girders and cast-iron fronts are not the pleasantest things to look upon; and straight bridges rushing out of high houses, and interlacing bands of coloured iron, and telegraph-posts perched on the top of high roofs, like clothes-props with their attendant lines, are not pleasant objects in the city landscape. It seems to me that one of the greatest things that the architects of the present day can do, is to throw into their works something of the æsthetic and artistic as well as the practical element; and he who shall have designed a straight railway bridge with some art taste, will have achieved a great art success; for it is the difficult things of design that call forth the genius and skill of the designer. May we hope that the day is yet to come when useful things shall not be ugly things, and when even into railway bridges and telegraph-posts something like artistic treatment shall be thrown; and let us hope that, ere long, our city may cease to be overrun and cut up by monstrous incongruities of design and gigantic monuments of ugliness, such as many of our great engineering works now are.

But remember, gentlemen, you must have a thorough knowledge of the designs of those who have gone before you, ere you can hope to design well yourself; you must be able to understand the faults and beauties of all work, and to appreciate in all styles that unity and harmony of parts which they essentially possess; for even as until you thoroughly understand the idioms and roots of a language before you can write or speak it well, so must you study in architecture:—

> "Twining memories of Old Time
> With new virtues more sublime."

For knowledge, not ignorance, must be the foundation of good work; and there is no better way of obtaining this knowledge than by continually and perseveringly sketching old works. Steam and rail now-a-days will enable you to wander where you will, and to make short or long holidays as you please, in the midst of all that is beautiful and good in architectural work. You need not leave our own country to sketch, but sketch, sketch everywhere and continually; and by doing so you will acquire a knowledge of the principles that guided the old architects, and a direct training and culture of the eye to appreciate and understand the grace and beautiful proportions of their works, and a knowledge of what is right or wrong in architectural form and outline. Always keep a note-book in your pocket, and never lose an opportunity of sketching ancient examples. Be sure you will find this a pleasant occupation, as well as a useful one, not to mention the having a collection of interesting mementoes of the places and things you have seen.

I can but ask you to look around our walls here to-night, to see one of the most beautiful and interesting series of sketches that I have ever beheld, and to take a lesson from them of what may be done in sketching. Few, if any of us, can hope to excel in it, as our vice-president, Mr. Spiers, to whose sketches I am referring, does; yet we may learn from him and from his sketches what may be done by talent, perseverance, and hard work.

In practice you will have to contend with many difficulties, to soothe and manage perverse and parsimonious clients, who probably are wanting barns when you are dreaming of palaces: opposing tastes and obstinacy of a variety of forms and fashions will meet you at every step; but you must not give way, for remember that you are called in to advise as to taste, and oft times to correct and educate it in fact, and that you will be a hundred fold more looked up to and respected afterwards, even by previously adverse clients, if you carry out your own carefully-formed opinions. And although I wish not here to raise any battle of the styles, still I would urge upon you to study well our old English work before you go away from it to follow in the ways of ancient Classic examples, remembering always that it is endeared to us by the memory of a thousand years; and that the many magnificent cathedrals and churches, and the great variety of Domestic examples, from the cottage to the mansion, all help to show that we are admirable Goths; while, with a few notable exceptions,—St. Paul's, Whitehall, and Somerset House to wit,—the endless excesses of rococo and plaster abominations in all the miserableness of their monotonous unreality and meaningless vulgarity, help to teach us that we can never become good Greeks or Romans. Study well all works of all styles if you will, but be sure that what was adapted in either style to the requirements of centuries ago, will no more be suitable in these days than the primitive garb of the Britons, or the fantastic costume of the Mediævalists, for the dress of nineteenth century men and women.

Learn well your art, think no labour too severe, and no knowledge worthless, but remember that if you imitate the ancient examples that you have studied, it should be, as Lord Aberdeen said, "not with the timid and servile hand of the copyist, but with a due regard to the changes of customs and manners, to the difference of climate, and the conditions of modern society."

It is not the details, or even the form of the edifice itself, however perfect, which ought to influence us, "but we should rather strive to possess ourselves of the spirit and genius by which the old buildings were originally planned and directed, and to acquire those just principles of taste which are capable of general application."

You will require to have an intimate knowledge of the necessities and requirements of the buildings you design,—whether it be for the large and costly mansion, the suburban villa of the city merchant, or the frugal cottage or farm homestead.

In the restoration of either ecclesiastical or domestic work, you will find a knowledge of archæology of much service, and your study of ancient examples most valuable and useful; for your knowledge of the detail of old work will tell you what to keep, and what to alter, what to avoid and what to restore; and it behoves you to bear in mind that the true and honest lover of his art will seek diligently in all cases to preserve, and not to destroy, to restore the old rather than to make the new; and when called upon to add to ancient work, I believe that you should be fettered by no servile ideas of imitating it, but rather seek to individualize your own work, and while so designing it that it shall not seem incongruous with the general building, but harmonize with it in its lines and proportions, yet shall you make it evident and apparent, both for the present as well as for the future, that it is a building and addition of your own day and time.

It is no fine figure to say that architecture, like poetry, lives for ever; for how cold and lifeless is all history in comparison with that which, generation after generation, writes in its buildings; and how many pages of doubtful story might well be often spared for a few stones piled one upon another.

Work hard and honestly; carefully seek for the opinions of your fellow labourers, and respect them though they differ with you. Remember that they are probably arrived at by an equal amount of study as that which you yourselves have had, perhaps more; but each man will probably take a different view. So sure as you work with all your might, and with all your power, in small things equally as in large ones, you are sure to succeed, and to gain the goodwill and esteem of the great majority of your fellow men. Steer clear of cliquism; believe not the false prophets who seek to fetter design, and to keep it in one groove; for so sure as you enter into the narrow circle of any particular clique, you will become not only artistically but socially contracted, artificial, and false in your views of men and things.

You will hear also some absurd nonsense about art architects, as compared with architects who understand the surveying portion of their work. Any more absurd pedantry or fallacy than this can hardly be imagined; for it behoves an architect to understand, not only how to design an art-work, but also to carry through all the essentially practical and business parts of it. You must understand not only how to design, but also how to build; you must be able to write a specification carefully and well, so that it shall explain exactly all that is wanted for the construction of any building. In these days when, particularly in large towns, stringent laws of light and air and building Acts hold sway, you will have carefully to protect and watch over your clients' interests as regards any damage

that is likely to accrue to him through the erection of neighbouring buildings, and to know what liability he will incur by erecting his own; for, be assured, if you know nothing of this, and only call yourself an art-architect, you will get very little work, for no client will employ you unless you are able to guard him against pecuniary or other damage in such matters; and it is not to be supposed that he will care to pay any one else to do what, I hold, is as essentially a part of an architect's practice as the mere designing of the building. You will require to have the Building Act at your finger's end to know the laws and rights of light and air, and all the other minutiæ, which you will find, as you get into practice, are daily coming before you.

Now-a-days the light and air question is becoming a most important one, and, I think, demands the serious consideration of the Legislature, to make some alteration in the law thereof; for directly you attempt to raise, even in a very small degree, any old building, or to re-erect it to any greater height, you are probably met on all sides by threats of injunctions, or actions for damages, or demands for compensation; and although I admit that it would not be at all fair to seriously damage any of your neighbours by really detrimentally obstructing their light and air, yet the absurdly frivolous grounds on which buildings are stopped, and injunctions gained, cannot but seriously affect the chances of any improvements in large towns; and I therefore hope that ere long Government will step in with some new Act to lessen what is now becoming a very serious and damaging evil; and, indeed, if something be not done not only to alter the law of light and air, but also to revise and modify the Building Act, the improvement and rebuilding of London will have to come to a standstill.

You will find also a knowledge of landscape gardening most useful to you, for every architect should at least be able to select the site which nature has made most appropriate for his building; and often he will be able to help nature by a judicious knowledge of what views should be opened up, what trees should be felled, where to add water, where to add foliage. You must adapt your building in a measure so as to be in harmony with the surrounding accessories of site, and remember that a good building is too often ruined by injudicious selection of position and its inappropriateness to the scenery which surrounds it.

In commencing practice, be sure also of one thing, that "a soft answer turneth away wrath:" be civil, be courteous to all you have to meet, and whether in discussing the merits or demerits of your own or other men's works, let all criticism be given with fairness and judgment;—honesty and straightforwardness in everything will gain the esteem of all, opponents as well as friends; whatever you put your hand to, do it with your might; make up your mind what is right, and fair, and best for your clients' interest, and swerve not from it; be honest on both sides, and you will find those under you respect you, and be content to abide always by your decision, knowing that they can rely upon your fairness, and those above you trust you, knowing that you will do them justice.

A young architect has especial need to be careful in all that he does, and it is better to be known as a just man amongst the many, than as a sharp man with the few: we are all liable to mistakes, particularly in early practice; therefore be especially careful to ask and take the advice, if necessary, of those who have had more experience; but if you make a mistake, seek not to hide it under the stringency of a contract, but honestly confess it, and meet it in an equitable manner.

Learn diligently and study earnestly; but avoid all superstitious reverence for old times and opinions, or pedantic adherence to routine, which is only too liable to lead you into opposing all new discoveries and increased appliances, and to lose the respect of all thinking people.

Remember that you must always be students, learning always, studying always, looking always still further for new knowledge, for no profession demands more ready command of all knowledge or clearness of conception than your own. Work, and work will be changed to interest, and interest to love, and love will lessen the difficulties and enhance the pleasures of your daily professional life, and enable you to overcome all the difficulties that may beset your path—

"Nihil difficile amanti."

Let your work, then, be associative as well as earnest: to you will come the honour and the glory of guiding the hands that work with you, and of "leading forth mind after mind into fellowship with your fancy and association with your fame." And beyond all this, seek always that it may be said of your work by the generations yet to come, as it has been said of the work of the generations of the past, that it has a "distinct and indisputable glory; that the mighty walls were never raised, but by men who loved and aided each other in their weakness; and that all the interlacing strength of vaulted stone had its foundation upon the stronger arches of manly fellowship, and all the changing grace of depressed or lifted pinnacle owed its cadence and completeness to sweeter symmetries of human soul."

At the close of the address,

Professor Donaldson said he was sure the Association and all who were present were extremely indebted to the President for the excellent address he had just delivered. He had been requested to say a few words on some of the subjects touched on, but the task was a difficult one after the able and rapid view taken by the President of the present state of architecture and of the different styles which prevailed at home and abroad. He was happy to congratulate the Association in the first instance upon the reports which the examiners for the various prizes had submitted. In some respects they were, perhaps, a little severe; but it was better that young men who came forward to compete for the prizes should find that to gain them was not a matter of course, but an unquestionable test of real merit. The President had alluded to the different styles of architecture which ruled at one time and at another; and so various were they now, that it was difficult for a young man to know what style to adopt, or what was really good style and what was bad. When he was a young man, the Classic was the prevalent style, and there were certain laws appertaining to it, departure from which was considered departure from good taste. That had passed away; nor could he regret it, when he saw on the walls not merely the sketches which the competition for prizes had called forth, but the very beautiful and highly-finished sketches made by Mr. Spiers from the great temples of antiquity. He congratulated Mr. Spiers upon having made such a series of drawings, and the Society on possessing such a vice-president. With respect to Gothic architecture, there was a revival of Gothic now, but it was confined and limited to that of the thirteenth century. If King's College Chapel or Henry VII.'s Chapel were to be designed now as they are, the designs would not to be tolerated, notwithstanding all the grace and beauty of detail of those buildings. The thirteenth-century style is now being adopted by men of considerable talent, but they were tyrannical in that they would not allow a departure from the high-pointed arch; their carving was good in stone-work, but in woodwork they fell back upon carpenters' instead of artists' principles. Then there was the mixed style, the artists' style, in which it was thought that every building should be a graceful picture,—a loose general style, without fixed rules. Then there was the artistic and materialistic style, in which utility was studied, but in the details of which want of harmony of colouring—the subordinating of one colour to another—was too frequently observable. It was, as he had said, very difficult for young men to know what style to follow. They should, however, as the President had stated, study all, understand all,—go labouring through the styles of antiquity, and those of modern times which were of any reputation. In design there was room for the most lively imagination, and the artist who designed would find himself aided by manufacturers who were able to produce the design in the highest style, and in materials of the highest value. The President had alluded to the subject of competition, and he (Professor Donaldson) thought that with respect to competition there was a great want of a proper tribunal. There should be a mixed commission to whom the works of competitors should be referred. He protested against amateurs deciding upon competition drawings. Amateurs attempted to control architects in a manner unworthy of their position. He hoped his young friends would not allow themselves to be controlled by the caprice of mere amateurs. There were some great public buildings about to be erected, and on which large sums would be expended. He trusted their school would come out of the competition with honour. The profession, the metropolis, the entire country were interested in the drawings about to be exhibited, because the buildings to which he referred would be the test of the English school of the present day.

Professor Kerr was next called upon. He congratulated the Association upon commencing another year under such good auspices. He thought there was peculiar aptness in the circumstance of the campaign of the year in architecture commencing in that room and with that meeting; and that before the president of the Royal Institute of Architects up-stairs put on his official aspect and dealt in an official and weighty manner with weighty matter, the president of the Architectural Association should deal in a less official and weighty manner with matter less weighty but not less interesting or important. He was glad to see so many young men, students of art, assembled together. It betokened well in many ways for the progress of the profession. It was a profession which was noble, honourable, and thoroughly honest, and possessed much that was calculated to commend it to the minds and hearts of young men of ability. He was much pleased at the sound practical—he was going to say fatherly advice which the President had offered, and he certainly would be surprised if they got sounder advice up-stairs. It pointed out to beginners the principles they ought to be guided by, the practical aims they ought to keep in view, the aspirations by which they ought to be actuated; and he hoped it would be well considered and wisely followed.

PROPOSED BUILDING FOR THE ARCHITECTURAL MUSEUM.

Our readers are aware that the Architectural Museum is about to be removed from the South Kensington Museum, the views of the Council of the Architectural Museum and of the Department of Science and Art not agreeing. The Council now announce that it has secured a site, which it fully believes adequate for all its wants, and conveniently situated. It is a plot of ground within two minutes' walk of Westminster Abbey and the Palace of Westminster, and is approached from Great Smith-street. It does not pretend to be a fashionable neighbourhood, but the Council flatters itself that its retirement will be accepted as one of its merits, and that it is situated in the immediate proximity to a quarter of London extensively inhabited and used by art-workmen. The dimensions of the plot of ground are upwards of 5,000 superficial feet, and it is held on liberal conditions.

Two members of the Council have undertaken to act as honorary architects for the erection of a plain building; and for this purpose (liberally aided though it will be by the Department of Science and Art in the removal and rearrangement of the collection), the Council of the Architectural Museum require to raise the sum of 2,000*l*. Various members of its body have voluntarily promised 10*l*. each, and the Council now appeals to its other friends and to the public generally, and we trust they will not do so in vain. Personally we maintain, as we did years ago, and before the commencement of the present collection in the ever-memorable cock-lofts of Canon-row, that the establishment of a National Gallery of Architecture is as much the duty of a wise Government as the establishment of a National Gallery of painting; and we must regret that the first step towards this that we thought was taken when the South Kensington Museum was opened to receive the collection already made should have led no further. However, so it is; and the endeavour must now be made to effect what is desired by private means. We suggest to art-workmen and others throughout the country, that they should themselves take up the matter as one of great personal consequence, and do what they can to raise funds for the proposed building. Workmen ought no longer to look to have everything done for them. They have shown their skill in organizations, and can raise immense funds to promote what seems to them to be their immediate pecuniary advantage. It is time they began to show they have higher aims.

In the council it is to be hoped that the widest views will prevail, and that the endeavour will be to form really a Museum of Architecture, not merely a collection of specimens of Gothic architecture.

NEW OPERA-HOUSE, MALTA.

The new Opera-house in Malta was opened on the 8th of October, with the opera "Il Puritani." A plan of the building and view of the exterior have already appeared in the *Builder*.* The accommodation, which is arranged on a liberal scale, is for upwards of 1,200 persons, and the principal dimensions are as follow :—

Width of proscenium	46 feet.
Width of curtain	38 ,,
Greatest width between boxes	49 ,,
Depth from curtain to centre box	62 ,,
Width of stage	86 ,,
Depth of stage from curtain	50 ,,
Size of saloon	53 feet by 23 ,,
Size of entrance-hall	50 ,, by 23 ,,

The exterior is of Maltese stone, and the box-fronts and ceilings are of Jackson's fibrous plaster. The decorations are white, grey and gold, with crimson valances and light-coloured curtains to the boxes. The boxes are papered with a dark-red paper, but this is a departure from the views of the architect, who advised the use of a light back-ground.

Special arrangements have been made for ventilation through the roof, which is a queen-truss roof of somewhat peculiar construction.† About one-fourth part of the ceiling over the pit is perforated, and every box has a set of louvres, to admit air from the corridors. Various other expedients have been adopted, being rendered necessary by the exigencies of the climate.

There are separate entrances and staircases, all of which are fireproof, for the different classes of spectators. The saloon is at the back of the dress-circle, as at Covent Garden Theatre, and is approached at each end by a public staircase, with a screen of columns dividing it from the saloon. From the corridor of the upper boxes there are apertures into the saloon, treated in a style often seen in French theatres.

The lighting of the interior is by a sun-burner, decorated with cut glass, which powerfully aids the ventilation.

The whole of the works have been designed and superintended by Mr. Edward M. Barry, whose clerk of works at Malta was Mr. Paulson. The stonework was entrusted to a Maltese contractor. The ironwork, woodwork, and ordinary finishings were done by Messrs. Emmerson & Murgatroyd, of Stockport; and the ornamental plastering and decoration by Messrs. Jackson & Sons, of Rathbone-place. The cost of the building has been about 30,000*l.*, including decoration, furniture, and fittings.

WENDY CHURCH.

This church has been rebuilt and consecrated. The old church, which was built 120 years ago, was merely an oblong room with a flat plastered ceiling, but, from defects in the foundations, it became in a tottering condition. The work of demolition brought to light interesting remains of previous churches that had been built upon the same site, from the early Norman period downwards. The foundations were of well-constructed squared masonry, 9 ft. deep by 5 ft. thick. It was deemed desirable to preserve such massive work, and to dig deep into the earth to ascertain the cause of so many churches failing there, when it was found that the bottom of the foundations rested upon the upper green-sand formation, and the position of the church between the Royston chalk hills to the south, and a river flowing in the base of the valley to the north, the church was thus really undermined by the flow of subterranean water. In dry weather great fissures appeared in the walls, and in wet weather, when the springs were gorged, these fissures partially closed by the hydraulic pressure below. Deep and wide excavations were made completely through the green sand into the solid gault, and the walls were underpinned in concrete and cement brickwork: substantial buttresses were also brought up from the low level. Chain bond formed of railway metals, fished together, were built into the middle of the walls, while special provision was made for allowing them to expand as they become oxydised without doing any injury to the masonry. A deep catch-water drain was also laid in round the church, which diverts the springs, and conveys away the rainwater from the roof. The church consists of nave with bell gable, chancel, west porch, and vestry and organ chamber on the south side of the chancel. The style is Early English, the plinth is of Ketton stone, string-courses and weatherings of Casterton stone, the remainder of the walls of fairly-dressed clunch ashlar (both to the exterior and interior), the monotonous appearance of which is relieved by the sparing use of coloured stones used constructionally. The nave is paved with hard stone and the chancel with Stamford tiles: the sanctuary is paved with Minton's encaustic tiles, and its walls for 5 ft. in height are lined with the same materials which form monuments to the late squire and vicar. The chancel fittings are in chestnut wood; the nave has open benches of yellow deal upon boarded floors. The font is of Coombe Down stone, and is an exact reproduction of an old font that was turned out of the foundations. The roofs are open-timbered; that over the nave is a fine old oak hammer-beam roof, which was brought from the recently destroyed church of All Saints, Cambridge. The church will hold 200 persons, and the cost is about 1,300*l.* The architect is Mr. R. R. Rowe, F.S.A.; the mason, Mr. Wiltshire; and the general contractors are Messrs. Bullock, all of Cambridge; the chancel fittings were made by Mr. Chapman, of Hanworth, Norfolk. Seven of the windows are filled with stained glass, by Messrs. Heaton, Butler, & Bayne, who have succeeded well in producing the jewelled effect that is so much to be desired in small windows.

GRAND HOTEL, SCARBOROUGH.

This vast hotel, situated in a central and commanding position fronting the sea, is now rapidly approaching completion, and is expected to be ready for opening next summer. The building was commenced from designs by Mr. Cuthbert Brodrick, three years ago. In September, 1865, the whole passed into the hands of the present proprietors, who formed a limited liability company, and the works were recommenced in January last. The shell of the building at that time had reached the main cornice, since which two additional stories and the cupolas have been added. Mr. Archibald Neill, of Bradford, has the general contract for the entire work; Mr. John Robinson is the clerk of the works for the company; and the designs of Mr. Brodrick are being carried out.

The architectural style of the building is Italian, the exterior surfaces being of white brick, with ornamental moulded red brick jambs, and enrichments of terra-cotta, and some of the jambs and cornices are of tooled Yorkshire stone. The main block of the building is about 220 ft. long, 174 ft. wide at the north end, and 70 ft. at the south end, and may, speaking generally, be called ten stories in height. There is a balcony extending along three of the fronts, and another along two. In front of the main block is a portion of three stories, 220 ft. by 36 ft., consisting of bed-rooms and sitting-rooms, the upper part of which will be laid out as a garden-terrace. In the main block two of the basement stories are devoted to kitchens, cellars, and offices; the third to smoking, billiard, sitting, and bed rooms; the ground-floor and six other stories contain coffee, dining, drawing, sitting, and sleeping rooms; and the four large cupolas have each three bed-rooms for servants. The amount of accommodation will be as follows;—Three hundred bed-rooms; a public dining-room, in which three hundred can dine at once, in addition to private dining-rooms; and a coffee-room, capable of accommodating about one hundred and fifty.

LIFE STATISTICS OF PARIS.

The report for the second quarter of the present year has just been issued by the authorities. The total number of births was 13,405, the males exceeding the females by 263. The number of illegitimate births was 3,854 against 9,601 legitimate, or nearly in the proportion of 10 of the former to 25 of the latter. Thus the city maintains its unenviable reputation in the matter of natural children, the proportionate number of which has remained nearly stationary for many years past. French statisticians attempt to account for this by saying that many young women come to Paris from the country for their confinement, in consequence of the greater facilities for keeping it quiet, and perhaps also of "disposing" of their offspring. The marriages were 4,877, and 156 men and 436 women signed the register with a mark. The deaths amounted to 11,114, of which 5,780 were males. The persons who died in hospitals numbered 2,728 (nearly one-fourth of the whole number), 28 died in prison, and 79 were found dead, and were not identified. A curious disproportion exists between the number of legitimate and natural still-born children. Those belonging to the former class reached 700, whilst the latter amounted to 325 only.

The French returns always give the number of births and deaths which take place at home and in hospitals. It is interesting to notice the disproportion between the two according to English notions, at all events, as showing the difference in the social economy of the two countries. It is right to state that some persons believe less implicitly in the correctness of the French health statistics than others do.

BIRMINGHAM FREE LIBRARIES.

The chief stone of the Gosta Green Free Library has now been laid. The architects are Messrs. Bateman & Corser, and the builders are the Messrs. Briggs. The site is at the corner of the Aston-road and Legge-street, forming an acute angle between these two streets, and having a frontage to them of about 80 ft. Messrs. Bateman & Corser's designs for the building were selected in a limited competition of local architects. The library is about 44 ft. square, with open timbered roof, lighted by a lantern light, running its whole length, and by a large window in the gable end. It is 40 ft. high to the ridge of the roof. The walls are internally recessed with Gothic-headed recesses, for the reception of book-cases. A corridor 8 ft. wide forms two lobbies. The exterior of the building will be of red brick and stone dressings, in the Tudor style. In the main gable of the library is placed a three-light tracery window, surmounted by an ornamental gable termination to the lantern light on the roof. The termination of the building at the angle has gables on three sides, with a clock-turret about 45 ft. high.

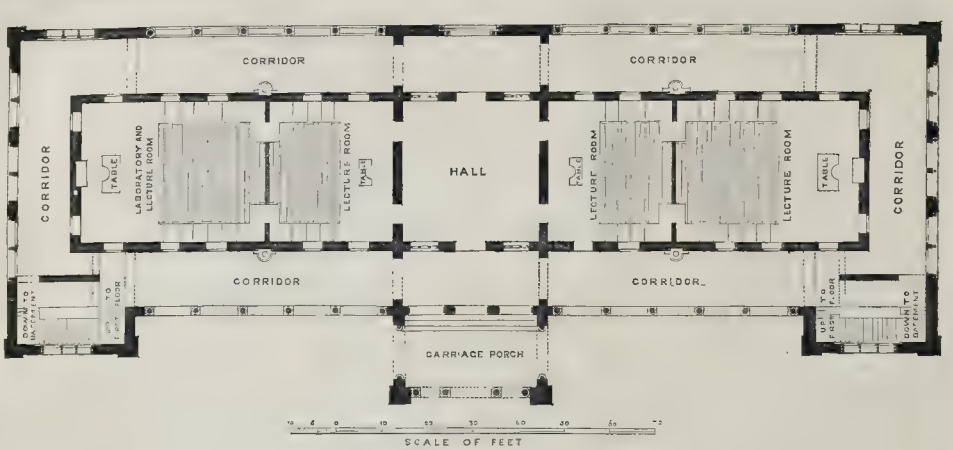
The library in Heath Mill-lane is very similar to the one in Gosta Green, but of plainer character. The designs of Messrs. Bateman & Corser were selected for this library also in a limited competition. They have been carried out by Messrs. Briggs & Son.

ACCIDENTS.

Manchester.—A portion of a warehouse, in York-street, has given way. About a fortnight ago the side wall on the ground-floor gave way, and since then means have been taken to prevent an extension of the fissure. A loud crack, however, was heard, only half an hour previous to which there were in the place between 200 and 300 persons, all employed in the warehouse; and it was found that the earthwork had sunk considerably beneath the surface of the footpath, and the rent in the wall continued extending till it had assumed somewhat alarming proportions. Mr. Lynde, the city surveyor, and others, visited the place, and the warehouse was considered so dangerous that all the approaches were barricaded. The building contains a vast quantity of clothing and material, ready for making up.

Liverpool.—In the north end of the town a main sewer, which runs along Boundary-street, has burst. This sewer was intended by Mr. Newlands, the borough engineer, to be relieved by a new outlet sewer, called the Sandhills outlet, which is now in progress. The crown of the sewer had given way, the *débris* falling in and damming up the flow of sewage. Measures were at once taken for having the damage repaired. It was found, however, that the disaster was much more serious than was at first apprehended. The accumulation of the water and the shifting nature of the soil in which the sewer is bedded, caused a continuous chasm in the street, and gave rise to apprehensions lest the bottom of the canal (which is immediately adjoining) might give way, and occasion a frightful destruction of life and property. These apprehensions were increased by a falling in of a portion of Boundary-street, close to the bridge which carries the railway over the street, as it was feared this further bursting of the sewer might undermine the piers of the bridge. The

* Vol. xxi., pp. 314, 315.
† We will illustrate the roof in another number.



ELPHINSTONE COLLEGE, BOMBAY.—*Plan.*

falling ground, however, was shored up and secured in both gaps; but this was not accomplished without considerable difficulty and danger. Great damage has been done, the dammed-up sewage having found its way into some of the warehouses and large works in the neighbourhood.

Chester.—The New Waterworks Company are sinking a new shaft contiguous to the old one, and two men were engaged in sinking. Suddenly a rush of water, accompanied with a large quantity of *débris*, came in upon them, and they raised an alarm to the persons who were winding the refuse of the excavations to the mouth of the shaft. It was only with great difficulty they kept their heads above the surface. When rescued from their perilous position both men were completely exhausted. It is surmised that there have been fissures in the sandstone which divides the two shafts, and that a too heavy pressure of water has caused the bursting of the old shaft into that of the new.

ARCHITECTURAL DRAWINGS FOR THE PARIS EXHIBITION.

We would draw attention to the arrangement that architectural drawings intended for the preliminary exhibition at South Kensington must be sent to the Museum between the 10th and the 20th of this month. The exhibition will be opened to the public on the 12th of next month, and from this the London committee will select such drawings as they recommend should be sent to Paris.

INSUFFICIENT LEGISLATION FOR HEALTH.

At the recent Manchester Congress, Mr. Edward Jenkins read a paper on the legal aspect of the question. He said,—Since 1847 the whole of our public health legislation had occurred. The extent proved how vast a number of evils there were to be remedied; but it had been fragmentary, and much remained to be done. Our sanitary system was constructed on a bad basis, and required amendment and consolidation. The number and variety of Acts, amendments to Acts, of bodies or persons to whom their execution is committed, the fact that often the wording of the Act leaves a discretion as to their execution in the local authorities, are chief among many reasons for a comprehensive review and amendment. Does the Sanitary Act, 1866, in an effectual way modify or remove the faults or deficiencies of former legislation? Does it grasp the whole subject in a comprehensive way, and propound a scheme which is at once feasible and complete? It cannot be accepted as a piece of final legislation. It is eminently suggestive, but inefficient. The most obvious and important deficiency is the absence of a central overlooking power. The bodies appointed in different places to carry out the statutory provisions require to be placed under a capital council or ministry of public health, to supervise them, and in some cases summarily compel them to do their duty. If it be objected to as a step in the direction of centralization, the distinction must be remembered between central supervision and central administration. The former is compelling others to do their duty, the latter is doing duty by means of others. This distinction ought to be regarded in assigning its duties to the proposed body. The administration of sanitary measures is of national as well as of local importance. The cholera at Southampton or Liverpool is an event of thrilling interest at London and Birmingham. Moreover, health administration, to be effective, must be summary. The law, which works in a methodical order, may only be set in motion when it is too late to remedy the evil. Or, supposing the remedy to be specific, the individual may be wanting who will take the initiative against the local authority. Dr. Stewart mentions a case where a place of 800 inhabitants was in a terrible condition, and the town refusing to act, although two-thirds of the money necessary to carry out improvements was offered by private persons, no legal way of compelling them to act existed. 1. There is a general complaint against the local authorities. Mr. Jenkins referred to the opinions of various eminent sanitary reformers in proof of this, and facts reported by Mr. Humphrey, the coroner for Middlesex, by Mr. Drew of London, and by Dr. Fowler in a recent letter to the *Times*. He proceeded to show that the 49th section of the Sanitary Act, though intended to do so, provides no remedy. It provides for application to a Secretary of State in cases of the default of local authorities. It is inconvenient to apply to Secretaries of State in matters foreign to their usual duties; and, moreover, if the provisions of the Act are permissive, as they are cases of discretion, there can be no "legal default in enforcing those provisions" of which a Secretary of State could take cognisance. If these powers can be entrusted to them, they can better be done by a body for the purpose. The authorities are very various and numerous, and their machinery imperfect. In some cases medical officers and inspectors are obligatory, and in others only permissive. What a result of retrograde legislation! There should be medical officers all over the country. Private persons will do a great deal before they will engage in anything involving expense. But where these officers have been appointed, they may be obliged to contend with the ignorance and stupidity of the authorities. The renowned instance of St. Pancras proves that vestries and boards composed of tradesmen, licensed victuallers, and the like, are not open to the warnings and suggestions of capable officers. The value of a proposition is by them likely to be estimated in the inverse ratio of the demand it involves upon the rates. The officer should be independent of the authority. His appointment should be subject to the approval of a central authority. There should be also a more extended oversight of localities. The provisions of the statute should be enacted plainly and imperatively; and a central authority should employ a national inspector to watch the sanitary condition of the kingdom, suggest improvements, investigate and report upon complaints. The Sanitary Act was in many particulars permissive, which was detrimental to an effective administration of the law. There was an utter absence of any principle of action, of any systematic theory, or any consistency. The repetition, supplementation, and confusion which this Act appeared to exhibit elevated it to the position of a unique curiosity. For sanitary reform there could be no greater bugbear than a permissive enactment. The truest economy was that which, by a moderate expenditure, reduced the probabilities of disease to a minimum, and not that which neglected till the fatal hour measures of precaution, and wasted lavish sums upon the means of cure. Wretched houses made wretched homes; and while immoral and slatternly habits converted fine dwellings into sties, it was almost as true that dirty and unhealthy habitations transferred a taint to the characters and habits of those who occupied them. The depressing influence of filth and disease wrote their evidences on men's manners as well as upon their skins; and if the body social and political were to be sound, the body physical must be healthy too.

ELPHINSTONE COLLEGE, BOMBAY.

We add another evidence to those already afforded in our pages of the architectural activity prevailing in the Bombay presidency.

The building of which we now give the plan and a perspective view, is in course of erection in Bombay, from the designs of Mr. James Trubshawe, the consulting architect to the Government of Bombay. It is designed for the accommodation of the professors and pupils in the Elphinstone College, an established and flourishing institution of that city. The funds for the new building are in part granted by the local government, but, to a very large extent, they have been provided by the liberality of Cowasjee Jehanghier, Esq., one of the most wealthy and generous of the native gentlemen in Bombay. His name is to be permanently connected with the new building.

The walls are of masonry, and the principal stories are protected from the heat of the sun by arcaded verandahs carried along them. The joiners' and carpenters' work will be executed in teak. The roofs will probably be covered with corrugated iron, a material now largely used in Bombay, as a substitute for the light and perishable native roofing-tiles.



ELPHINSTONE COLLEGE, BOMBAY.—Mr. James Trubshawe, Architect.

SEWAGE AND WATER SUPPLY.

The Registrar-General, in his report for the week ending Saturday, October 20, says,—

The health of London depends very much upon the inflow of pure water, and the outflow of impure sewage. The nine water companies have, according to their returns, supplied 100,864,971 gallons daily on an average in the London area during the month of September.

South London received from its three water companies 30,186,829 gallons daily during the month; and Mr. Bazalgette has, upon being applied to, supplied a return of the sewage discharged daily in September at the southern outfall works, Crossness: it amounted to 46,229,675 gallons, including the yield of the streams of land drainage, which necessarily varies from week to week. The sewage discharged daily was 43,976,300, 37,443,771, 43,319,041 gallons in the three weeks ending October 20th.

If, instead of gallon, the more convenient cubic mètre of French engineers, or metric ton, agreeing closely with our ton weight, is substituted, we have these results.* London was supplied with 458,276 metric tons of water daily during September, or at the rate of 318 tons per minute, 5¼ metric tons per second. On the south side the water supply was 95 metric tons, the sewage discharged at Crossness 149 metric tons, *per minute*.

The northern outfall sewer does not yet carry down to Barking Creek the sewage of the low-level region north of the Thames; and Mr. Bazalgette fears that "it will be quite a year and a half before we shall get the whole of the northern sewage discharge through the outfall sewer, because parts of the low level have to be constructed in the line of the proposed Chelsea embankment of the Metropolitan Railway." Such is the present state of the London sewage.

The quality of the water supply in September has been tested as usual by Dr. Frankland. He gives a remarkable instance of the effects of filtration, through animal charcoal, of the East London Company's water, supplied to the tenants of Miss Coutts in Columbia-square. The organic matter was reduced to the minutest quantity; the hardness from 20° to 7°. The filtration of the water supply for 700 people is here performed without the least difficulty.

The Medical Health officers of London have been requested to favour the Registrar-General with a weekly return of what is done in their respective districts for extinguishing epidemic cholera. Dr. Ballard has fully described the measures which are employed in Islington. It is by scrupulous attention to such details, and by purifying the water, that this plague can be stayed.

THE SEWAGE CONGRESS.

A congress on the sewage question from all parts of the country has been held at Leamington,—rather an odd place for such a purpose, and giving it much more of a local and less of a general aspect than was desirable. Lord Leigh presided, and the congress was held in the Royal Pump Rooms. Papers were read by Dr. Hawksley urging the earth-closet system; by Mr. Menzies, of Windsor, on the separation system; by Dr. Carpenter on the Croydon case; and by others; but nothing new was elicited; and on the whole the Leamington Congress may be regarded as a failure.

The exact deductions which Dr. Hawksley set forth as representing the practical value of earth closets were as follows:—

"Taking the various estimates of the value of human refuse, he found the lowest estimate worth 14s. per annum, and the highest 15s. 3d. This for 3,000,000, the population of the metropolis, gave at the lowest estimate 2,100,000*l.*, at the highest a gross income of 2,287,500*l.* would be realized. Against this he placed the expenses of collection and management as follows:—The 500 sections into which the metropolis would be divided, would be formed into sub-sections, each containing 300 closets. He calculated the expenses of each sub-section per day at 3s. for three hours' labour; cart and horses, 4s. 6d.; quota of rent, sheds, &c., 6d.; total, 8s. The work to be performed between six and nine each morning. Each cart, on leaving its station, will convey a load equal to 2 tons 1 cwt., consisting of 300 pails, weighing 9 cwt. to 3,600 lbs. of earth. The additional weight of sewage matter he calculated at 16 cwt. 102 lbs. after collection. The annual expenses of the 500 sections would be 623,250*l.* Balance of profit on the lowest estimate, 1,476,750*l.* If every person in each habitation received 7*s.* per head for this refuse material, the amount would be 1,500,000*l.*, leaving a balance to pay for pails and management equal to 426,750*l.*"

* A cubic mètre of pure water weighs a metric ton = 1,000 litres = 220·1 gallons = 2,201 lb. avoirdupois, while the common ton is 2,240 lb.

On the accuracy of these tables Dr. Hawksley relied.

Mr. Menzies, of Windsor, in course of the discussion which followed, pointed out that at Aldershott camp, though the ground was of the poorest description, no one would take the refuse of the closets gratuitously, and it cost the War Office from 500*l.* to 600*l.* a year to get it removed.

We may here take the opportunity of recording, by the way, that in a very commendable spirit of inquiry, several members of the Winchester Local Board paid a visit to Romsey lately, to inspect the ash-closets invention of Dr. Taylor; but we believe they returned with the conviction, that however effective the closets might be for certain objects, they do not and cannot effect the great object of main drainage or sewerage works, the getting rid of cesspools, and the prompt and rapid removal from town houses of all fluid or semi-fluid refuse, which, if stored up, would enter the putrefactive state, and create the nuisances all are too familiar with.

Dr. Richardson, in an able lecture, treated of the influence of atmospheric and organic poisons on the spreading of disease. He pointed out how organic poisons might be transmitted in sewage either dried or dissolved in water. The object of primary importance was thorough ventilation and plenty of sewering. The best disinfectants were iodine and chlorine. All natural excreta should be thoroughly disinfected before they left the sick-room. Perhaps the best possible system of getting rid of the sewage would be that in which every particle would be conveyed away as it was produced, in well-flushed drains, into the sea. He viewed the question from the stand-point of the health of the community, believing that national health was national wealth. His views were in contradistinction to the view of the economist who hoped to make this refuse profitable by returning it to the soil. He would have them remember, however, that in nature nothing was lost. Nature was an almighty conservator, and out of the very womb of death sprang in perpetual line the most perfect form of life. The lecturer was listened to with great attention.

LIVERPOOL.

Another million for the Liverpool Docks has been voted by the Mersey Dock and Harbour Board. This includes the purchase of 150 acres for a system of new coal docks. Mr. John Laird, M.P., urged that the interests of Birkenhead were being neglected by the Board, in order to push Liverpool. The committee's report, however, was unanimously adopted. In the course of the debate it was stated that the trade of the port had so extended as to require an immediate expenditure of 334,000*l.*; 155,000*l.* being for corn warehouses alone, and 154,000*l.* for the Herculaneum Dock. 200,000*l.* was the engineer's estimate of the amount required to complete works authorized by the Act of 1863 and earlier Acts. 258,000*l.* was the excess over the estimates for the Bill passed in 1864.

The Improvement Committee of the Town Council have presented to the Council a proposal to borrow an additional sum of 150,000*l.* upon their Improvement Act of 1864, under which 300,000*l.* have already been borrowed, and in great part spent. The consideration of the proposal has been deferred. The committee's recommendation of a series of street improvements, to cost 342,322*l.* in land, 26,516*l.* in works, proposed to be included in a new Bill to be presented to Parliament next session, has been confirmed to the extent of an expenditure of 250,000*l.* It was stated incidentally, in illustration of the value of land in the central streets of the town, that 60*l.* a yard had been offered for the site of Compton House, in Church-street.

At a recent meeting of the Health Committee Mr. Lawrence proposed a clause applying for powers to borrow another 100,000*l.* under the Sanitary Amendment Act of 1864. On the three presentments under that Act a sum of 64,000*l.* had already been spent, and therefore there remained but 26,000*l.* A great deal of good, he said, had already been done under that Act, and a great deal more could be done. The motion was passed, and another clause in the Bill with regard to road improvements at Bootle, Everton, and other places, at a cost of 11,350*l.* was passed.

The foundation-stone of a church, to be dedicated to St. Alexander, has been laid. The building, which is to be erected near the Miller's Bridge station on the Lancashire and Yorkshire line of railway, will afford accommodation to 1,500 persons. It will be 103 ft. long, 46 ft. wide, and built in the composite style of architecture. The aisles will be 9 ft. 6 in. wide, and the nave 24 ft. 2 in. wide. There will be no galleries except for an organ. The structure will cost over 4,000*l.* Mr. E. W. Pugin is the architect, and Mr. George Glaister the builder.

LEEDS IMPROVEMENTS.

In a discussion on the street improvements of Paris at the Royal Institute of British Architects, the esteemed president of the time (Professor Donaldson) took occasion to observe of the town of Leeds, that "nothing could be worse than the thoroughfares of that town." This reproach is just, and it is a matter for congratulation that the town of Leeds is aware of it, and is now about to widen the line of thoroughfare which connects the leading railway-station with the heart of the town.

The town council have, however, only found courage to undertake this improvement on a most moderate scale; the new thoroughfare is to be neither of uniform width, nor perfectly or even approximately straight, the only recommendation of the adopted scheme being, that it can be executed at a comparatively moderate outlay. It is not, perhaps, to be wondered at that town councillors, whose expenditure of public money is often jealously looked after by the ratepayers, should adopt a scheme which is supposed to be economical; but happily in the present case it is hoped that the ratepayers themselves, who are moving in the matter, will be awake to the importance of making the best of the present opportunity; effecting a thoroughly successful improvement, and supplying this town with at least one really noble street.

There are three designs now before the Leeds public. The design at present adopted has earned, and deservedly, the local nickname of the dog-legged street; a second covers nearly the same ground, but with a gentle curve, of sufficient radius, however, to shut out of view one end of the street from a person entering it at the other. The third presents a straight street of uniform width, joining the two points to be connected, and if carried out, will be far superior to the crooked street, and even to the curved one, in suitability for traffic and in effect. It will be most satisfactory to know that the public-spirited effort now on foot for securing that this great improvement shall be done in the best possible way, meets with the success it merits; and that this is likely may be augured from the great attention to house architecture shown of late years in Leeds, and from the high character of the public buildings recently erected there.

CHURCH DECORATION.

St. Anne's Church, Soho.—This church has just been re-opened after considerable alterations. Under the management of Mr. A. W. Blomfield, architect, the seats in the nave and aisles have been re-arranged and cut down to a reasonable height. The gallery seats have also been lowered, and the system of lighting by brackets from the gallery fronts has been changed to a series of small gaseliers or star-lights suspended from the ceiling. But the great feature in the present alterations is the formation of a chancel out of one bay of the nave, the apse being reserved as a sacrarium. A low screen of carved oak has been thrown across the church at the first pillar from the east, the space within being fitted with carved oak stalls for the choir. These are separated from the side aisles by oak screens, surmounted by grilles of metalwork. The church is raised one step from the nave, and three more steps lead to the foot-pace, on which the altar stands. The whole of the chancel and sacrarium has been paved with tiles, and the old panelling round the apse has been re-arranged, the paint having been cleaned off, and appropriate decorations in gold and colours applied on the natural wood, slightly stained as a ground. A reredos and super-altar in marbles and alabaster, bearing a Greek cross, charged with the emblems of the Lamb and the four evangelists in mosaic, complete the new architectural features of the east end. The

credence consists of a carved wooden bracket attached to the panelling of the apse; and a new altar-cloth, designed by the architect, has been worked by the Sisters at Clewer.

St. Mary Magdalene, Munster Square.—Various alterations have lately taken place in this church. The whole of the levels of the chancel have been altered, and the floor laid with encaustic tiles, the altar being approached by seven steps from the nave. Three of the steps being in the chancel-arch, on the upper step is an open screen of ironwork, about 4 ft. in height, painted and gilded. In each of the side arches of the chancel is placed a parclose of ironwork, in flowing patterns, with an elaborate cresting, the whole richly gilded and painted. A row of lights is carried along the tops of the screens, with branches at the principal uprights. In the nave, projecting from each column, are gas branches, of ironwork, ornamented with gilded and painted scrollwork. The walls of the sacrarium are to be ornamented with frescoes, by Messrs. Bell, Redfern, & Almond; and the arches of the wall-arcade of the sanctuary will have figures painted on them by the same artists. The structural works have been carried out by Messrs. Dove, Brothers, and the ironwork by Mr. J. Potter, under the architects, Messrs. Slater & Carpenter. It is in contemplation to carry out hereafter the late Mr. R. C. Carpenter's designs for the tower and spire, and the north aisle.

St. James's (Roman Catholic) Church, Spanish Place.—This church, which was originally erected from the designs of the late Mr. Bonomi, has been thoroughly renovated, and the interior decorated, under the superintendence of Mr. C. G. Wray, architect. The arched ceiling of the nave is enriched in various colours, and with honeysuckle, guilloches, and other ornaments. The groined bay over the sanctuary has a blue ground, studded with stars in gold, of novel design. The columns and entablature of baldachino are of Sienna marble; the caps and bases picked out in gold and colours, as are also the entablature and pediment over. The high altar and reredos are gilt. The general colour of the walls is lavender grey, which shows out well the valuable pictures which this church possesses. The decorator employed was Mr. J. Sheate, of Salisbury-street, Portman-market. A new grand organ by Messrs Gray & Davidson, has also been erected.

FIRES IN AMERICA.

New York.—St. Patrick's (R.C.) Cathedral has been totally destroyed by fire. The loss is estimated at 70,000 dollars. The fire originated in an adjoining building, and first destroyed the roof of the cathedral. The vestments and vessels used in divine service were saved. Many frescoes, works of American and foreign artists, were destroyed, and also a fine painting of the Crucifixion. The church seated 3,000 persons. The insurance amounts to 50,000 dollars. The walls are believed to be strong enough for restoration. The rebuilding, it is believed, will be at once begun.

Quebec.—Nearly 2,500 houses have been destroyed at Quebec, and 18,000 persons rendered homeless. The fire broke out in a house in St. Joseph-street, near the Jacques Carter Market, and it spread along St. Joseph and Notre Dame des Anges streets to the junction of St. Valier-street, carrying everything before it. The church of La Congregation escaped, though in great danger. The fire also spread into the wooden houses of St. Sauveur, and its church took fire. Meantime, along St. Valier-street, towards the toll-gate, and the streets surrounding the General Hospital and Convent, another terrible fire was raging with even greater fury; while at the back of Crown-street, along Prince Edward's-street, Jesuit-street, and Rilard-street, the flames were creeping back and enveloping street after street. The conflagration only ceased when there was nothing more for it to feed on. The loss of real property is estimated at from 2,500,000 dollars to 3,000,000 dollars. Mass meetings are being held for behoof of the sufferers by the fire, and the Colonial Government have sent 10,000 tents for their temporary accommodation. The poor people have a bleak winter prospect before them.

Ottawa.—A large fire has also occurred in Ottawa. The whole of the block of buildings between Murray and Clarence streets, opposite the Market-square, was destroyed. The loss is estimated at from 30,000 dollars to 50,000 dollars, with only 3,000 dollars or 4,000 dollars insurance. The fire was the result of an accident.

If there be any truth, by the way, in the remark that fires are apt to occur after pestilence (whether from a restoration of ozone beyond the average, after its pestilential deficiency, or from some other cause), now is the time to beware of great fires in London.

INAUGURATION OF THE SYKES MEMORIAL.

The monument reared by the East Riding of Yorkshire in memory of the late Sir Tatton Sykes has been formally inaugurated, at Driffield, in presence of a great gathering of the residents of the district. The idea of this memorial was conceived early in 1864, and a committee of gentlemen and farmers of the Riding was formed. Subscriptions flowed in so rapidly that in July of the same year an exhibition of designs for the memorial, comprising 157 competitive contributions, was held, and the present design was selected; and on the 17th of May, 1865, the preliminaries had so far advanced that the foundation stone was laid by Lord Hotham, M.P. for the Riding, who also undertook the ceremony of inauguration. Except, indeed, for the sculpture, the monument might have been inaugurated six months ago. In our last vol., page 245, we gave a view of the design; but we may here state that the erection occupies the summit of Garton-hill, and stands upon the southern rampart of the British earthworks which cross the high wolds from Wartre to the Danes' Graves, a range of 15 miles. The memorial, as erected, consists of a tower and spire, surmounted by a cross, the design being of the Early Decorated period, and provided by Mr. John Gibbs. The base is 28 ft. square, with a total height of 120 ft. The base, or pedestal, has four panels, in one of which is the entrance-door, and over it the bas-relief of the late baronet on his favourite hunter, a copy, in fact, of the idea of Grant's picture of Sir Tatton. The opposite panel is filled with the emblematic representations of agricultural life, and the two others are blank. The sculpture is by Mr. Forsyth, of Worcester. The ornamental portion is limited, so as to give effect to the sculptured caps, strings, entablatures, &c. A stair leads to the observatory, a room at the base of the spire, lighted by four ovate windows, from which there is a look-out over most of the county, and a glimpse of Sledmere itself. The monument was estimated to cost upwards of 1,500*l.*, but the full outlay will be nearly 1,800*l.* The work has been executed by Messrs. Simpson & Malone, of Hull, and the stone used is in alternating strings of white Yorkshire (from Bolton's quarry, near Whitby) and Mansfield red.

THE BURNLEY NEW MARKET-HALL.

The chief stone of the Burnley New Market-hall has been laid, in masonic form, by the mayor and the chairman of the markets committee of the corporation. The new market-hall, of the design of which we gave a view, with plan, in our number for April 7th last, will be built on the site of the old market, and of other property purchased for the purpose. The hall will be 180 ft. long and 115 ft. wide, and will contain shops and galleries. The style will be Italian, and above the chief entrance there will be a clock tower, 90 ft. in height. It is the design of Mr. Green, of Portsmouth, near Todmorden. The probable cost is estimated at between 40,000*l.* and 50,000*l.*; and as to the return, it is estimated from 2,000*l.* to 2,500*l.* per annum.

LEYBOURNE CASTLE.

This castle, the lords of which played a considerable part in the earlier years of the thirteenth century, when two of the name were summoned as barons, stands by the road-side near its parish church of the same name, between Snodland and West Malling, in Kent, and at no great distance from the ancient Neville seat of Birling.

The building, judging from its present remains, scarcely supports the power of its late lords, nor does it appear ever to have been more extensive. Part of the walls may be of Norman date, but the general aspect is of the date of Henry III., and the gateway may be of Edward III.

The most perfect portion is the gateway, a pointed and ribbed arch, which opens between two bold drum towers, placed unusually close together. Above the portal is a slit or chase about 3 ft. wide and 6 in. deep, pointing downwards and outwards, and much resembling a large post-office opening. The narrow dimensions of this opening, its straight sides, and the thickness of the wall, would prevent its being used for the casting down of projectiles, and even as a horizontal loop its range would be very limited. It seems to have been intended for the pouring down of water, supposing the outer gate to have been assailed by fire.

A little in advance of this wall, on either side of the doorway, is a portcullis groove, rectangular instead of a half round as usual; and these grooves, instead of ascending as a chase or slit in the entrance vault, placing the grate, when lifted nearly out of sight, ascend in front of the door, to about double its height, so that the grating would always be entirely visible, whether down or up. The chains by which it hung, also visible, ascended through a machicolation at the rampart level, formed by throwing a flat segmental arch from tower to tower, parallel to and about 18 in. in advance of the gateway and wall above it. This arrangement, seen at Neath and elsewhere, left the lower opening free for its special uses, while from the upper opening stones or heavy projectiles could be dropped with but little risk to those employing them.

In advance of the portcullis grooves, two lateral holes at the level of the door cill show where the pivots of the drawbridge rested. Bridge pit and moat are now filled up. The rear parts of the gate-house and entrance vault have been destroyed.

The irregular outline of the castle may be traced, and two detached groups of ruins, with a couple of drum towers, remain; but there is nothing of any special interest excepting the gateway and its defences. C.

THE INDIAN CIVIL SERVICE.

Sir,—The extracts from Mr. Macrone's reply to your correspondent, "C. E.," published in your issue of the 4th August last, will not long remain without an answer, I have no doubt. Meanwhile I may afford a little comment on Mr. M.'s remarks, which from my being a "wallah," may carry weight. Whatever may be urged by the Government of India cannot invalidate the fact that the service has got a bad name, and this I attribute not so much to the numerous complaints in the public journals, as to the accounts from men in the service to their friends at home. I think I may state without fear, that 75 per cent. of those who have come out under the competition system, are discontented with the result of their venture.

So effectually has this feeling been disseminated, that I am given to understand from friends at home that not only is the class of men coming to the examinations inferior to what it was at first, but that the numbers have decreased. Take, for instance, the lists of the first two or three batches, and compare their places of training and engineer masters with this year's batch, and the difference will be very apparent. The latter batch seem to be (or rather two-thirds of them), crammed men of some Irish College, or from that most valuable engineering school, "the Dollar Institution," wherever that may be. Most pre-eminently in this country do we want practical men—men who can go into detail, or even handle a tool themselves.

A great deal of Mr. Macrone's letter about civil superintending engineers, and comparison of pay of military and civil *employés*, is mere special pleading, and is amusing to those out here "who know." For instance, the five civil superintending engineers are men (with the exception of one, I think), who came out here originally in high grades, and should have been higher up if fairly treated.

"C. E." is quite right in comparing 300*l.* a year out here with 100*l.* a year at home. I, on first leaving my pupilage, did (unlike Mr. Macrone) live for some little time on 100*l.* a year, and can honestly say that I then had better food, a better house over me, and generally more pleasure in life than I have had out here on 300*l.* or even 400*l.* a year. How Mr. M. can coolly assert tha

240*l.* a year is enough to live on out here in the position of a gentleman, I leave it to his conscience to say. True it is that military men get less than this at the outset, but with the same result that occurs to the deluded competition wallah—he gets into debt.

The last paragraph you give enlarges upon the improved position of the civil engineer since ten years ago. This is really meant for the social status having advanced, but may, by confiding youths, be interpreted to mean the pecuniary value. The latter is certainly not the case, for the pay of the present day is worth about two-thirds of the same pay ten years ago, so much have prices increased out here of late. The Government recognising this, have raised the salaries of civil officers in the Punjab and other provinces, and until they do so for the Public Works Department I should advise young men to stop at home, and wait for increase to save on there, instead of coming out here to wait for the same in an Indian tent, with a towel round one's loins as the only bearable clothing.

JUNGLEE.

ENIGMA ON THE LETTER H.

In my quotation of the first line of Miss Fanshawe's enigma on the letter H, an unlucky slip of the pen occurred. I think I may as well transcribe the original as it appears in the MS. of the authoress, appending the ordinary "Byronic" form. The varying words of the original are noted by italics, the changes by brackets. The "Byronic" form is taken from Galignani's edition of "Byron," in 1 vol. 8vo., published in 1826, in which it is prudently printed at the end, among poems "never publicly acknowledged by Lord Byron, but generally attributed to his pen:"—

"ENIGMA WRITTEN AT THE DEEP DENE, 1816.

'Twas *in Heaven pronounced, and* [whispered in Heaven]
'twas muttered in Hell,
And Echo caught faintly the sound as it fell;
On the confines of earth 'twas permitted to rest,
And the depths of the ocean its presence confest.
'Twill be found in the sphere when 'tis riven asunder,
Be seen in the lightning and heard in the thunder.
'Twas allotted to man with his earliest breath,
Attends at his birth, and awaits him in death.
[It] presides o'er his happiness, hono[u]r, and health,
Is the prop of his house and the end of his wealth.
It begins every hope, every wish it must bound,
With the husbandman toils, with monarchs is crowned;
In the heaps of the miser 'tis hoarded with care,
But is sure to be lost on his prodigal heir.
Without it the soldier, the seaman, may roam,
But woe to the wretch who expels it from home!
In the whispers of conscience its voice will be found,
Nor e'en in the whirlwind of passion be drowned:
'Twill not soften the heart, *but* [and] though deaf *be*
[to] the ear,
It will ['twill] make it acutely and instantly hear.
But in shade let it rest like a delicate flowe[']r,
Oh! breathe on it softly—it dies in an hour.—C. M. F."

A. J. B. BERESFORD HOPE.

THE enigma on the letter H will be found printed, with Miss Fanshawe's name attached, in a small volume of literary pieces collected by Joanna Baillie from her acquaintances, and published for the benefit of two little girls, the children of a literary friend who had died in confined circumstances. In the year 1825, I met these two young ladies, then grown up, at the country-house of a gentleman who lived a few miles from London, and who (or, rather, his son) showed me the book and told me its history. In it I found this little poem; and, having such indisputable authority for its authorship, I wrote Miss Fanshawe's name against it in a copy of Lord Byron's poems which I possessed, published by Galignani of Paris, in which it had been inserted as a composition of his lordship's. There the name remains in pencil to this day. B.

ANOTHER correspondent mentions that in "Memorials of Miss Catherine Maria Fanshawe," by the Rev. H. Harness, the verses are printed as here.

THORWALDSEN'S STATUES.

SIR,—Your correspondent, "R.," is, I think, somewhat hypercritical in his remarks about these statues. Photography is an excellent medium for conveying an idea, but it does so only in part; for the spot in which works of art are placed and the surroundings have not a little to do with the effect produced on the beholder. The "angel font" is far from being "a pretty nothingness." * Executed in the finest Italian marble, the kneeling angel is truly angelic,—a beautiful idea beautifully executed, and an idea well considered, too, as the model of the *standing* angel in the Thorwaldsen Museum plainly shows. The "Christ," standing over and behind the altar is not intended to represent "force and dignity." It says, as plainly as marble *can* say, "Come unto me, all ye that are weary and heavy laden." St. John is always represented with long flowing locks and beardless face; and here Thorwaldsen followed, perhaps unconsciously, old Peter Vischer, of Nuremberg. In the matter of animals, Thorwaldsen certainly was weak. He executed a couple of lions for the vestibule of the palace at Copenhagen without ever having seen a living lion: his study had been a stuffed one at the museum; and in after years he much wished for their removal. Neither was his colossal lion at Lucerne a success. His *forte* was doubtless the nude; and here he had all the delicacy, and roundness, and force of a Canova. Apropos, however, of his apostles, I would add this anecdote. The "Fruenkirke," or *Kirk* of our Lady, consists of a nave with, I think, eight bays, two side aisles, and open chancel; the style is Classic. The walls of the side aisles contain twelve niches, six on each side; and Thorwaldsen, who was then at Rome, was commissioned to execute the "Christ," the Apostles, and the "Preaching of St. John" in the pediment. The exact heights and widths of the niches were supplied to him; but he little relished the idea that his apostles should be half buried in these niches, and the consequence was that when they arrived at Copenhagen, they all proved to be some six inches too high. The result was what the artist had privately wished. The niches are empty to this day; and his apostles stand, free on all sides, on pedestals at the feet of the Corinthian columns in the nave. S.

* The general reader will find a reduced and very badly executed copy of this statue doing duty as a drinking fountain at the corner of St. Clement Dane's Church, in the Strand. There it certainly is a "nothingness," and not a "pretty" one.

MASONIC MUSINGS.

"MASON MARKS."

THEY'RE traced in lines on the Parthenon,
Inscribed by the subtle Greek,
And Roman legions have carved them on
Walls, roads, and arches antique;
Long ere the Goth, with a Vandal hand,
Gave scope to his envy dark;
The saviour craft in many a land]
Had graven its Mason Mark.

The obelisks old, and the Pyramids,
Around which mystery clings,
The hieroglyphs on the coffin lids
Of weird Egyptian kings;
Carthage, Syria, Pompeii,
Buried, and strewn, and stark,
Have marble records that will not die,—
Their primitive Mason Mark.

Upon column, and frieze, and capital,
In the eye of the chaste volute,
On scotia's curve, or on astragal,
Or in triglyph's channel acute,
Cut somewhere on the entablature,
And oft like a sudden spark,
Flashing a light on a date obscure,
Shine many a Mason Mark.

These craftsmen old had a genial whim,
That nothing could e'er destroy,
With a love of their art that nought could dim,
They toil'd with a chronic joy.
Nothing was too complex to essay,
In aught they dared to embark;
They triumph'd on many an Appian Way,
Where they've left their Mason Mark.

Crossing the Alps like Hannibal,
Or skirting the Pyrenees,
On peak and plain, in crypt and cell,
On foot, or on bandaged knees:
From Tiber to Danube, from Rhine to Seine,
They needed no "letters of marque,"
Their art was their passport in France and Spain,
And in Britain their Mason Mark.

The monolith grey and Druids' chair,
The pillar towers of the Gael,
In Ogham occult their age they bear,
That time can only reveal.
Live on, old monuments of the past,
Our beacons through ages dark,
In primal majesty still you'll last,
Endear'd by each Mason Mark.

C. H. C.

Parc Monceaux, Paris.

EMBANKMENT OF THE SOLWAY FRITH.

SIR,—I have just read your interesting article on the Solway. With regard to Lochar Moss, I remember to have seen it stated that Smeaton was the engineer whose plans were followed out so successfully in the reclamation; but I have not Mr. Smiles's book at hand, and cannot give you the particulars. You will, no doubt, be glad to hear that some steps are in progress to improve the embankments, at least on the Scottish coast, of the Solway Frith; as a proof of which I may mention a sea embankment now in progress at Carsethorn. Up till the present year the Solway tide made habitual raids on the Carse shore, which lies between the mouth of the Frith and the shore of the Solway on the Kirkcudbright coast, as well as other banks within its impetuous sweep, without check or challenge, but a bit is being placed in the mouth of its "white horses," in the shape of a great stone-dyke, that will have the effect of restricting their destructive course. The wall was commenced three or our months ago, and has given employment to numerous masons and labourers, who have formed an acceptable addition to the ordinary occupants of Carsethorn, and are keeping up a bustle in the village, now that the summer visitors have withdrawn. The material employed consists to a great extent of Kirkconnel granite: in all about 340 yards have been built, some portions 12 ft. high. By this means the farm of South Carse, tenanted by Mr. Kirk, and which suffered sadly from the ravages of the tide, is well protected; and the workmen are now carrying the defensive dyke further down in the direction of Borron Point. This extensive improvement is being done at the expense of the proprietor of Arbigland. AN ENGINEER.

DISCREDITABLE TENDERS.

THE following list of tenders for the construction of a main sewer for the Local Board of Health, Horfield, Gloucestershire, Mr. J. A. Clark, Bristol, surveyor, deserves consideration

Joseph Storkey	£1,903	0	0
Moses Kingston	1,780	0	0
Beaven & Son	1,778	0	0
George Eastabrook	1,545	0	0
James Harvey	1,525	0	0
Frederic Rumbell	1,423	0	0
R. Merewether & Son	1,280	0	0
George Jenkins (accepted)	1,259	0	0
Edward Osborne	998	0	0

SIR,—Please insert the following, as a glowing specimen of estimating for parochial work:—

For slating, pointing, &c., to Court House, Marylebone.

Sear	£680	0	0
Wheeler	290	0	0
Rowten	225	0	0
Brown	180	0	0
Miller	175	15	0
Poole	174	0	0
Godden & Webb	160	0	0
Seed (accepted)	140	0	0

For outside painting to Christ Church, Marylebone.

Smith	£60	15	0
Ebbs & Sons	59	10	0
Brown	55	10	0
Bennett	55	0	0
Blyth	45	0	0
Rowten (accepted)	37	10	0

E.

TENDERS FOR GAS FITTINGS.

SIR,—The estimates are out for large gas fitting works at the New Smithfield Market to be included in the builder's contract. How much better would it be to have the estimates without the builder's interference. The work could be done cheaper; and, without meaning any slur upon the builders, I should prefer having the Chamberlain for paymaster. W. B.

THE HOLBORN THEATRE.

PIT AND GALLERY ENTRANCES.

SIR,—In the *Builder*, October 6, in describing this theatre, you state "The pit is reached by a passage on a level with Brownlow-street, where also is the gallery entrance." I had hoped that some improvement in such entrances by the building of this new theatre would have been contrived, after the numerous complaints that have so justly been made by the public, but the "facilities" here seem as bad or even worse than those of the oldest theatres. Surely managers, if not architects, must be aware of the struggles that ensue when a dense mass of people are herded together for nearly an hour, in a passage, and only admitted at last by a sideway movement between two doors. At the Holborn particularly is this the case. For the pit-entrance, a pair of folding-doors, some 8 ft. wide, at the end of the passage, form the barrier against which the crowd are jammed, and when they have undergone the regular amount of confinement in an atmosphere of tobacco smoke and foul air to be sufficiently exhausted, one of the doors is opened so as to admit one person at a time, those persons on the off or closed door side finding but little chance of admittance without displacing their left-hand neighbours, and hence the struggle. The strongest or most selfish, of course, obtain the precedence. Add to this the screams of the poor creatures who have been striving on the other side of the partition at the gallery entrance under more boisterous circumstances, and some notion may be formed of the discomfort attending the effort to gain admittance to the pit; to say nothing of the gallery, where the excitement evaporates in a fight or two. I made an attempt at the pit entrance about a fortnight ago, but had to withdraw. I tried again on Saturday, and though very early and near the doors, only succeeded with the skirts of my coat being

nearly torn off. I heard several complaints of the injuries and pains undergone. One gentleman complained of his arm being nearly broken. A woman has but a poor chance without having her clothes torn, or some bodily injury. Now, why should this be? Surely the people who mainly support and advertise the theatre — who frequent the pit and the gallery—ought to receive some consideration, so that their recreation should be really an *enjoyment*; instead of, as is now too frequently the case, a source of vexation and regret.

The "Beer, gents!" nuisance, too, is another cause of discomfort which might be removed; but as to this, I merely ask, in the language of the magistrate in the recent railway smoking case, "Why should second and third class people be annoyed more than first-class?"

ONE WHO PAYS.

DWELLINGS FOR THE POOREST.

SIR,—I was very glad to see, in the last number of the *Builder*, which has ever honourably advocated the cause of the dispossessed and most needing poor, that at Leeds it has been announced that provision can be made "payingly" with a minimum scale of from 1s. to 1s. 6d. per week. A similar calculation, if I recollect rightly, has been lately made at Sheerness.

The great fault of honourable undertakings, including Alderman Waterlow's, and the management of the excellent Mr. Peabody's trustees, has appeared to me all along the making the lowest rate too high. From 3s. or 3s. 6d., I think, to 5s., &c. This would not suit the poorest of all; either single, or, perhaps, with seven or eight persons to be supported on some scanty 12s. per week. I am humbly of opinion that in large buildings decent, small, but wholesome rooms could be made to pay at 1s. 6d per week. What an immense—even blessed—improvement this must be on too often fetid "private lodging houses," of which I have seen an interior or two (!) where an unfortunate inmate, even if for a few nights, who may have seen much "better days," may have to pay for a bed 30 in. wide, with a space at his command of some 7 ft. by 4 ft., and less than 8 ft. high, 4d. per night; or, as a favour, 2s. per week, subject to the contingency of ruffianism or infectious disease in fellow sleepers.

CANTAB.

LIGHTING BILLIARD TABLES.

IN reply to "J. P.,"—having been for many years the manufacturer of billiard lamps, both for gas and oil, and having devoted a great amount of attention to the subject, I find, first in the matter of material, gas, of course, is the best; after which petroleum for brilliancy of light, then colza and sperm oils.

For gas or petroleum, I consider a 6-light lamp (with shades) suspended from the ceiling would be sufficient light: an 8-light lamp, if for either colza or sperm oil, would be sufficient also.

I have lately introduced glass drop cups, so that should there be any overflow of oil, it can immediately be discovered. L. MARTIN.

BLACKBURN.

AT a meeting of the town council, held Oct. 29th, tenders amounting to 3,500*l.* were accepted for the erection of public baths, according to the designs prepared by Mr. Smith, their engineer and surveyor. The building will contain superintendent's residence, one plunge-bath, 20 yards by 11 yards, and 35 slipper-baths. Land has been taken, and the plans arranged for an extension when the requirements of the town demand it.

They also accepted a tender amounting to 1,530*l.* for the erection of a fire-engine station, superintendent's residence, and cottages for firemen, according to designs prepared by Mr. Smith. These buildings will cost about 2,000*l.* to complete.

THE ST. LEONARD'S INTERCEPTING DRAINAGE.

THE TENDER SYSTEM.

A FORTNIGHT ago it was reported in the columns of the *Builder* that the tenders for this work were 2,000*l.* and upwards in excess of Mr. Bazalgette's estimate; and that the commissioners of St. Leonard's had decided not to make the figures public until after they had consulted Mr. Bazalgette on the disparity or error. On Monday a further meeting of the commissioners was held, and the tenders were stated to be as annexed:—

Thirsk (Chelsea)	£14,342	0	0
Stiff (Dover)	10,9 0	0	0
A. Cuming (Kingsland)	8,859	0	0
Kenwood (St. Leonard's)	8,645	0	0
Pearson	8,50	0	0
Fernandez & Co (Tunbridge Wells)	7,318	0	0
F. Nowell (Lewes)	7,250	0	0
C. Haynes (Croydon)	7,200	0	0

The last two were disqualified, as they arrived after the specified time and were not on the form of tender issued by the commissioners.

Letters were received from Mr. Bazalgette, expressing his opinion that the quantities furnished to builders had been in excess, and continuing,—

"I now beg to repeat that I regard those tenders as unsatisfactory, and cannot advise the commission to accept any of those tenders. I have, under these circumstances, requested Mr. W. Webster, the contractor who has executed the largest portion of the Metropolitan Main Drainage works, and is now constructing the Thames Embankment on the south side of the river, to give me a tender for your work, which (after an inspection of the locality with one of my assistants), he is willing to execute for the sum of 6,600*l.*

A contractor in his position could not execute so small a work at a distance so cheaply as a person residing in the neighbourhood; and thus I was led to expect you would have received lower tenders. Under these circumstances I recommend the commission to enter into a contract with Mr. Webster for the execution of the work for the sum of 6,600*l.* They will, at any rate, secure a contractor noted in London for the superior manner in which his works have been carried out."

A letter from Mr. Webster contained a formal offer to complete the works at the figure named above.

It was formally carried—not without a protest from the chairman that the course taken was unbusiness like—that none of the tenders sent in should be accepted; also that Mr. Bazalgette's advice should be taken, and that a contract should be made with Mr. Webster, at 6,600*l.*

BOOTLE, LIVERPOOL.

A MEMORIAL CHURCH, with schools, has been built here, at the expense of one gentleman, a merchant of Liverpool. The church accommodates upwards of 600 persons, and is situated on a most commanding site, formerly owned by Lord Derby, in the parish of Walton-on-the-hill, a suburb of Liverpool.

The plan consists of nave and aisles, chancel, transepts, western tower, spire, and north and south porches. The material used is the local red sandstone, with bands of white Stourton stone, which is also introduced in the arches and hood mouldings of the windows and doors. The whole of the interior is lined with red bricks, banded with black bricks. The arcades are each of five arches, having cylindrical monolith shafts of Darleydale stone, with richly-carved capitals. The clerestory is a series of ten lancet lights. In these arches, and in those of the arcade, red moulded bricks are used, with black bricks and Stourton stone, alternately, with hood moulds of Stourton stone. The aisles have coupled and cusped lancets. The chancel arch is of very lofty proportions, richly moulded of stone and brick, and rests on either side on coupled shafts (monoliths) of Darleydale stone, with carved capitals. The chancel has a seven-sided apse, on each side of which is a lofty cusped lancet, with a richly-moulded internal arch resting on nook shafts, the capitals of which are carved. Between each window is a shaft, on which rest the cusped ribs of the roof, forming a pointed barrel vault of wood. Under the windows round the apse is a wall arcade of stone, moulded and carved, with shafts of Irish green marble,—one bay of three arches forming the sedilia. The south transept opens into the chancel, and in it are placed the children's seats. The north transept is devoted to the vestry and organ chamber, the front of the organ showing both in the aisle and chancel over the stalls. It is of large size, and is being built by Walker, of London. The case is of panelled and moulded oak. The chancel-seats are of oak, with carved bench-ends, with a prayer-desk on each side; the eagle is of oak, resting on the septum wall. The chancel and sanctuary are paved with Maw's encaustic and tesselated tiles, and lighted by a corona of ornamental ironwork by Skidmore. The three arches of the apse over the altar are filled with Salviati's mosaics, the subject being the "Adoration of the Lamb." The rest of the apse arcade will also be filled with mosaics. Three of the windows are filled with stained glass by Lavers & Barraud. The altar-cloth is by Jones & Willis, and the plate is by Keith. The pulpit is of Caen and Hare Hill stones, moulded and panelled, polygonal in plan. The panels are filled with Salviati's mosaics, representing the evangelistic symbols; and the cornice is ornamented with marble mosaics. The lower part of the tower opens into the west end of the nave, and is used as the baptistery. The font stands in the centre of the space. The bowl is inlaid with marbles and mosaics, and rests on clustered shafts of alabaster, and is the work of Mr. J. Forsyth, of London. The seats are of deal, simple in design; and the gas standards are by Skidmore & Co. The tower with spire is — ft. high, and has a peal of six bells, by Naylor, Vickers, & Co., of Sheffield; and the spire is pierced with cusped circles, with a clustered and carved pinnacle at each angle of the broach.

The whole of the works have been carried out from the architects' designs, Messrs. Slater & Carpenter, by Messrs. Dove, Brothers, under Mr. Hale, as clerk of works, and Mr. Ketteringham, as foreman. The pulpit and carving are by Messrs. Poole, of Westminster; and the eagle is by Mr. S. Pepper, of Brighton; the ironwork by Messrs. Skidmore & Co., and Mr. Potter.

The new parsonage is just being commenced; and the contract, for 2,350*l.*, is taken by Messrs. Haigh & Co., of Liverpool. It stands at the east end of the churchyard. The material is red and black brick, with sandstone dressings. The style is Early Pointed, to harmonize with the church.

The new schools stand not very far off the church. They are simple and severe in style; of red brick with stone dressings, and covered with Welsh rag slating. They have to each school-room a class-room, with lobby and lavatory. The walls internally are lined with red brick, and the roofs are open, and of stained deal.

Both buildings are from the designs of the architects of the church.

REPORT ON THE RETURNS OF THE DISTRICT SURVEYORS UNDER METROPOLITAN BUILDING ACT.

THE following is a summary of the report just now issued by the Superintending Architect:—

	Building Operations.	Fees. £	s.	d.
New Buildings in 1865, in respect of which fees have been received	7,059	14,433	18	6
Additions and alterations, and other works in respect of which fees have been received	4,759	5,539	10	3
Arrears of former years received—				
New Buildings	4,800	9,886	16	1
Additions and Alterations, &c.	2,633	3,078	9	0
Total works and fees thereon, during the year ending 31st December, 1865	19,251	£32,972	7	9

The gross fees received in 25 districts vary from 53*l.* to 394*l.*, seven being under 200*l.* each, six under 300*l.* each, and twelve under 400*l.* each. In thirty districts the incomes vary from 422*l.* to 2,104*l.*

The expenses of district offices are 6,353*l.* 7s. 5d. The fees remaining due for all arrears are 23,648*l.* 13s. 6d., but probably mostly of little value. The sums abated or lost are 1,842*l.* 13s. 3d. Compared with the results of former years the present Abstract shows again a considerable increase.

		Works.		Fees received.
In	1856	14,854		£19,9 4 14 11
,,	1857	15,330		20,959 11 4
,,	1858	15,500		21,73 11 2
,,	1859	15,558		22,385 9 2
,,	1860	16,030		22,791 2 3
,,	1861	14,008		21,586 2 8
,,	1862	16,707		25,315 2 3
,,	1863	17,854		29,440 9 9
,,	1864	18,984		31,803 5 2
,,	1865	19,251		32,972 7 9

RATEABLE ANNUAL VALUE OF PROPERTY IN THE METROPOLIS.

A RETURN, in the form of a large sheet, has been issued by the Metropolitan Board of Works showing the value of property in the city of London and the metropolitan parishes within the jurisdiction of the Board, for rating purposes. The total annual value of property as per county rate, or like basis, is 14,524,542*l.* in the present year, the corresponding total for 1856 having been 11,283,663*l.* The rateable annual value now in preparation for the main drainage rate, but not yet approved by the Board, is 15,252,767*l.* This, at 3d. in the pound, would give 190,659*l.* 11s 9d., or 49,613*l.* 16s more than a corresponding rental would have given in 1856.

ST. ANDREW'S CHURCH, DUBLIN.

This new church is rapidly approaching completion, and will be opened for public worship in about six weeks. A description of the design as given in a former number. It will be remembered that the new building is erected from designs selected in an open competition, and which were prepared by Messrs. Lanyon, Lynn, and Lanyon; that owing to the difficulty experienced in raising funds for the proper execution of the works as originally intended, considerable reduction in point of decoration was deemed expedient; and that, among leading features, the tower and spire was, for the present, struck out. It is gratifying to be able now to state that the parishioners have in so far shown good taste, and bethought themselves of their duty, that they will not hand their building down to posterity in an unfinished or mutilated state. The tower and spire are to be forthwith built, at a cost of about 2,800*l*. The height to the top of the vane, which itself will measure 14 ft., will be 180 ft. The ornamentation, in the form of tracerried and shafted openings to the belfry-stage, cusped openings, angle circular stairs, corbelled cornice, &c., will be of simple character, and in keeping with that preserved throughout. The cost has been about 14,000*l*.

A stout and suitably ornamented iron railing and gates, with cut stone dwarf wall, will enclose the whole from St. Andrew's and Suffolk streets.

CHURCH-BUILDING NEWS.

Billingshurst.—St. Mary's church has been re-opened for divine service. The estimated cost somewhat exceeded 1,200*l*. The heavy galleries have been removed; the wall dividing the nave and south aisle, with its four low circular arches, taken down and replaced with three-light painted ones. The chancel and the old chapel on the south side of it have been repaired and thrown open to the church; and a new chapel corresponding in size with the other added on the north side of the chancel. The dormer windows have been removed, and the ceiling of the nave with its carved bosses restored to its original state; the old box pews have been replaced with open seats of Memel deal, stained and varnished; and the north and south aisles and chancel paved with Minton's encaustic tiles. The contractors for the work, which has been carried on under the direction of Mr. R. W. Edis, were Messrs. Wadey & Sons, of this place, the masonry being executed by Mr. Owen Voice. The chancel window, the gift of Mr. Carosew, is the production of Messrs. Hughes & Ward, of Soho, as is also the memorial window in the new chapel to the late Mrs. Carnsew; the subjects of the former are, in the centre compartment, the Crucifixion, on the right the Last Supper, and on the left the Adoration of the Shepherds; the memorial window represents the scene at the Sepulchre, St. Luke, xxiv. 56, and that described in St. John, xx. 17.

Slindon.—The chief stone of a new south aisle to the church has been laid. The edifice is undergoing an extensive repair. The document placed under the stone states that the edifice "was restored in the year of our Lord, 1866, when the north and south aisles were rebuilt, and this foundation-stone laid; seven new buttresses were added to the chancel, and the walls underpinned. The whole was covered in with an entirely new roof. The chancel arch also was re-built, and a new east window put in. The upper part of the tower was taken down, carried up in stone, and completed with a new spire. New seats were put in throughout the church."

Miserden (near Cirencester).—The church here has been restored and re-opened. The Rev. W. H. Lowder, of Wolverhampton, an amateur architect, gave the drawings, and the works have been executed by Mr. W. Restall, of Bisley. The restoration was begun in February. The cost is about 900*l*. The chancel and north aisle, and a monumental chapel on the south side of the chancel, belonging to the Sandys family, have been entirely rebuilt. In the chancel is a small painted window, representing the Good Shepherd: it was paid for by a penny subscription set on foot among the villagers by Miss Mills, the rector's daughter. All the windows have been reglazed. A vestry has been added to the north of the chancel. The pulpit is partly of Painswick stone, having ornamental ironwork fitted in with carved oak panels. The gallery has been taken down; the oaken rafters of the barrel roof have been set in their places and varnished; the font has been restored; and the walls are cleaned. The church has been repewed with open oak sittings. There is an arcade in the south aisle consisting of one pillar with a carved capital. Outside, the walls have been repointed, the roof has been retiled, and the porch restored.

Chaddesley Corbett.—Some time ago we recorded the restoration of the old parish church here, and we now find that its chancel window has been filled with stained glass, which has been designed and executed by Mr. Rogers, of Worcester. There are ten subjects illustrating the life of our Saviour, viz., The Adoration, Presentation, Magi, Baptism, Bearing the Cross, Crucifixion, Resurrection, appearance to Mary Magdalene, Ascension. The quatrefoils at the base are filled with appropriate devices, and the whole is surrounded with rich borderings. In the centre of the tracery is the dove, as an emblem of the Holy Spirit, with choirs of angels playing on musical instruments and bearing scrolls containing texts of Scripture. In the trefoils and quatrefoils are representations of the four Evangelists. The stone-work has been restored by Mr. Haigh, of Kidderminster.

Bristol.—The corner stone of St. Silas's Church, St. Philip's-marsh, has been laid. The style will be thirteenth century. There will be 800 sittings, a large proportion free. The church will consist of a nave, 87 ft. long by 40 ft. wide, and 66 ft. high; and an apsidal chancel, 38 ft. by 32 ft.; an organ gallery, over vestry-room, with staircase communicating with bell-turret; a western gallery; and a north porch, 15 ft. by 15 ft. The roofs will be open, externally slated, and there will be no pillars to obstruct the view; the fittings will be of deal, stained; and the walls will be pointed and relieved with bands of free-stone. The cost, exclusive of the site, will be about 4,000*l*., the nature of the ground causing considerable outlay in putting in the foundations. The architects are Messrs. Popes & Bindon.

Saltburn.—The foundation-stone of the first church erected in Saltburn-by-the-Sea has been laid by the Earl of Zetland. "The Church of Emmanuel"—the name conferred upon the new building,—will, when completed, be a large structure of Early Decorated design, freely treated in the French style. The building has been designed by Mr. J. P. Pritchett, of Darlington, and the works were commenced some time ago. The complete design comprises a nave, with north and south aisles, 89 ft. by 55 ft.; north and south transept, 24 ft. by 12 ft.; chancel, with octagonal apse, 30 ft. by 24 ft.; vestry, organ chamber, north porch and tower and spire at north-east angle, 18 ft. square at base, and 100 ft. in height from the ground to the apex of the cone. It is only intended, however, to erect for the present the nave, the north aisle, and the north transept, this portion offering accommodation for 563 persons. The chancel, it is hoped, will soon follow, and then the tower and spire, leaving the south aisle and south transept to be added when the increase of the congregation shall make such a step necessary. The entire building, when completed, will seat 810 persons. The contractors for the various works are Messrs. Shaftoe & Barry, York, masons; Mr. Elwon, Darlington, joiner; Mr. Wharton, Darlington, slater; Mr. Doyle, Leeds, plumber and glazier; and Mr. Tompkin, of Mareske, painter. That portion of the work at present undertaken will cost about 3,200*l*.

Briton Ferry (Cardiff).—The new church at Briton Ferry has been opened for divine service. The edifice has been built by Mr. Rees Roderick, of Margam, under the direction of Mr. John Prichard, the diocesan architect.

Stockton-upon-Tees.—The chief stone of St. James's Church has been laid. The building is in the Early French Decorated style of Mediæval architecture, and comprises nave, with north and south aisles, chancel, vestry, organ chamber, with tower and spire at the south-west angle of the nave. The extreme internal dimensions are:—nave and aisles, 73 ft. by 47 ft.; chancel, 25 ft. by 20 ft.; and accommodation is provided (all on the ground floor) for 560 persons. Provision is made for future enlargement by transepts and an extension of the nave, by which 180 sittings can be added without interrupting the regular services for more than a week or two. Externally the design presents, on the south side parallel to Portrack-lane, at the west corner, a square tower rising 50 ft., surmounted by an octagonal lantern rising 30 ft. more, and finished with a spire rising to the total height of 130 ft. from the ground to the top of the vane. The building has been designed by Mr. J. P. Pritchett, of Darlington, and is being carried out under his superintendence, assisted by Mr. Law as resident clerk of the works. The contract for the building has been taken by Messrs. J. Simpson & Co., at the sum of 3,648*l*. The carving is to be by Messrs. Burstall & Taylor, of Leeds; the iron and brass work by Messrs. Thomason, of Birmingham; and the final cost, including lighting, warming, fencing, draining, gas-fittings, carving, furnishing, professional charges, clerk of the works, and all other expenses, is expected to amount to about 4,800*l*., exclusive of site.

Poolstock.—St. James's Church, Poolstock, has been consecrated. The design is of the fourteenth and fifteenth centuries. It consists of a nave and aisles, chancel, porch, vestry and chapel forming the transept, and tower. The chancel is 40 ft. long, the nave 78 ft. 6 in. by 53 ft. 6 in., the height to the roof of the nave 47 ft., and the tower is 106 ft. high and 16 ft. square on the inside,—the walls being 4 ft. in thickness. The church has been built of Parbold and local stone, and of light appearance. All the facings are chiselled and the walling fine hammer-punched. The cornices are relieved with gargoyles sculptured. The parapets of the aisles are surmounted with broken battlement-work, with canopies and finials, and the parapets of the clerestory are finished in the same manner. The east end of the nave terminates with crocketed pinnacles. The church is warmed by a hot-water apparatus, supplied by Messrs. Hart & Son, of London. The architect was Mr. E. G. Paley, of Lancaster, and the entire details have been carried out under the supervision of Mr. Stephen Hodgson, clerk of the works. The builders were the Messrs. Winnard & Son, of Wigan. The carved and sculptured work has been superintended, and in the great part executed, by Mr. J. Gregg, of Manchester. The joiners' work has been done by Mr. John Preston. Mr. John Taylor, of Poolstock, has had the painting, staining, and varnishing. Messrs. Lavers & Barraud, of London, have executed the west window; and Messrs. Heaton, Butler, & Bayne, of London, the east window, and those in the north and south sides of the chancel. The entire cost of the church is, we believe, over 15,000*l*.

SCHOOL-BUILDING NEWS.

Norwich.—The new parochial schools for the parish of St. Stephen, which were commenced in April last, by Mr. J. W. Lacey, from designs by Mr. R. M. Phipson, are now completed. The building is situated at the east end of King and Queen streets, Crook's-place; is of red brick, with stone dressings; and comprises large rooms for boys and girls, with class-rooms and offices. These latter, however, are somewhat irregular in form, but this is owing to the peculiarities of the site. The girls' school-room is on the upper floor, approached by a stone geometrical staircase: both it and the boys' school-room are of large size, being 76 ft. long, 18 ft. wide, and 15 ft. high. They are lighted with six large stone-framed windows on the one side, and have two open fireplaces for heating purposes, the air being supplied by means of tubes underneath the flooring. The arrangement for teaching is to be that known as the "grouping" system, each room being divided by curtains into six separate compartments, for the groups of desks, and an open space before each group serving for the formation of classes for instruction in reading and mental arithmetic. The class-rooms are each 20 ft. by 16 ft., and are warmed by an open fireplace. A gallery is to be erected in each of these rooms for the purpose of collective teaching. The woodwork is of red deal, varnished. The roof of the upper room is open, and is also of varnished deal. The total cost, including that of the site, is 1,500*l*.

Nottingham.—The chief stone of a new free grammar school has been laid here, in a field on the north side of the Arboretum. The building is to be in the Perpendicular style of the Lancastrian period. The portion at present being erected takes the form of the letter T, its façade or principal front extending east and west, facing Arboretum-street; its class-rooms and other offices north and south. The front portion of the block contains the classical school to the east, and English school to the west. Each is 60 ft. long and 30 feet wide, and has open timbered roofs, supported with hammer-beamed circular stayed principals, borne by

angels bearing shields of the period. These rooms are 21 ft. high to the eave, and 39 ft. high to the ridge. The schools are divided to the south by private rooms for the masters, and beyond, in the centre, by a visitor's room and library, 36 ft. 6 in. long, and 16 ft. 2 in. wide, with slide doors at each end, so as to unite the schools with the library at pleasure, thus forming an unbroken vista of 160 ft. long. From the entrance-hall, stretching north, is a covered corridor, 93 ft. long and 8 ft. wide, with an open timbered roof, bounded right and left by a suite of nine class-rooms, each 17 ft. by 15 ft. To the west of the corridor is proposed to be a dining-hall, 44 ft. by 28 ft., and a covered passage leading to the grounds. Passing through an arcade to the right of the entrance-hall on the ground-floor, a flight of steps leads to the gallery library over the visitors' waiting-room, 16 ft. by 36 ft., in the centre, and a committee-room over the south entrance, having a terrace on the front overlooking the lawn, the town, and its suburbs. The gallery library is directed from the schools by traceried windows, from which may be seen operations of the schools below. To the left of the gallery library a geometrical staircase leads to the museum and observatory on the third story, lighted on all sides, and surmounted by an octagonal flag-tower. The head-master's house, though detached, is in the same style as the principal block. The central tower will form a prominent object in the very extensive landscape, whether viewed from the north or south. The whole pile is to be built of Bullwell stone, with white Hollington dressings, the estimated cost being about 6,000*l*. The contract is taken by Mr. George Johnson, builder, Nottingham. The architect is Mr. Simpson.

Lydney (*Gloucester*).—New and commodious schools have been opened here. The plans were prepared by Mr. Christian, of London, and the work was begun a year ago. The buildings face westward. There is a large space in front for lawn and flower garden, with a private entrance to the master and mistress's house. Next to the house is the infants' school-room facing the west. This occupies the centre of the building, and in the rear there will be a separate playground. Next to this room is the girls' school—more spacious than the infants', but of similar design. This faces the north. A sliding door at the east end gives access to the boys' school. By throwing back this door the schools may be converted into a room for lectures, &c. The boys have, however, a separate entrance and play-ground, and their windows command a view to the east. The buildings are externally of white stone and timber. The sweep of the roof is broken by pointed gables, and there is a lofty bell-turret of stained wood. The whole frontage is over 160 ft. in length. The lavatories are supplied by water from the roof, and the buildings are well drained and lighted. They are designed to accommodate 180 infants and girls, and 100 boys. The total cost will about 2,000*l*.

Birkenhead.—Some time ago, Mr. W. Jackson, M.P., who is a magistrate here, became impressed with the importance of training friendless and poor children to trades, and he determined to build schools for that purpose, to be dedicated to the memory of the Prince Consort. The schools were built at a cost of 8,000*l*., by Mr. T. B. Walker, upon a site extending over half an acre, in Corporation-road. They will accommodate 200 children—100 day scholars, and the rest, 60 boys and 40 girls, living in the establishment. It is stated that, except one school in Birmingham, this is the only industrial school in the country specially designed for that purpose. The building was made over to the trustees a year ago, but the Mortmain Acts requiring a year's delay, the formal ceremony of handing it over to the representatives of the public was deferred till now, when Mr. Jackson handed it over to the trustees. It was stated that already there are 90 children in the schools, 31 of whom have been committed by the magistrates.

Doncaster.—The foundation stone of the new parochial schools has been laid by the Archbishop of York. The building is intended to take the place of the present one in West Laithgate, erected fifty years ago. It will be Gothic in design, and of an ornamental character. The site is close to the parish church. The ground-plan embraces a residence each for the master and mistress; and connecting the two will be a school-room, which it is intended to set apart for infants. A parlour, scullery, kitchen, and three bed-rooms will be attached to each residence. Over the master's house will be a room, 50 ft. by 30 ft.; a room of the same dimensions will be over the mistress's house; and above the infant-school two class-rooms, 30 ft. by 14 ft. 7½ in., will be erected. Access to the school-rooms will be gained by a staircase in the form of a tower. The rooms will have open timber roofs, will be lofty, and fitted up and lighted by large tracery windows of four lights each at the ends. A distinction is to be made between the domestic and scholastic portions of the building. The front, which will be on the side next the church, will be built of brick and Ancaster stone, the same as used in the erection of St. James's Church; and on this side the edifice will be inclosed by a light ornamental iron fencing. The roof will be covered with Staffordshire tiles. Playgrounds of ample extent will be provided for both boys and girls. The building will have a back front towards Church-street, of an ornamental character, but not quite equal to the north, or principal front. Accommodation will be afforded to 180 boys, an equal number of girls, and 100 infants. Mr. J. F. Teale is the architect; and Mr. Athron the contractor for the whole of the work, at a sum of 3,800*l*. Between 4,000*l*. and 5,000*l*. have been raised for the erection of these schools. Dr. Vaughan gives 1,000*l*. to the building fund, besides having purchased a fourteen years' lease of the property.

STAINED GLASS.

St. Mary's Church, Burghfield (*Reading*).—Four painted windows, representing the four Evangelists, have been presented to this church by Mr. R. P. Boyd. They were painted by Mr. Josh. Bell, of Bristol.

Trinity Church, Heigham (*Norwich*).—A memorial window has just been put up in this church. The subjects are, "Christ Blessing Little Children," and "The Raising of Jairus's Daughter." The window has been executed by Messrs. King, of Norwich.

Haslingden Parish Church.—A new window, of five compartments in width, and two lights in height, besides tracery, has been inserted in the east end of this church. The five lower compartments represent the Last Supper, from the famous picture of Leonardo da Vinci; our Saviour in the centre alone, and three apostles in each of the others. The upper lights represent the Crucifixion, with the Roman soldiers; weeping women and apostles filling the compartments on each side. A large centre light in the tracery represents the Ascension. The other portions of the tracery are filled in with angels and other figures, of various designs. The stonework of the window is new also, being in the Decorated style. The whole stone and glass has been executed from designs by, and on the premises of, Messrs. George & J. R. Shaw, architects, St. Chad's, Saddleworth, near Manchester, who during the last twelve or fourteen years have put in several dozens of windows of this kind in various churches in the country.

York Guildhall.—A design has been furnished for a stained-glass window which is about to be placed in this hall, at the cost of Mr. R. Farrer, of this city. In the upper compartments of the window, are,—1st, the arms of the city of York, surmounted by the Cap of Maintenance; and, 2nd, the arms, crest, and motto of Mr. Farrer. In the centre is King Edgar, who, standing before his throne and holding the sceptre, announces to the ecclesiastical and military chiefs of the north his grant to them of the privilege of making or choosing the laws for themselves. On the right of the king is his chancellor, holding the charter recording the commission. Next the chancellor is Oskytel, Archbishop of York, who, with his principal clergy, would in that age necessarily form part of any legislative assembly. On the opposite side is Oslac, Earl of Northumbria, who is called in the Saxon chronicle, "the beloved hero," "hoary-headed," "wise, and word-skilled." With him are other northern chiefs, one of whom bears aloft the royal sword of State. Behind these chiefs is the Dragon, the ensign of Wessex, Edgar's principal kingdom. As Edgar abstained during many years of his reign from wearing his crown, it has been omitted in this representation of him. In the lower compartments of the window are introduced the Dragon, the Raven, and the White Horse, the ensigns of Wessex, Northumbria, and Kent. Other windows of a similar character have been promised for the guildhall, and the design for that given by Mr. Cabry is in preparation. The window to the memory of Mr. Alderman Clark is also in hand. One has been promised by Mr. Watkinson, but a subject has not been chosen.

Tremeirchion Church, St. Asaph (*North Wale*). A triplet window in this church has just be filled with a stained glass memorial, erected Captain Pearson, Madras Army, to his wi who died after having given birth to her fi and only child. The subject is the birth of t infant Saviour, with the wise men and shephe presenting their gifts. The window is made harmonize with the other windows in the churc one of which is in memory of the late M Hemans, and was executed by the late M Oliphant; and another to the late Mrs. Hic Owen, sister to the poetess, and composer of t music to several of her beautiful lyrics. T windows to Mrs. Owen and Mrs. Pearson ha been executed by Messrs. Ballantine & Sc Edinburgh.

Ilfracombe Parish Church.—A four-light w dow in this church has been filled with memor glass to the late Arthur Ewen Stabb, Lieutena and Adjutant 1st Batt. 16th Regiment, and h been erected by his brother officers. The su jects are—1st, "The Just Steward," in referen to the manner in which Mr. Stabb had d charged his duties as adjutant; 2nd, "The Ce turion coming to Christ," illustrative of his co duct as a Christian soldier; 3rd, "Jesus raisi the Widow's Son;" and 4th, "The Angels sayi to the Marys at the Tomb, 'He has risen, giving hope and assurance of resurrectio This window has been executed by Messr Ballantine & Son.

St. Petersburg.—A stained glass window h been recently forwarded to St. Petersburg Messrs. Edmundson & Son, for a Protesta Church in that city. The style of window the Decorated, and it is composed of two ligh and tracery. The principal subjects are, Jose and the Virgin Mary, with canopies and e richments in mosaic. The tracery contai Samson struggling with the Lion, "and he re him as he would have rent a kid" (Judg xiv. 6). The church is called "The Samson."

Books Received.

Villa and Cottage Architecture: Select Exam ples of Country and Suburban Residences r cently erected by various Architects. Parts to IX. London: Blackie & Son, Paternoste row.

We are constantly asked by "persons about to build, sometimes indeed by "persons about marry," for the name of a book containing d signs for small houses to assist in settlin their ideas, and enabling them to instruct the architect properly. If it had been our practic to reply to such inquiries we could scarcely hav done it in a way that would be wholly satisfa tory. We are very much disposed to think th if Messrs. Blackie's book be completed with th exercise of some little extra care and knowled as to subjects desirable for selection, it w supply the want here pointed to. Nine the eighteen or twenty parts of which it is consist are already published; and if we giv a list of the buildings illustrated in them, wit the cost where it is stated, it will serve t show the scope of the work. A villa residenc at the Firth of Clyde, Scotland, Mr. Rochea architect (1,783*l*.); residence, Lochlong, Sco land, Mr. J. Gordon (2,000*l*.), details clever three cottages, Thirsk, Yorkshire, Mr. E. L Lamb (about 800*l*.); ornamental cottage, Highgate, Mr. Darbishire; residence, Loch long, Messrs. Thomson (966*l*.); residence, Trinity, near Edinburgh, Mr. J. C. Walke (1,236*l*.), odd in external design; residenc Tufnell Park, Holloway, Mr. G. Truefitt (abou 2,000*l*.); residence, near Kilcreggan, Firth Clyde, Messrs. Thomson (1,154*l*.); double res dence, Derby, England, Messrs. Hine & Evar (about 1,800*l*. the pair); gates and garden-wal Lochlong, Messrs. Thomson (57*l*.); cottage, Lundin Links, Fifeshire, Mr. J. C. Walker (511*l*.) residence, at Grange, Edinburgh, Messrs. Pate son & Shiells (826*l*.), clever and cheap; and cottage *orné*, Essex, Mr. Kendall, jun., full illustrated.

The buildings are illustrated by well-executed engravings of plans, elevations, and section perspective views being added, and, wher necessary, enlarged drawings of constructiv details. Short descriptive particulars of th site, materials, mode of construction, and so on accompany the engravings; and we detect in th

latest of these evidence of a more practised hand than was observable in the first: this will doubtless extend to the selection of subjects, which in succeeding parts should include a larger proportion of English designs, as cost may be supposed to vary in the two countries.

There are many persons by whom this book will be found very useful, and to them we recommend it.

Revue Artistique et Littéraire. Paris: Rue Bréa 5.

This little artistic serial is now the organ of the *Société libre des Beaux Arts*, and contains reports of its proceedings. The Society seems at this time to be in full activity: M. Charles Lucas is the general secretary. The *Revue*, which is conducted by M. Louis Auvray, sculptor, usually contains, amongst other articles, an interesting chronicle of events connected with the fine-arts during the month.

Occasional Essays. By Chandos Wren Hoskyns. London: Longmans & Co.

These essays treat of the Invisible World (of oxygen, nitrogen, steam, &c.), in a lecture addressed to the members of the Ross Literary Institute in 1861, of which, at the time, Mr. Hoskyn was president: and they also comprise an address to the Warwickshire Natural History and Archæological Society; an essay on agriculture; and one on property in land, titled "Landlord;" also a lecture on "The Battle Line of History," delivered to the working classes of Leominster in 1863. The work is well written, and contains a good deal of interesting scientific and other literary matter. Mr. Hoskyns is the author of "Talpa, or the Chronicles of a Clay Farm;" and "An Inquiry into the History of Agriculture."

VARIORUM.

"A Handy-book of the Law of Friendly Societies in England and Wales," by H. F. Gibbons, LL.B., Barrister-at-Law (Tegg, publisher), must be useful to thousands connected with friendly societies. The Manchester Unity alone has 387,990 members.——"Outlines of Political Economy;" by Geo. H. Smith (Longmans & Co.), is a sort of primer, designed chiefly for the use of schools and of junior students. The subject is one with which youths somewhat advanced in their school education certainly ought to be made acquainted; and the present primer seems to be a very good one to begin with, although, doubtless, such a work will require frequent revision and republication ere it become a standard school-book. We extract a short passage on theory and practice,—a subject on which rather vague and erroneous ideas prevail, — as a specimen of the author's style and general mode of treating his subject:—"There is a notion common enough even among the so-called educated classes that science and fact, theory and practice, are things not merely distinct, but opposites. How frequently do we not hear it said—'He's a theorist, not a practical man.' Yet practical men are indebted for whatever they practise to theorists. The science of mechanics depends upon that of mathematics. Voyager and traveller owe their present facilities of locomotion to theory. The inventor of the art of printing was a theorist: look at the grand results of his theory. A new world was added to the old, was 'called into existence,' as it were, by a theorist—for long, long years reputed a dreamer. Upwards of twenty years did Columbus wander in vain from court to court, to persuade monarchs, statesmen, and capitalists to furnish him with the means for carrying out his plans—his theory; and for that tedious and bitter period he was the mock, jest, butt, and scorn of practical men."

Miscellanea.

Contemplated New Pier at Southport.—The plan of a new pier for Southport has just been drawn out, and submitted to public inspection. The new project is to be called "The Southport and Birkdale Royal Crescent Pier," and is to run in the shape of a curve or half-moon from the western extremity of the promenade, opposite the Royal Hotel, extending seawards 1,400 yards; with all necessary convenience on a largely extended scale.

The late Mr. Godfrey Sykes.—Her Majesty has been pleased, through Lord Derby, to confer a pension of 75*l.* a year on the widow of the late Mr. Godfrey Sykes, formerly a pupil and teacher of the Sheffield School of Art, and the architectural decorator of the South Kensington Museum.

New English Church at Lyons.—Arrangements are in progress for erecting a new Episcopal church at Lyons, for which purpose an eligible site has been secured on the Quai du Rhone, and its purchase approved of by the authorities of Lyons. Upwards of 2,000*l.* are still required ere the work can be commenced.

Opening a New Sailors' Orphan Asylum.—The Archbishop of York has opened a new sailors' orphan asylum at Hull. This is the second home there for children of sailors who have perished at sea. Mr. John Torr, of Liverpool, subscribed 2,500*l.*, and the Trinity House of Hull gave the land necessary. The home will accommodate from 80 to 100 children.

Presbyterian Church, Leicester.—A new Presbyterian church is about to be erected on the London-road, on the vacant land at the corner of Station-street. It will be a handsome building, capable of holding 1,000 persons, and is calculated to cost from 4,000*l.* to 4,500*l.* The design is in the Early Gothic style, and has been prepared by Messrs. Bidlake & Tait, of this town.

Value of Land at Melbourne.—Seven hundred and forty pounds a foot is not a bad price for land, yet that is about the sum paid on Wednesday by Messrs. Buckley & Nunn for a small portion of Bourke-street, on which a part of their business premises is erected. For 27 ft. frontage they paid no less a sum than 20,000*l.* The land is about 200 ft. deep, and in 1839 was purchased from the Government at the original land sale in Sydney for about 10*l.*—*Melbourne Paper.*

A Liverpool Institute of Civil Engineers. On the 24th a preliminary meeting of the civil and practical engineers of Liverpool was held in the Royal Institution, Colquitt-street, to consider the desirability of forming an Institute of Engineers, similar to those which are so successfully in operation in London, Glasgow, and other large towns. Mr. Pope presided. It was resolved,—"That this meeting, deeming it advisable to form an Institution of Engineers in Liverpool for the reading and free discussion of papers, hereby resolve to give it their utmost support, and favour its interests to the best of their ability. It is further resolved that this meeting considers such institution desirable, not only for the discussion and dissemination of knowledge, but also for the benefits to be derived from the mutual intercourse of the members." A code of rules was afterwards submitted and passed provisionally. It was resolved that the society should be called the "Institute of Engineers in Liverpool," and a meeting will be called forthwith.

The Fortifications at Newhaven.—The new defences in course of construction at Newhaven were designed, we are told, by Lieut. Ardagh, R.E., who is also the superintending officer; Colonel Hanshawe, R.E., being the commanding engineer; Mr. Hall, C.E., the resident clerk of works; and Sergeant McCaughey, R E, the military foreman of works. They are situated on the cliff to the west of the harbour—the site of the old small battery—and embrace about 15 acres in extent. They are being constructed by Mr. John Kirk, of Woolwich; his son, Mr. Frank Kirk, personally superintending. It is stated that the works, which were commenced a little over two years ago, will take other three years to finish, and that the probable cost will be 150,000*l.* The average number of men employed in the construction of the fort is about 250. In addition to about 20 horses, three steam-engines are in constant use—one for making bricks, from clay obtained in an adjoining field; another for raising shingle over the face of the cliff; and a third for grinding burnt ballast and the making of mortar. From seven to eight millions of bricks alone will be used in the construction. The fort is an irregular one, and will mount 42 guns. The walls are concrete, made of shingle, obtained on the spot, and Scott's cement, supplied by Messrs. Rickman, of Lewes. The internal arrangements are of the usual character. It is thought not impossible that as Portsmouth is to be fortified with iron facings to the works instead of granite and iron, the same course may eventually be taken at Newhaven.

"Manchester Mems."—Mr. Leppoc wishes us to say he is not the *chairman* of the Manchester Albert Memorial Committee,—only a member of it. We drew our inference from reports of meetings of it whereat he so acted. Mr. Leppoc adds,—"The late Mr. Goadsby, the mayor of Manchester at the time, was the chairman of the committee, and after his decease the subsequent mayors were allowed to take the chair by courtesy, though not specially appointed."

Memorial Fountain, Dunkeld.—On Monday last, the Duchess-Dowager of Athole inaugurated a fountain, which has been erected by the inhabitants of Dunkeld and other friends, in memory of the late duke. A committee was appointed by a public meeting of the inhabitants for carrying out the memorial; and on its having been resolved that it should assume the form of a fountain, they chose a design which had been prepared by Mr. Charles S. Robertson, architect, Perth. On the front of the pedestal the following inscription has been carved in Mediæval characters:—"To the memory of George Augustus Frederick John, 6th Duke of Athole, K.T." On the north side—"Born Sept. 20, 1814; died Jan. 16, 1864." And on the south,—"Erected by the inhabitants of Dunkeld and other friends, 1866."

Associated Arts Institute. — On Saturday evening last, the members of this society held their first meeting of the season 1866-7. The Associated Arts Institute was established for the delivery of addresses and the holding of debates on questions connected with the fine arts and for the exhibition of sketches. The great objects of the Institute are to promote social intercourse among young artists, and to afford them the means of improving their tastes. An annual subscription of 5*s.* entitles an artist to the privileges of the Institute. At the opening meeting on Saturday evening, Professor Westmacott, R.A., presided. In his address, he said he could not help referring to travelling as a portion of a student's studies, and the use of travelling was shown by the opportunity it gave the artist, and more especially the architect, to judge of the Catholicity (if he might so call it), the universality of art as a means of expression—a means of expression which varied in many of its departments. Merely copying works of art, whether Classical or Greek, Mediæval or Gothic, or any other form, was not real art. The object of art was to express sentiments, and those must vary very much according to the locality and the special influences to which a people were subjected. A mere copying of forms, merely reproducing those in former times of other nations, was not the expression of a particular time nor of particular ideas, neither could it be so.

Fall of a Railway Tunnel.—A sad accident has occurred in the tunnel at Bradway, near Dronfield, of the new Midland Railway from Sheffield to Chesterfield, one man being killed and four injured. To facilitate the making of the tunnel, a number of shafts have been sunk in the Bradway-hill; and the accident occurred in the excavation from No. 3 shaft, some forty or fifty yards from the bottom. At the time of the accident twenty-two men were at work in this part of the tunnel. For some distance this portion of the tunnel had been driven through the solid rock. The roof was firm, requiring little support. The tunnel is being arched with brick to the thickness of 2 ft. 6 in., and, preparatory to the arching, the roof has been supported by beams of timber about 17 in. in thickness, and beams being placed lengthwise of the tunnel, and borne up by strong props at each end. A few days ago the edge of the rock was reached in No. 3 shaft, and a treacherous roof of bind succeeded to that of stone. The bind had a rather firm appearance, but, nevertheless, the supporting beams were increased to five, in order to provide against accident. There was considerable pressure on the beams; indeed, one of them had been slightly sprung. As the beams were 26 ft. long, it was decided to support them in the middle. Accordingly, instructions were given for the placing of a strong cross-beam of timber, supported by props. This cross-beam was being raised to support the centre of the long beams, when the accident happened. The long beams snapped in the centre, at the very spot where, in a few moments, they would have been firmly supported. In about an hour the missing workman was found under the middle of the fallen mass, of course quite dead. The coroner's jury returned a verdict of "Accidental death."

LONDONDERRY.—The Lord-Lieutenant, at the invitation of the committee of the local Young Men's Christian Association, has laid the foundation-stone of an edifice which, through the liberality of the gentry in the neighbourhood and the Irish Society, is about to be erected in Londonderry, for the purposes of a literary and scientific institute. The architect is Mr. J. G. Ferguson.

WORKHOUSE MANAGEMENT.—The *Lancet* says Sir Thomas Watson, Bart., M.D., F.R.S; Dr. Acland, F.R.S.; Dr. Sibson, F.R.S.; Mr. Charles Hawkins, Mr. T. Holmes, Dr. Randall, together with Mr. Corbett, Dr. Markham, and Dr. Smith, have been appointed by the President of the Poor-law Board as a committee to consider the subject of cubic space and hospital accommodation in the metropolitan workhouses.

MONT CENIS.—A letter from Florence says that the great enterprise of piercing Mont Cenis has now been completed to one-half of its extent. The tunnel, which will be 12,220 mètres (7½ miles) in length, is already pierced 6,110. M. Jacini has just sent a special commission to the spot to draw up a report on the means of completing this undertaking in three years. Parliament will be asked for the necessary funds in the approaching session.

BRISTOL CATHEDRAL RESTORATION.—A meeting of gentlemen interested in the proposed erection of the nave of this cathedral has been held. Mr. Wait stated that Canon Norris and himself had worked together very actively in soliciting subscriptions, and the result was contributions amounting altogether to nearly 11,000*l*. Various resolutions having been passed, a committee was appointed to confer with the dean and chapter, and a memorial addressed to that reverend body was agreed on.

VILLAGE HALL, KIBWORTH.—A village hall has been erected here, by a company, having 100 shares of 5*l*. each, making a capital of 500*l*. The whole of the shares have been taken, and the money paid. Messrs. Goddard & Son were the architects, and the edifice has just been opened. There is in the front a reading-room, about 14 ft. square, and an entrance-hall by the side, which leads also into the large room, which is 50 ft. by 25 ft. The walls are limewashed, and look very plain. The contractor for the work was Mr. John Loveday, of Kibworth. The brickwork was done by Mr. J. Mason, and the glazing by Mr. Bryant.

BATHS AND WASHHOUSES FOR ST. PANCRAS.—On the 29th ult. a special meeting of the representative vestry of St. Pancras took place for the purpose of determining the question of sanctioning, in accordance with the provisions of the Baths and Washhouse Act, the borrowing by the Baths and Washhouse Commissioners a further sum of 6,500*l*. for the erection of baths and washhouses, in addition to the 12,000*l*. the commissioners have already received the sanction of the vestry to borrow for that object. After an animated debate the numbers were declared: for sanction to borrow the additional 6,500*l*., 31; against it, 15—majority, 16.

MORTALITY, BOMBAY.—The British troops in the presidency of Bombay, between 12,000 and 13,000 in number in 1865, suffered in that year a greater mortality than for many years past. The deaths were no less than 35 per thousand of strength, or considerably more than double the mortality of 1864, and this without including deaths among invalids embarked for England. The prevalence of cholera was the chief cause of the increased mortality, the European portion of the army losing 16 men in a thousand from cholera alone. The native troops in the Bombay presidency were about double the number of the British troops; the military returns give a mortality of 16·1 per thousand, the medical (hospital) returns only 14·8. So far as complete returns of deaths among the civil population have been obtained, the mortality was 20 per thousand of the population as enumerated in the census of 1851, 17·4 excluding the deaths from cholera. At Ahmedabad, where, besides cholera, a fatal fever was epidemic, the gaol mortality was more than 265 per thousand; and at Hyderabad 256·8 per thousand. The most important sanitary measure of the year was that for relieving the soldiers from overcrowding in barracks, and by temporary accommodation securing to each man the full standard floor superficies of 90 ft., without waiting for the requisite permanent barrack accommodation.

FIRE AT TOTTENHAM HIGH CROSS.—A destructive fire has occurred in Tottenham. It originated in the workshops of Mr. S. Cooper, builder, and destroyed these and various other premises adjoining.

DWELLINGS FOR THE POOR IN AMERICA.—The houses for the poor, for which Mr. A. T. Stewart, of Newport, U.S., has announced his intention of giving 1,000,000 dollars, as mentioned in our last, are to be built in New York, and not in Newport, as stated.

DUNSTABLE NEW CLOCK TOWER.—In answer to the advertisement of the town council of the borough of Dunstable, forty-three designs were sent in for competition for the proposed clock-tower to be erected in the centre of the four cross roads, High-street and London-road, opposite to the Red Lion Hotel. After a careful examination, the design sent in by Mr. Joseph Neale, architect, of Baldwin-street, Bristol, has been selected.

TRADE UNIONS AND POLITICS.—The sub-council of the "Birmingham and District Trades' Council," in an address recently issued, advise the Trade Unions to use their organization for political purposes. It is our duty, they say, "to use every means within our reach to obtain for ourselves our right to a voice in the election of the men who are to make the laws by which we are to be governed and taxed, and to exercise that right in support of those whose power and ability fit them to assist in freeing the industry of this country from the political bondage in which it at present lies bound."

THE SANITARY CONDITION OF HOP-PICKERS.—A numerously-attended and influential public meeting of the landowners and hopgrowers of West Kent has been held in Maidstone, and an association formed for regulating the employment and improving the sanitary condition of the many thousands of destitute persons who arrive from the metropolis and other places during the hop harvest. The chair was occupied by the Earl of Romney, who was elected as president of the association. A committee of management to carry out a system of agency and other details was also appointed. The Vicar of Marden strongly recommended the provision of proper residences for the hop-pickers. We earnestly hope that the association will be strongly supported by the public. The way in which the hop-pickers "pig" together at present is abominable.

THE YORKSHIRE WOLDS TUMULI.—After the openings in the sepulchral mounds of the prehistoric tribes remaining on the Sherburn and Ganton Wolds, near Scarborough, the Rev. W. Greenwell, of Durham, and with him Sir John Lubbock, Sir Tatton Sykes, and several other gentlemen interested in archæological matters, spent a week in investigating the structure and contents of three round barrows on the estates of Sir Tatton Sykes, on the summit of the mid-wold range above Weaverthorpe, East Riding. The openings already reported were of a peculiarly rude and poor people; but at Weaverthorpe the barrows proved to be, although of the neolithic period, of a people far more advanced in the art of fashioning flint into weapons, but still belonging to the stone age. With many of the burials highly-wrought flints were found, but not a single trace of metal of any kind was met with. Evidence of a knowledge of spinning was discovered in the shape of a spindle-whorl of clay. Other wolds have since been examined.

THE PROPOSED DIRECT ROUTE FROM ISLINGTON TO THE CITY.—A public meeting has been held in Myddelton Hall, Islington, for the purpose of promoting the proposed route from Essex-road, Islington, through Packington-street, Shepherdess-walk, Bath-street, Bunhill row, Type-street, and Moor-lane, into the heart of the City. Mr. Alderman Lusk, M.P., took the chair. Several members of the Metropolitan Board of Works were present. Resolutions were carried to the effect that the meeting urges the different vestries on the line to use their best endeavours to procure the opening of the line of road; that justice to the north-eastern portion of the metropolis requires that the Metropolitan Board should carry out this proposed improvement at its own cost, the meeting asking the vestries to impress this view on their representatives; and that no time should be lost in at once carrying out the improvement, on the score of economy in the expenditure of public moneys, the meeting respectfully urging this view upon the vestries and the Metropolitan Board.

BUILDERS' BENEVOLENT INSTITUTION.—The annual dinner took place on Thursday evening: we defer report of the proceedings.

MONUMENT IN LYNDHURST CHURCH.—There has been recently erected a tomb monument, at the altar end on the north side of Lyndhurst Church, Hants, to the memory of Mr. Hargrave. It is in the Decorated style, designed by Mr. Street. There are, in parts of it framed in panels, some sculptures with reference to the life of Our Saviour. At the east end, under a large painted glass window, is Mr. Leighton's fresco from the parable of the Ten Virgins.

"TAKE TO THE BOATS."—In times of shipwreck or collision of vessels, or when a ship is rapidly sinking, it often happens that there is no time to launch the boats, and, consequently, many lives are lost. I am no mechanic, but would venture to suggest to those who are, whether it would be possible in our iron ships to have a groove (something like a small *tram*) on the side of the ship, down which a boat, kept at hand, could instantly be slid into the water? It is but a vague suggestion, but perhaps you will have the goodness to admit it.—H. B.

NEW PATENT FIREBRICK REGISTER STOVES.—Amongst recent improvements is a new stove for the ordinary fireplace, invented by Mr. Welch, a retired architect, of provincial celebrity, which is arranged with the view of giving a much greater amount of radiation than usual from its front; presents constantly a clear and bright fire, free from dust and ashes; throws out an abundant supply of warm air from the back of the stove, for the purpose of changing the air of the room; and, by preventing too large an ingress of cold air into the chimney, insures an ascending power that lessens the liability to return of the smoke.

HANDSOME.—A dinner of a very exceptional character, so far as its object was concerned, took place on Monday night at the Albion Tavern, Aldersgate-street. The occasion was that of a gentleman being *fêted* by his creditors, to whom ten years ago he could, from stress of circumstances, pay but 5s. in the pound, but to whom he has since paid the balance of 15s., notwithstanding the law exempted him from all such subsequent liability. Amongst the creditors and others who deemed such an act of principle worthy of their recognition, and who chiefly promoted and carried out the entertainment, were Mr. Collingridge (proprietor of the *City Press*), Mr. W. Spicer, Mr. Reed (Chief Constructor of the Navy), Mr. King, Mr. John Kaye, Mr. Newton, Mr. Clarke, Mr. Benson, of Ludgate-hill, Mr. Francis (of the *Athenæum*), Mr. Snow, Mr. Edis, Mr. C. H. Collette, and Mr. John Hodge (of the firm of Spalding & Hodge). Between forty and fifty gentlemen, presided over by Mr. John Hodge, were present to do honour to their guest, Mr. Passmore Edwards.

OPENING OF THE CROYDON NEW WORKHOUSE. This ceremony took place on Thursday in last week. The style is Italian, very plain. In the centre is a tower 70 ft. high, and along nearly the whole length of the building is a stone balcony. Beneath the tower is the chief entrance—a doorway, 8 ft. wide, and over this is a semicircular arch. The line of the building in front is broken near to each end, and the space between the two wings and the centre is filled up with an arcade, surmounted by open stonework. The materials employed in the erection are Portland stone and Suffolk bricks. The site is near the new cemetery, on a portion of what was formerly Croydon Common. The building presents a façade to Queen's-road of between 300 ft. and 400 ft., and a depth of 200 ft. Accommodation is provided for 180 men and 100 women. The airing hall—a room 50 ft. by 40 ft.—is in the centre of the building, and immediately over this is the chapel. The master's residence is near the tower, and the stores and workshops are at the rear. The work has been carried out by Mr. H. Hart, of London.

TENDERS

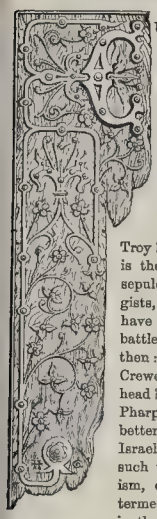
For new schools at Summercotes, Derbyshire. Mr. Benjamin Wilson, architect:—

Thompson	£1,115 0 0
Evans	1,061 0 0
Morrias	995 0 0
Brasbary (accepted)	995 0 0
Ironmonger	921 0 0

The Builder.

VOL. XXIV.—No. 1240.

Sketches in Dumfries.



CURIOUS inquirers into the nature and occurrence of those places which are usually denominated landmarks of history, cannot fail to perceive the remarkable manner in which they partake of the evanescence of things which are of this life and temporal. Where must we look for the site of ancient Troy? or of Carthage? Which is the true vault of the holy sepulchre? Our best archæologists, as we saw the other day, have doubts as to the real battle-field of Hastings. What then: have we not dug up Crewe and discovered Birkenhead? Are not Abana and Pharpar, rivers of Damascus, better than all the waters of Israel? Alas! we are afraid such utilitarianism or rationalism, or whatever it may be termed, is something too much in the ascendant in these days. Nevertheless, we must continue to respect the landmarks. We shall still reverence the shrines, even although we cannot always afford to be pilgrims; and far distant be the day when we shall cease to care about the birth-place or the burial-place of those great men, be they poets, philosophers, warriors, or statesmen, whom the united testimony of mankind has signalled out.

The quaint, old-fashioned, yet picturesque, town of Dumfries, in the south of Scotland, of which we propose to give some account, has in this view a right to hold a very high position in the scale of historical interest,—in the first place, on account of its antiquity; secondly, owing to the great political events with which its history has become interwoven; and finally, because of its own intrinsic qualities as a royal burgh, a populous town, and the capital of a very large and important district of country. There is no town in all Scotland, in our opinion, whose history is more interesting; for Dumfries connects by a regular and uninterrupted succession of events two great epochs—probably the two greatest epochs—of Scottish history,—that is to say, its struggles for political independence under Robert Bruce, and for ecclesiastical liberty under Robert Burns. It had its own troubles during the civil war and the rebellion; and stood its own share of the cost, as Frankfort has had to do in our time. While Glasgow, now the third port of the British empire, consisted of a few rude houses surrounding the cathedral, and while Greenock was yet a small fishing hamlet, Dumfries was already regarded as Queen of the South. Although its commercial importance has fallen off and been superseded by younger or more spirited rivals, it is still the great entrepôt of the south-west of Scotland for the sale or exchange of commodities between it and the north of England. Other northern towns,—Perth, for example, or Stirling,—may excel it in the question of site, and in that indefinable quality which topographers describe as *alignment;* yet Dumfries is one of the most beautiful and certainly by far the most comfortable-looking towns in Scotland. This character arises to some extent from the circumstance that the principal buildings of the town itself, and the whole of the rather tasteful villas which compose its suburbs, are constructed of the splendid red sandstone of the district, which varies in tint from a dull brick-red to the most delicate shades of pink. Whatever architectural value the Dumfries buildings may possess—and it is impossible to deny that there is still great room for improvement—there can be no cry about the *want of colour* to which it is often said Scotsmen are so blind. Then we have a very fine old bridge, and a rather awkward-looking but substantially-built new bridge, spanning the beautiful river Nith, and forming the connexion between Dumfries and the little borough of Maxwelltown, which flourishes in a sort of inglorious independence on the opposite bank of the river.* And there are curious old gables and dormers jutting out here and there on the irregular old streets, with an antique spire or an old-fashioned belfry and steeple to carry up the eye, that irresistibly recall some Mediæval Dutch town, like Utrecht, or, in a lesser degree, the curious skylines of Nuremberg. One remarkable quality Dumfries seems to possess. There is a marvellous difference of individual type in her street architecture. It would be quite possible to find illustrations in the High-street of Dumfries of the covered ways of Chester; the red-brick and heavily-moulded architraves and projecting cornices of York; the Scottish baronial of Pinkie or Glammis Castle; the stunted porticoes of Brighton; a sprinkling of the angular roofs and unjointed ridges of the Gothic renaissance; and finally, a large preponderance of the attached pilasters, the Corinthian capitals, and the segmental pediments which distinguish the debased Italian. If we add to this that there is a certain air of repose about Dumfries which we do not often find in a country town (unless, perhaps, it may be in Chester), and also, to our apprehension, a certain air of waning superiority, approaching to a gentle melancholy, we shall have conveyed a tolerable idea of our first impressions of Dumfries.

In investigating the rise and progress of towns, natural influences ought to be carefully considered; and, in this case, the suitableness of the site is so obvious, that we readily find a clue to the origin of Dumfries. The range of the Galloway Hills which overlook the town seems to form the natural channel of communication between the countries; and through it, probably, travelled some of the aboriginal Scots or Picts of Galloway, to find fresh fields and pastures new on the western banks of the Nith. These roving septs, we may suppose, often marched over the Border to harry the English herds. After passing through the ravine, the brawling river arrested their progress, and had to be crossed by their frail skiffs; until at length they thought of settling down as a colony on the left or Dumfriesshire bank. In course of time, they spread up the drum or woody side of the brae, now occupied by the Friars' Vennel, and erected at the top of the acclivity a peel-house for their defence, when assailed by their *quondam* friends and kinsmen the Gallovidians, or their still more powerful enemies from the mountains of Cumberland.†

But it is not necessary to speculate on the origin of the town, for the sum and substance of modern research amount to this, that Dumfries appears to have grown up around a Border fortress of the twelfth century. During the reign of William the Lion, who died in 1214, it was the seat of the civil judicature of Galloway; and the Lords of Session in our day still perpetuate the succession or jurisdiction in the circuit criminal court. There was a certain Devorgillia Baliol, a pious and devoted lady of the thirteenth century,—the mother of that John Baliol who was *umquhile* king of Scotland,—who did much for the place in the way of building abbeys and bridges; and who, in particular, was the foundress of a monastery of Grey Friars, in which King Robert the Bruce slew his antagonist the Red Comyn. This edifice, we believe, stood on a rising ground on the banks of the river Nith; and although its site cannot be traced with certainty in our day, its locality is still preserved in the Friars' Vennel, one of the narrowest and most antiquated streets of the town.

There is likewise no vestige left of the ancient castle of Dumfries. Judging from a sketch we have seen, that was copied from an old picture at Drumlanrig Castle about forty years ago, it was a strong, substantial fabric, in the Norman style, the most prominent portion being a high square tower, the identical keep erected by Edward II., after he obtained possession of the fortress. Part of this ancient castle remained standing till the year 1719, when it was finally demolished, and its materials applied to the construction of a church which was built on its site. The same picture enabled us to perceive that the Grey Friars' monastery had consisted of a church, a dormitory, a refectory, a small square tower, and a granary; and that there had been a bowling-green attached, and a burying-place.

The stranger who steps for the first time on the platform of the Dumfries station of the Glasgow and South-Western Railway, is destined to experience a surprise as sudden and unexpected as that which the gentle knight Sir Aspromont underwent when he saw the venomous snake transformed into a beautiful fairy. He finds himself in a sort of railway paradise—in plain terms, in a flower-garden! Splendid hollyhocks and china-asters, magnificent dahlias and geraniums, the most lovely scarlet verbena and the sweet-smelling mignonnette—these flowers blooming alongside of curious and rare shrubbery—surround this very neat station in such profusion, that the bewildered spectator begins to imagine he has at length reached the climax of railway eccentricity or mismanagement. The directors have taken to grow flowers on a large scale, with the view, doubtless, of adorning the graves of their victims; or perhaps, in order to throw a sop in the teeth of Cerberus, they mean to present the unfortunate shareholders with a bouquet instead of a dividend! It is not until we find time to question the station-master closely, that we discern the root of the matter. The line has intersected the horticultural grounds of Provost Kennedy,—a species of trade for which Dumfries is rather famous, by the way,—and exposed the finest parterres and the choicest plots. Well, this *is* a curious arrangement, we must say, although we are certainly not going to find fault with it. What a contrast the guardian wood-nymphs and gentle Driads present to the hard and irresistible genius of the rail! Mr. Ruskin somewhere enters an elaborate protest against the sin of ornament at railway stations. "These are places," he says, "where we have no time to examine mouldings." What does he say to a flower plot? Of course it will blush unseen; or it may waste its sweetness in the—not desert air, certainly—but in an atmosphere as pestilent! A political economist might be brought to countenance the thing, perhaps, if it were reproductive; and, to speak plain, we can see nothing but good that could come out of it, unless it were that some unlucky passengers, like ourselves, might get so lost in admiration that they might lose their luggage.

* The Nith here constitutes the boundary between the Shire of Dumfries and the Stewartry of Kirkcudbright, to which Maxwelltown belongs. The two boroughs combine, it should be added, in their Parliamentary boundaries.

† See Mr. McDiarmid's excellent "Pictures of Dumfries." The old reading of its present name was *Dumfres*, a Gaelic compound, which signifies, according to some authorities, a castle in the brushwood; while others consider that it is a corruption of words, meaning the friar's hill; those who favour the latter hypothesis alleging that St. Ninian, at the close of the fourth century, founded a religious house here, which in course of time became the nucleus of the town. See Haile's "Annals," vol. i., p. 207.

But to proceed. The most interesting monument of its early grandeur and importance that Dumfries possesses is unquestionably the old bridge across the Nith. It appears to have escaped, curiously enough, all the inroads of its English enemies, and also the internecine struggles of its friends, the Scottish nobility, which were sometimes the most destructive of the two. But time has not dealt so gently with it. At this moment it represents a curious antique bare ruinous structure of six Gothic arches with a very narrow roadway and dilapidated parapet, the rude memorial of a state of society which has happily passed away. This bridge, however, must have been a noble edifice in its time. When built in the reign of Alexander III. it consisted of thirteen arches, and must at that period, and for many generations afterwards, have been the most magnificent bridge in the county. Pemberton, in his "Journey through Scotland" (in 1723), thus says of it:—"I passed the river Nith from Galloway to Dumfries over a fair stone bridge of thirteen large arches, the finest I saw in Britain next to London and Rochester." Twenty-four years afterwards, however, it had undergone a sad change for the worse. The celebrated Captain Grosse published a drawing of it as it appeared in 1747, which represents it as having only *nine* arches; and in his letter-press to this illustration, dated 1789, he tells us that a small gate, called the post, which figured in his illustration, had been taken down about twenty years before in order to lessen the weight on the bridge, which was then in a tottering state.* Were proof needed to show that Dumfries was, five centuries ago, a place of considerable size and much importance, it would be fairly supplied by the existence of this structure, so noble then, but so dilapidated now! There are good grounds for believing that about this period (temp. Alexander III.), when the inhabitants of London did not number more than 35,000, the population of Dumfries was about 5,000. At that time there were only four or five towns in the whole of England and Scotland that could boast of 8,000 each.† We may add, that the old bridge was the original source of that rich revenue derived from the "tolls on beastial" which the town of Dumfries has so long enjoyed.

In order to obtain the best bird's-eye view of the town we must cross this old bridge, and, passing through a narrow and excessively dirty street in the borough of Maxwelltown, ascend an eminence called Corbelly Hill, on which an old windmill has been turned to good account by converting it into an observatory. This observatory, we may mention, contains a rather choice museum of natural history, a powerful telescope, an excellent camera, and a regular suite of Claude Lorraine glasses, in which the prospect may be made to assume the warm purple of summer, the yellow hue of autumn, the grey aspect of spring, and the snowy tints of winter. Such adventitious aid is, however, not necessary for our appreciation or enjoyment of the exquisite scenery; for, indeed, it is not often that the eye of an artist can be at once so easily and so fully gratified. Dumfries lies snugly nestled on the right or eastern bank of the river Nith, surrounded by an amphitheatre of gently-sloping and exuberantly-wooded hills. On the north its horizon is bounded by the somewhat sombre outline of the Queensberry group; on the east by the uplands of Torthorwald; and on the south-west by the splendid ridge of the Criffel mountains, which constitute the northern bulwark of the Solway, and form a conspicuous point in all the surrounding scenery. Through this beautiful dale the river Nith makes a bold and majestic sweep, until it bursts through the ancient arches of the old bridge, where it is resolved by the mill-weir immediately underneath into something like a gentle waterfall, and at length loses itself through the rich meadows and sylvan banks of its lower valley. Seen from this point, too, the quaint old town has a more romantic look; its hard, angular lines are softened, and its singular contrasts of colour toned down; and, finally, its unallied groups of steeples and chimneys, with their respective churches and manufactories, get harmoniously blended into one powerful composition. Seen by moonlight, and with an atmosphere of the light, rolling, fleecy clouds which always hover, more or less, over the Solway Frith, we should think that few such pictures are to be found, even in Scotland,—

> "Land of brown heath and shaggy wood,
> Land of the mountain and the flood."

But picture-making is not exactly our vocation—at least, on the large scale; and we must now condescend to a few particulars on returning across the river by the new bridge, on which there are excellent materials for grounding conclusions as to the durability of the district sandstone. The first building which catches the eye is the new county building by Mr. Rhind, a castellated turreted, crenellated, and altogether *ornée* specimen of recent baronial. It is not worth while criticising the details—the antiquated rope mouldings, the unmeaning wall projections and corbels, the supererogatory bartizans, and all the mysterious roof-lights—far less to inquire into the principles by which our northern architects seem to think it behoves them in the nineteenth century to make a literal reproduction of a style that undoubtedly flowed from the necessities of a Border warfare! We have certainly no desire to eliminate the very faint principle of nationality which seems to belong to it; but let us add that Jock o' Hazeldean pouring seething pitch on the head of Tam o' the Cleugh is a very different affair from a new policeman bringing up a railway navvy for breach of the peace! As taste goes, however, this county building in Dumfries is a pretty enough specimen of the Scottish baronial, and its composition as a whole possesses considerable grace in its proportions. It is a thousand pities its artistic effect is completely spoiled by the county gaol, which is connected with it on the same line of frontage—a horrible blank wall, pierced with narrow slits like a blockhouse for musketry! A rather showy building opposite, in the Italian style, is the court-house, of which we need say nothing; but the Episcopal chapel hard by, consisting of a front that might be either mistaken for a lecture-hall or a mechanics' institute, ought to take a lesson from the Dissenting church on the other side of the street. By far the most quaint, original, and altogether characteristic building in Dumfries is the town-house, or, as it seems more celebrated for its external appearance than for the legislative wisdom of its proceedings inside, the town steeple—Tron steeple as it was originally styled—but now popularly known as the mid-steeple, from the circumstance, we presume, of standing in an isolated site in the centre of the High-street. This building consists of a square tower surmounted by a belfry and stunted spire, with the orthodox weather-cock for a finial, and adorned with a very conspicuous outside stair, like the Cannongate gaol of Edinburgh, to which it bears a distant resemblance. It is stated, we do not know upon what authority, in Black's "Guide Book," that the architect of this superb structure was Inigo Jones! Those who are acquainted with the genuine works of Inigo—the banqueting-hall, for example,—may well rest satisfied with the *external* evidence that such was not the fact. But a local authority supplies us with positive evidence to the contrary, and distinctly assures us that it was begun in 1705, and finished in three years; and that the architect was a Mr. Tobias Bachus, of Alloway.*

The mid-steeple possesses a peal of bells which, to our ear, had a most dolorous sound. The prolonged and solemn intervals of the minor scale suggesting their use in former times, more for the purposes of the *requiem*, or the death knell, than for the joyous notes of festivity and triumph to which they are now applied. Another bell, we were told, a venerable relic of the olden time, is still preserved in the bartizan, which, before the Reformation, sounded the vesper chime in St. Michael's Church. This bell bears a Latin inscription to this effect:—"William Carlyle, Lord of Torthorwald, caused me to be made in honour of God and St. Michael."†

In this curious building, we may add, are stored the records of the burgh, two or three historical portraits, and a small silver gun, presented to the trades of Dumfries by King James I., who, doubtless, had discovered the qualities of the metal in his studies of witchcraft and demonology. The only other spire in Dumfries worth noticing is that of the Roman Catholic chapel, in Shakspeare-street, which is of a very early English type, with a gilt iron cross, 12 ft. high, and is certainly chaste and well proportioned, but which is ruined entirely by being superimposed on a clumsy Norman or Romanesque tower, the work, as we understood, of a previous architect. A magnificent site, the crystal mount, commanding English-street, is somewhat unworthily occupied by the *quoad civilia* parish church of St. Mary's, erected in 1838, a conspicuous object to strangers on entering the town; but the dwarf belfry on the apex of the south gable, supported by two miserable flying buttresses which spring from the top of the walls, gives us a poor conception of the recent ecclesiastical architecture of Dumfries. This site was once occupied by another chapel to St. Mary, which King Robert the Bruce, built over the grave of his brother-in-law, Sir Christopher Seaton, some stones of which we observed are still piously preserved in the burying-ground of Major Mair. But of the ecclesiastical buildings we had time to notice, the most interesting is the old parish church, which is situated near the southern extremity of the town, and appears to have been originally dedicated to St. Michael, the patron saint of Dumfries. The present church was built in 1745, and it is certainly a favourable specimen of what we may be permitted to describe as Presbyterian architecture. The west front consists of a massive tower of two stages, projecting from the gable, through which is pierced the principal doorway, square and angular, as the theology which it represents; and the tower is surmounted by a lofty and heavily proportioned octagon spire, which appeared to us to be in an extremely dangerous condition, being perceptibly rent upwards from the tower windows to the belfry openings, as if it had been struck by lightning.

The cemetery around this church is famous, among other things, for the multitude and variety of its mortuary monuments. There are mausoleums rising like mimic temples over the arches of the wealthy landowners, whose dutiful heirs have piously paid the cost. There are obelisks and broken columns, runic crosses, and elevated urns, colossal slabs, and incised panels, which being either of marble or white freestone, or, as we could perceive, sometimes coated with white paint, appears in the dim twilight like an assembly of grim spectres mourning the departed burghers and professional men whose bones are here interred. Lastly, there are crowds of simple headstones and monoliths of the native red sandstone, which rear their heads like so many ghosts over the graves of the humble artificers and ploughmen, who, unknown to fortune or to fame, here repose from their labours. There is no country churchyard in all Scotland, it is said, so profusely studded with memorials of the dead. Exclusive of such as were in a ruinous condition, these monuments, according to a calculation of the late Mr. M'Diarmid, could not be reared at a much less expense than 100,000*l.*, a large sum for such a cemetery. A more recent and perhaps more exact estimate—proceeding, however, on a different basis—has reduced this sum to 16,000*l.* But this estimate does not include the mausoleum of Burns, which stands by itself at the eastern corner of the old churchyard, and which cost altogether something more than 1,500*l.*, a small sum for such an object! This structure consists of a sort of octagon-shaped tabernacle in the Italian style, surmounted by a dome which springs from an entablature supported by pilasters with enriched capitals; the whole resting upon a platform of steps, and containing an emblematical design of marble sculptured in bas-relief. The bays or openings, with the exception of the wall which supports this sculpture, are filled in with rough plate glass, for the purpose, we presume, of preserving the marble from the action of the atmosphere. The whole thing has thus a curious appearance. Our readers will judge of its probable value as a work of art by the conjunction of three names, George IV., Thomas Hunt, Peter Turnerelli; and if the Pavilion at Brighton or the *style* of Regent's Park suggest itself, we are not to blame.

We may add that the mural sculpture is quite beneath intelligent criticism. A group in marble,

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* See Grosse's Antiquities, vol. ii., p. 29. Quarto edition. The dimensions are also given: 400 ft. in length; breadth within parapets, 13 ft. 6 in.; mean width, the parapets included, 16 ft. 2 in.; height from the top of the parapet to surface of water, 26 ft. Grosse, we need scarcely add, was the zealous antiquary, of whom Burns wrote:—

> "Hear, Land o' Cakes, and brither Scots,
> Frae Maidenkirk to John o Groat's;—
> If there's a hole in a' your coats,
> I rede you tent it:
> A chield's amang you, takin notes,
> And, faith, he'll prent it."

† Comp. Chalmers's "Caledonia," vol. i., p. 20.

* See Currie's "Guide to Dumfries," p. 7.

† It is said that Mr. Thomas Carlyle is descended from this family or clan of Carlyles; and what we know of their history shows them to have been greatly interested in the Border profession of riding, reiving, foraying, and mill burning.—Compare some notices of the Carlyles of Brydekirk and Torthorwald, in "Walks in Annandale." 12mo. Annan, 1866.

which represents with the same vulgar fidelity a ploughman, a plough, and a goddess in tartan, is to our taste of the grotesque in art. It may, indeed, appeal to the eye in a certain sense; but how it can appeal to the heart we are puzzled to understand. Upon the whole, if this monument were the only cause of digging up the poet's remains, we may well exclaim, as Shakspeare did in writing his own epitaph, with an eye, doubtless, to such desecration,—

"Blessed be the man that spares these stones,
And curst be he that moves my bones."

Such frivolities as are comprehended in this mausoleum are not the sort of artistic conceptions we should expect to meet with at such a tomb,—unless, indeed, it were to distract our attention and disturb the play of our higher emotions; for we need scarcely say, that few persons can stand on that green turf, and not recall with feelings of regret and sadness the melancholy life, and almost miserable death, of the greatest lyrical poet of modern Europe. That he was a Scotchman, in our opinion, was an accident, of which his country may be proud. But he certainly owed very little to his country! No man who has read the agonising letter which he wrote to his publisher on his deathbed, imploring him, for God's sake, to send him five pounds,—and to send it at once, if he would save him from the horrors of a jail,—can resist the impulse to bestow a warm imprecation on such cold-blooded ingratitude as the poet experienced at the hands of his countrymen. His sad history has been admirably summed up by Hazlitt in one sentence: "Robert Burns, whom nature made immortal, and the Scottish nobility an exciseman!" Even as an exciseman, it is good to know that he fulfilled the duties faithfully: but this is ground we will not tread. Farewell, Burns! we are not the first nor the last who has dropped a tear over your grave!

We shall now say a few words respecting the municipal government and sanitary police of Dumfries. The population of the parliamentary burgh, which includes Maxwelltown, was 14,058 in 1861; the inhabited houses were 1,582; and the annual value of real property 18,200*l.* in 1858. The municipal burgh, we believe, has increased rapidly in size of late years. The revenue of the burgh, which arises chiefly from fen duties, rents of bridge dues, and market dues, amounted to 1,668*l.* 15s. 6d. in 1859; and the expenditure to 1,508*l.* 19s. 4d., leaving a balance of 159*l.* 16s. 2d. The debt at the same time was 8,192*l.* 17s. 4d., a considerable sum, but not so large as it was a few years back. These figures apply to Dumfries as a municipality, under the provost, three bailies, and a town council; but as a police burgh, under commissioners, who are the same body as the council, it has a separate system of finance. We may add, that by the adoption of certain clauses of the general Police Act (Scotland), which was done two years ago, the powers for lighting, cleansing, draining, supplying of water, inspecting, imposing penalties, and finally of assessment, are consolidated and improved.

The supply of water to Dumfries has undoubtedly been the greatest benefit, in a sanitary point of view, which has ever been conferred upon it. A proposal to supply the town had been long agitated, but met, of course, with much opposition from various quarters. It was at length vigorously urged on the town council at a public meeting, where resolutions were unanimously and enthusiastically adopted in favour of applying to Parliament for a Bill to authorise the introduction of water from Loch Rutton, about four miles distant from Dumfries, on the principles of gravitation. On the 10th of May, 1850 a committee of the House of Commons to whom this Bill had been remitted, found the preamble proved, and when the news arrived at Dumfries next day, the inhabitants burst forth into a fit of general rejoicing. Bonfires were kindled, bells were rung, the provost (Mr. Kennedy) was feted, loyal toasts were drunk, and generally there was a great consumption of—*aqua vitæ* in honour of the occasion! The first pipe of the waterworks was laid by the succeeding provost (Mr. Nicholson), and on the 21st October of the same year, the same gentleman officiated on the introduction for the first time of the pure fluid from Loch Rutton, amidst similar public demonstrations.

The main supply-pipe for the first mile from the loch is 9 in. in diameter; and for the rest of the distance 8 in.; but we believe the demand for water has increased so much lately that steps have been taken to enlarge the main pipe.

In order to defray the expense, about 12,908*l.* in all, the Act authorized the borrowing of 10,000*l.* on the security of the rates; but, in addition to this sum, 1,500*l.* were borrowed on bonds and mortgages.

The income is raised from two sources: a public water-rate of 6d. per pound on property, and a rate on consumption to the same extent. These rates united yielded in the year 1859 the sum of 1,471*l.* As the working expenses are small, the debt is being gradually liquidated, and is now reduced to 10,000*l.*

The words are under the management of a water commission, the members of which are partly elected by the ratepayers, and partly by the town-councils of Dumfries and Maxwelltown.

So much, then, for the water supply of Dumfries,—a scheme which was promoted, and has been carried into effect, solely for the public good. We need scarcely add that it has operated most beneficially in every respect, and that Dumfries has in consequence the merit of setting a praiseworthy example to far larger towns. One conspicuous and convincing proof we may adduce. Dr. Grieve, a physician of Dumfries, in reporting on the statistics of fever in the Infirmary in relation to the general health of the town, has shown that in the year 1851—the year in which the water was brought into the town—the fever cases in the Infirmary numbered 125. But as soon as this health-promoting element was introduced, its beneficial influence began to manifest itself; has since been more and more apparent; and in seven years afterwards, the year 1858, there were only two cases of fever during the whole year.

But every picture has its shadows, and so has the sanitary condition of Dumfries. The drainage, we regret to say, is very defective. We had no occasion to make any minute inspection to discover this: we could *feel* it. A most pernicious practice seems to exist in some of the best quarters of the town of draining their water-closets into cesspools,—or, as this word is so constantly misapprehended in Scotland, into pits dug in their gardens. We need not enlarge on the evils of this: indeed, there is no principle, we believe, in the whole range of sanitary science which has been so triumphantly established as the fatal results of those cesspools. We do not know, nor did we ascertain, whether this practice existed thirty years ago. But if it did, we can only say there was no other preparation necessary for the very severe mortality which Dumfries has *twice* suffered from the visitation of cholera. There are, of course, numerous neglected privies and ashpits in the poorer quarters of the town,—particularly in some of those back streets adjoining the tanneries; and also in the miserable closes, such as Nicol Rae's close and the Ewe and Lamb closes, which lead off the High-street and the Friars' Vennel. We need not, however, enlarge on the sanitary condition of Dumfries, for there can be no question but the authorities are doing their best to improve it.

But, as if in contrast to this, we find a different state of things across the bridge at Maxwelltown. Under its original name of Bridgend, this free and independent borough was, till comparatively a very recent date, one of the most disorderly and ill-conditioned villages in the kingdom, resembling much more a suburb of Limerick or Galway at a period of restlessness and insubordination, than a suburb in the nineteenth century of the metropolis of the south-west of Scotland. Sir John Fielding, the well-known London magistrate, once said that, whenever a delinquent got along the bridge from Dumfries into Maxwelltown, he eluded all further search or pursuit. The village's position in a different county from that of Dumfries, and its almost entire abandonment to poor and squalid settlers from a distance, all contributed to impress upon it an unusually bad character.

The very slightest inspection will make this plain. A street or alley immediately on the Nith, north of the New Bridge, is a retreat of squalid misery, a nestling place of immigrant Irish, an utter satire upon the beautiful and proud royal burgh which confronts it on the other side of the stream. A street parallel to this brings us down to the Glasgow and Dumfries turnpike, is straight and spacious, has several good houses, and near the middle, on its west side, exhibits a burgh or public building of plain exterior,—but quite sufficient for the purposes of better sanitary government.

But even Maxwelltown, dirty and degraded as it is, possesses in its neighbourhood a treasure which we cannot but compare to a jewel in a swine's snout. Not far from the Scoto-Irish burgh stands the beautiful ruin of Lincluden Abbey or College,—for it was both,—at which we may give a glance before leaving the district. We need not describe the site nor the original plan of Lincluden. By far the finest part of the ruin is the chancel, built in the Scottish Middle-Pointed style of Gothic architecture. The gateway is very peculiar, exhibiting a specimen of the flat arch. The masonwork between it and the window above must have been lavishly overlaid, with a double row of figures in high relief, though fell decay's "effacing fingers" have marred their beauty, and, to a considerable extent disguised their meaning. A group of sculptured cherubs, in an attitude of devotion may still be discovered; and many years ago scenes representing our Saviour's birth and death were pointed out in the lower series of groups; but we find a difficulty in tracing them in the present day. Certain portions of the inner ornamentation testify in heraldic language to the rank and greatness of the family to whom the abbey owed its origin. Their escutcheons, carved on the ribbed arch-work and elsewhere, added at various periods, chronicled, as it were, in characters of stone, the rising stages of their career; and on a tomb at the north-east end of the chancel, where the daughter of a king and the wife of a Douglas was buried, the carver has exerted his utmost skill; but here, too, decay has been busy, and the decorations, alas! have also suffered severely from the hands of the sacrilegious spoiler. Enough remains, however, to acquaint us with the appearance which the monument must have originally presented. It is built into the wall in the form of an arch, over the centre of which there is a heart, the leading symbol of the house of Douglas. There are also three chalices placed in a cross direction, a star accompanying each. On the wall of the recess made for the reception of the body, a Latin epitaph is inscribed, in Old English letters, which reads thus:—

"Hic jacet Dna Margareta regis Scotiæ filia quodam Comtissa de Douglas Dna Galwidiæ et vallis Annandiæ."*

We may add that it was in these ruins where Burns composed his celebrated ode to liberty, commencing:—

"As I stood by yon roofless tower,
Where wall-flower scents the dewy air."

This octagon tower, which the poet referred to, once formed a prominent feature in the landscape, and a very interesting portion of the edifice,—the more so, as the royal arms of Scotland were sculptured on its front; but it suddenly fell with a tremendous crash, on Sunday, the 16th of February, 1851, and thus one of the noblest features of the ruins was utterly destroyed. But we must draw our cursory remarks to a conclusion. Returning from Lincluden by the beautiful banks of the Nith, we are forced to pass up a filthy passage about 3 ft. broad and 150 yards in length, by the wall of an iron foundry and the side of a slimy sludge-pool! Is it not possible to improve this quagmire? Next, we pilot our way through the gutters and closes of Maxwelltown; and then, taking a final look of the Nith as we cross the old bridge, we land ourselves once more in Provost Kennedy's flower-garden at the railway station, and so bid farewell to the Burgh of Dumfries.

* The present owner of Lincluden is Mr. Maxwell, of Terregles, whose zeal and enthusiasm in ecclesiology are well known. The ruins are composed of fine compact red sandstone.

APPEAL.—DRONE *v.* WORKER.

In the history of every craft, and of every art, we may trace the influence of two opposing principles, of one of which the predominance marks the period of highest excellence, while the triumph of the other is at once a sign and a cause of sure decadence and decay. They may be known by different names, and in the slow revolution of social life and the gradual transformation of customs and of habit, they operate under different conditions; but, in any true analysis, their presence is always to be detected. We may call one the conscientious spirit, the love of truth, as evinced by faithful and excellent work, the love of excellence, or even the love of fame. The opposing principle would seem to be mainly the love of ease, and, though it not unfrequently takes the form of the love of

money, the money which it accumulates is for the purposes of ease and of luxury. It is the spirit which increases the quantity of production by diminishing its quality, which strives for that which is cheap, rather than for that which is good, which prefers the easy to the difficult, which has no higher æsthetic principle than the showy, and which, if it builds a temple for its followers, will give you, as may be seen not very far from the old palace at Kensington, the ornate front of a palace with the ends of a stable or a shop.

We know less than we desire to know of the life of the guilds of the Middle Ages. We know something of the causes of their decadence; but we can trace in the monuments they have left the sure hand-mark of the spirit of artistic excellence. There is no stucco work about the cathedrals of our ancestors. If the northern sides of the sacred buildings were less ornate, or wrought in a less pleasing style than the southern, it was not because the latter were turned to the street and the former away from it, but because there was a symbolic teaching hidden under an architectural vestment, and the grim gargoyles and fiendish apes that swarm over the sunless walls, give you the monkish rendering of the text, "In the sides of the north is the city of the Great King," and show a purposed and steady disrespect to the Prince of the Power of the Air. We trace the same desire for excellence no less in the men than in the buildings produced by an earlier period in the history of art. Benvenuto Cellini and Leonardo da Vinci are as unlike the productions of the cheap and profitable schools of the day as are St. Denis or Westminster Abbey, the Sistine Madonna or the Last Supper.

It is, therefore, on the ground of the evil influence exerted on art, no less than on the tyranny sought to be established over the artisan, that every true artist, every genuine lover of liberty, is interested in opposing those combinations of our day which make the most inferior workmen of any trade give law to the more highly skilled, in order that both may give the law to their masters. It cannot be too distinctly pointed out that the certain influence of all such rules for the relation of master and of workmen as are enforced by combinations on either side, is to degrade the skilled artisan to the level of the idlest and the least efficient of his class. The hours that a man chooses to work, the number of apprentices or of labourers that he will employ, the number of bricks he will lay in a day, all these are points that should be left to the free unbiassed device of the craftsman himself; and any limit or condition that is placed upon them by trade combination is not only a tyrannical interference with the power of the workman to make the best use of his talent, but it is also a tax laid on the able workman for the sole benefit of the idle and the inefficient.

We can confidently appeal to the abler of our working brothers in any department of our great national hive, whether they toil with hand or with brain, with the chisel, the hammer, the pencil, or the pen, to confirm the truth of these remarks. But, may we not go a step further? May not the converse of the proposition hold? If the introduction of the political element into art or handicraft tend to the damage of the artisan, how shall we fare if we introduce the rules and principles of art into questions for the most part abandoned to the stormy contests of politics, or, rather, of party?

Incidents fresh in the public mind give a pointed importance to such a question. Not a week passes without some fresh and glaring proof that there is something wrong in the manner in which the income of the public is applied to supply public need. One day it is a man of genius who dies heart-broken and all but starved, not from the persecution of any secret enemy, but from the more fatal hostility of the spirit of routine. Another day it is the startling discovery that our ships are unprovided with steel shot, so that they would infallibly come by the worst in any encounter with an unexpected enemy, less expensively but more practically fitted up. A week or two since it is a proposal to the War-office for the education of the troops in that which, in time of war, will be of equal importance to any military practice,—the use of intrenching tools,—that is quietly and civilly cushioned, as an admirable idea, but one for which no troops can be spared. To-day it is the quiet announcement, that in all public works subject to the joint control of the War-office and of the Admiralty, failure is the rule and not the exception, and the works for the defence of Portsmouth are cited as a striking example. It is not that we are without fine ships, noble troops, magnificent artillery, spacious and well-stored dock-yards. Such we have; but the complaint is, that we have them at a cost altogether disproportioned to their efficiency, and that the public service is the grave, instead of the cradle, of scientific improvement and of administrative skill.

The historian of the next century, the Froude of A.D. 2066, or the scientific anatomist of the body politic of our England of to-day, can hardly fail to point out in our institutions the action of two opposite principles. He will add that under the influence of the one we have some of the most perfect, and under that of the other some of the least satisfactory, instances of the discharge of the functions of social life. Neither is the difference such as might be expected from the nature of the difficulties inherent in the two cases. It is actually the reverse. All those questions of conflicting personal interest, of disputed claims to property, of violence or injury to the person, in which the passions of mankind are often so strongly excited as to leave but little scope for the exercise of sound judgment, are solved by a machinery which, if far from perfect, is very fairly satisfactory to all in its results, and is free from the slightest taint of corruption or of partiality. All those questions, or nearly all, on the other hand, which would appear to require the mere regular discharge of administrative functions, with one remarkable exception, are so dealt with as to afford the constant theme for the objurgations of those who would apply legislative or constitutional remedies to cure purely administrative evils.

How is this? How is it that our courts of law should be so reverenced, both as regards their actual ministers and operations, and when compared with those of our Continental neighbours, and that our Admiralty should be so notoriously expensive and unlucky? How is it that the decision of an English judge is respected wherever the English language is spoken, and the decisions of "my lords" are regarded with the same kind of questioning curiosity with which we watch how the armed knights in the Lord Mayor's show keep their seats and attempt to keep the perpendicular? Why is the administration of the law good, and the administration of public works bad? The reply to this question is the nucleus of any real, earnest, practical reform.

That reply cannot long escape an honest search. The laws of England are administered by a body of men trained in study, permanently possessed of the successive grades of their honourable station *quamdiu se bene gesserint*, and discharging their important functions under the eyes of the public. The laws may be good or bad, imperfect or contradictory; the absence of a code may be, as Bacon held, a disgrace to any civilized people; but as to their administration we have every reason to be satisfied and to be proud.

The administrative service of England, on the other hand, is for the most part directed by nominal chiefs, whose claim to their high position is purely political. A man is made Minister of War because he can speak in the House of Commons. He is made a Lord of the Admiralty because he can command so many votes. The nominal and supreme heads of departments have no education to fit them for their post. A new minister may have to learn the very phraseology of his office from his subordinates. The responsibility, such as it is—that is to say, the duty of making explanations in Parliament—depends on the political chief, ignorant of the details of his duties, and necessarily relying on that permanent, unknown, irresponsible staff who form the actual administration.

It is not with the view of throwing undue blame on the unseen but actual administrators of the public departments that we speak. The secret of success or failure in all great enterprises will mainly be found to consist in the enlistment of the principles of human nature on either side. Now, in such a hybrid establishment as the Admiralty, all the principles of human nature are enlisted on the side of failure. Whether it be a new First Lord who knows as much of a steam-hammer as he does of Chinese, or the *employé* who has to pass his papers under the eye of his superiors, one anxiety necessarily drives out all others—the anxiety to avoid responsibility. Private comfort—nay, private safety—comes to be more regarded than public service. And thus it is, and not from any turpitude of chieftain or corruption of subaltern,—not from too long tenure of office by Whig, or too little acquaintance with office by Tory,—but from thorough vice of system, that we spend, and shall spend, so long as the system is unaltered, a pound, where fifteen, ten, or even five shillings, wisely laid out, would better serve the wants of the nation.

When once public attention shall be fully bent on this fundamental error of system, the proper remedy will be forthcoming. It must be possible to keep up the great prizes, the strife for which is supposed to be needful to secure for the state the highest order of talent, without necessarily ruining the public service in their distribution. Honoraria of the kind are as old as European civilisation. The colonels of regiments, the prebendaries of cathedrals, the nominal, honorary, well-paid posts that are reserved for the reward of public service, and the dignified retirement of honoured old age, do not interfere with the discipline of the lieutenant colonels, or the daily duties of the curate or minor canons. The distinction is known and accepted. Nor can it be more difficult to introduce into our public offices the check of the known, expected discharge of definite duty by permanent public servants, under the check of that publicity which constitutes the life of responsibility, whatever be the change of politics or of party in those who, while directing the course of the state vessel, should not be expected to discharge the minute details of the engine-room.

We said there was an exception to the generally unsatisfactory state of our public administration. That exception may be brought to the mind of our readers, even with these pages under their eyes, by a sharp pull at the bell, or an imperative double knock at the door.

Liable, no doubt, at times to animadversion, the administration of the Post-office is a marvel unequalled in our day. And not only does it perform its work with exactitude, punctuality, and despatch never attained by the messengers of the mightiest sovereigns, and at a price which places the whole vast machinery at the service of the poorest who can find a penny for a stamp, but in so doing it earns a not inconsiderable part of the public revenue. We have as good cause to be proud of our Post-office as of our Bench and our Bar, yet the Post-office has a political head.

Such, no doubt, is the case, and the exception, far from overturning, triumphantly proves our argument. It was the influence of one man that made the Post-office what it is. Rowland Hill, happily granted the power to carry out his own scheme, worked at it with that will, and with that public responsibility, that were crowned with ample success. He is no longer in St. Martin's-le-Grand, but the spirit he introduced has remained there. Men formed in his school carry out with full approval the impulse he gave. The political functions of H. M. Postmaster-General do not fetter the action or diminish the responsibility of the permanent heads of departments. It is no excuse, if a money-letter has been stolen, to say that the theft took place while a Whig duke was in office, and that a Tory marquis washed his hands of the responsibility. The Cabinet office is there, but there also is punctuality, despatch, economy. If we thus attend to the correspondence of the country, why do we not thus attend to its ships to its arms, to its arsenals?

OPENING MEETING OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE APPROACHING GOVERNMENT COMPETITIONS.

THE first ordinary meeting of the session was held on Monday evening last, the President, Mr. Beresford Hope, M.P., in the chair.

Mr. Hayward, hon. secretary, announced a long list of valuable donations, especially copies of the magnificent works on Indian Architecture published by Mr. Murray.

The President then delivered his opening address, the more important portions of which we give under a separate heading.

Mr. Digby Wyatt, in proposing a vote of thanks to the President, remarked that one moral they must feel pervaded all that the President had said; and it was a source of congratulation for the present and confidence for the future. It was in the confluence of so many different circumstances towards the general improvement of the art to which they were attached. On the part of some, from national individuality; on the part of others, from re-

ligious influence; and on the part of others, from *dilettanti* impulses. Still there was one movement towards the general advance of art; and it was delightful to see, by simultaneous impulses or efforts, all those elements were conducing to the common end which they had at heart. Without going into the details of the address they had heard, it was a great subject of congratulation to have had these matters treated in the able manner in which they had been; and he was quite sure all present would heartily respond to the proposition of a vote of thanks to the President.

Mr. Gilbert Scott briefly seconded the motion.

Mr. James Fergusson thought the President had dealt with the main subjects of interest of the day in a masterly manner; and, like Mr. Wyatt, he felt, as every architect must feel, that their art was attracting more attention than before, and that there were distinct signs of progress everywhere—not only amongst architects, but throughout the world at large. People were no longer content with buildings of plain walls pierced with holes, but ornamental art was wanted everywhere. They wanted men to think, men to appreciate, and men to demand; and when that took place, progress was inevitable, not merely in Gothic, Greek, or any other style of art; but the public, seeing what was good, would demand what was good. He had no doubt the next ten years would witness such progress in architecture as would make it worthy of the nation and of the world.

Lord Houghton, D.C.L., thought the President's essay possessed the double merit that it had not only attracted and pleased this large audience upon matters on which they were specially informed, but would be well received and excite great interest in the world at large. Questions connected with architecture frequently came before that Assembly of which the President and himself had both been members. He thought they would all agree that it was difficult to imagine an assembly less fitted to discuss these questions. It was, therefore, with very great pleasure that he saw his hon. friend the President return to that Assembly again, because he believed his presence there, and that of two or three other competent men, was of immense importance in the discussion of those questions. They were as aware as he could be how, on a gust of accidental passion, or a foolish incidental circumstance even of party strife, might sometimes depend questions of art which were of the greatest importance to this country and to posterity; therefore, the presence of such men as their President, who could recall the House of Commons to its bearing while those feelings were predominant, might really be said to be invaluable. He did not wish to mix up with the question the merits of the different localities of South Kensington, or Burlington House, or Trafalgar-square, but he believed if they had been discussed in the House of Commons on their own merits, they would have come ultimately to the best decision; but, tossed about as they had been from year to year, he could only say he was thankful it had been brought to an issue, although it was not the one which he should personally have chosen.

Mr. Godwin was glad to have the opportunity of mentioning one of the practical points that arose from the President's admirable address, which had been duly commended, and of which he need speak no farther. It was with reference to the coming competition in designs for great public buildings in London. He looked with the utmost anxiety, and he was sure all who knew anything about it felt the same anxiety, as to the nature of the committee which had to decide upon those designs. It was a most important point. Parliament would not meet before these designs were sent in: whether it would meet before the adjudication upon them took place, he could not say. Therefore, efforts through other channels ought to be made to obtain a proper court of adjudication. It was downright nonsense to expect three or four amateurs—whether noblemen, honourables, or simple members of Parliament, to judge of the merits of such designs as those which were going in. Such a course could only produce dissatisfaction, and it was to be feared bad results for the country. They had but to look at the constitution of juries on such matters in France. A certain number of literary men, a certain number of painters and sculptors, a proportion of architects, and two or three men of intelligence representing the general public, formed the jury. There was seldom any question as to the decision of these juries; and with that fact before them coupled with the further fact, that almost every adjudication on public art-works here did disappoint the public, it should lead the ruling powers to appoint a proper jury in which the country would have confidence. He was, therefore, anxious that some course should be taken to appeal to Mr. Cowper [The President: Lord John Manners]. He believed Mr. Cowper was still a member of the Committee of Adjudication which was composed of a certain number of gentlemen for whom he had the highest respect, but to commit to them the final decision upon the plans for the National Gallery and the new Palace of Justice could only ensure a failure. Therefore he thought some memorial should be addressed to the right quarter, asking for a proper jury to adjudicate upon this matter. On this subject he hoped he expressed the opinion of the members generally. [Expressions of assent.] Half a dozen other subjects of interest were embraced in the President's address; amongst others that of the Architectural Museum. They were parting from the Government; he regretted it, but supposed that it could not be avoided; they must not, however, part from the Architectural Museum. If the Government would not maintain it, the architects, the art-lovers, and the art-workmen of the country must do so. There was now an opportunity to put up a suitable building, and they must endeavour to find the money for it, and he favoured the notion hinted at of bringing the Institute to take charge of it.

The vote of thanks to the President having been passed by acclamation,

The President, in replying, said with regard to what had fallen from Mr. Godwin he heartily echoed all that that gentleman had said as to the necessity for a proper tribunal to adjudicate upon the two forthcoming competitions of designs. He would explain how the matter stood. He was afraid unless some alterations were made by the present Government, those six names selected would be the stereotyped judges of the competition of designs for the New Law Courts. No judges, he believed, had yet been named for the competition for the National Gallery. He believed that matter was in the hands of the present Commissioner of Works, and he could assure them, from what he knew of Lord John Manners, his lordship was fully alive to the responsibility of the thing, and that the most earnest and anxious care would be devoted by him in the selection of a proper tribunal of adjudication; at the same time, his lordship's hands might be strengthened by such an expression of the feeling of this Institute, as had been suggested, not as doubting his lordship's good will and desire, but to support him in appointing such a body of judges as would be satisfactory to the competitors and the public at large, and which would carry with it the earnest of a good building for the purposes to which it was to be devoted.

A REVIEW OF THE POSITION.*

Last year I had occasion to express my anxiety that the coming Palace of Justice might be worthy of its destination and of the empire. This year I can confidently say that the list of competitors gives the material guarantee that the building will fulfil the expectations of artistic patriotism, provided only the judges show themselves competent, and Parliament, in years to come, is wisely generous enough not to grudge the necessarily large sums requisite to bring so grand a work to its legitimate completion.

I have now to call your attention to the prospects of British architecture, and of the cognate arts at the coming French Exhibition. You need not that I should repeat to you the history of that joint committee of this and other architectural societies which has, I believe, in some form or other, come before almost every meeting during the past session. You know that, after many incidents, mainly traceable to the tenacity with which the French authorities, who are, of course, supreme, have, true to their national character, clung to their own system for regulating the details of other countries, our committee has been recognised by the British Commissioners as the body on which it relies for accomplishing the gallery of British Architectural Drawings in the Fine Arts Department (group I.), and also (though with a less degree of official recognition) as organizers of a Court of manufactured productions referable to architecture and the cognate arts to be comprised in group III. Our committee was disappointed at finding that we could only have allotted to us a space of 1,000 square feet in this third group. However, the Ecclesiological Society obtained 700 more, and by the terms upon which the joint committee was constituted, this allotment was handed over to the common stock, while the authorities at South Kensington promised to forward our views by placing the two allotments so close together as to enable us to mould them into one court. More recently, however, we have learnt that in return for this facility the joint space has to be reduced to 1,428 square feet. Remonstrance would be needless; and so we are exerting ourselves to make the best of what we have got.

But out of these arrangements has grown a project, of which I am grateful to say that we owe the suggestion to Mr. Cole, which promises to be alike useful and full of interest. The tale of designs which we shall be able to exhibit at Paris will be comparatively small, while the number we should desire to send will be proportionately very numerous. In face of this difficulty the South Kensington authorities have undertaken to arrange for us a preliminary exhibition in London, commencing at the beginning of December, in the spacious range of galleries at South Kensington, which were during last summer, and will again next season, be occupied by the National Portrait Exhibition. The space is vast and the time convenient, and so we anticipate the opportunity of bringing together a mass of contemporaneous architecture such as has never before been put in the power of the English public to study. Those who hope to appear at Paris are invited to conform themselves to certain necessary and pressing regulations of size, but the committee desire it to be known that they do not regard this exhibition as a mere testing trial for Paris, but as one possessing a national character and scope of its own, and which therefore need be only limited by the space at their disposal. It will, it is expected, contain many designs tendered for Paris, and it will also embrace designs sent to be viewed in London.

A comparison of the list of the Institute as it stood at the close of last session with that of the year preceding, will show a considerable increase in the section of Honorary Fellows. I think we ought to regard this circumstance with satisfaction, not so much for the material advantage which it is to our body, but for higher considerations, on which I shall not be deterred from dwelling, because, when out of this chair, I myself belong to that order. What is an Honorary Fellow? Technically and literally he is the partner in a bargain, of mutual convenience to himself and to the Institute. Morally, however, we may, I hope, see in every new Honorary Fellow a fresh convert to the importance of our noble profession, a fresh pledge that in the construction of all and every building, science and art shall bear their due proportions. It is no doubt the duty, as it is the interest, of the architect to please his employer, so far as he can do so without sacrifice of self-respect. It is equally his duty to see that he is respected by that employer, in the same way and for the same reasons that the lawyer or the physician is, because the employer is convinced that the architect's technical knowledge carries with itself the guarantee of successful results unattainable by untrained cleverness. Now then, although a little learning is a dangerous thing where the half-taught empiric himself sets up as a practitioner, it is not dangerous in the hands of the man of sense, who is satisfied to appreciate and not to practise. On the contrary, it enables him to understand the value of things which are as sealed books to the wholly uninstructed. Applying this truth (I fear I should say, this truism) to our own case, I contend that it is for our direct benefit that the knowledge of the general principles of architecture should be as widely diffused as possible among the educated classes. The time has as much passed away for our profession as for any other to be a mystery. We are constrained to live—and well it is for us to be under this constraint—in the broad day-light of general criticism, sometimes intelligent, sometimes prejudiced and ridiculous, but even when most prejudiced and ridiculous, far more tonic and useful to us than the ignorant silence of a careless and indiscriminating age.

* From the opening address of the President, Mr. A. J. Beresford Hope, M.P., at the Royal Institute of British Architects, already alluded to.

This criticism—to use the word in its largest sense, as including oral no less than published opinion—we may make our own, or we may exasperate according as we show ourselves, on the one side proudly impenetrable or testily thin-skinned, or, on the other, genial and tractable, but withal assured and tenacious of our principles. We build, it may be for our own fame, but also for the use of all that remainder of the world who are not architects; and, as those who use have a plain right to criticise, so it is far better for them to believe that their opinions will reach and be considered by the men on whom they are passed, than to imagine themselves prejudged to be gainsayers and malignants. On these grounds I congratulate this Institute upon the liberality of that provision in its constitution which admits the unprofessional element; and thereby truly makes us what we never should forget that we are, and what we should resolve never to cease to be,—an Academy of Architecture as well as an Institute of Architects. The financial conditions which we impose upon the Honorary Fellowship, and the test of proficiency which we desire for Honorary Membership, if duly attended to, are sufficient to prevent the professional backbone of the Institute from being enfeebled by a liberal interpretation of the provisions of our charter, which leaves it at our discretion to replenish those two classes without any fantastic limitation of numbers. In one detail only I would wish the charter had been somewhat different. If the Honorary Fellow deserved from time to time to be called to the chair, I regret that the same privilege should not also have been secured for Honorary Members.

It will not be out of place, in reference to the co-operation of professional and amateur lovers of architecture, if I dwell a little upon the relations which have existed hitherto, and upon those which I should be glad to see established, between this Institute and the Architectural Museum, or else some organization fulfilling the duties of that Museum. The Architectural Museum, as I am sure you will all bear me out in saying, grew out of a real and acknowledged want. It was founded in 1851, to meet a necessity which was even then palpable and increasing, and which has in the few intervening years become even more urgent, owing to the growth of national wealth and of artistic literature, both of them combining in a remarkable manifestation of architectural luxury. Sculpture was then beginning to revindicate its rightful prerogatives as the first handmaid of architecture, and the need was pressing for a trained school of architectural carvers of a higher grade than masons' men, but still unencumbered with the usual apparatus which has grown up round the professed sculptor. Primarily, no doubt, in the purview of the founders of the institution, the demand was for a staff of carvers of Gothic stonework; but still, above all, of carvers who should show some perception of expression, and of anatomy, when called upon to place a figure upon a building, irrespective of the figure being draped in toga or whimple, or left to the light simplicity of nature. The necessity of an improved school of wood carvers was, of course, equally apparent, and came alike within the scope of the undertaking. Two things were requisite really to set up such an institution in working completeness—a good collection of examples, and systematic teaching. Of these the collection was the one which it was easier to provide; for its rudiments existed, partly in the specimens possessed by private hands, and partly in the facility with which the casts of desirable examples could be obtained. Systematic teaching, on the other hand, involved the organization of a staff of masters, while the class to be instructed was not one which it was very easy to bring to school. Accordingly, the new institution came into existence as the Architectural Museum, and not the Architectural Academy, with a great many casts, and a picturesque cock-loft wherein to store them. At the same time, as much teaching as could be drawn from the unsystematic friendliness of volunteer and often amateur lecturers was superadded; and prizes to art-workmen were set on foot. Out of all these elements the complete intended Academy of Architectural Art might have grown up, if only sufficient funds had been forthcoming. But the financial shoe never set quite easily upon the young Museum, and after a short though spirited period of independent existence, it succumbed to an arrangement, which it would have been Quixotic, under all the circumstances, to have flouted, but which from the first has proved a source of numberless complications. You need not be told, that this was the morganatic alliance which the Architectural Museum contracted with the South Kensington Museum, whereby, in return for house-room and certain privileges, personal and financial, the private made loan of its property to the public institution. Of this connexion with the South Kensington Museum I have no desire (as an officer myself of the Architectural Museum) to speak in any other than grateful terms. There have been from time to time rubs, but we have met with a great deal of kindness and much material assistance. Still the alliance was one which carried within itself the seeds of failure, except upon one condition, in which, indeed, I never could see any antecedent or theoretic incongruity, but which from first to last, through many accidents of negotiation, passed into every conceivable phase of practical impossibility. It seemed to us that—as the South Kensington Museum was expanding into a wide miscellaneous national collection of objects, both of scientific study and of art demonstration in its widest signification, divisible into many branches, and respectively capable of being independently administered,—the Government (which assumed the direct control of the whole institution) might relax its bureaucratic grasp of one of those branches, and leave it to be administered, under due inspection, within the walls of the new Museum, by a private corporation. In the Council of the Architectural Museum a body of men existed, willing and able to become the curators and directors of a national collection of architectural art, while towards making up that collection both the South Kensington and the Architectural Museums were stakeholders of valuable materials. From the very first, however, my Lords of the Committee of Council turned a deaf ear to any such suggestion. They were anxious, as they told us, for an architectural museum, as an important component part of the great collection, whose name is borrowed from the suburb in which it has been placed; but the whole administration of that great and varied collection was to be, like the French Republic, one, indivisible and bureaucratic. They were ready to house the Architectural Museum casts and to decorate those casts with a distinctive label of ownership; but, in return, we were to surrender them on loan. Of this condition of things, difficulty was of course, with the most friendly intentions upon either side, the inevitable result. The vital powers of the institution—its capacity of growth—were smitten with paralysis; for how could it even procure fresh specimens, when on the one side we could not be sure whether those would be well received by our hosts; and on the other, whether those hosts might not themselves be intending to take the same casts, to the saving of our own private purse? The result, to make a short story, was, that while our individual casts continued, for many years, to do good duty as models for study at South Kensington, they did so not as a valuable and distinct constituent contributed by private enterprise, but as scattered fragments of the general amalgamation of noticeable objects. The hearts of its real proprietors were chilled towards the collection in itself, while with a genuine anxiety to do justice to their favourite study, and to those whose contributions they were inviting, they virtually resolved the Museum, while still retaining its now somewhat incongruous appellation, into a committee for providing popular lectures at South Kensington on architectural subjects, and for stimulating the zeal of art-workmen by annual prizes. The lectures, many of them by persons of considerable eminence, were very miscellaneous in subject and treatment, and the audience comprised members of most diverse social classes. Accordingly they did much unsystematic good, in cultivating art-feeling, alike among the easy and the working members of the community. The prizes also which ranged over every description of art-workmanship, have, upon the whole, decidedly tended to raise the workman standard, and to consolidate personal intercourse between employer and employed, though more than once the particular result of the year's competition has been a disappointment.

Such has been the so-named Architectural Museum, in the days of its intimate connexion with South Kensington. That connexion is now to be severed, as far as the collection goes, and the society has for itself secured an advantageous site whereon to build its own abode, close to Westminster Abbey. The lectures and prize-giving may or may not be still continued at South Kensington, supposing the body to maintain its independent constitution; but, for all practical purposes, I believe that the Architectural Museum might advantageously abdicate a separate existence, if only some more powerful institution could be found willing to undertake the various duties which it has hitherto discharged. It is, I suppose, no secret in this Institute that a conference, necessarily informal, was held during the late session, between members of our council and representatives of the museum, to consider whether the Institute could not so far expand its organization as to cover the ground from which the museum might then gracefully retire. This conference did not meet with the intention of coming to any definite resolution; and it therefore deliberated with freedom, and broke up, I believe I may say, with the general idea that there was nothing impossible about the project, provided only that due care were taken not to hamper either the general funds or the chartered functions of the Institute by new and voluntary responsibilities. It would be clearly to our own credit and dignity, and to the advantage of architecture, if we were the possessors of a museum of architectural specimens, whether under this roof or in any other convenient premises. All that would be needed would be some moderate distinct income from subscription or endowment, sufficient to make it reasonably probable that no calls would be made upon our statutable revenue. We should, I am sure, be all of us glad to be the managers of some series of lectures of a more popular character, and appealing to a more miscellaneous audience than our formal course of annual papers, provided only those lectures did not starve or hamper the papers: and I think we should none of us refuse the trouble of adjudicating prizes for those art-workmen on whose proficiency we are so dependent for the satisfactory effect of our works, if only the doncrs of those rewards put it in our power to distribute them according to regulations made in concert with our council. Why then not fairly see whether the time has not come for a popular development in these three directions? Each would have to rely for the sinews of war upon its own separate account; of which the lecture and the prize accounts, at all events, need not be very large, and that for the collection might, to a considerable extent, be self-supplying, through a system of moderate fees. Each might be worked by a separate committee, on which a certain number of our honorary Fellows and honorary members might be invited to act, so as to give that portion of our body some share of administrative work, without trenching on the provision of our charter, which leaves the government of the Institute itself in the hands of its professional members. When I add that, among the governing body of the Architectural Museum, are found many of those whom we most honour and respect in this room, I have said enough to show how easily this change might be made. The Architectural Museum would, I believe, gladly and without any hagg'ing, hand over its collection to the Institute, happy to terminate its separate existence by so useful and so honourable a *euthanasia*.

You will, I conclude, have noticed the programme of prizes for the forthcoming year, which the council has proposed. I beg briefly to direct your attention to two out of the list of subjects. The first is the prize which we offer for the best design for a Gothic theatre. The affection which I bear for Gothic is a secret to no one, and I should be sorry to deny it; for I have striven not to let it interfere with the duty of equal administrative justice towards the wide world of architecture, irrespective of school and style. I may accordingly, without risk of being misunderstood, say that I shall look upon the responses which this proposal may elicit with peculiar interest. In the first place, I regard it as the assertion of the sufficiency (I do not say superiority, but sufficiency) of Gothic for any constructive need, secular as well as spiritual, recollecting as we do, that men did not only pray, but also did work, think, govern, and play, from the eighth to the seventeenth century. But, in the second place,—here speaking an individual opinion,—I look upon the peculiar adaptability of Gothic to the modern theatre as a point which our modern Gothic architects have either overlooked or have not had the opportunity of developing. Every one knows the type of the Classical theatre; a day-light place, with its receding rings of open benches, its official allotment of seats, and, in Greece, its connexion with stated religious festivals. The modern

"*salle de spectacle*," on the contrary, when true to its own type, is a chamber to be used by artificial, and not natural, light, in which the general community does not assemble at any stated time and in corporate array, but by person, or by family, when and as it likes. Now, then, what structure best responds to this demand out of the various forms in which the modern theatre has been cast? Is it the one in which the necessary tiers of boxes stick out like trays from the wall, or that in which every lower story legitimately throws up its shafts to support the one above? No one who considers the question can hesitate to accept the latter, both for beauty of appearance and constructive excellence. Now, then, where do we find the nearest example of such curvilinear mid-air galleries? Not in the theatre of Bacchus, or of Pompey, but,—let no man charge me with irreverence, viewing, as I am, the question from a purely constructive stand-point, — in the triforium which encircles the apse of some cathedral of the thirteenth or fourteenth century. No doubt, the shafts will most often be of metal; but a metal triforium is a development of which the idea may be more readily found in a stone triforium than in a semicircle of receding benches. For these reasons I venture, in the name of progress and of eclecticism, to call on all here present to aid in vindicating the theatre no less than the church as a legitimate object for Gothic treatment. * * * *

In other places our intervention has been efficacious. The stone choir screen of Christchurch Priory, Hampshire, necessary as it is to the impressive and nearly unique choir of that fine church, has been saved; for which, in the first place, we owe our thanks to Mr. Ferrey. The church of St. John, Leeds, very noticeable as being in its structure a grandiose and picturesque example of the Revived Gothic of the seventeenth century, and in its woodwork one of that English continuation of Cinque Cento, which is usually known as Jacobean, has also been rescued from the destroyer, and will, I am sure, in the hands of Mr. Norman Shaw, present a true example of conservative restoration.

Another question, involving as it has done a matter of professional practice, as well as of the preservation of a very valuable ancient monument, has been taken in hand by the Council—I mean the treatment by the corporation of Bristol of the prize designs of Messrs. E. Godwin and Crisp, for the new Assize Courts of Bristol, and for the preservation within them of the Mediæval house, known as Colston's. I believe that the best preservative against the repetition of such scandals as have discredited that and other competitions, is that more general acquaintance on the part of the public with the principles of the architectural profession, which I have already had occasion to advocate. So long as the arrogance or greed of the patrons of any competition finds itself supported by the uninstructed public opinion of persons who have never yet really learned to treat architects as gentlemen or men of sense, so long will the scandal continue. Let the world give the architect his true status, and then he will find himself the master of public opinion, not its enemy. Might it not be worth our while to publish some paper, bearing the official mark of the Institute, short enough for the general newspapers to give it insertion, and clear enough for every one to understand, in which we lay down certain general rules of competition, outside of which no architect could compete without losing caste, and no patrons institute a competition, and be able then to say that they had acted with fairness and generosity?

But I turn to a more agreeable topic, and I invite you to record your gratification at the commencement of a work of restoration which, alike for the beauty and value of the structure itself, and for the national character of the enterprise, deserves special commemoration. You will anticipate that I am speaking of the Chapter-house at Westminster, and will not require any description or encomium of the building. The cheerful unanimity with which the House of Commons recognised its responsibility towards the chamber, in which for more than half the existence of that august assembly, it had been wont to gather, must be noticed as an eminent example of that wise love for antiquity to which the English people hold fast. However much different members of the Institute may think differently of the political opinions of the late distinguished Chancellor of the Exchequer, all will, I am sure, unite in their gratitude to him for the earnest and effectual way in which he undertook this restoration, and carried it, as far as Parliament is concerned, to a success which is virtually conclusive and complete. In this he was ably and cheerfully seconded by Mr. Cowper, the first Commissioner of Public Works. I can as confidently claim your unanimity when I say, that I am certain that the ministers who have succeeded them will not fall short of their predecessors in their determination to see the Chapter-house made good. To Dean Trench who originated, and Dean Stanley who carried on the movement must also be accorded the tribute of our hearty thanks for their substantial good services. * * * *

I have mentioned some prominent questions affecting our pursuits, which came before Parliament during the last session. Other matters also engaged its attention in which we are more or less interested: among them the improvement of the dwellings of the labouring classes stands first. The wholesale demolition perpetrated by different railways in London and other towns was the main cause which led the Legislature to turn its attention to the subject. Let us trust it will be one upon which the eyes both of the upper and middle public and of the Government will be ceaselessly directed, for it is one in which, as a nation, we have as yet failed in our duty, both to our fellow creatures and to ourselves; to our fellow creatures as it is a matter of humanity, to ourselves as it is one of general health. I have also to notice the care taken for the protection of the integrity of the public parks and open spaces in and about the metropolis, noticeably shown as well in a general bill as in the resistance made to the erection of gas-works in dangerous proximity to Victoria Park. What remains of Epping Forest is also to pass into the category of public parks, by being transferred from the office of Woods and Forests, which only regards the financial value of its trusts, to that of Public Works, which deals with them for the general recreation and the decorative improvement of the ground.

At last the administration of the river Thames has been reformed, whether efficiently time will show, and also, I hope, rectify any proved inefficiency. Beneficial as this reform is to the world at large, it carries with itself a special advantage to architecture, as it will render possible that vast system of metropolitan improvements, which turns upon the quaying of the river, about which we have all no doubt thought so much, and will have no doubt still to think a great deal more. Let me in passing congratulate the Metropolitan Board of Works on having laid the first stone of the Southern Embankment. One Bill received the Royal assent, to which I should desire to call particular attention, as the first step towards the long-called-for opening between Whitehall and the Palace and Abbey of Westminster. This Act only deals with the one wedge-like block, in front of the new Foreign and India Offices, whose apex is the Irish Office, but in this case the proverb about the point of the wedge will, I trust, receive its literal as well as its metaphorical interpretation. I refrain from recapitulating single buildings and monuments, however noteworthy, in various stages of progress; but the grandiose rebuilding of an entire quarter of the town by the Marquis of Westminster, deserves especial commemoration.

I gave reasons last year why I regarded our architectural future with hopefulness; to these reasons I am able to pledge my continued and increased confidence. True to ourselves let us only be, and no selfishness, or stinginess, or ignorance displayed by the world, which is so largely our debtor, can check the architecture of Great Britain in its onward course of great and rapid improvement.

CABINET PICTURES AT THE FRENCH GALLERY.

THE pictures that are brought together from year to year for winter exhibition at Mr. Gambart's Gallery are usually well selected, and the present occasion is no exception to the rule. With enough of variety to afford pleasure to most tastes,—where taste is the principal guide to preference,—the collection for the most part is of that agreeable and attractive character that is certain to meet with general appreciation. A degree of excellence obtaining throughout compensates for any dearth there is of a special concentration of it: for there is nothing entitled to the lion's share of acknowledgment when the exhibition is pronounced to be a very interesting one.

Mr. E. M. Ward, R.A., contributes one of his admirable illustrations of his favourite Johnsonian period (217), introducing "Oliver Goldsmith, M.D., practising in his professional capacity," and the one case he is recorded to have undertaken, that of a Mrs. Sidebotham, described as a "recent acquaintance of the better sort." He, it appears, failed to conciliate the lady's waiting-woman, who was known afterwards to ridicule his assumption of importance when visiting his patient, with whom he succeeded no better in satisfying; for it happened one day, that his opinion did not coincide with the apothecary's in attendance, and the latter was considered the safer counsellor, so Goldsmith resigned his rather limited practice, quitting the house in high indignation,—"He would leave off prescribing for his friends, he said." The incident is most perspicuously related; and painted with great force and brilliancy.

Mr. F. Walker emulates French art, both in execution and in that indescribable something that constitutes the soul of a picture; for "The Wayfarers" (215), with nothing beyond the simplest imitation of probabilities to account for it, is likely to leave an impression on the memory, though not of a pleasant or cheering nature; indeed, the picture is a disagreeable one. A blind man is being conveyed across ploughed ground by a boy, who is patiently accommodating his pace to his companion's, though he is obliged to chafe his hands that are chilled and numbed by the visibly damp, cold atmosphere. The pathetic expression of the child, and that want of any expression, the utter unconsciousness, common to the sightless, are very cleverly represented.

Mr. Ford Madox Brown has bestowed much careful study and execution on his rendering of "The Coat of many Colours" (30), and produced a remarkable work, already commented on in our pages; and Mr. F. Goodall, R.A., another "Hagar and Ishmael" (100), with nothing novel in its aspect to distinguish it from innumerable prototypes, except that in workmanship it excels the most of them. In regard to workmanship, so far as exquisite finish is to be considered, it would appear impossible to go beyond Mr. Sandys in his "Portrait of Mrs. Rose" (169), which is a marvel.

Mr. T. Faed, R.A., has one of his rustic heroines glorying in the magnificence of colour and the method of applying it, for which he is so celebrated; listening to her little brother piping tunes to her as she lounges in the doorway, thinking that "Music hath Charms" (87). A repetition of perpendicular lines gives the composition a singularity, to say the least of it; but the painting is superlative: the same may be said of the young lady "En déshabillé" (86), by Mr. Elmore, R.A., though he has restricted himself in the use of colour more than is often the case with him.

Mr. Leslie's fair victim to "Hope Deferred" (139), is very refined and graceful; and in spite of the red background, that does not set off to the fullest advantage her complexion or the hue of her hair, is very pretty, without being conventionally so. Mr. Hicks typifies "The Mother's Love" (111), by depicting a golden-haired ideal, in the last century's costume, teaching her child to walk; and Mr. O'Neil, A.R.A., her "Happiness" (168) in watching it sleeping in her arms, with no auri*comb*ical distractions this time to suggest a division of attention. Mrs. Anderson presents a more advanced phase of childhood, in the little girl able to help herself, standing "On the Tip-toe of Expectation" (1), at the well-provided supper-table, to which she is not yet an invited guest.

Mr. L. W. Desanges exhibits for the first time a landscape, "Fontainebleau, October, 1866" (73), showing that his skill is not confined to one department of pictorial art. "The Letter" (34), a bedroom interior, very broadly painted by Mr. P. H. Calderon, A.R.A. (though not up to Calderon mark); (64) "Study of a Landscape," by Mr. H. W. B. Davis; "The Singer" (119), and "The Dove" (120), by Mr. William Hughes; "Shepherd Boys" (142), by Mr. J. T. Linnell; and "Up the Lane" (143), by Mr. T. G. Linnell; "The Bivouac" (151), by Mr. C. Lacy; "Lilies" (162), by Mr. A. Moore, showing, reposing amongst them, an Odalisque, who, though rather attenuated, is delicate and graceful; (169) "God's Acre," a touching picture by Miss Osborne; "The Honey-seller" (171), by Mr. A. E. Patten, a well-posed and solidly-painted study; "The Carpet Bazaar,

Cairo," by Mr. H. W. Phillips; a carefully-wrought and tasteful female study, "In Gloss of Satin and Glimmer of Pearls" (185), by Mr. C. Rossiter; and "Gedenk der Arnen" (207), by Miss Kate Swift, all eminently assist in accounting for the interest of the collection.

Mr. H. S. Marks, in a conscientiously represented garden scene "At Olney" (158), introduces a portrait of the poet Cowper contemplating his pets, the tamed hares; and further contributes two smaller productions, "The Sacristy" (156) and "What make you here?" (157).

Mr. Val. Prinsep is apt to get black and heavy in attaining the amount of power that distinguishes his method of representation; but a well-modelled head designated "Marguerite" (180), is less amenable to observation on this account than two otherwise excellent examples, "A Venetian Handmaid of the Seventeenth Century" (178), and a contemporary damsel "Going to Mass" (179).

Mr. J. E. Hodgson has rather a strange picture of "A Strange Fish!" (114), with Trinculo's commendation of such an opportunity as catching one would be for making a man by such a monster at a silver piece a-head, to back him in the choice of such a subject. Mr. Watson likewise carries us back to the Elizabethan period, and into "The Barber's Shop" (218), with a gallant who "studies by the discretion of his barber to frizzle like a baboon," and is apparently astonished at the effects of the frizzling. All that can be said of this is, that it is well painted, well drawn, and vapid enough, in spite of all the good work it bears witness to. "The Tailor" (219), who is taking the measure and order of the same, or a similar "blood" of the time, offers little opportunity for the display of Mr. Watson's sound knowledge of his art, and his taste for the picturesque.

Mr. G. F. Watts is represented in portraits of "Alfred Tennyson" (222) and "Robert Browning (223)," as well as in an idealized head of "Gennaro" (224), who loved Lucrezia Borgia, not wisely, but too well.

ROOF OF THE NEW OPERA-HOUSE, MALTA.

In our last, we gave some particulars of the opera-house recently completed in Malta, from the designs of Mr. E. M. Barry, A.R.A. We now add to the illustrations of it that have already appeared in our pages a section of the roof, which has some peculiarities of construction intended to meet the difficulties of the hot climate of Malta.

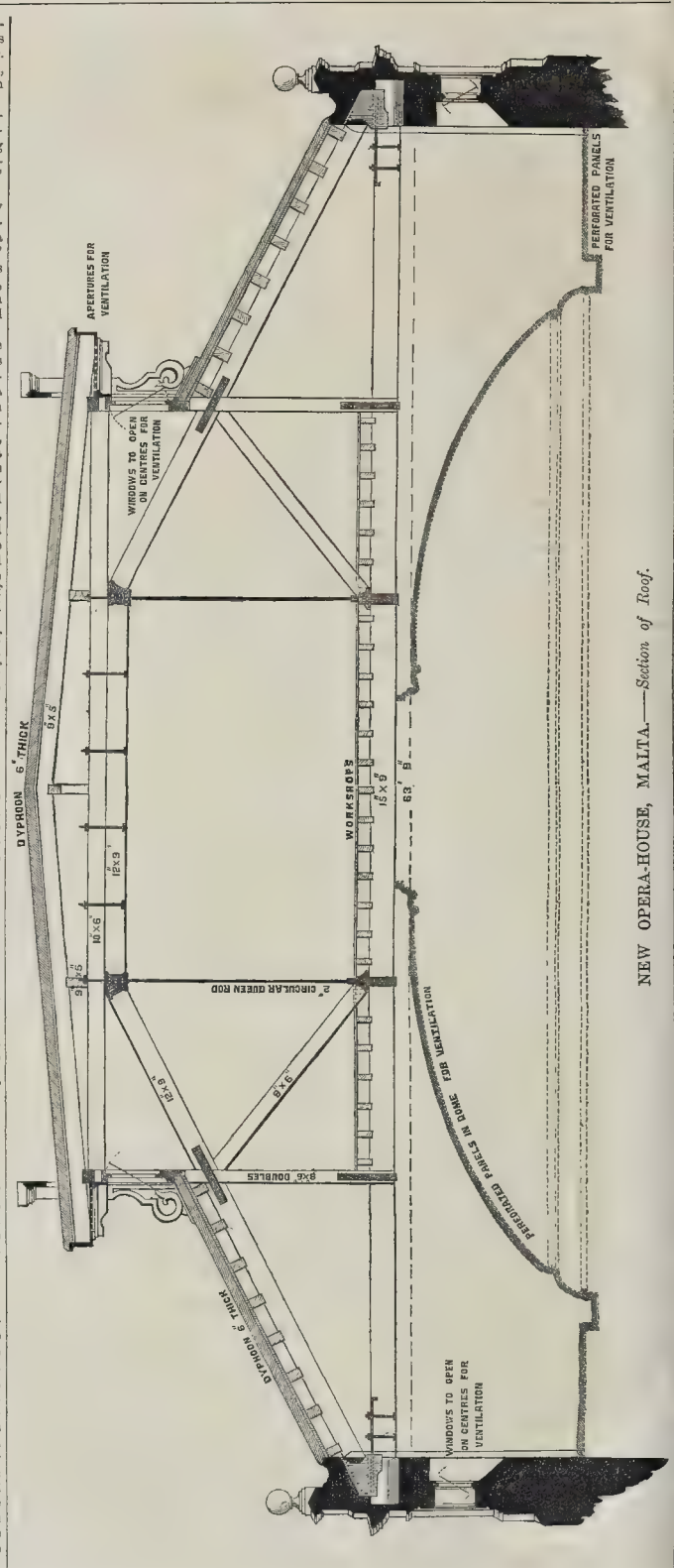
The covering of dyphoon, a composition much used for this purpose in Malta, 6 inches thick, though very heavy, is an excellent thing to keep out heat, and the arrangements of windows and projecting eaves speak for themselves. The space in the roof makes good workshops; an arrangement, however, we do not recommend.

The span, in clear of walls, is 63 ft. 9 in. The principals are 10 ft. 4½ in. apart. The dotted lines show the section of the ceiling over the pit: it is constructed of Jackson's Fibrous-plaster, and is suspended from the tie-beams of the roof.

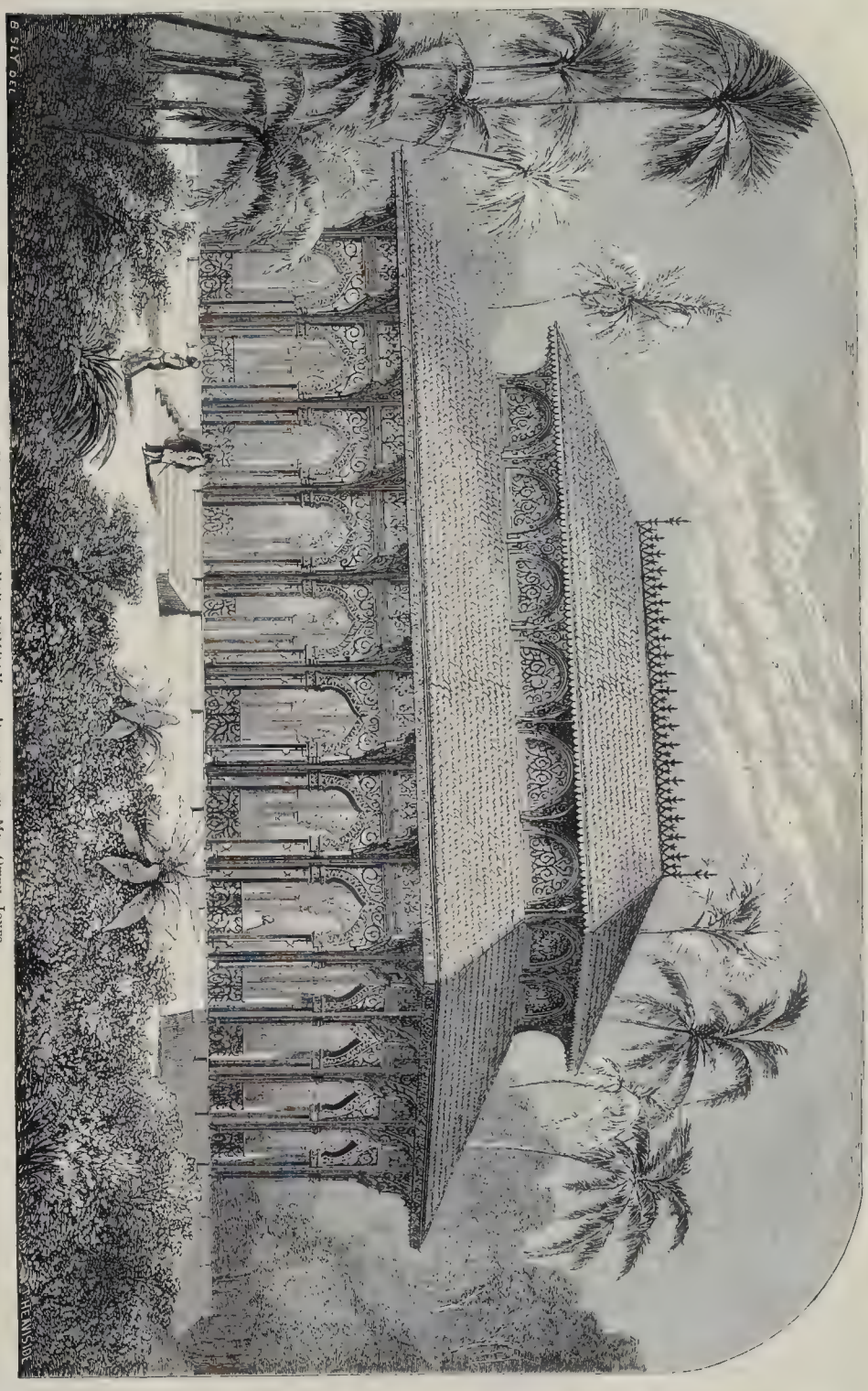
IRON KIOSK FOR BOMBAY.

Our engraving represents an Iron Kiosk, designed by Mr. Owen Jones, and intended for Bombay. It is being set up temporarily on a piece of land adjoining the Royal Horticultural Society's gardens, South Kensington. We have other illustrations to give, and reserve the particulars until these appear.

A Lodging-house, Bradford.—A lodging-house has just been opened at Bradford. The house will accommodate in the dormitories on the upper floors 176 persons,—31 males, at 4½d. per night; 100 males, at 3d.; 13 married couples, at 6d.; and 19 females, at 4½d. All who pay 6d. or 4½d. for their night's lodging enjoy the comfort of a separate bed-room; but the 3d. beds are placed in wards, containing eight to a dozen each. The ticket for his bed, which the lodger receives on entering the premises, entitles him to have access to the kitchen, the lavatory, and the reading-room, without extra charge. The cost of the building and land was 3,500*l.*; and 400*l.* have been expended in the furnishing. The amount of space allowed for each lodger we are not informed of.



NEW OPERA-HOUSE, MALTA.—*Section of Roof.*



IRON KIOSK, FOR BOMBAY.—Designed by Mr. Owen Jones.

ITALIAN NOTES.

Amidst the general interest and exultation for the great event of the day, the annexation of Venetia, it is natural that other topics should be but secondary in the press and in the public mind of Italy. But the object of securing a worthy representation for this land's genius and arts at the Paris Exhibition is not forgotten, nor less actively promoted by the Royal Committee *ad hoc* than at the outset of their labours, and many have been the proceedings announced on the part of that body since we last referred to it. On the 6th of October was addressed its appeal to the Academy of Venice, whose co-operation had not yet been secured, and whose independent agency and counsels rather than mere subordinate auxiliaries, in carrying out the plans of the Florence commissioners were requested in that document; and this step serves in a degree to repel the charges somewhat sarcastically urged by the well-known writer, Dall' Ongaro, who, in a letter to the *Nazione* journal, calls those gentlemen to account for their strange neglect in omitting all reference to the Academies both of Rome and Venice, as their first appeal to the seven other such art-institutions of Italian and Sicilian cities had been drawn up; the Roman Academy of St. Luke being still, in fact, ignored, and as it were under ban, perhaps through anticipation of inevitable oppositions from Papal government, to this as to other projects of national character or patriotic aim. Dall' Ongaro suggests that all works forwarded to the head quarters of the committee, after passing the ordeal of the provincial academies, should be collected for a species of rehearsal exhibition at Florence, and finally submitted to the judgment of a board empowered to choose and reject; for the composition of which he suggests three suitable persons, Morelli (a Neapolitan artist in high repute), Calamata (another artist of mark, but belonging to a different school), and the Count Bernasconi, of Verona, an esteemed connoisseur and collector. It is to be hoped this proposal of a Florentine exhibition will be acted on; and already a few works, historic and *genre* paintings, have been left for a time in the rooms of the Accademia here before being packed up.

Among the attractions promised for the grand festive occasion, the royal ingress at Venice, is to be an Industrial Exhibition, to be inaugurated for a permanency, and bear the national character, open to the produce of all Italian provinces. Such a display has hitherto been triennially provided by the Venitian Institute; and it had been for some time past the intent to render it permanent, instead of periodical. Profiting by the favourable opportunity now offered, for which new phase, the Institute announces the opening of what will at first be but a local, as the nucleus to a national, exhibition, for the shortness of the interval precluded the possibility of collecting objects from a distance before the fêtes. The Institute's president has appointed a committee of three professors, to make choice of and to classify in its halls such specimens as are admissible; and the invitation now issued promises well for encouragement of industries throughout this country. The restitution of the Iron Crown, which was removed from Monza by the Austrians during the war in 1859, is officially notified as made into the hands of General Menabrea; and the Minister of the Interior wrote, on the 25th of October, to the Sindaco of Monza, apprising that the crown would be consigned to the king at Venice, thence transmitted to that minister himself, who will order its official delivery to the capitular clergy of the St. John Baptist Basilica at that town. That much-revered symbol, taking its name from the relic connected with it, a supposed nail of the Crucifixion, beaten out into a slender hoop, and set within the golden circle, is said (*Storia degli Italiani*), to have been first used at the coronation of Berengarius, king of Italy, at Pavia, A.D. 888; but other writers refer it to much higher antiquity, to the seventh century, and the Longobardic kings. During the Papal residence at Avignon, was transferred thither not only this crown, but all the other golden and jewelled offerings presented to the same church by the pious Longobard Queen Theodelinda, and her husband Agilulf; till, in 1344, all were recovered by the Monza Chapter, from the grasp of the French pontific court; and soon afterwards those sacred treasures were handed over by the Archbishop of Milan to an artist named Braccioforte, of Piacenza, for the sundry repairs requisite in the damaged condition in which they found their way back to the ancient sanctuary. Before the coronation of Napoleon I., who placed this relic-laden symbol with his own hand upon his head, at Milan, the diadem had remained long unworn, and kept in the shrine above a lateral altar at Monza, where it subsequently remained, shown with special religious solemnity, incense, tapers, and a stolid priest officiating, and strangers provided with the requisite permission, which we obtained for seeing it some years before the Austrian withdrawal in '59.

We have pleasure in reporting the continued progress, and, according to all accounts that reach us, a progress under intelligent direction, of the restoring works at the Siena and Arezzo cathedrals. The carrying out of the designs of the architect Mazzei, under superintendence of the engineer Garzi, at Arezzo, has received high eulogium from the Cavaliere Matas (architect of the S. Croce façade), who writes to the *Nazione* on the subject, declaring his belief that these works will restore the church to all its original beauty. At Siena the labours now energetically pursued aim at the restoration of mosaics and sculptures on that glorious façade, if possible without sacrifice of the ancient material, and with the addition of the new only in parts irreparably injured, though it has been found indeed necessary to replace some of the marble figures in their totality. The elaborate pavement in intarsio, by Beccafumi, also comprised in the scope of these undertakings, has been in some parts more or less renewed, completely so, as we learn (and this may be regretted), in the "Wheel of Fortune," with the Four Philosophers at the angles, one of the most interesting compartments, but whose author is unknown; also in the mosaic subjects inlaid near the chief portals, the emblems of Italian cities; the "Romulus and Remus suckled by the Wolf" being, we learn, alike renewed and skilfully. At the same time are progressing, at Siena, the works begun several years ago, and mentioned with praise by Ricci in his "Storia dell' Architettura Italiana," under date 1858, at the celebrated "Fonte Gaja," the beautiful fountain, encrusted with bas-reliefs, by Jacopo della Quercia, the labour of ten years in that artist's life (1410-19), and from which he obtained his other name, "Jacopo della Fonte;" sculptures in most parts greatly damaged, if not totally effaced. The method pursued in this work has been to remove the portions for restoring, take casts of them, fill the concaves of the mould with clay, and use such copy as the original for filling in the details wanted, but replacing the ancient marbles in the portions still preservable.

Among the many, indeed redundant, additions to the sum of Italian journalism, we see promised, in prospectus-form, one of scientific nature, dependent on subscribers obtainable before its first issue, under title *Bolletino di Numismatica Italiana*, to be edited by a Signor Cancich (Teutonic?), who has reputation in that branch of learning. It may be doubted whether at present anything purely scientific, and of reference to but one walk in abstract pursuits, is likely to win public favour or support in this country. An Italian Association for Popular Instruction is a new project of promise, and was notified the other day, at a general meeting of the Medical Faculty, the third such congress hitherto held in Italy, whose sessions have been lasting for about a week in Florence.

We have just seen, in the studio of Pazzi, the cast, but not even the incipient marble, of his really fine statue, Venice seated on the Lion, and were surprised to hear that no order has been yet given for a work thus associated with dominant interests of the day, characterised by a noble melancholy, a sorrow with indignant resistance of soul, in which the sculptor has well presented the Venice of the past, *not* her whose emancipation is now being exulted over. Fedi's colossal group in the loggia is still encased in its wooden shed, and so also is the Dante Monument, by Pazzi. Mr. Jackson, American sculptor, resident in Florence, is executing in the marble a group, heroic size, of Eve, with the dead body of Abel partly supported on her lap, partly extended on the ground before her; an affecting presentment of a subject never yet treated in sculpture, and indeed happily chosen for its intense world-appealing pathos by an artist who seems to us to have done justice to his theme. We hear of a movement to Palestrina projected, and to be subscribed for at Rome: strange that even there no sort of tribute should yet have been paid to the great composer's memory. And another monumental statue is about to be erected at Feltre to Panfilo Castaldi of that town, the first inventor of moveable printing type; the sculpture, now in readiness, by Corti, a Milanese, who represents his subject in sixteenth-century costume, with long hair and beard, described by a correspondent as "a beautiful and imposing figure." A festival of Italian printers is to be held at Feltre, and a volume of original tributes to the honour of the typographist, promised from well-known *literati*, to be issued for the occasion of this monument's inauguration—at what date is not, we believe, yet fixed. It may be remembered that Bernardo Cennini, who first prepared cast types by his own ingenuity at Florence, a goldsmith by profession, had the compliment of a tablet set up, not long since, on the house where he lived in this city: his first production, a life of St. Catherine of Siena, under date 1471.

Shakspeare has been drawing large houses to the largest theatre in Florence, the Pagliano, where the characters of Othello and Hamlet have been fervently applauded as personified by Ernesto Rossi; and in the latter part we thought the actor, making the most of a prose translation, succeeded triumphantly in scenes of the more high-wrought passion; less satisfying where calmness and moral repose predominate, but in the most affecting and deeply tragic passages attaining a height of grandeur.

Florence.

PROPOSED IMPROVEMENTS IN LEEDS.

We are glad to be able to say that a town's meeting—perhaps the most influential that ever assembled in Leeds—has been held in the Victoria Hall, to consider the various schemes proposedf or the re-construction of Boar-lane, and over which the Mayor presided. The following resolution was passed by a majority of three or four to one:—

"That since the decision of the town council on the new street to be formed in place of Boar-lane, much additional information has been gained; and that it appears to this meeting that the balance of advantages is decidedly in favour of the straight street, and it therefore respectfully requests the town council to re-consider its decision."

Mr. Baines, M.P., in moving the resolution, strengthened his opinion by quoting the observations in the *Builder* of last week, and a letter from Sir John Thwaites, chairman of the Metropolitan Board of Works. It can scarcely be doubted that the town council will now make the proposed improvement more complete than was at first intended.

MONUMENTAL.

Messrs. Elkington & Co. have delivered the bronze equestrian statue of the Prince Consort for Wolverhampton, and Mr. Thorneycroft, the sculptor, was there to receive it. It is of the heroic size. The Prince is not, as in the case of the Liverpool statue by the same sculptor, in civil costume, but in military uniform. The height and the "gracefulness" of the pedestal have given rise to the remark that the statue would be too large for it; but the sculptor claims to have learnt from the late Prince himself "not to overcrowd a statue with pedestal."

The removal of the Nelson Monument from the quadrangle of the Exchange Buildings, Liverpool, has led to a little discussion in the newspapers. An active member of the corporation asserted it was cast in one, and was being hacked in pieces for removal. This the architect of the new building denies *in toto*; says it is in several pieces screwed together, and is being removed most carefully. It is a bronze group of considerable importance. It was erected on the Exchange Flags, by public subscription, in the year 1812-13, at a cost of 9,000*l*. The figures were modelled and cast by Mr. Richard Westmacott, after a design by Mr. Matthew C. Wyatt. A site has been prepared for it nearer the Townhall. In its reconstruction, the group will be placed on a pedestal of grey granite, 6 ft. higher than the old pedestal; but in every other particular the original design will be adhered to. The four emblematic figures, of heroic size, seated round the sides of the pedestal, and attached to it by chains, are emblematic of captives, or the vanquished enemies of Nelson's great victories of St. Vincent, the Nile, Copenhagen, and Trafalgar. The bas-reliefs on the

four tables in the spaces round the pedestal between these figures are illustrative of Nelson's chief naval engagements. The group of figures of heroic size surmounting the pedestal represents Nelson receiving upon his sword, from Victory, a fourth naval crown; while Death, emerging from the folds of the captured flag, at this moment of triumph places his hand upon him, in emblematical allusion to his victory over the conqueror. The other figures of the central group are those of a "man-of-war's-man," and Britannia, mourning the loss of the hero whose temples she was about to crown with the laurels which she now holds listlessly in her hand.

The Statue of Sir John Franklin in London, near the Duke of York's Column, Waterloo-place, remains covered up. The inscriptions have been cut on the pedestal and gilt. On the face of the plinth of the figure is "Franklin." On the side beneath the bronze entablature (east), "To the great Arctic Navigator and his brave companions, who sacrificed their lives in completing the discovery of the North-West Passage, A.D. 1847. Erected by a unanimous vote of Parliament." On the side (south) over the entablature, "Her Majesty's ship *Erebus*;" and under the entablature, "They forged the last link with their lives." On the side (north) over the entablature, "Her Majesty's ship *Terror*;" and under the entablature, "They forged the last link with their lives."

THE THEATRE.

The Haymarket.—A very good park scene has been painted, for the first act of "A Dangerous Friend;" not so good as that for "Ours," at the Prince of Wales's Theatre, which is the completest little thing of the kind seen for some time, but still very good. The room-scenes that follow are also very well set out and appointed. It shows no slight ingenuity to vary them here, where modern in-door life is the main thing constantly set forth. The piece, corrected from the French, is distinguished by the acting of Mrs. Charles Mathews (an admirable personation), Miss Nelly Moore, Mr. Charles Mathews, Mr. Howe, and Mr. Walter Gordon, who has lately made good advance in his profession, to say nothing of the credit he has gained by his drama of "Fire and Water," and some other clever pieces. Mr. Mathews, younger, cooler, and truer to his idea than ever, flutters in and out, from the beginning to the end, the life and soul of the play.

The Adelphi.—A foolish and not true remark as to the working classes, introduced, it seems, without the author's knowledge, and a scene between father and son, in which a state of morality was set forth which people would wish to persuade themselves does not exist, led to many adverse criticisms on "Ethel" when it was first produced. The sentence and the scene, however, being now omitted (the scene, by the way, was capitally acted by Mr. Billington and Mr. Stephenson), the drama is now nightly received with unanimous satisfaction. Mrs. Mellon plays an uneducated, snappish, good-hearted Yorkshire girl in a way unrivalled since the time of "Miss Woolgar;" and Miss Kate Terry moves the house to tears by her admirable exposition of the too sad life of the heroine of the piece, *Ethel*.

THE CAMBRIDGE UNIVERSITY UNION SOCIETY'S NEW BUILDINGS.

These new buildings have been formally opened. They were commenced, says the *Cambridge Chronicle*, about two years ago, and the style is thirteenth century Gothic, with some modifications, especially in reference to the windows. The height is three stories, though the debating-room, the principal feature, has no rooms immediately above it. This room is 60 ft. by 45 ft., and it will accommodate 600 persons. There is a gallery on three sides for ladies. Ascending a wide staircase lighted by means of three stained-glass windows, by Messrs. Lavers & Barraud, of London, the entrance to the gallery of the debating-room is reached. A few steps higher are the magazine and writing rooms, above which are coffee, smoking, and reference rooms. The library, which contains 8,000 volumes, and is provided with recesses for reading, &c., is situated on the left on entering the building, and opposite it are the clerks' offices, &c. The cost of the buildings will be about 10,000*l.* Messrs. Jackson & Shaw, of Westminster, were the contractors. Of this sum over 4,000*l.* have been raised by voluntary subscriptions; and the rest will be raised by means of debentures. The decorations are by Messrs. Green & King, of London; the gasfittings and ironwork, by Messrs. Skidmore & Co., of Coventry. The building has been erected after the designs of Mr. Waterhouse, the architect of the Manchester law courts. It is situated near the junction of Bridge-street and St. John's-street, behind the Round Church. The exterior of the edifice is chiefly of red brick, but both Casterton and Ketton stone has been employed.

THE YORKSHIRE FINE ART AND INDUSTRIAL EXHIBITION.

This very successful Exhibition is now closed. The receipts amount to 13,520*l.*, besides commissions on sales of pictures, receipts from sale of fixtures, &c. The summary of receipts is instructive:—

Season Tickets	£2,039	13	9
Day ditto	8,290	5	2
Book Markers	830	3	10
Umbrellas	191	0	4
Book Stall	140	6	1
Gentlemen's Room	32	17	2
Ladies' ditto	85	7	8
Programmes	26	6	3
Commissions	0	15	3
Advertisements	115	10	0
Catalogues	693	3	3
Admissions (parties, schools, &c.)	93	6	9
Jackson's Rent	103	15	0
Smith's Rent	120	0	0
Fairy Fountain	359	1s	10
Special Tickets	57	2	6
Church Congress	50	0	0
	£13,620	11	10

The Exhibition was attended by 337,881 visitors. The surplus is 4,000*l.*, respecting the disposal of which various suggestions have been made, such as contributions to charities, the carrying out of some work of utility and ornament to the city, the formation of a picture gallery or a museum of the fine arts, and the advancement of the York School of Art. It is to be hoped that the school and the promotion of fine art will not be neglected.

SANITARY MATTERS.

Fever at Hertford.—At a recent meeting of the Local Board of Health, a letter was read from the medical officer of the second district, stating that scarlet fever had prevailed, and was still prevailing, in the parish of Hertingfordbury, in the village, and at Cole Green, Letty Green, and East-end Green. Being spread all about the parish, it was difficult to assign a cause for the disease; but in almost all the cottages the cesspools were close to the wells. In one case the fever was bad in a cottage, while the next cottage was free from it. Where the fever was, the water was taken from a well close to the cesspool; while in the case of the house where there was no fever, the woman of the house went to a purer but more distant source for her supply. The wells and the privies were too near each other. After some discussion among the guardians, during which it was remarked that Hertingfordbury was so frequently visited by epidemics, such as fever, diphtheria, &c., there must be some local cause for the same, the relieving officer was directed to make a special report on each dwelling in which the fever had prevailed, as to where the supply of water was obtained, whether from wells or other sources, and also as to the drainage and privy accommodation, and thus enable the Board to take the necessary measures, to prevent the recurrence of disease, if possible.

Fever at Scorton. — The "model village of Scorton," which is situated between Lancaster and Preston, and which contains neither a beer-shop nor a public-house, has just been subjected to a serious attack of fever. Out of a total of thirty-six families, twenty-two have been attacked, and there have been ten deaths. A widow woman, living at Scorton, went to attend a daughter who was ill at Wigan, caught the fever, remained there until recovered, then returned to Scorton, and carried the disease with her. It is now disappearing.

Government Inquiry at Chichester.—This city possesses no system of drainage, but all refuse is collected in cesspools; and it is affirmed that the matter of these cesspools percolates into the adjoining wells, and the water is thus rendered impure and unwholesome. A number of gentlemen, including principally the medical profession, urge that a complete system of drainage should be carried out, and that some means should be taken for supplying the citizens with pure water. The majority of the corporation, on the contrary, are content to perpetuate the system of cesspools, and to purify the city by renovating the existing local defects. There are three reasons urged for the latter alternative—first, it is the difficulty of disposing of the sewage; secondly, a doubt as to the efficiency of the drainage system and thirdly, a wish not to incur a heavy expense upon the citizens, with doubtful results. Finding this to be the feeling of the council—a feeling backed up by the inhabitants—a Government commissioner has been brought down by those who are discontented with the existing state of things. The inquiry resulted unfavourably to the views of the council. The commissioner, Mr. Taylor, said he regretted that it would be necessary for him to carry back so unfavourable a report of the condition of the city, and still more that the majority of the council and citizens were opposed to the drainage.

Government Inquiry at Shoreham.—A similar inquiry has taken place at New Shoreham, Mr. Taylor being the commissioner sent down. The inquiry was granted on the complaint to the Home Secretary of the Rev. Robt. Hammond, M.A., chaplain of St. Saviour's School, praying him to institute an inquiry, under sec. 49, into the default of the local board as "the sewer authority" under that Act, in providing sufficient water supply. The local board agreed to appoint, within one month, a competent surveyor to take the levels for the purpose of sewerage, and send the name of the person to the Secretary of State for approval.

COMPETITIONS.

Grantham Town-hall.—The design for a new town-hall at Grantham, which has been adopted by the corporation of that borough, is the work of Mr. Drury, of this city. The three designs selected by the committee as the best (Mr. Drury's being the first) were submitted to Mr. Paley; and the result is the confirmation of the selection made by the council. The building will consist of a town-hall, comprising a council chamber, committee-room, sessions-hall, magistrates' room, surveyor's office, and a spacious assembly-room, with orchestra and suitable retiring and refreshment rooms; a prison for twenty-four prisoners, with governor's, warder's, and four police-constables' residences; a police-station with four cells, day-office, superintendent's office and house, and in close conjunction a double fire-engine house. The design includes a tower 100 ft. high.

OPENING OF THE DRILL HALL, NORWICH.

The new drill-hall for the use of the Norwich volunteers has been formally opened by the Prince of Wales. It is in the Decorated style, and is castellated. The wing to the left of the entrance is formed of the old postern tower, which may be said to have been reproduced, and in this are situated the armoury, orderly rooms, officers' board-room, quarters for sergeants, &c., but this portion is not finished. There are four turrets at the angles of the armoury, situated over the entrance, which has a groined arch and brick mouldings. The structure is built of rubble flint, with red Cossey bricks, and dressings of stone. Brick mouldings on other portions besides the entrance have been extensively used. The hall itself is 144 ft. long, by 62 ft. wide: it depends for its light on a partially glazed roof. The roof derives its main support from arched ribs of timber springing from the floor, and is boarded and slated. The ribs are coloured in distemper. A gallery extends along the entrance end for the band or spectators. The walls are coloured in unison with the ribs, and the floor is covered with asphalte. Three large gas coronæ are fixed down the centre, and on each side, suspended from the roof alternately between the supporters are twelve small star-shaped, six-light burners. The total cost is about 1,700*l.* Mr. Benest was the architect, and Mr. Gilbert the contractor.

THE TRADES MOVEMENT.

Leeds.—The journeymen plumbers, to the number of nearly 150, are at present on strike for an advance of 2s. per week. The average rate of remuneration has been 24s. a week, and the men ask that this amount should be raised to 26s., and to this request the masters decline to accede.

Burton-upon-Trent.—The society men among the carpenters and joiners in this town are on strike for the Saturday half-holiday. The master bricklayers have agreed to give their men the half-holiday; but owing to the diminution in the hours of labour during the winter quarter, the wages are to be for bricklayers 27s. instead of 29s., and for labourers 16s. 4d. instead of 17s. 4d. per week. Now that the bricklayers have secured the holiday the joiners have asked for a continuance of the same. The masters decline to accede to this request, stating that they granted the half-holiday as a special favour until the 10th of October, and on the understanding that it did not in any way interfere with the validity of the rules previously signed by masters and men. In these rules it was specially provided that the men should leave off work on Saturdays at 4 p.m.; and if any alteration or deviation therefrom was thought desirable on either side, three months' notice must be given before such alterations could be made. The joiners have failed to comply with the rules, and now contend that they have been broken by the masters granting the half-holiday previously without notice.

Garston (Liverpool).—Mr. John Thomson, of Peterborough, builder, has been for some time engaged in building a new and spacious mansion at Allerton, for Mr. Leather, of Liverpool, and last week he treated the workmen employed on the works to supper, at Garston. Mr. Thomson himself was unable to be present on the occasion, but his place was supplied by his two foremen, Mr. Edward Hinch, who occupied the chair, and Mr. Pepper, who filled the office of vice-chairman. Nearly a hundred men sat down at seven o'clock. The usual loyal toasts were drunk, after which were given the healths of Mr. Leather, Mr. Scott, the architect, Messrs. Thomson and Ruddle—the latter gentleman being engaged with Mr. Thomson in the building of the new mansion—and Mr. Farmer, clerk of works.

Miscellaneous.—The ironworkers have, it is said, agreed to form a single trades' union for England, Wales, and Scotland, the first, we think, which has ever in any trade included the whole island.

BUILDERS' BENEVOLENT INSTITUTION: ANNIVERSARY.

The Nineteenth Anniversary Dinner of the Builders' Benevolent Institution was held on Thursday evening, November 1st, at Willis's Rooms, King-street, St. James's, Mr. Benjamin Hannen, president of the institution, in the chair.

There were 240 gentlemen, friends and subscribers to the charity, present, among whom were the following:—Messrs. George Plucknett, George Bird, Joseph Bird, J. Russell Freeman, W. Higgs, T. Robinson, W. R. Rogers, Wm. Dunnage, Chas. Hack, Geo. Lee, Tilson Lee, T. Lambert, jun., Joseph Taylor, W. & S. Phillips, Thos. Cozens, W. Hutchons, Geo. R. Head, S. L. Mann, W. Nicholson, D. Nicholson, Geo. Bell, M. Hall, T. Stirling, W. Stirling, Thos. Smith & Son, J. Simpson, Alderman Niel, of Manchester, John Cresswell, Birmingham, J. B. Harley, Burslem, E. G. Doggett, Mr. A. Mault, &c., &c.

The usual loyal toasts, as also "The Army, Navy, and Volunteers," having been given and responded to,—

The Chairman proposed "The Builders' Benevolent Institution." In referring to the building trade he said, there was not a sufficient organization amongst its members, many of whom had made and were making large fortunes, while others, weighed down by adversity, were struggling on around them. He reminded them that many in prosperity had been stricken down by misfortune, and that that was a reason that this institution should be upheld from its peculiar advantages. He found that during the last twenty years, upwards of 11,000*l.* had been set aside for the benefits of the society, being 8,437*l.* for the Relief Fund, and 2,732*l.* for the Building Fund, and that they were then supporting 40 pensioners, including males and females; and further, that at the end of this month they would be able to elect three more upon the funds. In taking the building class generally, he thought they were well to do and generally made both ends meet. He was of opinion that there was liberality among them, but he would say, that there were a number of firms in London that did not contribute to the institution. He proposed that the subscription should be raised to five guineas a year. Charity covered a multitude of sins, and charity began at home. He did not agree with sending blankets to the blacks in Africa, but felt that they should support the charity which was nearest and dearest to them. In his position as president for the next year the subscriptions and support to the institution partly depended upon him for that time. He therefore called upon them to give all they could give, and when their generous hearts had done all, to throw in something more. He concluded by proposing, "The Builders' Benevolent Institution."

The toast was enthusiastically drunk; as was the "Health of the Chairman."

Mr. George Bird proposed the health of the "patrons of the Institution and the directors," and, in doing so, alluded to the small amount which they, the directors, had been troubled with for twenty years. There were four gentlemen to take care of that small sum. He then referred to Mr. Thomas Cozens, the founder of the institution, and said he did so with a great deal of pleasure. The establishment of the institution was not performed in so splendid a room as that in which they were then assembled. It was instituted in a small parlour in a public-house; but certainly they had a raised dais. He then established the society, and had ever since stuck to it in a manly way. He would couple the name of Mr. Thos. Cozens with the toast.

Mr. Cozens having acknowledged the toast, was glad to find that with their assistance the Institution had arrived at its present state.

Mr. George Bird proposed the health of Mr. George Plucknett.

Mr. Plucknett briefly acknowledged the compliment, and added that the firm of William Cubitt would give 100*l.* if nine other building firms would give a similar amount, so that that sum might be added to the funds of the Institution.

The "Brighton Branch" of the Institution was proposed and honoured.

Mr. Martin gave the "Architects and Surveyors," and Mr. Barnett suitably acknowledged it.

Mr. Robinson proposed the health of "the Directors and Stewards," wishing them long life and happiness, accompanying the toast with the name of Mr. Joseph Bird.

Mr. J. Bird having replied,

The Chairman said they had some gentlemen present who, with trouble to themselves, had come a long distance to be present on the part of the Charity. He should propose the "Health of the Visitors," associating the toast with the name of Mr. Alderman Neil, who was a large builder at Manchester, and who had done them the kindness of being there that night.

The toast was then drunk with enthusiasm.

Mr. Alderman Neil said his friends and himself were very much indebted to those present for their kindness. For his own part, happening to be in London that week, and having found that there was an institution with so good an object in view, he availed himself of the opportunity and pleasure of being there that evening. He was sure that his friends who had come from Birmingham on purpose to be present were equally gratified with himself with what they had seen and heard that evening, and which would be taken home with them. He hoped there would be more immediate connexion between the builders of London and the provinces than hitherto.

Mr. Mault, of Birmingham, said he was attached to the General Builders' Association, which was established with the view to supplying the wants and deficiencies of builders as tradesmen. He advocated a good understanding between the builders of London and those of the provinces, as calculated to advance their interests and enable them to subscribe to such a valuable institution as that which they were then upholding.

The donations amounted to 371*l.*

PARIS.

Sir,—Take a few words from a wayfarer. Paris is gay. It is the end of October, and the trees along the principal boulevards are green, not even excepting the Champs Elysées, where fashion and sunshine contend in brilliancy, and where there is always sufficiency of both to wither up the very foliage. Paris is gay; yea, Paris is busy, more busy than she has ever yet been in this nineteenth century. Go where you will, the mason and carpenter, the painter and the whitewasher, the charwoman and the scavenger, are at work and working for the very life. And what is it all for, messieurs? There must be something going to take place; some great event approaching: and verily there is. "The Book of Fate" has been consulted, and the answer can be heard in all the *cafés* from the Arch of Triumph to the Jardin des Plantes. "There will be no war until the Exposition is over." But war or war not, Paris at present is undergoing a mighty and a sweeping change, and much of it is for the better. Monsieur Haussman, the prefect of the Seine, is master here of all he surveys, and it may be added, "his right there is none to dispute" save one, that brooding brain in the Tuileries. From the Parc Monceaux to Notre Dame, the vestiges of his creation and destruction are alarming and overwhelming.

The Boulevard des Batignolles is rising into beauty again from its ashes, and the antique Quartier Latin is groaning in mortal agony; but once over this terrible travail, she will breathe life anew.

The Pantheon may look down with haughty unconcern on her suffering neighbour beneath. She is inviolate; the wand of Haussman shall not be waved above her. There was a radical change necessary in this locality, and the Quartier Latin is undergoing it, swiftly and systematically. Pure air will be soon here in abundance, and bringing with it its manifold blessings. Left, right, and oblique, the prefect is cutting through, pulling down, and re-erecting. Nor can I say the wants of the dispossessed are ill considered.

Not even in the old quarter have I for the nonce been offended by a noisome smell, and though I have poked my nose into sundry and several corners here, as elsewhere through Paris, in anticipation of the same, as yet have found it not. I do not say bad smells do not exist, and that foul spots are nowhere, but simply that I have not found them, though I have travelled betimes in search of the social and sanitary more than was compatible with health or comfort.

The new boulevards laid out and being built upon, in the different quarters around the environs of the city, have one great fault in the eye of many foreigners—their uniform sameness of architecture. They appear, certainly, and are, most of them, all of a pattern—stone of the same colour, windows of the same kind, doors of the same style, columns of the same order; yet, however, not *sans* taste, *sans* everything.

The old street architecture of the city had, and has, well-defined characteristics observable; but the new style, if not belonging to one order, is at least "*the* order of the day," and of it we may at least add, "sufficient for the day is the evil thereof." Notre Dame has become more isolated than formerly, and to the eye of many appears smaller from the fact of it losing a great deal of its antique surroundings by recent demolitions. It is standing now more to itself, and can be seen to better advantage. Shorn or not shorn, when you walk up to it, and gaze on its time-worn and hallowed face, you are lost in amazement at the majesty you behold. The genius of architecture and sculpture is here exemplified in every joint of stone. Everywhere you look above, below, around, there is a redundancy of relief and enrichment. Buttress, pinnacle, crocket, finial, corbel, all are there in their primal grandeur. The gargoyle is there, too, at every conceivable point, laughing, grinning, weeping, groaning symbolised in all the sardonic moods of penitential pain.

The cathedral, without as well as within, is at present undergoing a retouching or brushing up, in common with other public and private buildings throughout the city. The Church of the Madeleine is on the start, and is determined not to be behind in presenting a fair and clean front.

The Great Opera-house is progressing rapidly, and will, no doubt, if nothing go wrong, be ready by the opening of the Exhibition. It is a massive structure; and the exterior, as well as the interior, will be rich in ornamentation. It occupies a most favourable position as to frontage at the confluence of two or three leading thoroughfares. Its other approaches are tolerably good also. Without, it has for its surroundings some magnificent *cafés*, whose owners are at present speculating on their certain success.

There is no lack of church architecture in Paris; and every day is adding to the number of churches: two or three large ones are at present in course of construction.

Along each side, at the top of the Champs Elysées, the spaces are rapidly filling up, with fine stone buildings. I notice here and there through the city, in large buildings, the principle of the hydraulic lift is taken advantage of, and used with success, for raising the massive blocks of stone and other weighty materials

required. I do not see why our British builders cannot adopt the same method. It could have been used with as much advantage at the Charing-cross and Cannon-street Railway termini, I opine, in lifting the material of construction as in lifting afterwards the inmates to bed.

In the macadamising of the boulevards of Paris, a street locomotive or engine, as you have noticed, with ponderous rolling wheels the whole breadth of the carriage, is used for crushing down and solidifying the shingle. It does so with effect, by being passed and repassed several times over. The Municipal Service have a few of those street engines always at work.

The public markets are in a good state. That of the Batignolles, which is held on Sunday, Tuesday, and Friday, and which extends for at least a mile and a half along each side of the footway, is most interesting to witness. Everything can be purchased here—fish, flesh, fowl, and vegetables, along one side, and mostly soft goods, hardware, and second-hand articles, of every conceivable kind on the other. The Regulator orders an entire clearance of the street and footways of everything by three o'clock p.m. In an hour or two after, the streets assume their ordinary appearance, as if no busy and important market had taken place. No considerable way distant, a similar market takes place on different days to the other. The regularity and cleanliness are creditable to such a large city as Paris.

At the Halle Centrale meat is sold by auction to the butchers, who are the buyers themselves, that they may shortly become the sellers. This is kept admirably clean also, and well regulated. I detected no bad smells here, either, such as are common in Whitechapel, and a great deal further north, elsewhere. An abundant supply of water in Paris gives freshness and vigour to everything. Pindar truly observed, that "water is the best gift of Heaven;" and so it is. What would the parks, boulevards, plants, shrubs, trees, and flowers, so considerately arranged for the enjoyment of the *ouvrier* as of others, in this great city, be without water? Men are continually kept upon the Champs Elysées and around the Place de la Concorde, and leading and fashionable quarters, watering the roadway, or keeping it otherwise clean.

But the mind of Paris now is centred in the coming Exhibition. Well, let me say, that as a piece of architectural construction,—pardon; constructive ironwork would be nearer the thing,—the ironwork in itself is very well; but the effect produced is neither graceful nor grand. Common, common, common,—heavy, dull, and damaging in appearance. But we must remember it is not yet finished, and that when the walks, and terraces, and crystal fountains, and enchanted groves are made to surround it, it will look quite another thing. Granted; but the building will still be there, not adding a joy to what it contains, but subtracting from the joys within and without that encompass it. The blessed Sabbath here sees no cessation of the labour that is pushing it to completion, and it will be ready if money and hands can do it. Many of the departments are roughly ready in the central ring, and the walls or spaces therein allotted, are marked with the names of the several countries supposed to contribute. If all that is anticipated occurs, the Paris Exhibition of 1867 will be a great gathering, and will lead to the circulation of vast sums of money.

The French apparently are taking precedence of the English in the utilization of iron in the constructive arts, and in building in particular, though they were not the first to lead the way. Timber has begun to play a less important part here in the building art than formerly. In floors and roofs, except on a small scale, it is gradually being dispensed with. Stone, cement, iron, and zinc are beginning to play chief parts in these respects. The mason, stone-carver, and plasterer are now more important personages in their own estimation than the carpenter in house-building; but the disciples of Nicholson will not allow it,—they are still indispensable.

Shop-front architecture, as far as it is confined to woodwork, is not much to boast of even in magnificent Paris. The generality of the London warehouses in design and execution, in my opinion, are superior. Paint and gilding produce an effect where good and solid carpentry are not. Oak and other hard woods are used for the sash-doors and front windows. Red and white deal or pine appears to be a rarity. The door and sash furniture is superior in many respects in a general way to the English manufacture. The exceptions belong to the costly class of work. The hinge-work of ordinary shop-shutters and doors may be strong, but is in no way graceful.

There was but one sight I witnessed in Paris which I would not like to see again—the Morgue. The spectacle generally to be observed there is nowise conducive to healthy feeling. That the recovered unfortunates of the Seine should be exposed on slabs, nude, for identification may be right, as far as the friends and relatives in search may be concerned; but otherwise this constant public exposure of the naked dead is but the gratifying of morbid taste, which is only too willingly availed of by the youth of both sexes as well as by the aged. Perhaps M. Haussman would move in the matter. Hardly, methinks: it is an institution, and French institutions must not be disturbed.

The delightful weather of the last three weeks is unbroken, and, with the falling leaves, the tide of fashion is flowing in. The Boulevards are full of luxurious ease and brilliant equipages. Pomp and fashion, like dust in the sunbeams, are whirling by. The work-a-day world is, nevertheless, tugging hard at the chain, for there is a busy winter to get through, and much to be done. C. H.

SAVE OUR COAL.

My poor parishioners are in the habit of using a Midland coal, which comes to their hands in very large lumps; and in breaking it, a considerable quantity of very small coal is made;—too small to be used. Could you, or any of your contributors, give me a hint as to mixing the coal dust with tar, or any other material, in order to make it into cakes for firing, you would confer a great benefit upon these poor people.

V. K. C.

Rectory House, Little Easton, Essex.

MORTAR.

The practice attributed to the Romans of mixing their mortar for two or three years before using it, obtains even at the present day in some places.

While engaged, a few years ago, on a railway in the north of Spain, I found that the mortar we employed (prepared exactly as in England and used fresh) took several months to harden, which occasioned us great inconvenience in retaining walls and similar works that had to be loaded as soon as finished. I found also, that the mortar in some of the old buildings of the country, which we had to pull down, was often harder than the stones it united.

This naturally set me inquiring, and I ascertained that the custom there was to make the mortar a year or two before it was to be used. In some convenient place in the town was a large mound of mortar, containing several hundred cubic metres, not covered up, but exposed to the air. When required for use, some of this heap (which, an inch or two below the surface, was of about the consistency of stiff clay) was excavated with the spade and rebeaten and thoroughly well mixed with a proper quantity of water.

When used, this set quickly and well, and made excellent mortar, far superior to ours, which was carefully specified (as usual in England) to be "fresh mixed."

William J. Lewis, C.E.

KENSINGTON CHURCH.

Sir,—It is proposed to erect the new church at Kensington on the *back gardens* of the houses lying on the north side of the present parish church. This ground is surrounded on two sides by houses and shops, and is rather low ground; and the new parish church will be entirely hid from sight unless the parishioners intend to be at the expense of buying up at least twenty houses, many of them containing ten rooms. This, of course, will be an additional burden on the undertaking. A far better position for the fine church which it is proposed to erect would be either the site of York House or Maitland House, close to the vicarage, or the vacant ground in Palace Gardens, with a portion of the gardens of either of the last-mentioned residences, where a really fine architectural composition could be erected worthy of the parish and the present state of architectural art. If the parish church be erected as now proposed, the west entrance will be in a narrow paved passage leading from the inferior thoroughfare of Holland-street into the old churchyard.

What is to be done with the monuments in the present ugly structur ?

A. R. P.

ROAD-MAKING.

Sir,—I notice in the *Builder* of the 20th ult. a complaint regarding the bad system of paving London Bridge, the writer of which makes various suggestions for the improvement of the same. Many of your correspondent's valuable suggestions are already embodied in a system of road-making for heavy traffic patented by Mr. Mitchell, C.E., of Inverness.

Mr. Mitchell lays Portland cement concrete, of various thicknesses, according to the nature of the traffic, curved on its surface parallel with the surface of the finished roadway; and the paving stones, 6 in. deep by 3 in. thick, are carefully laid, in fact built, on this bottom, they having been all previously gauged to a uniform depth and thickness. The joints are then grouted with Portland cement and sand in proper proportions. The gravel, if sprinkled over, is meant to equalize any irregularities on the surface of the stone, and is soon worn off. No process of beating is resorted to, which would only serve to crack the cement and destroy the unity of the mass. This formation is wholly unaffected by temperature and perfectly impervious to moisture. No mud is generated but that produced by the attrition of the traffic.

A piece of this mode of paving has been laid down lately at George IV.'s Bridge, Edinburgh. M.

LEYBURN CHURCH COMPETITION.

Sir,—Relying on your willingness at all times to give space in the columns of the *Builder*, for the exposure of flagrant injustice, allow me to bring to the knowledge of architects in general, the few following facts, &c., in connexion with the late competition for a church at Leyburn, in Yorkshire.

In calling the attention of members of the profession to this subject, I would in the first place bring before their notice the following extract, from the advertisement of the committee, it being the excuse of that body for their late injustice to the competitors:—"And reserve to themselves the power of rejecting the whole of such plans and designs, and will not make any compensation for such plans or designs."

How architects (myself included) could have been so foolish as to submit designs in competition before a committee who had the effrontery to state the above in their public advertisement, has certainly, since the late proceedings, been a source of wonder to me.

From what has since come to my knowledge, it seems that some time previously to its being decided upon by the committee, to advertise the building of the church as a public competition, and to throw upon our shoulders the expense and trouble of forwarding designs, without, it appears, giving us the slightest chance of being benefited by the same, two designs had been prepared by members of the profession, having friends on the committee, but the estimated cost of each design, far exceeding the sum at disposal with which to erect the church, they were rejected on that account.

These two designs were, in defiance of all sense of justice, brought forward at a meeting of the committee on the 29th of September, to compete on an equal footing with those prepared by some thirty other architects, who were limited to an expenditure of 5,100*l.* in preparing their designs, including the architect's commission.

The result of the (never so falsely called) competition was, that those two designs were accepted; that one of these has since been ordered to be reduced to come within the limits of expenditure mentioned in the public advertisement. The plans, of those who had trusted implicitly to the good faith and honour of the committee, as gentlemen, were packed up and returned to their respective owners, after having been barely looked at, as each *could* only have received *six* minutes' deliberation at the hands of the committee.

It is quite time architects, as a body, fully resolved to enter into no more competitions without a guarantee of impartial consideration being bestowed upon their designs: this, I think, would bring about a reformation amongst members of committees; would materially lessen the frequent annoyance architects are subject to; and, moreover, would aid the latter in obtaining their rights.

I should think some of the committee, on reconsidering their late decision in connexion with their new church, will be led to wish they had not been mixed up with the affair.

The late proceedings require no further comment on my part; the facts being of so glaring and disgraceful a nature will, I feel convinced, cause most members of the profession to hold an opinion on the matter similar to my own, which, I think, is fully expressed herein.

A Lover of Fair Play.

*** We have before us nine or ten other letters to the same effect as the above. Lord Bolton, who is on the committee, will probably think it right to institute some inquiry into the facts of the case, if not already known to him.

NORTHERN ARCHITECTURAL ASSOCIATION.

At the quarterly meeting of this Association, held at the Old Castle, Newcastle, Mr. John Green, president, in the chair, the officers for the ensuing year were elected:—President, Mr. Thomas Moore, Sunderland; vice-president, Mr. John Johnstone; honorary treasurer, Mr. R. J. Johnson; honorary secretary, Mr. Thomas Oliver; honorary solicitor, Mr. G. W. Hodge; committee, Messrs. John Green, A. M. Dunn, F. Charlton, F. R. Wilson, and James Hogg.

In reply to a communication from the Institute of British Architects, respecting the representation of architecture at the 1867 Paris Universal Exhibition, requesting that the Northern Architectural Association should nominate two members to act as its representatives on the general committee, to assist them in their deliberations, Mr. F. R. Wilson and Mr. A. M. Dunn were appointed to act in this capacity.

Mr. Johnstone then read a paper on "The

Improved Dwellings of the Working Classes in the large Towns and Cities in Scotland, as compared with those in England, considered structurally and financially." The paper gave credit as well to the Scottish builders for the sound and substantial manner in which they construct the dwellings of the people.

CHURCH-BUILDING NEWS.

Edith Weston (*Rutlandshire*).—The chancel of the church has been entirely rebuilt with its aisles. This church has many points of interest, especially the arcades and chancel arch, which are of the Transitional style, semicircular, and richly moulded. There is also a later south transept. The old chancel and its north aisle were thoroughly debased in style, and ruinous, and the new one has therefore nothing in common with it but its length and width. It is two square bays in length, the western bay having arches opening into the aisles. These aisles are treated as transepts, with gables north and south, lighted by windows with geometrical tracery. The eastern bay of the chancel has windows on each side, deeply recessed, and moulded internally. The east window is of three lights, with geometrical and soffit cusped tracery. The whole of the chancel is groined with stone, the moulded ribs resting on shafts, with carved capitals, and it is also lined internally with ashlar stonework. A moulded and carved arcade extends round the walls of the sanctuary, certain of the arches forming the credence-table and sedilia. The floor is laid with Maw's encaustic plain tiles, and the seats are of oak, and of simple design. The transepts have open roofs of wood, the ancient north arches being retained and restored. The works have been executed under the direction of Messrs. Slater & Carpenter, of London, by Mr. Martin, of Market Harborough, Mr. W. Thompson being clerk of works. The old monastic buildings still remain, and are attached to the north transept and aisle. They have several interesting points.

Wyton.—The parish church has been re-opened. A few months back the nave was completed, with new roof, oak seats, and tile floor. The chancel has been entirely stripped of the old roof, and replaced with new roof, with curved braces, all stained and varnished; also oak stalls with carved ends and Minton's encaustic tiles; a four-light window has been added to the west end of the nave, and at the south-west corner a new tower and spire, about 100 ft. high, are being built, and will be completed in a month. The whole of the works have been carried out under the superintendence of Mr. Hutchinson, architect, by Messrs. Allen & Smith, of Hemingford.

Ruishton.—The parish church has been re-opened for divine service. The restorations effected on this occasion were in the interior of the church, which has been re-seated and otherwise improved. A few other alterations of less magnitude have also been done.

Ludford (*Ludlow*).—The parish church has been re-opened. Like most old churches, that of Ludford, until a very recent period, was cold, cheerless, badly lighted, ill-drained and ventilated, and imperfect in its accommodation, while the walls and roof bore evidence of the ravages of Time. These defects have been remedied as far as possible. The nave, aisle, and chancel are now lighted by memorial windows of stained glass, representing the Resurrection and other scriptural scenes, which have been contributed during the last six years by the vicar; and Messrs. Edmundson, of Manchester, are at present executing another window, at Mr. and Mrs. Kent's expense, for the north side of the chapel. With regard to the present alterations, a number of tombs forming an embankment against the south and east sides of the church have been levelled to the ground, without, however, disturbing the contents, and a small ditch formed so as to have the edifice drained. The floor of the nave, consisting of old bricks and flags which are not removed, has been laid with Godwin's encaustic tiles of various colours; the walls and ceiling are restored and painted, the latter light blue; and there are now uniform seats and increased accommodation. Mr. W. Russell had the contract in connexion with the walls, flooring, and masonry, Mr. Grosvenor undertaking the joiner's work.

Brettenham.—About nine months ago, the rector, the Rev. C. J. Betham, and the parishioners determined to attempt a thorough repair and restoration of the parish church. Plans having been made by Mr. A. W. Blomfield, architect, a contract for the works was made with Mr. R. Hawkins, of Monks' Eleigh. They have been in progress about six months, and the church has now been re-opened. The south wall and windows of the chancel are new, also the east gable, and the whole of the roof, which is of open timber with carved braces, enriched with cuspings, &c. The chancel arch and adjoining wall have been rebuilt, as has also the western gable; the walls throughout have been re-plastered, and the floors repaired; the seats are all new, open, and of plain oak; the windows have been re-glazed with cathedral glass, the great east window being a stained one. The subjects are, the Nativity, Baptism, Crucifixion of our Lord, and the Angel at the Tomb. The nave roof has been reframed, with new timbers where necessary, on the old plan. The tower has been repaired. Three stained windows were put in by Messrs. Ward & Hughes, of Soho.

Horningblow.— St. John's Church has been consecrated. The church is built in the Geometrical Decorated style, and comprises nave 70 ft. 3 in. long by 21 ft. wide in clear of the columns, north and south aisles each 10 ft. wide, with a tower occupying the west end bay of the latter, chancel 28 ft. 6 in. long by 18 ft. 9 in. wide, and a vestry and organ-chamber on the north side of chancel. On the north an arcading of five bays, and on the south of four bays, connect the aisles with the body of the church. There is no clerestory, but the building is lighted by a large west window, and by several two-light windows in the aisles, the traceried heads of which are of various designs. The chancel has a two-light south window, and a five-light east window: the latter has been filled with stained glass, the work of Messrs. Warrington, of London. The west window of north aisle is also filled with stained glass, executed by Mr. Hodson, of York, and representing the Adoration of the Magi. The height from floor to ridge of roof is 42 ft., and from floor to top of wall-plate 22 ft. The roofs are open timbered. The tower is 51 ft. high, and the spire 75 ft. to the top of cap. The height of the latter was increased by 10 ft. at the expense of one of the builders, Mr. Elliot, of Ashby-de-la-Zouch, who took great interest in the execution of the works, but has not lived to see his building completed. The total height to the top of the vane is 133 ft. The walls of the building are of brick, plastered internally and faced externally with Coxbench stone, the dressings and moulded and carved work being of Bath stone, the spire of Ancaster stone. Blue York and red Alton stones have been used in bands and in the voussoirs of the arches both inside and outside throughout the church. The roofs are covered with slates of two colours, and have ornamental ridging. The benches are of deal, the nave and aisle passages are laid with chocolate and buff tiles, from Mr. Whetstone, Coalville, and the chancel with tiles from Messrs. Minton. The church is warmed with hot air by Messrs. Haden & Son.

Shrewsbury.—The new church of St. Martin, Preston Gubbalds, has been opened. The church is calculated to seat 180 persons. The architect was Mr. Pountney Smith, of Shrewsbury; Messrs. Nevett, Ironbridge, were the builders; and Mr. Collins was the clerk of the works. The stained-glass window in the north chancel was the work of Miss Rose Eyton, and her brother, of Eyton and Walford Manor. The necessary funds required to build this church amounted to 1,500*l*.

Orton (*near Carlisle*).—The church has been restored. Mr. Daniel Birkett, architect, provided the plans of restoration and superintended the works gratuitously. The large sash window at the east end has been replaced by a three-light window of the Early Gothic character, the old nail-head moulding reproduced; the accommodation inside has been considerably increased by adding to the west end the old school-room; the old pews have been removed and massive open seats substituted; the reading-desk, pulpit, and communion fittings are all new: the plaster ceiling has been taken down and the old oak beams once more exposed to view. The woodwork has been done by Mr. Addison, of Crofton.

Doveridge.—The old church of Doveridge is undergoing restoration. The removal of numerous coats of whitewash has led to the discovery that the piscina is double, and that the west arch—a pointed one—had been originally painted with a design, in deep blue, after the honeysuckle. This archway, which had been built up, will be opened. Amongst the other restorations in masonry will be that of the Gothic-arched recess in the north wall, near the chancel. A memorial window will be inserted in the north side of the chancel to Admiral Cavendish, and it is also in contemplation to remove the present slender east window, in the Perpendicular style, and of modern erection, and replace it by one more in character with the old windows of the Decorated period. The church will, as well, be repewed, and be re-opened with the additional advantage of a new organ. The restoration is being done by Mr. Critchlow, who has also undertaken the alterations of Tutbury Church, where his men, whilst making foundations, discovered the original encaustic pavement, in different colours, conducting from the church to the old and destroyed abbey.

Books Received.

Social Science.

UNDER this title the Social Science Association has commenced the issue of a fortnightly journal, to contain not merely the papers read during the season at the sessional meetings held in Adam-street, but intelligence, articles, and reviews bearing on the work of some one of the four Departments, Jurisprudence and the Amendment of the Law, Education, Public Health, or Economy and Trade. It will present an arena for free discussion, such communications being signed "with genuine names or initials." A paragraph in the first number justly comments on the refusal of Mr. Walpole to receive a deputation as to the sanitary condition of London appointed at the meeting called by the Metropolitan Sanitary Association, and to be headed by the Bishop of London. The committee of the House of Commons appointed to inquire into the Metropolitan Local Government was going, he said, to deal with the whole subject.

"Mr. Walpole, therefore, thought it was superfluous, and perhaps disadvantageous, to recommend that a Royal Commission should be appointed to make a similar inquiry; and, under these circumstances, he concluded that the deputation would no longer wish to wait upon him. It is certainly an odd announcement that a committee on the Local Governments is about to transform itself into a committee on the sanitary condition of the metropolis. If the Home Secretary would have faced the deputation, he would have found among its members an earnest determination not to be satisfied with the proposal to tack on a matter of such unspeakable importance to the labours of a committee appointed for another purpose."

Mr. Walpole's refusal has justly excited very great dissatisfaction.

Miscellanea.

ARTIFICIAL IVORY.—An artificial ivory is now made in France from a paste of *papier mâché* and gelatine, and to which the name of Parisian marble is given. Among many other things, the finest and most complicated mouldings for ceilings can be made, or capitals of columns can be constructed in any colour. It is said to be hard, durable, and elastic.

"FETTER LANE."—To those who have occasion to visit the Record Office, in Fetter-lane, it may not be uninteresting to know how the *locals* happened to derive its title. In the reign of Charles I. it was written Fewtor-lane; and in Howell's *Londinopolis* it is so called. Fewtor signifies an idle person; and many fewtors were in the habit of lying about there, in a way, as we are told, leading to gardens; most likely on the identical site of Lincoln's Inn-fields of the present day. Subsequently, "fewtors" were changed into "faitors," or, as Howell tells us, "mighty beggars." Later on still, the term "fewtor" was corrupted into "faitour," signifying a defayter or defaulter; and eventually, by the rapid pronounciation of common parlance, it assumed its present shape, of Fetter-lane. Some have supposed a connexion between the spot and criminals, but this is a misapprehension. The one terminus, Fleet-street, it is well known, derives its title from the Fleet, to which it led; and the other, Holborn, is a corruption of Old Borne, or Old River; bourne, as is well known, being the old English word for river. Hence we have Bournemouth, &c. Almost immediately opposite the Holborn terminus is Gray's Inn. No student here need be reminded of the historical associations of Verulam-buildings; but it may not be generally known that the famous "Captain Needham," one of the earliest newspaper writers, was originally an under-clerk in Gray's Inn.—*Solicitors' Journal.*

STEAM CARRIAGES.—A line of steam-carriages for common roads, the experiments with which have succeeded between Nantes and Paris, is about to be established from Marseilles to Aubagne, a small town situated sixteen kilometres (10 miles) off. There are to be three departures daily from each end, and the price of a return ticket will be 1 fr. 20 c.

ROYAL LITERARY FUND: REPORT.—The Report of the last anniversary gives verbatim the speeches delivered on that occasion, and exceedingly interesting speeches they were; notably Lord Houghton's (the chairman), and those of Mr. Venables and Professor Tyndall. The list of members with their titles, as prepared by Mr. Octavian Blewitt, the secretary, is a model for its kind. The amount of grants awarded during 1865 was 1,682: fifty-two authors were relieved.

PIPE-LIGHTING PYROPHORUS.—A scientific way of lighting pipes and cigars has been recently introduced in Paris under the name of *poudre de feu*. It consists of pyrophorus, which is preserved in a small tin case with a narrow orifice. When a little of this black powder is poured out on the end of a cigar, or on the tobacco in a pipe stem, and then gently breathed upon, it becomes incandescent, as if it contained potassium which flames in water, and is then in a condition to light the pipe or cigar.

THE NEW LAW COURTS AND STRAND IMPROVEMENTS.—It is understood, with a view to a further extension of the original site for the New Law Courts, combined with Strand improvements and approaches to the Thames Embankment, that the Government have caused a survey to be made, and that the entire removal is contemplated of the block of houses forming the northern side of the Strand and southern side of Holywell-street, lying between St. Clement's Danes and St. Mary-le-Strand churches.

ACCIDENTS.—The boiler of an engine employed on the works of the Thames Embankment, near the Temple, has exploded. The violence of the concussion was so great that the houses in the locality were considerably shaken, and some of the *débris* fell into the works of the City Gas Company.——Upwards of 60 yards of the roof of the shed on the quay at the Egerton Dock, at Birkenhead, fell recently. It appears that one of the pillars at the northern side, being struck by a loaded wagon, gave way, and caused the accident. One man was killed. The shed is the property of the Mersey Docks and Harbour Board, and was rented as a goods shed by the Great Western Railway Company. The coroner's jury returned a verdict of accidental death.

TIDAL HOUSES.—At a special meeting of the Plumstead District Board of Works, held at Charlton in connexion with the sudden and alarming outbreak of cholera in that parish, it was stated that twenty-six fatal cases had occurred in one week, and that in the locality adjoining, in the parish of Woolwich, there had been about fourteen deaths. The Charlton marshes, in which the mortality chiefly occurred, were stated to be in a frightful condition, one of the members asserting that the marshes ought never to have been built upon, inasmuch as the ground was a complete morass, the houses actually rising and falling with the tide. Some of the dwellings were 14 ft. below high-water mark, being surrounded with tidal ditches in a most foul condition. Farmers were in the habit of putting blood on land in the vicinity; and a portion of an old sewer had fallen in, emitting an abominable odour.

SCHOOLS FOR ST. THOMAS'S DISTRICT, ISLINGTON.—The foundation-stone of these schools was laid on the 31st ult. by Sir Roundell Palmer, M.P. The neighbourhood being built over has caused some difficulty in obtaining a suitable site. The one selected, in Everilda-street, Hemingford-road, is 100 ft. deep by a frontage of 46 ft. The buildings are arranged in the form of the letter T, the class-rooms being towards the street 17 ft. wide, and the schools at the back 65 ft. long by a width of 18 ft. They are to accommodate upwards of 600 children in attendance, on three stories. The material is to be seconds malms, with stone dressings. The architect is Mr. W. G. Coldwell; and the contractors are Messrs. Williams & Son. The estimated cost of site, buildings, and fittings is 4,200*l*. Liberal grants have been obtained from the Bishop of London's Fund, the Government, and the National Society, but the sum of 700*l*. is still required to be raised.

SCULPTORS IN PARIS.—In the façade of the Louvre, looking upon the great court of the Palace and the Place du Carrousel, just now opened, there are thirty-six statues in stone, all executed by eminent artists.

THE INSTITUTION OF CIVIL ENGINEERS.—The session of this Institution will be commenced on Tuesday next, the 13th instant, when two papers will be read and discussed respecting the employment of steam power on canals.

THE PARISH SURVEYOR OF CHELSEA.—At a meeting of the Chelsea Vestry, held on the 30th ult., a resolution was passed, after some discussion, raising the salary of the surveyor to the vestry, Mr. Paterson, from 250*l*. to 300*l*. per annum.

CLOSE OF THE WORKMEN'S FESTIVAL.—On Monday, the 12th, the Islington festival will be brought to a close. The total number of persons who have paid for admission exceeds half a million, and some thousands of school children have been admitted free. The estimated surplus will be about 800*l*., which is to be devoted to the purchase of silver and bronze medals, certificates, and a chromo-lithographic view of the Exhibition, which is to be presented to every exhibitor. The closing has been arranged to take place in the evening.

DRIFFIELD UNION WORKHOUSE.—The board of guardians for the Driffield Union have commenced building their new workhouse from a design by Mr. J. Oates, architect, Halifax. The buildings are to be of a plain substantial Italian character, and are to be erected of the local grey bricks and Harehill stone. The site is a piece of rising ground three quarters of a mile east of the town, and of about seven acres in extent; said to be a very healthy and pleasant situation. The cost will be nearly 7,000*l*. Mr. Richard Aughton, of Halifax, is the contractor; and Mr. Joseph Berry, clerk of the works.

EXCAVATION OF A SUBTERRANEAN CELL OR CHAMBER AT TREVENEAGE, CORNWALL.—An interesting account of a curious artificial cave or subterranean chamber, in a field at St. Hilary, appears in the *Cornish Telegraph*. The chamber is elliptical in form, and cut in hard clay. It is reached by a long and narrow passage of masonry (45 ft. long), and it appears to have been surrounded at one time by a large circular earthwork. The field in which this curious relic of antiquity exists is named the Beacon, says our authority, and occupies high ground midway in the isthmus stretching from Hayle to Marazion, commanding the whole valley and the sites of "hill castles" in that vicinity. The oval form of the cell or chamber is interesting, and may be of importance in elucidating the purpose of such a structure, considering the ancient significance of the oval in religious rites. A subterranean structure of a similar description exists in Brittany, the passage or "gallery" of which (40 ft. long) is covered with inscribed marks or figures, some incised and some in relief. The eirde-houses or Weems of Scotland also seem to be analogous. There are other artificial caves at St. Hilary which ought to be examined.

COMPENSATION CASE, LIVERPOOL.—The owner's compensation in respect of property required for the improvement of Tithebarn-street, consisting of a public-house adjoining Silkhouse-lane, was the subject of an arbitration inquiry last week at St. George's Hall, before Mr. Isaac Holden, architect, Manchester, as umpire, and Mr. J. L. Hornblower, of London, and Mr. J. Weightman, arbitrators for Mr. Gaskell, the owner, and the Corporation. The following valuers were called in support, Mr. T. Wylie, Mr. Lewis Hornblower, and Mr. Wordley, who estimated the compensation at 7,386*l*., and Mr. Cunningham, whose valuation amounted to 7,236*l*. In opposition to this, the town-clerk called Mr. J. A. Picton, Mr. Culshaw, and Mr. Walter Scott, whose estimates of compensation varied from 4,317*l*. to 4,609*l*., on the assumption that the premises were improved in the manner the witnesses proposed. Mr. John Atkinson was also called on behalf of the Corporation, and gave evidence that as a public-house the property was worth 3,203*l*., including ten per cent. for compulsory sale. It should be stated that the claimant's valuers based their valuations upon an area of 89 yards, having made an error in including 10½ yards, in which the owner has the cellar floor only, whilst the witnesses for the Corporation took the area of the building on the surface, which accounts for the difference in the valuations to the extent of about 850*l*. The decision was postponed.

IMPROVEMENTS AT BIRKENHEAD.—The local commissioners have resolved to apply to Parliament for power to raise a sum of 90,000*l*., of which 40,000*l*. are intended to be spent on the extension of the gasworks, a similar sum on the extension of the waterworks, and 10,000*l*. on the erection of public baths.

STAINING OF WOOD.—The *Scientific Review* says,—A process is now used in America for staining woods throughout their whole substance, so as to render them excellent imitations of the more valuable kinds. For this purpose their pores are exhausted of air, and then any of the aniline dyes is injected. A similar process has long been used in England for preserving wood.

IMPROVEMENTS IN BROMPTON AND BELGRAVIA.—A local Act, passed in the last session, has been issued, to authorise the construction of a new road from Eaton-square to Brompton-road, and for other improvements at South Kensington. The statute states, that the present means of communication between Eaton-square and South Kensington are circuitous and inconvenient, and that the making of a new street or road from Eaton-square to Michael-grove would afford a direct and convenient communication between those districts. It would also be of great local and public advantage; and as the construction of the road and its dedication to the public would be attended with great expense, it would not be repaid to the undertakers unless they were enabled to acquire land in the neighbourhood, and lay out the same for building.

ART SCHOOLS.—INCREASED PAYMENTS ON RESULTS.—The Lords of the Committee of Council on Education have notified that, having had under their consideration the payments made on the last examination of students' works in schools of art, their lordships have determined to increase such payments. In future the payment on account of satisfactory elementary works executed during the year by an artisan will be 15*s*. instead of 10*s*.; and on account of satisfactory advanced works, 20*s*. instead of 15*s*. After the annual examination for art certificates in February next, there will be from four to six vacancies in the list of masters in training, to whom an allowance of 1*l*. per week is made, for which students of local schools who hold the first certificate may compete. Their lordships also hope that the number of works to be sent up for the next examination will be largely increased, and point out that any hesitation of students to leave their works in the hands of the local committee might, perhaps, be modified by some reduction of the fees to those who submit works.

TENDERS

For the restoration of Arnesby Church, near Leicester. Messrs. Millican & Smith, Architects. Quantities furnished:—

Johnson	£2,027 8 6
Porter	1,686 10 0
Neale & Sons	1,840 10 0
Wykes	1,751 10 0
Osborne, Brothers	1,733 0 0
Loveday (accepted)	1,450 0 0

For alterations to the Red Lion public-house, Great Windmill-street, Haymarket, for Messrs. T. R. Layborn. Mr. S. Brookes, architect:—

Turner & Sons	£1,480 0 0
Gillett & Wisbey	1,455 0 0
Langmead & Way	1,397 0 0
Cowland	1,390 0 0

For alterations to the Adam & Eve public-house, Bowling-street, Westminster, for Messrs. T. R. Layborn & Co. Mr. S. Brookes, architects:—

Langmead & Way	£400 0 0

For the erection of a new church, at Wallington, near Croydon, for Mr. N. Bridges. Messrs. E. Habershon, Spalding, & Brock, architect:—

Carter & Son	£6,597 0 0
Brass	5,163 0 0
Newman & Mann	5,125 0 0
Manley & Rogers	4,965 0 0
Sims & Marten	4,364 0 0
Simpson	3,965 0 0

For villa residences at Addiscombe, for Mr. Atkinson. Mr. G. Marshall, architect. Quantities not supplied:—

Jarrett	£1,620 0 0
J. Pollard	1,572 0 0
W. Pollard	1,568 0 0
Lose	1,543 0 0

For the second pair of semi-detached residences in the Lea Bridge-road, for Mr. W. Bowden. Mr. Thomas J. Hill, architect:—

Gander (accepted)	£905 0 0

For villa residence at Addiscombe, for Mr. Hopkins. Mr. G. Marshall, architect. Quantities not supplied:—

Jarrett	£590 0 0
J. Pollard	550 0 0
Lose	546 0 0
Hayzell	460 0 0

The Builder.

VOL. XXIV.—No. 1241.



The New Waterworks at Aberdeen.

HER Majesty the Queen, as will be remembered, inaugurated these new Waterworks on the 16th of October last. Our readers will be glad to have correct and full particulars of them.

The water is taken from the river Dee, about twenty miles above Aberdeen, at a point on the lands of Cairnton, about three miles west of the village of Banchory. At the intake the channel of the river has been deepened for a short distance along the north side, as the water showed some indications of a tendency to sheer off to the south side, and a good stream now runs pretty close to the north bank, and will not fail (unless there come a return of the days of St. Swithin, when "the Dee dried up,") to send a copious supply of its "limpid stream" into the great artificial channel prepared to convey it for the service of the town of Aberdeen. A cutting has been made in the bank, sloping to the depth of 3 ft. below the bed of the river, almost at right angles with the stream, which, while admitting the water freely, will not allow it to run in with too great velocity. At the end of the aqueduct there is thus about 6 ft. of space, which will make sure of getting water if it is to be got. A strong wall of granite masonry is constructed on the foreshore of the river, with an opening 7 ft. wide and 10 ft. high, protected on the outside by a strong iron grating, to keep out salmon, and on the inside by a finer grating of galvanized iron wire, to sift the water of smaller substances, leaves, &c. A yard or two farther in is a large measuring tank, built of solid granite masonry, about 15 ft. square, which contains a huge floating gauge or measure-pipe. This gauge is placed at the end of the aqueduct, and acts as a mouth-piece. It is kept constantly on a level with the surface of the river, rising and falling with it, by two large copper balls, 2 ft. 6 in. in diameter, filled with air. The mouth of the pipe is 7 ft. wide, by 18 in. deep, and admits exactly the required quantity—6,000,000 gallons daily—stipulated for in the Police and Waterworks Act, when the water flows over the gauge 7½ in. deep. The tunnel and the works at Invercannie are thus protected from any sudden influx of water, such as might otherwise be caused by a sudden rise in the river during the night, or when the sluice-keeper may not be at hand to shut off the water. So much for the first part of the works. We now come to—

The Tunnel,

to the end of which, a distance of about 100 yards down the river, the water is conveyed by a brickwork aqueduct, 4 ft. 6 in. by 3 ft. 6 in. of internal diameter. The commencement of the tunnel is indicated by the lid of a man-hole at the foot of the hill, which here slopes down pretty steeply to the water's edge; and the only other indications of its existence are the two shafts which are driven into the hill at equal distances from the ends and from each other, of 740 ft., for the purpose of taking up the stones, &c. The length of the tunnel is 760 yards, and the depth of the one shaft is 95 ft., and of the other 103 ft. Its dimensions are 5 ft. high by 4 ft. wide, the rock being so compact and solid that it was unnecessary to make room for any lining of either brickwork, cement, or puddle. Indeed, instead of being diminished, the quantity of water will be very considerably augmented by the number of springs, that have been struck in the tunnel, of excellent water, cool and limpid. The work of excavating this tunnel has been one of extreme difficulty. In the first place, the rock — principally composed of a species of whinstone—was found to be exceedingly hard,—one of the hardest, we believe, ever tunnelled. Then the bore was too small to permit of more than one man striking on the jumper at one time. And lastly, the quantity of water that was encountered greatly impeded the workmen, the average proportion being twenty buckets of water to one of stone taken up the shaft. The work, however, was pressed on with great energy. The men were kept working at it twenty out of the twenty-four hours, in two relays, one for the day and one for the night; yet the average rate at which each heading was driven was only from six to eight inches a day, or three feet over all, during the two years and a half occupied in the excavation. It was principally ordinary blasting powder that was used in the work; but there was also a good deal of gun-cotton tried. The latter was found to cut the rock better than the former, and to be much cleaner; but it seemed to emit some sort of gas injurious to the health, and which there was not enough of ventilation to carry off, for the men always complained of headaches after having used it once or twice. Where there is plenty of ventilation, however, there is no doubt that gun-cotton is much superior to the ordinary blasting powder. The sides of the funnel have been roughly dressed, but quite as well as it required, and as the hardness of the rock and other adverse circumstances would permit.

The brickwork aqueduct re-commences at the manhole, and continues for about half a mile, conveying the water to the

Invercannie Reservoir.

This basin, calculated to hold 15,000,000 gallons of water, is prettily situated about two miles west of Banchory, a short distance south of the turnpike road, and in full view of the mansions of Inchmarlo to the north-east and Blackhall to the south-east, nestling amid the luxuriant foliage of "their tall ancestral trees;" while to the north-west is the mill of Invercannie, where an extensive trade is carried on in the manufacture of buckets and bobbins for factories. It is constructed in a hollow between the burn of Cannie and the rising ground to the south. The aqueduct brings the water along rising ground, so as to discharge it into the reservoir within a few feet of the top of the embankment. The construction of this reservoir has been one of the most important parts of the works, and a most substantial-looking structure it is, being formed on the most approved principles, and in the manner calculated to give the greatest strength and durability. First of all, to make it water-tight, it is furnished with a flooring of clay puddle 18 in. deep, and beaten almost as hard as a piece of asphalt. A vertical wall of the same material and the same thickness forms the centre—the pith, as it were,—of the embankment. This is supported on either side by a mixed bank of sand, earth, gravel, and stone, with slopes of two to one. On the outer surface grass has been sown, and is already growing luxuriantly. The inner surface is covered with a bed of lime concrete, 6 in. thick, above which is laid a protection of stone pitching, *i.e.*, stones built roughly, without any cement, as in a common dyke. The dimensions of the embankment are 60 ft. broad at the base, about 17 ft. high, and 8 ft. broad at the top, along which runs a gravelled walk. The water will come up to the height of 15 ft., and the diameter of the reservoir is at the top 450 ft., and at the bottom 390 ft.

Before the water enters the reservoir it passes through a second measuring tank at the south side. The sluice at the end of the aqueduct is 2 ft. in diameter, and will, when opened, allow the water to flow through a gauge weir 12 ft. in circumference, and fall over the edge about 4 in. deep, giving the necessary quantity into the tank. Two smaller sluices communicate with the reservoir, and convey the water through the embankment into its "spacious pond," within a few feet of the top of the slope.

At the east side of the reservoir the outlet machinery is situated. This consists of two pipes about 20 ft. long, with apertures at the top, placed in a horizontal position, and made to work upwards and downwards upon joints, like a pair of huge arms. They are supported by a balance-weight apparatus, constructed upon two brick piers, with planking running out 40 ft. from the top of the embankment, and floated by two copper air-balls, 2 ft. 6 in. in diameter, which maintain them at a constant level of about 2 ft. below the surface of the water. A large pipe passes through below the embankment and goes between the filters, two branch pipes, of 15 in. diameter each, discharging the water into the surface of the filter-beds. Should the reservoir become too full, a spill-water has been provided at the north side, by which any surplus will be discharged through a pipe into the burn of Cannie. There is also another overflow about 100 yards,—the measuring tank, in the aqueduct,—which will let off the water, should the quantity coming from the tunnel exceed that required at the reservoir.

The Filters

are 136 ft. in diameter, and are furnished with slopes and puddle-walls, very similar to the reservoir. The beds are composed of sand and gravel, 5 ft. in depth, through which the water percolates into a brick drain in the bottom, which communicates with a small tank, called the filtered water well, on the east side, and where the aqueduct commences. There is space reserved for two additional filters, if required. The ground inclosed for the reservoir and filter-beds, including the approach roads, &c., is about 10 acres in extent. A neat cottage for the sluice-keeper has been built at the south-east corner, and there will be space for a good garden around it. A road has been constructed specially for the works, which branches off from the turnpike about 200 yards east of the keeper's cottage, and runs westward close past the south side of the reservoir, to the Cairnton Cottage-road.

The Aqueduct

commences at the east end of the filters. It is a brickwork construction of an oval form, with

an internal diameter of 3 ft. 9 in. high by 3 ft. 3 in. wide. The bricks used are perforated with two holes, and are much larger than ordinary, being 9 in. long by 6 in. broad, and 3½ in. thick. They are moulded to the radius of the curve, and are cemented with a fine lime, known as Lord Elgin's lime, brought from Fifeshire, and which has more the appearance and character of cement than ordinary building lime. The brickwork is rendered water-tight by a casing of clay puddle, 9 in. thick, placed all round the outside. This mode of structure is continued with but little variation along the turnpike road, and through various private grounds, for a distance of 18 miles, to the lower service reservoir at Pitfodels. The burn of Cannie is crossed by a large cast-iron pipe, 40 in. in diameter, which passes through below the bridge constructed for the new road. The course of the aqueduct thence to beyond the village of Banchory is along the north side of the turnpike road, which it leaves about 100 yards west of the Free Church. It then passes through garden grounds, agricultural lands, and plantations, being carried over the burn of Bennie by an embankment, with a culvert underneath, and intersects the policies or grounds of Sir James Burnett, bart., passing about 100 yards south of Crathes Castle. The burn of Crathes is crossed by another 40-in. pipe, at a point about a quarter of a mile north of the farm of Baldarroch. The course of the aqueduct is thence eastward through the farm of Mills of Drum, crossing the fields immediately behind Park Inn, and running nearly parallel with the road at varying distances of 300 to 600 yards. It passes through the lands of Park and about 200 yards north of Park railway station, on to the mains of Drum, crossing the approach to Drum Castle a short distance north of the turnpike road. At the Moss of Belscavie, where the level of the ground is too low, an embankment about half a mile in length and 15 ft. high has been constructed to carry the aqueduct across. Entering the turnpike again at the village of Belscavie, it continues along it for a quarter of a mile, and after passing through agricultural lands for some distance, reaches the ravine of the burn of Culter, which is crossed about 10 ft. north of the bridge by a 40-in. syphon-pipe, supported by two piers built of Kemnay granite, 25 ft. high. The pipe extends to a length of 400 yards, and at its east end the aqueduct recommences as before, and passes through the corner of the garden at Culter Schoolhouse, intersects the lands of Craigton and the farm of Pittengullies, and goes close in front of the farmhouse of Robertston, and thence along the turnpike till it enters the field adjoining the public-house at Stonegable. Turning slightly to the northward, it crosses the Den of Murtle immediately below the embankment of Murtle dam, goes through the lands of Deebank, Bieldside, and Cults, passes in front of the villas of Wellwood, Woodbank, and Balnagath, and entering the turnpike at Middleton of Pitfodels, continues along it to the lower-service reservoir. Throughout almost its entire length the line of the aqueduct is scarcely discernible, being quite covered up, and having grass and other crops growing above it the same as on the adjoining land. Air escapes and manholes are placed all along at equal distances for the ventilation and cleaning of the interior. Although only required to discharge 6,000,000 gallons a day, the aqueduct is capable of discharging about 8,000,000 gallons. It has a uniform fall throughout of 2 ft. per mile, which gives a velocity of 21 inches per second.

The Lower Service Reservoir.

This reservoir, situated on Mr. Rebecca's farm of Braeside of Pitfodels, close to the roadside, and only a few yards beyond the second milestone, is calculated to hold fully a day's supply of water for the town,—6,000,000 gallons. It is 270 ft. in diameter, and 17 ft. deep. The bottom is laid with clay puddle, similar to the main reservoir, but, instead of the inside of the embankment being sloped, it is a vertical wall of masonry, backed by clay puddling of the usual thickness, and with a very strong dyke of earth and gravel outside. For a short distance west of the reservoir, 36-in. pipes are laid to carry the water to the top of the reservoir wall, and so discharge it into the basin. The floor immediately below the waterfall is laid with flags, to prevent it being worn away. This reservoir does not, of course, require to be so strong as the main one, being so much smaller; but it seems quite a substantial and trustworthy structure. A line of 27-in. iron pipe is laid from the end of the aqueduct past the north side of the reservoir, which communicates with the latter by two sluices, and the water may be shut out of the reservoir altogether, if necessary, and sent into town by these pipes without passing through it at all. This main continues along the Cuparstone-road and Holburn-street, and joins the existing main pipes at the water-house at Union-place.

The level of the lower service reservoir is 160 ft. above high water, and it will be capable of supplying about nine-tenths of the city with water. The remainder will be provided for by a smaller tank, called the high-service reservoir, situated at Hillhead of Pitfodels, about a mile west of Craigiebuckler, on the Countesswells-road. Its elevation is 396 ft. above high-water level; it is 80 ft. in diameter, the same depth as the lower one, and similarly constructed, and will hold 600,000 gallons of water. The water is pumped into it, through a 10-inch pipe, by a hydraulic engine, erected near the river side, below the village of Cults, worked by spare water from the aqueduct, conveyed to it by an 18-in. main pipe 400 yards long, with a fall of 150 ft. The quantity of water taken off daily will be 1,350,000 gallons, and of this quantity 350,000 gallons daily will be pumped up to the high-service reservoir. The remainder serves to give the necessary hydraulic force, equal to about 50 horse-power, for pumping, and is then allowed to run off into the Dee.

The quantities of material which have been used in the construction of this, perhaps, the greatest undertaking in which the town of Aberdeen was ever engaged, are as follows:—Of bricks, upwards of seven millions—about 42,000 tons weight—have been consumed, equal to about twelve millions of common bricks, those used being, as we said, considerably above the ordinary size. Of clay puddle, the quantity used was about 70,000 tons for the reservoirs and aqueduct, the clay being chiefly obtained from Ruthrieston, Dunn, and Cairnton. For the pipes and other ironwork, 2,500 tons of iron were required. The extent of earthwork excavation required for the aqueduct was about 300,000 cubic yards, and of filling in about 170,000 cubic yards. Of rock excavation in the tunnel, there were nearly 60,000 cubic yards. The number of men employed on the works varied from 1,000 to 1,500.

The works have been constructed from the survey of Mr. James Simpson, C.E., F.G.S., London, made in 1855, the survey for the working drawings having been corrected and improved in 1861. Mr. Simpson was aided throughout by his able assistant Mr. Robert Anderson, who has been the resident engineer.

Altogether, taking into consideration the distance the water is brought, and the quantity supplied, we are disposed to believe these will be the cheapest works of the kind ever constructed. The total outlay for them will not exceed 115,000*l.*

SIGN-BOARDS AND SIGN-PAINTERS.*

Sir Walter Scott tells us and all generations to come, that it was a sign-painter, or "out-of-door artist," as he delicately phrases it, that suggested to him the idea of writing the "Bride of Lammermoor." The sketch of Dick Tinto would be a miniature tragedy if it were not for the humour with which he treats his fate. We have the strong bent of will and taste, if not of genius, the aspiring mind which led the assistant of a peripatetic sign-painter to throw away the brush and take up the crayons in a brave endeavour to cross the dreary wastes that surround success in the higher branches of art; and we have the sad tale of failure that ends in debt, want, and a premature grave. But overlaying all this there is so much fun, that though it is death to the creation of the great novelist's pen, poor Tinto, we cannot but smile. Who could consider, gravely, the five-legged horse which Sir Walter depones yet swings in the village of Langdirdum, and which he declares is a defamed work of art, the fifth leg being, in fact, the tail of the beast, which, by its length and the rampant position of the animal, forms a sort of tripod, without which the courser would have been left in an apparently insecure position? Or who could read demurely of his enforced residence at the little village inn owing to the score which his modest fees for the portraits of all the respectable people in the district, including the landlord and his family, did not enable him to efface, and which was only liquidated at last by the painting of a new sign. Doubtless scores of "out-of-door artists" have consoled themselves with the same reflections with which he comforted himself over what he considered the indignity of being a sign-painter. "Hogarth has introduced himself in that character in one of his best engravings. Domenichino, or somebody else, in ancient times, Moreland in our own, have exercised their talents in this manner. And wherefore limit to the rich and higher classes alone the delight which the exhibition of works of art is calculated to inspire into all classes?" But for all this Dick Tinto could not face the little ceremony incident to the suspension of the new sign in mid-air, and by the time the carpenter had hoisted the Wallace-head, to an accompaniment of cheers from the villagers, he was a mile on the road to Edinburgh. It seems to us the day has now come when Dick Tinto would have rejoiced that he had painted the Scottish patriot's head as an "emblem" of the contents of the Scottish publican's cellars, and when a great many artists will wish that they, too, had once in their lifetime painted a sign; for the decayed profession of sign-painting has passed into a popular branch of archæology with which it is fame to be associated.

The history and subjects of signboards are attractive departments in the vast accumulation of facts relating the progress of commerce which centuries have left us. They have been frequently broached, but never treated with the fulness with which they have been set before us by Messrs. Larwood & Hotten. Their work, which has been two years in coming through the press, is as full of curiosities as Don Saltero's famous "Knackery in Chelsea," and as quaint and rich in matter as the creaming of most of the old writers who have mentioned signs can make it. The quantity of matter collected might have served for a couple of volumes, for their subject has served them as a handmaid by which to introduce many others, all in some way connected with that in hand, but which materially increase its bulk. Of these curious handbills and advertisements are, perhaps, the freshest to the general eye, though none are without interest. Thus the sign of the Gretna-Green Wedding, at Aycliffe, Durham, calls forth full particulars of that now illegal ceremony, of those who performed it, and of the number of those who availed themselves of it. The sign of the Queen's Elm, Brompton, brings to view Queen Elizabeth taking shelter beneath a large tree on this spot when caught in a shower, whilst she was on a visit to Lord Burleigh. The sign of the Willow Tree, mentioned as very rare, sets us afloat on an ebbing tide where we come across Fuller's Worthies, Massinger's Maid of Honour, Shakspeare, Swan's Speculum Mundi, Douce, and "a quaint ballad, which an old Northumberland woman used to sing, but which we have never seen in print," say our authors, beginning "It's all round my hat I wear a green willow," but which was commonly sung by the street boys twenty years ago, notwithstanding its supposed monopoly by the Northumbrian dame. And in the same way sign after sign is treated historically, and frequently pictorially, till some two thousand have been examined. Where so much is given it is ungracious to point to omissions; but, as other editions are sure to be called for, it may be useful to inquire why Jack Straw's Castle at Hampstead has been tabooed? We should like to know what are the particular merits of the Hampshire hog, beyond its proximity to the excellent bacon of the adjoining county, that it should be a sign in Hammersmith or elsewhere; and knowing the scarlet fame of another zoological specimen to have passed into a saying, we inquire why the Red Lion of Brentford is unrecognised? To be as red as the Red Lion of Brentford has long been a common comparison. The insidious sign, a Friend at Hand, to be seen at Chelsea and Hammersmith, is not mentioned; nor is the apparent sarcasm, "The Idler's Rest," chronicled. There is a sign which occurs at Deal and at Milton which may be also meant for "sarkasm:" this is the Good Intent. There are, too, little chains of names omitted relating to Her Majesty's service,—such as the Old Sergeant, Enfield; the Valiant Trooper, St. Alban's; the Light Horseman, York; the Barrack Tavern, the Yorkshire Huzzaar, the Grenadiers; or to the seafaring profession, beginning

* The History of Sign boards from the earliest Times to the present Day. By Jacob Larwood and John Camden Hotten. With one hundred illustrations in fac-simile by J. Larwood. London. John Camden Hotten, Piccadilly. 1866.

with the Barge-aground, Brentford, or the Plough and Sail, Billericay, going through a long list of sailing craft till it ends with the Sea-horse, York; or to celebrities of the stable-yard, as in the Little Driver, Bow; the Jolly Ostler, Uxbridge; the Spotted Horse, Putney; the Spotted Dog, West Ham; but, as our authors do not pretend that their work contains every sign, we cannot find fault with them on this score. They have gone through the subject systematically; treating first its antiquity, and then the various classes of signs, as historic, heraldic, religious, zoological, ornithological, piscatorial, floral, commercial, geographical, humorous, &c., in rotation.

There is an uncertainty about the chronology of signs that must be always harassing to a collector. Those mentioned by writers of different ages are partly free from this discouragement; but there are hundreds of others that have never been quoted at all till the present writers took up the subject that may or may not be equally ancient. For instance, we might conclude that St. Cuthbert's Inn, near Sunderland, was a genuine antique, particularly when quoted as it is in association with the saint's supposed habit of shaping himself beads out of the stalks of the encrinites, "on a rock near Lindisfarne." But, in reality, it is the most recent on the coast facing the islands on which the Saxon saint dwelt as bishop and hermit. Within the last few years the octogenarian publican, who is the most experienced boatman on that perilous coast, has put up a large signboard, notifying, in gilded letters, that his little sea-side and road-side dwelling, with lodging-house attached, hitherto known as Monk's Houses, was St. Cuthbert's Inn. Not a pretension to antiquity or middle age can it put forth, even in the shape of a lichen. While we are so close to the Farne islands we may remark that the only inn sign in Northumberland that alludes to the light-house keeper's brave daughter is the Grace Darling at Newcastle-upon-Tyne. Bamborough, Sunderland, Berwick, and Beadnel, are the *valets-de-chambre* to whom she is no herione.

We cannot always agree with our sign-masters' interpretations. The curious sign, Hit or Miss, they consider represents the good and bad chance which innkeepers court and dread as much as other mortals. Now, as we find it in garrison towns, we should, probably, be more correct in deeming it another version of the Fortune of War, a sign that is equally popular in similar localities. Again, in speaking of the Hoop and Toy in Thurloe-place, Brompton, they miss its right signification when they say, "Here the original meaning of the hoop seems entirely lost, as its combination with the toy seems to allude to the hoop trundled by children;" although they soon after refer to the *toying* place at Hampton. The fact is, it was one of a group of public houses in this outskirt of London, including the *Bell* and Horns (a sign not mentioned in the book, by the way), the World's End (in the King's-road), and others, which had very questionable reputation, as far back as the time of Charles II.,—were, in fact, established as meeting-places. Thus Congreve makes his Mrs. Frail say ("Love for Love"), "I'll swear you have a great deal of impudence, and in my mind too much for the stage:" Mrs. Foresight answering, "Very well, that will appear who has most. You never were at the World's End? Eh!"

Our authors, on their part, do not always take for granted the explanations of previous expositors. Specially, the Swan with two Necks they do not like to see disposed of as having but two nicks (owners' marks), instead of duplicate necks properly provided with bills. Nicks, they contend, could never have been seen from the roadway, and are not likely, therefore, to have been the original peculiarity depicted. Two swans, side by side, the one but very slightly in advance of the other, are more likely to have been the origin of the idea. The Crooked Billet is a stumbling-block to them, and when associated with a hare, as at Lewisham, must be more so still. There are five kinds of billets,—that meant for fuel, that given to a soldier to indicate his quarters, the quarters so indicated, a billet-doux, and the heraldic billet. But if we may trust the pictorial representations, it is the least important of these, the little log of wood, that the accident of being crooked has advanced to the dignity of a sign. Many corruptions are familiar, as the Bull and Mouth for Boulogne Mouth, after the engagement there in Tudor times; the Leg and Star, from an attempt to represent the order of the Garter; the Axe and Bottle, from the battle-axe; but others are not so well known. The Bull and Butcher, for instance, is a softening down of the feeling that led "Bullen butchered" to be set up as a sign at the village alehouse at Hever, Kent, where the family of the unfortunate queen had possessions. The Monster is another of the signs from which time has defaced the meaning. This is supposed by our authors (not by us) to have been the monastery, so called from being built upon the site of such an establishment.

So much has been said, however, about signs since the day the *Spectator* proposed to clear the city of Monsters, that there remained little more to do than to make the collection so entertainingly presented to us by the present authors. But of the sign-painters, the Dick Tintos, the R. A.s, who have occasionally painted signs for pastime, not so much has been told. Nor, indeed, is much known. We gave a few particulars of Hodgkins, the Buckinghamshire artist, who painted many of the signs in the neighbourhood of Aylesbury, in a former volume; but as a rule it would appear that sign-painters are supernumeraries of art, whose business is carried on behind the curtain. We may trace some reason for this reserve in olden times, in the uncertainty of the reception that would be accorded to works of any significance placed in situations so open to popular criticism. The oldest known sign of a King's Head is that of Henry VIII., whose freedom with his queen's heads might, perhaps, have made it doubtful whether he would look upon the innovation as a compliment or not, and therefore it was politic on the artist's part to remain in the background. The same caution would be necessary to those limners who painted the Queen's Heads, in the reign of his daughter Elizabeth, as Sir Walter Raleigh tells us in the preface to his "History of the World," that this royal lady ordered that all portraits of her made by unskilful and common painters should be "knocked in pieces and cast into the fire;" for if the paintings excited this ire it was only wise of the painters to be unobtrusive. Their Continental contemporaries of established fame frequently painted signs that have since been carefully preserved as works of great merit. Correggio's Mule and Muleteer, in the Sutherland collection; Holbein's two school-pieces, in the Museum at Basle; Paul Potter's Young Bull, in the Museum of the Hague, enjoy the reputation of having been painted for signs. Our authors state that Mr. Millais painted a St. George and Dragon, with a border of grapes, for the Vidler's inn, Hayes, Kent. It is to be hoped the landlord has hung up this work inside instead of outside his house. This proper course has been pursued by the landlord of the inn at Bettws-y-Coed, North Wales, for whom David Cox painted a Royal Oak; and by that of The Sawyers, at St. Martin's, Norwich, whose sign was the work of the elder Crome. Nevertheless, Hogarth's Man loaded with Mischief still hangs on the sunless side of Oxford-street; and Richard Wilson's Three Loggerheads hung so long before the alehouse of the Welsh village named after it, and was touched up so often, that as far back as 1824 it was considerably deteriorated in interest. Of the three signs attributed to George Morland, one, known as the Cricketers, belonging to the landlord of a small public house near Chelsea Bridge, has been taken indoors, and a copy placed in its former position. One for the Goat and Boots, West Brompton, attributed to him, has been repainted.

Fortune has occasionally taken sign-painters by the hand. Notably, she favoured the father of the delightful Mrs. Trimmer, John J. Kirby, whom she sent to court under the auspices of Lord Bute, where he taught the principles of perspective to Queen Charlotte, and obtained the post of Clerk of the Works at Kew. Notably, too, she favoured Robert Dalton, who, after his apprenticeship to a coach and sign painter, with her assistance became keeper of the pictures of King George III. Our authors mention the names of Lamb, Gwynne, Wright, and Smirke, R.A., as having also been apprenticed to coach and sign painters. But there are so many other instances of this sequence, with that of scene-painting, that it may be regarded as a natural development. The late David Roberts, R.A., was another instance of this progression of talent. Coach-painting, in the last century, meant much more than it does now. Her Majesty's state carriage furnishes a solitary realization of the style aimed at by the liege of her royal grandfather's predecessors. Every panel was painted with subjects till excess of gaudiness brought its own remedy, and they were gradually treated with a greater and greater severity, till they presented the simplicity now in vogue. But, whilst the fashion lasted, it employed a great many painters of inferior rank, and these found it remunerative to turn their talents to sign-painting when opportunities occurred. On the authority of the author of "Nollekins and his Times," it is said that no less a sum than 500*l.* was paid to the coach-panel artist Clarkson, for a sign representing Shakspeare that used to hang in Little Russell-street. The reputation of this portrait appears to have provoked rivalry, for Messrs. Larwood & Hotten refer to a second Shakspeare, which was displayed in the same street. This was a whole-length portrait, about 5 ft. high, painted by Samuel Wale, R.A. They state that, scarcely was it inclosed in its sumptuous frame, and suspended by its richly ornamental iron-work in its place, before the Act was passed for the removal of signs. It was consequently taken down, and the Royal Academician's work was sold for a trifle to Mason, the broker, in Lower Grosvenor-street, at whose door it stood till it was utterly destroyed. They remind us, too, of another Royal Academician, who was a carriage-painter. This was John Baptiste Cipriani, the Florentine. Charles Catton, a fellow student of John Baker, R.A., painted several signs; and, as one of these was for his friend Wright, a famous coach-builder of his day, we may assume that he also painted coaches. Wright's sign was a lion; that of a mercer in York-street, Covent-garden, by the same artist, was a Turk's head. John Martin, by the way, was apprenticed to a coach-painter, but we do not know that he ever painted a sign. As there are, or have been, centres for every kind of industry, so there were formerly special quarters for sign-painters. These were in Harp-alley, Shoe-lane. But all this is changed. Harp-alley knows them no more. The four-and-twenty householders described as sign-painters in the "Post-office Directory," are distributed in a tolerably equal proportion all over London.

Not the least curious of our authors' work is the reprint of the catalogue, advertisements, and literary notices of the droll exhibition of house-signs held in 1762, at Bonell Thornton's chambers, in Bow-street, Covent Garden. We occasionally come across references to this supposed parody upon the exhibition of the artists just then commenced in the Strand, but here we have its complete history from its first announcement in the *St. James's Chronicle*, where it was prefaced with a "postscript" to the effect that the Society of Manufactures, Art, and Commerce were preparing for the annual exhibition of polite arts, in the hope that by their exertions the taste of the nation would be developed. A large share in this daring flight of fun has been attributed to Hogarth, which the facts that some of the signs bore his name slightly disguised, all the others being those of the journeymen printers employed upon the catalogue, and that a Man loaded with Mischief was in the collection, seem to bear out. The catalogue is as full of puns as one of Hood's comic annuals, and bears reading even now. Some of the satires upon the events of the day must have been telling, such as the Cock-lane Ghost, represented as two hands, one holding a hammer, the other a curry-comb; Hogarth's Line of Beauty, illustrated by the Crooked Billet; the Deadly Nevergreen, on the road to Paddington; the Tyburn Tree, &c. One of the indignant critics, for the show had its detractors as well as admirers, considered the cream of the whole jest to be two curtained boards labelled, "The Curiosity and its Companion," which, on the withdrawal of the curtains presented but two short inscriptions, "Ha, ha, ha!" on the one; and "He, he, he!" on the other.

The selection of *fac similes* is very quaint. Altogether, the volume is a valuable record, and offers a fund of amusement for many a rainy day.

THE EFFORT TO SAVE THE HARVEST.

We willingly give publicity to the comments of a farmer on our suggestion as to the employment of hand-labour in harvesting. Any proposed change in the ordinary method will be differently regarded from different points of view, and the cause of truth will be best served by making those points of view as numerous as possible.

With reference to the article entitled "English Barns and Harvests" (published at p. 789 of the *Builder*), you will perhaps not be indisposed to have the comments of a farmer on the suggestions.

I. You are in error in attributing the large size of our barns to the fact that they were formerly the store-houses of farm produce.

The real solution is this: When thrashing was done by the hand, a large dry space was necessary for the operation itself, as well as for the storeage of the grain in the straw, which supplied the labourers with material for their work from day to day.

Stack after stack was therefore carted to the barn during the winter months, to insure a regular supply of straw for the cattle, and for that reason the gates were generally made sufficiently wide and high to admit a loaded wagon. It is altogether a mistake to suppose that barns were ever used, and could be used, with economy in storing the produce at harvest.

If you will bear in mind that there is scarcely a barn in England that will hold the produce of fifteen acres of loose corn, you will be satisfied that my remarks are correct.

Of course they were always filled at harvest, to save the extra labour involved in removing that corn twice, viz., from field to stack, and thence to the barn.

II. As regards the process by which you recommend that our harvests be cut and gathered, the first and most palpable objection occurring to the practical farmer is that the said process is a step *backward*, instead of a step in advance. When a man has been in the habit of cutting eight or ten acres of wheat or barley in one day with the labour perhaps of four horses, he will demur to the advantage of severing each head of grain separately by manual labour.

You are utterly mistaken about what you term the unthrifty economy of the farmer in seeking to grasp the double harvest of straw and corn at one operation. A practical farmer, if he knows his business, loses neither in straw nor in corn, for he cuts the former as close to the ground as the stones and the irregularities of surface will permit him, either with scythe or reaper, and he chooses that time for the operation at which the grain will not readily shake out of the pulse.

It is of the utmost importance to the farmer to secure his straw in good condition, and a very great drawback to the process recommended in the *Builder* would be the destruction and waste of straw caused by the trampling of feet over the entire surface of the field.

Again: It is in wet seasons that the proposed plan is to be the most efficacious, for in dry favourable weather there would be no inducement to adopt a slow process.

Now, in such seasons as that we have just experienced, what is the condition of our corn-fields? Why, the crop is usually laid nearly flat, or else it is twisted, shackled, and storm-broken, the heads lying in all directions: some on the ground.

If straw could be grown as strong and as straight as knitting-pins, with the heads unbent, or only nodding gracefully at the summit of the plant, the scissor process might be applied; but, I am not exaggerating, when I state that the proceeds of the sale of a field of wheat would not have paid the cost of such process during the past harvest.

I do not apply the terms "empirical" or "crotchety" to the proposed remedy; but it is certainly "theoretic."

The true remedy in wet seasons is to get the greatest quantity of corn cut in the least possible time; and, if out of condition, to put the *maximum* of straw into the stack with the consequent minimum. For that purpose our best farmers nowadays *mow* their wheat, in preference to reaping it. In the looser sheaf of mown corn, the grain is sooner dry and ready to stack.

I cannot give an opinion about the ventilating process adopted in the Quadrilateral. Probably it is only on a level with our old-fashioned; and this finds no favour on the score of economy either among farmers or millers.

Cossington, Loughborough. R. E. Smith.

Our correspondent, in objecting to our reference to the height of barn-doors, distinctly confirms what we said. We made no reference to the question of how much of the produce of the farm could be at once stored in a barn. We merely, in alluding to a peculiar pictorial or architectural feature of the English, and still more of the Belgian country landscape, accounted for it by saying—which we do not object to do in Mr. Smith's own words—that "the gates were generally made sufficiently wide and high to admit a loaded wagon." That the barn is filled in the first place as full as it will hold, Mr. Smith tells us; but our reference was to the architectural features, not to the economic value, of the barn.

With regard to the more important question of the applicability of hand-labour to harvesting, Mr. Smith falls into the very old and very common fallacy of opposing opinion by opinion, and calling it opposing theory by practice. He says our suggestion is theoretic: we should not have claimed for it so high a value. Theory is the co-ordination of truth, the due and harmonious arrangement of ascertained facts. When any new idea is brought forward, any attempt at improvement in either our science or our practice, whether it be the explanation of the laws of celestial motion, or the simplest appliance of mechanical skill to the wants of daily life, the fresh thought makes its appearance in the infant form of hypothesis or suggestion. Rarely, perhaps never, does it command immediate assent. The fledgling notion has to undergo the buffeting of experience and of experiment, happy if it escape death from the inanition caused by neglect. Like other infants, it succumbs to the process if weakly, and, if it survive, comes in due time to take its place in the true theory of which it is proved to form an integral part. The man who is familiar with the details of any particular calling is apt to call his natural disapproval of any effort to make him move out of his accustomed groove, "practical." It is trial alone that tells which is true practice, and, therefore, true theory, the old method or the new.

Mr. Smith says that to hand-pick corn is a step backwards. May be so; but that is not the question. It is not whether it be a step forwards or a step backwards, but whether it be a step in the right direction, that is of importance. In the struggle that is daily going on between the two opposing principles of cheapness and of excellence, of quantity and of quality, much has yet to be done before the line can be authoritatively drawn. We frequently find that we have gone too far in the former of the two directions. The beauty, cleanliness, regularity, and cheapness of the work of the sewing-machine, for example, led to its introduction by the fashioners of the more costly clothing of either sex as an experiment pretty sure to succeed. But one element was wanting—trustworthiness. One cut or broken stitch threw open a seam, so we stepped back to hand-work again, and do not wittingly trust ourselves to the protection of machine-made coats.

Take, again, the instance of spade-labour. How costly is it compared to the plough; how mediæval in its simplicity compared to the results of steam agriculture; and yet look at its products. Far as we are removed from the days of "the gardener Adam and his wife," we are, if we can at all look forward, still further distant from the date when the spade will have to be laid aside.

There can be no doubt that if corn be allowed to get into the state described by our correspondent, the attempt to house it in any way is full of cost and of difficulty. We rather aim at preventing than at remedying such a state. Instances, no doubt, occur, when sudden and violent storms suddenly lay the crops; but these instances are the exception, not the rule. In the present year, for instance, over the greater part of the country at all events, a long succession of damp, partially rainy days preceded the rougher weather. The injury to the crops was rather the consequence of waiting for finer weather than of any predisposition on the part of the farmer to be beaten by the rain. It is in cases such as this that a more certain, if a somewhat more costly, mode of reaping would be most available.

The question of damage to the straw is one of much importance. We gave and give no estimate of the relative value of straw and of wheat. We presume there is no controversy that the latter portion of the crop,—the staple of human food among us,—is the more valuable of the two, however much the farmer may prize his straw, whether to chop for food or for any other purpose. This is a question, it seems to us, eminently practical; that is to say, a question which should be brought to the test of experience. The result will differ on different soils; it will differ according to various modes of sowing. In that cultivation of cereals which has produced unapproachably the highest return,—the dibbling in of selected seeds,—there would probably be no injury to the straw whatever, any more than occurs to the maize-plant in Southern Europe by plucking the unripe spike, which is boiled and eaten as a vegetable. We shall be most happy to give publicity to the result of any experiments in hand-picking, whether favourable or the reverse, or to any suggestion from the practical farmer as to the best method of counteracting the evil of a wet season.

For here is the gist of the matter. In that ocean traffic which was so long and so proverbially dependent on wind and tide we are daily rendering ourselves more independent of both. In that land transport for which, forty years ago, we were obliged to allow so much longer time in the winter than in the summer, we now forget the difference of the seasons. In so much that once depended on fair weather we have ceased to regard weather as an element at all concerned, while in the supply of our daily bread we are as much at the mercy of the unsolved caprice of the climate as when we were slanderously asserted by Cæsar to be living upon acorns (a remark that, no doubt, was about as true as his assertion that we had no beech trees in the island. He would not even allow us the poor consolation of eating mast.) We see the precious harvest left to the fury or the caprice of the elements without an effort to save it. We see, from the prices of corn, that the greater part of the loss, and, without some explanation not yet forthcoming, we have ground to suspect that *more than all* this loss, comes out of the pocket of the consumer, and, in the case of the staple of food, disproportionately out of the pocket of the poor. So long as this is the case, we think, and ninety-nine eaters of bread out of the hundred will think with us, that our method of harvesting is not on a par with our progress in mechanical improvement, and is not to the credit of our age.

WOOLWICH EXAMINATIONS: FAIR PLAY!

We trust that there is no truth in the rumour which has excited great indignation among the students preparing for the next Woolwich examination, that the sons of two noblemen of the highest rank in the English peerage are likely to be admitted to the Royal Military Academy without undergoing that severe test in anticipation of which some hundred and fifty youths, between sixteen and nineteen years of age are now incurring so considerable an outlay in money, in time, and in brain-work.

The royal or noble roads of learning that exist in our ancient universities, are well-known and not inconsistent features of those venerable institutions. No one is entitled to make a grievance of them. They are sanctioned by tradition, and were a part of the design of the founders, and of that which regulates all proceedings in legal disposal of property, the intent of the testator.

But at a time when public opinion has rendered necessary *some* education, even for young men who purchase commissions, it would be a singular outrage on those whose patrimony is in their brains to allow mere rank or official influence to open a back door to an academy which professes only to be reached by means of one of the severest examinations that a lad can undergo. Too severe, it may be, is the test: rather fitted for a candidate for an engineer and artillery commission than for a candidate for a cadetship. Too severe, as tending to induce a system of coaching and cramming, rather than one of sheer, sustained, profitable work. But if it be too severe for noble aspirants for command in the scientific corps of the army, let the door be opened fairly. Let the character of the Academy be unimpaired; and let us not see an example, in this finest of our institutions, of the shouldering aside the lad of talent and of industry by the sheer dead weight of the lad of rank.

We feel convinced that it is only necessary for the matter to be brought under the notice of her Majesty for any danger of the kind to be averted. At a time when political spirit is again likely to run high, and when any fair pretext for an attack on those of our institutions which give the stamp of intellectual aristocracy to their *alumni* will be greedily laid hold of, a step that would make some hundreds of the cleverest of our rising youth feel that they had been subjected to personal injustice by an abuse of the power of Government, would be most deeply to be deplored.

THE CONDITION OF THE LONDON WHARFS.

A bare inspection of the wharfs or landing-stages along both sides of the Thames, whence the shipment of goods commences, must convince the observer that they are in anything but a good condition. Accidents are daily happening, which find an echo in the press, so far as they are casualties; but the causes more or less of these are hardly ever touched upon, save only when some extraordinary loss of life occurs. Then, and then only, through the medium of the coroner's inquest, a little truth leaks out.

Well, let us be explicit. We now assert that very many of the wharfs, and even warehouses attached, along the river, are in a bad condition, so much so, that human life is in imminent danger therefrom.

Much passenger and goods traffic is still necessarily carried on between the many ports of the kingdom and the Thames, and the outlet and inlet are through the landing-stages and warehouses of the steam-packet companies. Immense cargoes, in every description of freight, are landed or placed for lading by the river-edge. Add to this, the fixture and working of huge cranes by steam power on these wooden platforms, which are most clumsily and unskilfully constructed: the danger is therefore the more, and the wonder is, that the loss of life is not more frequent, from the sinking and tearing

away, accelerated by the moorage of steamers and other craft fastened alongside.

Not being aware whether the Harbour or Ballast Board have an inspector for looking after these things, we speak in hope that attention will be at once directed to them; and we are the more concerned from the fact that personal inspection has warranted us in pronouncing with some degree of truth thereon.

A case in point, immediately under our eyes, is that of the St. Katherine Steam Packet Wharf, below the Tower. For some months back the entire extent of the back walls of the goods storehouses of this company has been dropping asunder, and the old corrugated landing stage attached, which is composed of old ship timbers, is unmistakably walking out into the bed of the river. Some efforts have been made and are now making to keep these large storehouses from dropping asunder, but the system of shoring adopted will not stave off the inevitable fate that sooner or later will arrive. The action of the steam loading-crane here some two or three months since propelled itself, and a portion of the platform to which it is attached, into the river: happily, by a mere chance, human life was not sacrificed.

Piles are being now sunk to strengthen and prevent the expansion of the old construction, but the work has little relation to carpentry or "building in water." It is more in accordance with the craft of the "navvie," who, though a "pioneer of civilization," is not necessarily "a builder of nations."

The Irongate Steam Wharf, which joins that of St. Katherine, bears favourable comparison of what is required where so much of the passenger and goods traffic of the kingdom passes and repasses. But comparisons are odious. Both companies are equally rich, and have more than once been in a dead struggle with each other to extinguish or be distinguished in rivalship and low rates. Some extenuating circumstances may be brought forward to exculpate the owners of these wharfs, or the companies to whom they are leased, for their want of attention. That is, the exigencies of the system are such that they do not allow them a single day for building or repairs, and the tide is inexorable, and they govern and are governed by it. The excuse, however, is not sufficient. The traffic of the London streets is an affair somewhat prodigious, and were the Corporation inclined they might put forward a similar excuse; yet, notwithstanding, they find time to project and carry out a herculean system of main drainage, paving and flagging, and street-uprooting, without stopping for a moment the swollen and systematic passenger and vehicular traffic of the metropolis.

We have now drawn attention to matter fraught with lasting good or dire peril, according to the attention or inattention that it receives at the hands of its proper conservers. The objects in view are not to suggest improvements where they are badly wanted, but to prevent danger and loss of human life, which are most likely one day or another to occur if the patent and obvious remedies be not resorted to in time whereby they may be avoided.

H.

ST. JAMES'S CHURCH, PICCADILLY.

The parish church, St. James's, Westminster, has been re-opened, after undergoing internal renovation.

This church, although on the whole the work of Sir Christopher Wren, appears to have been under other hands either at the time of its erection or since, which might account for the various internal disfigurements that existed till within the last ten years, at which time internal improvements were made.

The authorities having come to the conclusion early in the year that thorough cleansing and redecoration were necessary in addition to other matters to be done if practicable, plans and specifications were prepared by Mr. A. P. Howell, architect, and tenders for the works were ultimately received from the following:—

Messrs. Patrick, Westminster Bridge-road	£983
Mr. J. Arnold, Jermyn-street	803
Messrs. Bywaters, King-street, Regent-street	770
Messrs. T. Abbott & Son, Lower James-street, Golden-square	725

The tender of Messrs. T. Abbott & Son was accepted.

Messrs. Strode, of St. Martin's-le-Grand, were consulted, and finally directed to fix two of their sun-burners in the ceiling at an estimated cost of 160*l.*, so as to allow of the removal of almost the whole of the somewhat heavy bronzed gas-brackets and standards in the body of the church and galleries, the heat from which rendered the church generally and the galleries in particular extremely oppressive during the evening services.

The general design of the church is tolerably well known, consisting of a wide nave and aisles, with a shallow recess at either end, one of which forms the chancel. The nave has a semicircular arched ceiling, with five bays on each side. These are formed by semicircular arched openings, springing from the same level as the large arch of the nave ceiling, the piers between the bays being formed by Corinthian columns and entablatures, the entablatures being carried by the columns at one end, and some beautiful corbels at the other projecting from the walls. There being five bays on each side, there are six columns, the entablatures at the extreme east and west of the end bays having not merely a slight projection from the wall, but the full width of the column,—the columns being completely detached from the wall, leaving a space in the clear which allows the abacus to be nearly complete; and it is evident from various peculiarities that it was either set out wrong in the first instance, or the design was modified afterwards so as to allow of these columns at each end being so constructed as to be detached. The superiority of this effect over a mere corbel or pilaster is undeniable; and it being quite evident that Sir Christopher Wren thought this of sufficient importance to account for or warrant an alteration in his original design,* it was determined, if practicable, to remove portions of two galleries, or two portions of organ-gallery and staircases, which unfortunately defeated and frustrated the very result which had been obtained with so much ingenuity, study, and daring, even to throwing the face of the entablature out of the parallel with the face of the wall on which it is run, so to speak, by 6 inches or more.

This alteration has been made; new staircases to reach the organ gallery substitute the offending galleries removed, and Sir C. Wren's original intention stands revealed.

The east end, the seat of Gibbons's celebrated carving, has also been much improved.

The whole of the interior being either of plaster or wood, and being painted, of course it all had to be painted again, excepting the pewing, which is constructed of wainscot. The walls are a warm stone colour; the entablature is veined white marble with the frieze as dove marble; the ceiling is a delicate grey, and the enrichments are slightly relieved by a warm white tint. By these means the different features are distinguished from each other without actual contrast, the columns are still Sienna (cleansed), and the caps and bases white.

The capitals of the columns have been relieved by tinting the bells the same colour as the shafts, the leaves and abacus being white.

Without going too much into detail, it is sufficient to mention that the whole of the gallery fronts, the organ-case, and the somewhat weak reredos† have been painted and grained in imitation of walnut-wood, and varnished. The effect of this is very good.

The tablets at the east end have black letters and gold capitals on a white ground. The characters of the letters are Italian, of a date corresponding with the erection of the church; and some appropriate texts, chosen by the rector, have been added to the usual Creed, Commandments, and Lord's Prayer.

Gilding has been used but sparingly. Praise is due to the Messrs. Abbott for the manner in which they have carried out the works. The formation of the openings in the ceiling, to admit of the sunlights, required skill.

The fine organ will be thoroughly overhauled and improved by Messrs. Bishop, under the superintendence of Mr. Ex-churchwarden Crane.

The rector and churchwardens, being naturally careful of their church, have taken a deep interest in the work, and have given it their close attention.

* The east and west bays of the church are not so wide as the three centre ones, having apparently been reduced; and as they are each covered by a semi-circular arched ceiling, in order to conceal the difference of level which would appear in the ceiling lines, the springing of the narrower arches is stilted, so as to bring the crowns all level, and thereby conceal the difference.

† This reredos, however, if left in its original state, would have been better, being apparently all framed and moulded in cedar, and when disturbed for necessary alterations, still gave out a fragrant odour; it had, however, been painted too often to allow of its being restored to its pristine condition.

A PAPER ON STRIKES.

The following account of events which have come under my own observation may not be without interest at the present time.

There was a certain country in which the most intelligent of the working men gradually arrived at the conclusion that they did not get a fair share of the productions of their own labour. They worked hard all day long building fine houses, which were occupied by people who never laid a finger upon their construction. They dug fish-ponds for other men to fish in; reared sheep and cattle and game for others to eat; wove fine clothes for the children of the rich, their own little ones having meanwhile hardly shoes to their feet; and in numberless ways it was quite clear to them that by some process which they could not fathom a large portion of their earnings was diverted into a wrong channel.

After seeking in vain for a remedy, they agreed to emigrate to some country where there should be no rich people, and no mere consumers of wealth. Accordingly they invited a select number of artisans to join their party, and all went off in a body to their new home. Having no rich people amongst them, there was of course no place for a large number of applicants, who were rejected as being merely producers of articles of luxury; and the leaders of the scheme were rather surprised to find how many were dependent for a living upon occupations which they looked upon as almost, if not quite, useless.

Arrived at the colony, all went well for a time: the woodmen cut down trees, the sawyers sawed them into boards, bricks were made and houses reared, and each man followed the occupation which suited him best. They found some difficulty for want of sufficient money, as it was very inconvenient to carry on business by barter, which in many cases they were obliged to do. However, after a time it was pretty well established that a certain relation existed between the various kinds of labour, and this formed the basis of the exchanges.

At last it occurred to the shoemakers of the colony that men must have shoes, and that only shoemakers could make them; they therefore made it known one day that for the future they intended to work only four days in a week, and that they should expect to have as much food and clothes supplied to them as they previously had. The rest of the community grumbled a good deal, and wore their boots very thin; but at last were obliged to give way, and the shoemakers triumphed, chuckling a good deal at their ingenuity, enjoying their two days' holidays immensely, and wondering at their own moderation in not stipulating for *three* days instead of two.

The example once set was contagious: other trades soon followed. The painters said that painting was unhealthy, and required better food; the sawyers said their work was more exhausting than that of the weavers; and the fishermen complained of exposure to the sun: to make a long story short, each trade in turn went in for shorter hours of labour, and for more pay, and as they could not consistently refuse to others what they claimed for themselves, it ended in all having wages of from 15*s.* to 1*l.* per day, and working eight hours or less per day.

But it was gradually forced upon their notice that they were actually *worse off* now than at first, and they could not understand it at all; nor, in fact, have they yet learned that the share of each individual in the good things of this life depends very much upon the whole quantity produced, and that if all producers work fewer hours, this means simply that there will be less of everything for everybody. Admitting, for the sake of argument, that we could begin the new year with wages of all kinds ten times higher than at present, of course all home productions would immediately rise in the same proportion, and so long as we could induce other nations to continue to supply us with food, &c., at the old prices, and to buy our productions at the new rate, we should get on swimmingly; but how long would it last? Perhaps the leaders and organizers of strikes will explain the ultimate benefit to be derived from "a strike all round."

I need not name the country where this *reductio ad absurdum* occurred, but any one who wishes to see the process in operation need not go far from home.

An Engineer.

THE SYSTEM OF DRAINAGE IN USE AT WEST WORTHING.

I SEE, in your article on the Leamington Drainage Congress, you remark that "nothing new was elicited," by which I am led to conclude that my system of drainage now in use at West Worthing, which is entirely new and seems to meet all requirements, has been overlooked by your reporter.* I am induced, therefore, to give you a brief description thereof, as I think you will admit that it is the plan best suited for general adoption.

The objects of this system of drainage are as follows:—

1. To separate by filtration, at the earliest possible moment, the fluid from the solid portion of the sewage, and thereby retain the greatest quantity possible in the solid form.

2. To render the fluid part sufficiently innoxious to be allowed to flow into the nearest water-way.

3. To remove the solid portion expeditiously, and without nuisance.

To effect these objects, a shaft or chamber, is constructed at each central point of drainage to which the sewage of a population of about 3,000 can be directed.

The sewers lead into the chamber, and the chamber communicates with the nearest drainage outlet.

In the chamber, a box is placed in such manner as to receive all the sewage passing from the drains.

A filter, furnished with deodorising materials, incloses the box on every side, and allows only the fluid portion of the sewage to escape from it into the chamber, the solid portion being therein retained.

Drains, the beds of which are at a level somewhat higher than the top of the filters, are constructed so as to communicate with the sewers from the houses and gullies, to intercept and carry off the surcharge of rain-water during heavy and continued storms when the sewers will have been thoroughly washed by the preceding rain which will have found its way through the filters and chamber towards the outlet.

A clean filter, containing a manure-box, is brought every morning in the filter carriage to the chamber, and the cover having been taken off, the full filter which has been used is drawn from the chamber and fastened in the carriage, which stands immediately over it. The clean filter is then substituted for that taken out, merely by shifting the position of the carriage and lowering the filter by a chain to its place in the chamber. The full filter is then conveyed to the scavengers' yard, where it is opened, and the box containing the manure is taken out and closed with a screwed-down cover ready for conveyance to any place where its fertilizing contents may be required. The parts of the filter are then washed and refilled around a clean manure-box, and, when replenished with deodorising ingredients, are ready for conveyance to the chamber on the following morning.

In consequence of the prompt filtration of the sewage, the greater portion of its fertilizing ingredients are retained unaltered in the manure box. The solids are not entirely disintegrated, and the fluid portion is decomposed in passing through the filter, leaving behind it the greater part of its productive components.

The solid sewage being confined in a portable vessel, and surrounded by a deodorising medium, is taken in a few minutes from the drain, and conveyed out of the town without nuisance, no perceptible odour emanating from the filter at any time.

The fluid passing from the filter is completely deodorized; and, being rendered innoxious, may be used for irrigation in the immediate neighbourhood, or allowed to flow into the nearest waterway, thus dispensing with the construction of large and costly conduits for conveying the sewage to distant outlets.

The expense attending the use of these filters, including interest on the cost of constructing the chambers, filters, cart and appurtenances, the rent of scavengers' yard, and the depreciation of plant, but not including the expense of laying the drains, which would vary in every locality, would entail on a population of 12,000 a rate of about 6d. per head per annum.

On the other hand, the minimum value of the sewage produced would be about 10s. the cart-load.

A population of 12,000 would produce about 400 such loads per annum, which would yield a revenue of about 4d. per head, reducing the rate to 2d. per head per annum.

CHARLES E. AUSTEN.

* We were acquainted with this system before the meeting of the Congress, and some time ago alluded to its results.

CHALMERS'S MEMORIAL CHURCH, EDINBURGH.

THE Free Church of Scotland is ever on the watch for an opportunity of founding a new congregation. The rapidly increasing suburb of the Grange had no church within its bounds, and that body fixed upon it as a suitable position for such a purpose. The new church has been erected as a memorial of the late Dr. Chalmers, the leader of the "disruption" from the establishment which resulted in the formation of the "Free Church of Scotland." The site is close to the eastern entrance to the southern cemetery, in which the remains of the learned divine are interred. It is thirteenth century Gothic in style, and is in the form of a cross, the portion usually occupied by a chancel having a vestry in its stead. The nave, which is the longest arm of the cross, faces the south, and is entered by a doorway having red-coloured stone shafts in the ingoings, with carved caps. On each side of this doorway is a single-light cusped window, having shafts similar to those in the doorway. Crocketed gablets are placed over these features, that over the doorway being pierced with a quatrefoil light. The chief feature of this elevation is a three-light window, with bold and effective tracery and coloured shafts, and the raking cornice is carved with foliated ornament, and finished with an elaborate and rather heavy cross, which feature is repeated on the gables of the transepts. The transepts are of equal height with the nave, which they join too abruptly. The lower part of each gable is occupied by a series of single-light cusped windows, with coloured shafts between each; and above these is a large rose-window. In the north gable is a window of equal dimensions to that in the nave, with which it is hardly in unison, being as weak and ineffective as the other is bold and telling. A very common-place chimney is the crowning feature. Although the church stands on an open site, the north elevation appears to have been ignored, and presents a very ugly appearance, whether viewed near or at a distance. At each of the angles are double buttresses finished with gablets, against which the main gables abut awkwardly. The roof is finished with a metal cresting, and a paltry metal ventilator is placed over the nave: a well-designed *flèche* at the junction of the transepts would have produced a much better effect.

Provision is made for a spire at the south-east angle, and for a turret at the receding angle to the west.

The interior is finished in plaster, and has an open-timber hammer-beam roof. The effect, at present, is gaunt and unfinished.

NOTTINGHAM.

THE foundation stone of the new buildings in course of erection in Arboretum-street, for the purposes of the Grammar School, has been laid by Lord Belper, the lord-lieutenant of the county. The new school and play-grounds will occupy a piece of land at the back of the Arboretum, comprising about 3¼ acres, and stretching from Arboretum-street to Forest-road. The design selected was furnished by Mr. T. Simpson, architect. The buildings will be in the Perpendicular style of the Lancastrian period, the present portion taking the form of the letter T. The principal front will extend east and west, facing Arboretum-street, the class-rooms and other offices running north and south. The front section of the block is to contain the classical school to the east, and the English school to the west. Each school will be 60 ft. long by 30 ft. wide, with 20 ft. in height to the eave and 30 ft. to the ridge. They are to have open timbered roofs. The schools will be entered separately, by porches placed right and left of the rear. The rooms will be divided to the south by private apartments for the masters, and beyond, in the centre, by a visitors' room and library, 36 ft. 6 in. long by 16 ft. 2 in. wide, with slide doors at either end, so that the schools may be united with the library at pleasure, forming an unbroken vista of 160 ft. Near the western porch there is to be a porter's lodge, and abutting upon the eastern porch will be the masters' offices. From the entrance-hall, extending northward, there is to be a covered corridor, 93 ft. long by 8 ft. wide, with an open timbered roof, and bounded right and left by a *suite* of nine class-rooms, each 17 ft. long by 15 ft. wide. To the west of the corridor, it is proposed to erect a dining-hall, 44 ft. long by 28 ft. wide, with a covered passage leading to the grounds, which will complete the contents of the ground-floor. The site is to be divided north and south, the southern portion embracing the schools, terraces, and lawn, and the section to the north being set apart for recreative purposes. The latter portion will be lowered to the level of Forest-road, leaving the buildings on a high terrace, sheltered from the north by a belt of shrubbery; and the terrace is to be upheld by a tennis wall running the whole length of the site. An archway under the terrace, in the centre of the tennis-wall, will lead by a passage to a well-lighted play-room, underneath the schools, 160 ft. long by 30 ft. wide. The ashes are to be utilized for dry closets. Passing through an arcade to the right of the entrance-hall, on the ground-floor, a flight of steps will lead to a gallery library, over the visitors' waiting-room, in the centre; and also to a committee-room, over the southern entrance, having a terrace in front, and overlooking the lawn. The gallery library is to be divided from the schools by traceried windows, from which the operations in the rooms below may be seen. A geometrical staircase to the left of the gallery library will lead to a museum and observatory, on the third story, lighted on all sides, and surmounted by an octagonal flag-tower. The head master's house, though detached, will be in the same style as the principal block; and the whole pile is to be built of Bulwell stone, with white Hollington dressings. The estimated cost is about 6,000*l.*, and Mr. George Johnson has contracted for the work.

SKETCHES AT INSTITUTE OF PAINTERS IN WATER COLOURS.

THE Institute has subscribed to the rule of the Society of Painters in Water-colours, that gives to those who love to look upon the practice of their art a winter of content. With some half-dozen exceptions the members are all severally represented, under the condition which obtains that a special class of performances should distinguish these exhibitions from the occasions when carefully pruned, grafted, and more highly cultivated productions mark the more genial season.

However, snowdrops, daffodils, and primroses, are as welcome in their turn as their more conspicuous successors; and sketches and studies have a charm of their own that even the most successful adaptation and dressing of them fail to improve. Though the instances are rare that show no signs of peculiar methods in expressing it, there is generally a degree of freshness and vigour that truth to nature always lends, throughout the innumerable landscape-drawings contributed to these collections; and in this respect they are often more valuable than the elaborately-completed works; for painters, like preachers, are sometimes apt to overwhelm their text by excessive ornate dissertation. Of the subject and figure drawings, with enough to represent the department numerically, there is little to be said that would not involve repetition of what has already and frequently been written before. There are very interesting studies by Mr. Henry Warren for some of his best-known works, with bold, clever, but slight sketches from Mr. E. H. Corbould; and Mr. J. Absalon exhibits a rough but masterly first edition of his well-to-be-remembered drawing of "Prince Charles Edward in the Island of Skye:" Mr. E. H. Wehnert, Mr. H. G. Hine, Mr. C. Green, Mr. Lucas, and Mr. Kilburne, send carefully executed imitations of such materials as sea-coast and rural resorts will furnish the figure draughtsman bent on study: and Mr. W. L. Thomas some very agreeable groups of children, enlivened by well-selected incident, and a pretty reflexion of a busy young lady preparing for Christmas gaiety. Mr. C. Cattermole revives recollection of his illustrious namesake in some spirited compositions; and Mr. Guido Bach's "Italian Peasants" and "Sclavonians" with his less complete and more classic il-

lustrations, betoken power as well as ambition. Mr. L. Haghe signalizes his sketches by the same superior brilliancy and force,—considering the two "studio" interiors are but sketches,—that in a higher comparative degree identify him in more matured performances. Mr. Carl Werner's Eastern architectural subjects, Mr. D'Egville's and Mr. W. W. Deane's Continental ditto, are among those that are most remarkable of the many noteworthy things to be seen here. Indeed, to give an impartial notice of what there is to admire, would be occupation for a longer day than November could provide, since one is scarcely long enough to show even the many choice examples of talent and skill contributed by Messrs. Bennett & Whymper, who rival each the other in crispness of touch, and the facility with which they indicate foliage, tree-trunk, and herbage; of Messrs. Edmund Warren, Leitch, Fahey, Hine, Maplestone, McKewan, Philp, Penley, Reed, Rowbotham, Sutcliffe, Vacher, and the rest, who all have special views with regard to nature, that are well worth discussion.

Miss S. Setchel, Miss Farmer, Mrs. Clarendon Smith, Mrs. Duffield, and Mrs. Oliver, are not the only lady members who are represented, though they are of the foremost by the qualities that distinguish their drawings.

Mr. Shalders adds a capital though small composition of sheep, and Mr. Harrison Weir, a study of pigeons, that assist in giving pleasant variety to the whole.

DECORATION OF ST. PANCRAS CHURCH, LONDON.

St. Pancras Church, well known as furnishing us a modern adaptation of Greek architecture, has recently been reopened, after having been closed for about two months for the purpose of decorating its interior.

The ceiling — a flat one — is divided into compartments by a series of girders running transversely, and by narrow enriched bands longitudinally; these are painted light stone colour. The compartments are arranged in square coffers, the ground painted blue, except at the intersections, where the panel is red. The margins round the coffers are painted citron colour, framed by morone red lines. The enriched flowers are painted soft white, with parts gilt, and in the plain coffers are radiating gilt stars.

The main walls above the galleries are painted sage green; and the enriched members of the cornices are harmoniously coloured to form relief between ceiling and walls.

The galleries rest on a series of columns painted stone colour, the caps and bases being slightly bronzed; and the fronts of the galleries are painted Etruscan brown, with bronze ornaments: over each column is a grey panel, with vellum and gold ornament. The walls under the galleries are painted morone colour.

The upper walls of the circular apse are painted rich red, as a background to six large verd-antique columns; the podium on which these stand is painted to imitate grey porphyry. The ceiling of the apse is coloured blue. The scroll ornaments and cup and wheat-ears are richly gilt.

The work has been carried out by Mr. Crace, under a committee of trustees appointed by a special Act of Parliament, of which the Vicar of St. Pancras, Canon Champneys, and Mr. Henry Ghinn were joint treasurers.

The system of colour adopted may be termed safe rather than brave; and the general effect is in consequence quiet and elegant, rather than striking.

ITALY'S PICTURES IN FRANCE.

A story, truth-like, if not true, is told by the *Times* correspondent from Venice, much too good to be allowed to pass unnoticed. Our readers know that the question of the return of certain objects removed to Vienna by the Austrians has been agitated in Venice, and the story runs that, General Lebœuf having pressed General Möring to state what had really been taken away by the Austrians, the latter referred him to the commandant of the garrison, and an appointment was made for Lebœuf and Alemann to go over the Imperial Palace together. On passing through one of the rooms the Frenchman was struck by the conspicuous absence of a picture, determined by a vacancy in one of the large frames. "There must have been a picture here?" "Yes, general, a very fine one." "Then I must really insist on its immediate restoration in the name of my master, the Emperor Napoleon." "Nay, then," replied Alemann, with a slight smile, "your Excellency must use your own influence, for it happens to be at Paris." So if the Signori Barozzi, Berchet, and Sagredo are really about to examine into the loss of documents and objects of art which ought to be in the libraries and museums of Venice, it may be worth their while to begin a little further back in her history than A.D. 1866. Verily Time brings his revenges. It would not surprise us, and it would certainly much delight us, to find the Emperor of the French looking through the Paris collections, and sending back any Italian property that had been retained in mistake.

THE RELATION BETWEEN ARCHITECTURE AND THE INDUSTRIAL ARTS.

THE ARCHITECTURAL ASSOCIATION.

At the ordinary meeting, held on the 9th instant,*

Mr. M. Digby Wyatt proceeded to make some observations as to the relations which should exist between architecture and the industrial arts. Architecture was, he remarked, to a great extent dependent on the industrial arts, and the industrial arts were so on architecture. If they were to look at the Pantheon, the Parthenon, and other similar buildings, they would be found to be denuded of all that made them perfect. In order to make a structure really perfect it was necessary to have the co-operation of various tradesmen and the various processes carried out were dictated by the materials used. The work of the painter, the carpenter, and the metal-worker, were all subsidiary to the covering. It was by the introduction of new materials that the best forms of novelty could be obtained and the greatest advance made in the industrial arts. He believed that more novelty would be secured by endeavouring to impart other adjuncts to architecture than by twisting up old materials into new forms. As an illustration of what might be effected with new materials, he referred to mosaic tiles, which were introduced not more than twenty-five years since, but which in the short time that had since elapsed, had revolutionised the whole character of interior architecture. So, too, with stained glass, the liberal introduction of which into ecclesiastical structures especially, had led to an alteration, not only in the style of windows, but, as a necessary consequence, in the whole shape of buildings. It was by the judicious use of the industrial arts in combination with architecture, that we would be able to make our new buildings harmonize in form and colour with the skeleton fabrics of the past which still remained to us. Of late years, the mason's art had been considerably modified by the use of coloured bricks, and greater scope had thus been given to the architect's knowledge of design. Through the energy of Pugin and the wisdom of Barry, new arts had been utilised in the building of the new Palace of Westminster. Pugin thoroughly understood the use of carved wood, stained glass, hangings, and mural decorations. Before the new Houses of Parliament were built, the art of setting out complicated stonework was almost unknown, or, at least, was not brought into practical operation. The careful setting out and carving of stone had a tendency to make the workman proud of his work; and this pride was not lost upon the architect, who laboured to make his design worthy of good work. It was impossible to make any monument perfect without consulting technical excellence, for it was only by careful attention to those matters that architecture could be made good and true. Regard to those considerations made the buildings of ancient Greece and Rome so admirable, for there the architect and the workmen laboured, as it were, with one mind, to make every detail, no matter how insignificant it might appear, mathematically and artistically correct. The fine arts also ministered to the industrial arts. The architect who knew the laws of colour could choose a paper or a curtain, and the architect who was acquainted with the laws of sculpture could tell how and where sculpture could aid in the embellishment and effect of his general design. So, too, with metal work. With regard to the latter, he was glad to say that an extraordinary advance had been made of late years as compared with the state of things which existed thirty or forty years ago. To the indomitable energy and perseverance of Pugin we were mainly indebted for that advance. He would recommend that the student of architecture should aim at making his architecture as expressive as possible, not only as regarded the covering, but the most minute details of furniture. If a box were to be made for papers or vestments, or anything else, it ought to show the object for which it was intended, and it should be the very best of its kind. As with a box so with a cathedral, a barrack, or a warehouse. Each should proclaim on the face of it what it was. He thought we were much indebted to the care and diligence of archæologists for collecting and conserving ancient monuments, for without their vigilance much that we now desired to reproduce would have perished in ages of ignorance and indifference. In olden times the carver, the stainer of glass, the worker in metal were all artists, and they made the very best thing of its kind that could be produced. Look, for instance, at an ancient Greek bronze or ceramic urn: each would be found to be absolutely perfect. Later, too, in Christian times, when the grave of a bishop or an abbot was opened, whatever was found, whether the episcopal ring, the crucifix, or the pastoral staff, all were found to be of the very best description. We of the present day owed, he thought, much gratitude to the directors of the South Kensington Museum, who had done so much to improve the public taste and quicken the perception of the beautiful in art. Referring next to the relations between architects and those employed in the industrial arts, he observed that no class of study could be more useful to the youthful architect than that by which he was enabled to see his designs carried into practical effect. This was the crucial test; and if the student of architecture could see his designs carried out by the agency of economical processes, he could not fail to acquire solid information of the most valuable character. Then, again, manufacturers were calling out for persons who could make them draw right and model right. Architecture could not be sensibly improved without a corresponding improvement in the industrial arts, and the industrial arts could not progress without improved architecture. Thus, the relations between architecture and the industrial arts were closely bound up and clearly defined. Mr. Wyatt concluded by calling attention to some photographs of objects (chiefly in metal work) exhibited lately at Malines, and to some beautiful Italian drawings of the seventeenth century, in order to show the relations which then existed in that part of the world between architecture and the industrial arts.

Mr. R. Phené Spiers having enlarged upon the importance of the subject referred to by Mr. Wyatt, expressed his regret that, as a rule, the architects of the present day were unable to make furniture harmonize with architectural design. In no country except England was so little attention paid to this subject, and hence the incongruities which constantly met and offended the educated eye. The International Exhibitions of 1851 and 1862 had, however, done much to improve the public taste. That of 1862 was greatly superior to that of 1851, and it was to be hoped that the approaching Exhibition at Paris next year would indicate still further progress. The architect might not be able to give up sufficient time to the study of the industrial arts to become perfect in them, but he could always acquire sufficient knowledge of the subject to be useful to him whenever he might be entrusted with works to carry out. He moved a cordial vote of thanks to Mr. Wyatt.

The President, in putting the vote, remarked that nothing could be more disagreeable to a young architect, who naturally felt proud of his design, than to see its effect marred by the introduction of vulgar upholstery. Architecture ought, he thought, to be viewed not only as an art, but also as a science; because, if viewed merely in

* Mr. L. C. Riddett called attention to some additions made to the library since the last session, and expressed a hope that the members generally would assist towards increasing the number of books, for which there was an increasing demand.

Mr. R. Plumbe intimated that the committee would be glad to receive the names of gentlemen willing to join the Voluntary Examination Class, which it was proposed to revive as soon as a sufficient number of names had been obtained.

Mr. C. H. F. Lewes announced that the class for the study of figure-drawing had been commenced for the session, under a very efficient teacher, and that some excellent models had been retained. The class now consisted of twenty members, but a few more could be received.

its artistic aspect, it might become a mere theory, and architects mere theorists. The question of expense was the great obstacle to the introduction of the industrial arts in combination with architecture; for so long as John Bull consulted his pocket merely, it was useless to expect any thing but ugly accessories to architecture. But John Bull was not responsible for the whole of the blame, because if manufacturers and tradesmen would carry out architects' designs at reasonable charges, good and tasteful work might soon be obtained in ordinary things. If, however, manufacturers threw obstacles in the way, it would be difficult to get art-work in our homes. Why cheap things should be necessarily ugly things he could not understand. The antiquary and the archæologist were constantly turning up objects of beauty and graceful forms connected with the every-day life and the common uses of ages long past away. These we naturally prized and placed in museums; but who, he asked, in ages yet to come, would think of preserving a ginger-beer bottle of nineteenth-century art! He confessed he was at a loss to understand why our metal manufacturers in particular still clung to the most hideous designs, while really cheap and graceful objects might be substituted in abundance.

Mr. Wyatt said that the very difficulty and disability which the chairman had pointed out had induced him to recommend the student of architecture to make himself better acquainted with the various processes of the industrial arts. Architects were no doubt solicitous that manufacturers should be helped; but if the former would show that they were able to design, the manufacturers would soon come to them. If the architects would by that means bring pressure on the manufacturers, as Pugin had done, they would soon wake them up. He could not say that manufacturers were indifferent on the subject of improved designs; and, so far as his own experience was concerned, he knew that the year before the last Great Exhibition, he made between 700*l.* and 800*l.* by designing for manufacturers. Thus it had its golden as well as its pewter side.

INAUGURATION OF THE TYNDAL MEMORIAL.

The Nibley Knoll Memorial of William Tyndal, the translator of the Bible, has been completed and inaugurated. The memorial consists of a square tower, 26 ft. 6 in. square at the base, rising to 22 ft., and by gradations to 16 ft. 6 in., and diminishing 2 ft. above that. Its entire height is 111 ft. exclusive of the terminal, which consists of a gilded cross. The entrance to the cenotaph is on the east side, and within is a staircase ascending to a gallery. About 20 ft. above the base there are niches or tabernacles, which it has been suggested should be adorned with sculptures, representing Tyndal leaving Little Sodbury; his conference with John Frith, a translator of the Bible into English, and the first of the victims put to death for translating it; Tyndal's betrayal at Antwerp by Philips; and his martyrdom. The tower is terminated with a machicolated cornice, sustaining a pyramidal roof, vaulted within. The cenotaph is constructed of stone taken from the Hampton quarries, near Stroud. Mr. S. S. Teulon was the architect, and Mr. Whitfield the builder.

MANCHESTER ARCHITECTURAL ASSOCIATION.

The opening meeting of the seventh session was held on Tuesday, 6th, at Batty's Cathedral Hotel, under the presidency of Mr. L. Booth. Among the drawings exhibited were those prepared for the new building designed for the Bury Banking Company, by Messrs. Blackwell, Son, & Booth, of this city. The same gentlemen also contributed designs for the new cemetery building at Southport, the new church at Bury, and the proposed restoration of the parish church at the same place. Mr. John Lowe (Manchester), who obtained the third prize for the New Exchange plans, showed his designs for St. Jude's Church, Ancoats, and Staveley Church, Yorkshire. Other designs were exhibited by Mr. P. B. Alley, Manchester, for a large cotton-mill at Narwa, St. Petersburg; a new warehouse for Messrs. Bradshaw & Blacklock, Albert-square; a residence for Mr. John Platt, M.P. for Oldham; by Mr. W. J. Maxwell, Bury, of Stubbins's Congregational Church, Bury, and also the third prize for the Rochdale Exchange. A series of architectural sketches taken during a tour in Germany, Belgium, and Holland were also exhibited by the secretary, Mr. A. Darbyshire. The chairman delivered an address. As illustrating the necessity for improvement in architectural practice he referred to the late competition for the Manchester Exchange, which he said had had no satisfactory feature in it, and had done no good to any one. The committee had derived no absolute benefit from it. The successful competitors for the first two prizes had got nothing which would not have been theirs without a competition, except abuse and odium; the third-prize man was a loser by his success; and as to the other victims of the huge bubble, they felt themselves hurt, not only in a pecuniary sense, but in their self-respect and faith in honourable intentions.

THE STAGE.

Princess's Theatre.—Mr. Vining loses no time: costly pieces of large proportions succeed each other and command attention, each for its hundred or two nights. "Arrah Na Pogue," (to go no farther back), "The Streets of London," "Never too late to Mend," and "The Huguenot Captain," constitute a series of successes, which, while they delighted the town, and the country too, thanks to railroads, must have put thousands of pounds into the pocket of the manager; and, under the new system initiated by Mr. Boucicault, into that of the author also. Pay dramatic authors properly, we have often said, and there will be no occasion to go abroad for plays. The expected result is already following the change in the system. "The Long Strike," at the Lyceum; Mr. Angiolo Slous's capital "True to the Core," at the Surrey; "The Flying Scud," at the Holborn; Mr. Robertson's admirable "Ours," at the Prince of Wales's; "Hunted Down," at the St. James's (acted in excellent style); "Meg's Diversion," at the Royalty; "The Golden Dustman," at Astley's; "The Frozen Deep," at the Olympic; and now "Barnaby Rudge," at the Princess's, are all English works, and are all successful. Returning to "Barnaby Rudge," the old playgoer who remembers the Adelphi version of this remarkable book,—one of Mr. Dickens's best creations,—when Yates doubled the parts of *Sir John Chester* and *Miss Miggs*, Wilkinson playing *Old Willett*, Lyon *Rudge*, and Wright *Simm Tappertit*, will probably give that the preference as an acting and acted drama; but then, on the other hand, Mr. Vining has bestowed on his adaptation an amount of care in the getting up, elaborate scenery, bustle in the groups, and realistic accessories, according to the fashion of the day, that give it a life and reality before wanting. Mr. F. Lloyd has produced a singularly effective sunset, an alarming fire, and a charming moonlight view of the Warren in ruins; and we must also give praise to Mr. Hann for a capitally built-up view of the Warren (an Elizabethan house) before the fire. Miss Katherine Rodgers, Miss Augusta Thomson, Mrs. H. Vining, Mr. C. Horsman, and Mr. Shore, fill their parts carefully; and Mrs. John Wood, the American comic actress, produces plenty of laughter, albeit she is not exactly our *Miss Miggs*.

FIRES AT LONDON THEATRES.

The returns of the Fire Brigade show that during the last twenty-eight years there have been eight of the metropolitan theatres burned down, viz.:—June 8, 1841, Astley's, belonging to Messrs. Ducrow and West; November 4, 1846, Garrick Theatre, belonging to Messrs. Conquest and Gommersall, in Leman-street; March 29, 1849, Olympic Theatre, belonging to Mr. Davidson and Captain Spicer; July 27, 1853, the Islington Circus, when seven horses and eleven dogs were burnt to death; Feb. 13, 1856, the Pavilion Theatre, Whitechapel; March 5, same year, Covent-garden Theatre; Jan. 30, 1865, Surrey Theatre; and Oct. 21, 1866, the Standard Theatre. The causes of each fire to this day remain unknown. Captain Shaw, in his report of fires at theatres, makes the following comment upon the prevention of fire extending throughout the building:—"In theatres and other places of public amusement there appears to be much room for improvement. A simple arrangement might be made to divide such places into at least two distinct risks, the stage being in one and the audience in the other. This could be accomplished by building a complete party or fire wall across the whole building, except where the curtain hangs; and close by the curtain might be suspended a revolving iron shutter, with a considerable overlap, which could be lowered at a moment's notice to cut off the risk from one portion of the building;—thus insuring to the firemen and others an immediate entry to at least a portion of the premises, and so enabling them to give early and effective aid. The roofs, which are now the most dangerous parts of such places, might with advantage be constructed of iron or other light metal, and divided as before mentioned; and it should be absolutely prohibited to use any portion of the roof as at present for either workshops or store-rooms. The curtain, wings, flys, slides, the whole of the stage, and many other parts, might be occasionally washed or soaked in a mixture of alum and water, or some similar substance, which would have the effect of rendering them less inflammable; and even in the event of their catching fire would entirely prevent the sudden blazing up which at present constitutes the great risk in all such places. The transverse fire-wall should be perforated at every floor, even to the basement under the stage, and the openings fitted with double wrought-iron doors. Every door for exit should be made to open outwards, and such a space allowed for this purpose that the building could be cleared of the whole audience within five minutes of the time of giving the alarm. If in addition to this a separate place of exit were provided for each floor or landing the probability of a serious panic, with the delay consequent thereon, would be much reduced; the firemen would be enabled to get at their work sooner; and would, I have no doubt, be more successful in stopping a serious fire than they can hope to be under existing arrangements."

THE TRADES MOVEMENT.

Sunderland.—A numerous meeting of house joiners was recently held in the Co-operative Store, Bishopwearmouth, to consider two propositions of the masters, to the effect that the time for hours of working in inclosed buildings be the same as in shops during the winter months, and that, as soon as the workmen are not able to see their hours in shops, they shall light up; these being the rules, as the masters state, which are followed in Newcastle, Manchester, &c. After some discussion a resolution was passed unanimously, to the effect that they accept the second portion of the notice of the masters with regard to buildings; that they work from seven to five o'clock six weeks before and six weeks after Christmas, excepting in buildings used as shops, the employers not having any shops; that half an hour be allowed for breakfast, and an hour for dinner, and that they leave off on Saturdays at one o'clock. It was also agreed that notice be given to the masters that, after the 1st of March next, the hours of work be from seven to five o'clock throughout the year.

Burton-upon-Trent. — The carpenters and joiners connected with the Operatives' Society are still out on strike. Without communicating with the secretary of the Master Builders' Association, or any of the members, Messrs. Wileman & Wigley, of Derby-street, have allowed their men to resume work on their own terms, although they had previously pledged themselves to abide the decision of a majority of the masters. The other employers, however, are still determined to hold out against the men. Some of the society men have resumed work upon the masters' terms; but there are altogether about seventy carpenters now on strike. About thirty carpenters have received notice of dismissal from the employ of Messrs. Bass & Co. The Masters' Association have unanimously resolved,—"That Messrs. Wileman & Wigley, of Derby-street, be expelled the association for their recent breach of faith in connexion with the strike amongst the joiners."

Birmingham.—At the annual meeting of the Birmingham Branch Association of General Builders, at which a large number of builders were present, the chairman said they had so often had cause to complain of the quantities which were thrust upon them in large con-

tracts, that he should propose that in future the builders appoint one surveyor and the architects another to take out the quantities, so that they might have some uniformity in taking them out. A requisition to that effect would be drawn up by the secretary, and signed by the gentlemen present for presentation to the architects. The form of requisition was drawn up, and those present gave the secretary authority to attach their names to it.

Newcastle-upon-Tyne.—At the annual meeting of the Newcastle-upon-Tyne and Gateshead branch of the Master Builders' Association, the report of the committee, while congratulating the members on the success which had attended the efforts of the society in improving the general condition of the trade, stated that the most prominent facts were the adoption of payment by the hour, of a system of arbitration for the settlement of all trade disputes with the operatives, and a code of working rules for the government of the trade. The unsatisfactory nature of the present system of building-contracts was also commented on, as was the action about to be taken by the Association to remedy it, by placing contracts on a basis of mutuality instead of the present one-sided stipulations so commonly adopted.

Liverpool.—A general meeting of the working masons of Liverpool and its vicinity has been held at the Co-operative Hall, Camden-street, for the purpose of presenting to a member the compensation of 100*l.* provided by the Association in cases of accident. "Brother Boa" delivered an address, in the course of which he remarked that the operative stonemasons of England and Wales who had that evening given a disabled brother 100*l.*, had in the course of twenty-six years given to disabled brothers 33,000*l.*, to the relatives of deceased members 14,900*l.*, and to the friends of aged members 2,500*l.*, making a total given for philanthropic purposes of over 50,000*l.* He did not attempt, he said, to justify the arbitrary acts which had been done in trade unions; they were open to reform, but they were not formed solely for purposes of aggression against capitalists. Their main object was the welfare and interest of their own members. From the date of the inauguration of the society, the 6th November, 1840, to 30th November, 1865, when the last annual report was issued, the society had expended on sick brethren, 33,000*l.* 18s. 9d.; on funeral payments, 14,988*l.* 12s. 3½d.; on travellers, or brothers in search of employment, 31,988*l.* 2s. 2½d.; surgeons' fees, 2,514*l.* 7s. 8d.; gifts for charitable purposes, 515*l.* 14s. 3d.; given to hospitals through England and Wales, 1,066*l.* 16s.; paid to 90 disabled members, such as they were that night about to present a sum of money to, 8,465*l.* 17s.; paid to the friends of 53 brothers killed by accidents, 2,525*l.* 6s. 5d.; paid to orphans, 292*l.*; lawyers' fees for supporting the rights of labour, 1,030*l.* 17s. 8d.; making a total of 90,190*l.* 8s. 2½d. They had also paid during the same period, in defence of labour and its rights, under the heading of "strike pay," a sum of 34,572*l.* 5s. 8½d.

Manchester.—The stokers and labourers in the service of the Gas Committee of the Manchester Corporation, at the works in Gaythorn and Rochdale-road, have turned out on strike, and refused to "put in their charges" for the continuation of the manufacture of the gas. The cause of grievance on the part of the men arises out of a question of wages. The men are at present paid 4s. 6d. per day for seven days in the week. They demand an increase to 5s. per day, and sent in an application to that effect a short time since.

ACCIDENTS.

Two men were engaged in painting the machinery of Messrs. Cubitt, the builders, of Gray's-inn-road. One of them, who had been employed for twenty-eight years, was painting the machinery not in motion, and during the general dinner-hour he went and painted a part which only stood still while the workmen were off the premises; but he had not finished that part of his job when the men came back. Having got his own dinner, he took up the painting of the machinery not in motion, and was told not to touch any of the moving wheels, when he replied, "I am not such a fool," but afterwards he crept under a moving wheel to get at the moving machinery he had not finished painting, and was carried round the machine "like a sack of shavings." The machinery was at once stopped, and he was taken out. A coarse apron he wore must have caused the disaster, by catching in the moving wheels. At the inquest, Mr. James Keane, the engineer of Messrs. Cubitt, stated that deceased lost his life in this shocking manner through disregarding the rules of the house, that no one was to go into the tunnel where the machinery was when the engines were at work, and that the wheels were not to be touched when they were moving. Witness produced a plan of the premises, and showed that the deceased, in his zeal for his work, had crept under a wheel in motion to get at the work he had left unfinished at dinner time. Evidence was also given that all the machinery of the firm was securely fenced in, even to the smallest cogs, and that the firm took every precaution to guard against accidents. A verdict of "Accidental death" was then returned, with an expression of opinion by the coroner and jury that there was not the slightest imputation upon the firm.

At Gateshead, while a man was passing along the turnpike road, in front of Messrs. Pow & Fawcus's works, the boundary wall, which is close by the side of the footpath, was blown over on the top of him by the wind, and he was buried among the *débris*. He was speedily extricated, but shortly afterwards died from severe injuries.

FROM SCOTLAND.

Edinburgh.—The foundation-stone of a new church, in course of erection, in Hope Park Terrace, for the United Presbyterian congregation which formerly met in Potterrow Church, has been laid. The church, according to the *Scotsman*, is being erected according to plans furnished by Messrs. Peddie & Kinnear, and is in the Lombardo-Venetian style. The general plan is cruciform, and the front will face the Meadows. The principal features of the building to the front will be a lofty gable, terminating in an octagonal belfry, having on one side an octagonal tower, containing a staircase leading to the gallery, and on the other side a square tower rising to a height of 80 feet, with an arcaded belfry in its upper part. The roof of the latter tower will be spire-shaped, and covered with lead,—the total height from the ground to the finial being 130 ft. The north side of the church, facing Hope Park Terrace, will present a range of three ornamented gables, in each of which will be a rose window. The exterior of the building will be otherwise relieved by buttresses, string-courses, &c. Internally, the church will consist of a nave, 73 ft. in length and 36 ft. wide, with a transept, 52 ft. in width. The pulpit will be in the east end, and round the sides and west end there will be a gallery. Accommodation will be provided for 1,000 sitters, and the cost of the building is estimated at 5,000*l.*

Falkirk.—The new court-houses and prison, which have been in course of erection since the spring, are now assuming some appearance. The work has been carried on under Mr. Ford's superintendence. The edifice will cost fully 7,000*l.*, and is expected to be completed about the middle of next year.

Dundee.—When the ratepayers of Dundee adopted the Public Libraries Act, they had two especial motives to influence them in their decision. The first was to secure the gift of a suite of apartments, valued at 4,000*l.*, and offered by the shareholders of the Albert Institute, provided the Act was adopted within a given time. The second was to form the nucleus of a collection of books, and provide a place of intellectual resort for every class of the community. The first has just been satisfied by the adoption of the Public Libraries Act. The property destined for the use of the Free Library thus virtually passed from the shareholders of the Albert Institute to the Corporation of Dundee. The ground-floor of that portion of the building fronting the Post Office, and now approaching furthest towards completion, will be devoted to the purposes of the library. It will be divided into two large apartments, differing somewhat in size. The largest is intended for the lending department and reading-room, and is 48 ft. 8 in. by 40 ft. The other is intended for the reference department, and is 40 ft. 2 in. square. Off these, and immediately beneath the great staircase, is a fireproof room, 20 ft. by 13 ft. From floor to ceiling the height is 15 ft. 9 in.; and the entrance is by a porch 12 ft. square, which is approached from Meadowside.

Dunkeld.—A memorial fountain in honour of the late Duke of Athole has been inaugurated by the Duchess Dowager of Athole, who on the occasion briefly addressed those present at the ceremonial. The fountain stands in the centre of the market-place. The day of the opening was observed as a holiday, and there was a Masonic procession.

RAILWAY MATTERS.

The Madras Railway report for the last half-year states that the result of the half-year's working has been satisfactory. The net receipts had risen from 87,953*l.* in the corresponding period last year to 117,873*l.* in the last half-year, being an increase of 34 per cent. The working expenses were 46 6-10ths per cent., against 51 7-10ths per cent. in the preceding half-year: they were dependent on England for coal and coke. It is hoped that the whole line will be completed within the next two years, and there will then be 860 miles of railway.

India-rubber as a material for the buffers of railway carriages failed to realise the anticipations that were formed of it, and it has since been found that cork, subjected to a slight preparatory process, proves far superior. It is soaked in a mixture of molasses and water, cut into discs, and subjected to hydraulic pressure. Cork discs about 8 in. in diameter are found to exhibit extraordinary elasticity under a pressure of 20,000 lb.

A floating railway, the invention of M. Freland, of Bordeaux, has just been patented. It is likely to be of considerable service in loading and unloading vessels in ports having insufficient quayage accommodation.

In the American "silver palace cars" nothing in the way of lavish outlay of money and invention has been spared. They combine the sleeping car and the day. Unlike any other sleeping car, they are convenient and roomy, as if exclusively for daytime use; and not lumbered up by high partitions between the seats, but instead, have small round pillars, or stanchions, of German silver, to which by ingenious contrivance the berths are slung at night, leaving the car from end to end open and free. The sections are arranged for two berths, or can be used with one bed. The woodwork of these cars is black walnut highly finished by elaborate carving, the ceiling and sides richly painted in fresco, the doors at either end having plate-glass, and with mirrors at either end so arranged as to reflect the car into a saloon of double its real length. The hangings are of rich brocatelle, and all the mountings are of solid German silver, bright and clean, while at either end is a state-room with all the appliances for luxury and comfort that appertain to a complete sleeping apartment. These silver palace cars have been adopted by the Chicago and New York line of railway.

PROVINCIAL NEWS.

Derby.—At a meeting of the governors of the Derbyshire General Infirmary, it has been resolved to spend 15,000*l.* in erecting a new wing, to contain sixty-four beds, the whole to be constructed according to the most approved modern principles of hospital construction, to be followed by the entire remodelling of the present building. It is proposed that the new building shall bear the title of the "Nightingale Wing," in honour of Florence Nightingale. Mr. William Edward Nightingale, her father, has been invited to become president of the institution. More than 7,000*l.* have already been promised.

Petersfield.—Some months back a corn exchange company was formed; an architect, Mr. Chancellor, of London and Chelmsford, was instructed to prepare plans; and the work of erecting a suitable building was given to Mr. Dallimore, of Fareham. The building has now been completed and opened. It is 90 ft. long, 33 ft. wide, and about 35 ft. high, and is constructed of white and yellow bricks, with stone facings, carved. It has six windows and two doors to the High-street, and two windows and a principal entrance in the side, facing the market-place. Along the centre of the roof, extending its whole length, are glass louvres, as well for ventilation as for light; and at the west end is placed a dwarf dome, surmounted by a weathercock.

Headcorn.—A new public hall has been opened here. The building has been erected by a Joint



THE "KLEINSEITE" BRIDGE GATE.

Stock Company. It stands nearly in the centre of the town, and is 58 ft. 6 in. long, and 22 ft. wide. On the ground floor is a dwelling. The hall itself is on the first floor, and is 46 ft. 6 in. by 20 ft. in the clear. Across the hall are two moveable partitions, which form reading and ante rooms, and which on occasions are taken down, and form tables. The only portion of the building visible from the street is the front end, which is carried up with brickwork, slightly ornamented, and an ornamental façade, composed entirely of brickwork. There are three windows on the hall-floor in front. The architect was Mr. Arthur Chambers, jun., and the builders were Messrs. Chambers & Mr. Shills. The clerk of the works, Mr. Taylor, acted gratuitously.

PRAGUE.

In a recent notice of Prague,* we mentioned the fine gateway on the bridge that defends the entrance to the district known as the Kleinseite. Of this we now give a view.

The Judenstadt, in Prague, which, as its name signifies, is the part of the town where the Jews reside, contains a very remarkable thirteenth-century synagogue. It is a small building about 40 ft. by 30 ft., divided into two naves by columns, and simply vaulted. The detail is very pure. On the north side is the gallery for the women, looking into the main building through small round-headed windows. The tabernacle for the sacred books looks like Italian Gothic; it has twisted columns supporting a triangular pediment. We give a plan of this singular building (fig. 1). There is another synagogue, of Late Pointed work, but very much modernized. The walls of the Judenstadt have entirely disappeared.

The "New Stadt" surrounds the "Alt Stadt" on its south and east sides; it is less interesting than the "Alt Stadt;" it contains about twenty churches, most of which have been modernized. Two or three of the older ones are curious, particularly the "Carlshofer" Church, which is in plan a large octagon, nearly 60 ft. in diameter, and unsupported by pillars (fig. 2). The exterior has been modernized, but the interior is very striking; the date of the building is 1351. St. Stephen's has a pretty spire,* a fine bronze font, and some curious old pictures; in the churchyard is a small round Romanesque chapel, perfectly plain, and said to be of great antiquity. There are several other old churches in the "New Stadt," but they are in no way remarkable.

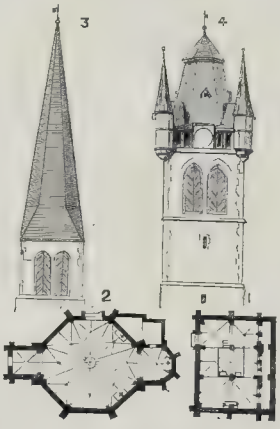


Fig. 1. *Plan of Ancient Synagogue.*
Fig. 2. *Plan of Carlshofer Church.*
Figs. 3 & 4. *Old Towers at Prague.*

The tower of the "Rathhaus" is very well proportioned, and has the high roof and overhanging turrets so peculiar to Prague. Many of the towers which formed parts of the old fortifications still exist; they are square, and have two large Pointed windows on each face of the upper story; they are all capped differently; one near St. Stephen's Church has a tall spire of singularly ecclesiastical appearance (fig. 3); another, near St. Henry's Church, has a truncated spire (fig. 4), and is one of the very few examples we have ever seen of a truncated spire that is not objectionable. Most of the other towers have bulbous roofs, or have been otherwise mutilated.

Prague is a most delightful place of residence, and is well supplied with gardens and places of amusement. The distant views of the town cannot be surpassed for picturesqueness.

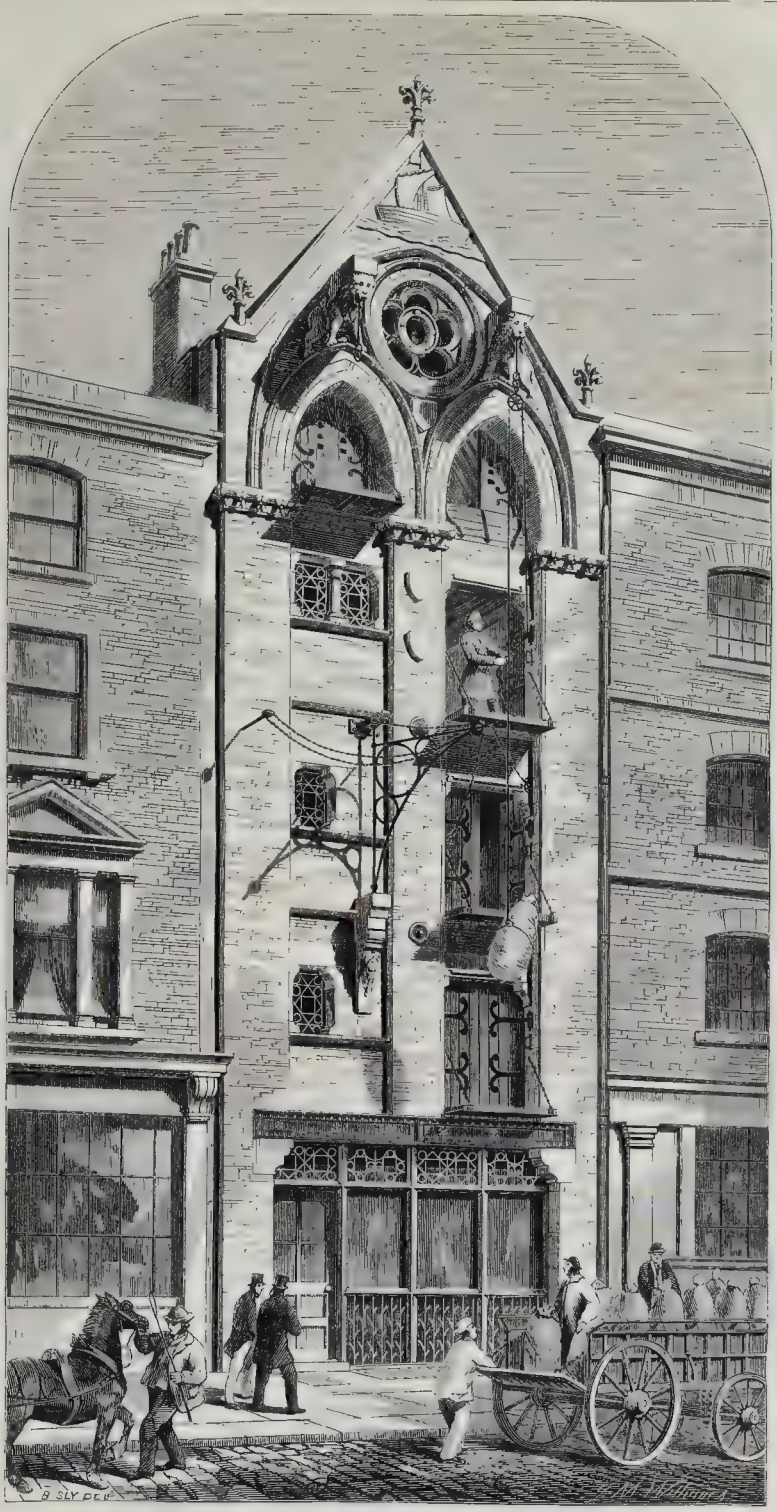
A WAREHOUSE IN UPPER THAMES STREET.

Under the direction of Mr. W. Burges, architect, various alterations have been lately made at a warehouse in Upper Thames-street, for Mr. John Skilbeck, by Messrs. J. & C. I'Anson, builders. These alterations, executed at a total cost of 1,413*l.* 11s., included changes inside, a new top story, and a new front; and of this front we now give a view. The style is Mediæval, and character is added to the elevation by some boldly-sculptured lions to carry pulleys, by which goods are raised, and by a ship in the apex of the gable.

The materials used are brick and Portland stone. The frontage is 19 ft. 3 in., and the total height 120 ft. The carving was executed by Mr. Nicholls, of Hercules-buildings. The shields on the front bear monograms. The iron girder that carries the front is left exposed and painted.

* See pp. 541 to 543.

* This spire was published in the *Builder*, vol. xxiii., p. 693.



A WAREHOUSE IN UPPER THAMES STREET, LONDON.—Mr. W. Burges, Architect.

SANITARY MATTERS.

The Water Supply of London.—At a recent meeting of the St. James's vestry, a letter was read from the Metropolitan Board, requesting information and suggestions on the subject of the present water supply to the metropolis. A reply was agreed to in which it was stated that the vestry are of opinion that the cost of construction and repair of cisterns and water apparatus in houses may be most considerably reduced by the adoption of the high-pressure continuous service; that the waste of water is far less under the system of constant supply; that the constant supply of water is delivered purer and fresher, of a lower temperature in summer, and less subject to frosts in winter; that schemes proposing supplies of water from Wales and Cumberland should be discouraged, having in view the evidence given to the Board of Health by officers of the Geological Survey that from a gathering ground of 150 miles near London there is a derivable supply adequate to our most extended wants; that the supply of water should cease to be the subject of joint-stock enterprise, and should be handed over to the municipal authority in London, by which consolidation the discontinuance of pumping stations, costly management, and a very large expenditure may be avoided.

State of Bethnal-green.—An inquest has been held relative to the death of one of two children alleged to have lost their lives through the effluvium from bad drainage. A drain had been opened in the yard of the next house for nine days, and the filth had been thrown up on the ground, and left there untouched for four days. The front drains had been open five or six weeks. The smell was so shocking that it could not be borne. The supply of water was very defective; there was no water-butt, and the water came in only half an hour a day, and had to be caught in pans and pails. The jury returned the following special verdict:—"That Alfred Thacker, an infant of tender age, in the care of his parents, was found dying, and did die, from the mortal effects of typhoid fever, engendered and accelerated by the exposure of refuse soil from an open drain in the yard adjoining the premises in which the deceased resided; and the jurors are of opinion that the sanitary officers of the parish are open to blame and censure for allowing the said drain and soil to be so long exposed, to the injury and peril of life."

Proposed Testimonial to the Medical Officer of St. Marylebone.—The sanitary committee of St. Marylebone, and many of the vestrymen, recognising the fact that the great immunity of the parish from the effects of the epidemic was mainly due to the untiring exertions of their medical officer of health; and bearing in mind that, although not bound to give the whole of his time to the service of the parish, he in the emergency did so; are considering the propriety of giving him some slight acknowledgment of the great services he has rendered the parish. A present of fifty guineas was proposed, and some recommend a hundred guineas. The discussion has been postponed.

Death in the Well!—A coroner's jury, says a Chatham paper, after a careful investigation, have pronounced that one victim of cholera has perished from the use of bad water on the Brook. Though not in the verdict, it logically follows that the opinion of the jury, as of the Union medical officer, was that the victim's little brother also perished from the same exciting cause, and that the other persons who have recently died on the Brook from cholera became susceptible to the choleraic poison which exists in this country from having drunk impure water. A consideration of Mr. Ely's evidence, on which the jury gave their verdict, leads to this conclusion. That gentleman, who has been most unjustly assailed for merely doing his duty, said the children were not attacked till the family, from an accidental circumstance, had to drink water from the north side of the Brook: till they were attacked, he had had no cholera cases on the side of the Brook where they lived. On the north side of the Brook there had been a number of fatal cases of cholera. When Mr. Nye's family were compelled to drink of the water from the north side, two children died from cholera, and a third was attacked with choleraic diarrhœa. The conclusion was obvious—that bad water was the exciting cause of the fatal outbreak. The verdict of the jury was sufficiently emphatic,—"Death from cholera, arising from the use of impure water."

Liverpool Sanitary Association.—A meeting of gentlemen favourable to the formation of a Liverpool Sanitary Association has been held, Mr. F. Prange in the chair. A preliminary meeting had taken place, at which it was resolved that such an organization was desirable. It was further agreed that the annual subscription should be 10s., and that the business of the association should be conducted by a council, consisting of a president and twenty members, who should elect an executive of seven members, the executive to be empowered to call the council together as circumstances might direct, not less than once in every three months. A resolution was also passed to the effect that a subject or subjects for discussion might be proposed by any member of the council, provided the proposer was prepared at the same time to indicate a practicable policy or action to be adopted by the executive. These resolutions were confirmed, and members of council were appointed.

Drainage of Harrogate.—It has been determined to sewer the town at a cost of 3,500*l.*; and Mr. Morgan, Government Inspector, has visited Harrogate, and while approving the plan, so far as it went, recommends that tanks or receivers should be placed at the outlets of the sewerage, in order to prevent the pollution of the river Nidd, by collecting the deposit of the sewage and converting it into tillage. The cost of the five tanks will be 800*l.*, besides the rent or purchase of the land on which they are to be placed. On the inspector's recommendation, the Sewerage Committee have advised the Commissioners to apply to the Home Secretary for power to borrow 4,300*l.* for sewerage purposes. The report of the committee has been adopted, and the works will be commenced forthwith.

The Cholera at Pill (Bristol).—Cholera, it appears, has broken out at Pill, and is spreading with alarming rapidity. There are only two pumps to 1,500 inhabitants, and the unfortunate people are driven to the constant use of brook water, which is impregnated to an incredible extent with sewage. Very few of the houses are provided with privies; the drains are choked up, and the filthy matter is escaping from beneath the floors of the houses, impregnating the whole atmosphere. Immense quantities of excrementitious matter are daily thrown out on the banks of the Pill, remaining there for hours untouched by the tidal water. The authorities, according to the *Bristol Times*, have secured the services of Dr. Tibbetts, and measures are being actively put in force at Pill.

A SUPPOSED NEW CAPITAL.

LIVERPOOL ARCHITECTURAL SOCIETY.

At the meeting of this society on the 31st ult., Mr. Macbride and Mr. Picton paid an affectionate tribute to the memory of the late Benjamin E. Spence, sculptor, who died recently at Leghorn. Mr. Spence was the son of Mr. William Spence, of Liverpool. He has left amongst some of his early patrons, of whom Mr. Samuel Holme was one of the first, some very beautiful works. It was unanimously resolved, "That this meeting has heard with deep regret the mournful intelligence of the death of Benjamin E. Spence, sculptor, a native of Liverpool, who reflected great credit on his birthplace."

After further discussing the position of the Albert statue, and the qualification of the town council, as judges of art,—

Mr. Samuel Huggins read a paper, which concluded his "Descriptions of the various Buildings Civil and Ecclesiastical, in Shakseperia, illustrated by numerous Drawings, from Sketches taken on the Spot." In introducing the Gothic style into the new city, he said it was found that a decrease of the vertical and an increase of the horizontal spirit was needful to bring it into harmony with the climate, or rather to make it in harmony with itself when the climate had been duly recognised in its constructive forms, such as the roof and water tables, which it would have been ridiculous to have made of the pitch of northern Gothic in a country where it scarcely ever rained. It was soon found that this adaptation to climate could be made without subverting its vertical and essential character, and that the style was as well fitted for southern as for northern climates. In the farther adaptation of it every purifying influence was brought to bear upon its detail, and carved decorations rendered it more acceptable to the advanced taste of the twentieth century. In nothing had there been greater carefulness than in regard to the sculptural element, much of which in the Mediæval buildings partook of the debasing superstition of their times. Monsters that could only have been conceived during a fit of the nightmare were deemed unsuitable accompaniments of a place of worship, and more intellectual symbols of conquered vices and evil passions had been invented than grinning demons, which had given place to every image and emblem that would diffuse and aid the spirit of beauty and love, upraise the heart, and speak of God and his attributes, and nothing of man, except his upward strivings—

> "For some high place where faith her wing may rest;
> His boundless love
> Its mighty stream of gentleness outpouring
> On all things round, and clasping all above."

In the Gothic churches here there was not one instance of an open timber roof: most were vaulted, and where not vaulted were ceiled with plaster or otherwise. The Australians would as soon think of leaving the floor joists naked as the roof timbers exposed. Nor had they ever dreamt of leaving the sandstone of the walls or pillars uncovered, and wearing that bare and beggarly air of discomfort and poverty that they wore in England. The pulpits were not of stone, but variously coloured woods; and by the adoption of beautiful design, with fine outlines and delicate carving, they were rendered very beautiful objects.

Among the minor causes of the high condition of the art of architecture in this country was that the architect had nothing whatever to do with the execution of his designs, which was entirely in the hands of another professional—the building surveyor. He devoted himself exclusively to fine-art architecture—to planning and designing edifices—though of course he thoroughly understood construction and all its requirements as well as the surveyor. In harmony with this arrangement was the fact that the architect was not to be found by his clients in the commercial quarter of the city, among merchants or brokers, but in the scholastic, among painters and poets, historians and philosophers. There he had his study, and was looked upon with the more consideration in consequence. There were no such men in Australia as "builders;" there were master bricklayers, master masons, &c., but no "joiners and builders," or "masons and builders," much less "plumbers and builders." Each branch of building had its own professor, who did not trespass on the demesnes of any other, much less usurp the whole round of building trades, and call himself a "builder." A "builder" was considered an impossibility.

GALVANISED IRON.

Amongst the various methods adopted to preserve articles of ironwork from oxidation, the one now most generally made use of is that of coating them with zinc; a process generally known as galvanising. But although the practice of preserving ironwork in this way is very common, the usual means by which it is effected seem to be little known. The *Engineer* for October 26th gives a very full account of the process, with illustrations. We give a brief abstract of it.

In coating any metallic article with a metallic covering by plunging it into the melted coating metal, it is essentially necessary that the article to be coated should be perfectly clean, so that no foreign matter may interpose between it and the molten metal into which it is to be dipped. It is likewise of the utmost importance that the article should be perfectly dry, inasmuch as if it be at all damp the steam generated from the moisture will cause an explosion in the vessel of molten metal. Therefore, any article to be coated by dipping it into melted metal of any kind has to pass through three distinct and separate processes.

The first process consists in washing it well and thoroughly with a mixture of sulphuric acid and water, technically called "pickle." This pickle is held in a wooden tank. Besides this tank there are smaller ones used, called tubs, which are very generally made by sawing old water-casks, which are purchased from ship captains and owners, in half, or cutting them down so as to be about 2 ft. deep. These small tanks are used for pickling small articles.

In pickling wire, it is put down in the coil just as it is purchased, save that the binding wires are taken off and the coils shaken a little

loose to insure a free access for the pickle to every part of the wire.

The pickle is heated by steam to a moderately luke-warm temperature by means of a small pipe passed through the larger tank, the tubes being then supplied from this.

When the article, whatever it be, is removed from the pickle, it is washed and scraped all over to remove any remains of oxide or scale, and it is then placed in another tank filled with pure muriatic acid. The plates are merely dipped into this tank, and it may be well to remark here that before pickling any article all grease, tar, &c., should be burnt off. From this tank the article is taken to the washing-tank, which is made like the pickle-tank, and contains nothing but pure cold water. In the case of sheet-iron, the sheets are laid flat on the bottom and there thoroughly washed.

The article to be galvanised having arrived at this stage, we come to the description of the second process, i.e., its drying in the most effectual and thorough manner possible, while at the same time it is protected from the air.

The mode by which the articles are dried for galvanising in large London establishments, and at the same time protected from the atmosphere, consists in placing them in an oven.

The size of the oven ranges from 4 ft. to 5 ft. wide by 10 ft. long and 6 ft. high; it is built of brickwork, the walls being 12 in. thick, built with mortar and compo, and it may have a bar or two through the brickwork to keep it bound together. The floor of the oven is made of cast-iron or wrought-iron, as may be preferred; it is on a level with the ground-work of the work-shop so that the articles to be dried may be wheeled into it direct. The oven is provided with an iron door at each end, which runs up and down in suitable bearings; and to the top of each door a chain is attached which is carried over pulleys in the roof of the workshop, and which chain has a suitable weight attached to it, so that the door is balanced.

The articles, when ready for the oven, are placed on a small truck, which is made as wide as the oven will admit. It is somewhat like a huge toast-rack on wheels, and the plates may be likened to the toast. For any general articles a plain truck is substituted for this one. So soon as they are ready they are placed on the truck, and at once wheeled into the oven, the doors of which are then carefully closed so as to exclude the air, and the article is left in the oven till thoroughly heated and dried, which will take a space of time proportioned to the size of the article and state of the oven. The oven fire is never let out, and the oven should, on no account, be opened till the article is ready to be dipped.

The factory is generally so arranged that the oven is placed between the pickling-tanks and the bath, having one door next the former, the other next the latter. Thus the truck with its load is wheeled from the tanks to the oven, and thence through the other door to the bath. Too much care cannot be taken to ensure that the article is sufficiently dried and heated before it is put into the bath, and that it should be protected as much as possible from the action of the air during the time intervening between its exit from the oven and its arrival at the bath by the use of all possible expedition in the general manipulations, as the metal very quickly oxidises with the action of the atmosphere.

We now come to the final process. The zinc used for galvanising is zinc in that stage of its manufacture when it is traded in by the name of spelter. It is generally to be got in flat thin cakes, and is sold by the ton.

The baths are made of the very best Low-moor plates that can be got, and if they leak, it is only because of defective workmanship.

The bath is placed in what may be termed a brickwork casing. Between the outside of the bath and the inside of the brickwork there is a clear space of from 6 in. to 7 in. The brickwork is built in a large pit, dug in the floor of the factory for the purpose, which is made of such depth that when all is completed the upper edge of the bath is a little below, or at most just level with, the factory floor. The construction of the bath is peculiar. The fuel used in the furnace is coke, which is pushed down all round the bath, thereby enclosing it with a band of fire; there is no fire under the bottom of the bath whatever, neither is there any chimney to it. Once the fire is lighted and the bath fairly filled with the melted spelter, the furnace is never let out, night or day, until the bath is worn out. The fire and metal require constant care, as, if the fire be allowed to burn unequally, the spelter at the place where the fire is dull will thicken or perhaps solidify, when it is troublesome to re-melt it; consequently, the fire must be carefully regulated by the dampers.

In the case of wire,—the coil of wire being placed on a reel or bobbin, is first brought down into the bath, then led from thence and wound on another bobbin: the wire offering but little metal to the heat only requires to be drawn through the spelter at a rate in proportion to its diameter. When it is wished to impart the peculiar bright appearance seen on some galvanised wire, fine loam is substituted for the chloride, and the wire is drawn out of the spelter at a place where it is covered with this loam, as in practice the wire, when drawn out of the pure metal, is found to have a dull appearance when cold. This loam may be such as can be found in any sand-pit, or ordinary foundry loam will answer the purpose. It is only used for wire, large articles not being found to lose their colour as wire does, where the loam is not used. The account which has reached us of the manner in which this little, but, nevertheless, important, secret was discovered at one work is somewhat interesting.

At the place in question every supposed means had been tried, without success, to discover some mode by which a bright showy appearance might be imparted to the galvanised wire, till, one evening, one of the boys employed in the establishment, when no one chanced to be close to him, took up a handful of the dust and earth on the ground beside the bath, and throwing it on the molten metal, plunged a piece of wire through it into the spelter, and drew it forth, when, "eureka," he had found the long-wished-for means of having bright galvanised wire, the piece having and retaining when cold a beautiful brilliancy of appearance. The boy—either not knowing the full value of his discovery, or, what is more probable, not knowing how, or lacking the means, to turn it to advantage—told the foreman of the bath, who took an opportunity of trying the experiment to satisfy himself of its practical success. Having set himself at ease on this point, he carefully effaced anything like a clue to the secret of which he had got possession, and showing some pieces of the wire to his employers, he succeeded in selling what was really the boy's secret to them for a considerable sum of money.

FROM MELBOURNE.

A NEW Town-hall having been resolved upon, competitive designs were called for by the corporation, and, out of about thirty sets of drawings sent in, a design by Messrs. Reed & Barnes, of Melbourne, was selected as best. One of the results of the competition was to show the corporation that their site was not large enough for a building affording all the accommodation they required, and that the sum set down, 25,000*l*., was quite inadequate to put up a structure suited to the requirements of the community; and, seeing this, the corporation purchased 31 ft. frontage in Collins-street; and obtained from the Colonial Government 23 ft. in Swanston-street. The present design is applicable to the original site, but will have to undergo some modification to fit the enlarged area, although the general character of the building will be maintained. The basement floor will be occupied by the offices of the city surveyor, building surveyor, inspector, and other offices; and also by stabling and other necessary accommodation. The ground floor will contain the offices of the town clerk, city treasurer, &c. On this floor also will be the grand hall, measuring 175 ft. long by 70 ft. wide, and of proportionate height. A large orchestra will be placed at one end of the room, a narrow gallery along the sides, and a much deeper one at the end opposite the orchestra. In connexion with this room ample supper and retiring rooms and other necessary offices for public occasions are arranged. On the first floor is the council chamber, the mayor's, aldermen's, and councillors' rooms, and other necessary offices appertaining to the ceremonial part of the chief magistrate's office. The upper floor is occupied with kitchens and a great number of other offices. The authors of the design have been appointed to carry out the work. The issue of debentures to the extent of 50,000*l*. has been resolved upon by the corporation, with the view of carrying out the project.

The Melbourne Masonic Hall Company have selected a site for the erection of a Masonic Hall, having a frontage of 70 ft. The cost is stated to be 1,225*l*.

The foundation-stone of a new Presbyterian church has been laid in West Melbourne, at the corner of William and Lonsdale streets. The plan of the edifice shows a tower 150 ft. high, surmounted by an octagonal lantern of 30 ft. high, making the total height 180 ft. Accommodation will be provided for 800 persons, the dimensions of the church internally being 84 ft. by 54 ft., and the height to roof 40 ft. The sittings will be circular, arranged in the form of an amphitheatre. The edifice will be constructed of bluestone, with freestone quoins and dressings. It is not proposed to construct the tower under the present contract, but only the chapel, which will cost 6,000*l*., and will be opened, it is expected, for divine service about the close of the year. The erection of the tower will constitute a second contract, and is estimated to cost 6,000*l*. more. The land was granted by the Colonial Government, and has a frontage of 200 ft. to Lonsdale-street, and 175 ft. to William-street. The new building is designed by Messrs. Smith & Watts, of Melbourne, architects, and the contractors are Messrs. Corben & Wilson.

The first wing of the District Orphan Asylum at Ballarat, according to a Melbourne paper, has been opened. The asylum, when completed, will be a capacious structure. It is a plain brick building, comprising a centre and two wings of one story, having a frontage of 196 ft. to Victoria-street, with a depth of 162 ft. The ground was originally a reserve granted for recreation purposes to the Eastern Council, and afterwards handed over to the asylum, with the consent of the Government. It is ten acres in extent; but a considerable portion of it, consisting of old worked-out diggings, is almost worthless. When completed, the asylum will accommodate 320 children. The portion already erected provides ten large dormitories, capable of housing 150 children. The cost of the wing at present erected will be nearly 4,000*l*. The building, when completed, will cost 9,000*l*., but it has not yet been decided to proceed with any further portion of the work. The Government have granted a sum of money to aid the erection, but the contributions of the charitable are necessary for the furtherance of the undertaking. In the portion now erected gas and water are laid on, and there is a kitchen apparatus which cost over 50*l*. It is calculated to cook for 400 children. In the rear of the building a large courtyard has been inclosed, with a verandah all round, which will afford a play-ground for the children in unfavourable weather.

An instance of profitable road-making is reported in the Melbourne papers. Two workingmen recently took a contract for road-making in Specimen Gully, Barker's Creek, under the Metcalfe Shire Council, at what was esteemed a somewhat low price. In the course of a shallow cutting, of about 3 ft. in depth, they came across a patch of auriferous dirt, out of which they took 23 oz. of gold, which will enable the somewhat unprofitable contract to pay extremely well. The contractors have marked out a "claim" alongside the spot where this "find" was made.

The Registrar-General's report on the vital statistics of Melbourne and the suburbs for the month of May is published in the colonial *Government Gazette*. The total number of deaths during the month was 332. They numbered seventy-three less than in the same month of 1865. They were slightly in excess of the average mortality during seven years, but not more so than might be expected from the increased population. They were fewer by fifteen than those which occurred in April. The month was warmer than the same month of opening winter in any year of the previous six. Males contributed 55 per cent., and females 45 per cent. to the mortality of the month. Forty-seven per cent. of the deaths were of children under five, against 56 per cent. in May, 1865. This is the only year of the past seven in which the mortality of children under five in May was less than half the total mortality during that month. The oldest person who died during the month was a woman, aged 85, of old age; the next oldest was a man, aged 81, of softening of the brain; then a woman, aged 80, of old age; a man, aged 77, of old age; and a woman, aged 76, of paralysis. The deaths of children under five years numbered 157, of which 92, or nearly 59 per cent., were of males, and 65, or about 41 per cent., were of females.

BASINGSTOKE.

On the 29th ult. the mayor, Mr. R. A. Davis, turned the first sod for a swimming-bath here. The bath is to be 80 ft. long by 25 ft. wide, and the water to graduate from 4 ft. to 6 ft. deep; it is to be built water-tight, so that in the winter the water may be made tepid by means of a heating apparatus attached. It is being erected at the sole expense of Mr. John Curtis, of Chineham, and will cost about 600*l.* The architect is Mr. G. B. Mussellwhite.

IMPROVEMENT OF BASINGSTOKE.

Sir,—Your report of the meeting of the burgesses of this town for the adoption of the Local Government Act, I am pleased to find, has caused some feeling of compunction in some of the Paving Commissioners. Had your correspondent, Mr. Downs, given you a fair copy from the register of deaths, I should not have troubled you, but have left the town to deal in this matter as in their wisdom seemed best for its future prosperity. Mr. Downs quoted 3 deaths for September. I will take the previous month August, 8 deaths; February, 9 deaths; and July of last year, 10 deaths. It is most unfair to take any one month, as you will perceive, but take a series of years, and the effect will be against the town as a high standard of health, as it is now pretty well established that fever is a preventable disease, and one that brings discredit upon the house or town. In this town, last winter, we were compelled to seek the aid and the charity of the Sisters of Mercy to attend to poor patients, on whom scarcely an attendant could be got; and even in better houses whole families were stricken down, and servants sent home almost by stealth, to carry disease and death into their own village homes; and yet these are the people who call others eccentric, that are only desirous of improving the atmosphere surrounding themselves and their poorer brethren; and as we are the wealthy eccentrics, we shall not be accused of mercenary motives.

But the fact is patent to all that the paving, lighting, and cleansing of this town is a disgrace to the nineteenth century. The lighting, instead of being in the hands of the burgesses on their elected agents, is supplied by a company of burgesses, corporate and paving commissioners, all of whom are only interested in keeping up a good dividend, at the public expense; for, if the question be asked why such and such lamps are put out at three o'clock in the morning, when the public pay for them from dark to daylight; or, again, how is it the public pay now the same for their lights as they did when gas was at 10*s.* or 12*s.* per 1,000, the only answer to be given to all is with an "Oh! half the corporation are shareholders, and the others are paving commissioners," and so the job is cooked; and these are the gentlemen that get up the agitation against the adoption of the Local Act, and hold up the town as so very healthy. I will tell them they must be up and doing, as fever is now lurking at their doors and is in the town at this moment. The question to be now decided is,—Are two or three of the eccentrics to be driven to appeal for a Government inspector to come down and examine the polluted springs, and stagnant canals of sewage, and open cesspools, or will the burgesses and inhabitants do their own works? The next clause in the Local Act must be one of compulsion for the removal of those nuisances that affect the health so materially of the whole community.

Subscription baths were commenced here on the 29th ultimo. This is a step in the right direction, and will be a great public benefit, only the baths should have been town property, with washhouses attached to them.

An Eccentric.

PARK LANE.

It has occurred to me that the best solution of giving access from north to south would be widening Park-lane right and left at the Piccadilly mouth, forming a junction below Hertford-street, so as to gain a double exit from Piccadilly, one by Park-lane, the other by Audley-street, which is in direct communication with the Regent's Park.

The arrangement would be the same as is now adopted in the new thoroughfares in Paris, two streets running into one wide opening. A. B.

STAINED MANUSCRIPTS.

Will any one tell the writer of a process which will restore, to a certain extent or entirely, old, yellow, and somewhat dirtied manuscripts? He has some valuable astronomical papers by him, which he wishes, if possible, restored. Curiosus.

A BATH WANTED FOR TONBRIDGE WELLS.

As your paper has become the best medium for ventilating subjects of the following nature, I am induced to request your insertion of this letter, hoping it may be seen by those who might take the subject into consideration.

In the rich, flourishing, and rapidly increasing town of Tonbridge Wells there are 16,000 inhabitants almost without the means of convenient personal cleanliness. The majority of the houses having been built by speculative builders, mostly to become lodging-houses, not five per cent. of the whole contain bath accommodation; so, in summer, when thousands visit the place, the absence of a *public baths* establishment is much felt. There are about forty scholastic establishments, and not a pond, lake, or river suitable for youths to learn or practise the manly, healthful, and necessary art of swimming nearer than Tonbridge (five miles distant). The authorities have lately been much engaged in improving the sewage and water-supply, which will, when complete, be a great boon to the town, and tend much to prevent endemic diseases amongst the working classes and the poor; but no class of persons can have immunity from epidemic diseases when the pores of the skin are clogged up or covered over with the hardened tenacious excretory matter thrown off from the blood and left to dry upon the surface.

In the arrangements for the new water-supply of the town, that source which at present serves the Calverley estate will, I believe, be disused, and might, perhaps, be easily adapted to this purpose without great outlay.

I believe there exists a bath-room at one of the hotels, where a douche may be had for 2*s.* 6*d.*

One of the Unwashed.

"TO SAVE OUR COAL."

Your correspondent "V. K. C." may obtain a patent fuel of very good quality, by mixing his small coal with an equal quantity of soft clay, river mud, or any similar material. The finer the coal and the more thorough the mixing, the better will be the quality of the fuel. Use water, if the clay is stiff, to make it of a good consistency for working; and, when well mixed, make it into lumps or bricks, and dry them in the air. When thoroughly dry they are fit for use. If properly mixed the composition will burn to a fine ash; otherwise it may produce some excellent examples of burnt ballast. "V. K. C." will find this cheaper and more easily made than any mixture of tar or naphtha with coal, as it requires nothing but the labour of the consumer. F. T. M.

If your correspondent "V. K. C." has any clay in his neighbourhood, I do not see any difficulty in the way of economising and using the small coal. When at Liége, in Belgium, some years ago, I observed their method of accomplishing this art. Half a load of clay is shot down in the street, and one load of small coal beside it. Then commences the work of incorporating the two together with water, something in the way concrete is made. It is then made up into small lumps, of the shape of a kidney, by the hand, and put away to dry. When required for use the pieces are packed into the grate, leaving air-space between, and resting upon a fire-lighter formed of wood dipped in resin or other inflammable liquid. One small fire-lighter, "eight a penny," is sufficient to ignite the mass; and, in the course of half an hour, the whole is well lighted, and gives out more heat than the ordinary coals. Once placed in the grate, they should never be stirred on any consideration, and the fire will then last for fourteen hours.

John L. Clemence.

The Rev. James Graves, who writes also to name clay, adds,—"Cowdung is sometimes substituted for clay: it burns better."

METROPOLITAN BOARD OF WORKS.

At the usual weekly meeting drafts were submitted of a Bill for the continuance of the coal and wine duties, the Loans Bill, and the Improvement Rate Bill, and recommending that the same be proceeded with upon the same basis as those of last session, with the exception that a provision be inserted in the Improvement Rate Bill for the rate to be applied, in addition to improvements sanctioned by Parliament, to all other improvements in respect of which the Commissioners of Sewers for the City of London, or their several vestries and district Boards, shall contribute at least one-half the expense.

Mr. Freeman moved that this be approved.

Mr. Shaw moved, as an amendment, "That the Improvement Rate Bill be referred back to the Works and General Purposes Committees, to consider whether, on account of the increased and increasing value of property in the metropolis (which will enable the Board of Works to pay off the sums raised on the main drainage rate in considerably less time than forty years, the term limited by the Act 21st & 22nd Vic., cap. 104), some better plan may not be suggested, whereby the improvements contemplated by the Board cannot, with the aid of the coal and wine duties, be effected by a rate not exceeding one penny in the pound, calculating that the coal and wine duties realise at the present time 195,677*l.*, and that a penny rate will give at least an additional 63,000*l.* per annum; and, considering that the coal and wine duties and the metropolitan main drainage rate have increased (since the Acts enabling the Board to borrow upon their security) upwards of 83,000*l.* per annum."

The original motion, on a division, was carried by a majority of 13, the numbers being, for the amendment, 9; against it, 22.

TENDERS FOR GASFITTINGS.

Sir,—Your correspondent, "W. B.," has not stated all the evils consequent upon the absurd practice of including gas-fitting, and, indeed, any kind of metal-work in a builder's contract. In the first place, a hedge carpenter, a smudge of a painter, or a half-bred plumber who is not capable of taking a good journeyman's place on account of imperfect workmanship, contrives by some means to obtain a few pounds, sets up in business, and at once styles himself builder, &c., and knows no more about building than a donkey. He submits estimates, sometimes very wide of the mark, as your lists of tenders frequently show; occasionally he will make a bit, is accepted, and commences the job, perhaps for half the amount of the architect's estimate in a job of 2,000*l.* or 3,000*l.* He employs different tradesmen, and cuts them to the very lowest: the consequence in gas work is, it is done very imperfectly, and finishes with the building being burnt down. The public have themselves to blame for continuing such practices. If a man went to a silk-mercer's to purchase a deal board, he would be considered insane; equally so must the man be who goes to a painter or carpenter for iron work and gas-fitting. E. P.

TENDERS IN PADDINGTON VESTRY.

At the last meeting of the vestry of Paddington, seven tenders were received and opened, for the construction of a sewer in the Harrow-road, between Woodfield-road and Carlton-terrace, viz., Porter, 789*l.*; Thirst, 829*l.*; Crockett, 835*l.*; Whitty, 860*l.*; Bloomfield, 900*l.*; Robson, 1,020*l.*; and Morris, 1,600*l.* Mr. Tildesley moved that the lowest tender (Mr. Porter's) be taken, subject to the usual inquiries. Mr. Churchwarden Ellis said, Mr. Porter was an unknown man to the vestry, and his sureties were perfect strangers to the Board. Besides that, the work must commence at once, and there would be no time to make any inquiries respecting Mr. Porter or his sureties; on the other hand, Mr. Thirst was well known to the vestry, had never given them any trouble, and had carried out his contracts to their complete satisfaction. He begged to move that the next lowest tender be accepted, that of Mr. Thirst. This was seconded and carried. Mr. Bicker Caarten said he had a suggestion to make. When the Board next issued advertisements for tenders, they would save contractors a great deal of trouble if they added these words to their advertisements, "No contractor need apply who is not known to the vestry." Several other members agreed with the last speaker, and said there were too many builders at the Board.

CHURCH-BUILDING NEWS.

Acock's Green.—St. Mary's church here has been consecrated. Nearly 4,000*l.* have been raised, and a church with 500 sittings—200 free—has been built. The style is thirteenth century, of a Continental rather than an English character, and the material is Hampstead stone, with Bath stone dressings, the interior being faced with brickwork, in ornamental patterns. The architect was Mr. J. G. Bland, of Birmingham. When completed, it will consist of nave, north and south aisles, north and south transepts, chancel, with apsidal or semi-octagonal termination, north porch, and tower and spire of 167 ft. in height. The nave, aisles, and the porch, are all that are at present completed. The cost of that part of the building which is now completed, and which has been erected by Messrs. Jeffries & Pritchard, has, including boundary walls, been about 4,000*l.*

High-lane, Marple.—The church of St. Thomas, High-lane, has been re-opened, after being closed for some months for enlargement and decoration, &c. The accommodation has been doubled. The nave has been made half as long again, and a wide north aisle has been built extending the whole length of the lengthened nave. The belfry has been pulled down, and on its site has been built one much larger and more ornate. Two-light windows now alternate with the single lights in the side walls, while at the west end of nave and aisle are rose windows. All these windows are now filled with stained glass by Lavers & Barraud. The old north wall of the nave has been taken out and arches built, marking off nave from aisle. The pillars have quaint carved caps, all different in design, and increasing in elaboration towards the eastern end. The easternmost one contains the emblems of the four evangelists. These have been carved by Messrs. T. R. & Evan Williams, of Manchester, from the architect's designs. The works have been carried out by Mr. Tom Wyatt, of Marple, under the direction of Mr. J. Medland Taylor, of Manchester, architect.

Hethersett.—The chancel of the church has been renovated. The east window is of Late Decorated work, and was taken out of the old

chancel, probably about the year 1536. It has now been restored, and filled in with coloured glass (supplied by Messrs. Heaton & Butler), consisting of quarries in diaper with medallions of foliated pattern. The oak wood carving was executed by Mr. Daynes. A new altar-railing, supplied by Messrs. Hart, and Minton's tiles, complete the restoration of this part of the church. The works were executed by Mr. Cornish, of North Walsham, builder, under the direction of Mr. Augustus E. Browne, of Lincoln's-inn-fields, architect.

Suffield.—The parish church has been re-opened, after having been restored at the cost of about 1,000*l.* The sittings, which are of oak and chesnut, will accommodate nearly 200. The work has been executed by Mr. Cornish, North Walsham. The windows (which have been glazed by Mr. King, of Norwich), are of opaque glass, with the exception of the east and west.

South Lopham.—The old parish church of South Lopham has recently undergone a partial restoration. The roof of the chancel has been cleaned and restored, and covered with green Bangor slates. A new vestry has been built of rubble on the north side of the church, pretty nearly on the foundations of the ancient chapel. The woodwork, including ringing-floor and seating of church, has been executed by Mr. C. Bishop, Diss. The stonework has been executed by Mr. Ward, of Diss. The east window is restored in the Early Decorated style, with tinted cathedral glass and white border. The original mullions are restored, and the old unsightly woodwork removed. Two windows on the south side of the chancel, which for years have been blocked up, have been opened and restored in accordance with the original design. The walls of the chancel have been newly stuccoed. The chancel has been restored at the expense of the Rev. J. F. Bateman, rector, the outlay being 380*l.* About 150*l.* have been expended in restoring the interior of the Norman tower, building a new vestry, and in providing a warming apparatus for the church.

Kirkby-in-Ashfield.—The village church of Kirkby-in-Ashfield has been re-opened for divine service, after undergoing restoration and refitting. The south chancel has been rebuilt, a porch and large screen being at the western end. On the north of the chancel are the vestry and organ chamber. The stonework has been executed with material from the neighbourhood. The pews have given place to open benches. The architects were Messrs. Stevens & Robinson, of Derby; the contractor Mr. J. E. Hall, of Nottingham. The total cost of the alteration has been about 2,500*l.*

Ivegill.—The corner stone of the new church of Ivegill has been laid. The church will consist of nave and chancel, with an ornamented bell-turret in the Early Decorated style, and the edifice will seat about 120. The architect is Mr. R. J. Withers, of London; and the contractors are Messrs. George Little & Robert Hope, of Dalston.

Tockwith.—A new church has just been erected at Tockwith, from plans and drawings by Messrs. Mallinson & Healey, of Bradford and Halifax, architects, and it has been consecrated by the Archbishop of York. The church is erected at the west end of the village. The style is Early Decorated. The edifice is 97 ft. in length, the nave being 65 ft. long by 22 ft. broad, and the chancel 32 ft. in length by 21 ft. in breadth, with north and south transepts 14½ ft. by 17½ ft. There is a vestry and an organ-chamber on the south side of the chancel, which is entered by a door in the outside wall, and it can also be entered from the inside of the church. Immediately adjoining the porch rises a circular bell-turret to a height of about 70 ft. The interior and exterior faces of the walls are of Wetherby limestone, and the outside is dressed, whilst the inside has a smooth face. The sittings will accommodate 300 persons. The east window is of four lights, with stone shafts and carved caps in the jambs, and enriched tracery in the head, under a moulded arch. This window is filled in with stained glass, by Messrs. Hardman, of Birmingham. The subjects illustrated are, the Agony in the Garden, Christ led away to be Crucified, Christ bearing his Cross, and the Crucifixion. The tracery is of stained glass, containing in the centre the Agnus Dei, surrounded by a variety of devices. The west wall of the nave is pierced with two single-light windows, cusped in the heads. They are memorial windows of stained glass, and have been filled in by Mr. Wailes, of Newcastle. The south window represents the Raising of Lazarus, and the north window is illustrative of the Good Samaritan. These windows are surmounted by a large circular window in the gable. It is of stained glass. In the centre is the Agnus Dei, encircled with angles, and interspersed with devices of various descriptions. The other windows of the church are filled in with Hartley's cathedral glass. The cost of the church, in round numbers, was 4,000*l.* The architects were Messrs. Mallinson & Healey. The tradesmen were, Mr. John Ridsdale, of Starbeck, near Harrogate, who executed the stonework; carpenters' and joiners' work, Mr. James Whitfield, of Wetherby; and plumbing and glazing, Mr. Geo. Bailey, of Wetherby.

Hindley, near Wigan.—The Bishop of Chester has consecrated a new church, dedicated to St. Peter, at Hindley, a populous township about three miles from Wigan. It has been erected at a cost of 8,000*l.* by private liberality, the principal subscribers being members of the Pennington family, one of whom has contributed 3,781*l.* The church is in the Early Gothic style. There are 700 sittings, all free.

Abbott's Langley.—The parish church has been restored and re-opened. The contract for the restoration and partial re-seating of the church was taken by Mr. Chalk, builder, of Abbott's Langley, the architect being Mr. David Brandon, of London, assisted by Mr. Warren. Mr. Johnson was clerk of the works. The cost has been about 1,200*l.* The chancel arch and the tower arch have been cleaned and restored, all the high square pews of the post-Reformation period have been replaced by low sittings of unpolished oak, with a clear gain of about 100 seats. The organ has been reconstructed and re-voiced by Messrs. Bevington & Son, of Soho-square. The stonework, including pulpit, was executed by Mr. Coney, of Watford. The lectern was supplied by Skidmore, of Coventry. A new warming apparatus has been placed in the church as a substitute for unsightly stoves. There will be two new windows—one at the west end of the church, and the other over the pulpit. The latter window will be divided into four compartments, each illustrative of the Divine institution of preaching God's Word. A new reredos in the chancel is in preparation.

Bedford.—The Church of the Holy Trinity has been re-opened. Although designed to furnish 1,000 sittings, it has lately been found inadequate to the requirements of the district, through the rapid increase of population, arising chiefly from the building of new houses. It was determined, therefore, to raise a subscription towards an enlargement to provide further accommodation. This has been effected by throwing the space formerly occupied by the gallery-stairs, the pulpit, the desk, and the communion-table into the body of the church, extending the galleries, and carrying out a small chancel, with transepts containing new approaches, to the gallery on either side, and a new vestry; the entire length of the church being thus increased from 114 ft. to 138 ft., and 220 additional seats obtained. The plans for these alterations were prepared by Mr. Penrose; and the work has been executed by Messrs. Winn & Foster, of Kempston. The same materials have been employed as in the original structure, viz., limestone from the Kempston quarry for the walls, with Bath stone for dressings and windows. The chancel window consists of five lancet-headed lights, graduated in height, which, according to our authority, the local *Times*, are to be furnished with stained glass; and the wheel-windows lighting the staircases are to be similarly adorned. The pews throughout the church have been lowered 8 in.

Stoughton.—The parish church having been rebuilt, enlarged, and greatly improved, at the sole cost of the Keck family, has now been consecrated by the bishop of the diocese. The nave has been raised 15 ft., and eight clerestory windows have been added. The chancel, which was formerly low and exceedingly plain, has also been raised 15 ft., and a lofty arch, with clustered pillars, resting on corbels richly carved, has been erected from designs by Messrs. Dain & Smith, architects. The old chancel window has been replaced by a new one. On the north side were originally three blank windows, and on the south two small ones. These have been substituted by six new windows—three on each side—copied from the design of one of the original windows on the north side. For the sake of uniformity, the south aisle has been extended 11 ft. 6 in. at the west end, which forms a baptistery, and it was this addition that rendered re-consecration necessary. In consequence of this lengthening of the wall a new window, corresponding with the other two, has been added on the north wall, and the porch has been placed further west, so as to bring it exactly opposite the north door. The old porch—a modern one of debased style—has been replaced by a new one designed by Mr. Firn. The arch at the west end has been opened, and the basement floor of the tower has been formed into a vestry. This part will be separated from the rest of the church by a carved screen. The church has been entirely repewed, open benches of red deal, stained and varnished, taking the place of the old square pews. The works are being done by Mr. J. Firn, builder, Leicester. The woodwork has been executed by Mr. Page, of Oadby. The cost of the restoration is about 5,000*l.*

SCHOOL BUILDING NEWS.

Maidstone.—All Saints' Schools have been opened. The buildings are erected on the new Tovil-road, on a plot of ground, the gift of the Earl of Romney, and being in close proximity to the church, the college, the priory, and Corrall's Alms Houses, the style of architecture adopted, and the materials used in the construction, have been regulated by the architect, with a view to correspond with the adjacent buildings. The whole block comprises two residences, one for a master and the other for a mistress; and a girls' school, 49 ft. long by 20 ft. wide, and a class-room, 18 ft. by 15 ft.; an infants' school, 40 ft. by 20 ft.; and a boys' school, averaging 89 ft. by 20 ft., with two class-rooms, 20 ft. by 15 ft. each. Each school-room has a porch or private entrance for visitors and teachers from the Tovil-road, and a back entrance lobby, fitted up with lavatories for the use of children. The whole of the school and class-rooms are 12 ft. high to the springing of ceiling and 21 ft. to the apex. The principal timbers of the roof are open to view and spring from moulded stone corbels. The walls are boarded 4 ft. high all round, and the walls above finish plain brick, with arches and bands in red, white, and black bricks. The group of buildings has as a central feature, a lofty octagonal bell-turret framed with open timbers and covered with oak shingle, and is surmounted by a foliated cross of iron. The architect was Mr. E. W. Stephens, of Maidstone; and the builders were Messrs. Wallis & Clements. The bell for the school has been presented by Mrs. Sweetlove, and Mr. Joseph Barling has intimated his intention of giving a clock for the boys' school.

Beeston.—The foundation stone of Wesleyan schools has been laid at Beeston. The new building, which will be a plain, unpretending one of red brick on the ground floor, is designed to accommodate 300 persons, being 60 ft. long by 36 ft. wide. There will be a vestry at either end for the use of the superintendents. The site adjoins the chapel. Mr. Robert Foster, of Beeston, is the builder, and the cost of the entire work will be about 450*l.*

Yarkhill.—A new school and teacher's residence for this parish have been opened. The building is erected upon a plot of ground by the side of the Froomes-hill road at Woodmanton. It is of brick, with Bath stone dressings, and covered with Broseley tiles. There is a bell-cot on the gable of the school-room, and below it the tympanum of the arch over the window is pierced with circles filled with stained glass; the subject is Christ blessing little Children. The school-room is arranged for 75 children. The design was by Mr. Blashill, of London; and the work was executed by Messrs. King & Godwin, of Gloucester.

Books Received.

The Student's Text-book of Electricity. By Henry M. Noad, F.R.S., &c. London: Lockwood & Co. 1867.

A view of the present state of Electrical Science is here ably condensed for the use of students. The volume is illustrated with 400 engravings. The author's "Manual of Electricity" has of course been made free use of in its preparation, but the present work contains much important additional information which has become available since the publication of that work. A very interesting account is given of the remarkable experiments of Mr. Gassiot, F.R.S. The marvellous phenomena of striated and solar-like

ght evolved by Mr. Gassiot in electrical discharges through various vacua are illustrated y curious and instructive diagrams. These henomena form perhaps the most important tep made of late years in electrical science, nd they may yet shed much light upon the ature of certain solar phenomena which have or some time been engaging the attention of nen of science, as well as perhaps upon ometary light and upon spectral analysis.

The Thames Illustrated by Photographs. First Series, Richmond to Cliefden. London: A. Marion & Son. 1866.

s the Thames—

"The silver streaming Thames,"—

s handy for Londoners, Londoners,—speaking of he multitude,—of course know very little about ts beauties; and beauties it has, numerous and xtreme. The volume before us will serve to nake this evident to such of its readers as do not lready know the fact. It shows Richmond Bridge, he view from Richmond Hill (to which so small photograph cannot do justice), Teddington Weir, Thames Ditton, Hampton Court (the palace and the bridge), Walton Bridge, Windsor Castle, Eton College, Maidenhead Bridge, and ovely Cliefden, each accompanied with some leasant descriptive matter. The photographs re by Mr. Russell Sedgfield. A second series, ow in preparation, will show the river from Cookham, with its comfortable little inn, loved f anglers, to Whitchurch and Pangbourne, and f rightly chosen, will have some views even more icturesque and charming than those in the retty volume we are now recommending.

VARIORUM.

"Bow Bells Almanack, illustrated, 1867,' ontains an extraordinary number of engravngs for 6d., some of them fairly executed. By what right, however, is the "Labour of Love," ssued by the Art-Union of London, badly copied, without even acknowledgment?——"A Popular Description of the Small Induction Coil, with a Variety of very beautiful and instructive Experiments. London: of all Opticians, &c." This must be regarded as a companion to that very nteresting scientific toy the small induction coil, whereby some of the most beautiful of electric xperiments may be exhibited of an evening in he people's parlour. The whole apparatus is portable and simple, and only requires a little management such as the pamphlet under notice may enable any one to give.

Miscellanea.

Thames Subways.—A Bill is to be applied for next session of Parliament for power to construct subways under the Thames from the Pimlico Pier to Nine Elms, Battersea; from the Thames Embankment, north, near the Temple Pier, to the Commercial-road, Lambeth; from Tower-hill to Pickle Herring-street, St. Olave's; and from High-street, Wapping, to Bermondsey-wall.

Self-coiling Shutters.—Messrs. Clark & Co. have received instructions from the Commissioners for the Paris Exhibition to fix their patent self-coiling steel shutters to close all the principal openings in the building. The twelve foreign department entrances are each 15 ft. wide by 20 ft. high, and the grand entrance 28 ft. wide by 20 ft. high. All these shutters will be in one sheet of steel each.

Bradford School of Art.—The first annual meeting of this school has been held in the High School, Hallfield-road. The object of the meeting was to transact the ordinary business of the institution, and also to distribute the prizes to the successful competitors to the national competition. There was a large attendance. The chair was occupied by the mayor (Mr. J. V. Godwin), chairman of the committee of management. The report states that since the examination, the school has progressed favourably: it now numbers—61 attending the evening classes; 9 attending the ladies' classes; total, 78. The committee hope that the success the school has already obtained will win for it the very necessary support of the public, and that in a very few years it may take the rank a Bradford school ought to hold in the country.

The New Palace at Westminster.—On Wednesday last the foundation-stone of the arcade to be formed fronting New Palace-yard was laid in the presence of a few of the parties more particularly interested in these intended improvements.

India-rubber Type.—With reference to a notice in our pages, to the effect that a manufactory for making printers' type of vulcanised india-rubber has just been started at Dalston, U.S., The Patent Printing Surface Company write,—"We beg to state that the invention is English, and is protected here and on the Continent by several patents, the first being about three years old. The process, presses, and prints will be shown in the forthcoming International Exhibition at Paris. Models and other information were by us, years ago, forwarded to the United States, and these have been appropriated by our 'cute cousins, for which *we* have had to pay."

Utilisation of Refuse Slate.—Slate rock is ground to a fine powder, and in that state mixed with mastic or any bituminous substance to the consistency of a thick paint, in which condition it is applied to canvas, cloth, paper, felt, or any similar substance, for roofing and other purposes. This is doubtless the "elastic slate" of which we have already heard from America. It soon hardens, and by the action of the elements, or by means of chemical action within itself, becomes, it is said, so indurated as to be almost as impervious to the action of fire or water as slate itself, though considerably less brittle. It has been applied as cement for cisterns, tanks, cellar floors, leaky hydrants, pipes, and pumps. Inkstands have been made of it while in a plastic state, which have become as hard as stone. It has also been applied as a cheap paint to outbuildings and fences.

Church of St. Mary-le-Strand.—An effort is about being made to re-arrange the interior of this church by the removal of the ugly pews and the substitution of open benches. The Rev. Dr. Evans, the rector of the parish, has issued a circular in which he states that by the proposed changes the proportions of the structure will be better brought out, while the building will be rendered cleaner, more wholesome, and more airy. He says,—"After the labour of five years the rector feels that the obstacle of the present uncomfortable, undevotional, and unsociable seats ought no longer to be permitted to hinder his work, especially as a similar obstacle to the work of others is being taken out of the way on all sides, and is not likely to be put in the way of any one again." He adds that in what manner the work can be carried out will depend upon the liberality of the subscriptions.

Closing of the Working Classes' Industrial Exhibition.—On Monday evening the Working Classes' Industrial Exhibition, which has run a most successful career of ten weeks, at the Agricultural Hall, Islington, was brought to a close. It has been nightly thronged by the working classes and their families. Besides the exhibition, about thirty concerts have been given, the singers and performers nearly all belonging to working-class societies. There have also been social gatherings, lectures, and other entertainments, and these have been given for the uniform admission-fee of 2d. At the closing ceremonial, Lord John Manners occupied the chair, and addressed an immense concourse of people. He congratulated them on the great success of the exhibition, and remarked that in these days, when so much was said and written to disintegrate society, they should take heart and hope from witnessing this triumphant success. Great as was the direct benefit which art would have derived from this exhibition, considerable as had been the pleasure, the amusement, recreation, and instruction, which had been provided within this hall during the last ten weeks, they might take away from that closing ceremonial the consoling thought that in the future they, in their various spheres, would derive fresh encouragement for works of this beneficent nature, as well as thoughts, aspirations, and intentions of mutual forbearance, brotherly kindness, and enlarged charity. The "Ode to Labour" which was written by Mr. John Plummer for the opening, was sung by a choir of several hundred voices to music composed by Dr. W. Spark. The surplus realized amounts to 800*l.*, which will be expended in silver and bronze medals, certificates, and chromo-lithographic views of the exhibition for presentation to the exhibitors.

Sanitary Matters and the Church.—A requisition to the following effect, signed by twenty-five London incumbents, has been addressed to the president of Sion College:—

"We, the undersigned, believing that the sanitary condition of the metropolis, and of the dwellings of the labouring classes, seriously affects the work of the London clergy, request that you will call a meeting of the Fellows of Sion College, that we may take counsel together on the subject. And we undertake to be present at such meeting."

A meeting of the Fellows of Sion College has been accordingly called for this Friday, the 16th.

The Quebec Fire.—When fire destroyed about two-thirds of Quebec twenty-one years ago, assistance was given to the rebuilding on condition that nothing but incombustible materials should be employed in the reconstruction of the houses. Thus it was that nearly 3,000 wooden houses were replaced by as many of stone and brick, and thus was saved from total destruction, at the recent fire, the entire quarter destroyed by fire in 1845. Since the former period, however, an entire town has been built in wood beyond the Quebec city limits, and in a locality over which the municipal authorities could exercise no control, and there it was that about 2,500 houses were destroyed on the 14th of October, in about twelve hours. The value of a good incombustible party-wall can scarcely be over-estimated.

The Paris School of Fine Arts.—Since the reorganisation of this school, improvements have been made in the course of studies. According to the *Society of Arts' Journal*, there will be thirteen lectures a week: two of these are addressed especially to pupils in the class of painting, and two to those in the architectural class; the remainder apply to all the classes. M. Chevillard lectures on perspective, once a week for the painters, and once for architects; M. Ossian Bonnet treats twice a week on descriptive geometry; M. Baude also twice a week on practical construction, administration, and accounts. The studios of the school are directed by the painters Cabanel, Pils, and Gérôme; the sculptors Dumont, Jouffroy, and Guillaume; the architects Constant Dufaux, Paccard, and Laisné Charles; the engravers Henriquel Dupont and Farochon; the greater portion of whom are members of the academy of the fine arts in the Institute of France.

Clearance for the Law Courts.—The extensive and complicated network of lanes, courts, and alleys covering the area bounded east and west by Bell-yard and Clement's-inn, north by Carey-street, and south by the Strand and Fleet-street, lately containing a population more numerous than that of many Parliamentary boroughs, is being fast deserted. A few of the winding thoroughfares are not yet disturbed, but several of old and worse than equivocal notoriety, and in which, a few weeks ago, passage was rendered somewhat difficult by the human swarms whose modes of existence are among the unsolved "social mysteries," are now almost uninhabited, only a house or two remaining, in exceptional cases, where a brief extension of term has been granted. The weekly tenant of an unfurnished room does not go away without some *solatium*, but receives a gratuity of 2*l.*, 3*l.*, and, in some cases, 4*l.* or 5*l.* Curiously enough the occupiers of rooms furnished by the landlords receive no gratuity, though it would be difficult to conceive how their trouble and loss can be less than those of the "unfurnished" lodgers, whose valuables could be contained in a hand-truck. In cases where the holders of tenements were to any possible extent dependent on the letting out of rooms, higher sums have been awarded, and the very small shopkeepers who so abound in poor densely-peopled purlieus, and whose tenure was commonly a weekly, or, at furthest, a monthly one, have received something additional, though, as may be judged, the fund allocated to these bounties would not afford anything like full compensation for what is to many the destruction of their livelihood. By the displacement of so many hundreds of poor families the unhealthy courts about Drury-lane, Bedfordbury, the Seven Dials, and other localities, already reeking and noisome with excess of numbers, have become more overcrowded than ever. The rents of the most miserable rooms have materially risen, and another entanglement is added to the difficult problem, "How and where the poor are to find suitable dwellings?"—*Sunday Gazette.*

VALUE OF A HOUSE IN ST. JAMES'S-SQUARE.—Messrs. Robinson & Hetley have sold the freehold of the mansion, 9, St. James's-square, for the sum of 35,000*l.*

THE RIVER PIERS AT LIVERPOOL. The Mersey Docks and Harbour Board have resolved, on a motion by Mr. Laird, M.P., to apply to Parliament for powers to improve the approaches to the river on the Liverpool side, at an estimated expenditure of 170,000*l.*

NEW CORN EXCHANGE, LUTON. — The local Board of Health have passed a resolution requesting Mr. G. Halton, architect, to draw up plans and specifications for the erection of a new corn exchange. The time for accomplishing the work, according to agreement with the lord of the manor, will soon have expired.

PARIS ACADEMY OF FINE ARTS.—At the annual sitting of the Academy of Fine Arts at Paris, the Lambert prize, of the value of 1,300 francs, was adjudged to M. Nanteuil, painter. The Deschaumes prize of 1,500 francs is divided between two young architects, MM. Marcel Boisvert and M. Méquer. The prize founded by M. Achille Leclere in the architectural section, the subject of which was "A monument commemorative of the excursion of their Majesties in Algeria," was assigned to M. Ferdinand Dutert.

DECORATION OF ST. STEPHEN'S CHURCH, BARBOURNE.—From designs of Mr. F. Preedy, architect, the interior walls of this church (of which he was the architect), are being decorated. On the east wall, over the reredos, are four angels, well executed, two holding emblems, and the other two instruments of praise, and surrounded by a rich ornamental ground. The figures are on blue ground with gold nimbi. The ornamental ground that surrounds the figure shapes is rich, and aids the east window, of which Mr. Preedy is also the artist. Over the windows and elsewhere are inscriptions.

THE PORTSMOUTH SURVEYORSHIP.—Mr. Greatorex, the Coventry city surveyor, who a few weeks since had his salary raised from 200*l.* to 300*l.*, has been formally appointed surveyor and engineer to the Local Board of Health at Portsmouth, at a salary of 500*l.* a year. Mr. Greatorex was one of seventy candidates, amongst whom were gentlemen of high position in their profession. The opponent who ran him the most closely was Mr. Morgan, of Wolverhampton, and that gentleman only withdrew from the contest at the last moment, because of his employers having consented to increase his salary from 450*l.* to 600*l.* a year, rather than lose his services.

A NEW MARKET-HALL FOR BRISTOL. — About sixty gentlemen assembled lately at the Queen's Head hotel, Redcliff-street, to inaugurate the opening of "The Bristol and West of England Market-room." Mr. Marshal Flower, the landlord of the Queen's Head, erected the room. It has been built on the Thomas-street side of his premises, in the neighbourhood of the Wool Hall, and close to the Weighbridge; and to accommodate the large number of frequenters to these places an entrance has been made to the room from Thomas-street. The room is 72 ft. long and 20 ft. wide. It is 14 ft. high, and is well lighted both by day and night. It is capable of dining 200. The room will doubtless be also found useful for the holding of ward and other meetings.

POWER OF THE WIND.—The wind recently blew a hurricane at Keith, and the focus of the storm, says the *Elgin Courant*, was at the Isle Mills, near the railway station. The wind lifted one of the roofs—the outside one—100 ft. long and 30 ft. broad, and without a plank falling, the whole was borne 20 ft. high in the air, and was carried over three houses, when it came in contact with the engine-stalk, and knocked it over from the foundation. The stalk was 50 ft. high. Without being in the slightest degree arrested in its progress through the air, the flying roof passed over the ruins of the engine-stalk, and coming in contact with a cloth and yarn warehouse, two stories high, smashed the slates of it, carried away its chimney, and then spread over the road in pieces, involving the railway telegraph-wires in the rain. The roof flew—body bulk, as the phrase goes—more than sixty yards before it came to the ground; and, what is even still more surprising, it rose from a one-story house and passed over two two-story houses.

THE SEWERS OF VIENNA. — In Vienna they are discussing the desirability of adopting the plan often proposed here, of drawing the air from the sewers through peculiarly-constructed furnaces provided with tall chimneys. To create this necessary draught about twenty furnaces would be required. By this means the sulphuretted hydrogen and other combustible gases would be destroyed, and the unconsumed injurious emanations, being rendered specifically lighter by the heat, be carried away. It is supposed that this plan applied to the whole of Vienna will cost, at the utmost, 18,000*l.*

OPENING OF A DRINKING FOUNTAIN AT PENZANCE.—A new drinking-fountain has been erected and opened in the Alexandra-road, Penzance. The fountain consists of Cornish granite, supplied by Messrs. Freeman. The upper portion, containing the inscription, is a square block, ornamented and fixed on a long pedestal. On two sides a basin and ladle, with brass tap, are fixed, to draw the water when required. The inscription is as follows:—"Alexandra-road. Her Royal Highness Alexandra, Princess of Wales and Duchess of Cornwall, opened and named this road 24th July, 1865.—Francis Boase, Mayor."

THE NEW PIER AND PROMENADE AT WEST COWES.—The first pile has been driven by Dr. Kernot, one of the promoters of the undertaking. The proposed pier will be of iron, and will project from the back of Gloucester and Yarborough houses, in the High-street, into the mouth of the harbour. It will be 50 ft. wide, and at the end there will be a sliding girder, 75 ft. long, terminated by an iron pontoon, 30 ft. wide by 60 ft. in length, the whole projection from end to end being about 380 ft. The architects are Messrs. Hughes & Bage, of Westminster; and the engineer and contractor Mr. Dowson, also of Westminster.

FIRE AT A BUILDER'S IN EXETER.—An extensive fire in this city has occurred, the saw-mills of Messrs. Moass & Son, builders, having been completely razed to the ground. The building was a new one, two stories high, and situated in Coombe-street, the very heart of the city, being surrounded by houses, two of which were also destroyed. The fire caused the utmost excitement and alarm, as the mills were well stocked with timber and other inflammable materials. The total loss is estimated at 5,000*l.*, part of which is covered by insurance. The workmen of Messrs. Moass are great sufferers, having lost their tools. Messrs. Moass have at present the contract in hand for building the Wonford Asylum, and the disaster will occasion them great inconvenience.

RYE-GRASS AND SEWAGE.—The editor of the *Agricultural Gazette* wrote lately as follows:—"We have this week cut plots of Italian rye-grass sown 11 or 12 weeks ago, which have since been watered (part of 30 or 40 acres similarly laid down) with 400 or 500 tons per acre of North London sewage. They yielded at the rate of 10 tons per acre of first-rate succulent cow food. Unless we should have a very severe November we cannot doubt that they will yield another 10 tons per acre before the winter, after another similar dressing. At Worthing we hear of a single cut of 20 tons having been obtained from rye-grass similarly treated. Near Barking they have cut in places 20 tons per acre at a single cutting; and from the surface of sheer sea-sand, dressed with the water from the North London outfall, they have cut 10 to 12 tons per acre of grass at a single mowing as the result of four or five weeks' growth."

IMPROVED EXCAVATOR.—An improved excavator has been introduced in Iowa, by Mr. Bradley, in the working of which two plough-like shovels are propelled through the earth, from 2 in. to 6 in. below the surface, as regulated by the foot of the driver; a huge revolving hoe comes down and takes the earth behind, up an inclined plane, upon a long revolving apron or elevator, which carries it backward and upward, over the main wheels, till it is nearly 20 ft. above the ground behind; and there is another transverse apron, adjustable to a rise or fall of any distance, which takes the dirt to wagons, or dumps it outside the track. The whole is drawn by six or eight horses, cutting a trench 3 ft. wide at each advance; and if working at the full capacity designed it will remove from three to four cubic yards of earth per minute, equivalent to ninety men. But if it attains to only one or two yards per minute it will be a great thing.

A COLT MEMORIAL.—A monument, 60 ft. hig[h] of Scottish granite, and to cost 25,000*l.*, is abou[t] to be raised to Colonel Colt, the inventor of th[e] Colt revolver. The monument has been executed by Messrs. Macdonald & Field, of Aberdeen.

PROPOSED NEW OPERA-HOUSE. — We unde[r]stand that the erection of a new opera-house contemplated by Mr. Mapleson, Leicester-square and that Mr. E. Salomons, of Manchester, wi[ll] be the architect of the new structure. The pr[e]cise statements made in the daily papers are pr[e]mature.

ROYAL HIBERNIAN ACADEMY OF ARTS. — S[ir] Thomas Deane has been elected president. A[n] architect was the original founder of the institu[-]tion, and an architect again presides over i[t] deliberations. The other elections are, secr[e]tary, Mr. M. Angelo Hayes; treasurer, Mr. Georg[e] F. Mulvany; keeper, Mr. Henry Macmanu[s] Visitors to Living Model School,—Mr. Thom[as] Bridgford, Mr. Thomas Farrell, Mr. M. Ange[lo] Hayes, and Mr. Charles Grey. Visitors to Pain[t]ing School,—Mr. Thomas Bridgford, Mr. Charl[es] Grey, Mr. J. R. Marquis, and Mr. George Sharp[e] Professor of Painting, Mr. Henry Macmanus Professor of Sculpture, Mr. J. R. Kirk; Profe[s]sor of Architecture, Mr. J. J. M'Carthy; Profe[s]sor of History and Antiquities, Mr. John [T.] Gilbert. The council nominated for next ye[ar] were Messrs. G. F. Mulvany, B. Mulrenin, Georg[e] Sharpe, Thomas Bridgford, P. V. Duffy, an[d] Thomas Farrell.

NORTHAMPTONSHIRE ARCHÆOLOGICAL AN[D] ARCHITECTURAL SOCIETY.—The annual meetin[g] of this society has been held in the Society' Rooms, Gold-street, Northampton. The Re[v.] Lord Alwyne Compton was in the chair. Th[e] report having been read by the secretary, th[e] committee and officers of the society were r[e]elected, and a paper "On Church Seats" wa[s] read by Sir Henry Dryden. The object of th[e] paper was to show by diagrams and drawing[s] the kind of seat best adapted to the Liturgy [of] the Church of England, in which kneeling is [a] principal feature. With the present construc[-]tion of seats, kneeling, in Sir Henry's opinio[n] was not so easy a matter as people thought it [to] be; and hence, instead of kneeling, a species [of] "squatting," which was anything but devotiona[l] was adopted. A discussion on the several poin[ts] named in the paper was carried on by the mem[-]bers present; and eventually, at the request [of] the committee, Sir Henry Dryden consented [to] print his paper with his illustrations.

TENDERS

For the erection of the New Meat Market at Smit[h]field:—

R. Ashby & Sons	£172,000	0	0
Ashby & Horner	165,000	0	0
Willson & Sons	164,200	0	0
Patman & Fotheringham	164,000	0	0
Kirk	163,842	0	0
Trollope & Sons	157,935	0	0
Piper & Wheeler	154,300	0	0
J. & C. I'Anson	152,875	0	0
J. Perry & Co.	152,777	0	0
G Myers & Sons	150,900	0	0
Hill & Keddell	149,764	0	0
Higgs	147,890	0	0
Mansfield, Price, & Co.	147,500	0	0
Holland & Hannen	146,970	0	0
Jackson & Shaw	142,696	0	0
Foster	138,440	0	0
Henshaw	136,918	0	0
Browne & Robinson (accepted)	134,460	0	0

The contract accepted is 29,540*l.* less than the arch[i]tect's estimate, which was 165,000*l.*

For the erection of a house on Lot 7, "The Elms Ramsgate, for Captain Marshall, R.N. Mr. John [C.] Collett, architect:—

Crickett	£633	0	0
Marrable	500	0	0
Newby	490	0	0

For additions to manufactory at Burslem, for M[r.] Thos. Hughes. Messrs. Scrivener & Son, architect[s] Quantities supplied:—

For the Buildings.

Blackhurst	£1,706	8	0
Steele	1,675	0	0
Mathews	1,671	0	0
Harley	1,634	0	0
Barlow	1,620	0	0

For Engine and Machinery.

Hancock Foundry Company	£1,284	14	0
Kirk	1,278	0	0
Barlow	1,140	0	0
Boulton	1,050	0	0
Warner	1,043	10	0

For rebuilding warehouses, Broad-street, Reading Messrs. Wm. & J. T. Brown, architects. Quantities n[ot] supplied:—

Higgs	£735	0	0
Carter	724	0	0
Simonds	671	0	0
Bloomfield	555	0	0
Barnicoat (accepted)	517	0	0

For the erection of a cottage, Tappenden-street, Reading, for Mr. Coffin. Messrs. Wm. & J. T. Brown, architects :—

Gaiter (accepted) £157 10 0

For the erection of St. Mary's Institution for R. C. Blind Females, at Merrian, county Dublin. Mr. Charles Geoghegan, architect. Quantities supplied by Messrs. Dudgeon :—

Hammond	£12,071	0	0
Beardwood	10,823	0	0
Hughes	10,500	0	0
M'Cormack	10,310	15	4

For rebuilding new tavern in High-street, Ramsgate, for Messrs. Cobb & Co. Messrs. Scar & Boyd, architects :—

Osborne & Adley	£1,035	0	0
Slayer	835	0	0
Elgar (accepted)	800	0	0

For alterations and improvements at the Prince of Wales Inn, at Margate, for Messrs. Cobb & Co. Messrs. Scar & Boyd, architects :—

Brown & Son (accepted)	£215	0	0
Chapman	205	0	0

For new roof and alterations at the Powell's Arms Inn, Birchington, for Messrs. Cobb & Co. Messrs. Scar & Boyd, architects :—

Merton	£203	0	0
Chapman	127	0	0
Brown & Son	117	0	0
Holness (accepted)	105	0	0

For alterations and additions to a warehouse, No. 23, Castle-street, City. Mr. Herbert Ford, architect :—

Crabb & Vaughan (accepted) £584 0 0

TO CORRESPONDENTS.

A Reader (it is in truth a *clear*-story : often written "clerestory." To pronounce it klee'-es story is to disguise its meaning).—J. P (consult your architect). —C. I. A. (we cannot reply without seeing drawings).—A. G. (send us small plan of ground floor and first floor : we will publish them).—Crumlin Viaduct (in type)—Coldbath Fields (ditto).—W. B.—R. R.—F. & H.—H. F.—C. S.—C. G.—G. & K.—D. M. —C—J. R.—J. D. P.—W. H. S.—C. B. A.—A. D.—E. J. R.—W. & F.—H.—J. R. F.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than **THREE o'clock, p.m.,** *on THURSDAY.*

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 25, Old Bond-street, and 33 & 34, Ludgate-hill, E.C. Established 1749.

ADVERTISEMENTS.

ARCHITECTURAL ASSOCIATION, 9, Conduit-street, W.—The Annual Meeting for the reception of Reports, Accounts, and General Business, will be held on FRIDAY evening, the 23rd inst. at HALF-PAST SEVEN o'clock.

Members desirous of joining a Class for the Study of Practical Subjects bearing on the Profession are requested to send their names to the Secretaries.

J. DOUGLASS MATHEWS, } Hon. Secs.
ROWLAND PLUMBE. }

PLEASE to take Notice, that the NINTH ANNUAL ORDINARY GENERAL MEETING of the ARCHITECTURAL UNION COMPANY, Limited, will be held on WEDNESDAY, the 5th DECEMBER next, at THREE o'clock p.m. at the Premises of the Company, No. 9, Conduit-street, Regent-street, to receive the Directors' Report and the Audited Balance-sheets, to declare a Dividend, and to transact the business required to be transacted at the Ordinary General Meeting of the Company.

INSTITUTE of PAINTERS in WATER COLOURS.—The WINTER EXHIBITION of SKETCHES and STUDIES is now OPEN, at their Gallery, 53, Pall-mall (opposite Marlborough House). Admission 1s. Catalogue 6d.

JAMES FAHEY, Secretary.

TO ARTISTS AND OWNERS OF WORKS OF ART.

THE DUBLIN EXHIBITION PALACE is OPEN to RECEIVE PICTURES and WORKS of ART, for EXHIBITION or SALE.—Apply to J. V. MILLS, A.R. Sec. and General Manager, Exhibition Palace Gardens, Earlsfort terrace.

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TO ARCHITECTS and BUILDERS.
I certify that the Interest, Goodwill, Plant, and Stock in Trade of WILLIAM WILLIAMS, late Revolving Shutter Manufacturer, has been duly purchased from me under an Assignment for the benefit of Creditors of said WILLIAM WILLIAMS, by Messrs. CLARK & CO. of Rathbone-place, London. (Signed)
Waterloo-street, Birmingham. V. W. HOUGHTON, Trustee.

TO ARCHITECTS and BUILDERS.—WM WILLIAMS, of No 1, King Alfred's place, Birmingham, in reference to the advertisement of Messrs. Clark & Co. of London, with effect that they have purchased the Goodwill of his Business of an Iron Shutter Maker, begs to inform his kind Patrons and Friends that they have ONLY PURCHASED the STOCK and PLANT, and HAVE NO CONTROL OVER the GOODWILL. WM WILLIAMS is now prepared to execute all orders entrusted to him, and can supply the PATENT SHUTTERS of MESSRS. BUNNETT & CO. LIMITED, of London, who have appointed him their Sole Agent for the Midland Counties. From his practical experience, and the workmen still in his employ, he has confidence in soliciting a continuance of the support heretofore so liberally bestowed upon him. All Repairs promptly attended to.

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SUPERINTENDENT.—The Burial Board of St. Pancras will meet at the Vestry hall, St Pancras-road, on TUESDAY, the 27th day of NOVEMBER next, at THREE p.m. to receive APPLICATIONS and TESTIMONIALS from persons desirous of offering themselves as Candidates for the above office. The salary is 100*l.* per annum, with residence and garden-ground free. Candidates must be between the ages of 25 and 45, give security for 100*l.* and, if married, be without encumbrance. Applicants may see list of duties at the Office, from TWELVE till TWO daily. They will be expected to attend personally before the Board, but no travelling or other expenses will be allowed.—Applications, in candidates' own hand, and testimonials, to be sent in, addressed to me, at the Burial Board Office, before TWELVE o'clock (noon) on the day specified.—By order of the Board,
CHARLES GREENE, Clerk.
Burial Board Office, St. Pancras Vestry-hall,
November 14th, 1866.

TO TOWN SURVEYORS.
THE Local Board for the district of Eastbourne are desirous of ENGAGING the services of an experienced and practical Man to act as TOWN SURVEYOR at the end of the present year. Besides the ordinary duties of a surveyor of a district under the Public Health Act and the Local Government Act, the charge of the gratings and sea defences will be within his duties, also the inspection of nuisances, common lodging houses, and slaughter-houses. He will be required to devote his whole time to the service of the Board, and not to engage in any private business. Salary, 150*l.* per annum. The strictest inquiries will be made as to the capabilities of the candidates. Canvassing of any description is strictly prohibited. Applications, with testimonials, to be sent to the undersigned on or before the 1st day of DECEMBER, 1866.
J. H. CAMPION COLES, Clerk to the Local Board.
Eastbourne, Nov. 14, 1866

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WANTED, a thoroughly practical and experienced WORKING FOREMAN capable of taking the sole CHARGE of an extensive Jobbing Smith, Bell hanging, and Gasfitting Business in the absence of the principal. Liberal wages will be given to any one who can produce first class certificates of character, and who would really take an earnest interest in the efficient working of the business. Letters only in the first instance to PRACTICAL, 5, Carnaby-street, Regent-street, W.C.

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WANTED, by an experienced Bricklayer, PIECEWORK, either first, second, or third quality houses. Can supply a small quantity of scaffolding if required.—Apply to JOSEPH HILLARD, No. 53, Auckland street, Vauxhall.

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TO BUILDERS AND CONTRACTORS.

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WANTED, a PARTNER, in the above line, with about 1,500l. Must be an earnest, enterprising, and practical man. The Advertiser has capital business premises, and good capital at command. Many years at present address. The strictest references given and required on either side. Address, by letter, Mr. D. 1, Carlton-road South, Globe-road, Mile-end, E.

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WANTED, by a thoroughly practical Man, a Carpenter by trade, a RE-ENGAGEMENT as GENERAL FOREMAN or the Charge of a Job; or to take the Carpenter's Work piece-work. Good references.—Address, J. E. 10, Tudor-place, Tottenham-court-road.

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TO CIVIL ENGINEERS AND CONTRACTORS

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WANTED, EMPLOYMENT, as WORKING FOREMAN, or otherwise. A good plumber, painter, and glazier.—Address, stating wages, Y. D. 36, Stafford-street, Lisson-grove, W.

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REQUIRED, a RE-ENGAGEMENT, by a Temporary or other wise. Is a good draughtsman, can prepare and finish working drawings from rough sketches. Well up in perspective and colouring. Good references. Terms moderate.—Address, F. J. care of Mr. Moore, Stretford Post-office, near Manchester.

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OCCASIONAL ASSISTANCE by a SURVEYOR of twenty years' practical experience in Taking off and Preparing Bills of Quantities, Measuring, Writing Specifications, &c.—Address, SURVEYOR, Office of "The Builder."

CLERKSHIP.—A Young Man, aged 28, well up in Book-keeping, &c. is desirous of obtaining a RE-ENGAGEMENT as CLERK, to occupy his whole or portion of his time. Has had considerable experience with Engineers and Founders. First class reference. Salary moderate.—Address, A. B. Weston's Library, 2, Arundel-place, Westbourne road, Barnsbury.

TO BUILDERS, PLUMBERS, &c.

A GOOD PLUMBER wants a SITUATION or a Job, as THREE-BRANCH HAND. Good reference.—Address, A. C. 5, Park place Cottages, Lower Park-road, Old Kent-road.

A BRICKLAYER of experience requires a RE-ENGAGEMENT as FOREMAN, or in any class of work; sub-contract preferred. Good reference.—Address, A. Z. 41, Powis-road, Bromley by Bow, E.

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AN OLD HAND offers his services as ASSISTANT to a respectable Architectural firm. The Advertiser is accustomed to design, detail, and make finished drawings for buildings of a large class, and possesses a considerable stock of architectural books and drawings, and also casts, which he would place at the service of his principal. Perhaps a moderately young architect might find this an eligible opportunity. Terms moderate. Town or country. Address, A B, care of Mr. Thomas Meyer, 23, Dock street, Newport, Monmouthshire.

AN ARCHITECT requires TEMPORARY and EVENING ASSISTANCE.—Apply, personally, to Mr. TURNER, 1, Verulam-buildings, Gray's Inn

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AN efficient BUILDER'S CLERK, aged 27, will shortly be Disengaged. Is a good draughtsman, and accustomed to prepare quantities, estimate, extras and omissions, accounts, prime cost measurements, &c. three years in present situation. Good reference.—Address, 888, Office of "The Builder."

The Builder.

VOL. XXIV.—No. 1242.

The Romance of Statistics.



N the correspondence of Napoleon may be found a characteristic letter to Joseph Buonaparte during the ephemeral monarchy of the latter at Naples, in which the Emperor, insisting on the importance of paying attention to the monthly military returns which he had ordered, says that no school-girl looks with so much impatience for a new novel as he feels in the expectation of these returns.

The comparison between the excitement to be derived from a work of fiction and that caused by the perusal of columns of figures, is somewhat original, and would not strike all readers as felicitous. Yet the lessons to be drawn from statistical returns have, if duly received, more to impress the imagination than the sensation scenes of the novelist. The tale of the ebb and flow of the tide of human life that is told by almost any of the returns of the Registrar-General is more wonderful than any of those of the "Arabian Nights." The din and roar of the streets of the great metropolis yield but a harsh and dissonant music, but the sound is full of human energy, passion, and struggle, and beats as the very pulse of the civilised human life that has its home in our planet.

In a recent very able report to the special Committee upon Improvements of the Commissioners of Sewers of the City of London, their engineer, Mr. W. Haywood, has brought together and tabulated an amount of statistical information which enables us to present in a few lines such a view of the magnitude of the metropolis as we shall vainly seek to parallel elsewhere. The object of the report is to point out the necessity of certain improvements in the great channels of metropolitan traffic, and the irrefragable eloquence of figures undeniably proves the case of the reporter.

The area included in Wyld's new Plan of London covers a space of eight miles east and west, by five miles north and south; but the Metropolitan districts comprised in the census of 1861 include thirty-six parishes or districts, with a superficial average of a little more than 120,000 acres, or 122 square miles, being somewhat more than half the area of ancient Babylon. The population resident over this area is estimated by Mr. Haywood at 3,000,000 souls. A writer in the *Edinburgh Review* of last April increases this total by more than 200,000. The exact number of inhabitants, excepting in the actual years of the decennial census is matter of estimate; but there is no doubt that during the first sixty years of the present century the number of Londoners has trebled, or that it doubles in some forty years. The rate of decennial increase during the period has varied from now 18 to about 23 per cent., the lower figure being that attained from 1801 to 1811, and the higher ratio from 1831 to 1841, and the higher ratio marking the last decade, from 1851 to 1861. The distribution of this vast population, the average density of which is about 25,000 per square mile, varied at the last census from 170,194 persons per square mile in the East London district, to 2,443 persons per square mile in the parish of Lewisham, and the tendency of householding arrangements is decidedly towards an equalization of density; the East London district having 15,500 per mile fewer inhabitants in 1861 than in 1851, and the City, 15,300 per mile fewer in the same period, while the density in Lewisham parish has nearly doubled. Kensington and the river-side districts have shown the most rapid increase during the period, and the only metropolitan districts with less than 10,000 inhabitants per square mile in 1861 were Hampstead, Wandsworth, and Lewisham.

The City of London, with an area of 631 acres, or nearly one square mile, is the commercial centre of this vast and rapidly increasing mass of buildings; and the importance of the City in this capacity is shown by the statement, made from actual enumeration, that in 1848 a traffic equal to one-seventh of the whole metropolitan population entered the City during nine of the busiest hours in the day, that in 1860 a traffic equal to nearly one-fifth of the whole metropolitan population entered the City during twelve of the busiest hours of the day, and a traffic equal to one-fourth of the whole metropolitan population during the twenty-four hours.

Had the persons so enumerated marched into the City in a body, in open marching order, and at the quick-march step, allowing five hours to be occupied from the time that the head of the column entered until the arrival of the rear, that column would have been 40 files in width, occupying a roadway of 70 ft., and extending for 16¼ miles in a dense unbroken phalanx. A sixth of the enumerated number were females, rather more than three-fourths were on foot. The horses engaged in carrying the remainder cannot be estimated at less than 25,000. Had this large army entered the City as troops on inspection or parade, and remained in the streets, the pedestrians would have covered the whole of the footways, and three-fourths of the carriageway within the line of the ancient walls, and the horses would have left but little of the remaining portion of the carriageway uncovered. As the area of carriageway in the City is rather less than one-fourth of the total area, and as the houses may be taken to have three floors on an average, we can conceive the physical possibility of a much larger number of persons—of the whole, or even of the double of the whole metropolitan population being packed away in the City; but their entrance or their exit would pass the limits of possibility except by virtue of the most rigid military discipline. It is hard to tell what would be the actual limit to increased traffic, but the question must be approaching a solution, since the traffic increases at a much more rapid rate than does the population, the vehicles entering the City having augmented 56½ per cent. from 1850 to 1865, while the increase of the population, during those fifteen years, was somewhat less than 34 per cent. Instead of wondering at the blockade that occasionally occurs, it is matter of admiration that, with such an enormous traffic, so little interfered with by police arrangement, the blockade is not perpetual.

The actual increase or decrease of a given population is due to two causes,—the difference between the total number of births and that of deaths, and the difference between the number of settlers and of emigrants; of those who come to the metropolis to join in the great struggle for subsistence, or for wealth; and of those who seek the comparative repose of a rural district when retiring, beaten or victorious, from the contest. Of the former the Registrar-General furnishes us with weekly returns. The number of the latter, or rather the balance of the numbers, can only be accurately ascertained by comparing the data furnished by successive periods of census with the movement due to natural causes; that is to say, with the gross excess of births.

If the little human beings whose arrival, welcome or unwelcome, causes so much anxiety and bustle in more than three hundred London homes within every twenty-four hours, were borne to the City by their nurses, as the *neonati* in Italy are borne, through every inclemency of weather, to the churches within a few hours of birth, it would require a train conveying fifty nurses, each carrying a baby, to arrive daily at six of the main railway stations. From the four other principal stations, with equal punctuality, would daily be despatched the grim convoy of fifty coffins. How little does the habitual resident of London see of the two hundred daily funerals!

To accommodate the permanent daily increase in the metropolitan population of 120 souls, we require the daily erection, from foundation to roof, of seventeen houses at least, two of which must be furnished with stables. Were these houses erected in a single line, that line would run a mile into the country in the course of a fortnight, and an observer at the distance of the moon might detect the monthly increase of the orbit of the City as if it were the result of some giant process of crystallisation.

When we reflect on the magnitude of the commissariat necessary for the daily supply of the wants of this great encamped army of three millions of souls, and on the regularity and punctuality with which these wants are supplied, we cannot fail to be struck with the admirable working of the self-created, self-regulating machinery. The utmost resources of the French empire, the utmost efforts of the great military genius of Napoleon, collapsed under the attempt to feed the great army that invaded Russia, to supply the bare necessaries of one-sixth part of that great population which daily has to be fed in London; and not alone to be fed, but to be supplied with every comfort and with every luxury that their respective means can command. In no spot on the surface of the globe is all that is most excellent so completely at the command of the purchaser. Bright sun and blue skies are, indeed, denied to the metropolitan resident; and pure air, the first great requisite of health, is, partly per force and partly through neglect and wasteful extravagance, placed beyond his reach. But all that can be bought awaits his selection. With some few and rare exceptions, such as the delicious fruit of the nespilus, the luscious syrup of the sun-ripened fig, the true flavour of the golden orange, to know which the shores of the Mediterranean must be visited, Covent Garden offers better fruit and better vegetables than any other spot. The vintages of Italy and of Spain can produce no rival to the English hot-house grapes. The torrid zone produces no ananas so fine as those forced in England. Mountain, and moor, and loch, sea, and meadow, and garden, all send their richest natural wealth to supply the London market; and those who are familiar with the more scientific cookery of the Continent are aware that for flavour and for condition no meat, no game, no fish, and but little fruit or vegetable food rivals that which is to be found in every quarter of our city.

The bulk in which any individual article of consumption is supplied, could it but be brought in unbroken mass beneath the eye, is almost incredible. Look at the item of milk. The total number of cattle in England and Scotland in March last fell short of five millions. Of these how many are milch cows, and how many of these milch cows are devoted to the supply of London? How overpowering must be the temptation to temper with more and more of the

produce of the *black cow* that of the 150,000 kine needed to supply the six thousand cubic yards of milk that are requisite in order to supply a gill per mouth of this most nutritious liquid! Fancy the basin that this quantity would fill, 120 ft. long, 60 ft. wide, and 30 ft. deep. Think of the supply of water which the various companies tell us they daily force through their mains, some hundred millions of gallons,—water enough to fill a tank of the size of Lincoln's-inn-fields, to the depth of 30 ft., being a cubic quantity about the double of the daily quantity of coal raised from our whole island. It is true that Mr. Bazalgette tells us that he only pumps about half this quantity into the Thames at Crossness. What becomes of the odd fifty millions of gallons? Is the metrical system of the water companies absolutely to be relied on? From what source shall we draw the two hundred and forty millions of gallons of water that will be daily demanded by London in the year 1900, if London advance through the remaining third of the nineteenth century at the same hot pace as that kept up until now?

We have referred to the area of Babylon as about double that of London. Our ideas of the magnitude of the great Assyrian cities have been stimulated by the researches of recent explorers, and the spoils collected at the British Museum enable us to give precision and reality to the pictures drawn from the description of Herodotus, or from the still earlier references to the "exceeding great city" on the Tigris. But in density of population it is certain that Nineveh or Babylon could not be compared with London. These ancient cities were rather walled provinces than overgrown towns, and must have resembled the thickly-grouped gardens of the plain of Sorrento far more closely than the acres of chimney-pots that greet the eyes of the traveller arriving from Dover at London Bridge. In the case of hostile attack these cities were self-supporting. Closed by inaccessible walls, and containing and producing within themselves all that was necessary for the support of their population, they could afford to laugh at a besieger. If an impregnable wall were built around our metropolis at the radius of seven miles and a half from the Bank of England, its shelter would be useless to the population the moment the lines of communication were interrupted. London could not hold out for three days against such a leaguer as Cyrus or as Darius drew against Babylon. The utmost density of the population of Jerusalem during the siege, taking those numbers given by Josephus, which some writers have called fabulous, was considerably less than the density of the East London district in 1851. Euphrates bore no commerce such as that of the Thames. The facilities afforded by the ancient river for the supplies of the great city that she watered can only be compared to that which we have now entirely abandoned,—the water-carriage of the Upper Thames. Tyre must be joined to Babylon to afford any parallel to the commerce of London. The Cloaca Maxima of Rome is a trifle in comparison with our underground railways. The river wall that, after so many centuries of neglect, is now replacing the mud-banks from Blackfriars to Westminster, may compare, without disadvantage, with the work of Nebuchadnezzar the Great. The Victoria Tower yields in magnitude to that crowned by the Temple of Belus, but the amount of skilled labour bestowed on the stonework of the Palace at Westminster, on the iron bridges that span street and river, on dome, and spire, and tower, and steep-gabled palatial hotels now rising in every quarter of the metropolis, exceeds in magnitude almost as much as in excellence the efforts of the "naked human strength" that faced the mounds of the Assyrian capital with sun-dried bricks.

We have spoken of Mr. Haywood's report as proved by his statistics,—that is, be it understood, as far as the need of a new bridge and of a new street. The exact locality of each is fit matter for discussion. For our own part we should suppose that a bridge crossing opposite Great Tower-hill would far better serve the requirements of the traffic than one below the Tower. For a broad street, running, as proposed by Mr. Haywood, from Christ's Hospital to Wormwood-street, and so on to Whitechapel, we should think that a re-construction of the line of Gresham-street would be advantageously substituted. The lines of existing streets, however inadequate their width may be, show the course of the natural traffic of the City. The effect of improving these lines of communication can be calculated on; that of diverting the traffic by a new road in a diverging direction must be uncertain, and may be unsatisfactory. Few persons going from Holborn to the Bank would pass through a new street that added the length of Moorgate-street to their walk, while many, even now, take the irregular, but quiet line of Gresham-street to avoid the throng of Cheapside. Another line, not pointed out in the report, would tend most materially to relieve the densest pressure in the City. In no spot, probably, in the world, is there such an active human circulation as at that junction of Mansion House-street, Princes-street, Threadneedle-street, Cornhill, and King William-street, over which, in nine busy hours, pass 56,000 pedestrians. A new broad street, taking the line of Bucklersbury, and running on till it struck King William-street, would accommodate an enormous traffic in its natural direction, and, in combination with the proposed widening of the Old Jewry, and that reconstruction of the line parallel with Cheapside, which we have just indicated, would produce a greater relief to traffic, at a less expense, than any hitherto suggested.

In all questions of reform or of change the first requisite is to know the facts of the case. The main facts of the London traffic are now clearly ascertained. The mode of dealing with them, if this can be made a scientific and not a personal question, is the natural sequence of the true appreciation of their nature. From the returns now before us, aided by some supplementary examination which need involve no considerable amount either of cost or of time, it would be easy to construct a chart, showing by number of lines and density of shade the actual movement of traffic and density of population over the metropolitan area. It is the *métier* of the engineer to show how best to provide for this traffic on the map. The subject yet requiring elucidation is the relative cost of demolitions for the purpose of new streets in the several directions that may appear, as far as regards plan, about equally serviceable for the enormous and rapidly growing traffic of this great metropolis.

THE CONVENT OF ST. MARK, FLORENCE.

FRA ANGELICO.

THE fate now impending over religious orders in Italy seems not to have excited much sympathy or compassion for the sufferers, but certainly to have awakened some anxious regards for the future of those establishments that have received lustre from art or historic memories. Conspicuous for both classes of claims is the Dominican Convent of *S. Marco*, at Florence, enriched by the most admired frescoes of Fra Giovanni (styled "Angelico"), by other pictures of Fra Bartolommeo and Ghirlandino, and consecrated by history as the home of such men as the two former friar-artists, the Archbishop Antoninus and the martyred Savonarola, some of the most thrilling and tragic scenes in whose life took place within these walls, described in a manner that throws additional interest on their sites in the able biographic work by Professor Villari. The Dominican order, established in Florence shortly after the death of their founder, built their first church here over the ruins of a smaller and much more ancient one, in 1256; but their present splendid church in the Pointed style, S. Maria Novella, is the later improvement upon that first attempt with architecture, commenced 1278 and completed 1357, by the labours exclusively of artists and artisans belonging to their own religious community. Another house in Florence is said to have been conceded to them prior to 1290, but afterwards transferred to monks of the Sylvestrine order, who, however, having made themselves unpopular, and been complained against by the magistracy, eventually gave place to the same friars, the latter becoming finally installed in 1436, and with solemn ceremonial, at the convent thenceforth known as the Dominican S. Marco. An enlargement of these premises being now requisite, Cosimo de' Medici undertook the entire costs of the works, amounting to not less than 36,000 ducats; and the architect, Michelozzi, completed the new church and cloisters between 1437 and 1441 (or, according to Vasari, 1452); one compartment in this convent, a spacious vaulted hall, with two files of Doric columns, becoming the library, the first to be opened and maintained for public use in Italy, and whose first directing librarian was Tommaso da Sarzana, afterwards illustrious on the papal throne as Nicholas V. The munificent Cosimo also assigned 1,500 scudi for the purchase and illuminating of choir-books to furnish the new church; and on the Feast of the Epiphany, 1442, St. Mark's was consecrated by a cardinal archbishop, Pope Eugenius IV. (himself a Dominican), and many other cardinals assisting at the splendid rite, that day being signalized thenceforth by an annual visit of the Florentine magistrates to S. Marco, in order to obtain the indulgence granted by the pope in connexion with its observancy at the same church.

It was in the first year of the Dominican occupation that the artist who has proved a glory to his order, and given to this cloister its still recognised claims on public regard, began his labours here; and it was within the comparatively brief interval from 1436 to 1440, that all his numerous frescoes were executed in the corridors and cells of this building. That artist, whom all, perhaps, agree in considering the highest representative of the mystic and pure devotional school, whose sanctified life was in finest harmony with the creations of his genius, who used to pray for divine light before beginning any new work, and to weep over the Crucifixions he attempted to paint, has been the subject of much erroneous statement; and of all the metamorphoses of names and cognomens in Italian art-history, strangest are those in his case. Three lives of him had been written, but far from efficiently, before the subject was treated by Vasari, who principally availed himself of the information supplied by Fra Eustachio, a miniature-artist of repute, and lay-brother at S. Marco where he had taken vows, 1496. Beyond comparison the best authority as to the art-activities of the Dominican order, is Padre Marchese's "*Memorie dei Pittori Dominicani*," a work of first-rate merits. For the only names by which "Angelico" was called during life, Guido in the outer world, Giovanni in the cloister, has been substituted one he never bore; he has been assigned to Fiesole, though only connected with that town, through the circumstance of his having entered into the religious state at a convent in its diocese; and with touching tribute to his personal and artistic character alike pure and elevated, has been imagined for him a species of implied canonization in that adjective "Angelico" with the prefixed title, "Beato," never conferred by sentence of the Church, never certainly known or heard by himself![*] Nor is even his family surname ascertainable. Born in the province of Mugello, near Vespignano (the birthplace of Giotto), A.D. 1387, he became a novice 1407, at the convent of St. Dominico, that stands, beautifully situated on a terrace up the mountain between Florence and Fiesole there assuming (as ecclesiastical usage requires) his surname of Giovanni, and attaching himself to a branch of his order reformed, on principles of strictest religious observances, but one year before he entered it. Not at the Fiesole convent, but at Cortona was it that, together with his brother (also an artist), he took the vows; and after a long absence, necessitated by the divisions among his co-religionists in the respective causes of three rival popes, returned in 1418 to S. Dominico, the scene of his incessant labours for eighteen ensuing years.

It was probably as a miniature-painter that the skill of Fra Giovanni was first exercised, and, in fact, three of his exquisite little pictures now in the sacristy of S. Maria Novella, are miniature in scale. The Dominican order had begun rapidly to acquire renown in the several walks of art-produce. In the thirteenth century their architects became distinguished, like the Fra Sisto and Fra Ristoro, so much engaged at Florence and Rome; and early in the fourteenth century were painters of this order beginning to class among celebrities. In their cloister the same hand that transcribed the sacred book was sometimes engaged in adorning it with miniatures and arabesque borders, though, more commonly, the *pulcher scriptor* named in convential records confined himself to the simple task of executing the bright-tinted initials while the *pictor*, who is recorded in the same

[*] At the Uffizi is a small collection of his drawings, of which has the name written, "Fra Giovanni Angelico," but we can scarcely suppose this an autograph any more than the same name on other drawings framed together with his, which authorities have classified as "Maniera di Angelico." It is observable that in his sketches more of freedom and vigour than always distinguish his paintings. An "Incredulity of St. Thomas," with many figures, for instance, has the unmistakable character of greatness, and a *conversazione* of young friars displays decidedly comic genius.

page, had the higher aims of the imaginative artist, for the groups or saintly figures on the brilliant missals and evangelium. One Guido, who died of the plague, 1348, at the S. Maria Novella cloister, is the first of this order mentioned in the records as "*pictor*;" but no productions by whom can now be with certainty identified; while in that less arduous decorative art-walk we find named "*pulchri scriptores*," who must have begun their careers before the end of the thirteenth century, as three are known, who died, 1301, 1306, 1336. The next in date to attain celebrity in the higher walks, were Michele della Casa (of the same convent), deceased 1416, who painted two large Psalters for the Novitiate; and the Beato Giovanni Dominici, of S. Marco, who became cardinal and wrote some extant letters to the Dominican nuns at Venice, with interesting counsels as to the style of painting practised by their diligent sisterhood. More familiar in art-story became the name of another to be classed with contemporaries of these two, Benedetto di Mugello, brother of Fra Giovanni, and who took the vows with him, the same engaged so liberally by Cosimo de' Medici for painting all the choir-books of S. Marco, a task he completed in five years.

The externals of the church and convent above named, reduced to a commonplace modern Italian character, with façade built in the last century, are utterly insignificant. Not till we enter the inner cloister, surrounded by fine arcades, with round arches resting on columns, and a pleasant garden in the midst, do we perceive any features either monastic in effect or at all dignified. It is not till we traverse the long gloomy corridors under a roofing of enormous rafters, blackened by age, we enter narrow, vaulted, and dim-lighted cells, that we see manifest indications of that austere religious life here carried out conformably to ascetic ideal under the government of Savonarola. The very first picture that meets the eye, as we cross the outer threshold, is a Crucifixion, life-size, at the end of a portico, with St. Dominic kneeling in ecstacy below the Cross—a work by Angelico, in which appears the intent to return to the earlier treatment by divesting this awful subject of every attribute of physical horror, and restoring to the Redeemer's figure that calm benign beauty which distinguishes it in primitive Christian art—not being here shown in death, but in a state of painless collapse, the head drooping, the eyes partly open. In a lunette near is St. Peter Martyr, with bleeding head, enjoining silence by laying one finger on his compressed lips; and of three other lunette frescoes by the same hand, in this outer cloister, the most impressive is that over the door of the *foresteria* (guest-rooms) of the Saviour in pilgrim-garb received by two friars, who seem urging Him to enter—a felicitous example of the artist's power of expression and earnest tenderness in feeling; nor could the *moral* of the subject be more finely conveyed than in the reverential interest of the friars, evidently blended with a dim perception of something more than human, but to what extent they know not, in the mysterious guest. From a portico of this cloister we enter the chapter-house, a spacious vaulted hall, one side of which is occupied by the largest and most complicated fresco ever painted by Angelico; the Crucifixion, with the two thieves on their crosses; the Maries; St. John the Baptist; St. Mark; and the founders of religious orders; with S. Zanobi, the primitive bishop of Florence; below, along a painted basement, life-size busts of St. Dominic and sixteen celebrated saints, or theologians of his order, the founder himself holding the stem of a mystic tree whose branches intertwine and encircle all those other effigies of his followers; the whole composition to be described, not so much as an historical pre-sentiment of the scene, but rather as an ideal assemblage of the great masters in the religious life, united in the common sentiment of adoring contemplation directed towards the divine sacrifice. It has suffered by the colouring of the background in dusky red, the work of some modern hand, instead of the deep blue which was in other of this master's pictures) was probably the original tint; and when, in the early years of this century, French troops were quartered there, they amused themselves by picking out the eye-balls (now restored) from all those heads along the basement. This hall is again fitted up as a seat of military authorities; and the words "*Guardia Nazionale*" meet the eye in the angle over a door, near its entrance; but scrupulous respect is now ensured, not only to its artistic contents, but to the visitors who find here every convenience for examining them and a choice of photographs from each group in the great picture. We need not describe all the frescoes of smaller scale in the cells and corridors, but merely notice their general argument as an aggregate of the entire Gospel history, from the Annunciation to the Descent into Limbo (or Hades), with the usual imaginary subject of the Virgin's Coronation by the hand of her Son in glory; and one of those "*sacra conversazioni*" of the Mother and Child enthroned amidst two groups of saints, in which picture, on a corridor-wall, the Child has a character of more than infant intelligence, with infant beauty quite unsurpassable and truly divine. In the "Coronation" a striking spirituality is given to the two principal figures by a shadowy and subdued colouring, in which their forms of white draperies seem to float at a distance, while along a curving plane below kneel in extatic contemplation St. Paul, and the monastic saints Benedict, Dominic, Francis, Thomas Aquinas, and Peter Martyr. The "Transfiguration" exemplifies in a manner still more poetic and impressive this treatment that glorifies the principal figure by investing it with a bright mistiness, in total contrast to the colouring of all others in the group. In the artist's idea of Mary it is remarkable that the predominant expression is always humility, and such unaltered even at her highest exaltation, reminding us of the "simile in Tanta Gloria," described by Petrarch. The pictures in the cells to the right of one corridor have been in some instances totally effaced, in others completely repainted. All are located so as to be in the worst possible light, usually on the same side with the narrow-arched windows; and, on a dull day, tapers are required to examine them in every part—a singular disregard for his own successes, in the pious artist, that can only be attributed to his principle of mortified humility. His mysticism and preference for treatment not historic, but ideal, appear manifest in this series; as in the "Resurrection" where the Saviour is seen only as a dim-defined vision, showing above the tomb, the lower limbs withdrawn from view; in the Mocking by the Roman guards, where, with instinctive shrinking from the blasphemous horror of the reality, he represents those soldiers only by a bodiless head and detached hands seen *in air* beside the seated form of the Victim; whilst Mary and St. Dominic are seated below the throne on which He is elevated thus to suffer; also in the Scourging, where no executioner's figure is seen, but opposite the Saviour, St. Dominic in the act of inflicting the *discipline* on his own bared shoulders—a conception of the subject perhaps unique. All these pictures, in fact, remind us of visions presented to a finely organized and most loving mind, rather than historic realities; and the artist's place in a school which he lived to see declining is further apparent from his use of devout appeals in writing, in texts above or below his groups, as in the Angelic Salutation that issues from the mouth of the celestial messenger to Mary; as the names, also, are often inscribed (quite unnecessarily) within the golden nimbus or amidst the folds of draperies. Before quitting S. Marco, we have to notice a really beautiful Madonna and Child, in fresco, now much injured, by Fra Bartolommeo, on the wall of the plain chapel in which Savonarola used to officiate; also Ghirlandino's large fresco of the "Last Supper" in the refectory, much obscured by time, and all seen in the light that faintly enters.

At S. Maria Novella, not only were several wall-pictures by Angelico, but also figures of the twelve apostles, by Masaccio, barbarously sacrificed, being plastered or stuccoed over in some modern repairs. What remains by the former artist consists of the adornment of three reliquaries, in small groups, of most graceful design and delicate finish,—a Coronation of the Virgin, an Annunciation, and Adoration of the Magi, on the same panel, and the Madonna della Stella, so named from the star above the head of Mary, a blue-draped and veiled figure, with sweetly serious countenance, standing below a vision of the Deity, amidst a choir of seraphim, with angels playing on musical instruments, a fair company, along the frieze-like border. At the Fiesole Convent the artist-friar painted the History of Christ, originally extending (Marchese tells us) over thirty-five small panels, but not more than eighteen as the set is now preserved at the Florence Accademia,—one of its subjects, a mystic tree, along whose branches are distributed the several clauses of the "Credo,"—the Descent into Hades, the Last Judgment, and also the Coronation of the Virgin,—comprised in an aggregate which displays all the artist's power in expressing exalted or tender feeling, together with his defects and occasional feebleness. At the same cloister he also painted an altar-piece, the Virgin and Child, with several saints and angels, still in its church, but in certain details altered, as this work was restored by Lorenzo di Credi; also a Coronation of Mary, carried away by the French in 1812, nor ever brought back, being now at the Louvre; a Virgin with Saints, in the chapter-house, lamentably injured by pseudo-restoration; and in the refectory a Crucifixion, more or less altered by another hand, 1566, but still in its place.

S. Domenico, on the hill-side below Fiesole, has no more been the home of a religious community since the suppression by French Government; and its extensive premises are now let to families; the terrace-garden between two ranges of pillared porticoes, once a cloister, used for the culture of the orange and lemon, whose dark-green foliage contrasts with the grey walls of forlorn-looking buildings, while trailing vines clasp the stonework of antique arcades. That refectory in which Fra Giovanni painted now serves as a green-house in winter, a kind of barn lumber-room at other seasons; and, owing to the blocking up of some of its windows, we obtain but a dim view of that still impressive and pathetic, however injured, Crucifixion picture, whose figures stand, life-size, against a deep blue ground: the divine sufferer having that benignant aspect, and the dread moment alike rendered without any trait of physical horror, as in other treatments of the scene by the same hand; beside the Cross, the mother and St. John, whose grief is calm and dignified; below it, St. Dominic, who kneels to clasp the fatal tree, his countenance expressive of sorrow, deepened by heart-wringing penitence. Many abrasures mar the surfaces, notwithstanding the protection of folding doors that cover but are not fastened over it. A fresco, mentioned by Vasari, on the outer arch of the church doorway, has totally disappeared, as also the choir-books painted by Angelico and his brother conjointly, at St. Dominico. When we last visited this ex-convent, on a fine autumn evening, the quiet and sad beauty of the scene appeared like a typical indication of the fate to which are now condemned such institutions as that to whose honour the most devout of artists dedicated his life and genius. Fra Giovanni was ready, however, to labour for other orders and their churches. At the Vallombrosan S. Trinita, in Florence, he produced a genuine master-piece, the "Deposition from the Cross," now in the Accademia, a composition of many figures united in sorrow over the dead, or contemplating the instruments of the Passion, while Joseph of Arimathea and others lower the body from the tree; a brilliancy of tint and luminous atmosphere pervading the whole scene, and even the accursed ground of Calvary variegated with flowers,—perhaps in the refined idea of *thus* showing as through a veil the heavenly love that decreed that darkest hour for man's blessedness. In 1841, this admirable picture was restored, and to advantage, by an artist named Acciai. At the Camaldolese church, in Florence, Angelico painted one of his four extant pictures of the Last Judgment, originally the adornment of a *sedile* beside the high altar, and now in the *Accademia*, a composition in which it would be scarcely possible to over-praise the groups of the beatified spirits, or the mazy dance in which white-robed angels are leading the redeemed ones along flowery slopes to the shining gates of Paradise that gleam on the distant height; but its contrasted side, the horrific scenes of punishment and grotesque demons inflicting torture, may convince us of the artist's incapacity for such subjects, and his error in attempting what is as much beyond the sphere of his genius as guilt and remorse were foreign to the experiences of his heart. For the Benedictines in this city he painted, in a cloister of their "Badia," "St. Benedict enjoining Silence," one of his noblest figures in its truthful expression and dignity, but a good deal injured, and, as we now see it, in many parts renewed. For the guild of linen-drapers he painted a large tabernacle, made like a triptych, with figures somewhat above life-size of the Virgin and Child enthroned, two Apostles, and St. John Baptist, St. Mark (the protector of that guild) being introduced both on an inner and an outer side of the folding valves, and on small scale numerous angels playing on instru-

ments that form a kind of frieze around the Madonna's throne, the latter of exquisite beauty, that proves a supreme attraction, where this tabernacle now hangs in the Uffizi, and every day do we see copyists and gazers assembled before it so long as the gallery remains open. A predella attached to this work, the largest of its description by Angelico, was adorned with three small paintings of sacred subject (St. Peter preaching at Rome, &c.), now separated, but to be seen in the same gallery, where are several other small panel-pictures by the same hand (the Life of the Virgin, and the Story of SS. Cosmo and Damian, &c.), all probably *predelle* of altar-pieces now lost, or long since removed from Florence. In the "Transit of the Virgin," one of the most beautiful of these, the Saviour appears standing over the bier, and receiving the soul in form of an infant,—the primitive idea of this subject before the bodily assumption of Mary had found place in art. And in the Uffizi also is the artist's masterpiece among his several treatments of another theme, the "Coronation of the Virgin," a *ne plus ultra* of tender and extatic beauty in this class of visionary devotional subjects; though it is to be objected here as in other examples, that the aspect of the Saviour wants intellectual grandeur, and has no other character than the mild and passive in Angelico's conceptions. This picture, originally in the church of the hospital of S. Maria Nuova, was removed to the Uffizi, 1825. Other of Angelico's works in public buildings out of Tuscany have passed through strange vicissitudes. In 1447, he was invited to Rome by Eugenius IV., and there re-engaged by that Pope's successor, Nicholas V., to paint in the chapels of the Vatican. Assisted by his pupil, Benazzo Gazzoli, he adorned the chapel of the Holy Sacrament in that palace with several scenes from the life of our Lord, introducing in this series portraits of living celebrities, whose names are given by Vasari: the Pope Nicholas, the Emperor Frederick, St. Antoninus, Biondo da Forli, and Don Ferrante of Aragon. In the chapel of St. Lawrence, also at the Vatican, he painted the frescoes still surrounding its walls, and in good preservation, illustrating the entire stories of the two martyr-deacons, SS. Stephen and Lawrence, with the figures on the vaulted ceiling of the Evangelists, the four Latin doctors (St. Gregory and St. Jerome repainted), SS. Athanasius, John Chrysostom, Thomas Aquinas, and Bonaventura, besides an altar-piece of the "Deposition," now lost or concealed; those that remain, compositions which evince the matured power of the artist unenfeebled by his advanced age; simplicity and perfect freedom from studied effects, the secret of the charm, was put in this series, that seems like actual presentment placed before us, enabling us to follow the heroic sufferers through their trials unto death. Strange and discreditable to Roman taste have been the destinies of those two chapels: that of the Holy Sacrament was totally swept away by order of Paul III., to give place to the grand staircase of Bernini; and only the portrait-figures were rescued, as Vasari tells us, to pass into the collection of Paolo Giovio, but not for preservation up to our time; the S. Lorenzo chapel was abandoned after the building of the great wing added to the Vatican in 1595; and at last even its locality forgotten; so that a Monsignor Bottari, who wrote the life of Angelico, had to report that he had been only able to find access to this interior through the window; and Goëthe had occasion to record the adventurous services of some German artist, who, "after much fatigue and exploring in the labyrinth of the Vatican chambers, succeeded in *discovering* the chapel painted by Fra Angelico da Fiesole, under Nicholas V., still in good preservation." In 1811, engravings from all the frescoes were published at Rome; but, though now accessible, this chapel was left much longer in forlorn neglect, its condition lamentable to behold when we first saw it; till, within recent years, a prelate in high office at the Papal court interested himself in its fate, and ordered a restoration, with a view to the religious celebrations since, we understand, taking place here daily, Monsignor Merode usually officiating at mass performed in the long-desecrated sanctuary.

During the summer of the year 1447 Angelico was engaged at the Orvieto Cathedral, for which his services had been eagerly desired by the "Opera" (directors of the works), who offered him the relatively high remuneration of 800 gold ducats, besides a small monthly salary for his pupil Gozzoli, who here also assisted him; and he is named as *Magister Magistrorum* in the records of that cathedral. He undertook a great fresco with life-size figures of the Last Judgment, on the walls and vault of the Madonna Chapel, quite apart from the church's main building; but after labouring here for three months, left incomplete a work he, perhaps, felt to be beyond his powers, and in which his imperfect knowledge of anatomy would no doubt have been but too apparent. In 1499 commission was given by the "Opera" to Luca Signorelli, the greatest monument of whose genius is before us in the completed series on the same walls where Angelico had begun his task. In those impressive pictures of the Judgment and the "Story of Antichrist," Marchese points out as probably by the Dominican artist, the company of prophets, the angels bearing aloft the instruments of the Passion, the Virgin and Apostles the founders of mendicant orders, and conjecturally the figure of the Saviour also, here almost identical with that in a small picture of the Judgment by Fra Giovanni at the Corsini Palace, Rome, and a conception of which Michelangelo manifestly availed himself in his great work at the Sixtine. But the editors of Vasari (Lemonnier edition), with whom Marchese himself co-operated, indicate only the group of sixteen prophets in the triangle of the vault over the altar, as an undoubted work by Angelico in this magnificent series. In the story of Antichrist are introduced two erect figures, one the portrait of Signorelli himself; the other said to be that of Angelico. The entire aggregate was restored and cleansed in 1845 by the volunteer services, freely offered, of two German artists, whose generous cares were acknowledged by the bestowal of the Orvieto citizenship from the magistrates; and no further restoration has, we believe, been found requisite in the course of the long-continued works at this cathedral, commenced by the Papal Government, and prosecuted since the Orvieto province was severed from its states in 1860. The pure and laborious life of Fra Giovanni was brought to its close at Rome in 1455, and his remains were laid in the Dominican church, S. Maria Sopra Minerva, which he had adorned with several pictures no longer seen, and where is his monument, ordered by Nicholas V., an indifferent piece of sculpture, with a recumbent figure in low relief, placed vertically against the wall of a vestibule, less remarkable, indeed, than is the epitaph, said to have been written by that pope. Above this is the name, date, and title of honour—"*venerabilis pictor*"—noticeable as anticipative, and that on the part of the highest authority, of the species of popular beatifications accorded to the great artist by admiring ages.

The Italian Government has announced the intent to preserve the S. Marco Convent as a national monument, *not* as a religious establishment; nor is it inferrible, from any assurance yet given, that the twenty-five friars who form the present inmates—few, indeed, relatively to their premises' extent—will be left exempt from the application of the law adverse to all such communities. The Della Cruscan Academy has now an apartment for its archives, and the National Guard a quarter on the ground-floor in these cloisters.

THE GLASS TRADE IN 1618.

James Howel, one of the clerks of the Most Honourable Privy Council of Charles I., published, in the lifetime of that monarch, four books of his correspondence with persons of rank and celebrity, under the punning title, "Epistolæ Ho-Elianæ." These contain incidentally several particulars connected with the glass trade in the preceding reign, which, like other curious facts, now the fashion to collect, may not be generally known.

King Solomon, as his admirers styled him, otherwise James I., granted to Vice-Admiral Sir Robert Mansell, Lord Pembroke, and "divers other of the prime lords of the Court," the sole privilege of making glass with pit-coal. This company had a glass-house in Broad-street, where they employed several Venetians in the manufacture. The first occupation obtained by Mr. Howel, on leaving college, was the stewardship of this glass-house. After a short supervision of the "hot Venetians," he was despatched by Sir Robert Mansell to Italy, France, and Spain, to engage more workers, and to purchase large quantities of the necessary materials. It is in the letters he sends home while engaged on this errand that we have glimpses of the mode in which the glass trade was carried on in the reign of James I. Before starting on this agency, he writes to Carmarthenshire for his father's blessing, deeming it an important item towards the insurance of a prosperous issue to his journey. In this letter he confesses, "Had I continued still steward of the glass-house in Broad-street, where Captain Francis Bacon hath succeeded me, I should in a short time have melted away to nothing, amongst those hot Venetians, finding myself too green for such a charge; therefore it hath pleased God to dispose of me now to a condition more suitable to my years, and that will, I hope, prove more advantageous to my future fortunes."

From Amsterdam, where he found so many new streets and public buildings in progress that the Dutch appeared to be doubling the size of that great "mart of the world," he proceeded *en route* for France to Middleborough in Zealand, whence he sent home his first consignment with the following recommendation:—"The bearer hereof is Sig. Antonio Miotti, who was master of a crystal-glass furnace here a long time; and as I have it by good intelligence he is one of the ablest and most knowing men for the guidance of a glass-work in Christendom; therefore, according to my instructions, I send him over, and hope to have done Sir Robert good service thereby." After a long stay in Paris he arrived at Alicant, in Spain, in March, 1621, travelling with pilgrims for safety's sake. "I have treated with Signor Andriotti, a Genoa merchant, for a good round parcel of barillia to the value of 2,000 pounds, by letters of credit from Master Richaut, and upon his credit I might have taken many thousand pounds more, for he is so well known in the kingdom of Valentia. This barillia is a strange kind of vegetable, and it grows nowhere upon the surface of the earth in that perfection as here. The Venetians have it hence, and it is a commodity whereby the maritime town doth partly subsist, for it is an ingredient that goes to the making of the best Castile soap. It grows thus:—'Tis a round thick earthy shrub that bears berries like barberries but 'twixt blue and green; it lies close to the ground, and when it is ripe they dig it up by the roots, and put it together in cocks, where they leave it to dry many days, like hay; then they make a pit of a fathom deep in the earth, and with an instrument like one of our prongs they take the tufts and put fire to them; and when the flame comes to the berries they melt and dissolve into an azure liquor, and fall down in the pit till it be full: then they dam it up; and some days after they open it, and find the barillia-juice turned to a blue stone, so hard that it is scarce malleable: it is sold at one hundred crowns a ton, but I had it for less. There is also a spurious flower, called gazul, that grows here, but the glass that is made of it is not resplendent and clear."

From Spain Mr. Howel took ship for Venice which he compared to a gold ring in a beast's muzzle. Here he immediately applied himself to the business of the London glass-house, and sent home more materials and workmen. Writing to Sir Robert Mansell, he said,—"These two Italians, who are the bearers hereof, by report here, are the best gentlemen-workmen that ever blew crystal; one is allied to Antonio Miotti the other is cousin to Mazalao." After mentioning that certain materials should be sent to England by the ship *Lion*, giving an account of his visit to the Arsenal, he proceeds, "I was since I came hither, in Murano, a little island about the distance of Lambeth from London where crystal-glass is made, — and it is a rare sight to see a whole street, where, on the one side there are twenty furnaces together at work: they say here that, although one should transplant a glass-furnace from Murano to Venice herself, or to any of the little assembly of islands about her, or to any other part of the earth besides, and use the same materials, the same workmen, the same fuel, the self-same ingredients every way, yet they cannot make crystal-glass in that perfection, for beauty and lustre, as in Murano. . . . . I met with Camillo, your consaorman, here lately, and could he be sure of entertainment, he could return and serve you again, and I believe for less salary. Two days after despatching these two "gentlemen-workmen," Mr. Howel wrote to his brother (Bishop of Bristol) a letter, in which occurred the following passage: — "Since I came to this town, I despatched sundry businesses of good value, for Sir Robert Mansell, which I believe will give content. The art of glass-making here is very highly valued; for whosoever

be of that profession, are gentlemen, *ipso facto*, and it is not without reason, it being a rare kind of knowledge and chymistry to transmute dust and sand (for they are the only main ingredients) to such a diaphanous pellucid dainty body, as you see a crystal-glass is, which hath this property above gold or silver, or any other mineral, to admit no poison; as also that it never wastes or loseth a whit of its first weight, though you use it never so long. When I saw so many sorts of curious glasses made here, I thought upon the compliment which a gentleman put upon a lady in England, who having five or six comely daughters, said, 'He never saw in his life such a dainty cupboard of crystal glasses.' The compliment proceeds, it seems, from a saying they have here that *the first handsome woman that ever was made, was made of Venice glass*: which implies beauty, but brittleness withal. . . . But when I pried into the materials, and observed the furnaces and the calcinations, the transubstantiation, the liquefactions that are incident to this art, my thoughts were raised to a higher speculation, that if this small furnace-fire hath virtue to convert such a small lump of dark dust and sand into such a precious clear body as crystal, surely that grand universal fire which shall happen at the day of judgment, may, by its violent ardour, vitrify, and turn to one lump of crystal the whole body of the earth: nor am I the first that fell upon this conceit."

Mr. Howel returned safely to England after an absence of three years; but his father having advised him to base his fortunes upon a less brittle foundation than that of glass, he turned his attention to other subjects. He was successively employed as travelling camarade to two young gentlemen, as negociator at foreign courts on mercantile matters; and as secretary to Lord Scrope. In 1622 he was chosen fellow of Jesus College, Oxford. In 1627 he was elected M.P. for Richmond, in Yorkshire. In 1640 he was appointed clerk to the Privy Council; but in the civil troubles that preceded the Protectorate his apartment was entered, his papers seized, and his person detained in the Fleet for five years. On the Restoration he was created Historiographer Royal. The correspondence of the ex-steward of the glass-house, containing much court-gossip and political news of the day, had a run of eleven editions. It was dedicated by "the worst of poets to the best of princes," Charles I.

This distant view of the prime lords of the court having a monopoly of the glass manufacture, the young Welsh Fellow of Jesus College upon the Continent in search of materials and gentlemen-workmen, the hot Venetians toiling away in Broad-street, the successive despatch of the most able blowers in Christendom, the tanned Spanish peasants turning over the cooks of barillia on the chinky gaping soil in a burning breezeless atmosphere redolent of oranges, melons, and grapes, the ship *Lion* slowly freighted at Venice with crystal wares or raw materials, affords us an idea of the condition of the glass trade before it is illustrated by the quaint advertisements in the literature of the reign of Queen Anne.

THE PROGRESS OF LANCASHIRE.

At the recent Social Science Congress Mr. H. Ashworth read a paper on this subject containing many remarkable facts. A digest of it will interest our readers. It points out that the most remarkable increase of population has taken place in Liverpool and Manchester. A hundred years ago Liverpool had 30,000, and Manchester 25,000 inhabitants; but the decennial increase of the two places during the last 60 years has been unprecedented in any other towns in the kingdom. The following figures denote the respective progress of each:—Liverpool increase in 60 years, 539 per cent.; Manchester increase in 60 years, 484 per cent. As a measure of progress, it is a striking fact that, whilst in the year 1760, according to Dr. Percival, the entire cotton trade of Great Britain did not return for materials and labour more than 200,000*l.*, in 1860 the returns of our cotton manufacture were estimated by Mr. Bazley, M.P., at the sum of 85,000,000*l.*; and that, whilst in 1764 the weight of raw cotton imported was 3,870,000lb., in 1860 the weight of raw cotton consumed in this country was 1,083,600,000lb. By way of illustration of the extent and perfection attained in the cotton manufacture, it has been stated that in this country we employ 36,000,000 spindles, and that in one minute we can spin a length of cotton yarn which would wind four times round the earth. Every day 10,000,000 yards of cotton fabrics come out of our looms; and it seems to baffle our power of calculation when we say that, after having supplied the wants of our own population most abundantly, we have 100,000,000 pounds of yarn and 2,000,000,000 yards of plain and printed goods to spare, which we export to supply the wants of other nations. With abundance of labour at our command, and by the use of economic appliances, the cost of production and the selling price of every article of cotton manufacture have been greatly reduced. In proof that an appreciable amount of the advantages of cheapness has reached the consumer, in the year 1790, the mother of an eminent manufacturer still living purchased a white cotton dress at 6*s.* a yard; while in 1860, the same quality of fabric was obtainable at from 2½*d.* to 3*d.* per yard. In the course of 174 years, the property in the county of Lancaster usually denominated freehold has increased in value by upwards of 11,600 per cent. In 1692, the gross annual value of Lancashire was 97,242*l.*; in 1815, it was 3,087,774*l.*; in 1865, it has been placed at 11,453,851*l.* In the hundreds chiefly agricultural, the increase in value has been at the rate of 4,776 per cent.; whilst in the hundreds chiefly commercial and manufacturing, the increase has been at the ratio of 13,991 per cent. It thus appears that the balance of progress is nearly three to one in favour of the district which is mostly engaged in manufactures and commerce. We have another striking exemplification of the extent of the progress made, in a return of the gross amount of assessment for income received annually from realized property and profits on trade, as they have been assessed to property and income tax, under the schedules A and D, relating to the county of Lancaster for the years 1814 and 1864 respectively. In Lancashire the gross increase of income during this period under schedules A and D has been in the ratio of 570 per cent.; whilst in England and Wales, for the same years, the increase has been only in the ratio of 228 per cent. In 1814 this county stood assessed under the above schedules at five millions and a half, and in 1864 at thirty-one millions sterling. The increase of the wealth of the land-owners resulting principally from their having large portions of their estates withdrawn from agriculture, to meet the requirements of manufacturing industry, has yielded to the owners an increase of value in many instances amounting to from 10,000 to 50,000 per cent. beyond what the same land had previously been worth for mere purposes of cultivation. According to a Parliamentary return in 1862, Lancashire possessed nearly 80 per cent. of the total number of factories in England and Wales. Nearly half a million of persons are directly occupied in this single industry, but to these must be added engineers, builders, machinists, bleachers, printers, and other auxiliaries. Since, however, the number of hands actually employed (315,620) appears comparatively small for the results produced, it will be necessary to bear in mind that the greatest operators are the machinery and the steam-engine. Other estimates show that the entire number of persons directly employed in, or indirectly dependent upon, the cotton trade, is about 4,000,000. Ere the cotton trade attained to its present magnitude, it had to encounter many bitter and costly obstructions. Under our new commercial system, the total exports of British produce and manufactures, since 1842, have increased 250 per cent., and there has been a similar increase in the quantity of raw cotton imported. In the export of piece goods and yarn there has been an increase from 24,000,000 in 1840, to 57,000,000 in 1865. The conclusions to be drawn from these statements not only confirm the most ardent anticipations of the free traders, but they serve also to substantiate the remark of the late Mr. Senior, "that our cotton manufacture is one of the pillars of our national wealth." "If figures can ever be magnificent," says Mr. Arnold, in his "History of the Cotton Famine," "if naked totals ever reach the sublime, surely the cotton trade of 1860 claims our admiration." But this year of magnificent totals was unfortunately followed by immense losses, arising from our having depended too largely upon the United States for the supply of our raw material, and hence the cotton famine, which resulted from the civil war in that country. The trade was suddenly diminished by one-half, and for more than three years employers and employed suffered together, and seemed likely to become involved in one common ruin. Messrs. Ellison & Haywood, in their *Cotton Circular*, for January, 1866, set forth the money losses as from 65,000,000*l.* to 70,000,000*l.*; and Dr. J. Watts, founding his estimate on the statistics of 1861, as prepared by Mr. Bazley, M.P., confirms this estimate.

THE CANYNGES SOCIETY.

The Canynges Society, established to aid in the restoration of the Church of St. Mary Redcliff, Bristol, held a most satisfactory meeting on Tuesday last under the able presidency of the vicar, the Rev. H. G. Randall, Rural Dean of Bristol; the Bishop of the diocese, the Mayor of Bristol, Canon Madan, Mr. R. P. King, Mr. W. P. King, Mr. Chas. Clarke, Mr. W. Proctor, Mr. W. Powell, Alderman Green, and many others taking part. An eloquent and powerful sermon was preached in the church by the Rev. H. P. Liddon, in the course of which he answered the objections sometimes made to works of restoration.

"Few men," he remarked, "would venture to say, 'Of what good is it at all?' or deny absolutely that there was any good in restoring the magnificent building, because upon the very surface of the thing it was some good. It led, first of all, to the employment of a great many hands—it did something for the education of the people—it promoted a higher feeling of taste for art—and most men would admit that it had a local value. Without being professedly antiquarian, few would deny that it was a great historical monument, and certainly there was some good in restoring the most beautiful church in a city that for ages was the second in England. No man of education and common sense would pretend absolutely that it was no good to engage in the restoration of such a church. Without, however, taking this extreme position, there were many who might say—could not something very much better be done with the money? This was precisely the position taken by Judas. He did not go so far as to say there was absolutely no good in pouring the ointment, but he said that if the ointment could be converted into money, it would do more good in such a shape. The objectors, he was imagining, might say that the money would be better applied to the social science movement. They would say, look just outside the walls of the temple at the inhabitants of the parish and at those of St. Philip's and St. Jude's—look at the privations they underwent, the discomforts of their daily life their food and clothing, the dreadful sanitary arrangements of the places, and then they would say, ask yourselves if you are not wasting money in spending it upon bricks and mortar there instead of ameliorating the crying wants of your poor fellow-countrymen. Then they would urge that there was a cause, mere ignorance in the land—an ignorance of that useful knowledge which it was essential to know for the material well-being in this sphere of existence—ignorance of moral truth and of religious truth. Perhaps one of these fancied objectors might be an earnest Christian. He asks you to look at the state of the Christian missions, and to think that religion has been for more than eighteen centuries in the world, and impresses upon you that it is every one's duty to aid in spreading the Gospel. And then, as he looked upon the work around them, he asked, 'To what purpose is this waste?' Now, he (Mr. Liddon) respected the various motives of these various objectors; but he considered that the restoration of that church was an object of equal importance with the promotion of missionary enterprise and education among the poor, and even with helping the poor to those material comforts which made life something less than a round of sufferings. In restoring that church they were not merely laying out so much money. It was not simply the employment of so many hands, or the putting together of bricks, mortar, carved wood, or carved stone. They were distinctly engaged in a moral and religious work. It represented man's power to consecrate, and his duty to consecrate all God's gifts to His glory as the giver. This was what many did. What could the material box of ointment do, otherwise than that it was His gift, and that she desired to return it to Him in her gratitude? God had, said the preacher, given us a great increase of the blessings of civilization. Science flashed its truths upon us as it had done upon no generation before. Art had been brought to higher forms of beauty than it had ever risen to before. These things came from God, and were they all to be wasted on the world, and was nothing to be given to Him? The consecration of art to the service of God was, he maintained, not a mere matter of taste, but a duty upon the part of a religious man and a religous nation. It was an acknowledgment that in those special departments of human activity He had given them for our good. The rev. gentleman spoke of the grand poetry of Isaiah's writings, and contended that poetry was as much an art as architecture, and sculpture, and painting, and music. It was splendid language—not the language of an Act of Parliament or a proposition of Euclid. And poetry being thus consecrated to God, was it not reasonable and proper to consecrate the other arts to the glory of the Divine Redeemer? That glorious church dedicated to no earthly purpose but to the honour of the Divine Redeemer, and which bore the name of His blessed mother, was a worthy monument to the love of those who had erected it; and emblematic of the industrious life of the great centre of English commerce—where in the world around it spoke to the human soul and pointed the way from the material sphere to the realms of the kingdom of Heaven. In restoring it he maintained that they were not engaged in a purposeless waste, or that they were merely doing homage to a feeling of antiquarianism. It ought to represent a large amount of moral and spiritual capital—of love—of faith triumphing over the seen and penetrating the mysteries of the unseen—and the consecration of all that was best in this world to Him who gave it."

At the luncheon the President made an excellent address, and stated that the collection at the church, with the sums sent to him afterwards, amounted to 110*l.* Farther, that nearly 7,000*l.* had been promised to the special fund

for the tower and spire and the completion of the interior of the church.

Mr. Charles Clarke read the report of the committee, setting forth the position of the Society, and including this letter from the architect, which serves to show what work has been done during the past year:—

"I hasten to comply with your request that I should inform the committee what works have been done at the Church of St. Mary Redcliffe since the last meeting of the Canynges Society. I am glad to say that, compared with what we have been able to do in some former years, the progress made is considerable. Externally, twelve windows in the lower part of the church, on the south side, with the parapet above them and cornice throughout, all which had mostly disappeared, and the entrance east of the south transept, called the 'vicar's doorway,' have been restored, and complete the whole of the south side of the church. The men are now employed in the restoration of the buttresses, &c., on the north side of the nave next the north porch, and of the buttresses on the west side of the north transept. In April last the dangerous condition of the four turrets at the top of the tower, to which I had before directed the attention of the Restoration Committee, was so much aggravated that it became absolutely necessary to take them down to prevent accidents; and this was done, careful drawings being first made, so that these beautiful works may be precisely reproduced, when the restoration of the tower has sufficiently progressed and funds are forthcoming to permit it. Money has already been promised, I believe, for this special purpose, so that we may hope for the commencement, before long, of this the crowning work of the committee's labours.

Inside the church some progress has been made towards bringing it into a proper condition. The clustered columns in the north and south transepts have been cleared of the whitewash that covered them; the broken and damaged parts have been reinstated; and the carved capitals are again seen in their original condition. The responds, or attached pillars, in the aisles have been cleaned and restored, and the destroyed panelling under the windows in the north aisle of the nave, and the stone benching there and in the north transept, have been reinstated. Further, a portion of the stone screen on the south side of the chancel, and the recessed and canopied tombs in the south wall of the nave, discovered in 1852, have been restored. These tombs, there is reason to believe, are those of the younger Canynges and his wife Johanna, and their effigies, which evidently did not belong to the canopied monument in the south transept, and do fit these recesses exactly, have been removed to them. Amongst other works, I may mention that two compartments of the vaulting in the north aisle of the chancel and one in the south aisle of the chancel have been cleaned and repaired, and that the monumental tablets which deformed the pillars of the church have been cleaned and fixed up in the lower part of the tower, with the exception of that in memory of Sir William Penn, which, with the armour and banner belonging to it, has been set up in the nave against the south wall of the tower.

In addition to the stained glass already in the church, a handsome window has been put up in the lady chapel in memory of the late Mr. Edward Lucas. Arrangements have been made for the removal of the organ, which will admit of the introduction of stained glass in the west window, already promised by Mr. Sholto Hare. With the view of obtaining uniformity and connexion throughout the church in filling with stained glass the remainder of the windows, I have submitted a scheme of subjects to the committee. The vicar is now naturally anxious that the chancel, which at present is not creditable to the parish, should be put into a worthy state, and I have, by his direction, prepared and submitted designs for a reredos, sedilia, &c., suitable for the church. A scheme for the proper lighting of the church and estimate of the cost have also been submitted. For these and other necessary works funds will, of course, be required; and I take the liberty of expressing a hope that, by the proceedings of the Canynges Society on the present occasion, such a spirit may be evoked as will tend to the speedy provision of them. GEORGE GODWIN, Architect."

Amongst other matters, the report mentioned that at the last meeting of the Colston Parent Society the vicar suggested that, as there was not any monument in Bristol to Colston's memory, except the one in All Saints' Church, erected by his family, an opportunity was afforded, in connexion with the restoration of St. Mary Redcliff Church, to build the spire or put in a window as a memorial to their great philanthropist. The idea was well received by the company present, and 80*l.* were contributed on the spot towards the putting up a stained window in the north transept. Subscriptions are still being received for the purpose, and it is confidently hoped that the window will be put in before the next Colston anniversary. This is an excellent idea, and we trust it will be carried out in the best manner. The church and churchyard will then contain memorials of the three capital C.s of whom Bristol, indeed England, may be justly proud, Canynges, Colston, and Chatterton,—the last, although with an ill-trained moral nature, a genius of no common kind.

Some very good addresses were made; and a full choral service in the evening closed the proceedings.

REQUIREMENTS OF DAILY LIFE.—At the Lambeth Baths, Mr. Thomas Twining, vice-president of the Society of Arts, and founder of the Economic Museum at Twickenham, has, in conjunction with Mr. Murphy, arranged for weekly lectures and demonstrations of science in its relations to the requirements of daily life, to gatherings of working people, free of charge.

THE INTENDED COURTS OF LAW.

A PARAGRAPH has been going through the newspapers relative to a supposed intended acquisition of the block of property lying between Holywell-street and the Strand, and St. Clement Danes and St. Mary's churches, for the purposes of the new Law Courts. We are enabled, however, to say that this is erroneous. However desirable such an acquisition may be, such an arrangement has never been discussed by the commissioners. The notices in the *London Gazette*, and in the daily papers of Friday and Saturday in last week, show that the additional lands which are really proposed to be acquired, are only those which are shown by "dotted" lines on the plan given in the *Builder* of 26th May last, p. 386, with the addition of the remaining portion of Cook's-court block, extending to Portugal-street, and from Serle-street to Carey-street. The erection of a temporary building in the garden of New Square, Lincoln's-inn, in which the competing designs are to be exhibited, has been commenced. The design has been prepared by Mr. Burnet, the architectural clerk. The time for sending in the designs has been extended from the 15th of next month, to Tuesday, the 15th of January: no further extension will be granted. Each architect is to hang his own drawings in the place assigned him.

THE MUSEUM *versus* THE INSTITUTE.

YOU were so good a few months back as to insert a rather long letter from me, on the subject of a new *Art-Result* Society, one having for its purpose the bringing before the art public a means of reviving the old, and now unfortunately lost plan of eliciting the *individuality* of the artist and workman, demanding this of them, and to encourage the public to ask for it, as the sole means of obtaining a work of fine art. Will you allow me to ask again your attention to it in the present crisis or position?* What is that position, and what societies are there now in existence which may fairly be said to embody and represent it? and if I may be allowed to say it, who are they who are foremost in guiding such representative societies? What are they doing, and what do they propose to do, and *how*, when, and where? These are all of them vital questions, and I think worth a little trouble and hunting after to come at? We are now fairly at the corner and turning point, and in the future must take some road, be it right or wrong.

First, then, there has been the *old* art, and past system of art action, and we have close at hand fragments of it, genuine bits, so that we can fairly judge of its nature, and by degrees and careful study find out *how* it was brought into existence. If I may venture to describe in one word its prime characteristic, it would be its *individuality*, *i.e.*, every fragment, however, rude, shows it to be the impression of the mind and *hand* of the artist or workman, or the artist workman who executed it. This one word "individuality" seems to me to define the old art, and to indicate the mode of its production. Each fragment is a word or letter, of an antique alphabet, written by the art-workman of that time, and in the language of that time. We see the old workman face to face, and as in an autograph we may without much exaggeration be said to see him write his name, and in his own person, tell his art story. This is the old art, whether Greek or Gothic, Romanesque or Roman; and whether it be rude as the cutting of a Norman doorway, or fine as the Parthenon frieze. Such, I consider, to be a fair and true definition of the art of the past.

But, secondly, what is *modern* art,—the art of to-day,—and how is it brought into existence, and what does it indicate; and, when accomplished, *whose* handwriting is it,—whose mind and hand does it bear the stamp of,—whose image and superscription is it, and what word will describe it? One word, and one only, fairly embodies the idea of it,—"*manufacture*." Modern art is no man's handwriting; it comes from no one man's brain or hands; it is *art manufacture*, and is gathered together anyhow, and patched up by a succession of hands, and so bears the impress of none of them. It is simply the *negation of art*; it is our modern and civilised way of *how not* to get any work of fine art at all. However able the artists or workmen employed, we never see the handwriting of any one of them: each successive man obliterates the writing of him who has gone before him in the process. No man has written the letter; it is not, truly speaking, a forgery, it is far too dull and stupid for that. A dozen men cannot forge a note; one man must do it. It is art "manufacture" in one word, and is to handwriting just what a school *copy-slip* is to an autograph. It is, as I have said, the negation and ruin of art. Fine art does not now, at least in this country, exist; neither in architecture, sculpture, and hardly in painting, and not at all in "*decorative*" painting, as it is termed. It is not, therefore, simple change or "*improvement*," to use Mr. Scott's word, that is needed, but *revolution*, *i.e.*, organic change,—a change not in degree, but in kind, and mode of work and artistic action. Thus, as a mere matter of definition and statement of an idea, we may say that the art of the past has been the result of the individuality of the artist as expressed in material forms, while the art of to-day,—modern art,—is the result of manufacture or the very reverse of it,—individuality being always lost in a multitude and in confusion.

No one, I presume, will venture to say that modern art is *better* than the old art, or is an improvement on it; no mortal can say that fine art is now a progress or a development from the past art, the object being, nowadays, to *reproduce* it and to copy and rival it. There is in these modern days no art *per se*, there is no modern style of architecture and art detail; all of it comes from books representing more or less accurately the forms of the past. The styles of art and architecture worn out by our predecessors are our clothing hanging about us in patched up rags and shreds, and fitting no one; and this it is that at once brings us to the all-important questions,—What societies are they, if any, which represent the position of the old art action; and what societies represent the position of the modern system? *All* our art and artistic societies, without exception, now represent more or less entirely the modern idea, that a work of art can be produced by a process of manufacture. They reject the old idea; there is no modern representative of it. The Royal Academy itself, the oldest and most honoured of all of them, manufactures its sculpture and its architecture boldly and before the world. Painting manufacture has been tried, but oddly enough, failed; it seems impossible to manufacture an oil painting, on *canvas*, a foot square, while, more strangely still, a painting on *glass*, 30 ft. high, passes through precisely the same process as a painted tea-tray. Sir, ought the Royal Academy to be excepted from the modern list? *Impossibility* only has prevented the Academy from becoming precisely what the Society of Arts has for a hundred years been. Art manufacture has always been and now is the motto of it, it fancies that pictures, statues, architecture, painted cups and saucers, glass, metal work, indeed, every kind of art object, can and ought to be *manufactured*, and it has, as everybody knows, given its prizes, *not to the executive artists* who have supplied its exhibitions, but the capitalist manufacturers who paid them their wages.* As far as one prosperous society could destroy the very idea of art, the Society of Arts have this great feat fairly accomplished.† Had it not been for "impossibility," the Royal Academy and the Society of Arts would have by this time been one. The sculptors, strange to say it, have, I believe, no distinct and publicly recognised society peculiar to themselves, and so no collection to which we might refer, except of course the public streets, where no man has ever yet been bold enough to say, "I have found the art hand-writing, the impress of the hands and the brains of a living sculptor." The leading journal once said, "there are no modern sculptors." I contend that there are *sculptors*, but no *sculpture!* One society more, the Architects' Institute. I do not know how many drawings representative of architectural works there are in

* We allow our correspondent to state his own views, though we cannot endorse all that he asserts.—ED.

* *Pugin* designed all the encaustic tiles for the Minton firm, but the late Mr. Minton himself carried off the praises, prizes, and medals of the Society of Arts, and the *Council* medal of the Great Exhibition,—for what?—C. B. A.

† It should be here understood that the Art Department at South Kensington is an extension merely of the system of the Society of Arts supported by the public funds together, so far as its plan of art-teaching goes, with the School of Design, from which it originated. If the art manufacturing idea be right, then is the Art Department so too; but, if the *old* idea be the true one, and which has filled our museums and built our cathedrals, then is the public money spent in simply crushing out the whole art energy and capacity of the country.—C. B. A.

the folios in the Institute; but I am quite sure that there cannot exist in them a series of drawings and details, the *personal* work and art-handwriting of those who make up the body of its members. There is no architects' handwriting: there are photographs, lithographs, copper and wood engravings, by the men who engraved them, and drawings in plenty as manufactured by clerks; but of the work of the architect, as a workman and working architect, there is not and cannot be any. The sole voucher, in my humble opinion, of an artist or an architect, *his card of admission*, into such an art-society, should be, and some day will be, a fair specimen of his writing—his art and architectural writing—the evidence and signature of his individuality and personality as an artist and architect. The Institute in no way can be said to be an art representative society,—it is an architects' social club, and nothing else. So much for it. And this brings us to another society, the Architectural Museum, and I name it because it is now proposed to join in some way the two institutions, the Institute and the Museum, and to make of them one society,—indeed, I believe, a sort of *Architects' Academy*, as proposed by Mr. Scott, about two years ago. This, indeed, is the position. The *idea* of the Institute, as we have seen, is an architectural manufacture society, and is nothing more than the Society of Arts with architecture instead of hardware and china. As such it needed organising, and Mr. Scott's notion offered one means of doing it, by making of it a *teaching* body. What was the primitive idea of the Museum?—*The direct reverse of this.* The Museum was founded on two ideas, distinct, yet intimately connected with each other, and hardly possible of existence *separate*. The one was a school for the purpose of eliciting the individuality of the common workman, and getting from him his handwriting, asking him to write his name on wood, and stone, and metal, thus evidencing his personality and getting to see into his mind, however rude and uncultivated, through the work of his hands, and negativing at the same time, and as a matter of course, the whole idea of art *manufacture* as a means of producing art. The next idea in it was the getting together specimens and examples of the individuality and handwriting of the artist workmen of *past* days. This is the *Museum* properly so called—the visible minds and hands of the men of times past: the *School* embodied the present. Two things wider apart, then, than the Institute and the Museum cannot possibly be conceived. The poles of the earth are not further apart. The ideas are different: the one represents manufacture, the other individuality. The Institute contends that architecture can be manufactured through an organization of clerks and assistants, *i.e.*, that you can work your brains into architectural forms through the *hands* of others. The Museum started by saying this is *impossible*: you must, to pipe cunningly, pipe and play yourself. Does it not seem, therefore, something wonderful that such a notion should, for a single moment, be entertained? If the world be now asking for the personality of the *workman*, why not ask, too, for that of the architect, his master and employer? Surely those who are thinking of this must see that such an amalgamation must ruin the Institute, and bring it to nought; for it admits at once the *superiority* of the servant to the master. My rough hand and untutored brain are, at all events, worth something, says the workman; but where are yours—the architects'? what are they about? I sincerely hope Mr. Scott will abandon this idea.

The Museum is now truly in a strange fix, a little bit of awkward-enough matter to be pushed or dragged round the corner the art-world is now about to round. The Government Art-Department have given it the sack, to use a shop phrase, and turned it fairly adrift. Why? Unfortunate old Museum, like a wrecked and water-logged, and, perhaps, brain-logged, vessel; a good idea fairly afloat, rudderless and sailless, on the vast ocean of art, in true old British fashion,—a capital idea kicked away, no one knowing what to do with it or its worth. I ask its friends and its enemies to save it from the Royal Institute and "Scott's Academy." Sir, I do not wish to trouble you with a long letter, though I have so much more to say; but, looking at events as they go along, and at works in progress, and at the "position," I think it will be allowed that something or other is all wrong somewhere, and that when Mr. Ruskin told us that the absence in these days of *good* art was consequent on defective art "*ethics*," perhaps, after all, he was not so far wrong. *His* ethics are, unfortunately, all up in the clouds, and impossible to ordinary human beings; but there is such a thing, even on this wicked earth, sometimes, as common ethics, *meum* and *tuum* ethics; and, when this comes to be more widely known, it will be found utterly impossible to walk away with the property of others, nor will it be safe to exhibit the same to a popular audience, though it should happen to be amid some snuff-taking and vociferous applause. Such are art and architecture in these days. Art is one vast system of forgery and theft. No one executive artist gets ever the credit of the work he does; it is purchased, together with the material, by the art-capitalist, and both are alike appropriated, the wages and the vanity of labour, no man saying—Nay!

If I may be allowed to express an opinion, it would be that the great future of art will mainly consist in asking the artist *for his own*, and then in giving him in his own proper person the credit of it. And I think, too, further, that something, though it be but a little, may, in this our own day, be attempted, and perhaps commenced by way of a beginning. It is somewhat different from the means hitherto tried by our royal academies, and institutes, and departments; and I hope I need do no more than ask the reader's unprejudiced attention to it.

One word more before concluding this introductory matter. I should be sorry to be thought to have in any way depreciated the action of the Royal Academy. It seems to me to have fairly bridged over the gap that now exists between the old art individuality and the present system of art manufacture; and this it has done, as I have said, by insisting on seeing from each of its painters in oil, however lamely (according to Ruskin), the impress of each painter's *own* hand. I start, then, sir, with your permission, as shortly as possible with this idea, together with another, a much lower one, viz. this, that however common, rough, and unlettered a man may be, you cannot get another man, however clever, and refined, and learned, to forge, and pass, his signature, though but of five letters.

C. Bruce Allen.

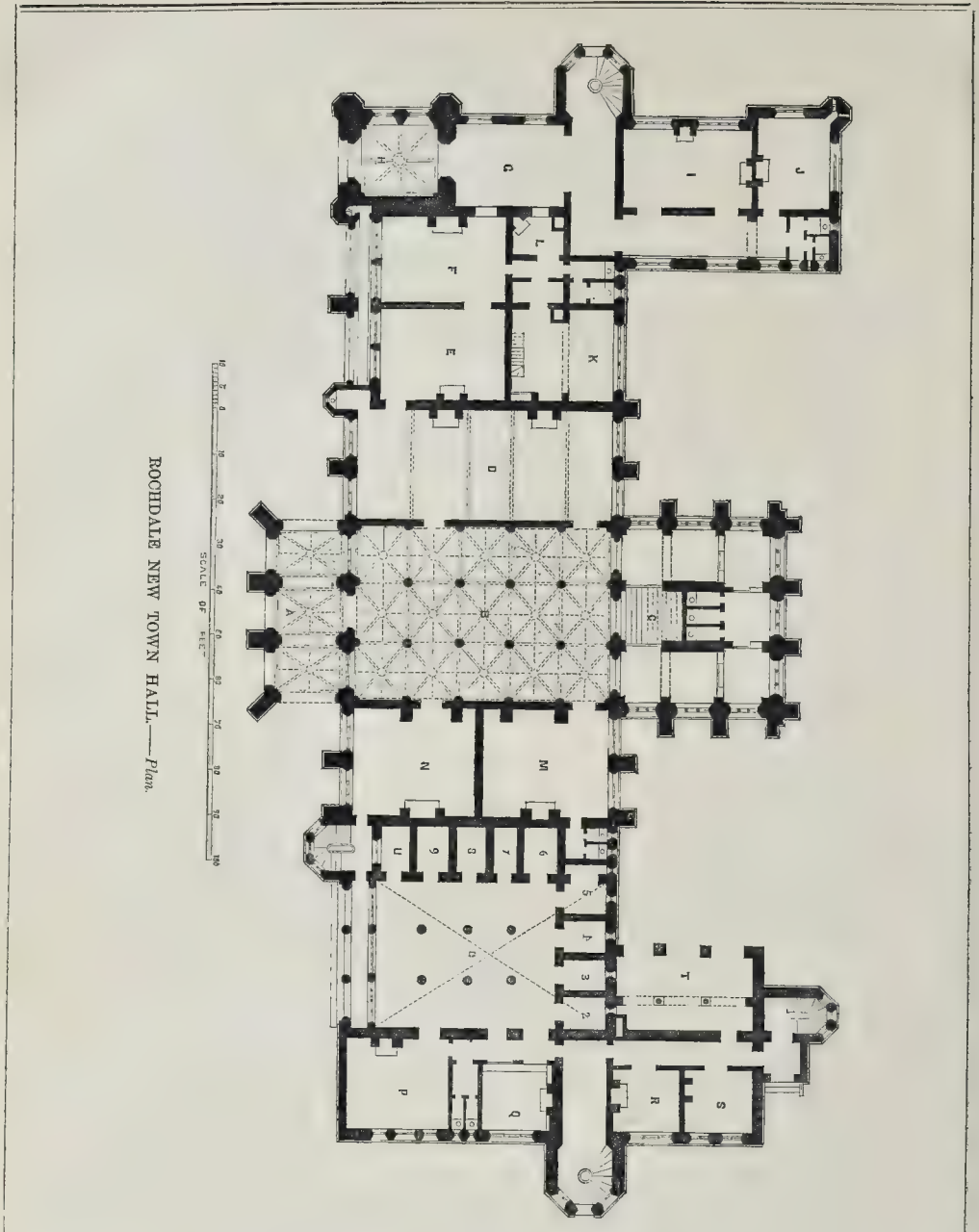
STAINED GLASS AT THE PARIS EXHIBITION.

Very complete arrangements for the proper exhibition of stained glass have been made at Paris. The clerestory of the great vestibule is to be devoted to the representation of this art; the whole of the west side is assigned to the United Kingdom. The following artists have signified their intention to send some of their finest works, which, in several cases, where they are already erected, have been liberally promised by the proprietors of them. It may, therefore, be expected that this Exhibition, on the part of Great Britain, at least, will far surpass any previous display by British artists:—Messrs. Clayton & Bell, Mr. D. Cottier, Messrs. Cox & Sons, Mr. Tony Dury, Messrs. A. Forrest & Sons, Messrs. Hardman & Co., Messrs. Heaton, Butler, & Bayne, Messrs. Lavers & Barraud, Messrs. Morris & Co., Messrs. A. & W. H. Connor, Messrs. J. Powell & Sons, Mr. Wailes, and Messrs. Ward & Hughes.

ROCHDALE TOWN-HALL.

In May, 1864, twenty-seven designs for a new town-hall were submitted in competition to the town-council of Rochdale, and from these the design sent by Mr. W. H. Crossland, of Leeds, was selected. Tenders being advertised for, the following were received:—William Hopkinson, 41,000*l.*; Thomas Whiteley, 36,000*l.*; Archibald Nield, Bradford, 35,100*l.*; Abraham Graham & Sons, Huddersfield, 33,000*l.*; W. A. Peters, Rochdale, 39,000*l.*; Robert Neill & Sons, Manchester, 29,850*l.*; Warburton, Brothers, Harpurhey, 26,510*l.* Ultimately that of Messrs. Warburton, Brothers, was accepted, and the works are now being carried on actively.

The building, of which we now give a view and plan, stands well, and will have a picturesque background of bank and wood. The plan of it resembles the letter **E**, the back being the north and principal front towards the river; the top arm being east and towards the town. The centre arm forms the principal staircase, and the bottom one the wing comprising the magistrates' rooms, and offices connected with the borough court. The clock-tower is at the north-east corner, and will be 150 ft. high. The full length of the river front will be 220 ft., beyond which two octagonal staircases will project east and west. The east and west fronts will be 110 ft., the staircases being the central feature. In consequence of the depth required to be excavated for foundations, it has been found desirable to add a distinct basement story to the building, which will be used for store-rooms, workshops, and other purposes. This arrangement will give a site for the superstructure level with the corner of the bridge, and allows the building to rise from a moulded base course, keeping the basement windows below the ground-line. The entrances to the basement are from the courtyard at the back. The ground floor comprises mayor's reception-room and parlour, with kitchen, lavatory, and attendants' rooms adjoining; council-room, 56 ft. by 24 ft.; exchange, 56 ft. by 40 ft.; committee and lecturer's retiring-rooms, cloak-rooms, and police parade-room, 40 ft. by 34 ft.; watch committee receiving and searching rooms. In the east wing are rate offices and treasurer's office. The first floor comprises news-room, 48 ft. by 20 ft., with offices attached; a suite of offices for the town clerk and committee-rooms, 40 ft. by 20 ft.; refreshment-room, 40 ft. by 20 ft.; large hall, 90 ft. by 56 ft., with organ-chamber; borough court, 40 ft. by 34 ft., with a suite of rooms for the use of the magistrates. The second floor comprises public library, 40 ft. by 40 ft., divided in the centre by an arcade, with attendants' and chess rooms; committee rooms, surveyor's offices, police reading-rooms, 46 ft. by 20 ft. The superintendent's residence contains drawing-rooms, kitchen, scullery, and four bed-rooms. There will be five entrances, each for a distinct purpose. The principal entrance to the great hall will be in the centre of the river front, under a vaulted porch of three bays, and of sufficient depth to allow carriages to drive under, leading to the exchange, which will be of three bays, vaulted with stone, carved in polished granite columns, the groining ribs springing from foliated capitals. The filling-in of the groining surface is of dressed Bath stone, with bands of red Mansfield stone. At the intersection of the ribs there will be carved bosses. Opening out of the exchange, and entered by an arcade of three richly-moulded arches, on grouped shafts, is a large staircase hall, 40 ft. by 34 ft., divided by arcades into nine bays, having moulded columns, banded, and with capitals foliated, supporting a vaulted ceiling similar to the exchange. The walls are pierced in each bay by windows of three lights having richly traceried heads and transoms. The height of the groining to the apex will be 50 ft. The stairs will be of Yorkshire stone, polished, with arcaded balustrades from pillar to pillar. The stairs will turn right and left from the landing leading to the great hall, which will be entered through deeply-moulded doorways. The entrance to the mayor's reception-room, council-room, and other corporate offices, also to the news-room, will be under the tower. The entrance to the rate offices will be in the centre of the east wing. The police entrance is in the centre of the west wing. The fifth entrance is under an arcade in the principal front, and will lead only to magistrates' rooms and retiring rooms connected with the large hall. The large hall, with ladies' and gentlemen's retiring-rooms, cloak-rooms, refreshment-rooms, and offices, can, if required, be let off, without interfering in any way with the rest of the building. The style adopted by the architect is of a similar character to that which obtained in England at the end of the fourteenth century, free use being made of the mullioned windows of many lights, square headed, for such offices as may be called domestic. The hall will be divided into seven equal bays, each lighted north and south by a three-light window, with rich tracery in the head, and cusped transoms. The roof will be open, having hammer-beam framed principals, with traceried spandrels, and grotesque figures holding candelabra from the ends of the hammer-beams. The filling-in of the roof will be framed in square panels, plastered for decoration. Over the platform, at the west end, will be a recessed organ-gallery, having a quadruple arcade, with stone shafts and foliated capitals, over which will be a rose window, having radiating tracery. The council-room is spanned by four stone segmental arches, moulded, the spandrels being pierced with tracery. These arches support the wooden ceiling, which is framed in square panels, plastered for decoration, as are the ceilings of the



ROCHDALE NEW TOWN HALL.—*Plan.*

principal rooms. The clock tower will be 24 ft. square at the base, with octagonal buttresses projecting from each angle. The height of the parapet will be 100 ft., divided into five stages, the two uppermost of which will be for the clock and bells. An octagon stage, arcaded, and of stone, will rise from the top of the tower, and will be roofed with a high roof, finishing with a bronze figure of St. George and the Dragon. The walls outside will be of dressed ashlar stone, from the Todmorden quarries, supported by projecting buttresses, and pierced by windows in character with the different rooms and offices which they light. The line of the façade is connected by arcades, the porch projecting beyond all. The tower doorway will have about it thirteen niches with carved canopies and bases; statues to be placed in the niches. In the centre bay of the large hall will be placed a statue of the Queen, in a canopied niche; the roof will be covered with Westmoreland slate; the clock face will be 11 ft. diameter, and 88 ft. from the ground. The superintendent's residence is in the west wing, shut off from the main building, having, however, an entrance to the corridor in the first floor, in close proximity to the borough court. The present bridge will be widened, and a terrace formed in front of the building, fenced from the river by a handsome terrace-wall, with lamps, all in character with the building.

The first stone, we may add, was laid by Mr. John Bright, M.P., on the 31st of March last.

REFERENCES TO PLAN.

A. Covered porch.
B. Exchange.
C. Principal staircase.
D. Council chamber.
E. Mayor's parlour.
F. Mayor's reception-room.
G. Vestibule.
H. Tower.
I. Rate-office.
J. Treasurer.
K. Kitchen.
L. Attendant.
M. Ladies' cloak-room.
N. Lecturer's retiring-room.
O. Police parade. Borough court over.
P. Watch committee-room.
Q. Receiving room.
R. Searching-room.
S. Large day cell.
T. Fire engine.
U. Bath-room.
2, 3, 4, &c. Cells.



ROCHDALE TOWN HALL.—Mr. W. H. Crossland, Architect.

GOVERNMENT INQUIRY RESPECTING THE MANCHESTER NEW BY-LAWS.

On Saturday last, Mr. R. Rawlinson, C.E., C.B., opened an inquiry at the town-hall, at the instance of the Home Secretary, respecting the operation of the new building by-laws which have received the sanction of the city council, and are awaiting the approval of the Home Office. The inquiry arose out of a memorial from the Manchester Society of Architects to the Secretary of State, wherein the operation of the by-laws was strongly condemned. The commissioner read his instructions from the Home Office to hold the inquiry, and added that he had received a letter from the town clerk expressing his regret that he would not be able to be present, and stating that he had not been able to get a copy of the memorial out of which the proceedings had arisen. If he understood the town clerk rightly, the memorialists had declined to submit a copy. Mr. Talbot said that up to that time the corporation were unaware of the contents of the memorial. Mr. Holden said the Society of Architects had not received from the town clerk a copy of the by-laws, and they would not have been aware of their existence but for the accidental reading of them in one of the Manchester newspapers, in the month of July. The commissioner could but express his sorrow that the memorial had not been transmitted to the Manchester corporation, because he thought they would have been better able, if such had been done, to discuss its bearings at that inquiry. The question would resolve itself into his receiving from the Society of Architects such amendments as they might propose; and he must ask that, simultaneously with the transmission of those amendments to himself at the Home Office, they would likewise send a copy to the Manchester corporation. Mr. Holden said there could not be the slightest objection to such a suggestion. The commissioner said, rather than enter into a long discussion there, it would be better for the Society of Architects to make their suggestions to the corporation, which the latter might consider, and he would then weigh the matter over, and recommend what he thought the Secretary of State should do. After a few remarks from Mr. Holden, Mr. Alderman Heywood, Mr. Clowes, Mr. Ryder, and Mr. Darbyshire, it was agreed to accept the commissioner's suggestion—that the Society of Architects and the representatives of the corporation should hold a conference, the result of which should be transmitted to the commissioner. The proceedings closed with a vote of thanks to Mr. Rawlinson.

METROPOLITAN BILLS IN PARLIAMENT.

Saturday was the last day for notices for intended new private parliamentary schemes to be inserted in the London newspapers. Though the exact number of these schemes cannot be ascertained with certainty at present, the number will probably amount to about 400. The majority are "Miscellaneous Bills." The private bills of importance, more especially to the public, which will come before Parliament will be gas, water, drainage, and improvement bills. As far as regards new railway schemes, nothing of importance will be brought forward. The principal railway bills will be for abandonment of lines or portion of lines, for raising additional capital, for extension of time, and for amalgamation.

Amongst those bills, public as well as private, of most interest to our readers are the following:—

Houses of Parliament.—The Government Board of Works apply for the acquisition of lands for the purposes of the new palace at Westminster, and further embankment of the Thames in connexion therewith, to enable them to construct an embankment on the north shore of the Thames, commencing at the landing-stairs of the palace at Westminster-bridge and terminating at Dorset-wharf, Millbank-street.

New Palace of Justice.—The Commissioners of Works also seek for powers to secure the acquisition of additional sites for the "Courts of Justice Concentration," for powers to make various extensions, the most important of which are to carry out their site as far as Chancery-lane on the east, abutting on Fleet-street on the south, to take the whole of Danes-inn down to the line of Pickett-street and Wych-street, extending westward to the western boundary of the property belonging to Dane's-inn, including part or the whole of the sites of Clement's-inn and the Foregate.

Thames Embankment (North Approaches).—The Metropolitan Board of Works apply for power to form new streets, and to continue the coal and wine dues, and charges upon the Thames Embankment and Metropolis Improvements connected therewith. The Board contemplate the construction of no less than ten new streets or roads;—between Whitehall-place and the embankment roadway at or near to Charing-cross Railway-bridge; between Craven-street, Strand, and Charing-cross Railway-bridge; between the embankment roadway east of Whitehall-yard and the end of the new street, No. 1; between Villiers-street, Strand, and the embankment roadway on the north-eastern side of the Charing-cross Railway-bridge; between the intended street No. 1 and Villiers-street; between the roadway at or near Charing-cross Railway-bridge and the Strand at Wellington-street; between St. Clement Danes and the embankment at Waterloo-bridge; between Buckingham-street and the intended new street, No. 6 (Wellington-street); between Salisbury-street, Strand, and Wellington-street; and between Cecil-street and Salisbury Wharf. It is further proposed by the Board to stop up Savoy-street, to enable the Board to make subways under all or any of the streets or roads formed by them in connexion with the Thames Embankment. The Board seek to relinquish the making of various new streets, authorised by their existing Acts, for which those now described are the substitutes. They seek for power to interfere, so far as needful, with the bridges of the Charing-cross Railway Company, existing or authorised, and with Waterloo-bridge.

Thames Embankment (Chelsea).—The Metropolitan Board also seek powers to embank the left or Middlesex bank of the Thames from the termination of the present embankment in front of the public gardens of the Royal Hospital at Chelsea to Battersea-bridge, with further powers to form a public roadway, and other provisions.

Metropolis Subways.—This is another of the projects of the Metropolitan Board. It is to enforce provisions as to the use of subways, promoted by the Metropolitan Board of Works, for requiring and compelling water, gas, telegraph, and other companies and persons to lay down pipes, &c., in subways provided, and to be provided, by the Metropolitan Board. Powers are sought to restrict the breaking up of the pavement of any street, roadway, thoroughfare, or place within the metropolis, beneath which any subway has been or may be hereafter provided by the Metropolitan Board.

Park-lane Improvement.—This is a renewal of the Bill of last session, empowering the Metropolitan Board, with some modifications, to widen Park-lane on its western side, commencing with its junction with Piccadilly, and terminating at or near Stanhope Gate, Hyde Park, and to make subways under such improved roads or streets.

North-Western and Charing Cross.—This company, which obtained its Act last session, but with a compulsion that they should tunnel under the Hampstead and Tottenham-court roads, without breaking the surface, gave notice for the purchase of additional lands and property in the parishes of St. Panoras, Marylebone, St. Giles's, and St. Ann's, Soho; and to underpin and make secure premises which may be rendered insecure by the works of the company.

Metropolitan Tramways.—This is a renewal of the Bill rejected last session for making road tramways in various parts of the metropolis. The first line is proposed to commence near the Archway Tavern, at Upper Holloway, and continuing down the Holloway-road to Highbury and Upper-street and High-street, Islington, to the City-road, and thence through the City-road and Finsbury-square to the south side of Finsbury-place, near the Moorgate-street Station of the Metropolitan Railway. A second line commences at the end of the Seven Sisters'-road at Stroud Green, and passes along to Park-road, Camden-road, to High-street, Camden-town; thence down the Hampstead and Tottenham-court roads to the south end of the latter, near Oxford-street. A third line commences in the High-street, Whitechapel, at the south end of Middlesex-street, passes along the Whitechapel-road, Mile-end-road, and Bow-road, through Stratford-road to the Stratford-broadway. A fourth line, on the Surrey side, commences at the south-west end of High-street, Clapham, passes along High-street, Clapham-rise, Clapham-road, and Kennington Park-road, terminating near William-street. A fifth line commences at the Effra-road, Brixton, at its junction with Water-lane, and passes along the Brixton and Kennington Park-roads, terminating at the same place as the previous road. And a sixth line commences in the Kennington Park-road at the point previously indicated, and passes thence to Kennington-green, Kennington-road, and Westminster Bridge-road, terminating at or near the eastern end of Westminster-bridge.

Belgravia and South Kensington New Road.—This is an application by the Belgravia-road Company to deviate, alter, and extend the road authorised by the Belgravia and South Kensington New Road Act, 1866, to commence by a junction at or near Walton-street, and to terminate in the Cromwell-road or Brompton-road, at a point nearly facing the South Kensington Museum; to abandon so much of the authorised road as lies between the junction of the intended new road at its terminus in Michael's-grove; to purchase, by compulsion or agreement, property required for the undertaking, viz., a piece of ground forming part of the open piece in the south end of Cadogan-place, lands and houses in Sloane-street, on both sides of Stanley-street, in Hasker, First, Walton, and Cumberland Streets, and on both sides of Michael's-grove, with powers to stop up and appropriate streets, raise further capital, &c.

West-end General Market. — This Bill is to enable a new company to erect a general market between Cranbourne-street and Porter-street, with a new street running out of Cranbourne-street by Ryder's-court to Little Newport-street, and to "stop up" various courts and streets in that vicinity, and widen others.

East London Water Supply.—This Bill is for the protection of the river Lea from sewage, the contingent prohibition of supply by the East London Waterworks Company, providing for constant supply, and the amendment of the East London Waterworks Act of 1853, &c.

DUBLIN.

North British Insurance Office, College-green.—This building, now advancing towards completion—and which, through the purchase of additional ground, will become much more extensive than was originally intended,—occupies one of the finest sites in the city for the transaction of the business for which it is intended, and admirably placed to display with advantage the character, which, indeed, is peculiar, of the architecture of the exterior. The frontage will measure about 42 ft. to College-green, and 64 ft. in Church-lane; and the height is about 50 ft. to the parapet, with, at the angle of the street, and also over the main staircase in Church-lane, an additional or attic story, at these points being about 65 ft. high. The style may be designated Jacobean, although not many of the features peculiar to that style are present; but we have here that knitting of classic detail with mullioned and transomed windows, small lights, and the introduction of bold gurgoyles, which indicates a study work, executed in the beginning of the seventeenth century, in parts not unlike Longleat House. The company intend letting a portion of the premises, and for that purpose have constructed a shop, extending 75 ft. to the rear, and about 23 ft. wide, one half covered with glass. They will also let chambers in the upper stories, retaining for their own use the offices on the ground floor, having the entrance at the corner of Church-lane, and a few rooms on the first floor. The main staircase is in Church-lane, having a separate entrance, and is available for access to the several chambers; here, also, provision is made for urinals and water-closets. The construction is fire-proof throughout. The main stairs are of stone. There are staircases of oak,—in the shop, ascending to warerooms, and in the public office of the company, communicating with the secretary's and board room on the first floor. There are vaults and kitchen offices in the basement. The face of the work is executed entirely in cut stone from the neighbourhood of Glasgow. The cost will be about 9,000*l.* when all is completed. The architect is Mr. David Bryce, of Edinburgh; the builder, Mr. W. Crowe; and the clerk of works, Mr. J. Robertson.

An addition is in course of erection to the Baggot-street Hospital, in this city, affording accommodation for twenty-two beds, and will cost about 1,500*l.* The architect is Mr. Chas. Geoghegan.

The foundation-stone of a large building for

blind females, under the care of the Sisters of Mercy, and called St. Mary's Asylum, was recently laid at Merrion, near this city. The cost will be about 10,000*l*. Mr. Chas. Geoghegan is the architect.

The new entrance, steps, and balustraded terrace, to the City Hall, is now making progress under the superintendence of Mr. Thos. Turner, architect. Mr. Meade is the contractor for the work.

Tenders have been invited for a large castle, at Castlelough, for Mr. A. Parker. The cost, it is thought, will be nearly 14,000*l*. Messrs. Lanyon, Lynn, & Lanyon, are the architects.

The opening meeting, for the session 1866-67, of the Royal Institute of the Architects of Ireland was held on Thursday, 15th instant, when a report of the proceedings of the last session was read by the hon. secretary, Mr. J. H. Owen, M.A. The usual elections were held; and Mr. Thos. Drew explained some interesting drawings which he had prepared from accurate dimensions, during the recess, of the old church of St. Audeon or St. Owen, portions of which date from 1455. It is to be regretted that the attending members are not more numerous.

A statue of Sir Henry Marsh, an eminent physician, was recently placed in the College of Physicians, with appropriate ceremony. It is the work of Mr. J. Foley, R.A.

PARIS.

THE improvements in Paris, although, no doubt, most salutary and desirable, necessarily destroy many interesting relics of antiquity dear to the archæologist and historian, as well as the mere lover of the picturesque; and it is to be feared that before long Paris will be as destitute as London of those interesting remains of past ages which delight us in less civilized cities. One of the few remains of Mediæval Paris, untouched by restoration, is yet to be seen in the Rue des Prêcheurs, a narrow, dirty street, near the Halles Centrales, which dates back as far as the year 1184, and was built upon a portion of the small fief of Thérounne. At the angle of this street and the Rue Saint Denis, is a Jesse-tree, carved in wood, and tolerably well preserved, supporting on its lateral branches the figures of the twelve kings of Judah, and on the highest branch the mother of the Saviour, the whole of the figures having been enriched with colour and gilding. Another tree, somewhat similar, formerly existed at the angle of the Rue des Vieilles Etuves, and the Rue St. Honoré. This was on a large scale; but, instead of human figures, the branches were loaded with apples. An army of young monkeys gambolled among the boughs, throwing down the fruit, which a monkey of mature age, seated at the foot of the tree, quietly appropriated. This carving, which probably had some political meaning, was executed with considerable skill, and was transferred some time ago to the Museum of the Petits Augustins.

The Church of St. Joseph, between the Avenue Parmentier and the Rue Saint Maur, is to be rebuilt from designs by M. Ballu. The cost will be about 40,000*l*., an enormous sum; but in this estimate is probably included the wall decoration, which is usually of a very sumptuous character, in French churches.

M. le Duc has been elected by the "Académie des Beaux Arts," to fill the vacancy in the section of architecture caused by the death of M. de Gisors. M. Botrel, of Paris, has been appointed architect for the new theatre at Angers.

THE METROPOLITAN GAS SUPPLY.

A DEPUTATION recently waited on the President and Vice-President of the Board of Trade in order to invite the action of the Government, in pursuance of the recommendation of the House of Commons of the last session, that amendments should be introduced into the Metropolis Gas Act of 1860. That committee reported, amongst other things, that they found the illuminating power greater, and the quality of the gas better, in Manchester, Edinburgh, Birmingham, Plymouth, and other towns, than in London; that the purification was imperfect in London; that the effect of the Act was to raise the market value of the shares and to increase the dividends of the companies, so that all paid 10 per cent., and many had in addition paid large sums in the form of back dividends, and had laid by reserve funds. The committee also reported in favour of a higher illuminating power and a reduction in price; that a chemical board should be appointed at the cost of the gas companies, to regulate the analysis of purity and illuminating power, with adequate powers; and that a limitation of the power of making up former deficient dividends should be reduced from six years to three years. Sir Stafford Northcote promised to consider the question, to obtain further information, and to give an early answer.

In the last Court of Common Council, the town clerk read a communication from the vestry clerk of St. James's, Westminster, enclosing a resolution by the vestry to invite all the other parishes in the metropolis to co-operate with them in procuring an amendment of the Metropolis Gas Act, 1860, and inviting the corporation to join in the endeavour to effect that object. On this occasion, Mr. J. F. Bontems said he had great pleasure in informing the court that the Special Gas Committee had been in communication with the Home Secretary and the president of the Board of Trade, and they had received an intimation from these gentlemen that it was the intention of the Government to introduce a Bill next Session of Parliament with a view to carry out the suggestions of the committee of the House of Commons in reference to the supply of gas to the metropolis. The communication from Mr. Buzzard was referred to the Special Gas Committee for them to take what steps they considered necessary in the matter.

Meantime, however, the London Corporation have given public notice of their intention to apply to Parliament for a Bill for the purchase of lands and erection of gas works, in West Ham and East Ham, and in Woolwich; power for the corporation to purchase by agreement or compulsion, all or part of the existing gas works and property of the Great Central Gas Consumers' Company, the City of London Gas Company, and the Gaslight and Coke Company; power to manufacture gas; power to supply gas within the City of London and Liberties; powers as to laying of pipes in certain parishes; amendments of Acts, and other purposes.

Another Bill is also announced for the better regulation of metropolitan gas companies and ensuring a cheaper and better supply of gas, as well as to enable the Metropolitan Board of Works or the City Commissioners of Sewers to buy up the gas companies compulsorily or by agreement. Some of the companies are also in the field with their Bills for purchase of land, erection of new works, and other purposes.

DWELLINGS OF THE POOR IN THE CITY OF LONDON.

AT the adjourned debate in the Court of Common Council, upon the motion of Mr. Bedford, that it be referred to the City Lands Committee to ascertain whether, by the expenditure of a part of the corporation funds in the purchase of some of the worst portions of the property in the City, inhabited by the poorest classes of the community, some relief cannot be afforded without loss to the corporation, Dr. Saunders supported the motion.

Deputy Fry said he did not object to the motion, but suggested that the last part of it should be altered by adding the words after the word "corporation," "and with a view to remedy the increasing evil of overcrowding in dwelling-houses in the City."

Mr. Bedford said he had no objection to the alteration suggested by the hon. deputy.

Deputy Elliott doubted the propriety of the motion, and said that the great evil arose from the existence of old and wretched dwellings inhabited by the most dissolute and filthy class of the community, and this was rapidly being remedied by railways and other causes at the present time. He saw by a report of Dr. Letheby's that no less than 1,200 such buildings had been pulled down within the last ten years. It should also be borne in mind that it was an undoubted fact that whatever powers they might take to remedy the evils of filth and neglect that now existed, there was a certain class of persons who, if their dwellings were cleaned and made decent to-day, would, by their own neglect, be in the same condition of filth and misery a month hence; and he believed that, in a great many cases the poor themselves were alone to blame for the miserable condition in which they found themselves.

Mr. Lawley supported the motion, upon the ground simply, as he stated, that, although a good deal had no doubt been done by the establishment of model lodging-houses and other means to better the condition of the poorer classes, it was the duty of the corporation to see whether more could not still be done to effect this object.

After some further discussion, the motion, as amended at the suggestion of Deputy Fry, was agreed to.

THE TRADES MOVEMENT.

London.—The ship-carpenters, iron-workers, and other workmen in the east of London, are in great distress from want of work, and a large meeting of them has been held for the purpose of considering what should be done. It is said that no less than 12,000 workmen are at present out of employment in the east of London. A deputation to wait upon the influential classes of the district was advised.

The Potteries.—A letter from Mr. Lynam, architect, lately appeared in the *Staffordshire Advertiser*, to the effect that, whilst the working bricklayers in the Potteries at first declined arbitration, they had since agreed to accept it; and that the masters, in reply to an offer from Mr. Lynam suggesting that steps should be taken to secure the reference of the dispute to arbitration, declined now to entertain the question of arbitration unless some guarantee were given for the protection of the non-union men in their employ, and whom they had engaged on the bricklayers striking and declining arbitration. To this Mr. Lynam replied, that "for either party to make conditional stipulations of the above character is to shift from the principle of arbitration;" and as he had no answer to this letter, he published his statement. Mr. John Steele, secretary of the Builders' Association, encloses to the *Advertiser* a copy of a letter he had sent to Mr. Lynam. This letter contained the following resolution of the Builders' Association:—

"That this association cannot consider any offer of arbitration which does not include a satisfactory guarantee that the interests of the non-union men shall be considered; it is also of opinion that the best course for the men on strike to pursue is to commence work under the existing rules; and if they are of opinion that there is anything unfair to them in the same, to take advantage of Rule 8, which provides, 'That the rules shall continue in force until altered, as above provided, after six months' notice has been given by the party requiring the alteration to the other in writing.'"

Mr. Steele proceeds to justify the masters in insisting on the protection of the non-union men in their employ, observing that the union men refused arbitration and struck work at the beginning of the summer, when they thought everything was in their power; that the masters had obtained other workmen who had, in spite of "violence and intimidation of no ordinary kind," remained true to them; and that it would be as unjust as it would be impolitic for the masters to turn adrift these men who had stood by them in their hour of need, or to subject them to tyranny. Besides this, it was urged that the men had sundered their connexion with the masters, and only offered to submit the dispute to arbitration when their attempt to force their own terms on the masters had failed.

All the earthenware manufacturers of the Staffordshire potteries, with the exception of seven or eight who do not belong to the Masters' Union, recently closed their works. Both the committees of the Masters' Union and the executives of the Operatives' Societies had meetings. The former decided unanimously that the lock-out must continue until the whole of the men were hired on the terms laid down by the masters. The operatives' executives passed resolutions designating the lock-out as injudicious, cruel, and unnecessary; and in the hope of effecting an amicable settlement, and believing that the masters' chief objection to monthly hiring arose from a fear that it would lead to changes of prices for labour, they offered a guarantee to the masters that no alteration in prices agreed upon at the beginning of the hiring year should be made during the year. The masters accepted a pledge of honour to that effect from delegates of the union, and the lock-out is over.

Burton-upon-Trent.—The strike in the building trade had lasted for three weeks, when a letter was received by the secretary to the General Builders' Association, from Mr. Metcalfe, secretary to the Trades Council of Burton-upon-Trent, asking the masters to receive a deputation to try to effect an amicable settlement of the present question. We have not yet heard of the result.

Gloucester.—The masons here have given notice that from April 1st their regulation wages are to be 30s. per week of 56½ hours.

Sheffield.—In reply to trades deputations to the Home Secretary, the individual opinions of the Government are said to be in favour of an inquiry into the causes of the trade outrages in Sheffield, and a commission is hinted at.——The stokers at the Gas Company's Works, who are receiving 30s. a week, sent in a demand for an

advance of 5s., requiring an answer by bearer. The demand was refused, and the men have ceased work. It is stated that some of the men were willing to go on with their work, but were fearful of refusing to act with the rest.

Edinburgh.—A number of the journeymen joiners of Edinburgh have turned out on strike rather than submit to a reduction of one halfpenny per hour on the present rate of wages, which is 6d. per hour. The workmen proposed that the matter should be settled by a conference between employers and employed, but this proposal had been declined. The workmen allege that if the proposed reduction had been accepted, it would place them in a position financially inferior to that of any of the leading building trades, and one penny below others who have lately received an advance of wages.

Leith.—A misunderstanding having arisen in Leith between several of the master masons and their journeymen, the latter are out on strike. The masters having intimated their intention of reducing the men's pay to 6d. per hour, the wages given in Edinburgh, the workmen agreed to submit to the reduction—a halfpenny an hour—provided the masters would pledge themselves not to enforce a further reduction of wages during the winter. The masters would not give the pledge demanded, and therefore the men struck work. The strike is at present only partial—the masons at the New Docks, and at a large new building in Bernard-street, being still at work.

MAGNESIUM LAMPS.

It appears to have escaped notice that on Lord Mayor's Day the magnesium light was used with good effect at the Guildhall. One of Larkin's patent lamps, which excited interest at the Nottingham meeting of the British Association, was suspended from the spire and brought out the design of Mr. Horace Jones in the surrounding darkness in a remarkable manner. From this eminence the light was seen from all parts of London where the spire was visible; and its reflection on the sky set several firemen in motion. Two other lamps were suspended in the court-yard, and lighted up with a peculiar radiance between sunlight and moonlight. In these lamps the magnesium is burned in powder delivered from a tube as sand from an hour-glass. The lamp on the spire burned for upwards of eight hours without interruption, we are told. The hinderance to the use of this light is the cost of the metal, which, we understand, is now supplied in quantities at 3s. per ounce. This, doubtless, is a great reduction; but surely if chemists turned their attention to the matter, some process might be devised whereby one of the most abundant metals in nature might be delivered from its ore at a price proportionate to its abundance.

SCHOOLS OF ART.

A Leamington School.—The committee of the Leamington Museum and Philosophical Society have issued a programme respecting the sectional department of a school of art, the establishment of which has been resolved on. Mr. Charles Ryan, formerly head master of the Leeds and Halifax schools, has agreed to take the management of the school, and rooms are being fitted up with requisite appliances for art instruction.

The Sheffield School.—At the annual meeting of this school the report of the council was read, which stated that they find the present income of the school far below its expenditure, and that the only way of placing the school upon a sound financial basis appears to be the extinguishment of the building and bank debts, amounting to 1,352*l.*, and a doubling of the amount received from annual subscriptions; and, unless the inhabitants of the borough are prepared to respond to these requirements, it adds, this valuable school must inevitably be closed in a very few years, and its excellent building be sold to liquidate its liabilities. Any considerable addition to the school fees would not merely exclude the majority of its pupils from its classes, but reduce the aggregate income derived from fees. The report of Mr. W. H. Sounes, the head master, expresses the same opinion as to the increase of fees. It states, on the other hand, that the number of students and amount of fees are steadily increasing. But much more might be done, and the largeness of the school and the rapidly-increasing demand for advanced instruction on the part of the students, render it impossible that the work can be done rightly in every department without sufficient means. Eight hundred and seventy works, including drawings, paintings, and models, were sent to London in March last, in competition for prizes in accordance with the new minutes of the Department of Science and Art. Twenty-eight prizes have been awarded, twelve "honourable mentions," eighteen works chosen for national competition, and forty-nine students mentioned whose works have been found satisfactory. Two national prizes have been awarded. The ladies' classes have this year taken seven prizes and one honourable mention, including one national prize and the Montgomery medal. Thirty-three "passes" and three certificates were gained at the second grade examination, held at the School of Art in March last. One student has been appointed by the Department to a National Scholarship, and is now assisting in the decoration of the new museum. The master states that he has received a letter from one of the highest decorating firms in London, expressing a wish to have assistance from this school, and stating that, on looking round the works exhibited from the different Schools of Art at South Kensington, he was particularly struck by those sent from Sheffield.

The Birkenhead School.—The annual distribution of Government prizes to the pupils of this institution has taken place in the Public Library. Mr. John Laird, M.P., presided. In opening the proceedings, the Chairman said the Birkenhead School was established in 1855, given up in 1860, and re-established in 1861. Since its re-opening, in 1861, upwards of 500 students had attended the various classes; five had obtained national medallions, and four others honourable mention in the national competition of the art schools in the United Kingdom; 104 local medals had been awarded, and 30 students had passed the whole of the second grade of examinations. These persons were principally working men, who had given their evenings to instruction here, and had improved their position by the knowledge they had gained under Mr. Bentley's charge. During the present year the school had been attended by 125 students, 21 of whom had attended the morning classes, and paid 10l.; 104 had attended the evening classes, and paid 88*l.*; the total amount received in this place being, therefore, only 190*l.* Some people said, "Why don't you raise the fees?" That could not be done, because it would drive the students away. It would not do to raise the fees; but there were two other courses open. One was that the people of Birkenhead should come forward, and not allow an institution of this kind to drop through from the want of 100*l.* or 150*l.* a-year, which was incurred in paying the rent and expenses of the establishment.

PROVINCIAL NEWS.

Bristol.—The proposed new theatre is expected to be completed and opened by October of next year. Mr. Chute will obtain possession of the land on which it is to be built early in February. The services of an architect have been engaged. The cost is estimated at 12,000*l.* One-third of the sum required has been already subscribed.

Clevedon.—A meeting of the inhabitants of Clevedon has been held, to discuss the proposed scheme for making a pier there, which will give a direct communication with South Wales. Mr. C. Lempriere, chairman of the Aberystwith and Tynemouth Pier Companies, presided. He said the company obtained an Act for carrying the scheme into effect last session. The Act gave them power to raise 20,000*l.*; but with proper care and management, a pier might be constructed for 7,000*l.* That represented 700 shares at 10*l.* each. Mr. Ward, of Dudley, offered them a pier which had been made for a foreign government, and ultimately left on their hands, for 6,000*l.*, and he thought it might be obtained for less. It was resolved to form a committee to carry out the project.

Liverpool.—The New Star Concert Hall in Williamson-square is designed to hold between 1,800 and 2,000 persons, and its dimensions are as follow: — Length, 90 ft.; width, 60 ft.; height, 40 ft. The cost of the building in its completed state will be about 22,000*l.* The body of the hall will be occupied first by the orchestra, of seventeen performers; next by the orchestra stalls; and the greater part of it by a sort of pit, into which the most numerous part of the audience will find its way. The gallery will be divided into three parts, one for the reserved seats facing the proscenium, and the others for the boxes and side galleries. The interior of the house, we were informed, was designed after that of the Oxford Music Hall, London. Messrs. Defries have contracted for a series of star-gas pendants. The drop-curtain and such scenes as are necessary will be by Mr. Telbin. Men are at work upon the building night and day, and it is announced that the hall will be opened on the 26th proximo.

CONDITION OF LEEDS.

The Rivers Pollution Commission have been holding an inquiry at Leeds. In the course of it,

Mr. W. Swale, inspector of nuisances for the borough of Leeds, examined by Mr. Rawlinson, said he was appointed smoke inspector in 1853, which office he had continued until 1857, when he was made general inspector of nuisances. He did not inspect lodging-houses: that duty came under another department. There were a great many pigs kept in the borough, and they were very often complained of as a great nuisance by individuals in the neighbourhood, and also by himself. In the township of Leeds there were 7,120 ash-pits; and in the borough there were 12,000, exclusive of water-closets. There were about 45,000 houses, and the average of ash-pit accommodation was 1 to each 3½ houses in the township and 1 to 3¾ houses in the borough. There were nearly 1,000 bed-rooms and living apartments erected immediately above these ash-pits. The cleansing of the several ash-pits cost the Leeds Corporation 2,200*l.* per annum about three years ago, but now it was considerably more than that. With respect to the state of the river, he stated that the borough scavengers only the other day took out 50 dead dogs, cats, and other animals; and, he believed, almost the same number might be taken out every day if the river was properly dredged. There were about 3,500 water-closets in Leeds, receiving water from the water-works, but that was exclusive of the large manufactories, which, he had no doubt, would raise the number up to 5,000.

Dr. Chadwick stated that he had been in practice in Leeds for thirty years. The Aire was now the foulest river that he knew of. He was well acquainted with the unsatisfactory death-rate of the borough, and attributed it mainly to our bad sanitary arrangements, and partly to the manufactures carried on. He was inclined to think that the death-rate was somewhat overstated, inasmuch as it was not generally taken into consideration that the birth-rate was also very high. Typhus and typhoid fevers were the most frequent cases which occurred in the borough. The great number of ash-pits and the close proximity of dwellings to them, no doubt, was very detrimental to the checking of disease. The mortality in Leeds for the past year had been 13,000. At the time the Irish fever was raging, the sewage works of Leeds were carried out very extensively, and a cessation was immediately manifest, although it did not entirely remove it, as there were continually isolated cases arising.

The evidence elicited during the inquiry has shown a frightful state of things, and has astonished the inhabitants, who, of course, have forgotten the particulars we gave of the town some years ago, and will with equal rapidity forget what has just now been said. The river is in a fearful condition.

"Let our readers but imagine for themselves what the scene presented at the point where the great sewer pours its contents into the river is likely to be. It collects into one vast stream the filth and sewage of a town of 230,000 inhabitants, a town, moreover, abounding with manufactories which produce far more than the average amount of refuse. And this matter is poured in a ceaseless stream into an open river. Well may we hear that the air is so full of foul gases that it is hardly possible to breathe in the neighbourhood; that the cattle are not merely unable to drink of the water, but are so injuriously affected by the state of the atmosphere, that last year they fell easy and early victims to the plague, and that the human residents near this horrible place are the constant subjects of typhus and small-pox, and diarrhœa,—of all those ailments, in short, which medical men in modern times have united in describing as preventible."

If the town had attended to our warnings, thousands of lives would have been saved. The death-rate has gradually increased, and is now no less than 33½ in the thousand. Say that this is only 7 in a thousand more than it need be, under Providence, with proper sanitary arrange-

ments, and this means that 1,610 persons in Leeds die each year before their time!

Mr. Rawlinson has been very properly urging, during the inquiry, the necessity of ventilating the sewers previously even to the utilization of the sewage. This step alone would probably save many lives.

VALUE OF BUILDING LAND AT RAMSGATE.

The Ramsgate Improvement Commissioners have agreed to purchase several hundred feet of land abutting upon High-street, including part of the site of the old library and the new tavern, at the large price (for a provincial town) of 43,560*l.* per acre. Already the work of demolition has commenced, and the lower part of High-street presents an appearance of ruin; but this is only preparatory to the widening of the street to an extent of some 9 ft. or 10 ft.; and, when the new houses which are to occupy the widened street shall have been built (and already the first contract has been taken under Messrs. Sear & Boyd, architects), a thoroughfare of somewhat ample dimensions will be secured to the large confluence of traffic from Queen-street, King-street, and the Royal Harbour. It is to be hoped, however, that the commissioners will not, as is reported of them, allow old and unsightly buildings to remain in existence on this fine site, to the detriment of the other and more pretentious elevations of their immediate neighbours.

COMPENSATION CASES.

The first compensation case of the many that will arise through the extension of the Post-office has been heard by the Recorder and a special jury in the Lord Mayor's Court. It was a claim by Mr. Thomas, the sewing-machine manufacturer, at the corner of St. Martin's-le-Grand, for his premises, and loss consequent on removal. The jury viewed the property, and on their return a conference took place between the counsel. Mr. Coleridge, counsel for the Post-office authorities, on the termination of the consultation, told the jury that the matter had been settled, and they would be spared a long inquiry. The jury might wonder that terms had not been come to without incurring the present expense; but the fact was, until he had conferred with his learned friend, Mr. Hawkins, he could not arrive at any satisfactory conclusion as to the claim made. A verdict would be taken for 4,000 guineas. Mr. Hawkins expressed his concurrence. The verdict would be by consent for 4,200*l.* A verdict was recorded for that sum. The claim was 13,688*l.*

MEMENTO OF SAINT ANDREW'S, DUBLIN.

Seeing by the *Builder* of Nov. 3, p. 821, that the church of St. Andrew, Dublin, is approaching completion, I would like to inquire if it is intended to replace Smyth's statue of its patron saint to its former or a similar position before the building is finished. The statue is a good one, and its history, with that of its sculptor, is a sad one, and otherwise it has an interest as well as the old church which for half a century it had adorned.

A duplicate of it or something like it, surmounts the Roman Catholic church of the same saint, in Westland-row, Dublin. A memorial still exists of the miserable requital the founder of the Irish school of sculpture received for his work for the former church. I shall not reproduce that fat item for artistic expenditure now: I shall let it rest in the shade; but I hope we shall not hear the unwelcome news hereafter, that this memorial statue, like its artist, was mercilessly thrust aside into the cobwebbed crypts of the Royal Dublin Society, where many more evidences of crucified genius have recorded themselves.

I may remark, that in the old church, which the present one is replacing, were the chandeliers that once belonged to the Irish Senate; and if I recollect aright the pews were after the design of Francis Johnston, the architect of the General Post Office and the Chapel Royal, and the founder of the Royal Hibernian Academy.

The present structure, like its predecessor, occupies the site of a place known some centuries back as Hogges or Huggin Green. It may be seen marked, I think, in Speed's Map of Dublin, 1610. The late edifice was commonly known as the "Round Church," though elliptical in plan.

Old St. Andrew's and its surroundings have long possessed a historic interest for many. Perhaps some octogenarian in "Civita Eblana" would awaken some reminiscences for the sake of that art which we all love. H.

DEATH AND RAINFALL.

You may, perhaps, consider the following statement worthy of the attention of your readers, from its bearing on the important question of the effects of elevation and moisture on health.

From 1857 to 1865 (both inclusive) there have been seven years in each of which the rainfall at Oxford has been plus or minus the annual average of the whole period by at least four inches; and the following tables will show how erroneous the opinion is that Oxford is rendered unhealthy from its low situation, and from its neighbourhood being liable to floods:—

	Rain per cent. in excess of average.	Death-rate in Oxford per cent. below the average.
1848	20·5	4·8
1852	39·3	8·3
1860	12·2	5·8

	Rain per cent. below the average.	Death-rate per cent. in excess of average.
1851	16·2	10·9
1854	32·7	36·6
1864	18·6	9·4

In 1858 both rain-fall and death-rate were below the average, the per centage being:—

Rain.	Death-rate.
16·2	10·4

During the last four quarters, *i.e.*, from September 30, 1865, to September 30, 1866, the rainfall in Oxford has been 34 and 9-10ths per cent. in excess of the average of the nineteen years, and the death-rate has been 15 and 5-10ths below it.

The last quarter's death-rate in Oxford was only 14 in 1,000 persons. This rate is unusually low, but it is not unfairly affected by the University, as the census in 1861 was taken during the Easter vacation. G. A. Rowell.

ADDITIONS TO THE HOUSE OF CORRECTION, COLDBATH FIELDS.

Sir,—I have no means of obtaining access to the House of Correction at Coldbath Fields which I care to adopt; but, as I have occasion to pass that place twice a day, I have observed that during the last two years great additions have been made, and an entire reconstruction appears to be going on. I have heard that fifty thousand pounds will be expended on this prison, which is a very large sum considering that the magistrates who control it are appointed by the Crown, and are in no way subject to any responsibility to the ratepayers. This, however, is not the point I had particularly intended to draw attention to, but to the policy of constructing such an immense prison in the heart of the metropolis, where land is so scarce and high priced, and at a time when there is such a loud and well-founded cry against the enormous destruction of workmen's dwellings. This prison is not so much a place of detention until trial as a place of punishment; and, so far as I can see, might just as well be placed a few miles from town as where it is, and with a space enclosed of, I should say at a guess, twelve or fifteen acres, the land would have sold for a sufficient sum to have purchased a much larger site, and also to pay for the erection of a new prison, and thus save the ratepayers from an onerous tax. The investment of so large a sum as I have named in new buildings now renders such a course impracticable, and I proceed to make a few remarks on what has been done so far as can be observed outside the walls.

The hitherto open space lying along the wide part of the street known as Cobham's-row, and used as a volunteer drill-ground, has been enclosed by a wall similar to that round the rest of the prison ground, and appropriated chiefly to the purpose of a site for the governor's house, which new structure is a handsome one in the Italian Gothic style; but I cannot help saying that it is strange that an architect who could design this building should have injured the effect of it by the manner in which the lofty wall has been joined to it. The house is set back from the street a few feet, and the wall joins it by a rounding instead of an ogee, or some other contrivance, and thus the front angles of the house are buried in the sides of this high battered wall, which gives it the look of being narrower at the base than the top, and to make sure that the most careless eye should not pass without seeing this blunder, two recesses have been left in the brickwork of the front wall from the cornice to the ground for the rainwater conductors, which without the least constructive necessity follow the batter of the wall to the top. The right way is followed at the gateway near the house.

Every one who is at all acquainted with this part of the town knows that a very important secondary thoroughfare passes the south side of the prison. It connects the Holborn district with the City-road, by Elm-street, Mount Pleasant, Exmouth, Myddelton, Spencer, and Charles streets, and is generally direct and tolerably wide, except at two points, viz., Elm-street, and at the contraction of Cobham-row into Coldbath-square, so called although only a street, while the row more nearly comes up to a square. From the entrance to the old gateway the south line of the prison ground diverges easterly till it reaches the Farringdon-road at a point which is in a line with the south side of Exmouth-street; so that the divergence is just equal to the width of that street. Thus a somewhat long triangular piece, having a base of some 40 ft., and running out at its apex at the old gateway, containing at the outside one-tenth of an acre, was all that was wanted to make the line of street straight, and to have greatly improved the value of the adjoining property; but the want of public spirit on the part of the vestry and the magistrates prevented this from being carried out. It would have been but an inconsiderable concession to the locality had they given it or sold it for a merely nominal price, as the existence of the prison there is a serious drawback on the prospect of the neighbourhood; and had the land been applied to building purposes, the rates would have been greatly lightened. J. W.

CHURCH-BUILDING NEWS.

Wellingborough.—The chief stone of a new church has been laid in the Midland-road. The edifice will consist of a nave and north and south aisles, and, exclusive of the chancel and vestry, will be 73 ft. 6 in. by 55 ft., which, it is calculated, will seat 500 persons. The chancel, which will terminate in a conical apse, will be 35 ft. by 22 ft. 6 in.; and the vestry 22 ft. 6 in. by 11 ft. 6 in. Early English will be the character of the church, and it will be erected chiefly of stone obtained in the neighbourhood. The estimated cost of the building is about 3,000*l.* All the sittings are to be free and unappropriated. The architect is Mr. A. Buckeridge, of Oxford. Mr. J. Burkitt, of Wellingborough, has contracted for the stone work; and Mr. Cheater for the wood work; Mr. Perkins has undertaken the plumbing.

Market Harborough.—The church of St. Andrew, in the village of Great Easton, after being under the hands of workmen for more than two years, has been re-opened for public worship. The work had been contracted for at six different times. The contractors who completed the works were Messrs. Stanyon & Son, Market Harborough, for stonework, and Mr. John Loveday for woodwork. The steeple and tower have been rebuilt, the design of the old one being followed. There was formerly a small tower arch, which was blocked up with bricks and mortar, but this has been replaced by a tower arch, to correspond with the chancel arch. There was also a gallery at the west end, in front of the blocked-up arch. This, too, has been removed, and the organ and choir placed in the chancel. The organ is fixed in a transept on the south side, the back part of the transept being used as a vestry. The stonework of the pillars and arches has been relieved of its coat of whitewash, and old and decayed plaster has been removed from the walls, and they have been re-plastered, although not whitewashed. On the north side of the church are two small memorial windows of stained glass. One represents "Christ raising the Centurion's Daughter," with the text, "She is not dead, but sleepeth." The other is emblematical of "The Virgins with the Lights," the accompanying text being, "Be ye also ready." There is a small light of stained glass in the east end of the north aisle. The other windows of the church are filled with quoins of cathedral glass, having a white border. The chancel seats are of deal. The roof, which is of oak, has been repaired. The chancel floor is laid with tiles from the works of Mr. Whetstone, as is also the floor within the altar-rails. The repairs cost over 1,000*l.* Mr. Christian, of London, was the architect employed.

Sholing.—St. Mary's Church, Sholing, has been consecrated and opened for divine service.

The architect was Mr. Colson, of Winchester, and his design has been carried out by Mr. Williams, of Bitterne. The church is a simple structure in the Early English style. The plan is that of a nave, north transept, vestry on the north and porch on the south side, and a chancel terminated by a semi-octagonal apse. The walls are of brick, faced with Swanage stone, and the dressings of Bath stone. The roof internally is open-timbered, and externally is covered with tiles in alternate bands of red and grey, and at the south-west angle of the nave is a turret carrying a bell, and surmounted by a spirelet, on the top of which is an iron cross, coloured and gilt. The seats, which number nearly 400, a greater portion of which will be free, are all open, and made of deal, stained with oak. The whole work has cost a little over 2,000*l.*

Churchill.—The parish church of Churchill, near Kidderminster, has been recently doomed to destruction. Mr. W. J. Hopkins, of Worcester, diocesan architect, having been called in to examine and report on the structure, advises that it would be cheaper to rebuild than to repair. It has been, therefore, decided to rebuild, and the architect proposes to use in the new building such fragments of the old as are of a correct ecclesiastical character. Plans and sketches have been furnished for a building in the Early Decorated style, consisting of chancel, nave, porch, bell-turret, or, if possible, a spire; the church to contain 120 sittings; estimated cost, more than 1,000*l.*, of which sum Lord Lyttelton has offered 500*l.*

Wells (Norfolk).—The chancel of the old church has been restored at the expense of Mrs. Downing, the rector's mother, and re-opened. The woodwork of the roof, which was in a very dilapidated state, has been repaired and covered with new lead. The stonework has been cleansed and repaired, and the walls covered with stucco, crossed by illuminated passages of Scripture. Two painted windows have been inserted, one to the south-east, of quarry pattern, with kaleidoscope coloured glass in the tracery, surmounted by the armorial bearings of the rector. The east window, which is of large dimensions, contains an illustration of the sentence in the Litany, "By Thy precious death and burial, by Thy glorious resurrection and ascension, and by the coming of the Holy Ghost." The window is of six lights, three of which on the left contain the Crucifixion of the Saviour with the two thieves; those on the right the Resurrection of the Saviour, while the angel is rolling away the stone and the guards sleeping by, together with the distant approach of the women from Galilee and the two disciples. Beneath is a scene representing the Burial of the Lord. In the corners are three figures, portraying Faith, Hope, and Charity; and in the large quatrefoil at the top is a figure of the Saviour in the Ascension, amidst clouds of glory, and attended by various orders of angels, underneath which are the eleven apostles. In the centre appears a descending dove. The chancel screen has been restored and illuminated. The whole of the work has been carried out at a cost of about 1,500*l.* The painted windows are from the firm of Messrs. Cox & Son, of London; the carvings by Mr. Cullyer, of Norwich; the plumber's work by Mr. A. Kettle, of Kenninghall; and the whole of the carpenters' work has been carried out by Messrs. Plowman & Son, of Wells. All the works have been effected from plans and under the supervision of the rector. It is to be hoped that the inhabitants will come forward to aid in the restoration of the nave, which is greatly in need of repair.

Dulas.—The new church here has been consecrated. The edifice has been erected by the lord of the manor, at a cost of 1,700*l.* The design was furnished by Mr. G. C. Haddon, of Hereford, architect. Some relics of the old church have been preserved, but even the stone was in a crumbling state. The style is Early English of thirteenth century. Externally, the principal features are the east window, which is composed of the usual three lights and sexfoil centre, the wheel window in the western gable, the sacristy, &c., north porch, and arched bell-gable turret immediately over the chancel. The church is arranged with open seats to accommodate 100 persons, and is paved throughout with tiles from the manufactory at Lugwardine. The windows are filled with cathedral tinted glass with white borders.

Bradley.—The foundation-stone of a new church which is about to be erected in the recently-formed parish of Bradley, near Bilston, has been formally laid by Miss Baldwin, assisted by Lady Emily Foley, in the presence of some hundreds of the clergy, gentry, and working population of the neighbourhood. The church is designed in the thirteenth-century style of Gothic architecture, and will accommodate 800 persons. The plan is a nave with north and south aisles, with tower and spire at the east end of the south aisle, and a vestry at the north side of the chancel. The nave is divided from the aisles by an arcade of four bays, with a clerestory. The nave roof is of hammer-beam construction. The aisles are roofed in a corresponding manner; and are lighted with two-light traceried windows. The length of the nave internally is 78 ft., and the entire internal width of nave and aisles is 65 ft. 6 in. The chancel is 31 ft. by 25 ft., and is roofed with an open roof. The lower portion of the tower opens with an archway into the chancel, and will be in part used as an organ-chamber. The spire will be 170 ft. in height. The walling is of Gornal stone in coursed ashlar work, dressed with Bath stone. The seating, and joinery generally, are of pitch pine stained and varnished. The aisles are to be laid with Staffordshire tiles in patterns, and the chancel floor with encaustic tiles. The contract for the entire work has been taken by Mr. Nelson, of Dudley. Plans were originally prepared by Mr. Bidlake, the late Mr. Banks's successor, and the architect under whose superintendence the buildings are being carried out, Mr. Whitfield acting as clerk of the works.

Books Received.

On the Constitution and Management of the Royal Academy. London: Bell & Daldy. 1864.

This seems to be regarded as a fitting time for the re-issue of a pamphlet, in which it is shown that certain amendments in the constitution and management of the Academy are desirable. The author is Mr. John Partridge, a gentleman now seventy-five years of age, and who has for the last eighteen years withdrawn from public competition at the Academy exhibitions. He adduces his own experience in corroboration of his suggestion that such amendments are requisite, while he hopes his age and retirement will show that the good of the Academy and of art, and no personal motive, actuates him in his endeavour to effect the improvements he has in view. He urges,—

"That arbitrary, absolute, irresponsible power, vested in a few men over the reputation and fortunes of a large body of their professional brethren, must result in its frequent abuse; and that no minor reforms can be effectual while this, the fundamental principle of the Royal Academy, is retained,—a principle, I believe, without parallel in any other institution in this country, totally un-English in its character and tendencies, and most deteriorating in its effects, morally and professionally, on the academicians themselves."

And besides the details of his own case, he adduces others, and says,—

"I grieve to add, that what I have myself seen and heard from members of their own body, of the conduct of academicians towards each other, is by no means calculated to warrant confidence in a generous treatment of their powerless rivals. If envy, malice, and intrigue find place among the members relative to each other, what marvel that scant justice should be the dole of the unprivileged."

Although Mr. Partridge's grievance belongs to the past rather than the present, his fate and his suggestions are well worthy of consideration.

VARIORUM.

"A Synopsis of Heraldry; or, a Short and Easy Method of acquiring the Art of Blazon," by C. N. Elvin, M.A. (published by Hardwicke), is doubtless quite correct as far as it goes; but we fail to discover any special characteristic distinguishing it from other introductions to heraldry already existing. However, it is compendious, and will be found to answer its intended purpose.

Miscellanea.

A Table of Newspapers.—Messrs. Vickers & Harrington have issued their "Synopsis of Newspapers published in the United Kingdom," upon the compilation of which great care seems to have been bestowed with the view of rendering it a permanently useful medium of reference to all classes of advertisers. Being on one sheet for suspension, the required information can be obtained at a glance.

National Albert Memorial.—Last week, the Queen visited the memorial of the Prince Consort in progress in Hyde Park. Her Majesty was conducted round the works by the architect and the contractor, after which she inspected the sculptures of the podium, which are being executed by Messrs. Armstead & Philip.

Shakspeare Readings.—Many will be glad to hear that Mrs. E. S. Dallas (late Miss Glyn) is to give six readings in St. James's Hall in November, December, January, and February. The first will take place (this) Friday evening, November 23rd, when Macbeth will be read, with the whole of Locke's music, to be performed by Mr. Henry Leslie's Choir. Antony and Cleopatra, and King John are to follow.

Submarine Photography.—Mr. Bazin illuminates the bottom of the sea by means of electric light, for the purpose of discovering the position of sunken vessels, &c. His photographic studio consists of a strong sheet-iron box, braced transversely, and admitting the light through lens-shaped water-tight windows; and he can remain in it without inconvenience for about ten minutes. He has, it is said, produced sharp and well-defined photographs, suited to render easy the recovery of objects sunk to considerable depths, and has already worked at depths approaching to 300 ft.

A Fact for Geologists.—In sinking a shaft at the Garden Tin Mine, in Morvah, says the *Cornish Telegraph*, the men have met with a perfect pillar, about 8 in. in diameter, standing, so to speak, in the solid rock, and very different in its composition from the surrounding granite; and, what is stranger still, at the base of this pillar they have come upon what they say is a fly-wheel of the same material. Something similar was said of another discovery a few years since; but the pillar, if we recollect aright, was found to be a natural production of igneous rock, like the Staffa columns, which are of basalt.

The Mont Cenis Tunnel.—It is estimated that the number of holes which will have to be drilled by the rock-boring machines in the Mont Cenis tunnel before that work is completed, is about 1,600,000. The total depth of all these holes when bored will amount to about 4,265,890 ft., which is 105 times the length of the tunnel. Nearly 13,000,000,000 blows will be struck by the perforators to do this work. The entrance to the tunnel on the French side is 3,946 ft. above the level of the sea, and its termination on the Italian side, 4,380 ft.; so that the actual difference of level between the two extremities is about 434 ft.

Mr. Peabody in America.—Mr. Peabody passed lately through New York on his way to Baltimore for the inauguration of his institute, to which he has made a further gift of 500,000 dollars. He has also just presented 150,000 dollars to Harvard University for the foundation and maintenance of a museum and professorship of American archæology and ethnology. Forty-five thousand dollars are to be invested in a fund, the income to be applied to the collection of antiquities relating to the early races on the American continent. An income of a like sum is set apart for the support of a professor of American archæology and ethnology in the university; and the remaining sum of 60,000 dollars is to be invested as a building fund for the erection of a suitable fireproof museum building. Nearly half the time which Mr. Peabody took from his duties in England has expired.

What is the earliest Reference to Pews?—The Lecturer on English Literature at Owens College, Manchester, writes: "I cannot say whether the passage in 'Piers Plowman's Vision' is the earliest notice of *pews* in our literature, that has come in *my* way. It occurs at page 95 of the edition of 1813, and is as follows:—

"Among wyves and wodewes ich am ywoned sute
Yparroked in *puwes*. The person hit knoweth."

My interpretation of the passage is—

"Among wives and widows I am wont to sit
Y-parked in pews. The parson knows it."

'Yparroked' I suppose to come from the A. S. *parruc*, a croft, or small field 'twinned off,' as we say in Lancashire." [The "Vision of Piers Plowman" was written by Robert Langland, a secular priest, probably about the year 1362.] [It is not to be inferred that the pew system existed at this time. The sexes being then separated, special seats for wives and widows, as *a class*, were set apart in many churches.—Ed. *Church of the People.*]

"Warehouse, Thames-street."—We are asked to add to our notice that part of the carving was executed by Mr. J. L. Jaquet, of Stamford-street.

Liverpool Architectural Society.—This society held their fourth meeting of the present session at the Royal Institution on the 14th inst. Mr. Kilpin presided. Mr. F. Horner read a paper, entitled, "Modern Art and its Patrons."

A "Steeple Jack" in Belfast.—He is engaged in pulling down a tall chimney belonging to the Northern Spinning Company, which has long been out of the perpendicular, and has lately rocked so much in high winds, as to make its removal a prudent step.

Society of Arts.—On Wednesday evening the one hundred and thirteenth session of this society was commenced at the rooms in John-street, Adelphi, under the presidency of Sir Thomas Phillips, F.G.S. (chairman of the council), who delivered an address.

Floods in the North of England.—Lancashire and Yorkshire have in many places been suddenly inundated in consequence of heavy rains on Friday in last week. Besides doing great damage in various ways and places, some good has also been done by clearing streets of filth. At Leeds, not only were many streets and cellars flooded, but a wooden terrace over the foreshore of the river Aire was undermined, and twenty persons washed into the river, five or six of whom were drowned. A railway viaduct fell between Apperley and Calverley, and a goods engine and train went over the ruins into the water below. At Schoolclose Bridge a chimney fell across the river, and smashed in the boundary wall of a tenement.

The East London Water Supply.—We mentioned recently that the East London Water Supply Association had memorialised the Lords of Her Majesty's Council to take steps without delay to prevent the River Lea and its tributaries, as the source of the water supply of the East of London, from being defiled by the sewage of the towns and villages on the banks. Mr. Donovan, honorary secretary of the association, now informs us that the Royal Commission on the Pollution of Rivers have decided on immediately proceeding to investigate the condition of the River Lea and its tributaries, and will hold public inquiries for that purpose at their office, No. 2, Victoria-street, on Monday and Tuesday, the 10th and 11th December, and subsequently at Hertford and other towns on the banks of the river. The hon. secretary, 62, Sewardstone-road East, Victoria-park, will gladly receive communications from any persons desirous of giving evidence; or their names may be forwarded direct to the Secretary of the Commission.

The New Mayor of Bradford.—This gentleman, Mr. William Brayshaw, is a retired builder. On his induction to the office of mayor, he delivered a modest and humorous address to the council, in course of which, according to the local *Observer*, he gave a brief review of his personal history. He started in life as a stonemason. An early step in his education was in connexion with the Bradford Mechanics' Institution, where a late borough accountant (Mr. Clough) taught an evening school in Piccadilly, in what is called the fire-office. "There," said Mr. Brayshaw, "I got to be able to make an estimate and take off a plan. As soon as I was loose of my apprenticeship, I began and did the best I could for myself. I was in business thirty years, and then retired. I then began to work for the corporation and the town, and it is a job which will last me as long as I live. I have lived nearly all my life in Bradford—nearly fifty years. All my interests and sympathies are bound up with this town. I have not a shilling's worth of real property except in the borough of Bradford. Therefore, I can assure you that in working for the promotion of my own interests, I shall work for the common interests of everybody else." With reference to the drainage of the town, he said:—"I think the time has come when we ought to take steps as soon as possible to get the house-drains connected with the mains, for it is no use making main drains if there is no connexion with the house-drains. I have no doubt the Street and Drainage Committee will give attention to this matter. With regard to street improvements, I have no doubt you will do your best to carry out these improvements to the public satisfaction."

Visit of the Queen to Wolverhampton.—Her Majesty has consented to visit Wolverhampton to inaugurate, on Friday, the 30th inst., the bronze statue of the Prince Consort erected there.

Sprig Hunters.—In commemoration of their visit to Norwich, the Prince and Princess of Wales went through the ceremony of planting a couple of trees. As soon as they had taken their departure a crowd of Norfolk jockeys fell upon the unfortunate trees with knives, and stripped them of a large number of commemorative sprigs before the police, by desperate efforts, succeeded in saving the saplings from further mutilation. They were then guarded day and night until surrounded by a strong fence.

The Smithfield Meat Market.—Mr. H. L. Taylor, the chairman of the Markets Improvement Committee, laid before the Court of Common Council a report from Mr. Horace Jones, the City architect, relative to the works at the market in Smithfield, by which it appeared that the excavations at the eastern end of the market were expected to be completed in about three weeks, and that all the iron columns to support the building would very shortly be ready. The contract for the erection of the market was taken at a very satisfactory price, and by a very respectable contractor, and he hoped there would be no more complaints of any unnecessary delay in the completion of the work. The contractor had undertaken that the work should be completed in eighteen months from the signing of the contract.

Uniform Valuation of the Metropolis.—At a recent meeting of the Metropolitan Board of Works a committee of the whole Board, as to uniform valuation of property in the metropolis, reported that in the opinion of the committee the best mode of insuring a uniform valuation of the property within the metropolitan area would be for the magistrates of the several counties of Middlesex, Surrey, and Kent, to revise their rentals at least once in three years, and that they should pursue this course simultaneously. Mr. Freeman, in moving the adoption of the report, said he entirely agreed with it, but thought there ought to be a common basis. Dr. Saunders did not object to the course proposed, and if they were to have uniformity it ought to extend to the City of London. After some discussion the whole matter was referred back to the committee for consideration and report.

Products of Petroleum: Chimogene.—By condensation of the gases first coming off from petroleum, Professor P. H. Van Der Weyde, of Girard College, United States, has succeeded in obtaining a liquid which boils at only 40°, and produces most intense cold upon evaporation. It has been named Chimogene. By applying heat to the petroleum, and gradually increasing it, there is obtained in succession gazoline (an inflammable and explosive liquid, which may be used without danger in metallic lamps filled with sawdust) naphtha, benzine kerosene, and paraffin, leaving only coke behind. Petroleum itself is the best lubricator known, and is applicable alike to the most delicate mechanism and to the heaviest machinery; whilst by slow distillation, at a low temperature, hair oil, liniment, and a petroleum castor oil, have been obtained; and from petroleum benzole, treated with a suitable acid, "extract of bitter almonds" is produced, and largely used for flavouring.—*Mining Journal.*

Sanitary State of Towns in India.—An inquiry was last year made by Dr. Leith, the Deputy Inspector-General of Hospitals, and president of the Bombay Sanitary Commission, into the sanitary condition of dwellings and towns, which disclosed a fearful state of matters. Taking, for example, Sholapoor, in the Poonah collectorate, it appears that there is literally no drainage. In houses of the poorer class there is nothing but a screen wall, behind which the bare ground becomes saturated with filth from want of all other conveniences. In houses of a better order a pipe passes through the wall into the street, where it communicates with a jar sunk in the ground, or with a cesspool of masonry, or even with a mere open hole. When these cesspools, jars, or holes are full, their contents are merely baled out into the road. The water supply is also exceedingly impure. Wells have been provided by the municipality, but it is only outcasts that will use them. The small cells, surrounding central courts, in which the people live, are almost devoid of ventilation, and the jails are worse.

Another New Application of India-rubber.—In France, whence enormous quantities of wine are exported, the time and material expended in packing the bottles are of great value. An immense saving on this item has been effected by the use of india-rubber rings, which, placed round the bottles, prevent all jar; and, by keeping them apart, render breakage impossible. When the bottles are unpacked, the rings are put aside for subsequent use.

Unveiling of the Franklin Memorial.—The Franklin memorial, which was unveiled on Thursday in last week, in Waterloo-place, London, was voted by Parliament, and the work was intrusted to Mr. Noble. The statue of Sir John is 8 ft. 4 in. high, and was cast in bronze by Messrs. Robinson & Cottam. The pedestal is of polished granite from Aberdeen. The moment selected for representation is that in which Franklin had the satisfaction of describing to his officers and crew that the "North-West Passage" had at length been discovered. He grasps in his hand the telescope, chart, and compasses, and wears the uniform of a naval commander, with a loose overcoat of fur. The likeness is said to have been pronounced by Lady Franklin and those who knew him best to be a characteristic one. The bas-relief in front of the pedestal represents the funeral of Franklin, where Captain Crozier read the service for the dead. He is surrounded by the officers and crews of the two ships, *Erebus* and *Terror*. It is well known that not one of the whole number ever returned. Their names are recorded in bronze panels at the sides of the memorial. In the back panel is an embossed chart of the Arctic regions, showing the position of the ships at the time of Franklin's death. The pedestal is ornamented with a bronze cable, and the plinth enriched with oak-leaves and acorns, denoting strength and magnanimity.

TENDERS

St. Paul's Wesleyan Sunday Schools. For building a large assembly-room, class-rooms, infant-room, kitchen, and offices; also for warming, lighting, and ventilating the same. Mr. John Usher, Bedford, architect. Quantities supplied.—

Day	£1,797	0	0
Houghton	1,785	0	0
Cunvin	1,755	0	0
Dickens	1,667	0	0
Hull	1,650	0	0

For completing four houses at the rear of Albert-square, Clapham, for Mr. Saml. Redgrave. Mr. Strevens, architect:—

Sadd	£1,841	0	0
Harding	1,590	0	0
Johnson	1,448	0	0
Proctor & Fox	1,397	0	0
Eborall	1,375	0	0
Wilkinson & Co.	1,375	0	0
Cross	1,360	0	0
Austin	1,333	0	0
Lammil	1,208	0	0
Newcombe	1,182	0	0
Riley	1,169	0	0
Crowther	1,089	0	0
Neale	1,079	0	0
Babbs	1,064	0	0
Warren (accepted)	1,020	0	0

For finishing three villas, on the Worcester Park Estate, for the Landed Estates Company, Limited. Mr. Hook, architect:—

Johnson	£2,350	0	0
Nightingale	2,233	0	0
Crabb & Vaughan	2,175	0	0
Hurst	2,170	0	0
Cubitt	2,025	0	0
Wilkinson & Co.	1,987	0	0
Crowther	1,750	0	0
Neale	1,749	0	0
Gale (accepted)	1,500	0	0

For villa residence and stables, at Etherington-hill, near Tunbridge-Wells, for Mr. A. T. Jay. Mr. T. K. Green, architect:—

Simms & Marten (accepted)	£3,200	0	0

For enlargements to house and stables, at Langton, near Tunbridge-Wells, for Mr. G. H. Jay. Mr. T. K. Green, architect:—

Simms & Marten (accepted)	£3,150	0	0

For alterations and additions to house, 141, Portland-road, for Mr. Hines. Mr. T. Bare, architect:—

Hyde	£218	10	0
Howe	210	0	0
Gillot & Wisbey	187	0	0
Abbot	135	0	0

For alterations and additions to 24, Gower-place, Euston-square, for Mr. Donges. Mr. B. J. Benwell, architect:—

Pearman	£298	10	0
Hyde	192	0	0
Ross	145	0	0

For alterations, &c., at the Devonshire Castle, Grove-road, Holloway. Mr. Decimus Gylby, architect:—

Langmead & Way	£555	0	0
Mann	555	0	0
Manley & Rogers	546	0	0
Madgin	430	0	0

The Builder.

VOL. XXIV.—No. 1243.

A Quarter of a Century of London Street-Improvement.

PROGRESS in any art or science, or work of improvement, in order that it be continuous and increasing,—that is that it be the reality,—requires that there should be, from time to time, a posting-up of results accrued in some number of years ending with the date of the retrospect. Without the periodic review and record, what has been done is apt to be lost sight of; and the particular items of work once performed are left to be again elaborated, and the old lessons again got by heart. Not less important for the future may be a review that chiefly demonstrates how small is the progress in one case made, and how large must be the measures of advance in order to re-establish equality with the progress in other and parallel lines.

The time at which we are arrived happens to be well suited for an instructive review of what has been done, in a period of years, in the work of London street-improvement, and for a renewed statement of the work still left to be done. Just five-and-twenty years ago, the Metropolitan Improvements, after having been the subject of several inquiries by committees of the House of Commons, in different years, had received the important but still inadequate contribution to their accomplishment, of an "Act to enable her Majesty's Commissioners of Woods, Forests, Land Revenues, Works, and Buildings, to make additional thoroughfares in the Metropolis;" and the commencement of the routes referred to, was made in the line which is now New Oxford-street. The Act itself (3 & 4 Vict., cap. 87) bears date August 7th, 1840. It was followed in 1841 (May 10th,—4 Vict. cap. 12) by an Act "to enable her Majesty's Commissioners of Woods to make a new street from Coventry-street, Piccadilly, to Long-acre, and for other improvements in the metropolis;" by one (4 & 5 Vict., cap. 40; June 21) "to empower the Commissioners of her Majesty's Woods to raise money for certain improvements in the metropolis, on the security of the land-revenues of the Crown;" by one (4 & 5 Vict., cap. 25; same date) "to empower the Dean and Chapter of Westminster to grant building-leases in certain parts of the City of Westminster, and for other purposes;" and by an Act (4 & 5 Vict., cap. 27, likewise dated June 21) "to enable her Majesty's Commissioners of Woods to complete the contract for the sale of York House, and to purchase certain Lands for a Royal Park." Reports of Committees, on which the bills in the House of Commons were based, had appeared in 1836, 1838, 1839, 1840, and 1841. In 1840, besides the report of the Committee on "Metropolitan Improvements," there was one of a Committee on the Thames Embankment.

It does not appear, however, that at any time there was a general plan of London, showing projected improvements throughout the metropolis,—such a comprehensive plan, or design, as has been the basis for all the great works that have been achieved in Paris during the last few years,—less than the half of the period we are considering; and there is none now, that we are aware of, which can be considered as presenting what the Metropolitan Board of Works would undertake, if provided with funds; although the want of such a plan showing lines of railway projected, as well as other routes, to the suburbs, is felt and proclaimed at the commencement of every Session of Parliament. The most comprehensive plan contributing to the decisions arrived at five-and-twenty years ago, was one by Mr. Pennethorne, which took cognizance of the portion of London lying between Oxford-street, Bloomsbury, and Clerkenwell, on the north, and Lincoln's-inn-fields, Covent Garden, and Coventry-street, south, and provided for a new connecting line between eastern and western London. To what extent the plan for western London coincided with the plans of Gwyn, and the later proposals of Mr. Sydney Smirke, we need not here examine. Some resemblance in what deals with the same circumstances as to existing streets and general direction of traffic, is always likely to exist. Such resemblance there is, even, between the actual arrangement of the streets in the City, and the plan of Sir Christopher Wren. But such resemblance does not preclude modifications that may detract seriously from the serviceableness of routes: these modifications are apparent in the case of the City; and we shall see that they were made upon the plan of Mr. Pennethorne, by the House of Commons. Besides his plans for the western part of London, Mr. Pennethorne made others, for the eastern part, since carried into effect, more or less exactly; and which may be regarded as part of the connecting line already alluded to. As regards western London, Mr. Pennethorne's lines were adopted in 1840 or 1841, and were soon afterwards carried into effect, but with the omissions and modifications referred to, which now seriously impair the efficiency of the routes: we should only need to allude to the tortuous course of the route from Wellington-street to Bloomsbury-street; but we should observe that the line which is now Garrick-street has only lately been completed; that the continuation of Great Queen-street into Holborn, across Gate-street, seems far off; and that the direct connexion between Hart-street and Theobald's-road, forming part of the connecting line, remains to be made, as also the continuation of the line to Old-street.

The difficulty that has prevailed against all idea of a comprehensive design of London street-improvement, and which has delayed and ultimately crippled nearly every isolated work since the time of Nash, has been the pecuniary one. There has been no fund regarded as applicable to the general improvement of London, excepting that derived from the coal-duties, and the small duty on wine; and this fund, being collected by the Corporation, has been usually claimed for the City. Any proposal of distinct rates for London improvements had for many years, or still has, only languid support, or positive opposition, from the metropolitan representatives in Parliament; whilst the representatives of provincial towns, and the country gentlemen generally, have refused to admit any peculiar claim on the part of London, as the capital of the country, to money out of the proceeds of general taxation. Each government has been anxious, before everything, to keep in place and not to offend any number of its political supporters. The only individual chargeable with work connected with the general improvement of London, up to the time of the Metropolis Management Act, 1855, was the Commissioner of Woods and Forests, or First Commissioner of her Majesty's Works; and the holder of that office went out with the Government. Moreover, the office here referred to has never been filled by any one appointed because of his knowledge of any matter connected with architecture and towns-improvement. Sir Wm. Molesworth, for example, was put into the office, he having paid particular attention to the Colonies; and the best that can be said for the system is that the individual just named was not the worst minister that has held the office. In short, no one had power, conjoined with funds, out of the City. The creation of the Metropolitan Board of Works has allowed of the taxation of the metropolitan residents by their own representatives, duly elected; but the bulk of the money raised by rates, has been required for, and absorbed in, one or two works, the chief of these being the sewerage of London. Thus the wants of the metropolis generally, in the matter of street-improvement, have remained unattended to, for a long period of years, except in the provision of new or amended lines which may be counted on the fingers. Parks, indeed, have been provided: thus, following long after Regent's Park, came the park which was provided for by the Act of 1841, namely, the Victoria Park; then came Battersea Park and Primrose Hill; to which have been added the space laid out on the site of Kennington Common, —not to mention the improvements in the older parks: but, probably, the freedom from opposition to the provision of parks, comparatively with the obstructiveness in the matter of the street-improvement, may be attributed to the respect which members of Parliament have for any appanage of the Sovereign. The Royal trusteeship has tended to the advantage of the people: though there can be no reason for leaving the police of the parks in its present state of inefficiency at ordinary times.

Before the Act of 1840 was passed, there was much contention in the Committees of the House of Commons, as to the exact lines of street that should be adopted; and the result was, as we have said, that there were modifications of the original propositions in points, then of great importance, that have become more so,—left as they are still unattended to, or some of them with defects created. The committee that reported in 1838 were induced not to recommend the removal of Middle-row, it having been contended by Mr. Richard Lambert Jones, —a person of great influence in the City, and one who was alive to the chance of diverting money to his quarter of the metropolis,—that the narrowed width caused no obstruction. Mr. Jones proposed that three houses should be removed, to effect the improvement desired. The same witness argued against Mr. Pennethorne's line from Coventry-street to Long-acre, advising a curved connexion with the western end of Great Newport-street; but in the case of this part of the entire design, the original plan was in the main carried out. Again, Mr. Jones sought to make a considerable deduction from the work connected with Hanover-street and Belton-street, or what is now Endell-street; and though he did not entirely succeed, Mr. Pennethorne's plan eventually was altered; so that Endell-street is not in line with Bow-street south, and Bloomsbury-street, or Plumtree-street, as it was called, north; and the resultant defects are barely mitigated by rounded corners to Endell-street and Bloomsbury-street.

The original proposal of Mr. Pennethorne, as regards western London, provided (besides some features of detail, but important features, that we have adverted to,) for a square on the ground where the Baptist and French Protestant Chapels, the south end of George-street, and some of the property on the west side of George-street and

in Broad-street, together now are. A line forming the western side of the square would have been prolonged from Broad-street, opposite Monmouth-street and Great St. Andrew's-street, to where the Bedford Chapel was and is. This chapel was intended to be removed, as it stood exactly in the centre of the intended street connecting Holborn and Oxford-street, which was to be there increased in width by forming the line on the south, for a considerable distance east and west of Bloomsbury-street, somewhat in crescent-form. An intersecting street was planned from St. Giles's Church to Streatham-street, as well as an opening from the new line, to Church-street. One of Mr. Pennethorne's main points was to get the whole of that area of houses known by repute to all London as "the Rookery," cleared away, at least as far back as Church-lane. The line was ultimately made direct from near the end of Southampton-street, on to Tottenham-court-road,—Mr. Pennethorne remonstrating, and showing that the saving would be only 2,000*l.*, whilst that one half the Rookery would be left standing. The Committee thought that the owners of the property would pull down the houses themselves; although Mr. Pennethorne explained that this could hardly be done with satisfactory result, as the houses were let on leases of various lengths, some forty years. The sequel was, after the houses in New Oxford-street were built, a seriously depressed condition of the property in that street, along with a condition of the people in Church-lane such as had till then been unheard of in London, and which had been in some measure produced by the evictions precedent to the improvements. A curious letter in the *Times*, purporting to be written by some of the inhabitants of Church-lane, referring to the state of their dwellings, may perhaps be called to mind. Great exertions were made by the late Mr. Charles Cochrane, and others, to get the district improved; but it remained in a sad state for many years: it is but little different at the present time; and we presume, from appearances, that the rental from the shops in that part of New Oxford-street is permanently diminished. Needless suffering was caused, and cost of the work was not diminished as intended. Certain new streets are now formed between High-street and New Oxford-street, but not we think according to the original plan, more than was the line of New Oxford-street itself.

As regards the line from Bow-street, northward, it was to pass on straight to Castle-street, at the intersection of the latter with what is now Endell-street; whence, after a very slight bend, the line was to be continued to cross Broad-street, as part of the line which includes Gower-street. Eventually not only was the line altered so as to leave the corners merely rounded off, but Belton-street was widened by pulling down houses only on the east side: thus the property on this side remained for many years, of small value, by reason of the unsightly appearance of what was opposite. Mr. Jones seems to have succeeded in establishing with the committee, the curious position that a crooked line, or a line with turns in it, was better than a straight line, for a street; and the committee were very ready to be led by the nose along any trail that had any scent of the *saving* of a few pounds. Mr. Jones said he was convinced, from his "vast observation" in the City of London and elsewhere, that direct crossings were worse for traffic than such as might be in a short diagonal line; and he spoke of a "common observation," as by carmen, that you could get more quickly from Old Jewry to Queen-street, than from King-street to Queen-street, though the two last-named streets were opposite one another, and the distance from the Old Jewry is twice as great as the length of the crossing. A pre-conceived opinion is easily arrived at when premises are manipulated for the occasion, and one-half are shut out. The truth is that there is required at many of the intersections of streets in London, as we have often sought to show, a circus, in each case, such as Nash planned at two places in the length of Regent-street. As regards such a crossing as that from Fleet-street to Ludgate-hill, there should be a bridge, just as in the case of Holborn-hill and Skinner-street. To the bias that the Committee received from Mr. Jones was perhaps due the mutilation of the Piccadilly and Long-acre line, and the indefinite postponement of the eastern extension from Queen-street to Holborn. The space of ground on which is now the house known as the Cremorne Branch Restaurant was left jutting out opposite the eastern end of Coventry-street; Long-acre, at its western end, was not widened as intended; and the two houses in Drury-lane, causing the awkward crossing from Long-acre to Great Queen-street, were left. How long did not the line from Bedford-street to Cranbourne-street remain unmade? The fame of New-street as the thoroughfare to Covent Garden is it not recorded in a file of the "*Times*," in a letter of poor Albert Smith's, written as he sat in his cab that had incautiously entered the defile, when taking him to dine at the old location of "The Garrick," in King-street?

More is due to Mr. Pennethorne than people generally are aware of; and more would have been due, had he not been interfered with injudiciously. And to Mr. Jones himself, very much was due as regards improvements in the City, actually effected.

The line to the east of London was to have started from Hart-street,—the projecting block of houses between that street, or Vernon-place, and Theobald's-road being removed: thence the line was to cross Saffron-hill and Clerkenwell-green, and to get to Old-street; thence it was to go to the Eastern Counties Railway Station; and thence past Spitalfields Church, to join a line crossing Whitechapel and leading to Leman-street, and under the Blackwall Railway, to the Docks. For Spitalfields, a line was proposed by Messrs. Jones and Higgins that is said to have been called in committee "the dog's leg line." The Theobald's-road and Old-street portion of this great route from western London to the Docks has remained to this day incomplete; though the line, nearly in its integrity, is that which has been long accepted as the scheme of the Metropolitan Board of Works,—so much so that it influenced the selection of the course for the Middle Level Sewer. A report, by Mr. Marrable, on the line, bears date 6th February, 1857. In that report, Theobald's-road, Liquorpond-street, and the western end of Old-street were proposed to be widened on the north; Wilderness-row was to be widened on the south; Hart-street, King's-road, and by far the greater portion of Old-street, were to be untouched; and a junction was to be made between Liquorpond-street and Clerkenwell-green, crossing Victoria-street, and another between the Green and Wilderness-row, crossing St. John's-square. The present proposal however includes a modification of the line at the east. In place of the existing junction with the High-street, Shoreditch, considerably to the north of the Great Eastern Station, a diagonal line will be taken from a point in Old-street-road, to the Station, direct.

We have somewhat anticipated a statement, which may be here made, of the scope and sum of the conclusions of the Committees of the House of Commons. The conclusions of the Committees of 1836, 1838, and 1839, appeared in a report, which set forth as amongst the improvements pressingly required:—

1. A new street from Coventry-street, Piccadilly, to Long-acre.
2. A new street from Bow-street to Holborn.
3. A line to continue Oxford-street into Holborn.
4. A spacious thoroughfare from the Docks through Whitechapel to Spitalfields Church.

The whole of these improvements were gravely estimated at 200,000*l.* The London Bridge approaches, including Moorgate-street, we believe had cost more than 2,000,000*l.*

The Commissioners of Woods and Forests were authorised to carry the four improvements specified, into effect; and the money was to be borrowed on security of the coal and wine duties. The Commissioners, however, found that the four lines would cost more than 638,000*l.*, as the "net outlay,"—or after deducting from the total outlay, of more than 1,367,000*l.*, the estimated return from property, 728,783*l.* The greatest of the four amounts of *total outlay* was set down for the Oxford-street to Holborn line: it was 455,359*l.* 19*s.* 10*d.* But in the column for "net outlay," the Piccadilly to Long-acre line stood highest: it was 239,599*l.* 12*s.* 9*d.* We believe that no new street has ever been found to repay its cost from increased value of premises; but, the truth is, for the public authority to leave out of the calculation the item of increased value of property in the quarters to which the street leads, and the general gain, is erroneous, and serves only to mislead judgment as regards public works.

The effect of the estimate of 638,000*l.* was that a committee of the House considered the subject again, or in 1840. "The result," truly predicted a writer, in 1841, in the *Westminster Review*, "will one day be universally lamented." This writer, in an article to which we have b slightly indebted, went on to say,—"The co mittee, instead of confining themselves to task (no difficult one) of considering how money was to be raised,—instead of reflect and urging upon the Government that Lond is not a village, not even an ordinary town, a province of houses, expending upon local jects, such as watching, paving, lighting, relief of the poor, and public hospitals, a rever larger than that of many European states; t two millions sterling are annually spent up these and similar local objects, exclusive Government taxes; that London, the capital the vast British Empire, contains within itself greater mass of concentrated wealth than exi in any other spot on the globe, and therefo that it could not be worth a moment's hesitati whether 180,000*l.* per annum, rather th 80,000*l.*, should be devoted to public impro ments,—instead of so thinking or acting, t committee at once abandoned the original pla ordered new ones to be prepared, embodying t economical suggestions of Messrs. Jones a Higgins, widening old streets instead of formi new ones, and making straight lines crooked save expense. Had the committee taken on one of the original plans and carried it out, ferring the others to a future period, they wou have adopted a much more satisfactory cours what would then have been done, though litt would have been well done; but now ea improvement is made to stop short of t object, and several of the lines are whol spoiled." How often in the five-and-twen years since this was written, have we not read similar condemnation of the system which h almost to the present moment been maintaine and of which the defects are visible, as foreseen The saving effected by the committee was on 239,000*l.*: that is to say, in place of 638,000 the estimated outlay was now 399,000*l.* T Coventry-street to Long-acre improvement w to cost 120,000*l.*, and the three other lin 279,000*l.* together. Other improvements, ho ever, being forced upon the attention of t committee, various sums were set down f them: so that at length the total estimate amount was 538,000*l.* With the view of mee ing this expenditure, different Acts were passe one of them extending the period of the term nation of the coal and wine duties to the 5th July, 1862. The added projects comprised street to continue Farringdon-street to Clerke well Sessions House, estimated at 25,000*l.*; Southwark line from Blackfriars to London Bridg 35,000*l.*; the removal of Bank-buildings (whic occupied the ground in front of the Royal Ex change, where the Wellington statue is), 40,000*l* and "Mr. Wason's street, in Westminster," 39,000 As to the first of these, it may be observed tha the committee were satisfied with forming broad street to about half the distance of th point which should have been taken as th destination. A similar system was observed i the case of the line in eastern London. As to th new street there, it was said the only apparen object of its formation was that of allowing th seamen about the docks to attend Spitalfield Church. The Westminster line of street sanc tioned, started from near the same point oppo site the Abbey, as the present Victoria-street but then the line ran northward of the presen street; and instead of going to the end of th Vauxhall Bridge-road, and serving in the bes manner the traffic from Eaton-street and Gros venor-place, it ran into the Chelsea-road (now Victoria-road), opposite no street westward This scheme, at least, was improved upon, or i the point last referred to.

The Clerkenwell, Westminster, and Southwarl lines belonged to the class of private undcr takings, being only to be assisted by the grant that have been specified. These grants, by cer tain clauses of the Act 4th Vict., cap. 12, were subject to the condition of proper security being given to the commissioners for the completion o the improvements. We must take another num ber for the completion of our review.

Liquid Meter Company.—We think it worth while to draw the attention of our readers to the advertisement of the Liquid Meter Company in our present number. The prospectus contains a report from Mr. T. G. Barlow approving of the machinery for manufacturing the Company's meters and of the meters themselves. The share capital of the new Company is to be 100,000*l.*, to be raised in 10*l.* shares.

THE FAIRY GOLD OF BOMBAY.

WE live in a sceptical age. The rising generation, if we may judge from the periodical, no less than from the controversial, literature of the day, seem to be offered only a sort of Hobson's choice between unbelief and misbelief. Not only are the most venerable of institutions, the most ancient of creeds, bowing and swaying like vessels in a rising storm that threatens to tear them from their anchorage, but trust between man and man, reliance on the good faith of your neighbour, rigid adherence to that punctilious truthfulness which once was considered the point of honour for a man, are not what they were when the century was young. There are many people who confound untruthfulness with imagination. Their moral code is narrow and angular. They are at a loss to distinguish between a lie and a fairy tale. They dwell, in appropriate verse, on the sin of purloining a pin. The unfortunate children who reap the benefit of the educational views of people of this way of thinking are apt to grow up with some of the nobler faculties altogether undeveloped. Under an education intended to be eminently practical, their brains are served like the livers of the unfortunate geese destined to form the famous Perigord pies of our neighbours across the Channel: they are forced into an unhealthy development at the cost of the general health.

Such are some of the reasons why fairy tales are banished from the nursery and forgotten in the drawing-room. The nursery Niebuhrs of the day have demonstrated that Jack the Giant Killer never existed. His legend is replaced by useful knowledge. And so it has come to pass that the vital undying truth of some of the most ancient forms of teaching, the lessons spoken by the beasts and birds to Æsop, and the inner meaning of yet more ancient and venerable parables, fail to teach the mind of young Europe. Natural history has taught that enlightened youth that the fox has not the organs of speech. Then why waste valuable time on a story of a fox and a crow. Literal exactitude, *au pied de la lettre*, turns out to be impossible. No time is lost in the inquiry whether there be not a deeper and more important meaning in the heart of the ancient teacher than that of any accidental chain of occurrences.

The echoes of a fairy story, as magical in its transformations and as instructive in its moral as any of those of the Thousand and One Nights, are yet resounding in our ears. Bit by bit the story has come in, mail after mail. No one yet has taken pen in hand to sketch the fortunes of the Aladdin of our day. A subject of the same gracious Sovereign that rules our island, a man among ourselves in interest, in the relations of business life, separated only from us by geographical distance, an Eastern favourite of fortune, has found a store of fairy gold, and has found it turn to withered leaves in his purse.

Many of our readers may have observed from time to time dusky, sharp-eyed men, gliding through the streets of London with their heads arrayed in something between a mitre and a turban. They are known as Parsees. To our unaccustomed eyes one is much like another. But those who are acquainted with the Hindoo physiognomy would have detected in that of the hero of our tale something keener in his glance than that of the very keenest of his brethren. Nor was that all; genial and generous qualities were not wanting. In a country where the beggar of to-day is the banker of to-morrow, there were in this man more than an ordinary share of the qualities that command success. He was one who knew how to make a munificent use of money.

So money came to him. What was his bargain with the fairies he has not told us. How from a hawker of small wares in the bazaar, he grew into one of the principal merchants in Bombay; how he was first tolerated, then trusted, then blindly followed into all the details of a brief and rapid career, we have no time to enter. But while he was making the most of the gifts of his fairy godmothers, an event occurred in a very distant portion of the world which had the result of pouring a steady stream of hard silver into Bombay. The flame of war suddenly broke out in those great cotton-fields which supplied the English looms. Cotton ceased to be grown there, for the growers were too busy in the task of destruction to heed their accustomed agriculture. Of the cotton in store, some was burnt by the enemy, in order to injure the growers; and some was burnt by the growers, in order to injure the enemy,—to keep it from falling into their hands. A great cry went up from Lancashire,—its thousands of looms were stricken dumb by the cotton famine. The Englishman, ever most helpful and most hopeful in his extreme need, sought for the great staple of his industry wherever the climate would produce it; and finding much at Bombay, he sent ship-load after ship-load of silver to procure it.

The influx dazzled the excitable population. Wealth at last was pouring upon them. With fewer means for the disposal of wealth than are to be found in Europe, an Eastern people give more visible signs of its presence. They buy costly gems; they build houses like those of the genii. One man was said to go so far as to make the tires of his cart-wheels of silver. Then they set themselves to increase and improve the flow of wealth. They formed companies to encourage the production and to provide for the pressing and shipment of cotton. They drew plans for reclaiming from the sea and from the marshes the site of a new city. All their actual wealth was as nothing to the promise of the future. Thus the shares of the new companies commanded a constantly rising market. In July, 1864, long before the tide had come to the full, the shares of the Victoria Land and Piers Company, with 400*l.* paid, were at 2,700*l.* premium. The shares of the Elphinstone Land and Piers Company, with 1,950*l.* paid, were selling at 6,800*l.*; the shares of the Bombay Reclamation Company, with 500*l.* paid, were at 2,000*l.* premium; the shares of the Colaba Land Company, with 1,000*l.* paid, were at 6,400*l.* premium. The property of Premchund Raichund was estimated, by those who were said to be well informed, at seven millions sterling. The pessimists—there are always depreciating people—would not admit that, everything paid and cleared up, he could be worth more than three millions. Sixteen banking establishments took care of his daily more valuable share certificates or advanced him rupees on their security.

Premchund Raichund made good use of his golden time. At a period when men are wont to hear very unpleasant truths, few or no stones were thrown at him. His energy and pluck were spoken of when he was down, as well as when he was up: he had made his name known in London, as well as in Liverpool and in China. The best idea that any untravelled Englishman can form of the wonderful mosques and temples of Ahmedabad, is due to the generosity of Premchund Raichund, who gave 2,000*l.* towards the expenses of publishing those magnificent volumes. When it was proposed at Bombay to erect a grand palace of glass and of iron, and to hold an international exhibition after the fashion of London, of Dublin, and of Paris, the money of the successful Parsee was freely forthcoming. When hesitation rose in England as to the funds, he took, by telegraph, all the burden on himself. The scheme, indeed, has not advanced beyond the preparation of the plans and models of a structure which would have been unrivalled in its beauty among any of its class; but for the stoppage, events of another character are responsible. The wealth of Premchund Raichund does not seem to have raised up enemies, rapid and enormous as was its growth.

The time came when that which had sprung up in a night perished in a night. The people of the cotton-growing country, which had been desolated by war, suddenly left off fighting. It was not exactly the case that all who could fight on the weaker side had been killed, but it was as near this as possible. They held out to the last, and when starved and tattered, without powder, without rails, without supplies from Europe, or money to buy them, the defenders suddenly broke down, the shock was as great as if such an issue had been impossible. Down came the price of cotton, down came shares and stock,—down came millionaires and capitalists; down, last of all, came Premchund Raichund. Bombay held its breath when he tottered, and when it transpired that his debts and liabilities amounted to three millions and a third, and his assets to under a million and a half, there was a feeling of relief that matters were no worse.

How the millions at command in 1864 had diminished, how the fairy gold had turned to withered leaves in the very coffers of the bankers, may be readily understood by a glance at the prices of the shares which had, at the earlier period, attained such fabulous premiums. Greatly reduced is the length of the share list, and very significant are the lessons to be drawn from its perusal. A share of the Victoria and Colaba Land Companies, now quoted as united, is, at the present time, worth 120*l.*, a fifth of the sum actually paid—the former quotation (far from the highest) having been seven and a half times the amount paid, and the depreciation being to less than the thirty-seventh part of the former selling price, or three thousand seven hundred per cent. The shares of the Reclamation Company, 500*l.* paid, are at 70*l.*, instead of 2,500*l.* The shares of the Elphinstone Land Company are quoted at 64*l.*; and yet the fall in the price of cotton, the direct agent both of the inflation and of the collapse of this speculative wealth, has only been from 575 rupees to 290 rupees for the candy of 784 lb. A fall of one half in the value of that prime article of speculation which ruined such a fabric of real and imaginary prosperity as it increased, has produced a fall eighteen times as great in those subsidiary speculations by which the new-found wealth sought to increase itself. Since the time of the famous Law, the projector of the Mississippi Bank and the South Sea Bubble, a financial reverse of such a magnitude has been unknown.

The lesson has significance for ourselves. After a period of commercial depression of unusual severity and unprecedented continuance, there are signs that lead to the belief that the lowest point of ebb has been reached. For the first time since the black Friday in last May, there appear to be signs of returning confidence on the part of the public. Without venturing on prediction, we can yet see that the various elements of disturbance which have menaced and have broken the peace of Europe are for a time likely to be comparatively inactive. No great political question presses for the arbitrament of lead and steel; and more than that, the result of the seven weeks' war has been the conviction that none of us are in a state of exact preparation for fighting. We are not only remaking our fire-arms, but, further, we have come to the conclusion that we must reconstitute our armies. To keep few men under arms during peace, and to be able to summon a nation of soldiers under the colours in time of war, is the avowed object of the military reforms contemplated all over Europe. With the political lull—with the great wealth of the country but little impaired by the misfortunes of the year—with the objects of investment curtailed by the arrest of speculation, it is impossible but that the rebound, whether it has commenced as yet or not, will be marked by new and peculiar features. What these may be it is as yet idle to speculate on. It may be unprecedented rapidity in the rise of values; it may be a yet more unprecedented prudence. In any case, it will be the part of wise men to act rather from reason than from mere blind sympathy—to remember that, alike in a rising and in a falling market, everything is exaggerated by those who rush with the herd; and that amid the rough and ready methods of arriving at the value of property, the measure of what it has cost, imperfect as it may often be, is still less wild than the measure of what it will, at the moment, fetch. Well will it be for us if we remember how leaves of paper turned at the touch of the Indian magician into gold; and how the gold, in a few short months, turned back into withered leaves.

PROPOSED LIME STREET STATION HOTEL, LIVERPOOL.

A LIMITED competition of designs for the new hotel for the London and North-Western Railway having been invited, six sets were sent in. The first premium has been awarded to Mr. A. Waterhouse, London; the second to Messrs. Culshaw & Sumners, Liverpool; and the third to Messrs. Banks & Barry, London. The other competitors were, Messrs. Picton & Son, Liverpool; Messrs. Walters, Barker, & Ellis, Manchester; and Mr. E. M. Barry, London.

The building will form a new façade to the station, which is being considerably enlarged. The site, probably the finest for an important public building in Liverpool, was originally of a somewhat irregular shape. While, however, the architects were at work, an arrangement was entered into with the corporation, by which Lime-street will be widened, and the site made rectangular. No opportunity has been afforded for comparing the merits of the several designs, and we must confine ourselves to some particulars of the selected design, and Mr. Waterhouse's own views in preparing it.

St. George's Hall being so close to the proposed hotel, the author of the design has thought it best to allow the horizontal line to predominate in his elevation, so as to present no violent contrast to the great building opposite

The design, as drawn, is intended to be built externally of pressed red brick and Huddersfield stone. The whole of the building will be fireproof, the floors being supported by wrought-iron girders, filled in with concrete, known as the "Dennett arch." The iron columns supporting the internal walls will be enclosed in a casing of terra-cotta. This, while affording, in the coffee-room and other rooms on the ground-floor, a valuable decorative feature, would insure a perfect protection to the columns themselves in case of fire.

Entering the building from Lime-street, to the right and left of the entrance-vestibule, reached by a few descending steps, screened off from the vestibule, are the hall-porter's day-room and sleeping-room. A flight of nine steps, 15 ft. wide, leads into the hall, 33 ft. by 30 ft. 6 in. The principal staircase is opposite the main entrance, while underneath the staircase is the entrance from the station. Opening into the hall are the inquiry-office and luggage-room; through the latter lifts pass to every floor of the building, including the basement, where there is a large room for "left luggage." The hotel-bar, 17 ft. by 9 ft., also opens into the hall, and commands both the entrances. Behind it is the bar-parlour, 17 ft. by 14 ft.; while descending from it is a private staircase into the dispense wine-cellar, with a wine-lift passing through the hotel-bar, to give the manager an effective check upon the wine consumed. The hall is lighted by the staircase windows. From the hall a corridor, 10 ft. wide, lighted by open arcades below the skylights over the mezzanine passage, extends both ways. Turning to the left we successively reach the hydraulic ascending-room, transporting visitors to the upper floors; the smoking-room, 25 ft. by 29 ft., with a recess, 12 ft. by 12 ft.; the dining-room, 39 ft. by 29 ft., with a serving-room and dinner-lift at its back; and the billiard-room, 25 ft. by 18 ft., lighted from the top as well as the sides. Returning to the hall, and taking the corridor to the right, we come on the one side to the reading-room, of similar dimensions to the smoking-room, and the coffee-room, 63 ft. 6 in. by 29 ft. Behind the coffee-room is a serving-room, with hot-plate and lift from the kitchen; also a still-room and china-pantry. On the other side of this corridor are three sitting-rooms, averaging 17 ft. by 12 ft. 6 in.

A convenient service staircase is placed in each wing, at the back of the staircases leading to the Mezzanine story, which is over a portion of the ground-floor. On this Mezzanine story are placed twenty bedrooms and a dressing-room, and thus a considerable amount of this accommodation is provided near the ground-floor level.

The first-floor of the hotel is contracted in width. The principal staircase from this floor upwards, is thrown over the hall, and is lighted from the top.

Opposite the staircase on the first-floor is the ladies' coffee-room, 39 ft. long by 19 ft. average width, with a balcony over the principal entrance. On the one side of this coffee-room is the library, 21 ft. 6 in. by 12 ft., and on the other, a still-room, 16 ft. by 12 ft.

In the basement are the kitchen, 52 ft. by 28 ft. 6 in.; a vegetable scullery, 28 ft. 6 in. by 20 ft.; and kitchen-maids' rooms on the one side of it, and on the other, the cook's office and store-rooms. A serving-room is behind the kitchen, with a dinner service-room.

A railway is provided down the principal corridor of the basement, with turn-tables to facilitate the carriage of stores, coals, and dishes.

A NATURAL SYSTEM OF ARCHITECTURE *versus* A NEW STYLE.*

> "Oh how unlike the complex works of man,
> Heaven's easy, artless, unencumber'd plan;
> No meretricious graces to beguile,
> No clust'ring ornaments to clog the pile;
> From ostentation as from weakness free,
> It stands like the cerulean arch we see,
> Majestic in its own simplicity."—*Cowper.*

The subject of the present paper will suggest to the minds of many the fanciful hypotheses of Vitruvius, that the Doric column was proportioned from a robust man,—the Ionic column from the female figure,—the capital fashioned with graceful curling hair, the flutings expressing her petticoats,—and the delicate young girl and the Corinthian column, with the basket of trinkets and the tile placed on the root acanthus; and also the poetical origin of Gothic architecture traced by Dr. Stukeley, Bishop Warburton, and Sir James Hall, that the "slender pillars of those verdant cathedrals of antiquity" were taken from groves, whilst other portions were in imitation of wicker-work, or the interlacing of wands or twigs. These *sports of fancy*, as Britton very properly terms them, are foreign to the object I have in view; my opinion being, that in architecture we should not copy, but endeavour to construct and decorate our buildings as Nature would have done, had she not ordained that man must be his own architect and builder.

Many conjectures have been ventured on the origin of architecture; some writers have described mankind in early times forming habitations in the sand, scooping out trunks of trees, rearing tents of hides, making holes in barren rocks, walls of mud, with roofs of rushes, &c., and afterwards erecting huts and cabins.

As regard the origin and progress of building, these theories may be truthful, but as far as fine art is concerned, until a building became ornamental and decorative, we had no architecture. No theory of form or colour could be expected in these early days, although by chance a cube might have been selected as a form for a dwelling, and a savage may have harmoniously tattooed his face, still it required the education of an enlightened period to fully appreciate the teachings of nature.

Architecture, as at present studied, is influenced by fashion; the creation of a new style would satisfy only for a time, and that probably of short duration. The production of a style of architecture, however, ever varying, yet always the same, based upon natural principles, and presenting like the universe, the flowers, &c., an immutable system, not subject to ignorant fashions or changes, would be a great desideratum.

The laws relating to *colour* are by writers more fixed and determined than those connected with *form*; consequently the polychromy of buildings and the fine arts can be defined with some degree of certainty. With regard to *form*, the reverse is the case, and hence the cause of so great a variety of opinions, which reduces the subject to a *mere matter of taste*, and thereby prevents that important element of the mathematics, viz. geometry, from exercising its power over architecture and the fine arts, to the extent that it did in former times, and might and ought to do at the present day, so as to insure that precision and truthfulness upon which beauty depends.

The architect of Chelsea new church, speaking of the proposed new London Bridge in 1823, says, "if it were a *question of taste only*, such as to decide an elevation or the decoration of it, I should remain silent; but as the question is upon principles of construction, implicating stability and security, which are capable of being discussed with logical precision, and correct conclusions being deduced therefrom, I think it right to press their consideration."

Hogarth, in his "Analysis of Beauty," in 1810, was bold enough to suggest a new style of architecture: he says that, "I am thoroughly convinced in myself, however it may startle some, that a completely new and harmonious order of architecture in all its parts might be produced by the following method of composing, but hardly with certainty without it; and this I am the more apt to believe, as upon the strictest examination, those four orders of the ancients, which are so well established for beauty and true proportion, perfectly agree with the scheme we shall now lay down. This way of composing pleasing forms, is to be accomplished by making choice of variety of lines as to their shapes and dimensions; and then again by varying their situations with each other, by all the different ways that can be conceived. In a word, it may be said, the art of composing well is the art of varying well." Hogarth advances nothing definite, his idea of form reminds me of the productions of the kaleidoscope; and his proposed ornamentation can hardly be considered an advance upon the classic modes,—it rather partakes of his humorous nature. For a new capital, he suggests the forms of hats and periwigs, which in a skilful hand, he says, might be made to have some beauty.

A new system of decoration will not create a new style, although a new mode of construction may have a tendency in that direction. Robert and James Adam, in 1822, diversified the ornamentation of capitals, friezes, &c.; but the architecture was still classical, notwithstanding its novel treatment.

In 1845 "a fundamentally new architecture" was suggested, "to embrace the whole range of metallic substances, and admit the adaptation of all and each of them, in every form and method of preparation, in which science and manufactures may render them available for the respective purposes of such an art, and thus attain, not only the legitimate and consistent effects of a metallic architecture, but also be enabled to realise thereby a higher order of beauty than it is possible to produce in the material of stone." Neither decorating buildings with pure metals, nor with porcelain coating, will create a new style. Iron combined with stone will effect a new treatment, and give a greater breadth to buildings, and lead to the discontinuance of that inconvenient mode of separating the nave and aisles in churches with detached columns or piers.

In an article on the "Past and Future Developments of Architecture," in the *Ecclesiologist*, 1846, we are told that "we have numberless faults to account for, and an incalculable amount of ignorance to overcome, before we can hope to do anything towards developing any future degree of excellence in Christian art. We have not yet learned our alphabet, and it is absurd to attempt to compose. All that we can expect to do is to copy carefully, in hopes of realising at the last, through numberless copyings, some first principles which we may store up for our children to make use of." No new style was ever produced by copying, and never can be.

Professor Cockerell, with truth, observed that he saw no reason to suppose why, in these days, there should not be originated a new style of architecture; but, at the same time, he considered that all styles of architecture, from the remotest to the most recent time, were deserving of study, as being founded upon some grand principle, and as tending to advantageous results.

In selecting our own starting-point, Mr. Hope contends that we should, in preference to adopting the civilization of the Egyptians or the Assyrians, the Greeks or the Romans, all of which had passed away, select that of our own ancestors.

Even taking the culminating point of the architecture of the fourteenth century, and starting from that, will no more realize a new style than the further development of the best period of the architecture of the time of Pericles. To say that there can be no new style is unreasonable. The styles of Egypt, Greece, Rome, and the Middle Ages, now form our architectural classics,—to be consulted for reference, not to be copied.

M. Cæsar Daly says that there is not, at least to our knowledge, a single building erected in Europe within the last fifty years which is not to some extent a work of archæology; and that eclecticism, or the amalgamation of styles, will not suffice to form a new style of art, but it will be of the utmost use as affording a road to it, and providing materials.

Invention in architecture, according to M. Lassus, is the combination of great dispositions together, and even of certain details. Abstraction improves, in some degree, upon the form and the style; and this is so true, that a superior artist might very justly modify the style adopted, while preserving the dispositions of a plan.

A writer in the *Builder* thinks that the only chance to obtain a new style is to get a grant of some out-of-the-way island; there beget sons and daughters; duly instil into their youthful minds wondrous notions of the greatness of old mother England, and of her glorious architectural medleys; and after these feelings have worked some two or three hundred years, a stray steamer or a wandering balloon will make a grand discovery, and astonish the world by reports of the new style, which these long-lost islanders had worked out for themselves.

However praiseworthy it would be for the inhabitants of the island to create their own style, it would be discreditable on our part to borrow their brains instead of using our own. It would be equivalent to visiting Venice, and copying its ill-proportioned corkscrew columns, its piebald and streaky brickwork, &c., and then grafting them on the architecture of the fourteenth century, and terming it a new development.

* By Mr. W. Pettit Griffith, F.S.A. Read before the Liverpool Architectural Society, November 28th inst.

Perhaps, says Ruskin, the first idea of a young architect in these days was to think it incumbent upon him to invent a new style worthy of our times and country. He thought that if they were not content with a Palladio, they would not be with a Paxton; and he prayed them to get rid of the idea of there being any necessity for the invention of a new style.

More recently the "Creation of a New Style" occupied the attention of the Manchester Architectural Association. The writer suggested that by uniting the properties of construction and decoration in Classic and Gothic, they would form a new and perfect basis of construction.

It may be instructive to those who are desirous of creating a new style, to bear in mind that the pure and favourite existing styles are characterised by a remarkable unity of design. The Doric, Ionic, and Corinthian orders of Greece are well known to have suitable mouldings and decorations adapted to each order; and the Early English, Decorated, and Perpendicular styles of the Mediæval period, are each unique. In the Early English, the arches of the windows and doors are acutely pointed, and so is the roof; in the Decorated, the arches are often equilateral, and so likewise is the pitch of the roof; in the Perpendicular, the arches are obtusely pointed, and the roof is the same.

Much has been written on the creation of a new style, and some essayists have approached the subject with good common sense, and apparent truthfulness; architectural design, observes one writer, should not only not be confined to one style—it should not be confined to any number; for beauty resides not in style, but in a vital principle that existed anterior to all styles, and to which all true styles owe their origin. And, again, the great prototype of architecture, nature, has many styles of beauty, and employs them all.

Algarotti and others speak of the absence of anything in nature on which architecture can be modelled. It would have been no compliment to human reason if literal models had been provided for man's dwellings, the more especially so if we look around us and observe the wonderful ingenuity and instinct exhibited by the feathered tribe, and even by insects in forming their nests and places of abode. Natural history abounds with illustrations; the delicately and fastidiously-correct architecture of the honey bee, for instance, has been very carefully elucidated. This beautiful illustration of the geometrical development of the cell by the honey bee was well calculated to awaken the attention of man to the importance of proportioning his works by geometry; the lesson has not been lost sight of, as the almost universal employment of the equilateral triangle by the Roman and Mediæval architects, has been acknowledged long ago. It would be a great desideratum if architects could be persuaded to study more deeply the works of Nature.

Nature's mode of roofing has been referred to as being derived from the manner in which the bodies and limbs of birds are covered with feathers. Thatch, shingles, weather-boarding, tiles, slates, &c., have all long been used in this way.

The ramifications of the ribs of the numerous examples of the Gothic vaults afford another illustration of the knowledge which the Mediæval architects had derived from Nature's works; each rib has its proper place and its evident use, the weight of the vaulting being equally distributed and supported. In all manner of vaults, let them be of what kind they will, we ought, urges Alberti, to imitate Nature, who, when she has knit the bones, fastens the flesh with nerves, interweaving it everywhere with ligatures, running in breadth, length, height, and circularly. This artful contexture is what we ought to imitate in the joining of stones in vaults.

Regarding the cause of vegetable symmetry, it has been asserted that a system of equipoise which is to be regarded as the manifestation of a centrifugal vital force, exerted in every direction equally, is discoverable throughout the vegetable kingdom in all its parts. And Sir Isaac Newton says that the phenomena of nature are mutually impelled towards each other, and cohere in regular figures, or are repelled and recede from each other.

In 1834, Inwood directed attention to the geometrical forms available for architectural purposes in crystallised minerals. The doctrine of the relations of crystalline forms, termed crystallography, is an application of solid geometry; its connexion with mineralogy is well known. Minerals occur very generally in the state of crystals, that is, in certain definite and symmetrical forms. Solid bodies have primary and secondary forms as well as plane figures.

The origin of geometry by Herodotus combined with another attributing the science directly to the gods, forms the first light which we have on the subject, and both in one are worthily sung by the poet who figures at the head of an obsolete English course of mathematics:—

> "To teach weak mortals properly to scan,
> Down came geometry and form'd a plan."

Leaving the origin of geometry to "the gods," I will allude to suggestions given us by Nature to aid the production of most regular and beautiful forms; for instance, "the treasures of the snow." Scoresby has drawn ninety-six varieties of these crystals; and Glaisher, without the aid of a glass, determines their primitive form to be that of a hexedral or six-rayed star, forming the base of every crystal, however complex may have been its structure. Scoresby, however, has seen in the crystals in the Arctic seas an internal multiplication or a series of inner markings within the crystals, which indicated a high degree of crystallisation; Glaisher has since observed this in this country. These illustrate in a remarkable manner the interlacing or multiplication of equilateral triangles, producing the Lexagon, &c.

Prior to demonstrating the results to be obtained from basing architecture upon natural principles, I will briefly analyze the forms created for our use, and then apply them to the purposes proposed.

Form is the manner and mode in which a thing is presented to our conceptions; and figurability is necessary to matter: since matter is not infinite, it must be circumscribed within certain limits and bounds on every part, which constitute the figure of the body.

Of all the infinite variety of forms or figures which matter is liable to, there are only *five* which will admit the particles of matter, placed together, to fill the space between them completely, or so as to leave no pore, vacuity, or interstice between them; and bodies of these forms have been known by the general name of the five Platonic bodies.

In systematic works upon colour, writers usually commence by referring to its source, viz., light; but when form is mentioned, no original cause is given, beyond a few definitions taken from the first book of Euclid's "Elements."

It must be borne in mind that through architects, in modern times, having been content with the works of the ancients, architecture has been an exception to the law of progress; therefore to successfully analyze early forms modern mathematics will not assist us.

All the splendid edifices of Egypt, and most of the classic buildings of Greece, were erected before Plato or Euclid was born; Plato treated of, or described (but did not create), the five regular solids (Platonic bodies); and Euclid, as Proclus informs us, compiled his "Elements of Geometry" to explain their singular properties. Prior to the time of Plato, also, the conic sections, or those curves which are found on the surface of a cone by a plane cutting it in different directions, were not discovered. The beautiful temples of Greece were consequently not matured by the higher or sublime geometry. Even the application of algebra to geometry was entirely unknown to the ancients, although it has been the direct cause of the great extension of the modern mathematics.

Sir Isaac Newton and other geometricians have often alluded to the simplicity and elegance of the ancient geometry, which only admitted the straight line and the circle into its elements. No other curve than that of the circle was acknowledged. The properties of numbers and geometrical figures were investigated by the early Greeks for their own sake, abstractedly and without reference, as in the present day, to the body of mixed sciences dependent upon them.

Equations, says Newton, are expressions of arithmetical computation, and properly have no place in geometry, unless so far as quantities truly geometrical (that is, lines, superficies, solids, and proportions), may be said to be some equal to others. Multiplications, divisions, and such sort of computations are newly received into geometry, and that unwarily, and contrary to the first design of this science. Therefore these two sciences (meaning arithmetic and geometry), ought never to be confounded. The ancients did so industriously distinguish them from one another, that they never introduced arithmetical terms into geometry. And moderns by confounding both, have lost the simplicity in which all the elegance of geometry consists.

A real mathematician is not so much he who has got an expert knack of giving us solutions of problems algebraically, heaping up speculations (many, perhaps, useless), of quadrations, infinite series, and the like, as he who is thoroughly master of the *geometry of the ancients*, and especially has imbibed their method of demonstration.

One of the reasons which may account for the unsuccessful attempts to analyse ancient art, has been through investigators attributing to architects in early times a greater proficiency in mathematics than they ever attained. I think that the early geometry of Egypt and Greece was of a simple character, otherwise Pythagoras's discovery, that "only three polygons, or regular plane figures, viz., the equilateral triangle, the square, and the hexagon, can fill up the space about a point," with other trifles, would not have been recorded.

The three primary rectilineal figures of form, viz., the equilateral triangle, the square, and the pentagon (derived from the surfaces of the tetrahedron, the hexahedron, and the dodecahedron, regular solids) were not created by man, but derived from nature; and these elements, with their compounds, the hexagon, the octagon, and the decagon, may be traced in nearly all the various styles of architecture.

In Mediæval architecture these elements of form have been embodied with great consistency, and the result is that this style approaches in its construction and decoration the manner or method with which Nature would have undoubtedly proceeded if architectural productions had been under her care. To prove this position, the hexagon can be traced in the plan of the church of Cobern, in the north porch of Redcliff Church, &c.; the octagon, in the baptisteries at S. Lorenzo, Milan, Novara, Ravenna, Bologna, Parma, Verona, Cremona, Volterra, Pistoia, Florence, &c. In England, the baptistery in Luton Church, and by far the greater number of fonts; the chapter-houses of Wells, York, and Salisbury Cathedrals, Westminster Abbey, &c.; the decagon in the chapter-houses of Lincoln and Worcester cathedrals, and the temple of Minerva Medica, Rome; the dodecagon in a building at Canossa.

A natural system can also be traced in the formation of pinnacles and other details of mediæval architecture, analogous to the alternating process to be observed in the vegetable kingdom. These laws or principles are not confined to Mediæval art; they regulated likewise the works of the architects of Egypt, Greece, and Rome.

In early times the square was the figure employed in designing buildings, as illustrated in Solomon's temple, the Egyptian temples, the Greek temples, &c.; but in the Roman period, coeval with the birth of our Saviour, the equilateral triangle (symbolical of the Holy Trinity) became the universal favourite.

Natural forms, infinitely various, are available for constructive and decorative purposes; they pervade every style of architecture; their prototypes are to be found in the animal, vegetable and mineral kingdoms. It has been stated that, "if Grecian columns, Gothic pinnacles, and all the Classical and Mediæval details which now make up the stock in trade of an architect, were abandoned, it would be difficult to find substitutes in their place." Now, it is clear, that so long as the world lasts, architects are perfectly free from and require no such trammels. A profound knowledge of the book of nature, and a general education, with a plain ruler and compasses, is all the stock in trade (as far as architecture is concerned) necessary for the profession in any part of the globe.

There is more to be learned from nature than many imagine, and this is not to be wondered at,—

> "For who adores the Maker needs must love his work."
> *Michelangelo.*

Bernard Palissy, we are told, was a man of whom it was said by Buffon that he was so great a naturalist as nature only could produce. Palissy himself describes the source of his fame by saying that he had had no other book than "the heavens and the earth, which are known of all men, and given to all men to be known and read." He was not Greek, he said, nor Hebrew, nor poet, nor rhetorician; but a simple artisan, poorly enough trained in letters. The ancients, he remarked, were men like the moderns, and that they were quite as liable to be deceived as

we are. He therefore refused to recognise the wisdom of his ancestors, and, turning away from books, he, to use his own words, "scratched in the earth for the space of some sixty years and upwards, and searched among the entrails of the same, in order to understand the things which she produces in herself."

If we despair of a new style, there is one certain point which may be realised, and that is the object of the present paper to elucidate, viz., the development of a style founded strictly upon principles dictated by nature. To nature we are indebted for all the perfect elements of form and of colour; and also for the masterly methods of applying form and colour observed in all the animate and inanimate objects throughout the natural kingdom,—

> "If it be true that any beauteous thing
> Raises the pure and just desire of man
> From earth to God, the eternal fruit of all."
> *Michelangelo.*

Unity of style (the true fundamental law of art), and harmony of design, must be considered; and the more so, if a new development is to be of a lasting character. A studied irregularity will not generate beauty, however *picturesque* it may appear to some architects. The more symmetrical, the more beautiful is any form or shape. As with vegetation, so with architecture, distortions and disturbances arise from peculiarities, which are without the pale of systematic inquiry, and not susceptible of being reduced to any fixed rule. In many new churches irregular stone quoins and dressings have been purposely introduced, and no doubt the ancient Cyclops would have preferred them to regular masonry. The beauty of the latter, however, is much preferable to the absence of symmetry in the former.

Twisted columns, though affording very pleasing curves to the uneducated eye, are universally acknowledged to be less beautiful than the common and regular columns; and yet in the Venetian Gothic now in vogue the above fact is forgotten by men who ought to know better.

It will be exceeding the limits usually allotted to a single paper to offer further preliminary remarks; I will, therefore, at once endeavour in a succinct manner to submit the proposed style already alluded to.

With a plain ruler and compasses only I will now proceed, in accordance with the ancient geometry derived from nature, to prove that architecture, constructive and decorative, can be perfectly produced without any knowledge of ancient or modern styles, let them be from Egypt, Greece, Rome, or the Middle Ages.

The proposed architectural development may be divided into three classes, distinguished in the following manner.

1. Buildings based upon the equilateral triangle, having a power of three, analogous to flowers having three petals, three, six, nine, &c., stamens, and three carpels, as in the iris, the lily, and other plants.

2. Buildings based upon the square, with a power of four, analogous to the order *Cruciferæ*. These plants have all a separate calyx and corolla, each in four divisions; the four sepals being placed alternately with the four petals, the latter forming a cross.

3. Buildings not distinguished by any one primary element of form, but by the combination of all the primary figures.

I must now bring to your mind that to which I have often directed attention; viz., the geometry of architecture, as based upon the laws of nature; the division of primary figures into units or numbers; the alternation of regular figures; the mixture or multiplication of regular figures, regular parallelograms, &c. This method of proceeding, however, must be understood as forming the groundwork of operations in the development of a new and harmonious style of architecture.

I will now assume that a building is required, no matter for what purpose,—say a large hall,—and will take as a key-note the equilateral triangle; let the width of the plan be decided by the base of the triangle, and the length by two triangles, forming a parallelogram; the thickness of the walls will depend upon the materials employed. Make the height one triangle, or more, and the roof one triangle. All splays to windows and doors, chamfers, &c., should form angles of sixty degrees or any other angle generated by the primary figure. The mouldings may be worked out of hexagons.

If a church be the object required, the same harmonious method should be adopted; for example, the plan would be set out and developed by equilateral triangles,—the roof an equilateral triangle, the columns and the font hexagonal,—all splays, chamfers, &c., would form angles of sixty degrees.

In like manner, if the *kleis*, or primary form, be the square, the same unity and harmony should be preserved throughout. The plan would contain one square, or diagonal of a square, one and a half square, or two squares; the height one square more or less in proportion; the roof would contain an angle of forty-five degrees; the columns square or octagonal,—all splays, &c. angles of forty-five degrees, or other degrees produced by the primary figure. The attic windows and mezzanines one square, other windows and doors two squares. The cornices, mouldings, strings, &c., produced from squares, octagons, and so forth.

Had Nature designed our edifices, she would undoubtedly have proceeded in a similar manner. Examine the perfectly regular structures of the vegetable kingdom, in which all the parts are worked out geometrically. The sections of plants usually given in the numerous works of the scientific botanist will prove this position. The figures are as regular as if they were described by the rule and compasses, and the result is perfect beauty. The architectural sculptor needs the same amount of information of botany as the sculptor does of anatomy, which is simply a knowledge of the external signs of the internal organization. The transverse sections of flowers and fruit offer extraordinary examples of natural geometry eminently suggestive to the constructive architect. Regarding dimensions, the width of the building being determined, this width would be the base of the primary figure selected, and the whole of the building and its parts would be proportioned by it. The edifice would be, as it were, crystallized, and capable of being perfectly analyzed.

It has been said that it would not be inaccurate to represent the birth of vegetation by a circle, and the most accurate method of generating regular figures of form is also by a circle. In the construction of chapter-houses, the round churches, and some polygonal buildings, the groining, columns, buttresses, &c., radiate from the centre to the circumference in exact proportions.

Leo Baptista Alberti observes that some temples are round, some square, and others have many sides. It is manifest that nature delights principally in round figures, since we find that most things which are generated by nature are round. In the stars, trees, animals, the nests of birds, or the like parts of the creation, are generally round. Nature is sometimes delighted with figures of six sides; for bees, hornets, and all other kinds of wasps, have learned no other figure for building their cells in their hives but the hexagon. The area for a round temple should be marked out exactly circular. The polygons used by the ancients were either of six, eight, or, sometimes, ten sides. The angles of such platforms should all terminate within a circle; and, indeed, from a circle is the best way of deducing them.

After a building has been duly proportioned, the next step will be its ornamentation; this I divide into three classes—1. Historical sculptures; 2. Floral decorations; 3. Ordinary carvings.

The panels for the reception of the historical sculptures will be decided by the primary figure guiding the whole building, and dependent for position upon the general design; the decoration will not then be wildly scattered, but confined to appropriate places.

The *kleis*, or primary figure, will, of course, wholly generate the floral decorations. If the equilateral triangle be the key, the foliage and flowers will have a ternary division of parts. And when the square is the prevailing figure of form, the floral decorations will be guided by plants of the cruciferous order. Flowers having quinary division of parts are the best suited for pentagonal forms. And in buildings in which the primary figures of form are united or blended, similar natural productions may be introduced.

Curvilineal forms proportioned by the rectilineal regular figures will be found serviceable; and free-hand curves, duly proportioned, may be selected *ad libitum* from natural productions for mouldings and ornamentation.

A convincing proof of the aid which geometry afforded the Greek architect may be seen in the cornice ornaments represented in Inwood's "Erectheion at Athens," plate 27. The formation of the hexedral flowers is self-evident.

In Taylor and Cresy's "Architectural Antiquities of Rome," plate 60, is a capital, one quarter the real size, from the Temple of Vesta at Tivoli, and in the composition of it may be traced the constructive influence of the triangle; the flower on the abacus is proportioned by two equilateral triangles, and has six petals: the terminations of all the leaves on the capitals are trifoliated. The roses in the frieze have six inner and six outer petals, and the circular ornaments in the frieze contain six foils.

In the floral decorations symmetry should be regarded, or at least a balance of parts preserved. Extremes must be avoided, *id est*, too great a precision, and an overstudied irregularity (one of the great errors of the present period). The disposition of the foliage and flowers may be diversified; it may be vertical, horizontal, divergent, pendent, &c. And another variety can be obtained by combining the vertical and horizontal.

The root or commencement of a branch or stem should either be hidden by the foliage or germinate from or out of the stonework, as if it grew as in nature. This is important to observe, because, unless the floral ornaments be introduced so as to form a part of the building, they have the appearance of being stuck on.

Several writers have suggested that for the nineteenth century we cannot do better than take the French capitals from the cathedral of Notre Dame, and stick natural foliage and flowers on the conventional stalks. I object to this system of patchwork, and would rather recommend that architects designed their own capitals, and adorned them with Nature's laws in a less stiff and more free manner, yet with order and dignity.

As to colour, the same laws derived from nature are to be detected in all styles; it is, therefore, unnecessary to set forth any defined course to be pursued. As a general rule, all colour introduced should assist in developing the various architectural forms and features, and not in destroying them. Gilding when—

> "Chosen with a nice discerning taste,"
> *Cowper.*

materially assists in the illumination of form; it should be delicately applied, and when so done, it, particularly for inside work, is productive of good effect.

In conclusion, having submitted a sketch of the proposed development of a style of architecture emanating from natural principles, enough has been shown to prove that a beautiful system of architecture, of just composition and proportion of parts, can be produced without the aid of the admired styles of antiquity; for, as observed, he that sees the rainbow and the vaulted skies has no need to go back to the arches of Rome and the dome of the Pantheon for his types. But, depend upon it, so long as architects and the public encourage and prefer novelty to beauty, it will be a long time before either a new style or a new development can take root.

ARCHITECTURAL DESIGNS FOR THE PARIS EXHIBITION.

About 200 drawings have been sent to South Kensington and hung in the gallery which contained part of the National Portrait Exhibition, next the Horticultural Gardens. From these, a certain number will be selected, next week, by the "Exhibition Architectural Committee," to be sent to Paris. It is not such a representation as we should desire and might have expected; nevertheless, it includes works from Messrs. Brandon, Banks & Barry, E. M. Barry, Donaldson, Ferrey, the executors of the late Capt. Fowke, Gibson, Giles, C. F. Hayward, Horace Jones, Lamb, Phipps, Robins, Spiers, T. H. Watson, White, Digby Wyatt, T. H. Wyatt, and others.

The drawings are mostly old friends, and include a considerable proportion of designs submitted in competition, that are not to be carried out.

It is to be hoped that the committee will at once mark the drawings they propose to send to Paris, and efforts should then be made to supplement the collection with works that will make it more fully represent the architects and architecture of England at this moment.

Kent Archæological Society.—At a general meeting of this society held on the 20th ult., the Earl Amherst was elected president in the room of the late Marquis Camden.

HOW SANITARY MATTERS STAND IN THE NORTH.

THIS meteoric autumn has seen a mundane movement of scarcely less rarity than that which has just raised all men's eyes to the heavens. There has been a great step made, the influence of which is felt all over the country. Every board of guardians of the poor has been furnished with additional powers to make provision for the improvement of the sanitary condition of their respective unions by an Order in Council; and since this extension of power has been conferred, a survey has been made by the Poor-Law Board of the accommodation provided for the sick poor in the various workhouses, by means of forms sent to the medical officers connected with them to fill up. Some of the boards of guardians have taken the matter up in a very methodical manner, and divided themselves into district committees, and literally visited and inspected every habitation in their unions. Each district committee was deputed to draw up a report of the general state of the portion of the union assigned to it, and to make particular mention of all cases where it considered conditions prejudicial to health existed. In such unions where the investigations have been carried out in this manner a valuable record has been compiled for future use as well as for immediate action. There would not have been much gained if the matter had ended here. To examine a district; make notes of all insufficient water supplies, or deficient drainage, of the too near proximity of privies, ash-middens, or pigsties to dwellings, or the absence of the two former, or of improved substitutes for them; or of overcrowding, or of any other palpable disease-breeding nuisance, is one thing: to set machinery in motion by which most of these evils will be removed or remedied, is another. The latter step materially diminishes the numbers of the cases to be dealt with from head quarters, and consequently lessens a national difficulty. As a course having this end in view has not been decided upon in every union, it may be useful to relate the particulars of an instance where it has been pursued, and to state the result. We make choice of a Northumbrian union for this purpose. On the presentation of the reports of the district committees, fifteen in number, it was resolved to send a statement of the deficiencies or violations in question to the landlords of all properties requiring alterations or additions, with a request that they should comply with the suggestions made. Most of the landlords were noblemen or gentlemen owning large portions of the county, open to the criticism of large circles of friends as well as of the public, who immediately expressed their intention to accede to the views of the respective committees. We would not imply that there was any remarkable concession in this determination. The wonderful phase of the facts is, that rich men, living in sumptuously fitted and furnished houses, having their costly wines iced or mulled so as to be most luxuriously in keeping with the season, be it winter or summer, whilst their tenants were drinking ditch-water; and stepping from their dressing-rooms to their bath-rooms to enjoy unlimited ablutions, whilst every drop of water used by their tenants must be first carried some distance in a pail; and, drawing the curtains closer of their well-carpeted rooms, whilst the rain is pouring down upon the beds of some of their cottagers; and passing from bed-room to dressing-room, and thence to corridor, library, breakfast-room, dining-room, billiard-room, or drawing-room, knowing that father, mother, young and grown-up children must all sleep and eat in one room in the houses they owned; or looking from their windows upon their pleasaunces, their terraces, or their spacious court-yards, and remembering the horrors to be seen from their cottagers' backdoors, could have left these matters as they were so long. Scarcely less wonderful is the fact of the scant progress some portions of the country present in evidence of nineteen centuries of civilization. Many houses are inhabited which have not more compliance with the decencies of modern life than the ruins of those dug out of the deserted camps of the ancient Britons. These had walls, doors, hearthstones, and flues. Cottages built without water supply, a second apartment, a place for food, another for fuel, and proper drainage, cannot be classed with habitations superior to those occupied by semi-civilized races. People with their wits sharpened by friction with their fellow men will hardly believe that there are numbers of solitary farm-houses, occupied by respectable farmers, without water, two or more horses having to be kept all day long, and all the year round, going to and from the nearest source. Usage blunts our perceptions of absurdities very considerably, but there are cases in which there has been no growing up in the neighbourhood of a nuisance with an unawakened sense of the want of wisdom of permitting its endurance. There can be no excuse for building seventeen new houses immediately in front of seventeen old pigsties. That we may not be supposed to be word-painting, we will make a few quotations from the reports of the guardians of the union we have mentioned, as given in the *Alnwick Mercury*:—

"*Eglingham.* — The sewage of part of the houses on the Earl of Tankerville's property, to the south of the village, is discharged into the open water-course of the turnpike-road.

Broxfield. — Neither farmhouse nor cottages weather proof; rain comes through the roofs. On the night of the 29th July bedding was wet through with rain in several of the cottages, and the floors flooded from the bad state of the roofs. No drains in the whole farmstead. Four of the cottages open on manure and ash-heaps. No privy in the place. A family of thirteen in one small cottage. In another a young man, employed at Alnwick Railway Station, suffering from vomiting, pains in the bowels (August 1st), and another ill from effects of wet, &c. Landlord, the Duke of Northumberland.

Stamford.—Row of six cottages; no privy, no drains. Piggeries and large space for manure-heaps close to one end of row, offensive to the people. Landlord, Earl of Tankerville."

We might give columns of similar shortcomings, all attested by the local guardians; and all showing that much as has been done to bring the importance of sanitary provisions before every one's eyes, down to the meanest capacity as well as up to the widest recognition, there is more to do. At the pit-village of Shilbotell, which is charmingly situated on the scalp of a rock, with a distant sea view, a little Norman church, and an ancient pele tower incorporated with the vicarage, there are sixty houses without privy or ash-pit for the use of the pitmen and their families. At the fishing village of Craster, the houses occupied by the fishers are built in the form of a hollow square, in the centre of which is the huge fish-offal and ash deposit of the little colony. At Acklington Low Park, recently enriched with one of the late Duke of Northumberland's churches, there are eight tenants, whose only supply of water is obtained from a small ditch running past the place. At Ratcliffe-terrace, a pit-village, a sewer drains into the water-course, as we recently told. At the little port of Amble the drainage is very imperfect; and Victoria-street, which, for its name's sake, should be sweet and bright, is "very dirty and ill-conditioned." In nearly all these cases the landlords have expressed their intentions of acting with the Board; thus it will be seen, that as far as it has gone, the investigation has been of use. Besides this, the Alnwick guardians have drawn up and distributed printed recommendations to landlords, to the following effect:—

1. *Sun-heat.*—That all cottages be so placed that the beams of the sun may enter the dwelling-rooms: it is equal to a fire, and keeps a house always warm and dry.

2. *Milk-houses, &c.*—That all milk-houses, larders, coal-houses, and outhouses should be placed on the north side, the sun there not being necessary. We find, in many cases, houses turned from the sun built on a level with the ground,—some dwellings having a bank of earth lying against the wall. These houses are always damp and dark, while the sun shines on the milk-houses, where, owing to the heat, neither milk, cream, nor meat can be kept.

3. *Ashpits.*—That no ashpit should be placed within 20 yards of any dwelling, and it should be covered, but well open on one side. All roofs into it should be spouted, and no water should be allowed to mix with the ashes, otherwise fœtid fermentations take place very injurious to health; and it should be well drained.

4. *Pigs.*—That no pigsty be placed within 20 yards of a dwelling-house; and, wherever placed, the drainage should be perfect, so as to keep the animal dry. The pig will feed better, and be less a nuisance.

5. *Piggeries and Ashpits.*—That, whenever practicable, the pigs and ashes should be in the adjoining gardens, as most cottages in the country have gardens.

6. *Water-closets.*—That wherever there is a good supply of water there should be a water-closet and no antique privy.

7. *Drainage.*—The drainage of the whole premises should be completed before any buildings are put down, and pipe-tiles with socket-joints used. Blaydon gullies or Stockton traps are the best traps to prevent the gases escaping.

8. *Living-rooms.*—Every cottage should have one good kitchen, 20 ft. by 15 ft., at least two sleeping-rooms above, one large and the other smaller, a cool pantry, and coal-house on the north side.

9. *Damp is one of the great evils.*—In choosing the site of a cottage, let it be elevated a little above the yards and gardens. The walls above the ground should be coated over with boiled coal tar, a cheap and sure remedy to prevent damp rising by capillary attraction. The ground-floor is best boarded, and air should be introduced under the boards to secure against dry-rot. The ground-floor should be raised at least 2 ft. above the soil outside.

10. We must not omit to say, that no cottage should be erected unless in a place near to a good supply of water, and avoid such a place as Radcliffe-terrace, where 800 people are without a drop of wholesome water to drink, and without proper drainage.

A curious incident occurred at "dirty, ill-conditioned Amble" this autumn, which shows the importance and necessity of a thorough dissemination of the laws on sanitary matters, as it seems to have occurred through a misapprehension of the regulations made to prevent the spread of cholera. A few weeks ago a French fishing-boat put into the port for a medical man. On proceding on board the doctor found one of the fishers ill with cholera, which had obtained too strong a hold upon the patient to permit of cure. The poor fellow died about twelve hours after medical assistance was obtained. Hereupon, under fear of spread of the deadly disease in the little port, and in ignorance of the law upon the matter, the Amble people did their best to prevent the landing of the body for burial. They endeavoured to make the foreign fishers understand it would be better to take the body of their deceased comrade out to sea and bury it in mid-ocean. As a deaf ear was turned to the suggestion, a pistol was fired over their heads to aid the interpretation of these sentiments. Determined, however, that their comrade should be interred, the fishers placed his remains in a small boat, and rowed up the Coquet till they came to Warkworth, where they applied to the vicar to bury him. A messenger was despatched to the nearest magistrate for an order, and this having been granted, the poor stranger was interred in the pretty churchyard at Warkworth, within sound of the rippling of the Coquet, and within bowshot of the great grey castle of the Percies.

The infirmary accommodation in the workhouses in the north does not appear to be very complete. Three large houses, as our columns have indicated, have thought about setting themselves in order. Of these Morpeth is in course of construction; Darlington has plans now under consideration; and Burnley is offering premiums for the best advice on the subject. Not too soon has Darlington stirred; for we hear of a bakehouse there which has a water-closet pipe, belonging to a sick ward above it, running down one side of it, and which frequently gets red hot, and a dead-house adjoining it on another.

FOREST CONSERVANCY IN INDIA.

DURING the last eighteen months, steps have been taken by the Indian Government to preserve the vast and valuable forests in the peninsula both from the effects of natural decay and also from the still more important injuries inflicted by the indiscriminate felling of trees, and the absence of any provision for renewing those which have been removed.

Some imperfect forms of forest conservancy have been in existence for some few years, and in 1865 the "Government Forests Act," which came into operation on the 1st of May of that year, was passed. It extends to the whole of India, and gives power to the local authorities to make certain rules, which are to have the force of law, for the preservation of trees, and for keeping clear the streams and canals passing through or coming from Government forests, and which serve for the transport of timber. Previously, however, to this, the Government of Bengal had organized a system of forest conservancy, and had appointed Dr. Anderson, superintendent of the Botanic Gardens at Calcutta, as Conservator of Forests. The first step taken by Dr. Anderson was to issue a series of questions to the commissioners of all the divisions of Bengal, requesting information as to the extent of forest tracts, the nature of the timber grown, and its value for building and other purposes; the method of transport; and whether in any of the Government forests there existed any restrictions as to the cutting of timber. Information was also asked on several other points of simply local interest. The answers to the circular were published a short time back in the *Calcutta (Official) Gazette*. They are very voluminous, and in some cases contain some valuable information. One fact appears to be abundantly clear, viz., that large forests of sâl (*Shorea robusta*) and other valuable trees have been greatly injured by a system of cultivation called

in Madras the *kumari* system, and in Eastern Bengal the *joom* system. It may be defined as the clearing of a patch of forest for cultivation by felling and burning the trees, the patch being deserted, after it has yielded one or two crops, for freshly-cleared patches. Where such a barbarous and wasteful method of cultivation prevails, it is easy to be understood that the forests have been seriously injured. The assistant commissioner of Dacca says, in his reply, "Joom cultivation is in full play, and is the greatest enemy of the timber. Tea cultivation has also cleared much of the forest." It may be urged that the forest tracts of India are so enormous that the destruction of a comparatively small portion is of no consequence, and that the natural fertility of the soil would be sufficient to replace the timber thus destroyed. It appears, however, that in many parts of Bengal the timber near the great roads or rivers is exhausted; and although immense tracts of valuable trees still exist, the cost of transporting them over the cleared portions of forest to the river or highway is too great to admit of being carried on at a profit. The Government lessees appear to be fettered with very few restrictions, except in the case of india-rubber leases, where there is generally a clause to prevent the extraction of the sap except between the 1st of November and the 30th of April in each year. Directions have also been issued in one district that the persons employed in extracting the resin from the sâl-trees should be required to do so by incisions not likely to prove injurious to the trees.

The chief difficulties in the way of preventing the waste of valuable timber appear to consist in the apathy and obstinacy of the zemindars. The superintendent of the tributary mehals, Cuttack, says that they are jealous of interference, but are also very fond of gain, and are not sufficiently advanced to appreciate the value of preserving their timber if they could sell it. The forests on the estate of the Palgunge Raja "are very valuable and are being utterly ruined." An attempt was made to obtain a lease of the forests of another of the proprietors of the Hazareebaugh district, but it fell through in consequence of the innumerable under-tenures and conflicting claims which it was found impossible to reconcile.

Dr. Anderson has also prepared a forest budget, containing a scheme for working the forests of Bengal in three divisions, each to be under the control of an assistant conservator. Great difficulty was experienced in procuring suitable men as overseers. A nursery of temperate forest-trees was established at Darjeeling (where, it may be remembered, the cultivation of the cinchona plant is carried on with so much success) in March, 1865, and is now in a thriving condition. The plants consist of pine, the valuable deodar, cypress, oak, chestnut, and others. Arrangements have been made through the Colonial Office for the supply of 20,000 seeds of mahogany from the West-India Islands for the formation of mahogany plantations in the Terai. The successful cultivation of mahogany near Titalyah, raised from seed produced in the Calcutta Botanical Gardens, proves that this most valuable timber-tree will find a suitable soil and climate in the Terai. The trees raised in the Darjeeling nursery will be planted on the surrounding hills, which, says Dr. Anderson, have, by indiscriminate felling, been stripped of the trees with which they were covered a few years ago.

We may add that the destruction of our Indian forests has several times been brought before the authorities; and, in 1825, Dr. Wallich was sent to the Upper Provinces, to inquire into and watch over the extensive forests of the empire, which were found to be undergoing most wasteful and rapid decay. His report was placed by the supreme Government with the Agricultural and Horticultural Society of India. Mr. Onslow, superintendent of the Nuggur Division, reported so far back as 1847 that the splendid teak forests mentioned by Buchanan in his "Journey through Mysore in 1800," had almost entirely disappeared. An officer at Hydrabad was in want of light-coloured wood for picture-frames, and he applied to the regimental contractor. He was surprised "to find that every third or fourth log in his great store of firewood, was most beautiful satinwood of large size! Only imagine the victuals of a whole regiment, not to say of a large community, being cooked with satinwood!" Efforts have been made from time to time by the Agricultural and Horticultural Society of India, by the offer of prizes for plantations, and in other ways, to check the reckless waste of timber, but apparently with little effect.

There is another point of immense importance connected with the destruction of forests besides the scarcity of wood which it creates. We refer to the effects on the climate. "By felling trees which cover the tops and sides of mountains," says Humboldt, "men in every climate prepare at once two calamities for future generations,—the want of fuel and the scarcity of water." The presence of forest tracts tends to mitigate the extreme heats of summer, and generally to render the climate more equable. There are cases, of course, in which the rapid march of civilization absolutely demands the destruction of forests; but, on the other hand, there are many instances in which forests may be preserved, and, by proper cultivation, made to yield a valuable and lasting supply of timber.

Much valuable information on the subject will be found in the volumes of the "Journal" and "Transactions" of the Agricultural and Horticultural Society of India, and particularly in a "Report on the Destruction of Tropical Forests," published by the British Association in their report for 1851.

An interesting account of the present state of our Indian forests, and the revenue which they produce, is contained in a "Report on the Moral and Material Progress of India," issued about six weeks ago by the India Office. This paper, which costs only a few pence, contains a mass of miscellaneous information relating to India, and is, moreover, written in a more inviting style than the majority of Government publications.

The newly-appointed conservator promises a general report on the timber trees of Bengal, when he shall have inspected the forests of Bootan, Dooars, and Assam.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

The first public meeting of this Society, the object of which is to afford relief to the necessitous, grant pensions to the aged, and for the maintenance and education of the orphans, of builders' clerks, was held on Monday evening last, at the Bridge House Hotel, London Bridge.

The chair was taken by Mr. Alderman W. Lawrence, M.P., and there was a good attendance of gentlemen who had consented to act as trustees, committee of management, and so on.

The Chairman, in opening the business of the meeting, observed that they were assembled that evening to inaugurate an institution in the success of which all present were more or less interested. Perhaps, among all the various trades and manufactures, not only in the metropolis, but in the country generally, there was none so subject to vicissitudes as that of the builder. It was subject to seasons of great prosperity, followed by periods of great depression and adversity. It consequently behoved all who were connected with it to promote the interests of a society, the object of which was to ameliorate the condition of those who, by accident, misfortune, or illness, were no longer able to provide a livelihood for themselves and their families. In the building trade there were institutions for the builders themselves, and for their foremen, and now it was proposed to found an institution of a similar benevolent character for the builders' clerks. Although the present was not a very prosperous season for inaugurating a new enterprise, yet, when the great number of builders' clerks was considered, he had no doubt that the present Institution would be launched with such a measure of success, that when more prosperous times arrived, it would receive that degree of support which would place it among the many permanent benevolent institutions of the metropolis. Moreover, it should be remembered, in advocating the cause of the builders' clerks, they were persons who were compelled to have a special education for their position. That position was not similar to that of ordinary mercantile clerks, because the builders' clerks must be acquainted with the particular working of the builders' business. He was glad to find that the present movement had not come from without, but from the builders' clerks themselves. Similar institutions had been established for warehousemen's clerks, for commercial travellers, and even for porters; and he was glad to find that the builders' clerks had resolved not to be outdone in their determination to help themselves. Builders, as a body, were men of business, and did not waste time in making long speeches; so he would not dilate at any length upon the building trade, or its various ramifications, or the many interests connected with it. All he would say was that, although they had met to inaugurate the Society in the gloomy month of November and in the eventful year of Grace, 1866, still the attendance that evening showed that neither the time nor the season had depressed the hopes nor weakened the determination of those who were resolved to co-operate for the establishment of an institution on the broad and safe basis of self-help. He would now call upon Mr. Colls to move the first resolution.

Mr. B. Colls then submitted a resolution to the effect that the meeting hailed with pleasure the efforts made to found the Institution on a solid basis; approved the rules framed for its guidance; and pledged itself to support the same, and to invite the cordial co-operation of all who might take an interest in alleviating the condition of those who from incapacity or infirmity were unable to help themselves. This was, he thought, a resolution which ought to commend itself to all present. The great advantage of the present movement was, that it had emanated from those who were themselves most deeply interested in its success. It was a step in the direction of that self-help which was so desirable, and which deserved to be encouraged because no one was warranted in asking a benefit from others which he could by hard work or self-denial confer upon himself. Speaking as an employer, he could say that much of the builders' success depended upon the ability and honesty of the clerks in their service. In the case of ordinary workmen it might be said that there was not one out of twelve who cared whether his employer lost or gained by his contract; but, in the case of builders' clerks, it was much to their credit to say that they rarely neglected the interests of their employers. A builder's clerk would not be of any use without that special knowledge which he brought to bear on his work; and it was but right that, in case of accident, illness, or infirmity, provision should be made for his maintenance.

The resolution was seconded by Mr. W. Henshaw, who recommended an active canvass among the persons proposed to be benefited, and remarked that if this were done and if the builders' clerks were found combining for their common good, the Institution would be entitled to the support of every right-minded employer in the country.

The resolution having been carried,

The Secretary, Mr. F. T. Mullett, read a list of trustees, committee of management, officers, &c.

Mr. G. S. Pritchard then moved the election of those gentlemen according to the printed rules, and in doing so enforced the necessity of self-help, observing, that employers and the public generally would not be slow to come forward if they found the builders' clerks determined to work energetically for themselves.

Mr. M. B. Newton, in seconding the resolution, observed, that the merchants of the metropolis had always received much courtesy and attention from builders' clerks, and that the present movement had their hearty approval. It was an aphorism that "God helped those who were willing to help themselves;" and although the beginning of the Institution was comparatively small, he could see that it had the germs of life in it, and that it would attain the prosperity it deserved. He happened to know something of the working of the Warehousemen's and Commercial Travellers' societies, and he knew that by none were they so well supported as by the members of those callings themselves. He hoped, therefore, that although none who heard him would ever enjoy the benefits of the Institution, still that they would work energetically in its behalf; for it was impossible to tell when misfortune might overtake even the strongest and most prosperous amongst them.

Mr. E. Conder next moved a resolution to the effect that the warmest thanks of the members of the Institution were tendered to the architects, employers, merchants, and others of the metropolis for their kind and efficient support, for their attendance that evening, and for the able manner in which they had advocated the claims of the Society to the help and encouragement of all connected with the building trades. He observed that he was well acquainted with the position of the builder's clerk, as he had himself commenced life as one of them, and that he would do all he could for a body of men who he was persuaded would do all they could to help themselves.

The motion was seconded by Mr. Capon, and carried unanimously.

The Secretary and Treasurer then read a long list of donations and subscriptions, amounting ultimately to 456*l.*

Mr. T. Peto Ward (the founder of the Institution), who on rising was very warmly received, observed that the builders' clerks really did not know who were their friends until the present movement had been inaugurated. He was himself quite unprepared for the long list of donations and subscriptions which had just been read, as he had not ventured to hope for more than 100*l.* or 200*l.* at their first meeting. For much of the success achieved that evening they were indebted to the professional press, and he thought they would be wanting in a sense of gratitude if they did not promptly acknowledge it. Mr. Ward concluded by moving a resolution on the subject, which was seconded by Mr. H. T. Bayes, and carried *nem. con.**

The proceedings were brought to a conclusion by a cordial vote of thanks (moved by Mr. C. Fish) to Mr. Alderman Lawrence for presiding on the occasion.

Mr. Lawrence, in replying, congratulated the meeting on the successful inauguration of the Institution, as also on the fact that the building trade had now taken that position in the country which its vast importance entitled it to maintain. He was proud to have assisted at the foundation of so practical and useful a society as the "Builders' Clerks' Benevolent Institution," and he trusted that each year would witness its increasing prosperity and usefulness.

THE NEW HOUSES OF PARLIAMENT, BRISBANE, QUEENSLAND.

THE portion of the new Houses of Parliament and Public Offices at Brisbane, the metropolis of the colony of Queensland, in Australia, set apart for the Houses of Parliament are now approaching completion.

The Houses of Parliament occupy one side of a square. They will comprise a council chamber and an assembly chamber (these are on the first-floor level), each 65 ft. by 36 ft. 6 in. by a height of 31 ft., the height being attained by the chambers passing through the two upper stories, a gallery running round each chamber at the level of the second-floor, for the use of the public, for ladies, and for reporters; two libraries, one over the other and over the principal entrance for members of both houses, in the centre part of the building; a large refreshment-room and a smoking-room, with the necessary bar; kitchen (the kitchen will have a Flavel's patent cooking-range), serving-room, wine-cellar, &c., attached, this group of rooms forming a separate block of building to the rear of the chambers, in the courtyard; also several committee-rooms, rooms for the president and speaker, for the ministers, for the officers of the two houses, and for his excellency the governor on the occasions of opening and closing the sessions.

The climate of Brisbane in the summer months being hot, advantage was taken of the site, which faces the prevailing north-east seabreezes, and the chambers are placed longitudinally, end to end, with the principal staircase and one of the libraries between, so as to get as much benefit from the prevailing cool breezes as possible, each chamber having opposing windows on each floor, which are protected from the fierce rays of the sun by stone arcades on the principal front, and by wide verandahs of wood on the side overlooking the courtyard. The site is quite open, and overlooks the Botanic Garden, which, from the building, is an object of great beauty, as the laying out, which is exceedingly picturesque, is seen to great advantage, and the numerous tropical plants and trees dotted about, with a fine clump of bamboos gracefully overhanging a small sheet of water, give quite an Oriental aspect; and the Brisbane river, which at this part is about 800 ft. wide, quite encircles the tongue of land forming the Botanic Garden, the Government domain, and the site of the Houses of Parliament. Altogether, the site is beautiful, for from whatever point you look the wooded hills and the winding river enliven the scene. Government House stands nearer to the point of the same tongue of land. It may be interesting to state here, that this land was cleared and cultivated some forty years ago by prison labour, when Moreton Bay was a penal settlement; and one old building, which stands close down to the river, not far from the site of the new buildings now being described, used formerly as a commissariat store, bears the inscription "G.[crown]R. A.D. 1829," on a stone panel in a gable overlooking the river.

The new buildings are constructed of a rather coarse description of sandstone, but having one of the most exquisite tints imaginable, being of a pale soft purple, most agreeable to the eye, for it is neither glaring nor sombre; the coarseness of the stone is an obstacle to carving, but any moulding can be cut in it. The masonry is of the very best description, however, and it was not for want of men capable of carving stone that little carving has been introduced in the building; for in Melbourne and Sydney some excellent English stone-carvers have made homes for themselves, and have left traces of their handiwork on a few buildings which will be looked upon in future days with wonder. The principal floors of the building are fireproofed with Fox & Barrett's patent fireproof flooring. The roofs are to be covered with the Vieille Montagne Company's zinc, which was all prepared and fitted in London under Mr. Edmeston's superintendence previously to shipment. Water, from the Enoggera Waterworks, will be laid on throughout the building.

The works have been carried out by the Government, under the direction of Mr. Charles Tiffin, the "colonial architect," who designed the building, having foremen of the different branches of the building trade acting under him. The estimated cost of the present instalment of the building is 50,000*l.*, not inclusive of gas and other internal fittings.

Brisbane.

IMPEDING LIGHT.

VICE-CHANCELLOR STUART has given judgment in the case of Wavell *v.* Watson. He said the plaintiff had clearly established a right as against the defendant to a mandatory injunction. The plaintiff's case was that within 11 ft. 10 in. of the front of his house there had been erected a wall of a new building which had now reached about double the height of the building that previously stood there. It was said, on behalf of the defendant, that in January last the plaintiff was well aware that the defendant was bound by covenant to erect this building; that the defendant consulted the plaintiff as his professional adviser upon certain matters; that the plans and elevations were then produced, and that the plaintiff must then have known that the proposed building would interfere with his right to light and air. None of these circumstances went far enough to show a case of acquiescence which could bind the plaintiff. The subject matter, as to which the plaintiff was consulted, had no reference to the height of the building. His attention was not particularly directed to the manner in which his right would be interfered with. In order to make out a case of acquiescence, the evidence must be perfectly clear, and unequivocally refer to the matter which was said to be acquiesced in. The plaintiff filed his bill on the 27th of September, and the defendant was warned that he proceeded at his peril. The defendant did proceed at his peril, and unless the Court would allow the plaintiff's right to be permanently injured and destroyed, it was quite clear that the defendant must remove the obstruction which he had erected during the progress of this litigation. There must be, not the usual injunction, but a mandatory injunction, requiring the defendant to remove the obstruction complained of, unless the parties should make some arrangement on the subject. Mr. Malins and Mr. Martineau were for the plaintiff, and Mr. Greene and Mr. Karslake for the defendant.

IRON KIOSK FOR INDIA.

WE give this week the remaining engravings of the Iron Kiosk for India, the exterior elevation of which appeared in the *Builder* of the 10th ult. This structure forms, perhaps, the most remarkable specimen of ornamental ironwork yet erected. The building is 80 ft. long by 40 ft. wide, and is composed entirely of cast-iron, of which there are about 180 tons. The columns are double, and are bolted upon bed plates, which extend 10 ft. into the building, and thus present sufficient resistance to the strain transmitted from the roof through the columns.

The roof ribs spring diagonally from each column, and by their intersection divide the entire roof into equal squares. Owing to this arrangement of the ribs, the hipped ends of the building have the same appearance as the ordinary part of the roof, whereas in most cases they are of irregular construction. The section of the roof is of an arched form, without any ties. The constructive detail shows an entirely novel application of cast iron, the intersecting ribs being dovetailed together in an ingenious manner. The open arabesque work at the sides, as seen in the engraving, shows what may be done in cast iron when well executed.

The load on the roof acting on the structure as if it were concentrated at the springing of the upper ribs, would tend to bend this point inwards, raising the crown at the same time under the influence of transverse strain, and turning the column round its base. To prevent this, either of the three connexions, viz., at the crown, at the springing of the upper ribs, or the connexion of the base of the column with its foundation, would require to be strengthened to resist this tendency. In order to avoid affecting the light appearance of the visible parts of the structure, the base of the column beneath the floor level was chosen, which, by means of a number of 1¼-in. bolts, is strongly secured to a girder of 10 ft. length, forming at the same time a foundation plate, and is thus rendered immoveable. In consequence of this arrangement, the springing of the upper ribs and the crown cannot give way in the manner described; and while the ribs can be regarded as being rigid near the eaves, the only strain acting on any part of the structure of the roof will be shearing strain, transverse strain being only applied to the girders.

The kiosk stands at present on land in the Exhibition Road, South Kensington, adjoining the Horticultural Gardens, and is well worth a visit from those interested in constructive ironwork.

Messrs. Trollope & Sons, of Halkin-street West, are the contractors for the building. The designs were prepared by Mr. Owen Jones; Messrs. Ordish & Le Feuvre acting as engineers.

As a specimen of ironwork this structure reflects much credit upon Messrs. Handyside & Co., of Derby, who made and erected the ironwork for the contractors.

WORKMEN'S COTTAGES, LLANDAFF, NEAR CARDIFF, SOUTH WALES.

WE give plan, elevation, and section of these cottages, which have been built by Messrs. C. de Bergue & Co., for their men at Llandaff. Such cottages, can be erected, complete, for 105*l.*, if attached, as shown. The idea is to provide in the single houses accommodation for two male lodgers in a double bedroom, 14 ft. 6 in. by 9 ft., and containing a fireplace in case of illness; also two other bedrooms for the family. There should be three. We give the plan of the lodging-house, which occupies the space of three single houses. It contains twelve bed-rooms for lodgers, and three for the family, with a fireplace in one of them in case of illness. On the ground-floor a spacious sitting-room is provided for the exclusive use of the lodgers, and separated from the hearing of the family by two intervening bedrooms and double doors. Each lodger has his own bedroom opening into the centre passage, he and the hostess only having access to it by key. The kitchens are provided with close Cheltenham ranges, suited in size to the requirements of each house, a coal closet, a pantry, &c. The back kitchen or scullery, is filled up with washing boiler, sink stone, drains, &c. Soft-water is all saved and collected from roofs into cask in back-yard, from which a cock opens over sink-stone. The "closet" accommodation seems scarcely sufficient.

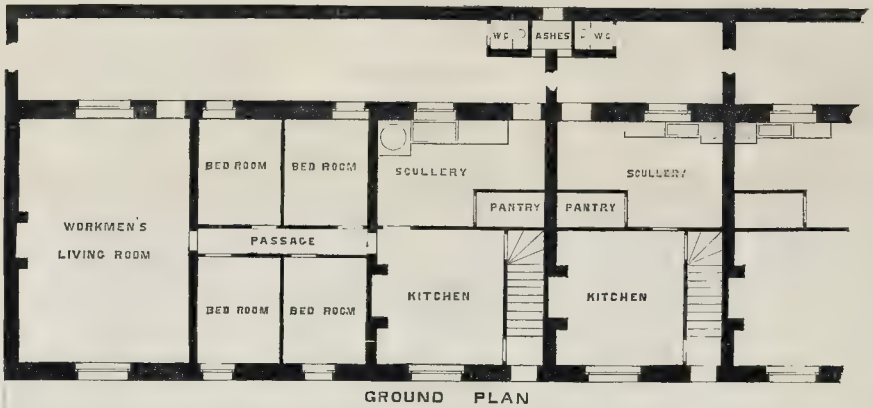
The rents of either single or lodging-houses will readily be cleared by the lodgers kept; and if desirable, as it may prove in a retired country place, a lodging-house may be readily converted into a shop or co-operative store for the workmen exclusively, and in which they might feel disposed to invest. The cottages have been built of a red and rather hard conglomerate stone, which is found in this neighbourhood. Mr. Thomas Evans, of Cardiff, was the contractor and builder of the cottages. Mr. Benjamin Finch, the manager, designed them.

* The Association may be said to have grown out of letters in our own pages.

WORKMEN'S COTTAGES AT LLANDAFF, NEAR CARDIFF.



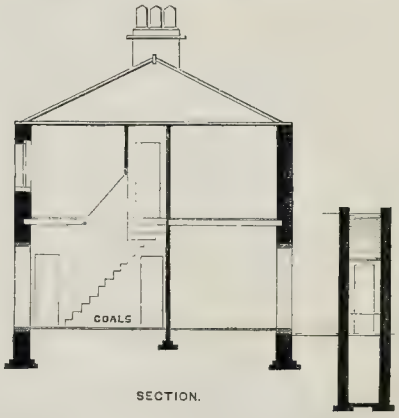
FRONT ELEVATION



GROUND PLAN



UPPER PLAN OF SINGLE HOUSES.



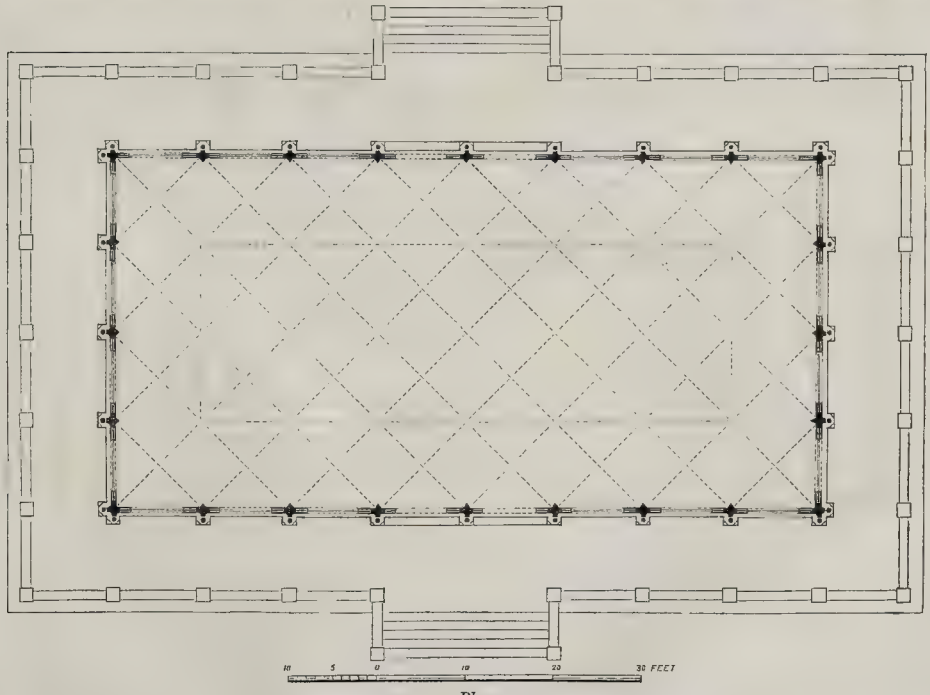
SECTION.



SCALE OF FEET



INTERIOR VIEW OF IRON KIOSK.



Plan.

ART UNIVERSAL AND PRACTICAL.

CAMBRIDGE SCHOOL OF ART.

AT the distribution of prizes on the 21st ult., the Master of Trinity presiding,

The Archdeacon of Ely, in making a short statement of the progress of the school, said he supposed all would remember that it began in 1859. Through the illness of the master, Mr. Wood, by a sad accident on the railway some time ago, the school had declined a little; but it was now rising again under the able teaching of the present deputy-master, Mr. Wigzell. It must be remembered that, not only was their central school promising, and their branch school at Royston, but they were instructing several hundreds of poor children in the old schools of the town. It was still a matter of regret that drawing did not form a regular part of instruction in the Perse school, though it was only fair to add that several of its students attended the School of Art, and showed much power. About 700 pupils in all were now receiving instruction in drawing, and thus their school was doing much for the material, social, and even religious improvement of the town and University.

Mr. Beresford Hope said he thought it best in an address on such an occasion that a speaker should confine himself to one point, and the point he would choose would be that art is universal and that it is practical; that it is not something to be put on and off like a bonnet or a gown,—not something distinct from the duties, pleasures, and occupations of life; but a method of proportion by which those duties, occupations, and pleasures, might be measured, modelled, refined, and polished up; a something by which they might be made what they could not have been if there had not existed the idea of art in the world. Art was an all-pervading principle. It was morality made evident to the eye; it was that which taught the eye to appreciate the beautiful, that taught it moderation, fulness without extravagance; it was that which, in its mental aspect, was known as morals, in its intellectual aspect as ability, and which, for want of a better name, was called art, when applied to externals. When they were brought here to look at these pictures of columns, of book-covers, of apples, of grapes, and of waterfalls, it was not meant that they should infer that these were the be-all and end-all of those who had produced them; it was merely an accomplishment which they had acquired in very much the same manner as they had learnt to make pot-hooks at school. And why did they learn to make pothooks, when they might have been much more pleasurably engaged in playing about in the sunshine or in smearing their dear little lips with blackberries? Why, but that by this means they were learning to be masters and mistresses of all power for their lives to come; because it taught them how to put themselves in communication with their fellow creatures, however far off they might be; how to learn their wants and fears, and hopes and joys. That was their meaning of learning to make pot-hooks; and this study of art was in the same way merely an excellent means to an end; it was to teach them the laws of proportion and beauty in nature. Mr. Hope showed how there was dissection in art as well as in medicine; that the student would soon find himself embarrassed if he attempted to depict an object and did not adhere to what was known as the outlines. By practice such as this he soon learned what was primitive and important, and then what was additional and embroidery. There was a form and outline in all existing things, and upon these the art student learned to look with new eyes. But what was the practical advantage of it all? How was a man wiser, more sensible, more likely to get on in the world in consequence of it? The answer was a simple one: the same that might be replied to the question, what use was it learning mathematics, or classics, or any other branch of study which led the mind to reflect and to reason. The method was different, but the end was the same; and, as it was impossible to make all the world what was called "bookish," yet very desirable to teach everybody to read; so, though everybody could not be made great artists, yet it was very desirable that art should become more and more recognised as a great necessary element of universal education. To teach people harmony and proportion was a great requisite, and its advantages, when applied to common life, would soon be discovered. It might be applied to the commonest and most familiar affairs of life. Take the smith making a hinge, or the carpenter making a chair. The smith, with a knowledge of art, would impart forms of beauty and proportion to that hinge which would make it a delight to those who looked upon it; and, he would be bound to say, at the same time every bit as efficient to hold the door or the cupboard as the ugliest production of the most rustic Vulcan that had his abode in the most deserted village. And the carpenter who had learned to turn with elegance the leg of a chair would make that chair no more likely to break down than the workmanship of a fellow who went on doing his work when he hated it, and simply for the sake of the money it brought him. Art made people love what they did, because it made it a joy to the heart and a joy to the eye. In reference to the domestic view of the case, Mr. Hope expatiated on the great advantage possessed by a lady who had a knowledge of art, in suitably choosing the colours of her dresses and her ribbons—how much better would be the choice of such a lady than of one who went blind-folded to the syren blandishments of the itinerant French milliner! He ventured to assert that the barrier existing between the world of art and the great world of practical life had no real existence, and that it would have none until the sun, and the moon, and the earth were annihilated, until the human body was annihilated, and until all the perceptions of an intelligent being and all the beauties in the world had been reduced to chaos and utter darkness.

Mr. F. S. Powell also addressed the meeting, and in the course of his observations, mentioned that a young lady, educated in a Lambeth School of Art, had been employed by the Bradford manufacturers to make designs, and had thus been enabled to help her parents, and contribute to the comforts at home; and in Cambridge there was no small amount of ingenuity undeveloped and not enjoyed, which might be brought to bear in a very similar manner. We must look for the extension of art-education within our homes; they could not refer to it in the same degree as regarded the outside, for the school of architects outside could not be said to keep pace with the school of decorators within.

NEW CHURCH, AUCKLAND, NEW ZEALAND.

THE rapidly-increasing population of the town of Auckland requiring an extension of church accommodation, the inhabitants of the Ponsonby-road district resolved on the erection of a new church, to be built by voluntary contributions. The site for the building was given by Mr. S. Toms; and the design of Mr. W. Pritchard, of Auckland, architect, was selected by the committee: Messrs. Thompson & Co. are the builders. The church is constructed of Kauri Pine, on a brick foundation. The plan is cruciform: it comprises nave with aisles, terminating by transepts and chancel. The tower and spire are at the north-west angle. The length of the nave is 80 ft., and the width 30 ft.; the height from the floor of the nave to the ridge of roof is 40 ft. The church is entered by doorways under the tower, and at a porch on the south side. The church will have sittings for 450 persons, and is to be completed by December, 1866, at a cost of 1,123*l.*

PARIS.

THE Imperial Society of Antiquaries visited, last week, the Hôtel de Carnavalet, recently purchased by the City of Paris to form therein a new collection of the antiquities of ancient Paris. Though late in the field of "memorial preservation," there are many structures now under the sway of the pickaxe, of high archæological interest, if not of artistic merit, that may either be photographed, or at least copied in some way so as to hand down to posterity the state of art at a certain period. The collection of antiquities is very interesting and well arranged. The library of the Hôtel de Ville is also to be lodged in this building; it is principally composed of works concerning Paris and of an Anglo-American collection, very complete, that attracts the attention of visitors. The rarest work in this library is the illuminated missal of Jacques-Juvenal of the Ursins, purchased by M. Firmin Didot, for the municipality, at the sale of Prince Soltikoff's collection for 1,400*l.* Of folio size, this MS. is of extraordinary splendour, and is a veritable encyclopædia of the monuments, costumes, arms, and instruments of the period.

The Lyons Railway Company have built an enormous goods station in Paris. It is finished, and is to be opened shortly. The most extensive accommodation is established by the vast subterranean depôts under the Nicolai goods station. As to the new building, and perhaps the largest in all France, the subterranean portion is composed of six parallel galleries, 984 ft. long, and intersected by transversal thoroughfares; the massive buttresses, which are disposed right and left of the building, to resist the final thrust of the arches, have a development of 2,297 ft. From the upper story to the underground one the goods will pass, and *vice versâ*, by means of a system of double lifts. The wagon to be discharged is placed on one of the platforms of the lift, and is secured. The engineer, on the lower stage, then lowers the loaded wagon, while the empty one ascends by the opposite lift. Loaded trucks are hoisted by a hydraulic press, worked by a steam-engine. To furnish water for all this, a well has been sunk in the middle of the vaulted storehouse, and carried down to a very great depth. The piers are very massive, and much difficulty was experienced in finding a good footing, the soil being of a loose, treacherous nature, and full of water, as might be expected from its proximity to the river. Their average depth is about 33 ft. from the surface of the lower story. Two sloping carriageways, of easy gradient, have been formed, for the passage of carts, &c., from the streets to the underground storehouses. It is needless to add that the whole is well lighted with gas. The station is well worthy of a visit.

Traction engines have been put to a new use lately in Paris, having been employed to haul boats on canals. A few days ago one of them hauled two strong barges all the way from Compiègne to Paris, and followed perfectly all the bends of the road. The journey was effected in one-third the time usually occupied by horse-traction.

The weir and lock of Suresnes, near Paris, are in a forward state, and it is expected that they will be completed in four or five months, so that by the time of the Exhibition of 1867, the depth of water will be increased at the Pont d'Jena, and thus the navigation will be improved.

The grand cascade of the Buttes Chaumont is ready, and the water laid on. As soon as the lake is quite ready, all that is necessary will be to open an enormous cock in order that it may play. It will throw the cascades of Saint Cloud and Versailles quite in the shade. Thus has a wilderness, with quarry pits some 50 ft. deep, been levelled and turned into a park. The view from the roadside, which forms a terrace at the top, is immense. Money will do anything and everything.

PARIS EXHIBITION, 1867.

ALL the heavy ironwork and roofing of the building have been completed, and the light framing and glazing are being proceeded with. The piers are being painted the usual colour of Parisian ironwork, chocolate picked out with gold. The ceilings are straw yellow, with fillets of Sienna colour; the exterior arches of the grand gallery are also painted straw yellow, with brown lattice-work. It has been resolved to unite the bank of the Seine with the gardens by means of two tunnels, so that visitors quitting the boats may enter directly on to the grounds. The portion of the park near the military school is behind hand, compared with the rest, as regards laying out and planting; but now all the efforts of the gardeners are concentrated on that spot, and some hundreds of magnificent shrubs, including superb magnolias from Angers, are being planted. This portion of the park is reserved for Belgium, Holland, England, Austria, Switzerland, Germany, &c. In the French department carpenters are already at work fitting up the stalls, &c., for exhibitors; and the English department is also being got ready. The pavements are being laid of compressed concrete.

On the verge of the Quai d'Orsay, near the Pont d'Jena, is the International Club. It is three stories high, and is being roofed in at this moment.

The model and cheap hotel bordering on the avenue Labourdonnais appears to be finished inside and outside. The several boiler-houses and chimney-stalks have been completed.

On the rock in the lake at the foot of the

church is being raised the iron lighthouse. The church will contain specimens of every species of ecclesiastical architecture and ornament, and is already roofed in. Bales of goods from Sweden have arrived in a Swedish vessel, at Havre, which will mount the Seine as far as Paris. The glass case and all the fittings for the objects exhibited by that country have been manufactured at Stockholm, as also the chalet that are to be erected in the park. Seven Swedish workmen accompany the works, which will be placed in lighters, and towed up by the Swede steamer as far as the Pont d'Jena.

The constructions for the nautical exhibition are being erected on the bank of the Seine above and below the Pont d'Jena. Here also, for the first time in the annals of Exhibitions, marine-engines will be exhibited in movement.

The Egyptian palace is completed as far as the exterior is concerned, and the small retiring pavilion and entrance saloon is completed. The roof is terminated. A few days ago some of the Egyptian objects arrived, and with them M. Ferdinand Lesseps on the part of the Pacha. He returns to Egypt immediately.

NEW NOTIONS FOR THE SUPPLY OF STAINED GLASS WINDOWS AND STATUES TO OUR CHURCHES.

The excellent editor of the *Bristol Times*, basing his idea upon a paragraph in the *Builder* as to wedding windows, and on some remarks by Mr. Ruskin as to subjects for portrait carving and painting, suggests, in a humorous article in his paper, that a never-ending source of stained-glass windows and church carvings may be obtained by the working of these two donative engines, connubial happiness and self-esteem. With a special eye to the new nave of Bristol Cathedral, he thus urges his point:—"If an advertisement were placed in the pages of the *Bristol Times and Mirror*, announcing situations to be let on the outside of the new nave, position to be paid for according to its relationship to what painters call the line or level of vision, I believe that in three months we should have more Bristolians bidding for petrified immortality than the Chapter could find space for. The exterior structure would soon be a Walhalla of our principal or at least most prominent citizens. The aldermen, those 'benched buffers,' as they have been called,—what a harvest the Chapter would have out of them! What a splendid row of what the architects call masks they would make! The sculptor would have as much pleasure in cutting *them* out in Caen stone as *they* would in cutting into a haunch of fat buck venison. And then there are the town councillors and private citizens. Everybody would be rushing for a chance of immortality; and ill as I can afford it myself, with a small wife and a large family, I think I could almost pledge my Sunday coat and sell my father's old silver watch for the most obscure place in moulding or mullion."

THE RIVERS COMMISSION AT BRADFORD.

Mr. H. W. Ripley, the president of the Bradford Chamber of Commerce, among others, has been examined at considerable length by the Rivers Commission. He said that it was his opinion that in any legislation for the prevention of the pollution of the rivers great consideration should be given to the probable fetter or cost upon English manufactures. The number of pieces which passed through the merchants' hands in the worsted district he estimated at between six and seven millions annually. The average value of each of these pieces would be about 50s., and the entire value of the goods 17,000,000*l.* or 18,000,000*l.* There was also an export trade in yarns amounting to between 5,000,000*l.* and 6,000,000*l.*, and there was a trade with Scotland, Norwich, Manchester, and other parts, amounting, possibly, to 3,000,000*l.*, making the value of the trade of the district in textile fabrics and worsted goods about 25,000,000*l.* per annum. Water was used in the trade for scouring wool, and for condensing purposes connected with steam-engines, and the rivers pollution question was therefore intimately connected with the turning over of the capital he had mentioned, especially as regarded the dyers of the district. He believed there would be the greatest willingness on the part of the parties engaged in the trade to listen to any suggestions, and to do all that lay in their power to abate the pollution, but if they were to be interfered with in any injurious manner they would protest. The interests and the capital involved in the trade were rapidly growing in importance and value. During the period from 1851 to 1861 great advances were made in two processes of manufacture. Wool-combing by hand was, during that time and afterwards, changed to a process which was conducted by machinery, enabling six or eight men to do the work of 100. By this means the labour of many thousands of hands was saved. During that period also the power-loom underwent a rapid and steady improvement. He was convinced that it was not feasible to use the refuse of dye-works for agricultural purposes. The best mode of getting rid of it was to burn it, and this had been done successfully at his works. He estimated that from 15,000 to 20,000 tons of such insoluable matter were annually passed out of the dye-works in the district. In reply to questions as to the weight of the raw material used in the local trade, Mr. Ripley said that in the manufacture of the 6,000,000 or 7,000,000 stuff pieces per annum to which he had referred about 42,000,000 lb. of wool were used. The export yarn trade consumed from 35,000,000 lb. to 40,000,000 lb.; and the quantity used in the trade of Scotland, Norwich, Manchester, and other places, might be guessed at 25,000,000 lb. In round numbers, the total consumption of wool might be stated at 100,000,000 lb. to 110,000,000 lb., which at 2s. per lb. would give 11,000,000*l.* as the value of the material. The great proportion of this quantity was British wool. The weight of wool annually produced in England was 150,000,000 to 160,000,000 lb. The weight imported in 1864 was 238,000,000 lb., of which 56,000,000 lb. were re-exported. The quantity of wool kept for home consumption in 1844 was 64,000,000 lb.; in 1854, 82,000,000 lb.; and in 1864, 182,000,000 lb. The exports from the district were in 1844, 9,000,000*l.*, and in 1864, 24,000,000*l.* Wonderful figures.

THE IMPROVEMENT OF THE DWELLINGS OF THE POOR.

It may interest many readers of the *Builder* to be informed that this subject is to be brought before the Institute of Architects at the next meeting (Dec. 3), by Professor Kerr, with a view to its careful consideration by that society. Much as this important social problem has been already debated, there is little fear of further discussion proving to be in vain; and especially will it be of service to the good cause if this opportunity should be properly accepted for bringing effectively to bear upon it that professional investigation which the Institute can best command. We understand that the point at which it is proposed to take up the subject is that to which we have referred on several occasions. After all that has been done in providing dwellings at a rental of 5s. or 6s. a week, there is a great mass of the lower classes who cannot pay such a rental; and what can be done for them is a problem yet to be solved. We shall be glad to hear what the Institute of Architects can offer towards its solution; and we cheerfully give publicity to the notice of the intended lecture, because no doubt the council will welcome the attendance of friends of the cause.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held at the House, in Conduit-street, on Friday evening (the 23rd ult.), the president, Mr. R. W. Edis, in the chair.

The following gentlemen were elected members of the Association:—Messrs. W. Backbourne, Emile Brandaw, Jas. Winter, Piercy, Hart, Gilling, Walter, Taylor, Foster, Lewis Solomon, Dale, W. Lewis Spiers, and Percy Okeden.

After a short discussion, it was agreed that Rule 17, providing that the registrar should keep a list of the names of assistants requiring engagements, and of architects making application for assistants, should be so altered that for the future assistants using the register should pay a fee of 1s., and architects 2s. 6d.

Mr. J. D. Mathews (hon. sec.) then read the report of the committee on the operations of the Association during the year 1865-6. It stated *inter alia*, that seventy-eight new members had been enrolled, and that twenty-three had resigned, making a total additional strength of fifty-five members. The Association had not only got entirely out of debt during the year, but the committee had the satisfaction of reporting that they had a substantial balance in hand. The compulsory fee for the use of the library had been abolished; but members were invited to make donations, either of books or of money, so as to keep up its efficiency. The committee regretted that the voluntary examination class had ceased to exist, and urged the importance of reviving it. It was, they thought, highly satisfactory that, of the four gentlemen who passed the examination by the Institute in January last, three were members of the Association.

The Chairman, in moving the adoption of the report, referred to the desirability of increasing the library, which, he said, was the only free lending library of the class in the metropolis. With regard to the voluntary examination class, he shared in the regret expressed by the committee at its abandonment, or, perhaps he should say, suspension. He regarded such a class in connexion with the Association as extremely valuable, because it brought young men together and afforded them an opportunity of learning many things which they might not so readily be able to acquire without its assistance. As a member of the Institute, it did not become him, perhaps, to take exception to the policy adopted by its governing body; but he could not forbear saying that, in his opinion, it was to be regretted that the Institute should have failed to carry out those suggestions on the subject of examination which it had itself invited. He hoped, however, that when the examination was put upon a better footing, it would eventually become compulsory, so as to prevent the introduction into the profession of those ignorant pretenders to science and art who at present brought so much discredit upon it. The class for figure drawing ought, he thought, to be better supported, as there were but twenty-two subscribers out of a body of 350 members. How, he asked, could an architect design a building for fresco or sculpture who knew nothing of the principles of the human figure? Moreover, a knowledge upon this subject was desirable, even with the view of giving a little animation to their sketches; for nothing could be more incongruous than the dilapidated specimens of humanity which were often seen in the foreground of otherwise successful sketches.

A member, referring to the remarks of the chairman on the necessity of compulsory examinations, called attention to a placard stating that Messrs. —— had removed to new and commodious premises, where they were prepared to carry on the business of architects, surveyors, land agents, auctioneers, builders, and undertakers, and that all kinds of business would be transacted on commission, &c.

Mr. L. C. Riddett brought up the report of the library committee.

Mr. E. B. Ferrey submitted the report from the class of design, which stated that the total number of designs submitted during the session was 185.

Mr. E. J. Tarver read the report from the figure-drawing class, which stated that its progress had been satisfactory, and that the expenses had been under the estimate made when it was first established.

Mr. L. W. Ridge inquired whether any steps had been taken by the Institute with reference to the formation of a school of art in connexion with architecture as suggested by Mr. Gilbert Scott at one of the meetings of the Association.

The Chairman said he believed that the Institute had not yet moved in the matter.

Mr. Tarver suggested, in reference to the recuperation of the voluntary examination class, that the better course would be to agree upon a subject, and to draw up questions one evening to be discussed the next; and that as they were all students, all members of the class should be deemed to be upon terms of perfect equality.

Mr. Ridge approved of the suggestion, but observed that as no names had yet been given in, it would be impossible to start the class. If the class were once formed, the suggestion of Mr. Tarver could be carried out.

Mr. R. P. Spiers thought the idea a good one, as it would enable the class to commence the business of the evening at once.

THE CRUMLIN VIADUCT.

It will be remembered that when the insecurity of the Crumlin Viaduct was rumoured, the Board of Trade in the latter part of last year sent Captain Tyler, one of the inspectors, who examined and tested the viaduct. Certain alterations which had to some extent been previously contemplated, and portions commenced, by the company's engineer, Mr. W. G. Owen, were settled upon to be carried into effect. These alterations, we learnt, were considered necessary, first, because decay of the timber flooring with which the iron superstructure had been covered was progressing rapidly; secondly, because the railway company's engines and rolling stock are much heavier than those in use fifteen years ago when the viaduct was designed. A writer, of the neighbourhood, gives us some particulars, the result of a recent visit.

The whole of the timber flooring, which was 6 in. thick, has now been removed and substituted by wrought-iron transverse girders each 12 in. in depth, about 27 ft. long, placed at a distance of about 8 ft. apart, with rail beams of the same depth between, and light longitudinal lattice girders, forming a facia connecting their ends, the whole being covered with stout wrought-

iron plates all riveted together, forming a continuous sheet-iron floor, which is fireproof, and gives great lateral stiffness to the superstructure.

The distribution of weight upon the main girders, we also found, had been altered by placing the lines of rails more towards the centre of the viaduct, thereby removing a portion of the weight from the outer girders, and bringing it to bear more upon the central girders, which were strengthened by the addition of extra material in them, which had been so arranged as to equalise the strain so that the viaduct originally designed for a load of one ton per foot run of rolling load, was now quite safe with a load of one ton and a half per foot run; the strain upon the iron with the greater load being within the limits required by the Board of Trade. Some of the 3-in. diameter bolts which connect the diagonals in the main girders were found to have slightly worn away the thin bearing surfaces of the diagonals, which at some parts are ¼-in. thick. This was remedied by introducing at all these parts, gusset plates of a triangular form riveted to them, and thereby increasing the bearing surfaces and taking the strain off these bolts. The effect of these alterations was to reduce the deflection of the girders, which was formerly 1½ in., to about ⅝ of an inch. About 1,000 tons of iron have been used in these alterations.

The difficult nature of the work we at once comprehended, in learning that the timber floor, which formed the backbone, as it may be termed, of the superstructure, and upon which the lateral stability of the whole depended, had to be cut through the centre, from end to end of the viaduct, in order to make one line complete before the other was touched, which, with passing trains and hardly room for workmen to stand, at a height of 200 ft. from the valley below, and with having to drill by hand all the holes in the main girders, rendered the work hazardous and costly. The arrangements were so complete that, although about 200 men were employed upon it, not a single accident has happened to any of them; and the first half of the work was done fourteen days before the specified time, and the whole will be completed several weeks before the time stipulated for in the contract. The work has been carried out by the Messrs. Kennard, Brothers, under the direction of their manager, Mr. H. N. Maynard, without the least interruption of the heavy traffic of the line.

Our readers may perhaps pardon our prolixity on the subject, when they reflect on the restoration of the fullest confidence in the stability and security of this beautiful structure, which must follow on the publication of these authentic details. We have previously said, the viaduct was designed by Mr. Thomas William Kennard, who is now engineer-in-chief to the Atlantic and Great Western of Canada Railway, and resides in America. The length of the viaduct is 1,500 ft., exclusive of masonry abutments, and height 200 ft., and consists of ten spans of 150 ft. each, of Warren girders, four girders in each span, supported on piers, consisting of hollow cast-iron columns, 12 in. external diameter, fourteen of these forming a cluster arranged in the form of an irregular hexagon, with base 30 ft. by 60 ft., and tapering to the top, where it is 26 ft. by 10 ft. The improvements are rapidly approaching completion.

ACCESS TO LONDON WAREHOUSES.

OBSERVING in the *Builder*, lately, an illustration, with description, of "A Warehouse in Upper Thames-street," I send a few remarks of general application to similar structures.

The adoption of an outside hoist, whereby goods are lifted from drays, &c., standing in the street, and thence suspended *over the public footpath* whilst being lifted into the upper floors, seems to me a practice which is fraught with much inconvenience and danger, and which ought to be abandoned in all new structures.

A recess should be formed, so that the vehicles by which goods are delivered from or received into warehouses could stand *within the line of building frontage*, and perfectly clear of the footpath; in this recess all loading and unloading could be carried on with convenience and safety. This method is now largely adopted in Manchester and other places; and seeing the present very crowded state of London thoroughfares, and the prospective increase of traffic, especially in the commercial quarters, the system of outside loading and unloading ought to be put an end to. I am quite aware of the immense value of the ground, and the inducement there is to utilize every square foot of space, yet at the same time the traffic requirements and the public safety alike demand consideration. Outside hoisting over the footpaths in crowded thoroughfares must at once be admitted to be very inconvenient and dangerous, and the continuance of it in new erections is not in accordance with the spirit of the times: it ought to be prevented by law; and, besides this, all *existing* hoists over footpaths ought to be provided with a safety cage or apparatus, to prevent the descent of any article of weight upon the passers-by. Such an appliance is quite necessary; and I have made rough sketches of a mode which would be practicable, and positively prevent the descent of a load, although it might at any point of ascent or descent break away from its sustaining rope or chain.

JOSEPH BRIERLEY, C.E.

DEATH AND RAINFALL.

SIR,—I am extremely vexed to find that in my letter I copied from a wrong paper in giving the percentage of rainfall and death-rate. I hardly know how to plead for your pardon, but feel assured that if you were acquainted with the circumstances under which I carry on my investigation, you would kindly grant it.

I hope I shall be in time for a correction of the statement, which I now give. C. A. ROWELL.

	Rain per cent. in excess of average.	Death-rate per cent. below the average.
1848	20·5	4·8
1852	34·9	8·2
1860	15·7	5·8
	Rain per cent. below the average.	**Death-rate per cent. above average.**
1851	16·3	0·8
1854	32·6	2·8
1864	18·2	5·6

1858 rain-fall and death-rate both below the average.

Rain ..... 16·6 Death-rate ..... 1·6

The last four quarters, *i.e.*, September 1865 to 1866, rain in excess of average, 30·9 per cent. Death-rate below the average, 15·5 per cent.

DAMPNESS AND HEALTH.

SIR,—Mr. Rowell's figures are no evidence of the superior healthiness of rainy seasons over dry ones. No one supposes that to breathe a damp atmosphere is attended with an immediate, or even always with a speedy, fatal result. But the foundation may be so laid of the disease which will cause death later, perhaps in one of the dry years cited by Mr. Rowell. E. B.

Oxford.

THE SYSTEM OF DRAINAGE IN USE AT WEST WORTHING.

SIR,—My attention has just been drawn to an insertion in your journal of the 17th ult. under the above heading, and signed "Charles E. Austen," in which the writer claims the system of drainage adopted at West Worthing as his own. As this is not the fact, I am sure you will give the same publicity to the following facts, as you have given to Mr. Austen's inaccurate observations.

Mr. G. A. Dean, of Lancaster-place, Strand, London, whose able works upon drainage have been for many years before the public (and reviewed in the *Builder*), is the author of the system of drainage in operation at West Worthing.

Mr. C. A. Elliott, of Broadwater, and Mr. Dean, about three years since, sold the West Worthing estate (extending over upwards of 300 acres) to the Keene and West Worthing Companies; and, on completion of the purchase, Mr. Dean became their architect and surveyor. As such he has laid out the estate for building purposes, has designed and constructed the roads, drainage sewers, sea defences, buildings, and other works carried out upon the property. He has constructed the best and cheapest sea defences along the south coast, and behind them, formed out of a shifting boulder beach, an unrivalled esplanade; and his system of sewerage has been pronounced by a high authority to be a most efficient one. It would, therefore, be unfair to deprive Mr. Dean of his fairly earned fame, and which I (as a person deeply interested in the prosperity of the companies alluded to, and thankful for the good services he has rendered) trust he may live long to enjoy.

The part which Mr. Austen has played is this: he was introduced to the company by their solicitor, who, I believe, was impressed with an idea that Mr. Austen could so *adapt his scheme for deodorizing sewage matter* to the West Worthing sewers, as to obviate the necessity of constructing filter-tanks, as designed by Mr. Dean.

Mr. Austen has explained in your journal the nature of his scheme, and you will therefore form your unbiased opinion of it. I also have formed mine, and by-and-by may possibly express it. At this time I will simply state that I am afraid Mr. Austen, in calculating the cost of putting his scheme to work, and the economical and beneficial results derived from it, has adopted (so far as West Worthing is concerned) uncertain data as the basis of his calculations, inasmuch as his operations at that place are confined to an experiment on a very small scale, viz., to four or five houses in Heene-terrace and the Heene Hotel, and to a population of less than 100.

I trust your sense of fairness will induce you to give publicity in your journal to the foregoing.

A LOVER OF FAIR PLAY.

FILTERING TOWN SEWAGE.

SIR,—The description in your paper of the system of house drainage now being tried at New Worthing by Mr. Austen, cannot but raise the question, Who first proposed it? since it differs materially from the mode originally put forward by a Mr. Austen, whether the same gentleman or not I cannot say. My present purpose is to hand you an extract from a paper addressed by me to the Commissioners of Sewers for the metropolis, on the 18th of August, 1849, describing the plan I then submitted for the drainage of London, when it will be remembered about 200 in all were received and "shelved:"—

"It is suggested, therefore, to establish an effective system of drainage upon a *diverging* as opposed to a *converging* principle, by a combination of properly constructed public and private filtering soil tanks, in order that the foul portion of house sewage may, while small in quantity, and therefore easily controlled and dealt with, be separated by a filtering process, and by which it may be also partially (or, if necessary, wholly) deodorized."

In 1856 the same views were put before the Board of Works before the main drainage works were commenced, together with a protest against so large an outlay for results that were foreseen would be but partial and imperfect, as they now prove to be.

If Mr. Austen claims to be the originator of the filtering mode of dealing with town sewage, and can refer to an earlier date than 1849, in proof of his title to consider the system his own, it will not be further disputed by

SANITARY ENGINEER.

INDIAN CIVIL SERVICE GRIEVANCES.

SIR,—The answer of Mr. Macrone, the Assistant Secretary to the Government of India, P. W. Department, to the letter of your correspondent "C. E.," of October, 1865, which answer appeared in your issue of August 4th (after a year's interval nearly), is so unsatisfactory, even on those points which it notices, that it will not do to let it pass unchallenged. He begins by stating that it is not the *intention* of Government to reserve the first grade chief engineerships for military men, and then proceeds to show that a very considerable part of their duties "can only be dealt with by military men." I leave your readers to draw the inference as to whether good intention or evil practice is likely to prevail in such a case. At the same time I do not think that civilians now in the Department, or those now entering, need trouble themselves much about this,—it will be true enough three generations hence; let us be satisfied with equalizing the time of promotion to the grade of superintending engineer: "sufficient for the day is the evil thereof." He then proceeds to dispute "C. E.'s" assertion about the length of service of civilians to the last-named grade, which "C. E." places at twenty years, and says that out of the five men who now hold that rank, not one is of twenty years' service. He, however, cautiously omits to state how many of these five never served in the lower grades, but were appointed executives at once, thereby escaping what is frequently the greatest sticking-point. In my opinion he will be a lucky man who, entering the Department as an assistant engineer, becomes a superintending engineer in twenty-five years; but, until a few more such cases have occurred, it is premature to fix an average. Then he takes the case of the pay, and says that Rs. 200 a month will keep a young engineer comfortably, because, forsooth, subalterns in marching regiments get 300*l.* per annum. He forgets that one comes out here to lead an easy life, with nothing on earth to do, and that the other is hard worked, and is frequently obliged to live a solitary comfortless life, with no friends and no one to speak to, and has heavy responsibilities; and besides, is it not a universal complaint throughout India, that a subaltern cannot live on his pay in his regiment? That there are 220 civilians in the Department proves nothing, the men who have cause to grumble are those who, having learnt their work at home, come out

here to do it. How many of these 220 ever *came out as assistant engineers from England?* I have no list at hand, or I would endeavour to answer the question. I put the number at about fifty If this be the case, Mr. Macrone's statement that "the pay has proved sufficient to attract about 220 men," is a very disingenuous one, for he well knows that to this class of men alone was "C. E.'s" letter addressed.

Then as to the difference between military and civil pay,—his argument is this:—Because a military man in the Department may occasionally be called upon to do military work (his own regular work), therefore, when he does not do military work, but does civilians' work, he draws more pay than the civilian, who always does this work and no other. Queer logic this. It matters little whether you call the pay "staff pay," or any other pay, the facts are the same, and the labourer (military or civil) is worthy of his hire; and until this point is conceded, the civil engineers will never, and, I consider, ought never, to be satisfied that they are justly treated. This is the only department of any extent where the invidious practice still obtains of paying men differently for the same work; in all others pay is "consolidated," and these venerable arguments were not considered strong enough in this case, because the civilian interest was too powerful; but they will never want vitality, nor more will any other abuses, as long as there are persons in authority whose interest it is to uphold them. Mr Macrone then falls foul of "C. E." about promotions: the latter declares, that as a rule they were fair, but that military men had a slight preference. This Mr. Macrone first disputes, and then in the next paragraph admits it. I am quite ready, for one, to give Government credit for wishing to do justice in this matter as far as possible; still, when two men, one a civilian, the other an officer in the army, are recommended, and both have equal claims, I think no one will deny that the latter would get the step; and this, I take it, is all that "C. E." meant; nor can this ever be remedied until the department is a less military one than at present. That the prospects of civilians are better now than they were ten years ago is indisputable, simply from the fact that then they had none at all; but until you can make a young civil engineer at home believe, that after serving his apprenticeship, and picking up all the professional knowledge that he can, he is a less useful engineer than a young officer who has gone through a twelvemonths' course of civil engineering in a college in India, you will have some difficulty, I apprehend, in making him believe that he ought to receive a less amount of pay. And now that they have the best defence Government can make to our complaints of ungenerous treatment, they will, at any rate, if they do agree to the bargain, do so with their eyes open.

YOUNG INDIA.

Bengal, October, 1866.

OUR STREET-LAMPS.

It has always struck me, that as we might, yet do not, utilize gas for the ventilation of our houses and places of public resort, such as restaurants, theatres, &c., so in our streets we do not obtain from the beautiful light as much advantage as we might expect.

Some years ago I ventured *incognito* to hint to the prefect of the Seine at Paris that purchase lamps, when the major part of the light was wasted, might well be improved, and that the simplest way of doing so might be by whitewashing the internal top glasses, if it were not well to go to the expense of placing reflectors therein. Any one who has lately been at Paris must have seen the new lamps. As far as appearance goes, they are certainly superior to the old: as far as light goes, about on a par. It seems to me that they likewise are made on a false principle. I am unfortunately an unscientific individual, but if you are willing to moot the subject in your interesting and useful paper, it will doubtless elicit a scientific elucidation.

Our lamps at present, hideous as they are, allow, *according to me*, the rays of light, which ought to be reflected, to be lost in the atmosphere.

The French lamps, according to my humble notion, reflect but little light, and that merely directly on the pavement, and without projecting the rays to any distance laterally. According to my judgment, a lamp ought to be as nearly as possible a quadrilateral placed diamondwise, and the light, instead of being at one-third of the height, ought to be at one-half. Perhaps some of your readers might ventilate this subject, and if they succeeded in throwing some more light on the streets, they would be deserving of the gratitude of all citizens, and, amongst others, of

R. C.

*** Similar suggestions have been made in our pages before.

THE FUTURE OF THE VOLUNTARY ARCHITECTURAL EXAMINATIONS.

Sir,—The sentiments I am about to express will not be thought very new or original, perhaps, but will, I persuade myself, find an echo in most hearts among the younger members of the profession. From my point of view, and I am one who would like to see the subject fairly discussed, the voluntary architectural examinations, as at present constituted, will not do for the present age, for various reasons. First and foremost, they do not meet the want they profess to supply: not that I mean to say they are of no use whatever; far from it; but their practical utility is confined to the profession and not to the public at large. For instance, if So-and-So wants an assistant the answer is very ready,—"Oh! here is T., he has passed the voluntary architectural examination: this is sufficient recommendation." But suppose T. to have set up for himself, what information does it convey to a client to be told that he has passed? Little or none.

To be effective they must be general: to make them general they must be compulsory; as compulsory as that a clergyman shall take his M.A. or a physician his M.D.: add, moreover, that when a man has passed, *he*, too, shall have his diploma, "British Architect," in the face of the world. At all events, some sufficient attraction must be held out to young men, or they *will not* come forward. This is essentially a utilitarian age, and every one asks, "What shall it profit me?" Is it not so?

If any ask how is the diploma to be obtained? I reply, let the Royal Institute of British Architects petition Government for a charter empowering them to make examination compulsory, and to give degrees: so will they confer a boon on their generation, and be wise in it.

R. B. M.

HOW CHURCH BELLS ARE CRACKED.

Chester Cathedral possesses a peal of five heavy bells, which gave out their music on the 9th ult. in honour of the birthday of the Prince of Wales, when a piece of metal, weighing 37 pounds, was broken out of the largest bell, called the tenor. This bell was re-cast in 1738, its weight being about 36 cwt., and it regularly sounded in the evening as the curfew, till it received a death-blow.

The cause of the fracture may be thus explained. The clapper had recently been repaired, or tampered with, and made too long, so that it struck the bell below the sound-bow. And as other valuable bells have now and then come to grief under similar circumstances, the fact is mentioned for the information of those who are responsible for the proper use of bells and belfries. If the clapper strikes too high it will not bring out the proper tone; if too low, it will certainly crack the bell.

I may also point out a dangerous mode of tolling and chiming bells, as practised in too many places, namely, hitching a rope to the clapper, and so pulling it against the side of the bell, instead of pulling the rope attached to the wheel in the legitimate way, till the bell meets the clapper. Two bells were so broken at Canterbury Cathedral. And the Rev. H. T. Ellacombe, in giving a caution against the practice referred to, states that sixteen fine tenors have been so cracked in London within memory; while Mr. E. B. Denison says he believes that more bells are cracked by tying the ropes to the clappers than by all other means together.

Thomas Walesby.

WHAT ABOUT THE MEMORIAL CHURCH AT CONSTANTINOPLE?

Sir,—Doubtless you will remember that a large sum was placed in the hands of the Society for the Propagation of the Gospel, to found a *Memorial Church* at Constantinople, after the Crimean War.

I beg leave to address an inquiry to your influential publication, whether you know anything as to its progress, state of building, &c., if above-ground? as the Society who hold the money (18,000*l.* or 20,000*l.*, I believe), publish *nothing* which reaches the eye of the public at *large*; and the managers or committee have passed out of recollection and knowledge, and it must be in the hands of a very small number of that Society. My family and myself are considerable subscribers; and I believe you published in the *Builder*, some years back, an approved view of the building; but the procrastination is such as to exhaust all patience.

H. F. Ainslie, Colonel, late 83rd Regt.

CASE UNDER THE METROPOLITAN BUILDING ACT.

On the 21st ult. Mr. Henry Jarvis, the district surveyor of Camberwell, Surrey, summoned a builder before Mr. Norton, at the Lambeth Police-court, for an irregularity in having built brickwork 4½ in. thick against walls in order to make them of the thickness required by the Building Act. The surveyor contended that such thickening of walls did not carry out the intention of the Building Act, nor did it constitute bond regular and proper; and he called two builders, Mr. Thompson and Mr. Tarrant, who gave it as their opinion that walls with the half brick added having headers at irregular intervals were not properly bonded as required by the Act.

Mr. Watkin Williams, on behalf of the builder summoned, drew Mr. Norton's attention to the decision of Mr. Elliot, the magistrate, in a similar case, namely, that such thickening was lawful. Two surveyors were called to support this view.

Mr. Norton dismissed the case, observing that he thought it a very proper one to be brought before him.

THE REMOVAL OF NEWGATE.

"G. E." writes,—When the crowded state of the City, and the great value of the land there, are considered, the ugly gaol should not be allowed to encumber and disfigure the very centre of the capital any longer. The cost of a new building would soon be defrayed by the rents for the enormous space now in the occupation of most undesirable tenants. The whole of the outer masonry could be used again—a great consideration on the score of expense,—and should the suggestion be adopted, the whole vicinity would rise at once in character, wealth, and importance: so the sooner the "dreary pile" is removed the better.

CHURCH-BUILDING NEWS.

Faccombe (*Hants.*).—The new parish church here has been consecrated by the Bishop of Winchester. The site is about a mile from that of the old church, and is more central for the population. The church is in the Decorated style, having a tower at the west end about 43 ft. high, upon which it is intended to build a stone spire 45 ft. high; this has not hitherto been done: as the church and tower are constructed with flint and Bath stone dressings, it is thought desirable that the flint-work of the tower, which is now green, should stand a few months before the additional weight of the spire be put on. The church comprises a nave, 52 ft. by 21 ft.; chancel, 18 ft. by 15 ft.; with a vestry and south porch. The architect is Mr. G. B. Mussellwhite, and the builders are Messrs. Hillary, of Andover.

Tilney, near Lynn, Norfolk.—The fine old parish church has recently been re-opened, after restoration: the chancel by the Master and Fellows of Pembroke College, Cambridge; the nave by the parishioners. The chancel roof, originally a fine specimen of a hammer-beam roof, decorated with angels, but sadly decayed and patched with deal and Scotch fir, has been carefully renewed in oak, similar to the original design; the old timbers, where possible, being re-used, and the whole re-covered with lead. The old stalls and screens have also been carefully restored. The body of the church has been reseated with substantial oak benches, corresponding in character with the church. The stonework has been freed from the incongruous paint and whitewash, and the walls replastered. The work has been done from the drawings and under the supervision of Messrs. Corry & Ferguson, of Carlisle, architect; the woodwork of the chancel by Messrs. Rattee & Kett, of Cambridge; that of the nave by Mr. George Moody, of Durham.

Dorking.—The foundation-stone of the new chancel of St. Martin's has been laid. The design sent in by Mr. Woodyer, architect, was adopted by the donor, Mrs. Forman, with considerable additions, and the builder's work was given to Messrs. Wheeler, Brothers, of Reading. The chancel will be in the Decorated Gothic style of architecture. The estimated cost is 3,750*l.* Mrs. Forman intends putting in stained glass windows at a cost of about 1,000*l.* more. There will be one large window in the east end, and three on either side.

Coseley.—Christ Church, Coseley, which has been closed for about four months, to undergo certain alterations and improvements in the interior, has been re-opened for divine service. The chancel, which formerly was very small, has been made 15 ft. longer, and the floor laid with a design in encaustic tiles. A number of carved stalls have also been placed therein to seat sixty persons. The ceiling of this part of the church has been panelled and painted by Mr. Tatlow, of Wolverhampton. The whole of the interior of the church has been repainted. The organ has been removed from the western gallery into the chancel. One of the pipes was discovered to bear the following inscription:—"William Sherman removed this organ from Ashted Chapel, Birmingham, in 1807. It was bought for 630*l.* Signed, Dr. Croft." The organ was removed to Christ Church, from Wednesbury, in 1830, by Mr. John Banfield. The cost of the alterations is 1,000*l.*

Shipmeadon (*Suffolk*).—A new chapel, designed by Mr. G. E. Street, for the use of the inmates at the workhouse at Shipmeadon, has been consecrated. It has been erected by voluntary contributions. The centre window is a memorial to the late Rev. R. A. Suckling, formerly incumbent of Bussage, Gloucestershire, and was presented by ladies, in token of the benefit they had derived from the perusal of his biography and writings.

Lincoln.—The new pulpit for Lincoln Cathedral is about to be fixed in its resting-place. Mr. R. Farmer, the sculptor of the panel sub-

jects and the sixteen statuettes intended for its adornment, informed the committee of the Lincoln Diocesan Architectural Society that he hoped to have those subjects ready by the 8th of December, and the committee therefore decided that the pulpit should be erected prior to that date, and presented to the Dean and Chapter.

Horningsea.—The chancel of the old parish church of Horningsea has been re-opened for divine service. The work of restoration of the church had been commenced last year, when, at the expense of the incumbent and the parishioners and others, the nave, north and south aisles, and interior of the tower were put into repair. The work of restoring the chancel has been carried out at the expense of the Master and Fellows of St. John's College. A new roof of oak has been added, the north wall rebuilt, and the interior has been furnished with carved oak seats, and enriched with a pavement of encaustic tiles. The parishioners have also during the present year restored the ancient porch. The works have been carried on by Mr. Balls, of Norwich, builder, under the direction of Mr. Thomas Jeckyll.

Burton.—The parish of Winshill, an important suburb of the town of Burton-on-Trent, having rapidly extended of late years, Mr. John Gretton some months ago expressed his willingness to erect a church at his own cost, and the Marquis of Anglesey having given a site, the foundation-stone has now been laid. The church, which will be erected from the designs of Mr. E. Holmes, of Burton, will be in the Early Decorated style of architecture, and will consist of a nave 72 ft. long by 24 ft. wide, north and south aisles 12 ft. wide, and chancel 30 ft. by 21 ft. The vestry and organ chamber are to be on the north side of the chancel. The body of the church will be divided into four bays, the arches of which are to be of Bath stone, splayed with an outer arch of Hollington and red Mansfield stone, and will be carried by square piers of Bath stone and alabaster in bands, with a red Mansfield stone shaft on each face of pier, and carved caps and moulded bases. The tower is to be at the south-west corner of the church. The roofs will be boarded on the under side of the rafters; the principal timbers of the nave roof will be enriched, and the king-posts carved and moulded, the wall pieces resting on stone corbels. The height from floor to ridge of nave roof will be 54 ft., and from floor to top of wall-plate 29 ft.; the height from floor to top of wall-plate in aisles is to be 18 ft. 6 in., and from thence the roof slopes upwards almost to the height of the nave wall-plate, an eaves course and spout dividing the nave from the aisle roofs. The tower will be 65 ft. high, and the spire 75 ft.; the total height, exclusive of vane, being 140 ft. The church will provide accommodation for 500 adult persons, the full width of 3 ft. being allowed in the sittings from back to back. The whole of the visible woodwork will be stained and varnished, except the entrance doors, which will be of oak. Messrs. Clarke & Lilley are the builders.

Bunbury.—The nave, aisles, and exterior of the parish church have now been restored. Beyond the temporary screen cutting off the chancel from the rest, nothing has been touched; and here the whitewashed walls, split and crumbling plaster, rotten, shaky, and water-dripping roofs, fading ornamentation, chipped statuary, and time-worn mouldings, may be seen in contrast with the nave, with its shafts cleared of all overlaying material, and showing the bare stone; its corbels of saints and ogres newly chiselled, and, where necessary, completed to what seemed the original design; its seats thrown open, and arrangements generally suited to the style adopted by the early builders. Until the present restoration, the nave had, as part of the chancel still has, a plaster ceiling, and some long low garret windows for the clerestory, supported by walls made of oaken beams. This was taken down, a new cornice added, and new clerestory built, with windows in the style of the rest of the building. The roof is now supported by small pillars with foliated capitals springing from the cornice, and resting on carved figures of angels. The new roof is open-timbered. The pillars of the church are slender and lofty, and the nave resembles that of the church of Austin Friars, London. The church has been newly floored, the earth being excavated underneath to a depth of from 18 in. to 2 ft., and ventilation under the floor secured. The floor under the tower has been lowered to its original level, and by this means the bases of the pillars with their mouldings are brought to light, the whole of them having been restored. The tower springs from four piers at the west end of the nave. The remains of the ancient altar-pieces still exist, the one in the Calveley chancel consisting of carved stone, and that in the Spurstow chancel of an ancient and curious painting of the Resurrection, with two bishops in the act of pronouncing benediction. Both these memorials were discovered by the Rev. W. Lowe, M.A., the vicar, chairman of the Restoration Committee, and have been by him preserved. The corbels anciently supporting the rood screen have also been preserved. The Ridley Chapel, erected by Sir Ralph Egerton, of Ridley Hall, in the reign of Henry VIII., is at present in a state of great dilapidation. A share of attention has been given to the exterior of the church. The open balustrade on the north side has been perfected, and a new course of battlements erected on the south side; while a double row of pinnacles and a series of gargoyles have been newly carved and put up. In the course of excavation, some sarcophagi and slabs of early date were turned up, the inscriptions and figures in relief upon which are in good preservation. With the nave and exterior the work of restoration has stopped for the present, the Committee having already made themselves responsible for nearly 400*l.* above what has been collected, in order to throw open the church for divine service. The expense already incurred amounts to 2,618*l.* The total sum now needed to complete the work is about 900*l.* The sittings will all be free and unappropriated; the old pews have been removed, and for a time chairs will be used.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Doncaster.—The foundation-stone of the new church, now building in Prince's-street, has been laid. Messrs. M. E. Hadfield & Son, of Sheffield, are the architects for the building, and Mr. Rodley, of the same place, is the builder. The dimensions of the new church will be 84 ft. in length by 44 ft. in width, and the structure will be of brick and stone, in the style of the early part of the thirteenth century. It will consist internally of a nave, terminating with circular apsis, and a north aisle with an arcade of marble, and with pointed arches. The main front will present a deeply-recessed pointed doorway. On the north side there will be a lofty turret with a slated spire. The cost of the edifice, exclusive of furniture, is estimated at about 1,500*l.*

Stratford-upon-Avon.—A new church has been opened here. It is dedicated to St. Gregory. The building has been erected from the designs of Mr. Welby Pugin, in the First Pointed style, and it affords accommodation for about 300. The building has been erected in coursed lime-stone, with dressings of stone from the Bath quarries.

STAINED GLASS.

Snenton Church.—An obituary window of stained glass has just been placed in the parish church of Snenton, near Nottingham, by Mr. Henry Taylor, in memory of his son. The window, of a single light, is on the north side of the chancel. Messrs. A. & W. H. O'Connor, of London, designed and executed it. The principal feature in the window is a figure of Faith, illustrating Habbakuk iii. 18, "I will rejoice in the Lord, I will joy in the God of my salvation." The subject is treated on a ruby ground, the emblematical colour of divine love. At the feet of the figure are groups of lilies, beneath which is an artistically-arranged monogram of the initials of the deceased. At the top of the window is the *Agnus Dei*: under the symbol of salvation the Holy Spirit is descending in the form of a dove between angels. The details of the whole ground of the window show the vine as the emblem of the Church.

The Parish Church, Wilmslow (Cheshire).—A stained glass window has been placed in the east window of this church by Mr. J. B. Prescott, in memory of his father. The window is Perpendicular in style, and is divided into five openings, extending from base to spring. The three centre openings are filled with a picture of the "Good Samaritan," illustrating the text from Luke x. 31-35. This picture is surrounded by a foliated canopy and pedestals, with the text, "Go and do thou likewise." The remaining two lights are horizontally divided, thus forming four spaces, which are occupied by subjects. It was executed by Messrs. Edmundson.

Kempsford Church.—The Arkell memorial window is now completed, and fixed in its place The designs and glass were supplied by Messrs Heaton & Butler, of Covent Garden. The window consists of three lights, and represents the general Resurrection. In the upper part appears our Lord in Glory, surrounded by the four-and-twenty elders; the lower is occupied by groups rising from their graves, and departing to the right hand or left hand; their countenances being expressive of every variety of feeling. The glass in the tracery represents the new Jerusalem, with the river and the tree of life. The glass is of Powell's manufacture.

Lymington Church.—A memorial window has been placed in the south wall of the chancel of this church. The Ascension, and the Raising of Jairus's Daughter, are represented.

SCHOOL-BUILDING NEWS.

Barnsley.—The foundation stone of new schools about to be erected for St. Mary's parish, Barnsley, has been laid. The building is to occupy a site on the east side of Churchfield, a few yards distant from the church, and the entrances will be from Roper-street. The plans, which were prepared by Mr. G. F. Bodley, of London, provide accommodation for 460 children. There will be separate school-rooms for boys, girls, and infants; also two class-rooms. The estimated cost is about 2,800*l.*

Darlington.—A new national school, for 350 scholars, has been opened here. The buildings, erected from designs by Mr. John Ross, of Darlington, consist of class-rooms in the centre, surmounted by a bell-turret; boys' and girls' school-rooms in each wing; porches, lavatories, and master's house, the whole forming an extensive and pleasing group of buildings. The style is Early Gothic, and the materials are red brick, with stone dressings.

Kirkdale.—The foundation-stone of the extension of the Industrial Schools, Kirkdale, has been laid. The schools afford accommodation for about 1,500 children, the average number of inmates being 1,300. The additions will include accommodation for the infant class of the destitute poor; and it is arranged that, if necessary, 500 children may be boarded and educated in the new building. The new wing will occupy a large space of ground, and arrangements have been made for dormitories, school-rooms, and playgrounds. The style of the building is the Lombardo-Venetian. The architects are Messrs. J. A. Picton & Son; the contractor, Mr. John Westmorland. The cost will be from 18,000*l.* to 20,000*l.*

Huddersfield.—The foundation-stone of new church schools now in course of erection has been laid on a site adjoining St. Bartholomew's Church. The schools are in an advanced stage of erection. They are being built in the Early Decorated style of architecture, from the designs of Messrs. John Kirk & Sons, architects, Huddersfield; and will consist of a school-room, 65 ft. by 30 ft., to accommodate 350 scholars. In addition to the school-room there will be two class-rooms. The land had been given by Mr. Charles Brook, jun. The probable expense, including the conversion of the existing schools into an infant school, has been estimated at 2,000*l.*

Books Received.

The Law of Fixtures and Chattels; to which is added the Law of Dilapidations. Second edition. By STANDISH G. GRADY, Esq., of the Middle Temple, Barrister-at-Law. London: Wildy & Sons, Carey-street. 1866.

THE law of fixtures with reference to real property and of chattels of a personal nature, as well as of dilapidations, ecclesiastical as well as lay, is here laid down in a way intelligible to non-professional men, for whose guidance it is specially intended.

It is divided into different chapters, which are respectively devoted to the different classes of persons between whom questions generally arise, with respect to the right to remove fixtures, viz., heir and executor; tenant for life or in tail and remainder-man or reversioner; and landlord and tenant. These different chapters are again subdivided into sections in which the exceptions that have been engrafted upon the general rule in favour of fixtures erected for the purposes of

trade, of agriculture, of ornament, convenience, or domestic use, are discussed. The cases which are the subject of express contract are treated under the head of "Sale or Transfer of Fixtures between landlord and tenant; vendor and vendee; mortgagor and mortgagee; heir and devisee; bankrupt and assignee;" and then follow chapters on "the rights, exemptions, and liabilities conferred and created in respect of fixtures; on heir-looms, and emblements; on the time of removal of fixtures; on legal remedies;" and the inquiry concludes with practical suggestions on survey and valuation.

It has been deemed advisable, as in some measure connected with fixtures, to introduce the Law of Dilapidations. The subject is treated under two distinct heads, "Ecclesiastical" and "Lay," which are again subdivided in such manner as the author considered requisite to elucidate the law.

That this is a work of very general utility is evident, not only from the nature of it and from the competency of its author, but from the fact that the first edition of it has been exhausted and a new edition called for.

VARIORUM.

With Christmas comes a whole flight of six-penny and shilling annuals, made up of tales by various writers and woodcuts by various artists, some good, many bad; some tied together by an ingenious editor, others loose and independent. The *Once a Week* Christmas part is of the latter kind, and includes contributions from "John Halifax," Shirley Brooks, Mark Lemon, Mary Howitt, Mr. Burnand, and others. It is certainly a very good sixpenny-worth. "Routledge's Christmas Annual" is edited by Mr. Edmund of that name, and begins with a sensational and not bad story, by Mrs. Wood. Mr. C. H. Ross, with many of his sketches, a little too rude for us, is a chief contributor, Mr. Burnand another; Stirling Coyne, Andrew Halliday, Arthur Sketchley, Hain Friswell, and others, aiding and abetting. Cassell's Christmas Annual is called "My Pale Companion," the title of the first story, by Clement Scott, which is made to introduce others by industrious Tom Hood, W. Brough, Arthur Sketchley, L. Hough (who gives a startling little story), John Plummer, the one-while factory operative, now profitably working in a line more to his taste, and one or two more.——Messrs. De la Rue & Co. have issued as usual their "Indelible Diary and Memorandum Book" in all sorts of sizes and bindings,—tasteful as well as scientific. The illustration is a Star Cluster, 13 M Hercules. A "Red Letter Diary and Improved Memorandum Book, 1867," comes from the same publishers.——"The City Diary and Almanac, 1867," is published (*City Press*, Aldersgate-street). The space given for each day is rather too small.——"The Farmers' Almanac," edited by Mr. Cuthbert Johnson and Mr. W. Shaw contains much information very useful to those to whom it is addressed.——"Dozens *versus* Tens; or, the Ounce, the Inch, and the Penny, considered as Standards of Weight, Measure, and Money, and with reference to a Duodecimal Notation." By Thomas Leech, F.C.S. London: Hardwicke. 1866. The decimal question is moderately discussed, and its advantages, as well as its shortcomings, are treated of. The change from the duodecimal to the decimal system will take place sooner or later, the author remarks, so that it is as well to be prepared for it. That all our present coins could be retained with their values unaltered, the author shows as he goes along, so that the change will not be so violent as at first sight may appear.——"The Surrey Hills: a Guide to the Caterham Railway and its Vicinity." Russell Smith, Soho-square. Although the purpose of this little guide is obviously to advertise and benefit the Caterham district and its railway, the neighbourhood with its useful quarries, its picturesque scenery, and its general associations, is an interesting one, and deserves to be brought into notice in a readable way, as is here done. A small map of the district is appended.

Miscellanea.

Hop Trellices.—A gentleman named Farmer has taken out a patent for a method of growing hops on the trellice principle. The chief feature of his plan is the employment of wire instead of string in training the bine.

New Congregational Church, Lewisham.—The memorial stone of a church, now being erected at Lewisham for the use of the Congregationalists of that increasing neighbourhood, was laid on the 20th ult. The total cost of the church, which will be of large dimensions, and will have a lofty spire, is estimated at about 8,000*l*.

Blackfriars and Southwark Bridges.—Notices have appeared of an intention to apply to Parliament for power to the Corporation of London to borrow money on the credit of the Bridge House Estates, to complete the rebuilding of Blackfriars Bridge, and to enable the Corporation to purchase Southwark Bridge under the powers of Section 2 of the "Southwark Bridge Transfer Act, 1865."

Consecration of St. Andrew's Church, St. Pancras.—The new church of St. Andrew, Haverstock-hill, was consecrated on Thursday in last week. The church is built of stone and brick, with Devonshire marble pulpit, desk, and font. Mr. C. F. Hayward was the architect. The means were supplied by an anonymous donor (acting through the Bishop of London's fund), who has provided the funds (4,500*l*.), for the fabric, and also for an organ.

When to Cut Timber.—Experience has shown that the time when trees are felled has much influence upon the condition of the wood. A trial was made with four pieces of oak cut down in December, January, February, and March. A tin ring was fixed at one end of each piece. These rings were filled with water. The wood cut in December did not allow any water to pass. The January wood, after forty-eight hours, allowed a few drops to pass. During the same time the entire quantity ran through the February wood, while the water passed through the March wood in two hours and a half.

Elsden's Almshouses, Lynn.—Eight new almshouses have just been completed, and brought into occupation, in and for the parish of South Lynn, in pursuance of the will of the late Mr. Henry Elsden. The building has been erected by Mr. C. Bennett, builder, Lynn, at a cost of between 1,300*l*. and 1,400*l*. The houses are in four pairs, placed on three sides of a forecourt. The materials are red brick with stone dressings, slated roof, ornamented gables, ridge tiles, and chimney stacks. Each house consists of two rooms (one 14 ft. square, and the other 14 ft. by 9 ft.), and each pair is approached by a porch common to both occupants. There are also out-buildings, yards, and small gardens, and the front is to be enclosed with a palisading of iron.

Street Tramways for Liverpool.—Amongst the Parliamentary notices is one for street railways in Liverpool. The leading features of the project may be described as consisting of a series of tramways starting from different points or centres of population on the south, the east, the north-east, and the north of the town, all converging to the Exchange as a common centre, and returning thence to the original starting-point by a route which includes the encircling of the important business portion of the town, which is enclosed by Lime-street, Elliot-street, Church-street, Lord-street, Castle-street, Dale-street, Manchester-street, and St. John's-lane. The projectors intend running cheap journeys in the morning and evening for working men and women. As in the case of the American street-railway system, the carriages,—or cars as they are called in America,—will be large, well lighted, and in every way comfortable.

The Graphic Society.—The first *conversazione* will be held on the 12th inst. Others will follow, January 9th, February 13th, March 13th, April 10th, and May 8th. Mr. Foley, R.A., is president for the year, and Mr. C. C. Atkinson continues his valuable services as honorary secretary. The new members elected are:—*Painters*—Frank Holl, jun. and E. J. Poynter. *Sculptor*—Thomas Woolner. *Architect*—Alfred Waterhouse. *Engravers*—Charles J. Jeens and Thomas Vernon. The following have been elected "Literary and Scientific Visitors" for the year:—Professor Ansted; Professor Babbage, F.R.S.; J. W. Bazalgette; Wilkie Collins; G. Godwin, F.R.S.; Charles Hutton Gregory; Rev. G. Hamilton, M.A.; Wm. Haywood; Professor Huxley, F.R.S.; John Cordy Jeaffreson; Professor Morley; H. Murray, F.S.A.; Thomas Page; Dr. Percy, F.R.S.; Professor Sharpey, M.D., F.R.S.; Dr. Sibson; Palgrave Simpson; Samuel Smiles; Ralph N. Wornum; and B. B. Woodward, esqrs.

Street Tramways for Dublin.—A project is now in contemplation for laying down lines of tramways through many of the principal streets of Dublin. The corporation, as custodians of the city thoroughfares, it is said, have given their sanction to the scheme.

The Australian Industrial Exhibition.—The Industrial Exhibition at Sandhurst, Australia, was opened with great ceremony by his Excellency Sir Henry Manners Sutton, on Thursday, the 13th of September. The Australian papers speak of the Exhibition as a great success.

House set on Fire by Lime.—During heavy rain at the bleach-mill belonging to Mr. Pickering, near Loughton, an out-house with its contents, a cart, ploughs, &c., were nearly all destroyed by the rain communicating with some unslaked lime contained in the building, which soon ignited, and the fire had made considerable progress before it could be overcome.

Belgian Iron Girders and Joists.—It appears that the importation of iron girders and joists from Belgium is now a regular branch of London trade, a business circular which we have seen, offering to "undertake delivery as early as for girders made in this country," and presenting an illustrated sheet of sections, for which orders will be received.

Braintree and Bocking.—A new school-room has been opened here for Sunday Schools in connexion with the Independent Chapel. The new school-room, which is erected at the rear of the chapel, is 60 ft. by 28 ft. In addition to the large school-room there are three class-rooms, with vestries and offices. The contract for the building was taken by Mr. G. Laver, of Braintree, builder, for 910*l*.; and the total cost, inclusive of land, fittings, &c., was about 1,300*l*.

The Castle Hotel, Aberystwyth.—This edifice has been offered for sale by public competition. It was erected by Mr. John Savin, contractor, at a great cost. One wing of the hotel is still incomplete, and it would require some 20,000*l*. or more to finish it on the scale in which it has been commenced. The building was put up at the nominal amount of 20,000*l*. No bidding, however, was made approaching to that amount, although the Castle is said to have cost the proprietor 80,000*l*. for construction alone. The only bidding offered was 5,000*l*.

Overflow of the Thames.—Notwithstanding that dams were constructed, and other precautions taken against a recurrence of a previous high tide, the river rose on Monday morning to an extraordinary height, and fears were entertained that the works of the Thames embankment would be greatly injured by the immense pressure of water on the piles. Slight damage, however, occurred. Several wharfs in Lambeth, Bankside, Bermondsey, and on the north side of the river, at Shadwell and Limehouse, were inundated, and much damage done.

The Late M. Mueseler.—A short time back we announced the death of M. Mueseler, the inventor of the safety-lamp which bears his name, and which is now used in all Belgian coal-mines. A *fête* was organised at Liége a few days ago to celebrate the twenty-fifth anniversary of its introduction, and the occasion was taken advantage of to present to the son and daughter of the late M. Mueseler a handsome service of plate, originally intended as a testimonial to their father, and which had been subscribed for by the colliers of the district. Such spontaneous expressions of gratitude to inventors are not by any means too common, and it is to be regretted that M. Mueseler was not spared to receive the testimonial.

Artificial Wood.—An important branch of industry has recently sprung up in Rhenish Prussia. It consists in the manufacture of various articles from refuse wood and saw-dust, which are agglomerated by a cement, the exact nature of which is not stated, and then pressed in moulds, so as to form covers for photographic albums, small picture-frames, rosettes and other ornaments for the use of cabinetmakers, &c. For the last-mentioned articles the composition is stained to imitate ebony, mahogany, walnut, and other woods. The composition, or "scifarine" as it is called, may be sawn, cut, drilled, attached together by glue, and bent on hot plates. It may be polished with oil or French polish, and may be varnished and gilt. A similar composition was manufactured in France a few years ago by mixing fine saw-dust with blood, and submitting it to the action of a hydraulic press.

The Vacant Appointments at the Institute of Architects.—Some misunderstanding existing, we are asked to mention that Mr. Fras. T. Dollman, the present librarian, is a candidate for the office of assistant secretary. A large number of applications have been already sent in. Amongst the prominent candidates whose names have reached us are Mr. Charles Lock Eastlake, Mr. J. W. Papworth, Mr. F. Warren, Mr. G. F. Roper, Mr. Wood, and Mr. Edward Hall, F.S.A.

The Great Bell of York Minster.—It is now proposed to recast this bell, and make it useful in striking the hours, by help of a better clock than the present one. The chief purpose of expending some 2,000*l.* or so about twenty years ago in obtaining this bell was, that the hours might be struck so as to be heard for fifteen miles round York, but all that has ever been done is to have the midday hour struck by hand with a wooden hammer. Mr. Denison says the bell is defective as well as the clock, and the local *Herald* devotes a leading article to the suggestion of Mr. W. Gray, that a subscription should be opened for the recasting of "Great Peter" on a somewhat smaller scale, and for the purchase of a new clock for the tower containing it, which was strengthened for the purpose of receiving the present bell, at a cost of 2,000*l.*

Mr. Dargan.—We regret to learn that Mr. William Dargan, the eminent Irish contractor, has been forced to execute an assignment of his estates on behalf of his creditors. Mr. Dargan was well known in connexion with Irish enterprises. He was offered a baronetcy by her Majesty, it will be remembered, as a reward for his munificence in putting up at his own cost the building for the Dublin Exhibition. He was the contractor for most of the railways in Ireland, and for many of the harbour works and waterworks. The liabilities are estimated at 150,000*l.* The assets consist mainly of about 300,000*l.* of railway securities, which, if forced upon the market, would probably not bring more than an average of about 44 per cent., but with care in realization may yield a much better result. What ups and downs are seen in these "fast" times of ours!

Accidents.—A new building, at the corner of Bridgewater-street and Deansgate, Manchester, last week gave way, and in a few minutes the whole structure was nothing more than a heap of bricks and timber. The Old Navigation Inn formerly stood on the site, but it was determined to partly rebuild it, and the work was proceeding rapidly, seventeen men being employed on the premises. When the side wall showed symptoms of giving way, the workmen who were outside speedily got clear off; but three men who were inside were unable to get out. Within half an hour, however, they were all rescued; two were apparently not much hurt, but the third man, a slater, had his leg fractured. Only part of the front wall of the house was left standing, and it was expected that that would not remain up throughout the day. The cause is attributed to the weather having prevented the proper setting of the mortar.——A gasfitter at Wolverhampton went into a well to repair a gas-pipe, when he was suffocated by the gas, and two other men were so much injured from the same cause, that they are not likely to recover.

York School of Art.—A good step has been made in connexion with this school. We believe the idea originated with Mr. J. Stephenson, of the locomotive department of the North-Eastern Railway works. At this establishment there are above 100 youths apprenticed to the engineering trade, and who are instructed in the various details of this branch of industry. It has long been felt that a deficiency existed through their receiving no instruction in sketching and drawing the various sections of machinery with which they are constantly brought into contact. To remedy this, Mr. Stephenson, finding that the amount of the fee charged at the York School of Art was the principal difficulty against their becoming pupils in that institution, waited upon the committee of management with a view of soliciting a reduction of the fee for these youths from 15s. to 10s. The committee assented to the proposition; and, as a still further inducement, the committee of the library attached to the North-Eastern works very handsomely offered to pay half the fee for all apprentices at the works who were willing to attend and receive instruction at the School of Art. The result has been most gratifying, a special class of nearly forty having been formed.

The Society of Painters in Water Colours. The fifth winter exhibition of sketches and studies by the members of this association is now open. It comprises 418 frames with examples from all the members, and forms a very agreeable collection.

The Government Competitions.—The Council of the Institute of Architects at their last sitting adopted the suggestion made at the opening meeting to memorialize Lord John Manners on the subject of the *judges* of the approaching competitions,—National Gallery, and Courts of Law. The President was requested to prepare a draft memorial for consideration at the next meeting.

New Bank, Stockton-on-Tees.—A new bank for the old-established firm of Messrs. J. Backhouse & Co., at Stockton, has lately been completed from designs by Mr. John Ross, of Darlington. The new premises, which occupy the site of the old bank and an adjoining building, are three stories in height, and contain convenient banking rooms and manager's house. The façade is of "polished" ashlar, and terminated by a block cornice and pierced parapet. The style adopted is Italian, but freely treated.

Opera House, Covent-garden.—In closing the recent successful series of concerts, Mr. Alfred Mellon announces that he has been induced and emboldened to undertake the production of a new grand Christmas pantomime in this theatre, which, he trusts, will be found to equal, if not surpass, in splendour and magnificence, the famed productions of past seasons. On the faith of what he has done, Mr. Mellon may fairly solicit an extension of public patronage to his new venture in theatrical management.

Beauvais Cathedral.—The *Moniteur de l'Oise* announces that a project has been set on foot to complete the Cathedral of Beauvais. According to that journal the initiative of this idea is due to M. Felix de Berg, a Frenchman, who during the last twenty years has resided in London, where he has acquired a large fortune. On his way to England, and while passing through Beauvais, he had visited the cathedral with all the attention of an enthusiastic archæologist. He counts on the co-operation of a large number of English noblemen, who, from their love of art, are likely to assist him.

Monument of Mrs. A. Peel in Wrexham Church.—Mr. Woolner, says the *Athenæum*, has just finished a beautiful sculptured monument. This is in alto-relief, to be erected near the altar of the church at Wrexham, and is intended to commemorate the wife of Mr. Archibald Peel, son of General Peel. The lady died not long since, and soon after the death of her infant son. From this circumstance Mr. Woolner has derived what may be called the incident of his sculpture. The lady is seen as if received at the entrance of a heavenly abode by an angel or genius, who bears in arms the formerly lost infant, and allows it to stoop forward to caress once more the fainting mother, who, in an ecstacy, hesitates at the moment of ascending a step at the gate of the "heavenly mansion."

Alleged Jesuit "Trap-houses."—We have received a strange communication from an intelligent person in adverse circumstances, who has been obliged for some years to live in metropolitan lodging-houses, and who insists that an organized system of lodging-house "Romanizing," as he calls it, is carried on in hundreds of the metropolitan lodging-houses; and that, not being inclined to Romanism himself, he has been systematically persecuted, and driven from lodging-house to lodging-house, without being able for several years to escape from Jesuitical trammels. The whole affair, however, looks so like a delusion, that all we feel inclined to do in reference to our correspondent's appeal to us as a protector of the poor man from persecution and treachery, is to inform our readers of the drift of his long and circumstantial communication, in which he certainly talks wildly about "tens of thousands" being "forcibly converted by secret mesmerism and numerous other simpler but very evil trickeries, or destroyed if opposing such villainy;" and of his own persecution "all day and all night," to prevent his having the use of his room, because he merely had a habit of "muttering" to himself his dislike to Roman Catholicism, and believes that his detestation of Popery has been ascertained from his papers and writings by the use of duplicate keys.

Mortality.—The annual rate of mortality last week was 24 per 1,000 in London, 30 in Edinburgh, and 31 in Dublin; 22 in Bristol, 24 in Birmingham, 31 in Liverpool, 30 in Manchester, 18 in Salford, 22 in Sheffield, 29 in Leeds, 26 in Hull, 32 in Newcastle-upon-Tyne, and 29 in Glasgow.

Electric Train Signals.—A new kind of signal, invented by Mr. Funnell, watchmaker, Brighton, has been erected on different portions of the Brighton railway, and tested in presence of Colonel Yolland and Major Rich on the part of the Board of Trade to their satisfaction, according to our authority, the *Brighton Herald*. Representatives of various other railways were present, but the invention is not described.

The Restoration of Worcester College Chapel: New Stained Glass Window.—During the restoration of Worcester College Chapel it was decided that there should be new stained glass windows placed in it. The college tenants, therefore, asked permission of the Provost and Fellows of the College to be allowed to give one of the windows, the cost of which is about 120*l.* The request was complied with, and the formal presentation of the window has taken place. The glass represents "The Ascension of our Lord."

A "Railway Council of England" suggested.—Mr. C. Baylis, in a printed circular, suggests the amalgamation of railways under one general "Council," so as to economise their expenditure and raise their dividends; limiting the maximum to 10 per cent. Looking, however, to what amalgamation of gas companies, even with limitation of maximum dividends to 10 per cent., has led, we would much rather incline to look favourably on the late (groundless) rumour that Government intend to take the whole system of railways into their hands, than trust to the tender mercies of such a monster monopoly. The present system is bad enough, as regards the public interests, but such a scheme, we fear, would make matters far worse than they are.

The Lea Valley.—A conference, attended by magistrates and representatives of the local authorities of the wide-spreading districts surrounding the Lea Valley—an area almost equal to that of the metropolis itself—has been held at the Tottenham High-Cross-rooms, for the purpose of considering the important question of uniting the districts in one general system of drainage, similar to that of the scheme adopted in the metropolis. The question in some measure arises from the outbreak of cholera, which drew public attention to the foul state of the River Lea, that stream having changed from a river celebrated in song as "silvery" to little better than an open sewer, the extra-metropolitan north and north-eastern districts—those not taken in by the metropolitan main drainage scheme—freely draining into it. The Tottenham Local Board of Health have had an interim injunction obtained against it by the River Lea Trust, to prevent it draining further into the Lea. It was resolved to form a committee of the representatives of the districts, to give them power to consider the question in all its bearings, so as to be able to report upon and recommend some practical measure to a further meeting of the conference.

Report of the Friendly Operative Carpenters' and Joiners' Society.—The thirty-ninth annual report of the Friendly Operative Carpenters' and Joiners' Society of Great Britain and Ireland, from August, 1865, to August, 1866, has been published at Manchester. The preface, by the general secretary, Mr. Robert Last, states that the union now numbers 140 lodges, comprising 9,400 members, being an increase for the year of 40 lodges and 2,504 members. A lodge has been opened in Belfast; and there is a prospect of an early extension of the union to Scotland. Five additional lodges have been opened in the British metropolis during the year, as also one in each of the thirty-five towns named in the report. The total expenditure of the society during the last twelve months has been 6,577*l.*, independent of large sums voluntarily distributed by the several lodges. Out of this sum 2,077*l.* have been expended on strikes; the principal items being,—Carlisle, 573*l.*; Preston, 1,073*l.*; Gloucester, 61*l.*; Dudley, 25*l.*; Leicester, 27*l.*; Keighley, 69*l.*; Barrow-in-Furness, 29*l.*; Birmingham, 38*l.*; Nottingham, 46*l.*; Derby, 14*l.*; Oldham, 12*l.*; Liverpool, 22*l.*; and Warrington, 19*l.*

A New Exchange for Middlesborough.—The foundation-stone of the new Exchange for Middlesborough has been laid by Mr. H. W. F. Bolckow, known in connexion with the Middlesborough and the Cleveland iron trade. The mayor and corporation met, and walked in procession to the site. There was a numerous gathering of gentlemen, merchants, and tradesmen. Mr. Adams, of Stockton, is the architect, and has designed the building in the Italian style. The contracts, which amount to 20,000*l.*, are let to Mr. Bellerby, of York. The cost of the whole of the building, including land, is estimated at about 30,000*l.*

Vendor and Purchaser.—In the case of *Mainwaring* v. *Cheese*, an estate had been sold by the plaintiff to the defendant, and the deed of conveyance had been duly executed, but as the purchase-money was not paid, the vendor's solicitor retained the deed, and the vendor remained in receipt of the rents. The deed contained the usual recital of the payment of the purchase-money, but did not contain any actual release in terms. Matters remained in this state until the action was brought to recover the amount of the purchase-money. On the part of defendant, it was contended that the deed containing an acknowledgment of the purchase-money being paid, was equivalent to a release, and that the deed at the same moment that it conveyed the estate, also released the legal right to sue for the purchase-money. The Court of Queen's Bench adopted this view, and gave judgment for the defendant.

Rateable Value of Towns in the West Riding.—The return of the rateable value of the Poor-law unions, as settled by the assessment committee in the lists last approved, has just been issued pursuant to an order of the House of Commons. From this document it appears that the rateable value of Barnsley is 204,133*l.*, which gives an increase of 2,193*l.* upon the rateable value on which the contribution was calculated at Lady-day, 1865. Bierley, North, value, 226,276*l.*; increase, 32,547*l.* Bradford, 405,757*l.*; increase, 35,362*l.* Bramley, 34,986*l.*; increase, 690*l.* Dewsbury, 289,479*l.*; increase, 14,998*l.* Doncaster, 222,717*l.*; increase, 1,855*l.* Ecclesall Bierlow, 182,193*l.*; increase, 45,190*l.* Goole, 93,401*l.*; increase, 979*l.* Halifax, 369,947*l.*; increase, 7,221*l.* Hemsworth, 51,143*l.*; decrease, 3,687*l.* Huddersfield, 367,006*l.*; increase, 7,346*l.* Keighley, 105,915*l.*; increase, 1,012*l.* Knaresborough, 100,652*l.*; decrease, 20,561*l.* Ouseburn, Great, 102,181*l.*; increase, 216*l.* Penistone, 49,392*l.*; increase, 1,323*l.* Ripon, 111,544*l.*; increase, 863*l.* Rotherham, 210,115*l.*; increase, 2,983*l.* Selby, 91,647*l.*; decrease, 1,194*l.* Sedbergh, 22,261*l.* Settle, 105,393*l.*; decrease, 30*l.* Sheffield, 379,999*l.*; increase, 9,689*l.* Tadcaster, 38,600*l.*; increase, 2,664*l.* Thorne, 96,918*l.*; increase, 203*l.* Wakefield, 208,893*l.*; increase, 494*l.* Wetherby, 47,121*l.*; decrease, 232*l.* Wharfedale, 61,516*l.*; increase, 1,940*l.*

The Yorkshire and Lancashire Reservoirs and the Great Flood.—The reservoirs, which form so important a feature in Yorkshire and Lancashire, says the *Bradford Observer*, have stood the test well; and the instances are rare where any amount of damage is apparent. There were fears for the Bilberry and Littleborough reservoirs, but they did not yield to the strain; the Halifax Ogden reservoir, which was regarded with suspicion, is not, it is said, injured; and the many reservoirs for the supply of Bradford and for compensation are nearly unscathed. At Grimwith the water ran in a fierce torrent between 20 in. and 3 ft. deep over and down the bye-wash, and some little damage has been done to the stonework at the lower end of the bye-wash, but it is nothing of consequence, and will soon be repaired. This is the only instance of injury to the Bradford reservoirs reported, and the fact is a testimonial as to the condition of the works and the skill of the borough surveyor. The general opinion is, that this flood ranks with the greatest of modern times. At Bradford the two great floods preceding it were in the summer of 1859, and just before Christmas, 1837. The latter was the greatest; but in both instances the water would be deeper than now. That, however, is accounted for by the new drainage, which probably saved the town from a terrible calamity, and also by the raising of the levels by paving operations. We learn from Keighley that the damage done by the bursting of the Lumb's Foot dam amounts to 1,000*l.* The water destroyed everything with which it came in contact.

"Parrock."—A correspondent writes,—I see a remark on the word "parrock," in the current *Builder*. In illustration I may note that till the South-Eastern Railway Company fixed the spelling, the wood beyond Tunbridge, where there is now a junction, was as often called *Parrock* as *Paddock* Wood. I suppose the former is the original form, and is a variety of *park*, which in Scotland still means an enclosed field, without reference to its planting.—We may add that our park is from *parruc*, Anglo-Saxon.

Strike against an Architect's Clerk of Works.—At the village of Yoxall, a few miles from Burton-on-Trent, the parish church has been under restoration, and the contractor, Mr. Ife, of Stourbridge, and his masons and carpenters, have struck work, and removed their scaffoldings and other materials, because the architect, Mr. Woodyer, of London, would not dismiss his clerk of works, Mr. Beckensall, against whom it is alleged that he did not object to the sufficiency of certain works till they were done. Mr. Beckensall alleges that he only did his duty, according to the specification, and that the work objected to was objectionable, or the material inferior to what it ought to have been. The Trustees and Committee, after inquiring into the matter, have exonerated the clerk of works; but four meetings of the Masters' Association and the Operative Masons' and Carpenters' Societies have also been held, and resolutions passed to cease work till Mr. Beckensall be removed from his office. Meantime, the church has been unroofed, and only partially re-roofed, and the parishioners have no other place of worship than a schoolroom 15 yards by 8 yards in dimensions.

Co-operative Societies in England.—According to an abstract in the *Reporter* of an official return for the past year, regarding the industrial and provident societies in England, the number registered under the Act 26th and 27th of Victoria, cap. 87, amounts to 651:—Lancaster shows a total of 139; York, 125; Middlesex, only 45; Durham, 36; Northampton 28; Staffordshire, 27; Chester, 23; Surrey, 22; Northumberland, 20; Norfolk, 16; Derby, 18; Kent, 14; and Warwick, 10. Of the 651 societies comprehended in the return, 417 have sent in the required statements, while 182 have neglected to do so, and 52 have been actually dissolved. Turning to the actual number of members enrolled in each county, at the 31st of December, 1865, we find Lancaster is highest on the list. It possessed no less than 46,963 members at that date. York is second, its numbers being 32,768. Middlesex is a long way behind, its total only amounting to 1,711 members. The next counties are,—Durham, 6,855; Northampton, 6,348; Northumberland, 4,000 exactly; Chester, 3,259; Derby, 2,749; Kent, 2,534; Gloucester, 2,366; Stafford, 1,777; and Monmouth, 1,101. All the other societies are below 1,000 in number. As to the total amount received or credited upon shares from the commencement of each society to December last,—Lancaster is here again first on the list, for it shows it has raised in its time an actual share capital of no less than 590,039*l.*; while York, the second in order, can boast of the very handsome sum of 328,005*l.* All the other societies fall immensely short of this, none of them reaching even to 40,000*l.*, Durham, the highest in the list, only reaching to 39,434*l.*, followed by Northumberland, 24,674*l.* The objects for which the societies are established are various:—Grocery, butchering, shoemaking, drapery, coals, flour, baking, &c., form the principal items in this department. These are, it is well known, the main objects of the co-operative movement. But we were not prepared to find that the movement had extended to Grosvenor-square, and that, in the immediate vicinity of that aristocratic neighbourhood, forty-five members had set up an establishment for "farriery." The profits appear, in the main, to be influenced by the number of the members, and the consequent amount of the business done. Thus we find in York that while some societies realise profits such as 12,541*l.*, 6,981*l.*, 4,682*l.*, others in the same county only attain to a modest 50*l.* But in each case there is a proportionate profit. In Lancaster, again, one society has realised no less a profit than 25,156*l.*; while there are other societies dividing as little as 19*l.* But the relative value applies in both cases. The mode of division of profits, of course, varies in the different societies, but the general rule is to set aside certain proportions for interest on paid-up shares, dividends to members, depreciation fund, reserve fund, &c.

Abuse of the Patent Law.—A somewhat curious case has occurred with reference to aniline dyes which seems to show the necessity for some change in the law. It had been decided, after much vexatious litigation, that a patent was worthless on account of certain words, which the proprietors therefore endeavoured to obtain permission to alter or disclaim. The application was refused, and the decision of the Lord Chancellor was confirmed on appeal to the House of Lords. Now that the prosecutor's chief counsel has himself become Solicitor-General, exactly the same application has been again made as had been refused by the late Solicitor-General after the judgment of the Lord Chancellor, and before the decision of the House of Lords. The application has been heard, but judgment is deferred. The case in question was that of Simpson, Maule, & Nicholson, manufacturing chemists, *versus* T. Holliday & Co., and the patent referred to was that of H. Medlock, dated 1860, which was sold for 150*l.*, and then re-sold to the plaintiffs for 2,000*l.* The defendants were backed by another patent, of previous date, for the use of the same materials,—arsenic acid and aniline,—for the production of colour.

Discovery of Ancient Dwellings.—Between Weaverthorpe and Helperthorpe, in the Wold valley of the East Riding, there are several low, irregularly-shaped mounds, in the grass fields adjoining the high road. During the visit of the archæologists to the Wolds, it was resolved to see if these mounds were places of sepulture. Mr. W. Lovell, of Helperthorpe, selected one of the largest. It was soon found that the mound was no sepulchre, but that it was composed of various stratifications of old floors and earthy accumulations. The section in the centre, at 4 ft. deep, showed the curved line of the original hollow, and above these portions of British pottery, bones of deer, ox, and swine, were found. At a higher level was another dark line, not hollowed, and above this large quantities of pottery of undoubted Roman make were found. Still higher, paved floors, as if of the hearth, showed signs of burning, and part of a large vessel, very like Anglo-Saxon ware, and an unmistakable Anglo-Saxon bead, were met with: nearer the present surface the glazed pottery of Mediæval times was found, with iron nails and other objects. The mound showed very clearly that it had been accumulated during the occupancy of successive peoples. A well-marked ancient trackway passes just to the north.

TENDERS

For alterations at the Black Horse Tavern, Kingsland-road. Mr. Wm. Nunn, architect:—

Terrey (accepted)	£750 0 0

For the erection of premises 79, Bishopsgate-street Within, for Messrs. Burdett & Sons. Messrs. Humphreys & Son, architects:—

Ashby & Horner	£1,940 0 0
Ashby & Sons	1,929 0 0
King & Sons	1,790 0 0
Brass	1,787 0 0

For building parsonage-house, Tremaine, Cardiganshire. Mr. Withers, architect:—

Jones, Thomas, & Jones	£1,399 0 0
Thomas & Davies	1,092 17 1
Morris & James	1,058 12 10
Davis & James	988 5 0

For restoring the Garrison Chapel, Portsmouth. Mr. Street, architect. Quantities supplied by Messrs. Rake & Rauwell:—

Messrs. Langdon	£7,063 0 0
Backhurst	5,575 0 0
Messrs. Bramble	5,388 0 0
Burbidge	5,127 0 0
Lawrence	4,995 0 0
Rogers & Booth	4,632 0 0
Simms & Marten	4,226 0 0

For alteration of the Liverpool Co-operative Stores, and converting same into a music and lecture hall for Dr. Corry. Mr. George Hopkinson, architect. Quantities supplied by architect:—

Bentham	£896 0 0
Edwards	879 0 0
Greenwood	828 10 0

For farm buildings, water tower, &c., bailiff's and labourers' cottages, exclusive of well sinking, at Crouch, Wrotham, near Sevenoaks, Kent. Messrs. J. & E. Baddeley, architects:—

W. & J. Hyder (accepted)	£1,559 10 0
Norris	1,487 10 0

For reinstating No. 13, Albion-road, Holloway, N., for Mr. J. Pike. Mr. Rowland Plumbe, architect:—

Williams & Son	£697 0 0
Smith & Son	799 0 0
Glenn	693 0 0
Holton	691 0 0
Goodman	685 0 0

For public baths and wash-houses for the parish of St. Pancras. Messrs. Messenger & Gundry, architects:—

Manley & Rogers (accepted)	£13,526 0 0

The Builder.

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Who are the Gainers by Trades' Unions?

HE men of our day, like their ancestors from the earliest historic times, are broadly and roughly to be divided into two opposite groups. Different motives serve to attract the combatants to either banner, and very different are the degrees of earnestness with which they support their colours. To the one side rally, for the most part, those who are distinguished by the ardour of youth, by the brilliancy of untried hopes, by indignation at wrong, by the desire to advance, to improve, to win, and very often by the readiness to make *tabula rasa* of all existing institutions that may seem to impede the march of enthusiastic reformation. On the other hand, we find the voice of experience, whether that of the older men who record their own lessons, or that of the more highly educated men who read the lessons of the past, the promptings of prudence, ready with such aphoristic teaching as the fable of the Dog and his Shadow, the desire to let well alone, and the conviction of those who, having themselves by merit or by fortune advanced beyond the ranks, feel a personal interest in maintaining, with more or less energy, the existing order of things.

On either side, therefore, we find the mingled promptings of wisdom and of folly, of noble and of sordid sentiment, of right and wrong, of good and evil. And the fair arena which the history of our country shows that her laws and institutions have afforded for the free discussion and restricted contest of the progressive and the conservative principles, has been at once a result of our national character, and a means of increasing its vigour and energy. To whichever of the two great parties a man of thought and of education may the more closely incline, there is but one incident in the contest which he will regard with absolute dismay, and that is the appearance of treachery on either side. There is a great disposition on the part of the masses to hold the balance even. Englishmen do not invariably rush to the winning side. Success, with us as with all men, goes for much, but we have more sympathy, for the most part, with pluck and merit than with a success that may be accidental. Now we see a great statesman, by the energy of his iron will, stereotyping the habits and institutions of a country for half a century, and our sympathies are on the side of the *Fronde*. At another time we see a tribune of the people, endowed with the gift of stirring eloquence, but denied the diviner gift of sound judgment, agitating the masses with his breath, and anon the mass of moderate Englishmen becomes perhaps unduly conservative. But let us think that either statesman or tribune is only playing a part, that his action is hollow or venal, that his followers are only his dupes, and we find our cherished freedom in danger of becoming a mockery, a delusion, and a snare.

In the position which the organization of labour seems now to be rapidly taking up, this formidable danger is not indistinctly menaced. The workman, by every interest and by every precedent, should belong to the party of progress. He is the hand of the great social body. The advance of knowledge is the advance of his social position. The chemist, the mechanic, the engineer, are the natural heads and leaders of his class, and the discoveries of which Galileo was the pioneer, have all tended to raise the character of the labourer from that of the mere serf, *adstrictus glebæ*, to that of the well-clothed, well-housed, intelligent British workman. That men of this class should seek to associate and to organise, is natural; that they should do so wisely is most desirable; but the evil of the day is, that they are effecting this organisation on wrong principles, and, that these principles, if followed out, will lead to fatal consequences. Instead of associating with the wise object of raising their own trade or craft in character, in intelligence, in technical skill, the associations of which we almost exclusively hear are for the purpose of arraying the men against the masters, of prescribing the amount of wages, of limiting the amount of work, of excluding competition, and of making each section of the great operative classes as expensive and as inefficient as possible. It is needless to give illustrations. No one can deny that to increase wages and to decrease work is the aim of the several unions, and this, in other words, is merely the organised attempt to render each trade as expensive and as unprofitable to the community at large as the other trades will allow. It is at once a tyrannical and a disintegrating process.

A very recent example allows us to use the test of figures. The colliers of Yorkshire have been endeavouring to introduce into North Derbyshire their own system of unions and of strikes. With the exact arguments used by the delegates we do not profess to be acquainted, but the real arguments of the case are as clear as they are conclusive. Let the colliers hear them as they actually stand.

Brother workmen of Derbyshire, may the Yorkshire missionaries say, we are come to urge you to follow our example. Never mind what scholars may tell you of the fox who has lost his tail. Did you ever see fatter or better fed men than we are who now address you. Well, for five or six years we have had our own way in Yorkshire. We have got our union, and we strike when we think proper. We want you to follow our example. See how we have kept the masters in order! In 1864 we diminished the production of coal in our district by more than half a million of tons. So, you see, that in that year we took more than eighty thousand pounds out of the mouths and off the backs of our wives and children in order to check the masters! They have done all that they could to sell their coals. They have opened within the last twelve years 146 new collieries, a third of the number in the district. But we have been too many for them. We do not raise any more coal now than we did five years ago. During that time the produce of Northumberland and Durham has increased from eighteen millions of tons to twenty-five millions of tons, and that of Derbyshire by a twelfth part of its yield. In 1860 we raised one-eighth of the total produce of the country. In 1865 we raised only a tenth. If we can only get you to follow our example, we will try to make the consumers of coal pay the price of five tons for the supply of four tons, and the difference, of course, goes into our pocket.

Such, fairly stated, are the arguments of the delegates of the union. However fully the Derbyshire miners may appreciate them as they deserve, there exists, at some little distance, a set of men who know what they mean, and whither they tend, and who will most heartily wish them success. These are the coal owners and miners of France, Belgium, and Spain. Wherever, within reach of the Channel or of the Mediterranean, an unworked seam of coal gleams through the vegetation, will be found, sooner or later, very hearty sympathisers with the union delegates. Nor are these spots few. Of France and Belgium we need not speak. In Spain there are known to be indications of rich mineral wealth in the valley of the Ebro. Our most enterprising African travellers tell the same tale of the shores of those giant rivers which they have been the first to map. The discoveries and introduction into commerce of mineral oils are notorious; and it is said that cannel coal, hitherto the most precious of our English minerals, is rendered all but valueless by the competition of petroleum. We have often adverted to the instructive lesson to be drawn from the silent streets and untenanted houses of great continental cities, once the emporiums of trade. The desolation of the Black Country would seem far more probable now, than, when business had its home in their streets, did the decay of the great Flemish towns.

It may be that the several trades look with some suspicion on advice which is tendered by those who are not of themselves. The cry for education, they may say, is a school-master's cry, not a collier's, nor a mason's, nor a carpenter's need. Masons best understand the wants of masons. Each trade knows its own business best. To this there is but one reply. That trade best knows and best does its own business that best discharges its duty to the entire commonwealth. If each trade compulsorily raises wages and diminishes production, no trade will be better off as compared with the others, but the national welfare will surely and steadily diminish. The true direction for the energy and the organization of each trade is towards the conquest of nature, not towards the conflicts of social life. The subjection of the earth to man, the elevation of the labourer by practical science, the substitution of skilled work for brute force, the application of machinery to do the part of the drudge, leaving to the workmen the application of judgment, skill, and taste, rather than mere muscular effect,—this is the strife in which there is a place and a reward for every one. Let us take a single instance.

We are justly proud of our metallurgy. England is the cradle of engineering, and the birthplace of the steam-engine. The Sheffield whittle is known as far back as the times of the Crusaders. Arms of precision hail Mr. Whitworth as their father. And yet how unsatisfactory is the state of our armoury at the present time. The needle-gun, a clumsy instrument, it is true, but still one successful as involving a true principle, was borne triumphant over half Europe, while our troops were armed with muzzle loaders. Armoured ships sprang to life in America. English axes, we are told, are valueless in the forests of Canada. English nails are of no use in shoes to be worn in Alpine climbing. English rails are sent to America because American iron is too good, and can be turned to better account than to be rolled into so rude a form.

Now can any one doubt that if half the energy which has been directed to set man against master, and manufacturer against manufacturer, had been directed to solving the great problem on which the success of the armourer will depend; to adopting the best—not necessarily the cheapest—method of manufacture; to comparing and combining the principles of the best inventions, and thus producing not Mr. A's

gun or Mr. B's cartridge, but the "British gun" and the "English armourer's rifle;" to stigmatising inferior brands of iron; to exposing to merited indignation weapons made for sale, not for use; if this had been the direction taken by the united intelligence of London, Birmingham, Manchester, Sheffield, what would have been the result? Can we doubt that if the same tenacity with which we raced Whitworth against Armstrong had been displayed in racing All England against the world, we should have won the cup? The great aim of all our manufacturers has been the displacement of the guild principle by the selfish principle. Every great improvement is grasped not for public but for private benefits. Again and again have inventions been arrived at amongst us, a fair and wise use of which would have discharged the whole national debt, and would have gone far to make it as impossible for an Englishman to starve as it was for a Roman citizen to do so. We have clothed the world with machine-made fabrics, and our return is found in a few colossal fortunes, and in a keener race than ever for the necessaries of life among thousands of operatives. We have put a girdle round the earth by steam, and the result, as to those who found the money, is daily manifesting itself in some fresh railway bankruptcy. But the revolution in the manufacture of cotton was so great that, if wisely guided, with a reference rather to national than to individual wealth, the improvements in the mode of production might have been made to bear the main weight of national expenditure. The revolution in our mode of conveying passengers, goods, and intelligence, has been so great that, if it had been dealt with by a ruler of the calibre of Pitt, or with the patient and foreseeing patriotism that built up the Prussian army after the conquest of Prussia by Napoleon, poor-rates would have been no longer needed, even if the poor had still found their homes in our towns. We must defer to another opportunity the demonstration how the rich sources of national wealth which the intelligence of Englishmen has opened within the past century have been stifled and dammed up for the benefit of private greed and individual selfishness, instead of flowing in broad and fertilising streams through the whole enriched community; how the result has been the accumulation of few instead of many large fortunes, and the occupation of large numbers of work people at low wages, instead of the occupation of somewhat smaller numbers at high wages; and how the benefit which would have accrued to the great majority of the population, to those not personally occupied in any way in the new manufacture, has been a minimum instead of a maximum. The recent statistics that have engaged so much public attention on the cotton trade show that, comparing the total number of persons supported by this manufacture with the total returns, the gross earnings of the former are not more than eight shillings and twopence per head per week, and it is out of this eight shillings and twopence that all the large fortunes of the mill-owners have to be accumulated. The thirty-six millions sterling earned annually by our railways have to be divided, after deduction of the working expenses, among the proprietors of a capital which the inefficient and mischievous legislation of Parliament has enabled speculation to increase to double its legitimate amount, so that four and a half per cent. is now returned instead of ten or fifteen per cent. as in 1845. In all directions we see the same result, the waste of national wealth for individual benefit. The individuals lose,—for they gain less than they might do under a more liberal and far-seeing system. The public lose in a threefold manner, first by having fewer large fortunes arise; secondly, by having the number of ill-paid and ill-fed producers largely increased; thirdly, by the loss of that direct contribution which mechanical improvement might naturally pay in discharge of public burdens.

The subject is one not easily exhausted; but the main point to which attention should be directed is, that the abuse of the principle of competition, and the direction of the energies of the inventor or the administrator to encourage emulation between employer and employed, or between one master in the same craft and another, rather than to the general welfare of the guild, and thus to the general welfare of the community, is the main cause of the poverty and wretchedness that underlie the stately buildings and the gorgeous attire of this present nineteenth century.

A QUARTER OF A CENTURY OF LONDON STREET-IMPROVEMENT.*

Besides the line, in Westminster, for which the present line of Victoria-street was eventually substituted, there was one proposed by the Dean and Chapter of Westminster. It was to start from the same point opposite the Abbey, to cross the Broadway, and to be carried in the direction of Buckingham Palace. Tothill-street and York-street were to be widened. This was the line provided for by the Act of 1841 (4th & 5th Vict., cap. 25). The line would have ended in James's-street: but there seems to have been an idea of prolonging it, at some time, to Arabella-row. The Act empowered the Dean and Chapter to purchase the leaseholds, and to grant new leases of ninety-nine years. The bad condition of the streets and dwellings in that quarter of London, resulted from the system of granting leases for only forty years. Nothing however was done by the Dean and Chapter; and the improvement of Tothill-street has been left to attend upon the operations of the Metropolitan District Railway Company.

As regards the line that was at length opened in Westminster, and the line from Farringdon-street, (which latter eventually was prolonged northwards,) each remained for many years in a state of impassability; and each street is even yet bordered by unsightly wastes of ground unoccupied, or buildings just rescued from ruin. We should like to see a correct statement of the amount of money sacrificed in each case, since the streets were commenced, by the non-appropriation of the ground. And, be it recollected, during all the time that ground was thus left unoccupied, difficulty of obtaining sites was the chief cause of the admitted painful condition of the poor in their dwellings. The value of open space in London is indeed incalculable; but the space may as well be provided so as to add something of tasteful character to the metropolis, instead of increasing the ugliness. As regards the new street in Southwark, it was left in abeyance up to the time of the existence of the Metropolitan Board; and the very youngest of our readers can recollect its completion. It is on the whole the most satisfactory work of those we have mentioned; and it has no doubt helped to relieve the line of the Strand, Fleet-street, and Cheapside, from much of the traffic between Westminster and London Bridge. The decorative character of the street is already, in great part, formed. It exhibits change, rather than advance, from the architecture of New Oxford-street and Cranbourne-street, unsatisfactory as that was.

The most satisfactory measure immediately resulting from the labours of the Committee of 1840, was the removal of Bank-buildings. A clever work of Sir Robert Taylor's passed away,—clever in the planning as well as decoratively; but a fine open space was gained, of as much importance to the traffic, of carriages and pedestrians, in the City, as to the effect of the Exchange and other buildings. It is the best testimony to any value of the influence and services of Mr. R. L. Jones, that so much space was appropriated for the flagged foreground to the Exchange,—to the realization of architectural effect, as well for the comfort of pedestrians and resident citizens.

It has yet to be explained in what manner the immediate money for the improvements, decided upon by the committee of 1840, was found. The money was borrowed by the Commissioners of Woods and Forests on security of the land-revenues of the Crown. The object of the Act, 4 & 5 Vict., cap. 40, was to give the requisite power to the Commissioners. The result was that within a few months of the passing of this Act, in 1841, a considerable portion of the property for the Oxford-street, Coventry-street, and Spitalfields lines was purchased. Soon afterwards, these lines, and the laying out of the Victoria Park and its approaches, were commenced.

The simple story of these works of improvement testifies, we think, to the superiority of the system of Government action over that of the control of private corporations or individuals. The chief omission was that of the general plan, embracing all London and its suburbs, and comprehending railroad as well as street-communications; and the chief defect in Mr. Pennethorne's plans, was in the recognition of existing dimensions of width as at all adequate for his main routes. There is now no more dangerous street in London than is Coventry-street on an opera-night. Those, however, who knew how easily improvement may be checked altogether, for the time, by the suggestion to the British Parliament, or London ratepayers, of any measure of the entire magnitude required, may be inclined to thank the Commissioners and their officer for having done their best, especially seeing that present difficulties would perhaps have been greater by delay than they are. The Government-responsibility, however, has been taken up only by fits,—no authority, excepting the City Corporation, having recognised a duty in the matter of metropolitan improvements, till the time of the existence of the Metropolitan Board. Real mischief, on the other hand, has been done by Parliament, along with whatever may have been the good from the deliberations of Committees of the House of Commons. Under any circumstances there is wanted some efficient machinery of metropolitan taxation, for what is local, and of control for what is imperial, in the capital of this great country,—control on the part of a real Minister of Public Works.

In the mention of steps taken since the period of the undertakings to which chiefly we have given attention, should be included the Ordnance Survey of London. Several important works, however, were carried into effect precedent to the creation of the Metropolitan Board. Amongst these should be named the embankment of the Thames for a considerable distance above Vauxhall Bridge, the formation of Battersea Park, and the construction of the Chelsea Suspension Bridge. This bridge now serves an important route leading to Clapham-common. In the City, some improvement was effected in Newgate-street, by widening it at various points; Cateaton-street was absorbed in the new Gresham-street,—an important route, though one more tortuous than the Bow-street line; and, above all, New Cannon-street was opened. The removal of Smithfield Market took away some of the obstruction of the streets, from cattle driven through them; but the management as regards the site, by the City, belongs to the class of examples in which we have placed the case of the adjacent street, and that of the western Victoria-street; and in which we might also have placed that of the long-unoccupied site of the Fleet Prison. It is no part of our business here to speak of the strictly suburban measures of street-formation: though these should have entered more than they have, into the domain of general metropolitan street-improvement on set design. Perhaps, however, we should not omit to name the Queen's-road connecting Kensington and Bayswater, and the much later works on the estate purchased by the Commissioners of the Exhibition of 1851. The railway-works, as connected with London communications, may be said to have commenced with the construction of the West End and Crystal Palace Line, and the formation of the Victoria Station: though, long previously, the London Bridge, Waterloo, Shoreditch, and Fenchurch-street Stations, had served a considerable amount of suburban traffic. After these came the Metropolitan Railway,—even more important as an example, and as a commencement of the inner circle line, than as a relief to the New Road and City Road; the Charing Cross Railway,—hardly yet a demonstration of the service to be rendered by railroads in towns; and the London, Chatham, and Dover Line,—of which the less said, the better; and last, the line from Broad-street.

During only the later part of the quarter of a century elapsed since the works undertaken in pursuance of the Acts of 1840-41 were commenced, almost as much expenditure as was ventured upon after these Acts, has been advisedly incurred for a single street,—the line in Southwark; and six times the amount has gone in the sewerage of London,—which a quarter of a century ago was barely hinted at: all this, and more, has been allotted to the improvement of London since the Metropolitan Board of Works came into authority, and allotted with a judgment which we are, at least, not prepared to impugn. More important than all, for our present subject, is the approaching completion of the Thames Embankment; a work which had been discussed and designed on paper, and discussed and projected again, from time to time, before and after 1840; but which would hardly now be in hand but for a fortuitous conjunction of circumstances.

Still, the work done in street-improvement is small in proportion to the necessities of London: this is felt by the several authorities, and

* See p. 877, *ante*.

proclaimed by the public voice. Railway-companies alone have been active in providing new routes from central to suburban districts, and thus in contributing to the supply of one of the wants of London, that of places of residence. But the railways do not render unnecessary other routes: rather, their effect is to concentrate ordinary street-traffic to the points where their stations are situate: whilst, being, from the necessary breadths between "up" and "down" lines, the slopes of embankments, the interference with light and air to houses adjacent to viaducts, and the multiplication of lines by different companies at places such as Clapham Junction, more absorbent of ground, in proportion to the traffic which they provide for, than ordinary roads; and involving the difficulties of junctions of trains, and the liability of being half an hour or an hour behind time, on badly managed lines, like the Crystal Palace line of the Brighton Company; a large deduction thus is to be made from the convenience afforded by them. Most of the peculiar disadvantages here referred to, of the railroad, are multiplied the more that it is brought into a town; and the increased frequency of stoppages is, alone, a deduction of some importance from the advantages. Of course the whole advantages of the communication may set the balance altogether in favour of the railways: we see this illustrated even in the case of a line that is wholly within town, the Metropolitan Railway. For, that particular line is subterranean, or parts of it at least within retaining walls below the general street-level; and, as the complete line is planned and intended to be worked, the absorption of ground by a given length of the railway and one of its stations, will be considerably less than in any instance of an existing line for the suburbs; whilst, through the substitution of many stations for the terminal stations of suburban lines, the street-traffic will be crowded at no point to any degree that can overbalance advantage of the subtraction generally from the streets. The attempt to serve by the same lines of rails, the different sorts of traffic which result from different circumstances of distance or inhabited area, has already been to a considerable degree abandoned: at least four lines of rails are found essential where both "long" and "short" traffic have to be provided for: thus the cost of a line across London, like the London, Chatham, and Dover and Great Northern line, or the intended line between the Charing-cross station and the London and North-western line, and the service rendered to the inhabitants of London or the district through which it passes, must be so disproportionate to one another, that the experiment, if repeated in the supposed interest of a company, should not be deemed advantageous otherwise,—unless perhaps, as in one of the cases named, the work can be combined with one of street-improvement and town-aëration of more moment than the absorption of ground and the displacement of people. If railways can further help the traffic of the London streets, it will probably be only through the formation of lines such as the Metropolitan Railway; where, with the advantage of speedy transit as compared with ordinary conveyance, the inconveniences both of absorption of ground, and of concentration of cab-and-omnibus traffic, will be the least.

The chief required improvement is, as it has been, in the routes for traffic of the ordinary kind,—that is to say in the streets generally, or in the provision of main lines across London, and others radiating from the different centres to the suburbs. In effect, the plan of Sir Christopher Wren for the City of London, and the actual plan that is being worked to in the French capital, either of them indicates what is needed in the general plan of London,—which there should be, setting forth a well-considered and harmonious design. In the arrangement of the streets of Paris, each railway-terminus is taken as a centre; and, generally, the route thence to any other terminus is direct. So are the routes to and from the centres of legislation, finance, or amusement. Before any piecemeal effort at improvement of London, there is wanted simply design or planning. The roadway from Westminster to the Mansion House, part of which will pass along the Thames Embankment, is only one measure of improvement out of a large number of measures that are required. It indicates what may be done; and the work is one that is likely to be attended by results of such importance as to make us disregard the question whether it might not have been better done as a portion of a general plan of London street-improvement, made contemporaneously with a more efficient law, or system, than we seem to have, *of expropriation on the score of public utility.*

As long ago as the year 1841, in the article in the *Westminster Review*, it was said:—"Unfortunately it happens that the subject of metropolitan improvements has never yet been considered in its proper light, not as affecting the sectional, but the general interests of the inhabitants of the metropolis. Parties interested in new streets have come forward with their rival lines, and the time of committees has been occupied with an investigation into the relative merits of those lines, instead of discussing the general question (the magnitude of which ought not to have alarmed them) of a comprehensive plan of metropolitan improvement, in which every part of the plan, however slowly carried into effect, would at least bear a consistent relation to the whole." That was written a quarter of a century ago: in half that time, a plan, embodying a gigantic scheme of improvements in the French capital, has been made, and nearly all carried into effect, with important results in the health of the capital; whilst, as for the plan for London, the words of the writer of 1841 are as exactly applicable now as they were then. As regards water-supply, London is now behind Paris in everything except the system of service within the houses. It is behind in everything relating to street-cleansing, as it is in what belongs to street-aëration. That is to say, England is behind in the very work of practical hygiene, or sanitation, to which it has so long given attention: this we have shown on several occasions by comparative statements of the facts of mortality. With all the good architecture that there is in the City, and the isolated efforts elsewhere, the British capital is far behind the French in general effect of architecture in streets and public places; and the difference in this particular alone contributes to that which exhibits itself in comparative mortality.

We should not close this article without reference to certain works that are in hand, as the Holborn Valley improvement, and others that will be realised proximately, as the streets in connexion with Whitehall and the Strand, and with the Embankment. We have already alluded to the street from the Embankment to the Mansion House. The last-named portion of the line from Westminster seems likely to repeat the old blunder of inadequate width, being gauged to fit a short length of completed street. We have not spoken of the new bridges for foot-passengers, and the new WestminsterBridge; but our readers know the value that we attach to these gains to London.

The Metropolitan Board have lately completed an important line, called Burdett-road, from the East-India Dock-road, affording a communication with the Victoria Park. A bill has been obtained for an equally important line, though of no great length, connecting the western end of the Commercial-road with Whitechapel; and there will be considerable improvements in the streets near the river, between Lambeth and Vauxhall, in connexion with the Embankment on that side of the Thames. In a recent number of the *Builder* we gave some particulars of bills for which the Board are about proceeding to Parliament.

A list of the improvements which in 1859 were considered necessary by the Committee of Works and Improvements of the Metropolitan Board, is to be found appended to a letter of the Chairman of the Board, dated 18th April, 1859, "addressed to the Representatives of the Metropolis in Parliament, upon the propriety of obtaining the Coal Duties for Metropolitan Improvements." It specifies many other improvements than we have here referred to as commenced or projected. The letter regards any increase of burthens of the ratepayers as impracticable, and estimates the cost of the works, including a park for Finsbury, at between sixteen and seventeen millions of money.

About some such sum as this, London, or rather, as we hold, the British Empire, is now boggling. Without again referring to what is being done in the French capital, let us mention that the fortifications of Paris, which were in course of completion about the year 1841, or long before the often-tabooed French imperial system had come to life, were costing the French people a sum equal to about thirty millions sterling. What, however, we care most to urge now, is the necessity for a *plan* of London street-improvements, in connexion with an Act, and a carefully-devised system for assessing compensations. A great object is to allow of property being purchased on favourable, that is to say, equitable, terms,—just as opportunity may arise,—or at least in conformity with the system illustrated in the City in the case of Newgate-street, which line has become, in some parts of its course, a street of tolerable width; though it is nowhere of the width that such a thoroughfare ought to be. By the present want of system, the proprietor gets the opportunity of rebuilding, and then demanding a distinct compensation for the premises as new. Very often, the public have to pay for being allowed to do what benefits the proprietor; and this may have been the case as regards some of the property taken by the Metropolitan Board for the Thames Embankment.

THE LATE DAVID ROBERTS, R.A.*

MR. BALLANTINE'S "Life" of our English Canaletti, our London nineteenth century Piranesi and Philip de Loutherbourg, is an agreeably-written account of a man whose works will live. We might, it is true, have been told more about the man and his ways, of the painter and his modes of study, and in the same number of pages; but we are thankful for what has been done, and are much more disposed to praise than find fault. Mr. Ballantine, who claims to have been at one time David Roberts's "colour-boy," is well and favourably known in his own city by his "songs," and out of it by his works in stained glass.

The leading events of Mr. Roberts's life have been already related in the columns of the *Builder*. His was for long a hard struggle, but he went on working with sturdy self-reliance, and died a man rich, and better still, high in the esteem of all, the very many who had the gratification of knowing him. He was elected an Associate of the Royal Academy while in Egypt, in 1838, and an Academician almost immediately on his return to England in 1841.†

When Roberts came first to London, he sought, like all his countrymen, the society of "brither Scots," men distinguished in art and letters. David Wilkie, from Fife, and in the full tide of his reputation, held out his welcome but cautious hand to David Roberts, fresh from Midlothian; John Burnet, the distinguished line engraver (and happily still alive) gave his manly grasp to independent David; Scotland's greatest landscape painter, Patrick Nasmyth, did the same.

Scottish artists settled in London have generally been prudent, money-making men, with good balances at Scottish bankers' (in London) like Coutts's, Drummond's, and Herries's. Allan Ramsay, the painter, who died in Harley-street in 1784, left 40,000*l* (Sir Henry Raeburn would have left a like sum had he settled in London), and Sir David Wilkie left a sum still larger.

Of Scottish artists settled in London, and who were not successful in life—through their own imprudence—clever Nasmyth, the Scottish Hobbima, as he is called, is the most striking example. He was content with pawnbrokers for patrons; and yet his works, since his death, have sold for large sums. Roberts was fond of him, though not of his habits, and often assisted him. He admired the artist, and bought one of his works direct from the painter. He would not part with it, we have heard him say, though tempted by dealers with twenty times the price he paid to Patrick for it, and that price was for the time—and Patrick's quotations in the market—Vernon or Sheepshanks's price.

We had the advantage of knowing Mr. Roberts for many years, and of meeting him in many places:—

> "Seen him we have, and in his happier hour
> Of social pleasure." ‡

Few of the "Fund" dinners, whether "The Benevolent" or "The General Benevolent," took place without him: they were scarcely complete without his cheery face and ready, if brief, speech. The King-street little "Garrick," now no more, though greater, was long his favourite haunt: its walls held some of his handiwork.

It was the good fortune of Wilkie to live to see two of his pictures, "The Blind Fiddler" and "The Village Festival," in our National Gallery; but *not* his good fortune to live to know of the large

* The Life of David Roberts, R.A., compiled from his Journals, and other Sources by James Ballantine. Edinburgh: A. & C. Black.

† Royal Academy Commission: Answer to Question 1,106.

‡ Pope, of Sir Robert Walpole.

prices that his pictures were destined to fetch. Mr. Roberts, however, lived to hear, with mingled feelings of pride and regret the large sums given for works from his hand for which he had received comparatively little. This contrast is well set forth in Mr. Ballantine's volumes, and should be kept in mind by all artists.

"The estate
Which wits inherit—after death,"

is an empty but at the same time a covetable honour.

Very few letters addressed to Roberts are printed by Mr. Ballantine. One from Allan Cunningham is given, which we copy for the sake of giving the elsewhere *unpublished* answer of the painter :—

"My Dear Roberts,—I have been able to think of nothing but your drawings since I saw you last night. They are equally interesting and peculiar; and I am glad that you are about to make the world better acquainted with their merits. I told you that the person who penned the letter-press should be familiar with Scripture and with Eastern history. I may now add, on reflecting on the character of the drawings, that he should also have a taste in art, and a knowledge both of sculpture and architecture. It is easy to write a few graceful sentences, but they must be to the point, and illustrate, not encumber, the engravings, else they will be worse than vain. Now I know not but I might be tempted to offer you the use of my pen, if you are not already engaged to some other writer. I have not travelled, it is true, but the subject is familiar to my mind; and I have taste enough in art, and knowledge enough in architecture, to induce me to think that with the aid of your own recollections and notes, I should acquit myself without blame, but with honour. My admiration of your drawings and of the subject has driven me to make this offer, which, till I looked over your portfolio, I did not dream of."

In little more than a year after this letter was written Allan Cunningham was engaged on the Life and Journals of a friend of both of them,—Scotland's great painter, Sir David Wilkie,—and in less than another year he was in his grave, leaving the Life of Wilkie unfinished.

Mr. Ballantine tells us that Mr. Roberts expressed his regret that Allan Cunningham's offer of writing the letter-press to one of Roberts's great works, published by Sir Francis Moon, had not been accepted. This, too, we know to be the case, without the aid of Roberts's reply, which we now print :—

"March 27, 1840.

"I feel much gratified with the contents of your kind letter of yesterday. Believe me, as far as I am concerned, I would not desire to be in better hands; but I know Moon has spoken to Croly regarding it. Nothing, I know, has been settled: of the two I would give you the preference, not only for your intimate knowledge with art, including architecture, but as a Scotchman and a good man, your intimacy with Scripture history and its bearings upon the subjects, and as competent as any person in the country, more especially a *political* one. From this you will perceive that he is no favourite with me; and I feel confident that with my notes (I mean those descriptions of the subjects of the drawings) the task would be an easy one, and with you one of pleasure. I will, therefore, take an early opportunity of consulting Moon upon it, without mentioning your name, until I see how matters stand, and will let you know the result.

It will be published in parts; but not for some time, as the drawings are to be exhibited. Most probably the first part will not be issued until autumn. It will be confined to Palestine, Idumea, and the Wilderness of Sinai; or rather commencing with the latter, and following the route of the Israelites on their leaving the land of Goshen: and, if successful, will be followed up by Egypt and Nubia."

The story of Mr. Roberts's secession from the Society of British Artists, in Suffolk-street, is thus related by himself :—

"When I first came to London I was a very young man; the Society of British Artists was incorporated, and I was one of its original members. They had a law, in order to bind themselves together, that in the event of any member withdrawing he should forfeit 100*l*. I had reason for withdrawing; the Society was then in a very bad state; its principal men had withdrawn, and the responsibility fell upon the remaining few. I was then going to Spain, and I had arranged my affairs, and was strongly advised to withdraw from the Society, pay the 100*l*., and render myself no longer liable to the responsibilities. It turned out that there was another law which had been enacted after the one of which I have spoken,—that in addition to the 100*l*. I should pay my share of the expenses, which, with the law expenses, came to 150*l*. more, so that I paid 250*l*. on withdrawing from the Society of British Artists. Then on my return from Spain, I put my name down as a candidate for the Royal Academy, and very shortly I came in."

The Life is embellished with a characteristic portrait of the painter (after Sir J. Watson Gordon, and engraved by Barlow), and with several admirable etchings by Roberts himself, from abbeys and castles in Scotland. The following unpublished note relates to these etchings :—

"D. Roberts presents his respectful compliments to Mr. Cunningham, and begs his acceptance of a few of the etchings of the Antiquities of Scotland he spoke of to him. D. R. would feel happy if Mr. C. would give him his opinion of the same. As far as truth goes, they are correct likenesses of the places they represent, which D. R. considers to be the first consideration in a work of this nature. Being his first attempts at etching, Mr. C. will make every allowance for 'his 'prentice han.'

8, *Abingdon-street, May* 24, 1832."

We may return to Mr. Ballantine's interesting volumes, in order to supply some architectural quotations well suited to the tastes of our readers.

ON THE PROBLEM OF PROVIDING DWELLINGS FOR THE POOR.

At the meeting of the Royal Institute of British Architects, held on Monday evening last, the president, Mr. A. J. Beresford Hope, M.P., in the chair,—

Professor Kerr called attention to the necessity of improving the dwellings of the poor in towns. He proposed, he said, to treat the subject in the first instance with reference to its present position; and, secondly, in reference to its cause. The problem of providing suitable dwellings for the poor had long attracted the attention of the public. Persons of high rank and great influence had lent it their aid, and of late years efforts had been made, based upon liberality of a most profuse description and of benevolence the most sincere and well meaning, which had attracted a large amount of admiration. At the same time the solution of the problem had not made any very sensible advance. This was not his own conclusion alone, but that at which the advocates of the measure had arrived with great regret. The buildings called model lodging-houses for the poor presented many advantageous considerations. They were thankfully accepted by the people; they were comfortable and wholesome; and they were furnished with appliances which the labouring poor could not otherwise command. But, on the other side, it was necessary to bear in mind the general complaint that the rents demanded for those dwellings were so high as to place them beyond the reach of the very class for whom they were supposed to be provided. Next, there was the complaint of those who built them that the return for the outlay of capital was very small. Again, the present "model dwellings" were inhabited by people of a superior class to those for whom they were originally intended; so that, in point of fact, the poor were as badly off as ever for decent dwellings at rents which they could afford to pay. Lord Stanley, a statesman of singular sagacity, had pointed out, in the course of a speech made by him at the Mansion House a couple of years since, that the model dwellings had to be let at rents of 5s. and 6s. per week each; but that a large number of the working classes could not pay such sums, and that what was to be done for those classes was a problem which still required solution.* That, however, was a question which he said the meeting that he was addressing was not called upon to solve. The Society of Arts had also appointed a committee to discuss the subject, with the view of laying before the public definite conclusions and distinct proposals. In the year 1865 they published a report to the effect, that the building of dwellings for the poor was not commercially remunerative; that the returns were only 5 per cent.; and that all the committee could do was to recommend uniformity of sanitary laws and certain amendments in the property law, conclusions which he (Professor Kerr) certainly considered not satisfactory. Lately a proposition had been made for the establishment of suburban villages, but this, in his opinion, was merely putting in a tangible form, ground-rents *versus* railway fares. Successive and laborious efforts might, however, eventually solve the problem, which they were all desirous to see worked out, and his present purpose would be to show that architects might be able to solve it, although they could not hope to derive any individual profit by the operation. The problem at large of providing suitable dwellings for the poor, must be divided into two portions, namely, dwellings for the poor in the country, and dwellings for the poor in large towns. He would for the present leave the question of country dwellings, simply suggesting, *en passant*, whether the solution of the problem might not lie in the selection of more economical materials. He had himself seen cottages of wood built for 30*l*. each, on the estate of a gentleman of great humanity and intelligence, which constituted very comfortable dwellings. Referring then to habitations for the poor in large towns, it was to be borne in mind that there were two distinct classes of the labouring community—a superior and an inferior class. The first consisted of skilled mechanics, small masters, general dealers, home-workers, piece-workers in their own homes, and a large proportion of single females. Such were, so to speak, the *élite*. Then came the inferior class, composed of the same sort of persons, so far as occupations were concerned, but inferior in regard of income, and including not only the classes he had enumerated, but a great mass of labourers and hangers-on on the outskirts of business. To describe the dwellings of the superior class in Bloomsbury, Islington, or Camden Town, he might say that the door-steps were kept clean, the doors shut, and the children who played in the street in front of the houses, respectably clad. The houses consisted, for the most part, of three floors and a basement, with kitchen, &c., while each floor contained two rooms, of an average size of 15 ft. by 12 ft., and 9 ft. by 12 ft. or 13 ft. Each floor was usually occupied by a separate family, with yard and water-closet convenience to all. The front room was generally a sitting-room, and the back a bedroom. But in the adjoining streets, occupied by the second or inferior class, it would be found that the door-step was unwashed, the door itself generally open, and the children in the street more numerous and worse clad. The houses were not occupied in floors, but in single rooms, except in cases where there were grown-up children. In order to show the manner in which the dwellings of the poor were occupied, he would next refer to some statistics of the parish of St. George, Hanover-square, collected by Mr. Henry Roberts, a fellow of the Institute. It seemed that 1,500 rooms were visited in that parish, with the following results. There were of dwellings consisting of three rooms and upwards, only 8¼ per cent.; of two rooms, 28 per cent.; and of one room, 63¼ per cent. This result brought out one fact, which ought to be accepted as a fact, namely, that 63½ of the labouring classes occupied but single rooms. Then, with regard to beds, it was ascertained there were but 13 per cent. of the dwellings which possessed three or more beds, whilst 44 per cent. possessed two beds, and 43 per cent. one bed only. Then, with respect to the line of solution hitherto followed,—the worst cases had been accepted as the type, and volumes of newspaper articles had been written on the deplorable condition of the dwellings of the poor. Lord Shaftesbury, a nobleman of great philanthropy, had recently stated, at Nottingham, that no decent dwelling should have less accommodation than three bedrooms, thereby laying it down as a dogma that the poor man's dwelling must consist of at least three rooms. In his (Professor Kerr's) opinion, the model lodging-houses, as at present constructed, provided accommodation in excess of the wants of the poor, and were consequently expensive beyond their means. In order to lessen expense, the size of each room was reduced as much as possible, yet the cost of each dwelling averaged from 150*l*. to 200*l*. Allowance would have to be made for ground-rent, taxes, repairs, free accommodation for the custodian, losses by empty rooms, &c., and after deducting these it was a matter of fact that the lowest possible rent at which these dwellings could be obtained was from 5s. to 6s. per week. Such were the returns, with all the advantages of new buildings and picked tenants; for it was well known that so great was the competition for those homes, that the owner had only to select the most eligible from a crowd of applicants. Now, he would ask, what sort of dwelling was really wanted by the poor? and he would give the answer, namely, single-room accommodation. It might, at first sight, seem strange that an architect should be the person to get up and advocate a return to single rooms; but that was not precisely what he contended, as he would be prepared to show. The poor man said the rent must not exceed 4s. per week, including taxes and water supply, because he could not afford to pay more. Then, again, the poor man's room must not be too large, or he would not be able to furnish it; nor must the apparatus be too complicated, because the habits of the poor were simple, and the usage which the apparatus received was often rough. Looking at all these considerations, the labouring man, when asked what it was he wanted, would reply, a single room. Nor was the idea, when examined, at all preposterous, much less unreasonable. In olden times, up to the fifteenth century, the common hall was the kitchen, dining-room, drawing-room, and sleeping-room. The meal was cooked in one part of the room, the family assembled in another, and the guest was provided with a snug corner

* The same thing had been said in the *Builder* long before.

furthest from the door, where he lay on clean straw or rushes with his feet towards the fire. Such was even the accommodation of the yeoman class in the seventeenth, and even down to the eighteenth century; and such was the custom in the houses of small farmers in portions of Scotland, Ireland, and Wales, even in the present day. He would at once meet the objection on the score of delicacy, which he could anticipate, and for which he would provide —contending, however, that delicacy, after all, was a matter of degree. He did not hold that the women of the working classes were less delicate in their ideas of propriety than their wealthier sisters; but he contended that, making allowance for degrees of delicacy, and for the many resources of delicacy which women could supply, much might be done to improve the dwellings of the poor by the substitution of comparatively spacious, but low-priced, single rooms for the small rooms at high rents now provided, as the only accommodation to meet the case. There was, for instance, among the poor, a large proportion of single women, and married couples who had no children. There was another proportion of married people (and, for that matter, of unmarried people too) who had young children; there was another proportion who had children grown up; there was, unfortunately, a proportion of widows left with young children, and also a proportion of widows who had female children only. Now, all these classes wanted but one room, provided that single room were sufficiently spacious. According to a table of calculations which he had prepared (and which he illustrated on the drawing-board), 58 per cent. might be accommodated in one room, 24 per cent. in two rooms, while those who required three rooms would be but 8 per cent. He suggested, then, the introduction more generally of single rooms, say 20 ft. by 17 ft., with a balcony in front 4 ft. wide, and another behind, 8 ft. wide by 17 ft. long, which would do for a back yard, drying, or play-ground, &c. There would be one common staircase, and one common water-closet. Objection might, he knew, be raised to the latter, on the score of delicacy; but it should be remembered that the poor did not regard many things as indelicate which persons in affluent circumstances might view with natural repugnance. He would have the top floor built with an attic for the use of those who required more accommodation, and who would be willing to pay a small increase of rent for it. He would do away with all such complicated and expensive matters as cooking-ranges, oven, boiler, &c., because the habits of the poor were very simple, and they would rather cook in their own way than be liable to pay for any apparatus which they might injure in using. He would also have the doors and windows of the plainest and most convenient construction, the former, for instance, "ledge," and the latter, casements. He would have a brick and cement partition extending a portion of the way into the room, which might be so used as to make a certain seclusion, so far as the beds were concerned, while if further subdivision were considered desirable, a thin wooden partition might be run up at very little cost. The floor space would then be available for the use of the family, and the whole might be kept clean without entailing much labour on the poor man's wife. He believed that single rooms such as he ventured in all humility to recommend, might be built for 70*l.* per room, including balconies and share of public staircase and water-closet. He estimated that a building so constructed would yield 9 per cent., and include everything but water service and taxes. He calculated that the ground floor (including washhouse) would produce 6s. per week, the first floor 3s. 6d., the second floor 3s., and the top floor (with the attic) 4s. The ground-rent and outgoings would not, he estimated, cost more than 30s. per room per annum, admitting, of course, that the site was not expensive, because no one could suppose that model lodging-houses could be built on remunerative terms in fashionable situations, nor in the City of London, where every foot of ground was worth a fabulous sum.

In regarding the subject, he desired to say that he put all sentimental considerations aside, and viewed it from what he ventured to think was the sensible and practical point—namely, from a purely business point of view, as based upon figures and calculations. His object was to provide exactly what was wanted by the poor man, and to provide it at such remunerative rates to the capitalist as would induce him to invest in this description of property. The benevolence of individuals was not, of course, to be underrated, but, after all, individual efforts from a humanitarian point of view, could do but little to meet the evil, while he denounced as chimerical and unsound any appeal to the State to aid in the matter. The great thing to be done was, in his opinion, to ascertain and provide precisely what the poor man wanted, and then to devise means for supplying it so that it could return sufficient remuneration to the speculator. If anything he had said could help in that object, he would consider himself amply compensated for any labour and attention he had bestowed upon the subject.

The President said, that as no paper would be read that night fortnight, it was proposed to take the discussion on the next night of meeting. It might not be possible for him to attend on that occasion, and therefore he desired to express his obligations to Professor Kerr for the able manner in which he had brought the subject under the notice of the Institute. In that manner he entirely agreed, for, without discarding the efforts of philanthropy, Professor Kerr had pointed to the sensible application of the best means to the best end. The thing to be attained was, to get a better dwelling for the poor man without taxing his pocket too much. They had all heard a great deal, of late years, in reference to the necessity for improving the dwellings of the poor, both in the town and in the country. His own experience had reference more especially to the latter aspect of the question; but on the present occasion it was not proposed to mix up the two questions, but to consider that relating to the town exclusively. He wished, therefore, that when the matter came to be discussed there would be a large attendance of members of the Institute, who would not only "offer a few observations," but put forward views and ideas which might form a solid discussion, and be valuable should the subject be brought under the consideration of Parliament during the ensuing session.

THE OLD WAY.

VOLUMES have been written on nearly every conceivable subject connected with art, and not a month passes without one, as well as papers at various Art-Societies; but neither the volumes nor the papers seem in any way to exhaust the subject, or to be long enough. If this be necessary for mere details of art and antiquarianism, how much is needed for the bringing about so vast a change, from the present system of art-manufacture to the revival of the past system of art-individuality, from the action of *many* in the production of an art-work to the action of *one*. I can, therefore, sir, only ask your permission to merely indicate the right road as I see it.

Much more might be said on the subject of the Architectural Museum, on its origin, its precise vocation in art action, the way in which it has been worked, its position at South Kensington, and on its present position, when it may be said to have returned very nearly to the state it was in when in Canon-row, and on its relation in detail to such an institution as the Institute. In a few lines this is impossible, but I may just observe that its vocation from the very first was, in the deepest sense of the word, revolutionary, and the change it proposed organic; and that in going to the South Kensington Museum, it became a *public* instead of a *private* institution. It has now, as I have said, reverted to its orignal position; is a private society; and, barring its revolutionary element, is fairly on terms of equality with any other of the ordinary Art-Societies. It has sunk down to its idea.

Fine art is a progress; architecture is a progress, whatever the hinderances to it may be. It is impossible to keep it still and go on from year to year in the same way, in perpetual routine. Hence, since the foundation of the Museum, in 1851, a very great movement, if not advance, has taken place in architectural practice, and yet more so, if we revert to the commencement of the Gothic movement, as it is termed, by Pugin. Then, as all well know, the sole object of an architect was to copy some old village church or other, its arrangements, its details, and its carving; nobody dreamed of *inventing* anything; the problem was, what will the funds and prejudices enable me to keep of the ancient detail? What is now the state of things? Let Mr. Scott answer,—"I am convinced, by the productions of a large number of our 'Gothic' architects, that they too much neglect this," *i. e.*, to leave their architecture in its normal and abstract form by the study of ancient examples, "while the constant confessions of young men seeking office employment, proves that the study of old examples is rather the exception than the rule." This is a little hard on the poor assistants; for the truth really is, that the architect himself, and, his assistants, like the office tracing-book and the architect's library, are storehouses of precedent and old examples, picked up everywhere, and drawn from all sorts of sources, not from village churches only and English cathedrals, but from the face of almost all Europe. The Gothic of the present hour is not as it was when Pugin began, the Gothic of England, but the Gothic and the Renaissance of the whole of Europe; but,—and this is the main point now,—it is nearly all got from *books* and representations on paper. It is the old art all jumbled together, passed through a manufactory, and "offered up" to the public by brainless workmen, *i.e.*, as mere tools in *new* materials. The clerks are not responsible for it.

Yet another consideration. Mr. Scott says that architecture has always been in times past a progress, and that one style followed on and immediately sprang out of its predecessor; that is, that Perpendicular Gothic sprang out of Decorated, and Decorated out of Early English, and so on; and that one man learnt his architecture of his predecessor, and in turn taught it to his successor. True, entirely true; but how? This, sir, is now the point, and the problem of the future. Mr. Scott has nothing more to say about it. He has just left the whole question where it was, and so has in reality done nothing whatever.

To develop in detail such an intricate and unthought of subject as this is obviously impossible here. A goodly volume might be written on it. It is, indeed a curious subject how, in the brain of any man, or in the brains of any succession of men, the forms of the Early Gothic got to *develop* themselves into the forms of the Late Gothic. It was certainly not accomplished by the modern architectural and manufacturing process. For shortness' sake, I must suppose a case. Pugin, in a galvanic sort of way, revived Gothic architecture; and, wandering about in search of a teacher, found not *one* only, but a whole multitude, from Early Norman to Late Perpendicular, and so spent his useful life in wandering about picking up the architectural pebbles, digesting them, and then building up as cheaply as possible copies of the old churches. But let us suppose, instead of this, that he had placed himself in the position of the successor that might have been of the builder of King's College Chapel, Cambridge; as that architect of the works may be said to have succeeded and learnt of the Decorated man who went before him. What would he then have done, and how? Books and paper copies of precedent had no existence; art schools had not been thought of; working your brains through the hands of others had not suggested itself, or the chapel would not have been Italian brick Gothic; and foreign precedent could not help, it was too far off. I am stating an ancient case, not now advocating it. Pugin would have been under one master, Perpendicular Gothic, particularly the College Chapel, his mind otherwise architecturally vacant: what, then, would he have done with the problem of another college chapel to build suitable to the wants and fancies of his own day. I think the heraldic carving of that chapel almost unrivalled, and truly admirable. Pugin, as it was, and as he *did* work, copied, or rather tried to copy, this very carving; but had he gone to work in the way I have supposed, he would never have thought of such a mode of working out a new architectural problem. He would have worked into his new chapel the heraldry, or whatever else it might have been, of the people about him. The changes of Gothic may be read in its heraldry; and the armour to be found in the Perpendicular is as different from that found in the Early English as the present needle-gun is from a cross-bow. *The details of the past were never copied.* Pugin would have done differently, and been another kind of architect, and afforded to his pupils and followers another kind of example, and Gothic architecture would not have been Gothic, as we understand the word, at all, but Modern. Such a problem as this cannot be worked out by any one through assistants and clerks; it must be the hard work of individuality and personal

artistic power. One thought more. The chapel arrangements of porch, nave, chancel, and so on, Pugin himself, and all who have followed him, have tried hard to copy, trusting that modernism would fit itself comfortably into them. But, alas! one thing has been forgotten; this, that the primitive ideas on which the old arrangements were based, and of which they were the material expressions, change in age and generation, and poor Pugin, when he planned a church fit for the fourteenth century, failed to find out that *that church* was gone and another, though still the same, was in its place. We must suppose that in the future the architect will think out these general and leading problems for himself; and this brings us at once, though too shortly, to details and to the clerks, and assistants, and workmen to whom they are left; and it must not be forgotten, to the clerks of the works and builders' foremen, who are in reality the modern *working* successors of the old architects, for is it not they who *set out the work*, such as it is?

To speak of them all here is obviously impossible. I can but feebly indicate a general course by hinting at one or two special art trades, at their present position, *and at what may be done*. It is not improvement that will do any good, as will be seen, but entire reversal of the present system of art action that is wanted. They must pass from the regions of manufacture to that of *bona fide* art. From acting as mere tools, those who now assist in their production must act as artist workmen, however humble the character of the work they produce may be.

While in Canon-row it chanced I had a pupil in the "tea-tray" trade. His object was to learn to draw; and though anybody can, according to some writers, learn to draw, though not to colour, this youth could colour, but could not draw. He said he coloured at once, and needed no instruction. He did not appear to think very highly of the tea-tray colouring trade, and went to some trouble to describe it all to me. I raised it not a little in his estimation by informing him that it was precisely like church stained-glass window work. Doing the borders of a window and a smart tea-tray are precisely the same operations. The product of the one may hang in Westminster Abbey, the other perhaps swing in the wind outside a cheap sauce-pan shop. Nobody expects to find the name of the painter in the corner of a tea-board; but few can find it in that of a painted window, and when there we know it is always forged. What ought, therefore, to be done with trays and windows?—problems of the very deepest significance in art, and the keys, in fact, to a new position in fine-art education and action. That a painted window for a cathedral should, in these days, come to be manufactured is indeed a notable thing.

Both windows and trays are fairly the work of the artist workman. There is no reason why a tea-board should not be a work of art as well as a window; but, to keep within limits, we must now confine ourselves to the painted window trade. What is it, and how is it worked? It is worth inquiry, for it is one of the most profitable art trades ever devised: anybody can organize a firm, and boys can do the work as well as men, and sometimes better. It is a compound business, and everybody concerned in it, from the architect to the fireman, deserves credit. The resultant work is no one's, for it is everybody's. The architect often claims it, and generally gets it, unfortunately for him; the drawer of the cartoon claims it; the lead manipulator *ought* to have some of the credit, I think, but he certainly does not get it; the glass colourman might by some simple souls be thought to have some faint claim to his own work, but does any one know that such a being exists? Of the fireman or the fire I say nothing, though anciently both he and it were items in church window painting. In short, as all know, it is simply a business, a manufacture; and the sole problem with those few who do know what is going on is that put by the late President of the Association, Mr. H. Christian,—"What are our successors to do with the glass which we have offered up everywhere?" (A somewhat astounding question from a subordinate.) What, indeed? It is the very saddest of all the art trades, and the most shameful; in harmony certainly with a new cheap church, but shameful when the glass is stuck into the wall of an old one. Nothing can help it but revolution; a change of method of production; another way of bringing a window into existence: and this brings us again to the idea of the Museum—*that of opening every case to the actual workman and artist himself*, and getting our work direct from him. It is the destruction of art firms. It is the asking for *ethics* as well as art. It is the according simply to every man his due. Art in the place of manufacture.

It would seem of but of little use to lay down theoretical modes of art-action without some one or more examples to show their practical bearing and application. This I propose to do, if you will permit it, by citing that of the Westminster Chapter-house, the *restoration* (!) of which has now commenced. A better example cannot be selected; it will show the gulph there is between the past and present, and the utter uselessness of trying to *improve* art while the present system of art-action continues. Meanwhile, there are four or five art-influences now at work doing good as is generally thought, but which, in sober reality, are total hinderances to the getting art at all, to which, sir, I would ask the attention of your readers, as texts to be learnt.

First, an architect now, as recognised by the Institute, is an employer of art-labour, but not an art-labourer himself; he purchases the labour with the paper on which it is expended, and takes, as he has a right to do, the profit on his capital, and with it—and this he has no right to do—the credit of the work so done. In reality he is not an artist, but an art-capitalist.

Secondly, the architect's clerk, though acting fairly as an indicative draughtsman and an artist, can never, as things now are, produce any artistic result consequent on the fact of his working, not as an individual art-workman, but as part of an apparatus or machine; all he does is either to blot out the art-work or impression made by another who has preceded him, or, he is followed by another who does but blot out what he has written.

Thirdly, the drawing or indication of art (not the art itself) being thus manufactured, the next process, as all know, is to hand this drawing to the executive workman through the medium of a non-working capitalist manufacturer (say of stained glass), who treats the work, whatever it may be, as a work not to be written, but to be manufactured, like a pin or a nail, by a succession of hands one after another, thus destroying all individuality and art-writing, *i.e.*, life of art. This is perhaps more fatal than the adverse influence just mentioned; he, the manufacturer, taking the credit of it. And fourthly, the lowest, though the most important of all, the melancholy fact of the workmen of the present day being all of them mere machines, or, rather, animated tools. The workman is a smart workman, but knows not what he is doing: his are a pair of hands, animated and directed by others, not himself. This is, of course, fatal to art, *for is it not the hand of the workman which is visible everywhere?*

This is the modern system of fine-art action; it is, as will be seen, the direct reverse of the old way. The doomed Chapter-house will show this old way dimly peeping through the modern system.

C. Bruce Allen.

MR. G. CRUIKSHANK ON ART.

Mr. Cruikshank presided at a distribution of prizes to the pupils of the Liverpool School of Art, and in the course of his remarks said he knew only of two universal languages,—one was art, and the other kindness. These languages were sometimes mistaken; but, generally speaking, understood throughout the world. The savage could neither read nor write, but, strange to say, he could draw. The late Capt. Marryat was travelling in the wilds of America on one occasion, when, going through a forest, he observed that the savages had carved out figures on the trees in order to direct the travellers the way to go; and on a tree on the banks of a river there was carved the figure of a canoe upside down with human feet above it, as a warning to the travellers not to attempt to cross the river at that point. The same sort of thing might be done at our railway crossings now, though the purpose was perhaps better answered by words. With respect to the production of works of art, it was impossible to go back far enough. He had seen in an institution in London some carvings upon animals' bones that were dug out of the earth in the South of America, among flint knives, and so on. On these bones were carved outlines of figures, and upon the end of one of them a stag, which would have done very well indeed for the handle of an umbrella. These, he believed, were the earliest productions of art known in the world. The faculty of art was a natural creation which every one possessed, more or less; but the superior power was only given to a few. It would be a sad thing indeed if every man and woman was an artist. There was a genius in art as in other things. In mathematics, even, there was a genius; for mathematics was nothing more than bringing down to figures the imaginations and calculations of the mind. The utility of drawing was very great, not only as an amusement, but as a matter of business and a source of information. The late General Dundas, Commander-in-Chief at the Horse Guards, always used to stop any of his officers who were describing part of a country, with the remark, "Draw it, my dear fellow; two or three lines with the pencil will do much better than description." The same thing held true with regard to workmen. Art had been generally known all over the globe, but it was a remarkable thing that the degree of perfection attained in it was in some sort an indication of the intellectual condition of the people. In proof of this he referred to the early ignorance of aërial perspective. He would urge all his young hearers who were students of art to persevere, as with real taste and perseverance success was almost sure to follow. The study of art was like a seed placed in the ground. Nothing was seen of it for some time; at last there was the appearance of something breaking through the surface of the earth; it spread and grew to be in some cases a splendid plant or tree.

MR. GAMBIER PARRY ON ART.

At the distribution of prizes to the Gloucester School of Art, Mr. Parry presided, and in his address he said:—If there are two things that should unite in our sympaties, they are art and religion; for they are the two highest matters that we can apply our minds to. I mean highest, not as necessarily the apex of intellectual attainment; but I mean that they are the highest aim and object to which our highest faculties can possibly be applied; because they are the modes of expressing those highest faculties with which we are endowed. If we mean, then, that it shall be of use to us, we must go in for it in its highest grade. But, coming down at once to the clear practical ground of the working man: we are here to elevate him, to do him good, to give him an opportunity of raising himself. And I hold that if there is one thing we are capable of giving him, anything that will combine more strongly things necessary to his advancement, it is the working of the mind, the training of the eye, and of the mechanism of the human hand, in the practice of art. I look upon art as a great object of national education; and it is not I alone who look upon it in that light—it is publicly recognised as such. I want you to get over the idea that art is only a matter of amusement. It is nothing of the kind. I say that for educational purposes art has been acknowledged as a matter of national necessity. Twenty-five years ago there was no idea of the kind. In the Middle Ages, England was a very artistic nation: we know it from history and from the remains in our libraries and museums. Works of art were then valued on the Continent because they were English. After that troubles arose, commercial, social, and political difficulties; and we, being an energetic nation, threw ourselves into everything heart and soul, and we settled down into the hard work and stir of life and business; and art was left neglected. But, having gained our position, there was then time to consider these things. Allowing John Bull to be a very excellent fellow, still we must admit that there is in his very nature a good deal of room for refinement; and there is no doubt that, lending his mind to higher contemplation than that of the common ordinary things of human life, the opinion has grown here very strongly and very surprisingly that art must be taken up, and that by the Government, as an important branch of national education. Do not suppose that I am putting art on stilts. I want to bring it down to the essential qualities of the working man. If you look upon the matter in a commercial view, I think that there is one phase of it which has escaped expression. It has been stated on occasions of this kind, that art has a commercial value. But there is another way of looking upon it. I say that the more spheres of action you open to your public, the more opportunity there will

be for the development of native genius and talent. There may be men living by the sweat of their brow who *are* only equal to the hewing of wood and drawing of water. But you do not know what a man may be from his exterior. He may be richly endowed for aught you know had he only opportunity to show it. Afford him that opportunity—draw him out—help him to give his talent expression. Take the class above that of the working-class—the highly-educated gentlemen of Eton and Oxford. A very intimate friend of mine passed through both with a most admirable character, without going in very strongly for any one thing. He was a thorough-going, hearty fellow, excellent at football at Eton, and a boating man at Oxford. He was altogether a capital fellow, and a serious fellow too. But he never knew what was at the bottom of him. He began as he was leaving Oxford to think about a profession. He was too old for the army and the navy. Law? Well, he felt that was not his way at all. Take holy orders? That would have been according to his sympathies, but he felt it was not his line. And so he beat about, and did not know what to do. At last he put himself into an architect's office. He is now one of the leading architects of the whole of England, one of the most poetical architects of the present time. And that was the last profession he thought of: he never dreamt he was fit for it. So it may be that a man who is hewing wood and drawing water may be one who would be an honour to his country if you would only give him the opportunity to develop his power.

INAUGURATION OF THE ALBERT STATUE AT WOLVERHAMPTON.

HER Majesty, the Queen, accompanied by Prince and Princess Christian, Princess Louise, and the Earl of Derby, inaugurated the statue of the late Prince Consort, at Wolverhampton, on Friday in last week. The route of streets throughout from the High Green Station by Railway-street, Queen-street, Dudley-street, Snow-hill, Cleveland-street, Salop-street, and Darlington-street, was decorated in a lavish manner; but it would be tiresome to enumerate the various trophies erected in the way. Besides flags, triumphal arches, streamers, and wreaths of evergreens, however, there was one special feature in these demonstrations which calls for a passing notice—we allude to the trades' trophies placed along the line of route. The first of these which attracted attention was a colossal pillar of coal some 30 ft. high, dug from the neighbouring mines of the Earl of Dudley. About 80 tons of coal were used in its construction, and some of the lumps weighed as much as three tons. Another characteristic erection, placed in School-street, was ingeniously composed of the various kinds of hardware manufactured in the district. On Snow-hill the Crimean gun, presented to the town, was converted into a war trophy, flanked by cannon balls, rifles, and national standards.

The amphitheatre, to which the party were processionally conducted, was a large octagonal wooden building, constructed to seat about 2,500 persons, who were admitted by tickets issued by the local authorities. The building was covered, but was partly open at the sides, freely admitting the biting north-east wind, to which ordeal the crowded occupants submitted for fully two hours; the authorities ordering that no person should be admitted later than half-past twelve o'clock. The Queen's Pavilion was erected at the west entrance. It was about 18 ft. square, and draped in crimson cloth, ornamented with white wreaths and roses. Crimson curtains were looped up all round, and over the front facing the statue (which was in the centre of the amphitheatre hidden by royal standards), were the arms of the Prince of Wales and the borough of Wolverhampton. In the centre, towards the front of the Royal Pavilion, was placed a chair of state and footstool for her Majesty on a raised dais, with chairs on each side.

The ceremony altogether did not occupy more than twenty minutes.

After her Majesty had commanded the statue to be unveiled, she addressed Mr. Thorneycroft the sculptor, complimenting him on the completion of his work. The statue we have before spoken of, but we may here add that, with the pedestal, it stands about 16 ft. high. The prince is represented in the uniform of a field-marshal, and the attitude chosen is that of returning the salutation of the people, the prince appearing to be gently restraining his charger. It was the desire of her Majesty, as the official description of the statue reminds us, that in this—one of the series of equestrian statues by Thorneycroft—the prince should be represented in military dress. During the progress of the work her Majesty visited Mr. Thorneycroft's studio, and lent the sculptor the uniform worn by the prince, as also the saddle-cloth. The prince's favourite charger was likewise placed by the Queen at the disposal of Mr. Thorneycroft. The pedestal on which the bronze figure stands is of grey Dartmoor granite, the upper portion of which is polished.

EARLY REMAINS IN SOUTHWARK STREET.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the opening meeting of this Association, Mr. Godwin, V.P., in the chair, after various interesting communications had been made by Lord Boston, the Rev. J. Adams, and others, Mr. Wimble exhibited a large collection of Roman antiquities, with a few relics of earlier British times, procured with the utmost industry during the month of November, from some diggings in new Southwark-street, between Southwark-square and Winchester-street. He had been assisted in his observations by Mr. Syer Cuming, who gave a particular account of the discovery, and was half-disposed to view the spot as the site of a "lake dwelling." This led to a highly interesting discussion, in which Mr. Thos. Wright, M.A., Mr. E. Roberts, Mr. Gordon Hills, and others, took part. The space had been examined by sinking about a dozen pits, 6 ft. square, and in every instance, except one, the pits, when sunk 4 or 5 ft., disclosed oak and beech piles standing in parallel rows. Above them was found the abundance of Roman ware and other works exhibited, and lower down the British remains. The chairman thought the evidence of the age of the piles deficient, and this without casting any doubt upon the age of the other relics. The foot of one of the piles, 5½ ft. long, and about 10 in. square, with a long tapering point, was exhibited.

PARIS.

THE large new reading-room of the Imperial Library, in Paris, will be soon finished. There are to be fourteen grand tables, and the decorations are magnificent. It will rank among the first library saloons in the world.

The Rue de Turbigo has at last been opened throughout; pedestrians can circulate now from one end to the other of this street, which is sure to become one of the most animated in Paris.

A new street has just been opened at the south of the church of Saint-Nicholas des Champs, in the Rue Saint Martin, which it completely disengages on that side. The southern doorway of this church, which is to be restored and isolated, is a remarkable specimen of the architecture and sculpture of the Renaissance.

The disengaging of the Halles Centrales, at the north side, is being actively carried on, and for this purpose the narrow Rue de la Réale is being widened out. This street, which dates from the twelfth century, when transformed, will form the continuation of one of the great covered thoroughfares of the Halles, and abut upon the newly-opened section of the Rue de Turbigo. In 1175, the Rue de la Réale was included in the small fief de Thérouenne, of which a portion was ceded, in 1181, to Philip Augustus by Adam, archdeacon of Paris, to facilitate the construction of the Halles. At a later period it received the name of Jehan Bignes, an *échevin* of Paris. Of the two streets giving access to the Halles, from the quays, on the south side, that which forms a continuation of the Pont Neuf is being constructed with astonishing celerity; the other, which starts from the intersection of the Rues Saint-Denis and de Rivoli, is nearly cleared away.

Another change is to take place of no less importance in the neighbourhood of the Rue du Temple, which has for some time past been inadequate to the wants of circulation; this is to be remedied by the widening out of all the streets between the Rues de la Verrerie and de Bretagne. The Rues des Billettes, de l'Homme-Armé, du Chaume, du Grand Chantier, des Enfants-rouges, and Molay, are all to be newly aligned and enlarged.

On the south side of the Seine, the transformation of the Garden of the Luxembourg is advancing rapidly. That portion of the Garden doomed to disappear has been attacked on all points. The line of the new transversal street, which is to limit the Garden on the south side, passes to the left of the temporary pavilion in which lectures on arboriculture were delivered; crosses the lilac shrubberies near the pear-tree orchard; demolishes totally the little building, now standing, of the Convent of the Chartreux; and, leaving intact the pretty summer-house devoted to agriculture, gains the Rue de l'Ouest, at the east of the Rue Vavin.

The works of restoration of the exterior of Notre Dame have been nearly completed.

At the New Hôtel Dieu, the works for the foundation are actively progressing.

According to the *Presse*, the decorative paintings of the interior of the new church of La Trinité have been executed by Messrs. Jobbé-Duval & Barrias, who ornamented the tympana of the grand nave and the gables at each extremity, and by MM. Emile Lévy & Delaunay, who were charged with the execution of the six great figures of the Chapel of the Virgin. M. Balze was appointed to execute the paintings on porcelain, and to M. Denvelle was confided the general decoration. As to the works of sculpture, which will cost about 7,680*l*., they have been executed by many artists of merit, among whom we may cite MM. Cavelier, Maillet, Crauk, and Carpeaux, to whom were entrusted the four principal groups,—Justice, Force, Prudence, and Temperance; M. Guillaume, to whose chisel are due the statues of St. Athanasius, St. Gregory, St. Hilaire, and St. Augustine; MM. Doublemard, and Dantan, jun. MM. Oudinot & Nicod have executed the fine painted windows of this new church. The sum allotted for the construction of this edifice by the municipal council amounts to 155,556*l*.

SCOTLAND.

Edinburgh.—A movement for providing a public park for the west or north-west district of the city, is now to be revived, and a memorial on the subject to the Lord Provost, magistrates, and council is in course of signature. The memorial sets forth that the ground immediately to the west of Stockbridge and in front of Oxford and Buckingham terraces is as yet unoccupied; and the vacant ground stretches away as far as Craigleith Quarry. This ground is skirted on the south by the Dean-road, a terrace commanding a splendid and very extensive prospect, embracing the Firth of Forth and some of the mountains of Fifeshire, Perthshire, and Stirlingshire; and this road is already more resorted to as a promenade than any other road in or near Edinburgh. It is also skirted on the north by the Comely Bank-road, and is therefore easily accessible on all sides. This is, therefore, the site which they suggest for the proposed new park.

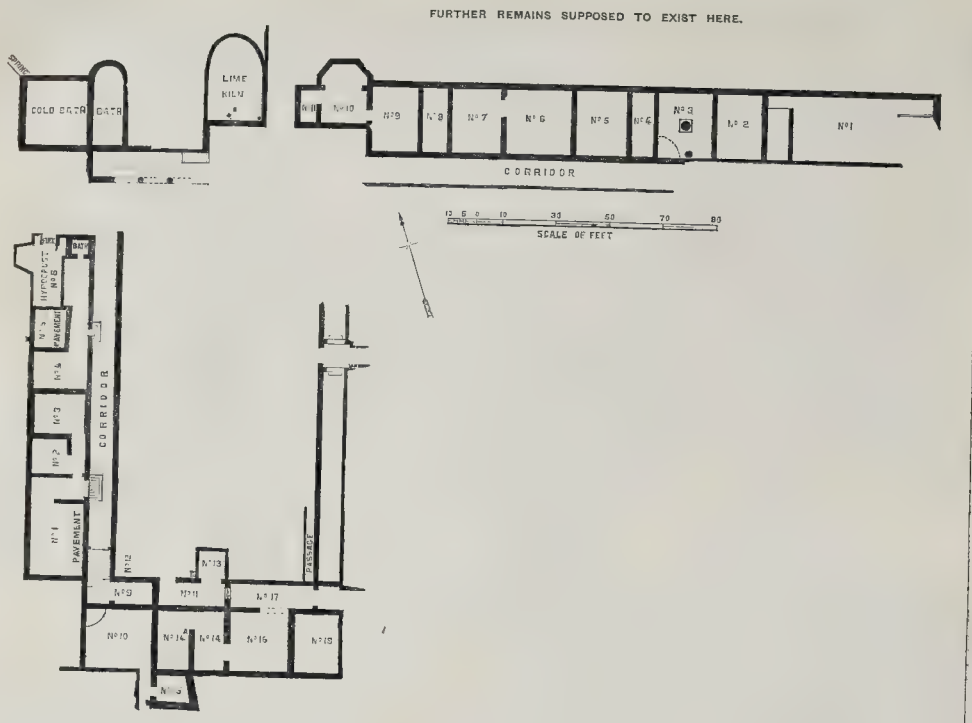
Aberdeen.—It has been resolved to restore the ancient cathedral church of St. Machar. A committee has been appointed and an architect is to be consulted as to a thorough and appropriate restoration of the nave of the cathedral. The subscription-list is already opened to the extent of 950*l*.

CAN WE SAVE THE CROPS IN BAD WEATHER?

WE are glad to find that some of the provincial papers are weighing our observations as to the preservation of grain crops. The *Worcester Herald* says,—"The *Builder* suggested the other day that it might be found useful to hand-gather the corn crops in such awfully rainy seasons as that of last harvest, and our contemporary stated his reasons in the circumstantial and convincing style in which he is in the habit of treating all manner of practical subjects. A farmer, Mr. R. E. Smith, of Crossington, Loughborough, has replied to the *Builder*, and seeks to controvert the latter's proposition by stating his views derived from actual experience. We shall not err on the side of laying uninteresting matter before the reader in bespeaking his attention to Mr. Smith's statement, which we copy here."

After printing the letter, the writer proceeds,—

"It is a sign of the times, and a satisfactory one too, to find a farmer thus able to enter the



PLAN OF ROMAN BUILDINGS, CHEDWORTH FOREST, GLOUCESTERSHIRE.

lists with a practised writer, even although the subject be agriculture. The latter condition of the controversy is not indeed quite hollow against the *Builder*, as our contemporary is abundantly able to form an opinion and express it on any practical subject, so that his readers shall be at no loss to understand the question at issue. Still every cock has a certain advantage on his own walk over every other, particularly in agriculture, to which every man believes he can turn his hand, a faith quite robust in those who have tried many ways of getting on in the world, and slipped back in all. The *Builder* does not admit that it is the best policy to save the straw at the expense of spoiling the grain. He puts it that the latter is so much more valuable than the other, that even if one must be less cared for in order that the other may be saved from partial deterioration, it is reasonable to take that course rather than sacrifice the condition of the far more valuable corn in order to save the straw."

ROMAN BUILDINGS IN CHEDWORTH WOOD, GLOUCESTERSHIRE.

Some time ago we gave particulars, as related by Mr. Farrer, of the discovery of Roman remains in a portion of Chedworth Wood, the property of Lord Eldon, and not far from Withington.* With the aid of Mr. David Brandon, who was consulted by Lord Eldon's trustees as to the best mode of protecting the remains, we now give a plan of the walls. Many persons think it doubtful if the buildings were occupied as villa residences, or whether they formed part of a military station, but that cannot be determined at present.

The tops of the walls have been covered with the tiles, forming part of the remains, laid in mortar, which will preserve them from being further injured by frost and damp; and the tesselated pavements are now protected by wooden sheds lined on the outside with similar tiles, agreeably with Mr. Brandon's suggestions. We repeat a few of the particulars already given.

One of the buildings was erected in the form of two sides of a square, looking east and north. Along the side looking east ran a corridor about 9 ft. wide and 133 ft. in length. The rooms, evidently the best ones, are apparently all paved. The southern one, the largest, retains a good pavement. It is laid apparently on a floor generally solid, but with a large flue round part of the inside of the walls, and flues running also diagonally through the room. The level of the rooms is about 3 ft. 6 in. above the corridor, and is reached by well-worn steps in two places. The northern room on the same side has been on a hypocaust, warmed from an external fire-place, shown in the plan. Adjoining it is a bath, 7 ft. 2 in. by 5 ft. 4 in., and 4 ft. 4 in. in depth. Near the bath was a circular place, supposed to have been a well or trough, 4 ft. wide by 2 ft. 10 in. The room or rooms in this part retain a good pavement. The walls are of the stone of the country, unhewn. They are mortared; and the height left averages about 4 ft. No indication of them remained above ground. The side looking north has been about 95 ft. in length, and the rooms have been two deep, generally, but built irregularly; and being on the slope of the hill the eastern ones are on a lower level than those adjoining the better part of the building. The total number of rooms traced clearly at the time of making the plan was eighteen.

The second building all but, if not quite, adjoins and stands at right angles to the first. It consists, so far as at present can be seen from the excavation, of one corridor of about 300 ft. in length, and 10 ft. 3 in. in width, opening into rooms of various sizes. Thirteen distinct rooms have been cleared, of which nine are of the uniform depth of 24 ft. 6 in., and vary in breadth from 8 ft. 9 in. to 24 ft. The tenth is of pentagonal form, 22 ft. in the deepest part. The height of the walls left after the clearing away of the rubbish is about 5 ft. at the back, where the hill rises.

* See vol. xxiii., p. 605.

STREET ARCHITECTURE: BANBURY.

The dwelling-house and shop which form the subject of our illustration have been erected upon the site of a public-house and cottages recently burnt down. The house, the property of Mr. W. J. Douglas, occupies the corner plot of ground, and is immediately in front of his residence: it was designed to present an ornamental appearance when viewed from his grounds. The shop, belonging to Mr. Coleman, is intended as a retail spirit establishment, in connexion with wholesale stores.

The building, though of narrow frontage, extends to a considerable depth, and consists of the front shop, bar-parlour, and separate residence, most of the rooms being lighted from the central passage, from which, also, communication is made with extensive arched storage cellars, running the entire length of the building. The frontage of the two blocks of buildings being about equal, it was deemed desirable to make the general outlines to correspond, thus gaining the appearance of greater breadth.

The materials used are red bricks with ornamental bands of red, white, and black bricks at intervals, the heads of windows and doors, string courses, &c., being of Bath stone. The pillars are of a different coloured stone. The roofs are covered with slate, having wrought-iron finials. Mr. Claridge, builder, of Banbury, carried out the house and shop for Mr. Coleman; Mr. Douglas's house was built by workmen under his own superintendence; Mr. W. Wilkinson being the architect in both cases.



STREET-HOUSES IN BANBURY.—MR. W. WILKINSON, ARCHITECT.

THE MANCHESTER LADIES' SANITARY ASSOCIATION.

THE annual meeting of the friends and subscribers of this institution has been held in the Mayor's Parlour, Town-hall, the Mayor presiding. The committee appealed to the meeting for enlarged support, owing to the inadequacy of the funds to meet the requirements of the undertaking. The General Sanitary Association in Manchester was flourishing, and doing its work well and nobly, but the ladies' committee thought there was a place in the sanitary field for house-to-house visitation, and kindly counsel upon domestic arrangements, which women alone could fill. The Mayor, in opening the business, said that where the corporation left off it was fitting that the ladies should begin. It was impossible that the corporation could enter into private dwellings for the purpose of enforcing sanitary reform,—this could only be done by ladies. The adoption of the report was moved by Dr. Turner, who said that even the dire calamity that had recently occurred in respect of the floods might result in good, inasmuch as it would lead to the erection of a more substantial and healthy class of buildings, to replace those which had been damaged or destroyed. The Rev. Mr. Doyle strongly animadverted on the practice prevailing in Manchester of building houses "back to back," for the purpose of economising space, to the detriment of the health of the inhabitants. The Mayor, before putting the resolution, said that the corporation had already removed 600 or 700 cellar dwellings, but the question arose, Where were they to put the poor people who inhabited that class of houses? The public had not come forward to assist in meeting the difficulty of providing accommodation for poor people who would be unable to pay heavy rent. The resolution was carried. The next resolution earnestly invited co-operation in the visitation of the poor.

COMPETITIONS.

Plymouth.—Three Towns' Banking Company (Limited).—The premiums offered by the directors of this company, for the best and second best designs for new premises, have been awarded as follows:—First premium of 25 guineas to Messrs. Hine & Norman, architects, of Plymouth; and the second premium to Mr. Brown, architect, of Leeds. A competitor says,—the authors of the design to whom the first premium was awarded were consulted as to the plans submitted (eighteen in number), and their relative cost, before the directors had "made up their minds;" and adds, that "it would have been much more satisfactory had advice been sought from a disinterested professional man."

ARTISANS AND TRADE PARTNERSHIPS.

IN a paper by Mr. Wm. Hawes, on "Limited Liability, and its Relations to Manufactures and Commerce," read at the Society of Arts on the 28th ult., the reader said:—If proper means be now taken by all employers of labour to enlist the goodwill and energy of their men by giving to each workman a personal interest in the profits resulting from his labour, the existing antagonism between labour and capital will be gradually weakened, till, in a period not very distant, we may hope to find all classes of producers of wealth united in a joint endeavour to obtain by most healthy co-operation the best results for their mutual benefit.

For myself, I cannot express surprise that the antagonism, now so often complained of, should exist between labour and capital. The men feel day by day how little their physical position has been improved since their fathers' time, and must be sanguine indeed if they can see much prospect of their children being in a materially improved position to their own. Their work is as severe; their houses are but little if at all improved; their food is no better; and the education given to them as children, hardly ever of so practical a character as to be useful in after-life, they have little if any time to improve. I am, of course, speaking from a workman's point of view; for admitting, as I am glad to do, that during the past twenty years improvement has in many respects taken place in their social condition, yet, looking at it as a whole, I fear it has been so gradual, and from bad to only a little better, that they do not, indeed cannot realize it. Can it then surprise us that they should look with some jealousy at the enormous fortunes accumulated all around them, often within their own lifetime, and at the princely state in which their employers live? It appears to me to behove all whose success is dependent upon the labour of others, and especially those who employ large numbers of workmen, to think seriously of the great advantages they may derive from the improved spirit which would animate the whole of their establishments, and the great benefit which they may confer on their men, by placing them, as they now can do by availing themselves of the provisions of the Act of 1865, in the position of partners in the products of their labour, and as parties interested in the most economical and efficient management of the business. The saving to be effected by each of the 1,000 men employed in a large factory,—in time, in material, and in general economy,—if he felt he was working for his own benefit, would produce a fund that would, I believe, surprise both masters and men.

CLASSIFICATION OF THE FRENCH EXHIBITION.

IN the course of the opening address at the Society of Arts, Sir Thomas Phillips said that, in addition to the Exhibition Building in the Champ de Mars, the park itself is rendered available for the display of articles in two of the ten groups into which the Exhibition is divided. Those two groups will include articles for which the interior of the building is not suited, such as agricultural implements and model buildings, as well as machines and apparatus for the exhibition of which the direct application of fire is necessary. The building itself has been specially arranged so as to present a division or separation of the objects exhibited, not only by countries, but also by classes,—an idea which is not new, for it was actually proposed by this Society for the Exhibition of 1862; but at that time, for reasons unnecessary to enter into here, that plan was not adopted. The building presents a series of concentric passages, in juxtaposition with each of which one of the groups into which the classification is divided will be shown, whilst each country has a segment of the oval divided by passages radiating from the centre; so that in passing round the building by any one of the concentric passages, we shall come upon each country in succession, and shall find in each group objects of the same class.

The system of classification which has been adopted differs entirely from any hitherto devised, and forms a special feature of the Exhibition, the shape and arrangements of the building having been specially adapted for the display of the objects thus classified. The classification is based on the idea that these exhibitions are intended to bring into notice all the resources which industry can create for satisfying the wants of mankind, and the Exhibition is divided primarily into groups, which are intended to correspond with the great wants of the human family. The wants thus common to all people are divided into the following departments:—Food; clothing; dwellings; raw materials and their treatment; the liberal arts; and the fine arts.

These divisions are considered by the French authorities to represent everything connected with the industry of a people, and they form the basis of the following groups:—

1. Works of art.
2. Materials used in the liberal arts.
3. Furniture and articles necessary for dwellings.
4. Clothing and articles required for the person.
5. Products, raw and manufactured, connected with mining industry, forestry, &c.
6. Apparatus and processes used in the arts.
7. Food (fresh and preserved) in various states of preparation.
8. Live stock and specimens of agricultural buildings.
9. Growing vegetable products and specimens of horticultural apparatus.
10. Articles exhibited with the view of improving the physical and moral condition of the people.

These ten groups are again subdivided into classes, amounting in all to ninety divisions.

The classification adopted in our Exhibition of 1851, and which, with certain modifications, was followed both in Paris in 1855, and in London in 1862, consisted of four great departments:—

1. Raw materials which nature supplies for the industry of man.
2. Machinery by which man works upon those materials.
3. Manufactured articles produced by man's labour.
4. The art which man employs to impress them with the stamp of beauty.

These departments were again subdivided into classes, which amounted in all to thirty in 1851, and to thirty-six in 1862.

The proceedings in Paris are under the management of a Commission, of which the Prince Imperial is honorary president.

The English arrangements are entrusted to the Government Department of Science and Art, aided by a Royal Commission, of which His Royal Highness our President is chairman, and on which the Council of this Society is represented by your chairman and other members.

The London Committees for the allotment of space in most of the classes have held their meetings at the house of the Society, under the superintendence of your Secretary, and have divided the space placed at their disposal.

At the former Exhibition of 1855 the members of the Society, in their collective character, paid a most interesting visit to Paris, and it will be a question for consideration whether a similar course may not be advantageously adopted in the coming year. Such a meeting of gentlemen interested in the various branches of art and manufacture would doubtless afford many opportunities for the interchange of valuable information, as well as for pleasant social intercourse; and the French authorities would probably grant special facilities to an influential body of visitors for an intelligent and careful examination of many of the leading manufactories and public works in and near the French capital.

It is the anxious desire of the Council that the industry and art of this country should be adequately represented at the Exhibition, where the best productions of France in their respective classes will assuredly be found, and where the great skill and taste of the French workman in many departments of labour will receive ample encouragement.

MANCHESTER TOWN HALL COMPETITION.

ON the motion of Mr. Alderman Rumney, the Town-council of Manchester have determined on a scheme for obtaining designs, which ought to produce a good result:—

"That it be an instruction to the General Purposes Committee to advertise for sketches of designs for the new Town-hall.

That from the sketches of designs thus submitted not fewer than *six* nor more than *twelve* shall be selected, and that the architects who may have furnished such selected sketches shall be invited to send in for competition plans and drawings of the Town-hall.

That to each architect so competing (except the one whose plans may be adopted) there shall be paid the sum of 200*l.*, and in case it shall be deemed desirable to retain as the property of the Corporation the plans of any architect in addition to those adopted for the building, a further sum of 200*l.* shall be paid to the architect."

If the Council, beyond this, make it clear that a competent tribunal will be appointed for the duty of selection, they will scarcely fail to obtain the confidence of the profession, and a good response to their invitation.

ARCHITECTS' RESPONSIBILITIES.

S. Vosper, Stonehouse, Plaintiff, v. J. Ambrose, Architect, Plymouth, Defendant.—A sitting was held at St. George's Hall, Stonehouse, on Wednesday, the 14th ult., before Mr. T. Mitchell, the referee appointed, to assess the amount of damages, due to the plaintiff from the defendant, for certifying imperfect work to be complete and to his satisfaction, whereby the plaintiff was made liable to the contractor for the full amount of the accepted tender, and additional work. It was pleaded by the contractor, in evidence for the defendant, that the work was of a very indifferent character, owing to pressure occasioned by a recent strike amongst the operatives, and the consequent employment of apprentice labour. A verdict was given on the 28th ult. Damages for the plaintiff, 32*l.* 13*s.*, with costs.

RAILWAYS AND THE METROPOLITAN BUILDING ACT.

At Greenwich, an important case, under the Metropolitan Building Act, as affecting the assumed right of railway companies to erect structures upon surplus lands belonging to them, came before Mr. Maude, the sitting magistrate.

The complaint was laid by Mr. Snooke, the district surveyor of Rotherhithe; the South-Eastern Railway Company having let two of their arches to a person who converted the same into cow-houses, projecting to the extent of the surplus land on one side.

Mr. Brown, from the law office of the railway company, contended that the company was exempt from the operations of the Act.

Mr. Maude said he had no doubt whatever that the railway company were wrong, otherwise they might claim the right, which was not allowed in the metropolis, to erect a town of wooden cottages upon surplus land in their occupation, and let them to tenants. His decision, therefore, was that the projection from the arches in question was not an exempted building.

Mr. Brown applied for a "case," for the decision of the Court of Queen's Bench.

Mr. Maude expressed his willingness to grant it, if, after consideration, it should be applied for.

It is quite time the asserted right of railway companies under this Act should be properly defined. Irregular and dangerous structures have been put up in parts of the metropolis under cover of their supposed exemption.

DISTRICT SURVEYORS UNDER THE METROPOLITAN BUILDING ACT.

On Friday, the 30th ult., the Metropolitan Board of Works proceeded to the election of surveyors for the districts of East Kensington and West Kensington, the two districts formed out of North Kensington, held by the late Mr. Beachcroft. For East Kensington there were 21 candidates present, and from these the following six were elected to go to the poll:—Messrs. Coates, Hart, Bell, Jennings, Long, and Sidney Godwin.

Ultimately Mr. Coates was elected.

Mr. Frederick Doulton, M.P., pointed out that while there were only 37 members present at the last voting, when the question laid between Mr. Coates and Mr. Hart, 43 votes were recorded, so that six members must have voted for both.

The Chairman, Sir John Thwaites, said, however this might be, it did not affect the election, since after the comparative voting, the question shall Mr. Coates be the district surveyor for East Kensington, ay or no, was put and carried.

For the district of West Kensington, 22 candidates were present, and from these the following six were elected to go to the poll:—Messrs. Hart, Bell, Jennings, Long, Sidney Godwin, and Baker.

Ultimately the election fell on Mr. Hart.*

Mr. H. L. Taylor moved,—"That the several district surveyors of the metropolis do forthwith report to this Board, whether the duties pertaining to the office are performed by them personally or otherwise, and that they do also, from time to time, in their usual monthly returns, make a like report." In support of this motion he said he thought every member of the Board would agree that they should obtain such information as would give them a better control over district surveyors than they had at present. His object, and he believed it was also the object of the Board, was, that those persons whom they appointed as district surveyors should personally perform the duties. When a gentleman presented himself for the office of district surveyor, he was required to bring with him a certificate of his ability, and without that certificate he was not eligible to be appointed. Notwithstanding those high qualifications which were required for the important duties they had to perform, he found that many did not perform them personally, but by deputy. Those duties were of a very important character, and for which the public had to pay a large amount for the supervision of the buildings erected. He hoped the Board would agree with him that they ought to have some information from those gentlemen from time to time as to whether they discharged their duties personally; and if they were unable to do so, let them come to the Board and ask for some person to be appointed to assist them, as no man appointed to the office of district surveyor had a right to depute his duties to others, without the written consent of the Board.

The Chairman said there appeared to be something indefinite in the words of the motion "from time to time;" and whether the district surveyor was to inspect every building constantly, or only give his certificate that the building was properly erected.

Mr. H. L. Taylor said he had no objection to refer the question to some committee to lay down some general rule, but wished in the first place, to pass his resolution for the guidance of surveyors, and see what the effect would be. He had no doubt it would bring answers that some district surveyors did not perform their duties, but delegated them to other persons; and the subject would also undergo investigation in the various districts.

Mr. Robert Taylor seconded the motion. He believed that good results would follow if it was passed. A few weeks ago he heard a district surveyor say that if the gentlemen at that Board insisted upon his personal attendance he should give up his appointment.

Mr. Richardson opposed the motion, for the cases were very few indeed, or he might say that the district surveyors never performed all the duties. In 99 cases out of 100 they went and saw a building once or twice in the course of its erection, while the clerk of the works saw it two or three times a week. It was absurd to suppose that the district surveyor would go and see every floor laid; and therefore he thought that this subject would be much better discussed in committee. It was undesirable that a motion should be brought forward so indefinitely worded as to whether the services of district surveyors were personally performed or not, and therefore he should vote against it.

Mr. Howe considered the motion to be a very useful one; but it did not go far enough. It was important to know whether district surveyors could appoint a deputy or not.

The Chairman said there was a difficulty about it. A district surveyor often appointed a clerk, and he performed the duties, but he did not call him his deputy.

Mr. Legg said he should support the motion, as it would show what district surveyors did their duty and who did not. If they passed that motion he believed they would get a fair and proper return, as he did not think any one would be so dishonourable as to say he personally performed the duties if he did not do so.

Mr. Brooking said he should support the motion, and then they should know where district surveyors did not do their duty.

Mr. Savage said this was a very excellent motion, as he knew many district surveyors who did not do their duties as they ought.

Mr. H. L. Taylor, in reply, said he was surprised that any one should object to his motion, which was only for the purpose of obtaining information. He could not understand why any one should object to learn from district surveyors that they performed their duties personally, so that the Board could appreciate their services as they ought to do. In other cases where they employed clerks, it might perhaps be said only for the purpose of collecting fees, if the return did not give them all the information they required, they could then ask for more.

The Chairman then put the motion, and it was agreed to.

The Board then proceeded to receive a return from the superintending architect, showing the district surveyors who have been allowed to appoint deputies for the performance of their duties. The report stated that this had been allowed, for sufficient reasons set forth, in the case of Mr. Charles Badger, surveyor of the district of Lewisham; and Mr. T. L. Donaldson, surveyor of the district of North Kensington.

* At a previous meeting Mr. Tolley was elected district surveyor for Westminster, and Mr. Peebles for North Marylebone.

SHALL THE BUILDERS HAVE ALMSHOUSES?

THE BUILDERS' BENEVOLENT INSTITUTION.

On Monday afternoon a special general meeting of friends of the above charity was held at Willis's Rooms, St. James's, Mr. Benjamin Hannen (president of the Institution) in the chair, to take into consideration the following rule:—

"That all subscriptions, donations, and bequests to the 'Building Fund' of the Institution, together with all dividends payable from time to time (of which a separate account shall be kept), be invested in the public funds or other Government securities, in the names of the trustees; and that the directors, upon a sum of 2,500*l.* being subscribed, shall, within three months therefrom, call a special meeting of the subscribers relative thereto."

Among the gentlemen present were Messrs. Geo. Plucknett, Thos. Cozens, J. Thorn, G. Bird, Joseph Bird, W. Ellis, B. D. Dove, W. Morris, R. Yeo, W. Todd, — Waters, T. Stirling, H. W. Cooper, — Masters, M. B. Newton, &c.

The Chairman having referred to the above rule, upon which the meeting had been convened, said the amount of stock had then reached 2,818*l.* 3s. 11d.; and that they had then assembled together to decide what steps should be taken, either to follow out the intention of the resolution, or in what way the money should be disposed of. He would leave it in the hands of the meeting to suggest what course they would propose to adopt.

Mr. W. Todd said there appeared to be some disinclination to open the ball, but he had really and purposely come down to speak and vote on the question. He would give his views, and probably that might excite others. As one of the earliest subscribers, he had always been opposed to the building of almshouses, and his idea was based upon some little experience. He looked upon almshouses as next to workhouses. This was his opinion.

A Voice.—Correctly so.

Mr. Todd felt that no matter how mild, true, or noble was the charity, it should give to its recipients the option of living where they liked. He would not say almshouses, for those who were the givers of charity would wish that their right hand should not know what their left hand did. He opposed almshouses on another ground, and that was on the score of expense, for a large sum of money must be sunk to produce a noble pile of buildings. They could have no little poking almshouses; they must have an ornament to the metropolis, and how far would 10,000*l.* go? Let it go to the amelioration of the condition of their decayed brethren, and their additional comfort.

Mr. Waters said he had come from Camberwell with the view to oppose the erection of the almshouses.

Mr. Cozens: And so divert the intention of the institution.

Mr. Waters had not come for that purpose. He wished the Society well with all his heart. He had inquired from the inhabitants of almshouses of various societies, and found that a great many of them had been in better circumstances, and preferred being with their friends to being in almshouses. He would say, "Let us give without offence, and as little as possible hurt their feelings." At the basement, the money was only 2,500*l.*, which produced 70*l.* per annum, and he found that with about forty pensioners on the books that would be about 1*l.* 7s. 6d. each. He would say, let them have it and live where they liked.

Mr. Ellis thought the question was, had they the right to put the money to a purpose for which it was not subscribed? He instanced one society to which a gentleman left 1,000*l.*, and upon that the money accumulated so that in two years they were enabled to build twelve almshouses, in three years ten more, and at the present time they had fifty-two. He thought the almshouses were necessary, but not compulsory.

Mr. Cozens (the founder of the institution) thought they had no right to interfere with the money subscribed for a certain purpose. It should not be diverted from that for which it was intended. If a man died and left 300*l.* towards building almshouses, what had they to do with it other than for the purpose for which it was left? It might be carried on for twenty years, and with other moneys similarly subscribed, and faithfully and truly husbanded, the desired result might be attained.

Mr. Thorn said that by Rule 18 it was shown that the rules of the Institution might be amended, as experience should show to be necessary; and held that a special alteration or amending was in conformity with that rule.

Mr. Stirling was of opinion that the money subscribed for a certain fund was quite insufficient to buy land for the building required.

Mr. Dove said, that if the 2,500*l.* subscribed in this case for a certain purpose were diverted into another course, other charities might be similarly diverted; and, after some remarks, he moved the following resolution:—"That it be recommended that there be a sub-committee formed from the general committee for the purpose of selecting such sites of ground as may be eligible for the erection of almshouses hereafter, within a radius of seven miles from Charing Cross, the land not to be less than three acres in extent, and a report of such sites shall be laid before the general committee, at their monthly meeting, in March, 1867, when they shall be empowered to negotiate the purchase of the site upon which they may determine."

Mr. G. Bird said he held in his hand a report of seventeen years ago, in which it was set forth that 5,000*l.* should be the specified amount, but that had since been altered to 2,500*l.* Apart from that, if almshouses were to be erected they should be within a reasonable distance; for nephews or nieces, sons or daughters, might wish to visit the inmates, and his impression was that it would be an act of cruelty to build such dwellings out of London.

Mr. Stirling then moved the following amendment:—"The sum of 2,500*l.* having been subscribed to the Building Fund, in accordance with Rule 15, sec. 3, this meeting is called. It is resolved that the said amount, being considered insufficient, the almshouses be not commenced until the amount is increased to 5,000*l.*"

Upon a division this amendment was lost.

Mr. Morris, a life-governor, said he had given his money for the Building Fund. If the English language had not been altered, the rule said that the money subscribed was to be applied to building purposes.

Mr. Todd then moved a second amendment upon the resolution before the meeting, viz., "That a special meeting having been called, and it being submitted by the directors that 2,500*l.* have been submitted in accordence with a portion of Rule 15, it is now recommended by the said meeting to merge the whole sum into the relief fund, and due notice be given to the whole of the subscribers."

The second amendment was then put, and upon a show of hands was negatived.

Mr. Cozens then remarked that he did not see why they should alter the design as originally intended.

The Chairman then put the resolution as proposed by Mr. Dove, which was agreed to.

A vote of thanks to the Chairman brought the proceedings to a close.

RAILWAY MATTERS.

We have taken occasion repeatedly to complain of the increasing nuisance of locomotive screeches (or whistles, as they are mellifluously called), and to warn our fellow-citizens of the hideous sleep-murderers which the numerous railway projects connected with the metropolis threatened to establish. It appears that the same nuisance is on the increase elsewhere throughout the country; and we are glad to observe that a movement has just been commenced by several municipal corporations in Lancashire, Yorkshire, and Cheshire, the object of which is to introduce a Bill in the next session of Parliament to suppress, to a certain extent, the annoyance caused by the present long-continuous and far too loud railway whistles. It is intended also to compel railway companies to supply coke instead of the commonest coal to their engine-drivers.

The truly infernal noise which most of these screeches make is far worse through the night than through the day; and has little connexion with public safety, although it almost looks like a malicious retort upon the public for the heavy penalties inflicted for carelessness and injuries to passengers. The screeches are most generally used in goods trains by night, and, no doubt, enable railway companies to race one train after another with far less time intervals than formerly; but it is very questionable whether increased profits in this way realized can justify the utterly reckless disregard of the public comfort evinced by noises by night like the butchering of scores of mammoth pigs. These noises, moreover, are evidently not seldom mere playful idling on the part of engine-drivers, while letting off their steam, perhaps, by preference, plus the noise.

Several trials of peat fuel have been made on the Grand Trunk Railway of Canada. The peat

used contained about 20 per cent. of moisture. Considered by comparison, the peat seems to occupy a position between wood and coal; and it is believed that, when the percentage of moisture is reduced to 10 per cent., it will be found equal, if not superior, to either coal or wood as fuel, and the cost will be considerably less.

Of late railway companies have been in the practice of using coal instead of coke in their ordinary locomotives, made for the use of coke alone, and the result, as may be supposed, is anything but pleasant to those residing in the vicinity of railways. In the suburbs the injury to foliage and fruitage in gardens is very serious, and the sulphurous stench from the peculiar coal in use is often abominable. The Great Northern Company are especial offenders in these respects, and ought to be compelled to "consume their own smoke," just as others now are. The Marquis of Salisbury resolved to bring them to book about it before the Hertford county magistrates, and the case has been heard, but adjourned on the understanding that the company will do their best to abate the nuisance.

METROPOLITAN MUNICIPAL ASSOCIATION.

THIS Association, established to promote the better local government of the metropolis, propose to hold a meeting at St. James's Hall on the evening of Tuesday, the 11th instant, when it is expected the president, Lord Ebury, will take the chair. Motions will be proposed to the effect that, in the opinion of the meeting, the present system of local government in the metropolis is unsatisfactory, and requires immediate revision; and that the number of local bodies now participating in the government of the metropolis is unnecessarily large, occasioning the employment of an unnecessary number of officers, and a considerable amount of unnecessary expenditure.

PARTS OF LONDON BEYOND THE LAW.

ACCORDING to statements made at a recent meeting of the Works Committee of St. George's, Hanover-square, Turpentine-lane, Pimlico, is the nightly scene of inexpressible vice and debauchery, and the police are actually afraid to go through it. We are further assured by several correspondents that Honey-lane, leading along the side of the Brompton Cemetery from the Fulham-road to the Richmond-road, is similarly the resort of the most abandoned characters, and that the police avoid it. No single policeman, they say, would dare to walk down it at night. These are great reproaches to the governing bodies of this great metropolis, and should be remedied forthwith.

THE EFFECT OF A HIGH PRICE OF LABOUR IN THE JOINERY TRADE.

WE must not shut our eyes to facts, whether we be employers, operatives, or masters. The foreigners are upon us. On Wednesday last more than a thousand deal moulded doors, with many thousands of feet of jamb linings and skirtings, all from Stockholm, were sold by auction at the Albert Warehouse, Limehouse. We have seen the doors: they are well made, principally by machinery had from England, and to our usual sizes. There are several other cargoes to come; and there is little doubt they can be sold at a profit for very little over what the labour alone in producing similar work would cost English builders. The cleaning off of the doors might be improved, but this could be done there; even that part of the work, however, is not bad.

BUILDERS AND ARCHITECTS.

THE following letter has been sent from sixty-one builders and building firms in Birmingham to the secretary of the Birmingham Architectural Association:—

"*General Builders' Association.—Birmingham Branch.*
32, Cannon-street, Birmingham,
24th November, 1866.

SIR,—On the 9th of February last our committee had an interview with yours, on the subject of the unsatisfactory nature of the present system of contract agreements connected with our trade. We have lately, in conjunction with the General Builders' Association, taken steps to bring this subject before the architects of the country generally, and we understand that you will shortly have a communication in reference thereto. But in relation to some matters connected with the subject that are not specifically mentioned in the proposed communication, we think it desirable that we should come to an arrangement with you locally. We therefore ask you to adopt the following suggestions:—

That in all cases of contract, the architect on the one part, and the builders about to tender on the other, should, at a meeting called for the purpose, mutually or severally appoint a surveyor or surveyors to take out the quantities.

That in no case, until a form of contract shall have been agreed upon, shall the form of tender include any undertaking, except a simple offer to perform the work for a specified sum.

May we request you to bring this communication before your Association at an early meeting.

We remain, sir," &c.

CRIMEAN MEMORIAL CHURCH.

SIR,—In reply to Colonel Ainslie's letter in the *Builder* of last week, will you allow us to state that we entered into a contract with the Society for the Propagation of the Gospel, in 1864, for the erection of the Crimean Memorial Church, at Constantinople, and since that time the works have progressed as rapidly as local obstructions and difficulties would allow. The building is now nearly roof high, and may be expected to be entirely completed during next year. The whole of the works are being carried out according to the selected design, and under the superintendence of Mr. Street, architect. The names of our countrymen who fell during the Crimean War are, we understand, to be carved upon the stone facing of the interior of the building. ROGERS & BOOTH.

Gosport.

PROPOSED NATIONAL EXHIBITION OF ARCHITECTURE.

SIR,—I am sorry to find so few drawings have been sent to the Architectural Exhibition at South Kensington, but am not surprised, as I consider sufficient pains were not taken to make the matter known. As this attempt has evidently failed in what was generally expected of it, it seems to me it would be a right worthy object for the Institute of British Architects to get up at these galleries (which no doubt could be had) a National Exhibition of Architectural works, designs, models, &c. Original drawings by Jones, Wren, Vanbrugh, and others, should be hunted up. The authorities, perhaps, at the British Museum, South Kensington Museum, the Universities, &c., might be prevailed upon to lend the sketch-designs they have by the early Italian and German masters. Her Majesty, noblemen, and others, would, no doubt, contribute from their collections. As to modern architects, all that they have in any way respectable, not mere perspective, but working plans, they should send. There is plenty of room in these galleries for everything. If the heads of the profession would interest themselves in the matter, and contribute largely from their own works, the exhibition could not fail, I think, to be highly successful.

P. E. MASEY.

*** The suggestion is worth consideration, though, of course, quite aside the intention of the present exhibition.

CHURCH-BUILDING NEWS.

Stroud.—The chief stone of the new parish church has been laid. Except the tower and spire, the old church has been razed. The new church, as at present intended, will be cruciform, comprising nave with aisles terminated eastward by transepts, and a deep chancel, with chapels on the north and south sides. Taking the building as completed, the sacristy or vestry is on the east side of the south transept. The length of the nave is 79 ft., the width is 22 ft. 9 in. The width of the north and south aisles is respectively 17 ft. 6 in. and 14 ft. 9 in. The length of the transepts is 18 ft. 9 in., and the width 22 ft.; of the chapels, 25 ft., and width 18 ft. and 16 ft.; of the chancel, 29 ft. and 22 ft. 9 in. The height of the nave from the floor to the top ridge piece, is 47 ft. 6 in. The porch, which is the principal entrance, stands on the south side. It will have a doorway with circular shafts and carved capitals, and is approached by four steps from the level of the churchyard. The vestry stands on the south side of the chancel aisle and the east side of the south transept, and is 16 ft. by 16 ft. The vault for heating apparatus is underneath the vestry. There will be a new west entrance at the tower. The nave is divided from its aisles and transepts by an arcade of five bays on either side, supported by circular shafts with carved caps and moulded bases. Above the nave is a clerestory of fifteen lights, which has the effect of a continuous arcade, internally supported on shafts of red Mansfield stone. The nave is separated from the chancel by a simple low screen. The chancel is approached from the nave through an arch, the mouldings of which will be carved, supported on clustered shafts, terminated by corbels. The pulpit is on the north side of the chancel arch. On the north and south sides of the chancel are the chapels, opening into it through two arches on either side, supported by circular red Devonshire marble shafts: above these arches are spaces for mural decorations or carved subjects, illustrative of the life of St. Lawrence. There will be wrought-iron grilles in the archways. On the north side is the organ chamber. The reredos, as designed and intended, is executed in alabaster and precious marbles, but is not included in the contract. The whole church will be laid with Godwin's tiles. All the benches, doors, and usual wood fittings will be in English oak. The accommodation will be for 1,100 persons. The roof timbers will be the old ones replaced, which are of oak, of good early design and workmanship: they were discovered by the architects behind the old plaster work. The east window, designed by the architects, has been promised as a gift. Remains of the old work have been preserved, and will be built in and exposed in one of the walls of the church. The total amount of the contract is 6,066*l.*; extras probably 1,000*l.* The architects are Messrs. Wilson & Wilcox, of London and Bath; the builders, Messrs. Wall & Hook, of Brimscomb. The clerk of the works is Mr. Winfield. Of the 7,000*l.* required, more than 5,000*l.* have already been promised.

Etherley.—The church here, which is a debased Gothic structure, is being recast. The alterations at present in progress are in the Decorated Gothic style, and comprise a new chancel, organ-chamber, and vestry, and new seating. It is contemplated eventually to remodel the nave, tower, and nave ceiling. Some stained glass by Mr. Wailes, of Newcastle, in the present east window, will be replaced. The architect is Mr. John Ross, of Darlington.

Holloway.—The erection of a new church to accommodate about 1,000 persons, will shortly be commenced in the Westbourne-road, Holloway. It will be dedicated to St. David, and the district which will hereafter be assigned to it will be separated from St. Luke's, West Holloway. This district lies chiefly between the Liverpool and Caledonian Roads, and has a population of upwards of 8,000. A design, in the style which prevailed in this country during the fourteenth century, has been selected by the committee. The architect is Mr. E. H. Lingen Barker.

Sleaford (Lincolnshire).—The parish church of Newton, having undergone extensive repairs, under the superintendence of Messrs. Kirk & Parry, of Sleaford, has been re-opened for divine service. The chancel arch is new, occupying the place of a debased predecessor, somewhat similar to those which open into the aisles of the chancel. It became necessary to remove the late perpendicular clerestory, the weight of which had pressed too heavily on the side walls and pillars below. The eastern window of the chancel of four lights has been filled with painted glass, by Messrs. Ward & Hughes, representing in its fourteen compartments various scenes in New Testament history, beginning with the Annunciation and finishing with the Crucifixion and Ascension of our Lord. It is the offering of Sir Glynne Earle and Lady Welby-Gregory, of Denton Hall. The cost of the restoration of the chancel was defrayed by the rector; the repair and partial rebuilding of the nave and aisles, by the parishioners and Mr. William Earle Welby, M.P., whose seat is in this parish.

Bloxham.—St. Mary's Church, Bloxham, has been finally restored, at a cost of about 5,000*l.*, and re-opened for divine service. The committee of restoration consisted of most of the gentry and clergy of the neighbourhood, who derived considerable assistance from Eton College, which, possessing the rectorial power, has exercised it in restoring the chancel, at a cost of about 1,000*l.* The restoration of the church was commenced in the spring of last year. The body of the church has been restored by Messrs. Kimberley & Hopcraft, Banbury; the chancel by Mr. Barrett, of Bloxham; and the reredos by Mr. Earpe, of London. The last is composed of alabaster, marble, Caen stone, and Purbeck and Devonshire marbles. The nave roof is new, and of English oak. The north and south aisles, which had fallen into considerable decay, have been restored, with panels. In the north transept the whole of the rafters have been taken out, save one to show the nature of the old work. In the Milcombe Chapelry the monuments have been removed from the east window, which was partially blocked up, and placed on the west. A new altar, of Warwick stone, presented by the architect, is placed in the chapelry. The whole of the windows have been reglazed with cathe-

dral rolled plate, of two tints, and the floor laid with Godwin's encaustic tiles, copied in pattern from those found in the church. The whole of the roof has been re-covered with lead. The north porch has been brought out to its original length and re-roofed. The cusped rafters here are copied in detail from one in the Early English style, that was left buried entirely in lath and plaster. The design is curious. The south porch will be laid with Leyden tiles. The tower arch has been opened out, having been entirely blocked up with a lath-and-plaster partition, and the organ-gallery has been taken down. One floor of the tower has been taken out, and the other restored. The pews have been removed and their places supplied by oaken seats. The new pulpit is cut out of Caen stone. The chancel rood-screen has been replaced by Mr. Barrett, and re-decorated by Mr. Cottam, of Banbury. It is copied in design from the original. The whole of the window-tracery has been restored, and a new chamber built for the organ, which is by Mr. Walker, of London. The church is being heated by Messrs. Jones & Son, of London, by means of hot-water apparatus. The English oak screens, dividing the Milcombe Chapelry from the south aisle, have been prepared by Messrs. Kimberley & Hopcraft. In the course of the restoration several interesting relics, of ancient ecclesiastical architecture, have been discovered. In the south aisle, 10 ft. from the ground, there was a parvise or priest's room. This was entirely closed up, but is now re-opened. On the south side of the chancel there is a window, from which the holy eucharist was presented to lepers. The sedilia, which was also built up, has been restored. The piscina basin, which had been built up, and turned upside down as a seat for the sedilia, is again exposed to view. A painting was discovered on the north wall, over the door, representing St. Christopher carrying Christ across the waters. The saint is headless, and without one arm. Another has been found, depicting the tortures of the wicked in hell. Mr. James Redden, of London, has acted throughout the restoration as clerk of the works. The architect employed was Mr. Street.

Dursley (*Gloucestershire*).—The chief stone of Dursley Church has been laid. At the time when the restoration was undertaken hardly a wall was in a safe condition. The church, when again opened for divine service, will not be absolutely a new church, however, though its rebuilding was inevitable. In addition to the restoration of the old building, the plans include the erection of a new chancel on a scale and of a design more worthy of the church and town than the modern chancel which it succeeds. A building on its south side, in the form of a transept, will contain a vestry on the ground floor, and an organ chamber above. The latter will open into the chancel by a wide arch, in which the organ will be so placed that the front pipes will be in advance of the wall-face, and partly overhang the stalls, which, it is believed, will produce a good effect both as to sound and appearance. It is also contemplated to add a clerestory to the nave, and so to remedy the depressing effect noticeable in the old church of three flat roofs over nave and aisles at the same level; but neither this nor the new seating is included in the present contract. The contractor is Mr. Futcher, of Salisbury. The cost of the works contemplated is between 4,000*l.* and 5,000*l.* Of this the sum of about 3,500*l.* has been promised. The architect employed is Mr. T. G. Jackson, M.A., Fellow of Wadham College, Oxford.

Bristol.—All Saints' Church has been for some time closed for painting, repairs, and decorations, but is now re-opened. The work has been designed and executed by Mr. J. N. Pearce, decorator. The ceilings of the north and south aisles are painted a soft blue, with centres etched in gold; the cornice, which is decorated in green, red, brown, and black, upon a stone colour ground, is joined to the ceiling by an ornamental cresting of warm white. The walls, which have a stone colour ground, are decorated from the cornice with block diaper, each block being charged with a red rose. The surface is broken up with four bands of ornamental work, introducing the ivy-leaf. The nave ceiling is a soft blue, cut up with quatrefoil bands of warm stone colour, charged with vermilion crosses. The centres are etched with gold, and join the ceiling and cornice with a cresting of white. The walls at the west end are diapered on a stone colour ground with blue, grey, and red; the surface is broken up with bands of ornament, and the capitals of the Norman pillars are decorated. Above the caps the arches are painted to correspond. The end of the nave next the chancel is of a later style of architecture. The arches in this part are gilded and painted, and the caps are etched with gold and colour. The eight spandrels in the nave are decorated with the rose, holly, laurel, passion-flower, trefoil, vine, ivy, and lily; the shaftings of the pillars are decorated with bands of colour, charged with amulets. The chancel-arch wall is decorated with cruciform trefoil diaper, in a quatrefoil ground. The arch and shafting are gilded and painted entire, and decorated with bands, roses, and fleurs-de-lis. The ceiling of the chancel is a deep blue, powdered with gold stars. The cornice is gilded and ornamented, and the walls diapered and interspersed with bands of ornamental work. The reredos is gilded and painted. The walls are painted throughout with four coats of oil paint, and the decoration and gilding have been executed in oil upon a flatted ground. At the opening the bishop, in closing his sermon, observed that there might be a mysterious connexion between the subject of his discourse and the opening of the church. He often asked himself what could be the meaning of this awakening, this willingness to set all churches in order. Might it not be an admitted anticipation that the period of waiting was coming to a close? There was a kind of mystery in the hearty readiness shown in all churches to make them worthy of their Master.

Plymstock (*Devon*).—The church here is now undergoing repair and restoration under the direction of Mr. H. Elliott, of Plymouth; the contractor being Mr. Harvey, of Stonehouse. The old and decayed roofs have been replaced by new open-timbered roofs of red deal, stained and varnished. The huge western galleries have been removed; several of the windows have been renewed in stone. All the old windows throughout have been repaired and reglazed. The whitewash has been cleaned off the interior walls, and they are now newly plastered with Aberthaw. The exterior walls (formerly covered with rough-cast) have been cleaned and pointed, and the battlements of the tower restored. New seats of stained deal are being fixed. A carved stone reredos has been erected at the east end The chancel will be paved with Minton's encaustic tiles. The north porch has been rebuilt, and a new vestry added. Various other necessary works are being done. The total cost will be upwards of 1,500*l.*, towards which the Duke of Bedford and the Naval and Military Bank have been large contributors. Mr. H. Ellis, of London, has presented a clock, which will be fixed in the tower.

DISSENTING CHURCH-BUILDING NEWS.

Ross.—The chief stones of a new Wesleyan chapel have been laid here. The site is in the centre of the town, at the top of Edde Cross-street. The plans of the building show that it is intended to be in the Gothic style, and to seat 300 people. Messrs. Pearson, of this town are the architects. Mr. Smith, of Weston-under-Penyard, is the builder, and his contract is to complete the work for 1,020*l.*

Newcastle.—A new chapel, in connexion with the Wesleyan body, has been opened in Newcastle. The building is situated in Park-road, Scotswood-road. The architect engaged was Mr. Matthew Thompson, of this town, and Mr. Walter Scott was the builder. The edifice will seat about 600, and when the galleries are built, 900. The total outlay will amount to 3,000*l.*, inclusive of the cost of the ground. The chapel, which is in the florid Italian style, stands on the west side of Park-road, about 150 or 200 yards from Armstrong-street. It is a red brickwork structure, relieved by stone dressings. The internal measurement of the building is 60 ft. by 46 ft.; the frontage outside being 74 ft. There is no pulpit, but the want is supplied by a spacious platform behind the communion enclosure. The building will be heated by a hot-water apparatus, fitted up by Messrs. Walker & Emley. Under the chapel is a school-room, 60 ft. by 40 ft., divided into four class-rooms; and there are a large vestry, chapel-keeper's-house, and other conveniences attached to the building. The plot of ground on which the chapel stands has a frontage of 105 ft., and is 87 ft. in depth from the railings to the wall behind. Mr. Gibson has been engaged to do the painting and decorating, Mr. Bailey the gas-fitting, Mr. Wilkinson the plastering, Mr. Beck the slating, and the joiner's work has been given to Messrs. Lowrey.

Birkenhead.—The Trinity United Presbyterian Church at Claughton has been opened for public worship. The edifice is built of Stourton stone. The heating and ventilating have been carried out by Messrs. Haden, of Trowbridge. Accommodation is provided for about 800. The building has been erected at a cost, including the land, lecture-hall, and fittings, of about 8,000*l.* The contractors were Messrs. Walker, of Birkenhead; the designs having been furnished by Messrs. W. & J. Hay, of Liverpool, architects.

Halifax.—Plans, prepared by Messrs. R. Ives & Son, architects, Halifax, for the new Congregational Chapel, to be erected on the Belle Vue estate, Halifax, have been adopted by the committee, and opened to the inspection of intending contractors. The chapel is designed in the Decorated Gothic style, and will possess a turret and spirelet 120 ft. high. The interior will be 110 ft. long by 40 ft. broad, having side aisles, galleries, organ recess, and vestibule. The nave is calculated to accommodate about 570 persons, and the galleries 360. At the rear of the chapel will be vestries.

Bradford.—Annesley Wesleyan Chapel, Little Horton-lane, has been opened. The chapel is built on a prominent site, at the junction of four roads. It is designed in the Early Decorated style, and is built of wall-stones, with ashlar dressings of stone from the district. The plan consists of nave and aisles, organ chancel, with vestry under same. The total length is 91 ft., and the width across the nave and aisle 55 ft. In the front elevation there are three entrances, those at the sides leading to the gallery, and the middle one giving admission into the area of the church. These entrances have polished granite shafts placed in the jamb, with carved caps and bases. Above the centre doorway there is a five-light tracery window. Three of the two-light windows on each side aisle are set in a gable, breaking the roof-line on the exterior, and presenting a variety in the interior. At the angle of the road rises the tower and spire, to a height of 135 ft. The organ-chamber is elevated and forms a chancel, being divided from the nave by an arch supported on red granite shafts, curved caps and corbels, and is lighted by two circular windows filled with tracery. The ceiling is arched with curved principals, the spaces between being formed in panels. The pews have doors, low, with leaning backs, and vary in width from 34 in. to 40 in., accommodation being for about 900 adults. The warming, by hot water, has been provided and fixed by the Low Moor Company. The lighting is done by standard and brackets, provided by Mr. Schofield. The chapel is ventilated by two large ventilators in the roof, the fresh air being admitted by an opening under the gallery floor. The woodwork throughout the chapel is stained light and varnished. The cost of the works, including boundary-wall, railing, and gate, will be 3,500*l.*, to local tradesmen. The clerk of the works was Mr. Smith. The several contractors were,—masons, Messrs. F. Barraclough & Son; carpenter and joiner, Wm. Crabtree; plasterer, William Tattersall; plumber, John Schofield; slaters, Messrs. Hill & Sutcliffe; painter, Wm. Hird. The architects were Messrs. Andrews, Son, & Pepper.

STAINED GLASS.

Alderley Church.—One of the nave windows of this church has been filled with painted glass. It was erected by Lady Stanley of Alderley, in memory of three of her daughters who died young, and who were named respectively, Olga, Cecilia, and Ethelfreda. The window, of Late Perpendicular style, is divided into three openings, which contain representations of St. Olga, St. Cecilia, and St. Ethelfreda, bearing their distinctive emblems and legends, and enclosed within canopies and bordering suited to this style of ornamentation. The names, ages, and dates of their decease are inscribed upon a broad label, which extends across the full width of the window, which was designed and painted by Messrs. Edmundson & Son, of Manchester, and is the fourth, in this church, executed by the same firm.

Strensall Church.—The stained glass window designed and worked by Mr. J. W. Knowles, of York, for the chancel of St. Mary's church, Strensall, has been fixed in its place. It is the gift of Mr. Leonard Thompson, of Sheriff Hutton

Park, lord of the manor of Strensall, and the subject is "The Adoration of the Infant Saviour by the three wise men from the East." This window was in the late Yorkshire Fine Art and Industrial Exhibition.

Ringwood Church, Hampshire.—The lights of the east end of this church have been filled with stained glass, in memory of the late Mr. J. Morant, of the Manor House. The figures (of which there are six groups) represent the leading incidents in the life of St. John the Baptist, and between the panels the four major prophets are inserted. The window was executed by Messrs. Hardman, of Birmingham, at a cost of 400 guineas.

Sidmouth Church.—The window presented to this church by her Majesty, but long withheld in consequence of differences existing, has at length arrived in the parish, the event being celebrated by the ringing of the parish bells. The window has since been fixed in the west end; the organ, which filled the tower arch and intercepted the view of the window, having been removed to the west end of the north aisle. The Queen's window is the work of Messrs. Ward & Hughes, of Soho, London. The subjects represented are as follow:—In the top compartment is our Lord in glory, surrounded by angels; below are four angels with palm branches and crowns. In the central compartment is our Lord blessing little children; on the sides of which are the eight acts of mercy—the six mentioned in Matthew xxvi. 35-36, viz., 1, giving bread; 2, giving water; 3, clothing the naked; 4, visiting the sick; 5, receiving the stranger; and 6, visiting the prisoner; and two other supplementary ones (bearing reference especially to the benevolent institutions which the late Duke of Kent promoted), viz., 7, religious education; and 8, the care of orphans. Below these again, on a smaller scale, are five designs illustrating legendary incidents in the life of St. Nicholas, the patron saint of the church—1, his relief of three young women; 2, his calming of the tempest; 3, the consecration of St. Nicholas; 4, his increasing by miracle a cargo of corn; 5, his staying the hand of the executioner. A pulpit of Caen stone and Devonshire marble, executed by Mr. Colman, of St. Mary-church, has lately been erected in the church, according to our authority, the *Western Morning News*. A reredos of marble and Caen stone, executed by Mr. Earp, of Lambeth, from the designs of Mr. S. S. Teulon, the gift of the Earl of Buckingham, new ornamental brass communion-rails, and a floor of ornamental tiles throughout the chancel have also been recently added.

Books Received.

VARIORUM.

"Theoretical Astronomy examined and exposed." By Common Sense. London: Caudwell; and Greenwich: Carpenter. The author of this very wordy but clever treatise is believed to be a clergyman, and his main purpose seems to be to compel the astronomy and the physical geography of the age to accord with the literal expressions of Scripture. This is a phase of quasi-science which we had thought Galileo had settled when, believed from torture, he burst out with the irrepressible expression,—"Still, *it moves*." After all the torturing "logic" to which modern science is subjected in the work under notice, the globular form of the earth, its rotation, and its circulation round the sun, remain just as evident as ever. We can see no convincing force in the clever logic by means of which "Common sense"—we had almost said "Nonsense"—*proves*, in the midst of much rigmarole, that the earth is not globular, &c. Nevertheless, he shows pretty clearly that astronomy is not quite so "exact" and mathematically demonstrated a science as the astronomers would wish, oracularly, so compel us to believe; and the book may be useful in the desirable feat of upsetting those sciential "idols," as Lord Bacon would have called them, which have much hindered the advancement of geology, as well as of astronomy itself. It is at least a quarter of a century since the late celebrated Mr. Hopkins, of Cambridge, well remarked, that "the time has arrived when the investigations of geology have begun to exalt themselves into those lofty regions of general physics which connect them with the most sublime demonstrations of astronomy." But astronomy still stops the way with us as *secular errors*; and the very foundations of the anticipated and sublime science of "astrogeology," as we may call it, hence still remain to be laid.——"The Engineer's Office-sheet and Almanac, 1867." Lockwood, Ludgate-hill. Besides the usual matter of an almanac, including all about stamps, Post-office regulations, &c., this sheet contains memoranda relating to Standing Orders, railway construction regulations, mensuration tables, and much useful matter relating to steam-engines, iron columns and girders, roofs, oak posts, mill-gearing, water wheels and channels, overfalls, pipes and aqueducts, mortar and concrete.

Miscellanea.

SUFFOCATION BY SULPHURETTED HYDROGEN IN A SEWER.—At a sewer in Boundary-street, Liverpool, one man was lately killed and five others rendered insensible by a sudden flow of sulphuretted hydrogen, the ordinary stench of sewers, from some cause unknown, but probably by some chemical reaction arising from refuse of some kind being poured into the sewers from chemical or other works. The coroner's jury returned a verdict of "Died by suffocation, cause unknown."

EASY WASHING.—The Ohio *Cultivator* says,—"Take one pound of sal soda and half a pound of unslaked lime, and boil twenty minutes; let it stand till cool, then drain off and put into a strong jug or jar. Soak your dirty clothes overnight, or until they are wet through, then wring them out and rub on plenty of soap, and in one boiler of clothes, well covered with water, add one teacup of washing fluid. Boil half an hour briskly, and then wash them thoroughly once through suds, rinse, and your clothes will look better than by the old way of washing twice before boiling. This is an invaluable recipe, and I want every poor tired woman to try it. I think with a patent washtub to do the little rubbing, the washerwoman might take the old Bible and compose herself on a lounge, and let the washing do itself."

ROYAL ACADEMY.—The new regulations, having received the sanction of her Majesty, will forthwith come into operation. They relate primarily to the number, nomination, election, and power of associates. The concession is made that the limit of twenty associates may be exceeded; the minimum is fixed at that number, but the maximum is left undefined. As to nomination of associates a change has been effected. The old ordinance, which required a candidate to inscribe his name in a book, was regarded as needless and humiliating. This condition to election is now abolished, and in its stead a candidate will be proposed and seconded in writing by some friend in the Academy. The elections will be then made from the printed lists of all the candidates. Associates are now, for the first time, endowed with votes, and thus vested with power. The election of associates will take place in January, and of Academicians in June and December, of each year.

DWELLINGS FOR THE LABOURING CLASSES.—A meeting of the department of Economy and Trade of the National Association for the Promotion of Social Science, has been held at their Rooms in the Adelphi, Mr. William Hawes, in the chair, at which was read by Mr. Horace Davey, a paper "On the Legislative Measures necessary for the Improvement of the Dwellings of the Labouring Classes." The paper urged the provisions of a Bill drawn by him last session at the request of a special committee of the department, but which, owing to technical difficulties, was not introduced into the House. The Bill incorporates certain provisions of the Land Clauses Consolidation Acts of 1845 and 1860, and empowers municipal corporations or public companies to apply by memorial to the Secretary of State for a certificate for the compulsory purchase of premises. The Secretary of State may direct inquiries and grant the certificate, if he is satisfied that the premises are unfit for human habitation, or pestilential, and a nuisance to the neighbourhood; that dwellings proper and suitable for artisans and labourers are needed in that locality; that it is fit and proper that the applicants should have powers for the compulsory purchase of the premises, &c. Municipal corporations are empowered to raise money by a charge upon the general district rate. A discussion ensued, after which it was resolved that the paper be printed and circulated.

THE KIDDERMINSTER DRAINAGE.—Consideration of the plans by Mr. Fairbank, and Messrs. Gotto & Beasley, has been postponed; and it is believed the matter will not be decided on till the spring of next year. Mr. Fairbank proposes to have the outfall at Falling Sands, while in the other and more costly scheme it is proposed to take it a mile and a half farther, with a larger area of sewer, and apparatus for pumping the sewerage.

ACCIDENTS.—A portion of the roof of the new retort-house now in process of construction at the Salford Corporation Gas Works has fallen, killing one of the workmen employed in raising an iron beam.——At Faversham preparations are in progress for the erection of new schools near the Congregational church, for which an old wall has been removed. Contiguous to this wall stood three cottages, and on the removal of the wall the back part of the cottages gave way and fell, bringing with it the ceiling of one of the houses.

THAMES SUBWAYS.—Notice has been given of an intention to apply to Parliament for power to incorporate a company for the construction of subways under the river Thames, from the Pimlico-pier to Nine Elms, Battersea; from the Thames Embankment North, near the Temple-pier, to the Commercial-road, Lambeth; from Tower-hill to Pickle Herring-street, St. Olave's; and from High-street, Wapping, to Bermondsey-wall; and for arrangements with the owners of Pimlico-pier and Temple-pier for the use of those piers, and powers to the company to purchase land compulsorily, levy tolls, compensate persons having rights of ferry, &c.

OPENING OF THE IPSWICH GYMNASIUM.—The gymnasium, which, chiefly through the exertions of Dr. Christian, principal of the Ipswich Working Men's College, and the committee of that institution, has been established in Orford-street, has been formally opened. The building was originally intended for a flax manufactory; it at first consisted of a centre shed with one wing; these, after some alterations, were used for many of the purposes of a gymnasium, but another and more lofty wing was added, and the whole forms a building well suited to all the purposes of a gymnasium. It is about 70 ft. by 50 ft., and is fitted up with every requirement for the practice of gymnastics, is warmed by two large stoves, and a lavatory and a place for clothes are provided.

THE INVENTORS' INSTITUTE.—At a recent meeting of this Institute, as reported in "The Scientific Review and Journal of the Inventors' Institute," the following resolution has been unanimously carried:—

"That a subscription of not less than 1,000*l.* be now opened for meeting the expenses of incorporating the Inventors' Institute by royal charter, for securing the passing of the Invention-right Bill through Parliament; for publishing facts and agitating questions relating to inventions; and generally for furthering the objects of the Institute by effectually and speedily placing the rights of inventors on a firm and inviolable basis."

The subscription-list was at once opened with sums amounting to 400*l.* and upwards. Subscriptions will be received by the secretary, Mr. R. M. Latham, at 4, St. Martin's-place, Trafalgar-square, and inserted in the "Scientific Review." The objects of the Institute, are—1. To protect inventors' interests, and defend the privilege of obtaining patents. 2. To promote improvements in the patent laws. 3. To diffuse information with reference to inventions and other subjects beneficial to inventors and patentees.

ROMAN ANTIQUITIES AND SKELETONS AT NORTON, NEAR MALTON.—It has long been supposed that the town of Norton was built upon the site of a Roman cemetery, and the discoveries now being made show that such is the case. Some eight or ten burials have been met with in the main drainage works. Wood-street seems to cross the old cemetery, for in digging cellars on each side Roman burials,—or burials of that period or thereabouts,—are regularly disturbed. Near Hungerford House a fine Roman bottle, globular, with long neck—the prototype of the fashionable water-bottle of the present day—was found. Close by, a stone coffin, 3 ft. 7 in. by 1 ft. 3 in., and 9 in. deep, inner measurements, formed of one block of oolitic freestone, was found, placed on two large blocks (nearly as large as the coffin itself) of oolitic, but without a lid. The coffin was 8 ft. below the surface, and contained nothing but a trace of lime. There was a slight hollowing of the stone for the head, but no body appears to have been interred in the coffin.

Destruction of a Theatre in Paris.—The small theatre of the Nouveautés, in the Rue du Faubourg St. Martin, three stories above the street, was burnt down on Monday night.

Warm Artesian Wells.—The artesian wells of Grenelle and Passy now emit volumes of steam; the temperature of the waters, which rise from a depth of 2,300 ft., reaching 85 degrees Fahrenheit, while that of the atmosphere at the surface by night is only 35 or 36.

The Holy Temple of Jerusalem.—"Nearly all the timber," says the *Moniteur*, "required to form the temporary protection to the great dome of the Temple of Jerusalem has now arrived in that city. There is reason to hope that the works may be finished before Easter."

A Testimonial presented to a Builder.—We are asked to insert the following:—The working mechanics of Teddington did, on the 28th ult., at the Adelaide Hotel, present Mr. John Dunkley, builder, who has carried on an extensive business for a considerable time, with a handsome case of mathematical instruments, as a mark of respect to Mr. Dunkley, for his liberality, and the amount of good he has done by shortening the working time throughout the district. "We, therefore, the workmen of Teddington and the neighbourhood, return our heartfelt thanks to Mr. D. and his family, wishing them health, wealth, happiness and prosperity."

Found at Last.—Some important discoveries of Roman remains were made at Lydney, in Gloucestershire, not long ago, and involved a very curious incident. Amongst the remains of a temple dedicated to the god Noden found there, was a brass plate on which was an inscription offering a reward for a ring, and stating that in the event of its being found some portion of money would be dedicated to the god Noden, but that if the person who found it failed to restore it to the owner the curse of Noden would be upon him. Most singular to say, a ring corresponding with the lost one, and bearing the name of the person offering the reward, has been found at Silchester!

Toxteth Park New Public Offices, Liverpool.—The parochial authorities in Toxteth Park, having found the building used in Park-place altogether unsuited to their requirements, decided to erect new offices in High Park-street; and the building, from designs by Mr. Thomas Layland, architect, has just been completed. Provision is made in it for the conducting of all the public business connected with the township, and in the centre there is a spacious room, lighted from above by a decorated dome, in which all parochial and other public meetings appertaining to the affairs of the township will be held. Board-rooms for Poor Law Guardian meetings are also provided, as well as offices for the relieving officers and clerks, along with a dispensary and waiting-rooms for paupers. The arrangements also include offices for the overseers and their clerks, as well as for the collectors of Government taxes. The building has been erected at a cost of between 9,000*l.* and 10,000*l.* including the land.

Condition of a Manchester Burial-ground. An inquiry has been held at Manchester by the Government medical inspector, Mr. P. H. Holland, relative to St. Michael's burial-ground, in that city. The condition of the burial-ground was deposed to by Dr. Meacham, poor-law medical officer for the district. He said that all sorts of animal refuse, great heaps of ashes, &c., were deposited on the ground, and added,—"The centre of the ground is uneven, and in a filthy condition; occasionally a human skull is turned up and kicked about. The bones of the dead who are buried here are often exposed and thrown about. More than 40,000 dead lay here, and yet not a gravestone is left; some may be found forming parts of the floors of cottages, and others are to be seen placed in privies. The ground is often strewed over with filthy straw and shavings emptied out of bed-ticks by the people of the district; especially is this so if a case is removed to the fever hospital, or if one dies from that disease. I have seen children rolling and playing in this filth; no wonder that fever of a virulent type is never out of this district." The inspector visited the ground and witnessed its condition, and having heard a good deal of testimony relative to it, in the course of which it was stated that the ground was the recognized battlefield for all the blackguards, male and female, of the neighbourhood, the inquiry was brought to a close.

Proposed Fine Arts and Industrial Exhibition in Bath.—At a meeting held in the Council Chamber, Bath, it has been resolved to hold a Fine Arts and Industrial Exhibition, probably in 1868, but arrangements are to be left to a managing committee appointed at the meeting.

"Told in the Drop of a Tear."—Mr. Collett has recently written to Mr. Field from Heart's Content,—"I have just sent my compliments to Dr. Gould, of Cambridge, who is at Valentia, with a battery composed of a gun-cap, with a strip of zinc, excited by a drop of water, the simple bulk of a tear."

St. Martin's School of Art, Long Acre.—On the 29th ult. a meeting was held at this institution, Castle-street, Long-acre, for the presentation of prizes to successful students. The room was furnished with a number of works which have been produced in this school, which possessed considerable merit. The Rev. W. G. Humphrey, vicar of St. Martin's, who occupied the chair, congratulated the students on the position they held amongst the established schools of the Science and Art Department. After the prizes had been presented, Mr. O'Neil, R.A., delivered a brief practical address to those present.

Choleraic Matter in Water.—The Registrar-General has received a communication from Professor Frankland, F.R.S., of the Royal College of Chemistry, from which it appears that water may become seriously contaminated with choleraic matter without the presence of the latter being indicated by chemical analysis, and that water so contaminated is not completely deprived of this impurity either by filtration or passage through animal charcoal. It still remains to be proved to what particular constituent of choleraic dejections the propagation of the disease is due, but it is obvious that if the propagating matter be a germ or an organism, it must be in suspension and not in solution. We may here note, in reference to the connexion of cholera with water, that a French medical man has reported to the Institute a remarkable cure of cholera in the stage of collapse, by merely infusing pure water into the veins. This reminds us of the practice of Dr. Latta, of Leith, in 1832, who also cured cholera by infusing into the blood-vessels water in which salt was dissolved.

The late Mr. John Shennan, Lord Dean of Guild, Edinburgh.—This much-esteemed gentleman, who was a master builder, expired suddenly while attending a meeting of the City Council of Edinburgh, of which, *ex officio*, he was a member. Mr. Shennan was of an old Edinburgh building family—his father, whose death was also sudden, having contracted for and executed several public buildings in Edinburgh and other Scottish towns. The late Dean of Guild was taken into his father's business at a comparatively early age, and had been for upwards of thirty years in business for himself. One of his first contracts, which he undertook under his father's superintendence, says the *Scotsman*, was the building of Greenside Parish Church. More recently he had been engaged in building several county halls, and one of his latest was the fine county buildings and court-house of Jedburgh. Mr. Shennan was not, however, concerned in many large buildings, being rather careful of entering into heavy undertakings—a quality eminently characteristic of his quiet, unobtrusive, and cautious nature. These qualities and his long experience of business having earned for him the entire confidence of his trade, he was much employed as a valuator both by public bodies and private individuals. On the death of Dean of Guild Lorimer, now nearly two years ago, at the destruction of the Queen's Theatre by fire, Mr. Shennan was appointed successor to his office, which he has since filled with much satisfaction to both parties in the Council, and also to the trade he represented, winning all hearts by his kindly, homely, and frank demeanour and the geniality of his disposition, and discharging the duties of his office with great care, wisdom, and conscientiousness. At a meeting of members of the Association of Employers in the Building Trades of Edinburgh and Leith, of which the late Dean of Guild was president, it was unanimously agreed that, with the consent of his family and friends, the various members of the trades should be requested to attend his funeral; and a committee was appointed to make the necessary arrangements.

Inexhaustible Ivory.—New Siberia and the Isle of Lakon are, for the most part, only an agglomeration of sand, ice, and elephants' teeth. At every tempest the sea casts ashore fresh heaps of mammoth tusks, and the inhabitants are able to drive a profitable trade in the fossil ivory thrown up by the waves. During summer innumerable fishermen's barques direct their course to this isle of bones, and in winter immense caravans take the same route, all the convoys, drawn by dogs, returning charged with the tusks of the mammoth, weighing each from 150 lb. to 200 lb. The fossil ivory thus obtained from the frozen north is imported into China and Europe. The isle of bones has served as a quarry for this valuable material for export to China upwards of five hundred years, and it has been exported to Europe for upwards of one hundred years; but the supply remains undiminished.

Licensed Victuallers' Asylum: Laying the Foundation-stone of the "Smalley Wing."—On Friday in last week his Royal Highness the Duke of Edinburgh laid the foundation-stone of the "Smalley Wing" of the Licensed Victuallers' Asylum, Asylum-road, Old Kent-road. The proposed "Smalley Wing" will consist of ten small houses,—or what, perhaps, may be more appropriately termed separate tenements,—each comprising a sitting-room, bed-room, and kitchen. The architecture is in harmony with the rest of the building, and the estimated cost is 2,500*l.* Of this amount only a small portion remains unsubscribed. The architect is Mr. Arding, of the firm of Arding & Bond, of Bedford-row. The *South London Press* reminds those interested in the Asylum that the coins deposited by the late Prince Consort in the foundation-stone of the Albert Wing were stolen during the night following the ceremony. It is to be hoped that the committee of management took such precautions that those embedded by the Duke of Edinburgh did not share a similar fate.

The Lyons Silk Trade.—An announcement in *Le Follet*, that "figured silks are no longer worn," would be read without the faintest possible interest except by female readers. A paragraph which appeared the other day in *Le Salut Public*, a Lyons paper, shows that the apparently harmless sentence quoted above has a terrible meaning. According to that journal, it appears that in 1856 Lyons exported figured silks to the value of 72 million francs; in 1857, 74 millions; in 1860, 49 millions. The two following years still showed a downward tendency, and in 1863 the value of the exports was only 30 millions; in 1864, 24 millions; in 1865, 11 millions; and the exports of the present year will in all probability not exceed 7 millions, or one-tenth of the annual value ten years ago. Many of the workmen have taken up the plain silk weaving, the exports of which have largely increased during the past few years. On the other hand, the home consumption has decreased in consequence of the change of fashion, which commands that more woollen and cotton fabrics shall be worn. One cannot be surprised at the deep distress which now exists amongst the silk operatives of Lyons.

Statue of the late Lord Seaton.—A statue of Field-Marshal Lord Seaton has been inaugurated at Devonport, in the presence of thousands of spectators. The statue is placed in the parade-ground in front of the Government House. The proposal to have it on Plymouth Hoe was at one time entertained, but the difficulty of finding a spot exactly suitable to display it without diminishing its proportions by contrast, and other reasons, caused Devonport to be selected. The statue, which occupies a prominent position on the summit of Mount Wise, within the inclosure, is 8 ft. 9 in. in height, and of bronze. The late field-marshal is represented in the uniform of that rank, his military cloak falling behind him, and forming a support. His left hand rests upon a sword, his right holds the marshal's baton. The likeness and expression are deemed by those who remember Lord Seaton, especially in his later years, as being faithful. The sculptor was Mr. G. G. Adams, of London, who executed a colossal bronze statue of Wellington, at Norwich, and one of Napier at Charing-cross. The founders were Messrs. Elkington & Co., of Birmingham. The statue rests upon a pedestal 10 ft. in height, of gray granite, from the Cheesewring Quarries of Messrs. Freeman & Co., of Penryn. The total cost of the statue was upwards of 1,000*l.*

The Builder.

VOL. XXIV.—No. 1245.

The Architectural Designs for the Paris Echibition.

BY the Paris Exhibition of 1855 the French people were made aware of the existence of a British school of painting. The Exhibition of 1867 is not likely to afford them much insight into the condition of another art in this country, namely, architecture. For anything that the collection of drawings that are just now at South Kensington, or any selection from them, could tell the French, the City of London might have produced nothing more in the last ten years, in the way of buildings of fine-art character, than three or four works,—as the restoration of the Guildhall, and the erection of a telegraph-office, an hotel, and a bank; Manchester might have accomplished nothing but its Assize Courts; and Liverpool, Birmingham, Bristol, Leeds, Nottingham, Glasgow, and Edinburgh, all put together, little or nothing. The French people could probably arrive at the idea that we were doing something in the building and restoration of churches; and their architects would not fail to notice our skill in one division of architects' drawing—perspective-representation,—to which, comparatively, the French architects give little attention. The French public,—taking interest in the *art* of architecture; and the writers of "*feuilletons*," "*chroniques*," "*causeries*," and "*variétés*," in the journals and reviews,—who give to the discussion and appreciation of art-matters in general, a considerable amount of space; would feel confirmed in their belief that we are possessed of some skill in Gothic work, but of little else; whilst each class of observers would probably be startled at our fondness for reds and blues, or general polychromy, in drawings, as in buildings also. It is to be hoped, however, that writers in *the architectural press* of Paris, will remember and state the fact that the Exhibition of 1862, in the French Department, afforded an illustration of French architecture that was even more insignificant in comparison with the reality, than the British illustration, of 1867, of the British architecture, is likely to be. The truth is, in this country, all of us interested in architecture have been expecting somewhat more in the exhibitions of architectural drawings than those collections are at present proved to be able to accomplish. One already somewhat informed of the state of art, as in actual buildings, may find in an exhibition of drawings convenient to him; but we apprehend that the public, and writers in the general press, are sometimes misled. This results from the partial exposition afforded where there is nothing more than a perspective-view of each building, as much as by the omission altogether of representation. But, it has become almost the rule for those who are engaged in production of the architecture of the day, to allow their works to be unrepresented by exhibited drawings; and the place of such drawings of actual works is supplied by designs, which are often put forth as though drawings of buildings lately erected. There is another fact. Unsatisfactory as different exhibitions of architectural drawings, such as those forming part of the general display in Trafalgar-square, have been, the French ordinary presentation, as in the exhibitions in the Champs Elysées, of architecture of the time, in France, is much less representative than the English is of the architecture in England. Probably the next year's International Exhibition will comprise a much larger collection of French architectural drawings than did the Exhibition of 1862; but we do not suppose they will do justice to the actual work done, in Paris, or France: nevertheless, French critics may advisedly be reminded that architectural drawings are not like paintings, the actual work of the art, and that buildings could not be transported, and be told that as regards the bulk of the modern architectural art-work in this country, the drawings they may see cannot even serve adequately to supply the names of examples.

The present display of drawings at South Kensington is very inferior to the collection of the British Department in the Exhibition of 1862. Scarcely any of them have been prepared for the occasion; and too large a number of the buildings illustrated are shown in but one view, or without anything in the shape of small plans and sections. Even such illustration as there is in Mr. Phipps's frame giving four views of the *salles* of theatres constructed, or about being constructed, from his designs, and four plans (two of them relating to one of the buildings), is scarcely sufficient. A plan showing one tier of boxes, without section, gives little idea of "the house." The views by Mr. Phipps represent the interiors of the theatres at Bath, Nottingham, South Shields, and Torquay. The design for the last-mentioned building was originally made for a theatre at Honfleur.

In the illustration of the architecture of the British metropolis, the City buildings represented are the Guildhall, the interior, as restored by Mr. Horace Jones; the offices of the British and Irish Magnetic Telegraph Company in Threadneedle-street, by the same architect; Mr. Gibson's National Provincial Bank, externally and internally, in the two large drawings which were in the exhibition of the Royal Academy; Mr. E. M. Barry's City Terminus Hotel, and some works by Mr. T. H. Lewis. Of buildings in London, out of the City, or in the environs, but a very small number altogether are represented. Amongst them are Mr. E. M. Barry's Crypt of St. Stephen's Chapel as restored; his St. Giles's Schools; Messrs. Banks & Barry's Chambers in Victoria-street, Westminster, and the same architects' effort in a composition of Byzantine, Gothic, Italian, and other styles, the Dulwich College; the Hall and Staircase of the British Museum, and the Assyrian Court of the Crystal Palace, as decorated by Mr. L. W. Collmann; Mr. J. Giles's Langham Hotel; Mr. F. P. Cockerell's Freemasons' Hall; Mr. Roumieu's French Protestant Hospital, near the Victoria Park; the "Round" of the Temple Church, as restored by Mr. J. P. St. Aubyn; and churches by Mr. W. White, Mr. Bassett Keeling, and Mr. M. D. Wyatt. Mr. White's principal work is a church, erected at Highbury, of which we have spoken. The plan of this church is cruciform: the clerestory is very lofty; and at the intersection of the cross is a low octagonal tower with pyramidal capping. The material is brick, red, with polychromy of similar material. Amongst Mr. Bassett Keeling's drawings, are the interior views of his churches at Campden-hill and Notting-hill, wherein he has used slender iron columns in place of stone piers to carry arches. In the Campden-hill Church, which has some of Mr. Keeling's queer details, the columns or shafts are placed three together, one of them carrying the truss of the aisle-roof. In the other case the shafts are twisted. One of Mr. M. D. Wyatt's drawings, is a view of the interior of his clever work, the Garrison Chapel at Woolwich. Here there are superimposed iron columns, or shafts: the lower tier carries the side-galleries; which are in aisles of unusual height,—the main portion of the height being above the gallery, and properly so,—whilst the clerestory is low. An open timber roof, with semicircular arches below the tie-beam, spans the nave: the decorative character of this is given by perforated boarding, with which the spandrels of each arch are filled. We have always regarded the experiments on the re-introduction of galleries, and the disuse of obstructive piers, as exceedingly interesting. Similar attempts have not been wanting in France, one of the principal examples being the church of Saint Eugène, in Paris, designed by M. Boileau. Each of these attempts recognises the principle of "common sense;" and Mr. Wyatt's work is one of the best of them. The defect generally is in the appearance of great weight upon inadequate supports. Also interesting in connexion with questions of church-arrangement, is Mr. Wyatt's Military Chapel (without galleries), of the Warley Depôt, at Brentwood, in Essex. It is Byzantine in character. Its principal features are red brick arches, springing from imposts carried by stone columns. Mr. Wyatt also exhibits a view of his corrugated-iron church, designed for Rangoon. A large segment for a pediment, or roof, has been somewhere stated to be incapable of being rendered beautiful: the form is repeated many times in this Rangoon church; and the ornamentation, as in window-tracery, of Gothic character, does not take away the defect, as of ordinary corrugated-iron buildings. Mr. Wyatt's most interesting contribution, just now, to the collection, is a view of the Court of the India Office. Three stories appear: of these the two lower stories have arches, carried by columns with red granite shafts. The arches at the end of the court open into *loggie*. The archivolts are formed with comparatively thin mouldings,—perhaps to diminish effect of weight upon the columns. The decoration of the top-story is very elaborate. It has, for some of its chief features, busts, and panels with names of Indian celebrities. Altogether, the interior of the India Office seems likely to be one of Mr. Wyatt's best works.

One of the very good drawings in the gallery is Mr. Slater's interior view of Sherborne Church. This view, along with one by Mr. Phipson of a Norwich church, may afford useful information to the French as to the characteristic features of the Perpendicular Gothic; a style of architecture of which they can know but little. Near to the first-named view is one of the Chapel of St. John's College, Hurstpierpoint, by Messrs. W. Slater & R. H. Carpenter. The details of the organ-case might be improved. They resemble the Gothic of forty years ago, rather than the ordinary work of Messrs. Slater & Carpenter. Into a similar error to that adverted to, some of our best men, who have been looking at Italian Gothic, are lapsing. Mr. Slater also contributes an interior view of the Church of Burntisland, in Scotland. It has a stone-groined ceiling.

Mr. Ferrey has sent a view of Romsey Abbey Church, showing the eastern chapel which is to be erected, on foundations of a previous chapel, as a memorial to Lord Palmerston, whose statue will be placed within. The same architect exhibits a drawing showing his clever modification, with large additions, of a house of Lord Dufferin's. Mr. Joseph Clarke has, with other works, a view of his church at Point-de-Galle. This building has the noteworthy feature of wide overhanging eaves to the aisles, carried by shafts from the weatherings of the buttresses: but the general design is not pleasing; and were the object in any respect to recal to Eng-

lish eyes, features of churches at home, the building would least of all succeed in that. From Mr. T. H. Wyatt there are several drawings, including an interior view of his church in Savernake Forest, and one of the news-room of the Liverpool Exchange. One of the best of the Gothic churches, and at the same time one of the best illustrated by views and other drawings, is Mr. Gibson's Bodelwyddan Church, of which (as of most other buildings shown) a full description has appeared in the *Builder*.

Amongst the important provincial works represented, besides what we may have named, are Mr. Waterhouse's Manchester Assize Courts (which indeed we have alluded to), and a town-hall at Dumbarton,—the latter, by Mr. W. Leisser, of the now fashionable pointed-arched character, with prominent tower in the front. There is also the Aylesbury Corn Exchange entrance, of Elizabethan character, by Mr. D. Brandon; who exhibits besides, the drawings, which have been mentioned in the *Builder*, of his Hemsted House (Elizabethan red brick and stone) and of Chilham Castle as restored and enlarged. A very successful work by Mr. T. C. Sorby, the Town Hall of Bromley in Kent, is shown, as well as drawings of other buildings from the same hand, including a good design for the St. Pancras Hotel. Mr. E. B. Lamb exhibits drawings of many of his works, which were duly noticed when first exhibited. With them is a view of "The Plaisance," now erecting at Fawkham, Kent. This house, we imagine, is one that the architect is building for his own residence. It is not often that an architect builds his own house, and has *his way*,—being, as poor Pugin said, "architect and paymaster." Prominent features in the design are large oriel or bay windows bracketed out from the upper story. Mr. Lamb has done so much, that a representation of English architecture would not be complete without works of his. His Eye Town Hall is a very successful brick building: his design for the Ipswich Town Hall has many clever novelties of detail; and his treatment of the ceilings of the ball-room at Earl Amherst's house, Montreal, near Sevenoaks, and the Town Hall, Berkhampstead, is highly suggestive.

Mr. C. F. Hayward has sent his design for the Thames Embankment, and buildings, including an upper level of shops, and footways connecting together the streets from the Strand. Also by Mr. Hayward is a drawing of his Duke of Cornwall Hotel, Plymouth, and one of the hotel at Aberystwith, designed by him in conjunction with Mr. Davis. Mr. Hayward's Gothic is of the mullionless, flat-lintelled, and balconied character in details, or something very different from the stone-mullioned fenestration of Mr. T. H. Wyatt. To the new version of Gothic belongs the work of Mr. F. Chancellor; amongst whose drawings is one of a picturesque building, an inn at Chelmsford.

One of the premiated designs for the polychromy, in ceramic ware, of the Wedgwood Memorial building, is in the collection; it is by Mr. E. Power, Jun. Mr. J. B. Waring exhibits a design for a National Institute of Art and Science for the site of Burlington House,—the galleries of the Royal Academy forming a central feature at the top, and having a glass dome. Mr. E. C. Robins exhibits several drawings, called Studies in Hospital Construction; and Mr. R. W. Edis has drawings of several of his works executed or designed, including buildings in Southwark-street. Amongst several drawings by Mr. T. H. Lewis, chiefly of Gothic works, is one of the Memorial at Netley, of the Medical Officers who fell in the Crimea. Designs for the Albert Memorial and Institute, out of those that were received in competition, are contributed by Messrs. T. L. Donaldson, Banks & Barry, and M. D. Wyatt. There is also the design by Mr. Fergusson, that was exhibited subsequently. These designs comprise many drawings. Mr. Donaldson's design for the Memorial, of classic character, consisted mainly of a great niche, for a statue of the Prince, and a portico: the work would have been effective. In Messrs. Banks & Barry's design, the Memorial was a domed building containing the statue, and profusely enriched with coloured material and sculpture,—the whole of a mixture of styles, including round-arched Romanesque. Mr. Fergusson's design consists of a group of domed structures, the largest one in the centre and covering the statue. The domes would be of stone and ornamented. The general details are of combined classic and Byzantine character.

A large drawing of a design by Messrs. A. & G. Thomson, for a memorial, deserves to be mentioned for merit that there is in its grouping, and in much of its ornamentation, which is of Greek character. There is a want, however, of relation of scale in the sculpture. In another part of the gallery, a considerable number of sketchy drawings of similar Greek character are placed together. There is some very good design to be discovered on looking into them.

Messrs. Hirst & Lysaght exhibit their design for the Government Offices; near to which is Mr. W. H. Lynn's design for the Houses of Parliament, Sydney (the first premiated), wherein the endeavour seems to have been to produce an outline resembling that of the Westminster Palace, with a different sort of Gothic detail.

The executors of the late Captain Fowke send, with other works, interior and exterior views of his design for the great Hall proposed to be erected in the Kensington-road, adjoining the Horticultural Society's Gardens. Some other opportunity must be found to examine this in detail.

Amongst the drawings are several of those which have gained medals of the Royal Academy, or the Institute of British Architects. Thus Mr. R. P. Spiers exhibits his Vestibule and Staircase of a Royal Palace, his design for a Museum of Natural History, and another design. Other exhibitors to be mentioned in the same category are Mr. A. M. Ridge, and Mr. T. H. Watson. Besides his medal-drawings, Mr. Spiers contributes a large number of his finished sketches of buildings on the Continent. Sketches by Mr. M. D. Wyatt are also to be found; and there are studies in composition by Messrs. F. P. Cockerell, G. Redgrave, R. Townroe, and the late Godfrey Sykes.

There is as yet no catalogue of the drawings. When it is prepared, care must be taken to distinguish between mere designs and drawings, of buildings erected. Exhibitors should so word their titles as to allow no chance of error. We have often had to advert to this.

We repeat that those who take this collection as representative of British architecture will make a fatal mistake. What must be considered the most important part of that architecture is entirely omitted. When we further add, that only about fifty of the 200 drawings comprised in the present collection, will be sent to Paris, the observation becomes stronger. We understand that the architectural committee intend to solicit an increase of space; and, in the event of obtaining it, they will, with a view to improve the collection as a representative exhibition, obtain drawings from some of the leading architects who have omitted to send works to South Kensington.

BUILDING CONTRACTS.

Our readers do not require to be told that the "General Builders' Association" (Midland Counties) are stating very actively their objections to the existing terms of building contracts, and discussing various propositions made by architects and others, with the view of meeting these objections.

The "Manchester Society of Architects" have considered the subject, and sent out a form of agreement, but it has not been well received, the builders maintaining that it still leaves too much power in the hands of the architects.

The "Birmingham Architectural Society" are also considering the subject, and we have received from its president, Mr. Thomson Plevins, a form of contract suggested by him, with some remarks, which we are led to print:—

"Building contracts seem at first thought rather a subject for the consideration of the contracting parties and their legal advisers, and if architects were not referred to and put in a very important position in such documents exception might be fairly taken to our profession considering the question with a view to amend or vary the ordinary form of contract, or indeed in making any attempt to interfere in the matter.

Every contract, it is assumed, is intended and is entered into by the contracting parties for their mutual advantage, and under the terms of it neither the proprietor nor the contractor should be put in a position in which he cannot insist upon its fulfilment, the one to have the work done well, the other to have payment for the work when so done. To this extent a building contract is a matter for the consideration of the proprietor and contractor only; but we, as architects, have also to consider what position we should take, and how we shall consent to be referred to in such documents. The ordinary contracts, as we are all aware, and whether for large or small amounts, have frequently placed all parties referred to—proprietor, contractor, and architect—in a position very disagreeable, especially to the architect, very oppressive to the contractor, very questionable to the proprietor. It is not proposed, in suggesting any change, to deprive the architect of the fullest power in insisting upon the carrying out of his designs, and in keeping in a position of authority without question during the progress of the works; and it should be noticed that the proprietor is fully protected, the contractor undertaking to do the works in the best possible manner, with materials the best of their several kinds; but it is suggested that the architect of a building should be rather looked upon and take a position in connexion with the design and carrying into effect his ideas, than in mixing himself with or settling disputes which may occur upon the completion of contracts for buildings in which he has acted as the paid professional adviser of the proprietor. It should also be noticed that the form of contract suggested gives the architect complete control during the progress of the works; that he can order and insist upon the removal of work considered by him to be defective; and that, in the event of non-compliance, he can alter the work complained of at the cost of the contractor; that he can suspend the works during inclement weather, discharge workmen, and control the appointment of a foreman and the letting or execution of any part of the works by subcontract, and generally insist upon his instructions being carried into effect.

The form of contract also stipulates that all payments during progress of the works are only to be made upon the certificates of the architect; and this clause, empowering the proprietor to withhold payment of money except upon the architect's certificate during progress, gives to architects very great power, and seems almost, and would certainly be in large contracts, sufficient power to us without the other clauses.

Up to this point the writer thinks the form of contract leaves the architect with substantially the same powers as under the ordinary forms but there is a clause to which particular notice should be called, because it really is the only important alteration.

Under the ordinary contracts, certificates of completion, and for any balance due in respect of contract and extra works, are made a condition precedent to recovery by a contractor; and an architect may, without giving any reason, withhold his certificates for both, and thereby prevent the contractor being placed in a legal position to obtain payment of moneys due from the proprietor; but, under the form of contract suggested, no certificate of completion or for a balance would be necessary. Another clause commonly contained in the old forms may also be regarded as objectionable: it is as follows, viz., 'The works shall be done in the best possible manner, with materials free from defects of every kind, and to the entire satisfaction of the architect.' The clause referred to is inserted in specifications and contracts for first and second-class works without distinction, and with first and second class builders; and many instances could be mentioned in which a proprietor, to save his pocket, has employed a second-class builder to do first-class work; and on the builder so employed failing to do first-class work, the proprietor has made this failure a subject of complaint against the architect, although the failure might reasonably have been anticipated from the first, and was entirely beyond the architect's control. To this form our profession have certainly reason to object, and it is thought that the peculiar terms adopted in the contract suggested, putting the responsibility upon the contractors to do the work in the best and most workmanlike manner, but leaving out the words 'to the entire satisfaction of the architect,' removes an undue responsibility and liability from us, and at the same time fully protects the proprietors.

The only other clause of importance for consideration is what is called the 'Arbitration Clause;' and, with the two clauses adopted, all parties seem to be put in a fair position,—the one to insist upon having good work under the direction of the architect; the other to obtain money due to him at the completion of the works; and the architects are not only kept in a position of the fullest power and authority during the execution of the works in connexion with the carrying out of their designs, but it is

put beyond doubt that their acts shall not be called in question or reviewed, either during the execution or after the completion of the works.

The proposed form of contract differs only from the usual forms to the extent, practically, that the architect's duties and powers are confined to the carrying into effect his designs, and that the contractors can ask for a reference upon all matters arising after the completion of the contract as to any amount due to them, without the architect being obliged to engage in the unpleasantness of a litigation, or acting as the self-elected umpire in matters as to which he really has been engaged, and is acting as the paid professional adviser of the proprietor.

These are the only clauses to which particular attention need be called; but, in connexion with this form of contract, the specification should be a description of works only, and should not contain any conditions.

In conclusion, the writer wishes it to be understood that, in drawing up the form of contract and in making these remarks, he has endeavoured to be as concise as practicable, avoiding rather than adopting the ordinary legal phraseology; and that, in the preparation of the contract, although the spirit and general tenor of it have resulted from a somewhat lengthy and considerable experience in dealing with matters in connexion with his own practice, or in which he has had to act either as adviser on the one side or the other, or as umpire in questions and disputes in connexion with building contracts, he has availed himself of the advice and assistance of an eminent barrister and solicitor, who have given him much valuable direction."

"FORM OF CONTRACT.

This Contract made the day of 18 between of the one part and of the other part.

Witnesseth that the parties hereto hereby mutually contract and agree with each other and that the said Contractor so far as the stipulations and provisions of this contract and the works matters and things herein mentioned or referred to are to be performed and observed by him agrees with the said Proprietor And the said Proprietor so far as the said stipulations and provisions matters and things are to be performed and observed by him hereby agrees with the said Contractor as follows namely

1. In the construction of these presents when the contract will admit of it the term 'Contractor' shall mean the said the term 'Proprietor' shall mean the said the term 'Architect' shall mean or other the Architect for the time being employed by the Proprietor to superintend the erection and completion of the works and the term 'works' shall mean all the works acts matters and things specified and described in the specification plans and drawings hereinafter mentioned and also such other works matters and things as are hereby contracted to be done and performed by the Contractor.

2. The Contractor shall well and substantially and in the best and most workmanlike manner with the best materials of their respective kinds and under the direction and inspection of the Architect make execute finish and complete and deliver over to the Proprietor on or before the day of the several works acts matters and things mentioned or referred to in the specification plans and drawings already prepared by the Architect and signed by the parties with such additions to enlargement and alterations of and deviations from the said works (if any) as the Architect may from time to time during the progress of the works direct, but further time shall be allowed if with reasonable diligence on the part of the Contractor such additions enlargement alterations and deviations should be the cause of delay in the execution and completion of the works.

3. The contractor shall find all materials labour services tools scaffolding implements utensils and machinery and power of every kind for the full safe expeditious and proper carrying on and completion of the works.

4. The Contractor shall be answerable for restore and make good all injuries damages re-erections and repairs occasioned or rendered necessary by accidental causes or by flood storm tempest fire trespasses or other means to the works previously to the completion and delivery of the same The Contractor shall insure the works from damage by fire in the sum of such insurance to be effected in the joint names of the Contractor and the Proprietor If the Contractor fails to effect such insurance to the satisfaction of the Proprietor it shall be lawful for (but not obligatory upon) the Proprietor to insure the same and to retain and deduct the sums paid for such insurance from any money which may be owing to the Contractor.

5. The Proprietor shall pay to the Contractor for the full and perfect completion of this contract the sum of But if the Architect shall direct any addition to or omission of or variation from the works the value of such addition omission or variation shall be added to or deducted from the said sum of as the case may be.

6. The sum payable under the last cause shall be paid by instalments in manner following (namely) instalments as the work proceeds at the rate of per cent. upon the value of the work done and materials provided and delivered upon the ground as certified in writing from time to time by the Architect a further instalment of per cent. upon the total value of all work and materials so certified for as aforesaid as appearing by such certificates within seven days after full completion and delivery of the works, and the balance at the expiration of from such completion as aforesaid provided that the first-mentioned instalments shall not be payable until the expiration of three days after giving the Architect's certificate to the Proprietor either personally or by leaving the same for him at his place of business or residence and no instalment of a less amount than shall be required to be paid during the progress of the works.

7. The Contractor shall during the execution of the works when directed and required by the Architect remove from the Proprietor's premises all materials and work which shall not in the opinion of the Architect be in accordance with the specification plans and drawings either as regards quality of materials or workmanship or which he shall consider unsound ill-seasoned defective unsuitable or improper and the Contractor shall at all times during the execution of the works or within the times mentioned in Clause 12 when so directed and required by the Architect remove and take down all work which the Architect shall be of opinion is not done according to the specification plans and drawings or otherwise imperfectly executed and in either case proper and satisfactory materials and work shall be substituted and if after days' notice the Contractor shall not comply with such direction or requisition it shall be lawful for the Architect to cause the removal and taking down of the materials and works objected to and to cause materials and works to be found and executed by some other person or persons and the cost charges and expenses of the same or otherwise incidental thereto or incurred thereby shall be deducted from the amount payable to the Contractor under this contract or otherwise shall be paid by the Contractor to the Proprietor.

8. If the Contractor shall become bankrupt or compound with or make an assignment for the benefit of his creditors or shall suspend or delay the performance of his part of this contract for days after a notice shall be served upon him or left at his last known place of abode by the Architect requiring him to proceed with and perform the same it shall be lawful for the Proprietor with the consent of the Architect to enter upon and take possession of the works and to employ any other person or persons to carry on and complete the said works and may authorise him and them to use the plant tools materials and property of the Contractor there being and the costs and charges incurred in any way in carrying on and completing the said works shall be paid to the Proprietor by the Contractor or be set off by the Proprietor against any money due or to become payable to the Contractor.

9. The Contractor shall if the Architect directs suspend the whole or any part of the works during inclement weather and if the same shall be suspended by such direction or shall be necessarily suspended during any local or general strike then the completion of the works may be delayed for a period equal to the time of such suspension.

10. In case the works and things hereby contracted to be done by the Contractor shall not be done and completed at the time hereinbefore mentioned the Contractor shall pay on demand to the Proprietor as liquidated and ascertained damages a sum of not exceeding *l.* for every week which may elapse between the appointed and actual time of completion and delivery hereinbefore mentioned or the Proprietor may deduct the same from any moneys payable or to become payable to the Contractor allowance being made for delay if any occasioned in the execution and completion of the works by reason of additions or largement alterations deviations and other causes as provided for in Clauses 2 and 9.

11. The Contractor shall provide and keep on the premises where the works are to be carried on a good and efficient general foreman and if the Contractor shall not provide such foreman the Architect shall be at liberty after giving twenty-four hours' notice in writing to the Contractor to employ a foreman and the cost of so doing shall be paid by the Contractor to the Proprietor The Architect may dismiss any foreman and also any workman for incompetence or misconduct.

12. Should any flaws cracks settlements shrinking or other defects arise or occur during the progress of the works or within after the delivery thereof attributable to bad materials or workmanship the payment of moneys due on the giving of any such certificate as aforesaid by the Architect shall not exonerate the Contractor from liability but the same shall be rectified by him at his own expense.

13. The Contractor shall give all necessary notice to the road surveyors or other surveyors and to all other person or persons to whom notice is required to be given.

14. The Contractor shall not assign or sublet this contract or any part without the written license of the Architect.

15. In all matters as to which the Architect is entitled under Clauses 6 7 9 11 14 to exercise a discretion the decision of the Architect shall be final and shall not be liable to be called in question or reviewed either during the execution or after the completion of the works.

16. Except as provided by Clause 15 every dispute arising between the parties touching the premises shall be referred to a single arbitrator to the intent that if after differences have arisen the parties hereto do not concur the appointment of an arbitrator it may be lawful for a judge to appoint an arbitrator under the 12th Section of the Common Law Procedure Act 1854.

As witness the hands of the parties the day and year first before written."

Mr. Plevins, in his observations, gives his reasons for not calling upon the builder to do his work "to the entire satisfaction of the architect," as is now usual; but as by clause 6, no money is to be paid but on the certificate of the architect (his decision on this point being final, see clause 15), this omission would have little real effect. If he did not consider the work done in "the best and most workmanlike manner," he would not certify. How many architects in London are there, by the way, who would accept the tender of a builder who refused to agree that the work should be executed to the architect's satisfaction? A proper "reference" clause is, nevertheless, a perfectly right and necessary thing, and has for some years past been pretty generally introduced in contracts for large works by London builders.

GOVERNMENT SURVEYING IN SCOTLAND.—Mr. A. Elder has been appointed, by the Board of Trade, Shipwrights' and Engineers' Surveyor for Leith and the east coast of Scotland.

THE PROBLEM OF PROVIDING DWELLINGS FOR THE POOR.

EVERY one possessing claims like those of Mr. Kerr, is entitled to attention when speaking on a subject with which he is professionally, if not professorially, concerned, even when his conclusions may be discovered to have been formed erroneously. Mr. Kerr's conclusions would be generally based upon a view of the subject that needed to be considered; and, if those in the present case are wrong, acceptance of the right conclusions requires that the wrong should be logically demonstrated to be so. We therefore trust that Professor Kerr's paper on "the Problem of Providing Dwellings for the Poor," and his suggestion of means of solution of what he regards as the existing difficulty felt (although if that suggestion had come from another we might have dismissed it with a dozen lines of disapproval), may be fully discussed at the Institute. For, we are able to agree with him cordially on one point, though on scarcely more than the one, that the "problem" is one best to be solved by architects themselves, and that the public have a right to expect that even the most distinguished architects should give their attention to a question of so much importance. Indeed we may say that the fact that the *problem*, as to ourselves it presents itself, already is not entirely hopeless of solution, or on principles enunciated before Monday in last week, is due to architects, or of course to Mr. Henry Roberts in chief.

Let it be understood what is the problem to which immediately Mr. Kerr addresses himself. He does not say that the different societies and associations have done nothing of importance in showing how places of residence should be planned and built for the average working-man; but he takes a statement of Lord Stanley's, at the Mansion House, two or three years ago, to the effect that the tenements (in what are generally called Alderman Waterlow's buildings), at that time proposed to be provided, and let at 5s. or 6s. per week, left the problem of providing for those persons who could not pay such amounts, unsolved; and he gives Lord Stanley's conclusion as to the effect that the question was one that the meeting was not called upon to solve. We may observe that we find Lord Stanley's words reported in the *Times* of June 8th, 1863,—"What could be done for them was a problem requiring solution, but which the meeting did not *then* undertake to solve," or with addition of a word that we print in italics, and which should prevent viewing the question as having been regarded in the position of hopelessness. What Mr. Kerr says is to the effect that tenements planned with certain features of rooms and fittings,—those which lately have been considered essential in a residence,—cannot be supplied so as to ensure adequate percentage on the outlay; and that, as to some of the features, the class to be provided for, and even many of the working-class supposed to be provided for at present, would prefer to be without them. He views the demand of the poor, as a demand for single rooms—only improved, so far, it may be, upon what exist: he considers that supply of these would alone ensure coincidence between the demand and the pecuniary return; and he treats the objections to the occupation of single rooms by families, as being in all cases exaggerated, and as having in the majority of cases no existence. He would therefore provide for the individual or family of the poorer class, or lower working class, a single large room, only with a back-yard affording space for coals, for a substitute for a sink, and for drying clothes, for children at play, and the room having a part-division of it, making recesses that could be converted into bed-rooms by screens across the fronts, or other means of separation. He does not ignore altogether the requisite of separation between some of the members of the family; though he thinks all that is required in this respect may be furnished at much less cost than in the model-dwellings for working-men, and even with some advantages gained, such as lessened expense in furnishing and lessened trouble in cleaning; but he treats the demand, or occupation, as commonly, of single rooms, with certain statistics, as evidence that in a large number of cases a single room alone is required. Oven and boiler to the grate he would dispense with, in pursuance of his reduction of expenditure to the smallest figure.

Now we are compelled to question both the conclusions to which the writer has arrived, and the sufficiency or even accuracy of his statement of premises. In his opinion the problem of pro-

viding dwellings has not advanced very far. Whilst admitting, as we did last week in a note, that there is a problem, we are bound to say that the progress to solution of it is much greater than Mr. Kerr has stated. He draws a line between the working-class, and the poor, which has no existence, at least in London. The poor, applying the designation to those who are utterly destitute, there will indeed always be, confused more or less with the dangerous and criminal classes. For the latter it may be needless to provide; for the destitute there may be no other provision than a charitable one. The lower class of *workers* alone is that for which we need to regard provision as having to be made. Can this class be provided for? Mr. Kerr says not, excepting by the introduction of different principles of planning to those in the model lodging-houses, or rather (we must interpret) by adhering to a previous bad system. We say, not satisfactorily unless by something nearer in relation to what has been done than to what he proposes. He says that present returns to the companies or associations are inadequate. He forgets that in some cases they are restricted to 5 per cent. Mr. Henry Roberts long ago showed that a pecuniary return then obtainable, and which now happens to be equivalent to what is received from ordinary investments, could be calculated upon, and without risk; and the Improved Industrial Dwellings Company, of which Mr. Alderman Waterlow is chairman, are promising a "permanent annual profit of at least 6 per cent., after putting by liberal allowances for contingencies and meeting all expenses;" and it is contended, that a private speculator would be able to realize nearer 8 per cent., through avoidance of expenses of a company; which do not tell favourably excepting where there are many undertakings under the same management. To proceed: the dwellings are secured by a class superior to that for which the accommodation was intended. We observe, as to this, that all classes have been in want of better accommodation; that as to families that have been obliged to live, many persons of a family, in a single room, the case of the working class, and of the class which Mr. Kerr designates as the poor, has been much the same, since many a family in the same position as one that would obtain a house within accessible distance of the place of employment in such a town as Manchester or Birmingham, would be found living in London in a single room, as families are in such quarters as those north of Golden-square. He says that suburban villages for workmen would be merely putting, in a perhaps very proper form, the question of ground-rents against railway-fares. We are by no means in favour of localities for exclusive residence of any one class: separation of classes is already too great: but Mr. Kerr does not take into account probability that manufactories of various kinds will, or must, go out of town, any more than these facts,—that one difficulty is that of obtaining sites on any terms, that residence out of London may be regarded as convenient and beneficial for many working men, rather than rigorously necessary, and that the removal of those persons of the upper and working classes, who can go, will help to provide room for those who are obliged to remain.

Mr. Kerr divides the problem into two parts; first, that which deals with dwellings in the country, and secondly that which deals with dwellings in the large towns; but we must divide it into at least three parts, for, as we hinted above, in London, from its immensity, the circumstances are very different from those of other towns. He speaks of one class in London, that he finds occupying generally two rooms of the floor of an ordinary house, as making "no complaint;" and he apparently intends us to infer that many of the other class can put up with still more scanty accommodation without complaint. We, on the other hand, consider that as regards a very large section of either class, it is one of the saddest of the circumstances of their condition that "complaint" is *not* made. Absolute apathy or hopelessness has come over some individuals; habit, and the absence of any great contrast in the position of neighbours, have blunted others; but if there be not complaint, there is reaction, of which the evidence is in the police reports. There is, however, complaint: there is, moreover, diminution of number of those who like to incur responsibility of a family; and there are evils of large towns, which London has more than any place in the world, and which are traceable in great part to that single-room accommodation of families, that Mr. Kerr's proposal would go to perpetuate. But of all the statements in the paper, those which involve the most unfortunate conclusions as to facts, are those he has made from statistics of the parish of St. George, Hanover-square, collected, as he says, by Mr. Roberts,—but which, we think, were collected before that gentleman began his labours. Mr. Kerr finds it said that of dwellings visited, 63½ per cent. had but one room; and that 43 per cent. of the dwellings had but one bed. He says that in the number of beds we have an index to the size of families. We doubt whether there has ever been more erroneous use of statistics than that here made. Mr. Kerr's general position would appear to be this, that amongst the poor, and indeed the working-classes, children, unless mere infants, are to be met with only in a small per-centage of cases; whereby the bulk of the difficulty would be capable of being disregarded, having been imaginary. Now the very statistics named were originally published as evidence of lamentable deficiency of accommodation, as to beds and rooms, for families in one of the districts; and to which condition, that of almost any other quarter, central, if not suburban, of London, might be taken as parallel. We have this moment at hand, certain statistics as to the state of the working classes in St. Margaret's and St. John's, Westminster, obtained by a committee of the Statistical Society in March 1840, and which were given in the journal of the society, in 1857, in a paper by Col. Sykes. The date 1840 is very far back; but those who know London are well aware that overcrowding has been getting worse, and especially where there has been a new street adjacent, like Victoria-street. The Committee of 1840 reported that in the parishes named, 275 families, consisting of 1,112 persons, had but 389 beds, that is to say, about 3 persons to a bed. But if such statements be out of date, how can we dismiss the piled-up evidence afforded by the investigations of the conductor of this journal,—the scores of instances seen with his own eyes of persons of different sexes and ages lying under the same dirty coverlet. Where Mr. Kerr speaks of the children as more numerous in one of his classes than in the other, he comes near to the facts; and we wonder how he did not see the inconsistency of this latter statement with the other. In fact, the birth-rate amongst the poor is not low; but the mortality of children is horrifying: this mortality is in great part caused by defective accommodation in dwellings, or primarily by the single-room system.

Mr. Kerr would be perfectly right to the extent of saying that a man and his wife, with perhaps one young child, could occupy comfortably a single room; and we will go so far as to say that single rooms *should be* obtainable. For these, the suggestion of the back-yard to each tenement,—the yards of the upper stories as balconies, or each carried part by columns, and part by cantilevers,—would be a good one; and we are glad to note an adhesion to the external gallery of front-access to each tenement; for, this latter proposition, one of the first that was made, has even yet had no sufficient exemplification in building. Mr. Roberts adopted it only in the back-fronts of his buildings, as Streatham-street, or only within a recess in the middle of a front in connexion with the staircase. The latter arrangement has been somewhat developed in Mr. Alderman Waterlow's buildings; but what we should like to see, and what would be suited especially to the poorer class of tenements, as to others, would be the arrangement of the galleries for the entire length of the row of houses, accessible to the police; whilst the front doors and windows would afford facilities, now much needed by those who occupy rooms in an ordinary house, for advertising the vocations of the occupants, and exhibiting any wares dealt in. For some kinds of articles, the residents in the same gallery could afford a tolerable *clientèle*; and people might go to market comfortably in all states of the weather. We are inclined to say with him also that the waste-water might be got rid of out of doors, instead of by the aid of a sink within. We have several times spoken of the French contrivance (*plomb*), outside a window, as having advantages, sanitarily, that the sink, of which the trap is liable to get out of order, has not. But when Mr. Kerr speaks of dispensing with oven and boiler to his grate, we feel he would be going against efforts that we and others are making for improvement of the condition of the poor. The poorer the man, who has a wife, the more is it necessary to provide the means of cooking where meals may be taken together; and the more variety there be in food, the more influence do we bring to the diminution of drunkenness. As regards the closet common to a number of tenements, we apprehend a perpetuation of a disgusting state of places such as there are. We have no objection to the excision of such items as a general wash-house, from the block of tenements: only we must observe that it is an object to increase greatly the number of such establishments. Generally, we would hazard the observation, that if the poor are provided with conveniences such as there are in the model dwellings, they will learn to use them, will demand them, and will become elevated by the help of them so as to be able to make the return,—in short to pay for them: but certainly they will remain unimproved in some important particulars, so long as they are unprovided.

Much of these views of ours would, from Mr. Kerr's position, be regarded as "sentimental;" but we are inclined to think that they would be defensible even on commercial principles. This at least seems to us plain, that on the single-room principle,—which is barely modifiable at all in the case that he treats as the exception, and which we regard as near the rule, namely one of the existence of several children,—the old and frightfully unsatisfactory posture of affairs would not be improved upon, but rather perpetuated, and as well for the working-classes as for the poor.

On the matter of construction Mr. Kerr has said very little; but it happens to be important not only as regards first cost, but for the expense of maintenance. Now we should like to know by whom would be provided the enclosures to the recesses, required to convert them into bedrooms, and what would be their construction and material. Certainly, to expect the poor man to provide and fix the boarding, plain, or framed, would be to look for too much from his intelligence, and from his general capabilities as they are regarded. If the landlord had provided the boarding or framing for each tenement, at the time of erecting the building, what would be done with the boarding when the tenement was let to a man and his wife without children? If it were designed like shop-shutters, it would be always in the way, and would be found broken when wanted. We might say even that it would be burnt for firewood.* Any way, the proposal of these recesses is only somewhat better than the system adopted in the quarters of married soldiers; where there are screens, such as can be extemporized of carpeting or other textile material. The very poor in London will parcel out a single room into halves and quarters,—but without screens; and, thus, several families, of two or more members each, divide a floor. This was the state of the rooms in Church-lane, St. Giles's,—as the writer of these lines has seen, at midnight, under protection of the police; and, as we said in a recent article, we believe the condition remains much the same as it was. It is no uncommon event for a woman to give birth to a child in such a room as we have mentioned, and to remain for many hours without medical assistance. We apprehend that tenements planned on Mr. Kerr's principle would soon be only better in condition than those in Church-lane, by so much as might be due to the existence of the *solid* division forming the recesses. This feature would go to produce some approximation to privacy: for those of the poor for whom greater privacy might be attempted, a substantial partition would be required, with a view to durability, as much at the front as at the side of the recess; whilst for those regarded as the superior class, something more than a moveable partition would be needed for privacy.

The single-room, including the recesses, would be about 20 ft. by 17 ft.; and the question immediately suggests itself: how would it be warmed? It is proposed that there shall be nothing of the nature of an inner lobby. The front door would open into the room direct from the gallery, and the back-door from the room into the yard.

Mr. Kerr states the cost of each dwelling provided by the societies and associations as having been from 150*l.* to 200*l.*; whilst he estimates his single-rooms, with their share of staircase and closets, and with the balcony, at 70*l.* per room. He however does not appear to have sufficiently considered cost of ground. Now the obtaining sites has been the chief difficulty; though it need not have been felt so much as it

* It is a great object, as Mr. Kerr perceives, to prevent dilapidation. Indeed this helps to demoralize the man.

has; and before the end of the next session of Parliament, probably, means will have been found to overcome much of it. But he may fairly be asked to point out localities, so that in the item of ground his calculations may be tested. He does not calculate upon central situations; but how far would he go? If to omnibus-distance, that is so far as people of the upper classes requiring a residence at a moderate rental have lately had to go, why not railway-distance,—time occupied in travelling and cost thereof being perhaps the same? But we forget; although he alludes to the question of ground-rents *versus* fares, he must be restricted from the outer zone of London by the fact that the class that he chiefly looks to is not one to which a daily fare would be unimportant, and restricted from the central quarters by the fact of their cost of ground. His choice of sites must be confined to quarters where land is not so costly as in the centre of the City, but still where it will be found to make an important item.

It is scarcely correct to state that there is a "dogma" to the effect that the poor man's dwelling must consist of three rooms. Let the plans be examined; and it will be seen that there are tenements of two rooms: in the Portpool-lane Buildings there are even one-roomed tenements. Whether provision of three-roomed tenements is in excess of the demand, or whether the same proportion in dwellings numerically adequate to the demands, all added together, would be in excess, we need not consider; but we are certain that considerations of morals and philanthropy, with statistics, point to no increase in the proportion of single rooms, and do call loudly for three. The poor man, and even the working man, may ask for the single room,—just as in the olden time, the guest asked only for the corner near the fire in the common hall, and just as now in Scotland, if we may quote the figures of 1861, two-thirds of the houses contain less than three rooms, and considerably more than one-third of the whole number are one-roomed places wherein men, women, and children herd together. In Edinburgh, in 1861, there were 1,530 one-roomed houses, of which 825 contained six inmates and under; whilst no one of the remaining 705 contained less than six inmates. In Glasgow the condition of the people is worse, and of course accounts for the immense mortality. There are 2,212 one-roomed houses: 1,253 contain seven persons each house; and each of the other 959 dwellings has more than seven inmates. Dr. Begg, in his "Happy Homes for Working Men, and How to Get Them," speaks of "nearly one-third of the entire population" of Scotland as "living in houses,—places improperly so called,—in which neither the comforts nor decencies of life can be secured, and which are thus totally unfit for human habitation."

Mr. Kerr's aim is to provide for persons who are unable to pay more than 3s. to 4s. a week; some of whom, perhaps, pay at present as little as 2s. 6d. But the rents as at present paid are for single rooms lacking all convenience and comfort. Mr. Alderman Waterlow can provide tenements at 2s. 4½d. per room per week; but, as the rooms are joined together in a set, the total rent would be more than the limit that Mr. Kerr places before himself. But the question is whether including the cost of ground, as well as the simple requisites of health and decency, Mr. Kerr would be able to provide his tenements at a much less rate. It is a question requiring that many details of construction should be stated, and one that we must leave to the discussion on Monday. For our own part, we are so entirely opposed to the principle that we do not care to go into the details. Progress, and not retrogression, must characterize, as it has lately marked, the provision of dwellings for all classes. To institute any radically defective system, as we hold that one would be in which the majority of tenements were of the single-roomed class, would be retrograding; for, the system would be confirmed as that not only of the poor, but of the working classes generally, who now are sufferers from it. We look forward rather to the elevation of the working-classes, through the more active prosecution of the provision of dwellings, which is likely to follow measures that can hardly fail to get passed in the next session of Parliament. This provision will meet the wants of many of those who now pay but 3s. or 4s., but who could pay more. There will be a problem left as to a considerable section of the community; but it will be overcome when persons with money which they now invest in house-property in bad condition, but returning them 9 or 10 per cent., have felt all the competition of the improved places. The poor man, or working man, and his wife, must overcome their relic of prejudice to living in a place where there is no fiction of the street-door.

A question of the provision of dwellings, for whatever class, is indeed one for architects. The problem as regards the working-class got the first step to its solution when the architect gave the matter attention, and when the required places of residence underwent the process, preliminary to their building, of being designed or *planned*. Similar attention of the architect has now to be given to the provision of sites; and one result of that attention must be a considerable remodelling of the map of London,—of the routes across the town, and out of it. Meanwhile, discussion amongst architects may indicate the way to some reduction in cost of tenements; but the lower class of working-men may have to pay more than they pay for inferior places at present, and may be able to do so.

OLD LONDON: ITS STREETS AND THOROUGHFARES.*

THERE are many, I have no doubt, who are more capable than myself of talking to you about Old London; but I was emboldened to take up the subject because I thought that the large collection of plans and views which I possess would enable me to render it interesting to you, and supply, by illustration, the defects of my description. This collection of maps, plans, and views of London was formed by my late father; he laboured at it; it was a labour of love with him for the last thirty years of his life, and I believe it is considered to be the most complete collection ever brought together: only a very small portion of it is exhibited on these walls, the entire series filling more than fifty portfolios.

At what period London was founded is unknown. There are, of course, various traditions; but it is certain that the City existed before the Roman occupation of Britain. Tacitus mentions in his Annals that about sixty years after the birth of Christ it was then renowned for the vast number of merchants who resorted to it for its widely-extended commerce, and for the abundance of every species of commodity which it could supply. In the "Itinerary" of Antoninus, it is related that fifteen iters, or roads, terminate or commence in London.

A reference to the maps will explain the extent of the City and the line of walls built by the Romans, of which many parts are to be found at the present day. These walls were built of stone, with intermediate layers of bricks at certain intervals, in the usual Roman style, and were about 20 ft. high and 9 ft. thick; the walls were further protected by towers. The course of the wall was as follows:—Beginning at a fort occupying the site of the present Tower of London, the wall was continued by the Minories to Aldgate; thence by a curve to Houndsditch, and by Bishopsgate Churchyard to Cripplegate; then turning southward by Cripplegate Churchyard and Monkwell-street, it approached Aldersgate, and continuing south-west, it curved round St. Botolph's Churchyard, Christ's Hospital, old Newgate, and on to Ludgate; then westerly to Little Bridge-street, where, turning south, it skirted Fleet Brook to the Thames, where it was protected by another fort. The extent of this wall was about two miles and one furlong.

Another wall, of which no traces now remain, skirted the Thames between the two forts; this measured one mile and a quarter, and it had two gateways, one at Dowgate, the other at Belins-gate, or, as we now say, Billingegate.

The relics of Roman London, which are frequently met with at a depth from 15 ft. to 20 ft., indicate that there were many buildings of considerable magnificence and extent. Tesselated pavements of great beauty have been found in excavating in Leadenhall-street, Fenchurch-street, Lombard-street, Thames-street, and other localities, besides the remains of baths, altars, statuary, &c. London stone is said to have been a Roman milliary, from which the roads were measured as from a centre, as may be seen in the map. This stone is now reduced to a small lump, encased in a hollow pedestal, placed in Cannon-street, against St. Swithin's Church.

The Romans occupied Britain for about 400 years, and retired at last when they found it necessary to withdraw all their forces to protect their own frontiers from the attacks of the northern barbarians. After that we learn that London suffered fearfully from all kinds of ravages, by the sword, by fire, by plague. It was occupied by the Danes, and taken from them by the Saxons, under King Alfred, yet, notwithstanding all these difficulties, it still preserved a considerable commerce. After the battle of Hastings, London for a time resisted the Conqueror, and the citizens, before submitting to him, exacted a charter, which is still preserved in the City archives. It is finely written, on a slip of parchment, about 6 in. long and 1 in. broad, and translated reads thus:—"William the King greeteth William the Bishop and Godfrey the Portreve, and all the burgesses within London friendly, and I acquaint you that I will that ye be all there law worthy as in King Edward's days; and I will that every child be his father's heir after his father's days; and I will not suffer that any man do you wrong—God preserve you."

It is a remarkable fact that no mention of London occurs in Domesday Book.

Soon after this period, in the reign of King Henry II., about 1170, we have a most interesting description of London, written by Fitz Stephen, a monk, who was in the household of Archbishop Thomas à Becket, and present at his martyrdom. If you will allow me, I will read you a few extracts from it; it is entitled, "A Description of the most noble City of London.—Amongst the noble and famous cities of the world, this of London, the capital of the kingdom of England, is one of the most renowned, on account of its wealth, its extensive trade and commerce, its grandeur and magnificence. It is happy in the wholesomeness of its climate, in the profession of the Christian religion, the strength of its fortresses, the nature of its situation, the honour of its citizens, the chastity of its matrons, and even in the sports and pastimes there used, and the number of illustrious persons that inhabit it. On the East stands the Palatine Tower, a fortress both large and strong, the walls and body of which are erected upon deep foundations, and built with a cement tempered with the blood of beasts. On the west are two castles, well fortified (Baynard's Castle and Castle of Montfechet), and the City wall is both high and thick, with seven double gates, and many towers or turrets on the north side thereof, placed at proper distances. London once had its walls and towers in like manner on the south; but that vast river, the Thames, which abounds in fish, enjoys the benefit of tides, and washes the City on this side, hath in a long tract of time totally subverted and carried away the walls in this part. On the west again, and on the bank of the river, the Royal palace exalts its head and stretches wide, an incomparable structure, furnished with bastions and a breastwork, at the distance of two miles from the City, but united to it, as it were, by a populous suburb. Adjoining to the buildings all round lie the gardens of those citizens who dwell in the suburbs, which are well furnished with trees, are spacious and beautiful. On the north are corn-fields, pastures, and delightful meadows, intermingled with pleasant streams, on which stands many a mill whose clack is so grateful to the ear. Beyond them an immense forest extends itself, beautiful with woods and groves, and full of the lairs and coverts of beasts and game, stags, bucks, bears, and wild bulls. This city, on the whole, is doubtless most charming, at least when it has the happiness of being well governed. In respect of the inhabitants, the City may be proud of its inmates, who are well furnished with arms, and are numerous. In the time of the late war, when King Stephen directed a muster, it turned out of effective men no less than 20,000 horse, properly accoutred, and 60,000 foot. The citizens of London, everywhere and throughout the whole kingdom, are esteemed the politest of all others in their manners, their dress, and the elegance and splendour of their tables; insomuch, that while the inhabitants of other cities are styled citizens, they are dignified with the name of barons, and with them an oath is the end of all strife. The matrons of the City are perfect Sabines. The three principal churches in London are privileged by grant and ancient usage with schools, and they are all very flourishing. The followers of the several trades, the vendors of various commodities, and the labourers of every kind are daily to be found in their proper and distinct places, according to their employments; and, moreover, on the bank of the river, besides the wine sold in ships and vaults, there is a public eating-house or cook's-shop. Here, according to

* From a paper, by Mr. J. G. Crace, read at the Society of Arts, on the 12th inst.

the season, you may find victuals of all kinds, roasted, baked, fried, or boiled; fish, large and small, with coarse viands for the poorer sort, and more delicate ones for the rich, such as venison, fowls, and small birds. There is also without one of the city gates, and even in the very suburbs, a certain plain field, such both in reality and name (Smithfield); here every Friday, unless it should happen to be one of the more solemn festivals, there is a celebrated rendezvous of fine horses brought thither to be sold. Thither come, either to look or to buy, a great number of persons resident in the City, earls, barons, knights, and a swarm of citizens."

Fitz Stephen then describes the various diversions of the citizens, such as horse-racing, foot-ball, mystery plays, tilting on horseback, also in boats on the river, archery, boar-hunting, sliding and skating on the ice, all exceedingly well pictured, and worthy of perusal, but too lengthy for me to recite to you on this occasion. Fitz Stephen adds, "To this city merchants repair from every nation in the world, bringing their commodities by sea.

> 'Arabia's gold, Sabæa's spice and incense,
> Scythia's keen weapons, and the coral price
> From Babylon's deep soil, Nile's precious gems,
> China's bright shining silks and Gallic wines,
> Norway's warm peltry, and the Russian sables,
> All here abound.'"

This was London in the twelfth century, a hundred years after the Conquest. It grew and flourished, and, in spite of wars and difficulties of various kinds, it became renowned among the cities of Europe for the importance of its trade, the wealth of its citizens, and the beauty of its buildings.

Thus far we are obliged to depend on written description; there is no known plan or reliable view of London earlier than the sixteenth century. There are, indeed, fanciful pictures given in an early manuscript of the venerable Bede (see the fac-simile copy), but nothing founded on actual survey.

Now, however, I shall refer to my illustrations, and hope to give you a fair idea of the ancient city, such as it was in the time of our Tudor sovereigns, and of their successors, the Stuarts.

I shall first refer you to a very interesting view of London, copied from a remarkable drawing by an artist named Van den Wyngerde, which is now in the Bodleian library, Oxford. It is one of a series of views of cities and interesting places supposed to have been done for Philip II. of Spain, about 1540. It embraces at the extreme east a view of the palace of Placentia, near Greenwich, a favourite royal residence of King Henry VIII., Queen Mary, and Queen Elizabeth, and gives every building of importance up to the extreme west, including the palaces of Whitehall and Westminster. Next is the map of Ralph Aggas, the earliest plan known to exist of the city of London. It was published about 1563, though supposed to have been surveyed much earlier, and it corroborates in every material point the view before mentioned. After that is a view by Visscher, published in 1615, also giving very interesting views of all the principal buildings.

Then the fine view drawn and engraved by Hollar, similar to the last, and published in 1649. And next is a good clear map, by Newcome, well engraved by Faithorne, about 1645, interesting as showing the growth of the City since the time of the Aggas map; and following these are various maps and views of places, to some of which I shall refer in the course of my description.

With the assistance of the maps and views, now let me attempt to picture to you the old city. We will imagine a traveller journeying from Oxford to approach the City by the road which is now Oxford-street, then called the way to Tyburn. All is country till he approaches the village of St. Giles. The first object he meets is the gallows; on his right are the hospital and church of St. Giles, and a few scattered houses forming the village; and running southwards is a lane leading by St. Martin's to Westminster. He passes by the road called Holborne (after a brook, the "Old bourne"). He is quite in the country, surrounded by hedgerows, though there is here and there a house; he sees on his right a lane leading to Drury House, lately built; soon he enters the suburb, houses begin to line the way; he passes a by-road, sparely built upon, called Chauncery-lane, and on his left is Gray's-inn-lane, leading to fields. He reaches the Holborn-barres, and soon arrives at the brow of the hill, from whence the splendid prospect of the City bursts upon his view. On the right is the church of St. Andrew, rising picturesquely from the steep declivity, surrounded by trees; on his left are the extensive buildings of Ely House, its great gateway, embattled walls, and lofty chapel, surrounded by pleasant gardens, forming a grand palace for its bishop; on the summit of the opposite hill is the church of St. Sepulchre's, with its lofty tower. In the same line, and over the embattled parapets of the Newgate, he sees the noble church and monastic buildings lately belonging to the Grey Friars, but now to be called Christ Hospital, and above all appears the great cathedral of St. Paul, whose gigantic spire, 520 ft. high, rises majestically above its church, the church itself, nearly 700 ft. in length, towering majestically with its roofs and pinnacled buttresses high above the mass of gabled houses and numerous churches stretching far beyond. Then he descends the hill, and, crossing the Holborn Bridge over the river Fleete, he commences the ascent of Snorehill opposite, and, by Cock-lane, he reaches Smithfield, or the "smooth field," "the old town green" from the Conqueror's time downwards, where the Londoners had their favourite games, their tournaments, their horse-races, and, sad contrast! where hundreds of poor victims were sacrificed in the name of religion, by burning and other dreadful deaths.

Here stood the priory of St. Bartholomew, founded by the poor jester Rahere, of which the church still remains. Further northward is the great Carthusian convent, founded by Sir Walter de Manny, and afterwards known as the Charter House, when converted into a refuge for decayed gentlemen and a renowned school, by Sir Thomas Sutton, of whom some poor scholar said,—

> "Blessed be the memory
> Of good old Thomas Sutton,
> Who gave us lodging, learning,
> And who gave us beef and mutton."

He was a worthy man, whose prayer should be remembered:—"Lord, thou hast given me a large and liberal estate, give me also an heart to make use thereof."

Beyond the Charterhouse to the north-west is the village of Clerkenwell, where is the great Priory of St. John of Jerusalem, surrounded by pleasant gardens.

Turning now eastward, our traveller passes into Aldersgate-street, on both sides whereof are divers fair houses, the residences of our chief nobility. Here be Peter House, Thanet House, and the mansion of the Nevilles, Earls of Westmoreland, besides many fair inns of great resort. He enters within the walls of the City by Aldersgate, and passing where was recently the great sanctuary of St. Martin-le-Grand, he reaches one of the main avenues of the City, called Chepe, now Cheapside. The word Chepe is derived from the Saxon Chepe, a market. At this period it was the principal street of London, lined with picturesque gabled houses. Here were the shops of the chief goldsmiths, the mercers, the drapers, and others. In the words of Lydgate, written in the fifteenth century,—

> "Then to Chepe, I gave drawne,
> Where much people I saw for to stande
> One after the veyer, silke, and lawne,
> Another he taketh me by the hande,
> Here is Paris thredes, the finest in the lande."

In the centre of the Chepe, opposite Wood-street, stood one of the crosses of Queen Eleanor; at the west end was placed the little Conduit; and at the east end, near the Poultry, was the great Conduit. The standard in Chepe stood near the Church of St. Mary-le-Bow, or St. Mary de Arcubus, from its being built on arches.

I refer you to an engraving of the "Entrance of Marie de Medici into London," for a curious view of Cheapside, showing very distinctly the whole line of the houses on the north side, as well as the Cross.

The print of the "Procession of Edward the Sixth from the Tower to Westminster," engraved from the fresco at Cowdray, is also interesting, but not exact.

Passing by the Poultry and the Stocks Market (the Covent Garden of that day), our traveller now reaches Cornhill, "so called," says Stowe, "of a corn-market time out of mind there holden."

Here, at the west end, Sir Thomas Gresham was then building his New Bourse or Exchange; towards the east stood another fair conduit; and here also was the Standard, with its four spouts of water running different ways; nor must we omit two fine churches, St. Peter's and St. Michael's. Next, at the corner of Gracious or Grasschurch-street, stands the vast pile of building called Leadenhall; this was the ancient residence of the Nevilles, and was at that time used as a great storehouse for grain and wool, and for the trappings of the City pageants; beyond this is the church of St. Mary Undershaft, in front of which stood the lofty May-pole.

Returning southwards, our traveller wends his way, through busy crowds, to East-chepe; this was a market in the old Saxon times, and was famous for its taverns even in those days; here was the Boar's Head of jolly Sir John Falstaff and Prince Hal.

Old Lydgate says of this street—

> "There I hyed me into East Chepe,
> One cryes 'rybbes of befe,' and many 'a pye,'
> Pewter pottles they clattered on a heap,
> There was harpe, pype, and minstreisye."

We will leave our traveller here to refresh himself, while we turn our attention to the northern outskirts of the City.

A reference to the Aggas map will show that in the sixteenth century there was little building outside the walls of the City. From Aldersgate-street to Bishopsgate-street Without there were fields and gardens, St. Giles' Cripplegate forms a little village, men are shooting in Finsbury-fields, the windmills beyond indicate the position of the present Windmill-street. From Bishopsgate the street to Shoreditch is lined with houses; on the left will be noticed Bedlam, to the left are the Spital fields, where men are practising archery. Houndsditch is veritably a ditch, with houses on its northern side only; to the west of it is the church of St. Botolph, Bishopsgate, to the east that of St. Botolph, Aldgate; the road to Whitechapel is lined with houses, and there are buildings in Hogges-lane, and a few in East Smithfield; the Hospital of St. Katherine forms a large enclosure, and is "pestered with small tenements," as Stowe says; then we arrive at the Tower. This fortress of our Norman kings is said to have been built upon the remains of the Roman Arx Palatina; the large quadrangular building, called the White Tower, was built, by command of William the Conqueror, by Gundulph.

Here many of our monarchs held their state or fled for safety. It was a fortress, a palace, and a prison, and many a one has passed a weary life within its walls, or left them to be seen no more.

In a volume of poems, written by Charles Duke of Orleans, in the reign of Henry VI., and now in the British Museum, is a curious illustration, showing the Tower of London, in which the duke was kept prisoner. I refer you to the fac-simile of this illustration, which, in a ubiquitous manner, shows the duke going to the fortress, writing his poems, looking out of the window, and taking his departure. The drawing is very interesting, as giving the earliest known view of the Tower, with the bridge, and part of the city beyond. Returning to the Aggas map. Outside the Tower on the north, is an extensive field, in which women are engaged laying out linen, and on the west corner is the scaffold, which is also shown in Faithorne's map of about one hundred years after.

Now, crossing the river we proceed across Horsey down to the Abbey of Bermondsey. This is well shown in the drawing. It was founded by Alwyn Childe, a London merchant, and was one of the most important priories in England.

Two of our queens retired here to mourn, and here they died — Queen Catherine, wife of Henry V., and Elizabeth Woodville, Queen of Edward IV. On the suppression of the Abbey, a house was built on its site, in which the Earl of Sussex, in Elizabeth's time, lived and died; all is now cleared away, and the Church of St. Mary Magdalen marks the site of the old abbey.

We will now cross the meadows and proceed to the old High-street of Southwark. This has remained the great highway from the metropolis to the southern ports since the time of the Romans. Till within a few years many of the old inns remained such as they had existed for two or three hundred years, with their old court-yards surrounded by quaint outside galleries. One of these, now called the Talbot, is supposed to have been the old Tabard of the Canterbury pilgrims. How we may picture them as we read old Geoffrey Chaucer:—

> "It befell in that season on a day
> At Southwark in the Tabard as I lay,
> Ready to wenden on my pilgrimage
> To Canterbury with devout courage,
> At night was come unto that hostelry
> Well nine and twenty in a company."

Here in this High-street let us picture one of the many pageants that have passed this way.

The hero of Agincourt returns to England

after his great victory, where nine thousand half-starved English fought against eighty thousand French. The trumpeters lead the way, blowing loud ringing blasts, then the heralds in their rich tabards. The Lord Mayor and the aldermen, apparelled in scarlet, and four hundred of the council clad in beautiful morrie, all well mounted, and trimlie horsed, with rich collars and gold chains, all the guilds of merchants and great corporate bodies, the clergy of London, with rich processional crosses, sumptuous copes, and massive censers. The Royal standard borne aloft and the banners taken from the enemy. Then the heroes of the fight clad in bright armour and brilliant surcoats, and lastly Harry the king, splendidly accoutred, young, brave, and handsome, and so modest withal, that he would not allow his officers to show in the procession, as they wished, his battered helmet, and his sword bent with the blows upon his enemies. Add to this the magnificent following, and the welcoming shouts of thousands, and we shall not wonder that the old chroniclers speak admiringly of the glorious triumph given to Henry V. after the battle of Agincourt.*

ART IN ITALY.

IN the sculptors' studii at Florence some novelties are now to be seen in progress, entitled to honourable mention, though it must be owned that the aggregate of talents in that art-province here is inferior to what we find at Rome. A competition lately published in America, by the States of Rhode Island, for a monument to all its citizens slain in the war, and for which the local government assigns 50,000 dollars, has been responded to by several artists of that nationality, about fifty of whom are, we are told, now resident and practising in the two above-named cities. We have seen the design sent in by Mr. Jackson, the sculptor, whose "Eve with the dead Abel" was noticed with praise in a recent number of the *Builder*; his composition for this national object consisting of a colossal grouping proposed to be in bronze, on a plinth and double basement of native red granite; at the apex being the personified Rhode Island State, a dignified matron, in classic costume, offering a laurel-wreath with one extended arm; below, at angles of the pedestal, four eagles with shields, the American device, and seated at the angles of the upper basement-story, the allegorical female figures of Liberty, Justice, Fidelity, and Valour; on the four sides of the quadrate structure the dedicatory inscription in bronze letters, and names of all who fell (no fewer than 1,300), among that State's citizens, in the late contest. Mr. Jackson's work would stand 36 ft. high; and as the monument is to have its place at the centre of a large square in the city of Providence, such a composition, on the requisite scale, would no doubt have imposing effect. Mr. Connelly, a young artist whose talents we have mentioned, competes with a design the conception of which surpasses all he has yet produced, and strikes us as not only original, but marked by genuine grandeur: in allegoric group (of course to be colossal) he represents Death, not the vulgar personification as a skeleton, but a gaunt and majestic old warrior, with his scythe and banner, on a prancing steed, arrested in his headlong career by Honour whilst about to trample over the prostrate figures of Force and Courage; Honour being distinguished by a noble and heroic beauty, with helmed head, but no weapons, and in act of wresting the banner, whose staff he has broken, from Death's left hand; Courage, also a beautiful youth, resistant against the scythe-armed warrior, though fallen, and calm in his desperate opposition; and Force, of more Herculean proportions, attempting to strike the dreadful rider whose horse passes over him; and the superiority of Honour as well to that mightiest foe as to the other personifications, being the dominant moral of the composition. The pyramidal outline is completely attained in this group, whose highest merit is in the elevation of its theme into a sphere of sublime idealism. It should stand, according to the artist's project, on a plain quadrate basement raised on steps, but not at any great height.

At Dupre's studio we see two works that are new, besides others now being wrought in the marble. The Resurrection, for an altar, introducing the single figure of the Saviour rising, with arms extended, in movement good, but scarcely, as it struck us, attaining the divine dignity or preternatural character inherent in its subject. Also a monument to the Professor of Astronomy at Pisa, named Musotti, for the Campo Santo of that city, the principal figure, a female, personifying that science, with a star on her brow, leaning one arm on a pile of books as she reclines on the curving summit of the basement, central at whose front is a portrait relief bust, the only other sculpture; a Michelangelesque idea being recognisable in that form of Astronomy, as the attitude also reminds of the peculiar poise in the accessorial statues on the Medici tombs at S. Lorenzo. The "Pieta," or Dead Christ, with the mourning Mother, which is to stand on a predella presenting bas-reliefs of Faith, Hope, and Charity, now near to completion in the marble, is by no means one of Dupre's happiest attempts; and in other of his works there is a certain coarse exaggeration of passion that seems all unworthy of the artist whose best performances have been so justly admired. His "Sappho," in the expression of profound despair, a most affecting statue, remains still on his hands in the marble, unordered. Another monument now complete, though its figures are not yet placed together on their basement, is that by Costoli, to Madame Catalani, to occupy a distinguished place in the Campo Santo of Pisa, having been ordered by the surviving sons of the great songstress, whose married name was Valabrecque. Its composition is such that the principal figure is, in fact, that of St. Cecilia, who stands at the summit with the extatic air and action of an improvisatrice, while below are seated, laterally, a recording angel engaged in writing on a scroll, to perpetuate the virtues of the deceased, and an allegorical female figure, "Faith in God," whose expression is sorrowful and yet hopeful. A profile bust in low relief, on the member above the basement, representing the lady, whose name is given in a brief inscription, with dates, above the dedicatory line,—to her glory and her virtue. Madame Catalani's remains will be transferred from Paris, where she died in 1849, to a deposit immediately beneath this monument, in the Campo Santo. As to the artwork, we should say it certainly deserves praise, but has less the character of a record to an individual than that of an allegory on the union between Genius and Virtue,—a union, indeed, exemplified in the life of that gifted woman, who is remembered with reverential regard by the many in her intimacy during her long residence at Florence.

Among the younger artists of high promise is the son of the same Signor Costoli, now but nineteen years old, and who has executed a statue of Michelangelo, heroic size, represented standing, with in one hand a pencil, and the sketch of his fortifications for the church and height of S. Miniato, prepared before the siege of Florence in 1530,—a figure striking in its dignified and well-marked individuality, the countenance full of severely earnest thought; and yet (as we were sorry to learn) no commission has yet been given, in this instance, to encourage talent so early distinguishing itself. This young man's studies have been carried on under his father, with whom he continues to work on busts as well as ideal subjects.

We hear of, but cannot yet see, the equestrian statue of the king, executed at Bologna, and to be cast in bronze, at Florence, for the Piazza dell' Independenza, the largest of the public places in this city. Also a statue of Victory, another bronze by Consoni, for a piazza at Leghorn. A colossal figure of Cavour, by the elder Costoli, to be erected at Ancona, is only noticeable as a portrait; faithful it may be, but quite unidealized and uninteresting.

At the studio of Cambi we still see the colossal Goldoni, in the costume of his day, for erecting which in the marble near one of the bridges on the Arno's right bank, the Philodramatic Academy has not yet given the series of performances promised. Several other monumental works are in project, though not yet even in the incipient stage of execution, for Florence and other Italian centres, as the memorials to Guido, the musical monk of Arezzo; to Niccolini, the tragic poet; and to Azeglio; the two latter to stand in S. Croce; and in respect to that church it is worth mentioning that the committee appointed by the Ministry of Instructions for the promotion of the undertaking recommends alterations of its interior, with a view to the restoring of its ancient character, especially the removal of all the lateral altars along the aisles, designed by Vasari in style most discordant with the Mediæval building.

While on the subject of sculpture we cannot omit paying a tribute to the memory of one of the most successful among the English distinguished in that art at Rome,—Mr. Spence, who died last month at Leghorn, a gentleman of amiable character, zealously industrious, and varied in the ranges of his subjects, but more particularly excelling in the poetic and modern class; proof of which we might point out in his often-repeated statues of "Highland Mary," "Jeanie Deans," the "Lady of the Lake," and a group delicate and tenderly expressive, "The Angels' Whisper." His "Finding of Moses," on heroic scale, was successful in a more difficult walk; and his well-filled studio was one of those most visited by English in Rome after that of Gibson, under whom Mr. Spence had long studied in the youth of a life prematurely closed.

The committee for the Italian compartment in the Paris Exhibition is now bestirring itself for the object of securing worthy representation in the industrial as well as fine-art walk; and has just put forth a manifesto, inviting co-operation from all competent quarters, with various suggestions. It is regretted by this committee that, in the gallery to be appropriated to the "History of Labour," not more than 150 square mètres will be assigned to Italian produce and specimens.

Mr. Holman Hunt, at Florence *en route* for Palestine, and detained longer than was desired by the illness of his lady, has taken a studio here, and begun the studies for a picture.

We ascertain, with pleasure, that there is no truth in the report given by the English papers, of *another* robbery from the cabinet of gems at the Uffizi; but a fact that may have given rise to this error is the arrest, under strong suspicions, about a month ago, of the custode, who is still in prison. Of the precious objects stolen from the collection, some three years ago, about one third have been recovered from one of the thieves, who turned king's evidence against his accomplices, but could do no more than give up his own share of the spoil, minus all the settings in gold. The rest, it is to be feared, are irrecoverably lost, perhaps destroyed; and a certain mystery seems still to hang over this affair.

Florence.

TO GET INCREASED LIGHT TO ROOMS.

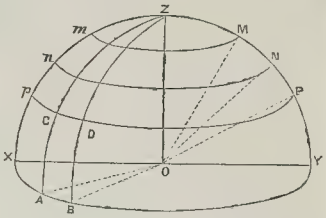
ON the 3rd inst. an address, by Sir David Brewster, was read at a meeting of the Edinburgh Royal Society, containing some important suggestions on the lighting of houses, and the value of light. In various great cities, he said, attempts were being made to replace their densely congregated streets and dwellings by structures at once ornamental and salutary: and Europe was now admiring that great renovation in a neighbouring metropolis by which hundreds of streets and thousands of dwellings once the seat of poverty and crime, were replaced by architectural combinations the most beautiful, and by hotels and palaces which vied with the finest edifices of Greek or of Roman art. These improvements, however, were necessarily local and partial: centuries must pass away before we could expect those revolutions in our domestic and city architecture under which the masses of the people would find a cheerful and well-lighted home; and we must therefore attack the evil as it existed, and call upon science to give us such a remedy as she could supply. There can be no doubt that science does possess such a remedy—a remedy, too, easily understood and easily applied. Like all other remedies, however, it has its limits, but within these limits the principles and methods which science dictates are unquestionable and efficacious. With rare exceptions apartments are lighted with vertical windows, which admit the light of the sun, either directly or when reflected from the sky, or from adjacent surfaces. In narrow streets and lanes, the light which enters the window comes chiefly from a portion of the sky, and the value of this portion as an illuminating agent depends on its magnitude and area, and on its varying distance from the sun in his daily path; but whether the area be large or small, bright or obscure, it is the only source of light which the window can command; and the problem which science pretends to solve is to throw into the dark apartment as much light as possible,—all the light, indeed, which is visible from the window, excepting that which is necessarily lost in the process. In lanes or closes shut up at

* To be continued.

both ends by lofty houses or by projecting buildings, it is sometimes only from a small portion of the sky towards the zenith that the light can be obtained; and in this case part of it might be advantageously thrown into a window by expansive reflectors; but in streets and lanes open at both ends, where a narrow strip of the sky is visible from one point of the horizon to the opposite point, no aid whatever can be obtained from reflectors, and in such cases the method we are about to describe is peculiarly effective. If, in a very narrow street or lane, we look out of a window with the eye in the same plane as the outer face of the wall in which the window is placed, we shall see the whole of the sky by which the apartment can be illuminated. If we now withdraw the eye inwards, we shall gradually lose sight of the sky till it wholly disappears, which may take place when the eye is only 6 in. or 8 in. from its first position. In such a case the apartment is illuminated only by the light reflected from the opposite wall, or the sides of the stones which form the window; because, if the glass of the window is 6 in. or 8 in. within the wall, as it generally is, not a ray of light can fall upon it. If we now remove our window and substitute another in which all the panes of glass are roughly ground on the outside, and flush with the outer wall, the light from the whole of the visible sky, and from the remotest parts of the opposite wall, will be introduced into the apartment, reflected from the innumerable faces or facets which the rough grinding of the glass has produced. The whole window will appear as if the sky were beyond it, and from every point of this luminous surface light will radiate into all parts of the room. In order to explain the superior effect of roughly-ground glass, let us suppose that the ordinary window is replaced with a single sheet of the best glass inserted flush with the outer wall. The whole of the light from the visible portions of the sky will fall upon its surface, but at such an obliquity that four-sixths or five-sixths of it will be reflected outwards, and the other two-sixths or one-sixth which is transmitted will fall on the floor or on the shutters, and be of no value. In aid of this method of distributing light, the opposite sides of the street or lane should be kept whitewashed with lime, and for the same reason the ceilings and walls of the apartment should be as white as possible, and all the furniture of the lightest colours. Having seen such effects produced by imperfect means, we feel as if we had introduced our poor workman or needlewoman from a dungeon into a summer-house, where the aged can read their Bible, where the inmates can see each other, and carry on their work in facility and comfort. By pushing out the window we have increased by a few cubic feet the quantity of air to be breathed, and we have enabled the housemaid to look into dark corners where there had hitherto nestled all the elements of corruption. To these inmates the winter twilight has been shortened, the sun has risen sooner and set later, and the midnight lamp is no longer lighted when all nature is smiling with the blessed influences of day. But it is not merely to the poor man's home that these processes are applicable. In all great towns, where neither houses nor palaces can be insulated, there are in almost every edifice dark and gloomy crypts thirsting for light; and in the city of London there are places of business where the light of day never enters, and where the precious light which the sky sends down between chimney-tops is allowed to fall useless on the ground. On visiting a friend whose duty confined him to his desk during the official part of the day, we found him with bleared eyes struggling against the feeble light which the opposite wall threw into his window. We counselled him to extend a blind of fine white muslin on the outside of his window and flush with the wall. The experiment was soon made. The light of the sky above was caught by the fibres of the linen, and thrown straight upon his writing-table, as if it had been reflected from an equal surface of ground glass. We may mention another case equally illustrative of our process. A party visiting the mausoleum of a Scottish nobleman wished to see the gilded receptacles of the dead which occupied its interior. There was only one small window through which the light entered, but it did not fall upon the objects to be examined. Upon stretching a muslin handkerchief from its four corners, it threw such a quantity of light into the crypt as to display fully its contents. But while our method of illuminating dark apartments is a great utilitarian agent, it is also an æsthetical power of some value, enabling the architect to give the full effect of his design to the external façade of his building, without exhibiting to the public eye the vulgar arrangements which are required in its interior. The Edinburgh National Picture Gallery on the Mound, from the designs of Mr. Playfair, is lighted from above; but there are certain small apartments on the west side of it which cannot be thus lighted, and these being very useful, the architect was obliged to light them by little windows in the western façade. These windows are dark and unseemly gashes in the wall, about 2 ft. high and 1 ft. broad; and being, unfortunately, placed near the fine Ionic portico—the principal feature in the building—they greatly interfere with the symmetry and beauty of the western façade. Had there been no science in Edinburgh to give counsel on this occasion, the architect should have left his little apartments under the patronage of gas or oil; but science had a complete remedy for the evil, and in the hope that it may yet be applied, we offer it to those who have the charge of this noble building. Take sheets of thick plate glass the exact size of the present windows, and of such a colour that when one side is roughly ground, it will have the same colour as the freestone. When the openings are filled with these plates, having the ground side outwards, the dark gashes will disappear, the apartments will be better lighted, and the building will assume its true architectural character. The plates of glass thus inserted among the stones may, when viewed at a short distance, show their true outline; but this could not have happened if during the building of the wall some of the stones had been left out and replaced by plates of glass of the same size. This method of illumination will enable architects to light the interior of their buildings by invisible windows, and thus give to its exterior façade the full æsthetical effect of their design. If it is important to obtain a proper illumination of our apartments when the sun is above the horizon, it is not less so when he has left us to a short-lived twilight, or consigned us to the tender mercies of the moon. In the one case it is chiefly in ill-constructed dwelling-houses, and in large towns and cities, where a dense population, crowded into a limited area, occupy streets and lanes in almost total darkness, that science is called upon for her aid; but, in the other, we demand from her the best system of artificial illumination, under which we must spend nearly one-third of our lives, whether they are passed in the cottage or in the palace, in the open village or in the crowded city. After referring to the certain evils attending the lighting our houses by burning the light within their apartments, and to a proposal he made about half a century ago to illuminate our houses by burning the gas externally, Sir David Brewster expressed the hope that the Governments of Europe will freely throw their precious influences into the dark abodes of their overcrowded cities, and that wealthy and philanthropic individuals will promote the same object in more limited spheres, and set the example of lighting, heating, and ventilating, according to the principles of science.

ON THE RELATIVE ILLUMINATING POWERS OF DIFFERENT PORTIONS OF THE SKY SURFACE.

The subject of the obstruction of ancient lights has recently been discussed at the Institute, and various opinions expressed as to the proper mode of measuring the light received into a room. It seems, however, to have been generally assumed that the amount of light abstracted by a building erected near to a window is proportional to the sky-surface obscured thereby. This assumption leaves out of consideration the difference between the illuminating powers of different portions of the sky-surface, according to their distance from the zenith. Every one knows that the sun's illuminating power varies greatly according to its distance from the zenith; and the same holds good in the sky-surface, illuminated only by the diffused light of day. If we take any portion near the horizon, we shall find that the light emanating from it is very small as compared with an equal portion near the zenith. This can easily be tested by a person going into a tunnel, the entrance to which is open to the horizon: he finds that the interior of the tunnel, being only illuminated by rays from the sky-surface near the horizon, is in midnight darkness; but when he stands under a vertical shaft in the tunnel, he is in comparatively broad daylight. In this example we have the two extremes of illuminating power from equal areas of sky-surface.



Now let us suppose the point O (in the figure) to represent the middle of a window, which is the centre of a quarter-sphere of sky-surface. The illuminating power on O of any small portion of the sky-surface (or, the quantity of light falling from it on O) is proportional to the *sine* of the angle of its altitude above the horizon XAY, or to the *cosine* of its zenith distance. (See Sir J. Herschel "On Light," *Encyc. Metrop.*) Thus, if we call the illuminating power of a small part of the sky at the zenith, 1,000; that of an equal part at 30° from the zenith, is 866; at 45° from the zenith, it is 707; at 60° from the zenith, it is 500; and at the horizon it is *zero*.

Hence we find (by help of the integral calculus) that the illuminating power of any sector CZD (z being the zenith distance of CD) is proportional to

$$AB \times \sin.^2 z.$$

Now let us call I the illuminating power (supposed known) of the whole quarter-sphere, as seen from the centre O; and let $AB = a^\circ$

Then the illuminating power of the sector CZD is expressed by the formula

$$I \times \frac{a^\circ}{180^\circ} \times \sin.^2 z.$$

If, therefore, we divide the surface of the quarter-sphere into four zones by the circles of latitude Mm, Nn, Pp; so that $ZM = 30°$, $ZN = 45°$, $ZP = 60°$, $ZY = 90°$; we shall find from the above formula that the illuminating powers of all the zones are equal. For, the illuminating power of the upper zone ZMm is $I \times \sin.^2 30^\circ = I \times \cdot25$; that of $MmnN$ is equal to

$$I \times \sin.^2 45^\circ - I \times \sin.^2 30^\circ = I \times (\cdot5 - \cdot25) = I \times \cdot25;$$

that of $NnpP$ is equal to

$$I \times \sin.^2 60^\circ - I \times \sin.^2 45^\circ = I \times (\cdot75 - \cdot5) = I \times \cdot25;$$

and that of $PpXY$ is equal to

$$I \times \sin.^2 90^\circ - I \times \sin.^2 60^\circ = I \times (1 - \cdot75) = I \times \cdot25.$$

Now the *areas* of these four zones are in the following proportions:—

134, 159, 207, 500;

calling the entire area of the quarter-sphere, 1,000.

It also appears from this formula that the illuminating power of the whole surface above the angle of 45°, is equal to that of the whole surface below 45°; but the areas of the two surfaces are as 293 : 707.

Hence it is evident that very erroneous conclusions will be drawn by supposing the sky's illuminating power to be in exact proportion to its surface, unless we take into account the *part* of the sky-surface referred to.

E. Wyndham Tarn, M.A.

SANITARY MATTERS.

Liverpool.—A copy of Mr. A. Taylor's report to the Government, on the sanitary state of Liverpool, has been read before the local health committee. He strongly condemns the manure wharfs existing in the centre of the town, advises their immediate removal to depôts in the outskirts, whence the accumulations could be removed by railway into the country. One great cause, in Mr. Taylor's opinion, of the enormous mortality of Liverpool, is the system of open privies (numbering upwards of 14,000); and he advocates the earliest conversion of them into water-closets. According to calculations by Mr. Newlands, the borough engineer, the present

system of conversion is far too slow, and will take twenty years; whereas they should all be cleared away in five years, in Mr. Taylor's opinion. Until this can be done he suggested that all houses deficient in water-closets should have disinfecting substances supplied to them by the authorities. The commissioner also states that it will be impossible to carry out the conversion into closets, and to remove the filth, unless the water supply of the town is very largely increased; in fact, doubled. The report is to be printed and circulated.

Cardiff.—A discussion has taken place in the Local Board of Health as to the state of the town drainage, from which it appears not only that the system of drainage for which money was borrowed in 1857 is not yet completed, but that from want of a reservoir, as intended by Mr. Hawkshaw, the engineer, the drains already made are silting up with sand. Tidal influence is also said to be at work both in this respect and also in forcing back the sewer gases through the water-logged sewers into the town. Mr. Waring, the surveyor, was requested to report on the present condition of the sewers, and the best mode of making them effective, and extending them to Woodville. The cost of the additional sewers has been estimated at 1,400*l.* There is a balance of 7,000*l.* remaining in respect of the drainage loan: it is needed for the construction of the reservoir as well as for the Cathays drainage. The drainage now extends about 300 yards north of the Infirmary, and, if carried to the Taff Vale works at Cathays, Mr. Waring says, there will be a very good fall.

Carnarvon.—The outbreak of cholera in Carnarvon has excited, it appears, no surprise on the part of the authorities, who are said to have for the last few years uttered continual warnings on the subject of want of drainage and filthy courts, which they have done their best to abate. The very old plan of erecting courts in the old town within the walls, has unfortunately been followed outside, where the portion of the town is five times larger than the old parts within. The number of courts is between fifty and sixty: some of them have been closed by order of the local authorities, in anticipation of cholera; and during the last summer, when this step was taken, the corporation ordered a medical report on the state of the town, which pointed out in forcible terms the want of a proper water-supply and of good drainage, and declared some of these courts to be unfit for human habitation. The total number of deaths has probably been about thirty, and the cases of cholera and diarrhœa under medical treatment at any one time, probably 110 or 120. In the various quarters of the town where deaths have taken place, there is no difficulty, it appears, in tracing the causes either to crowded neighbourhoods, overflowing cesspools, absence of drains, or drains without traps. About one-fourth only of the town is at present supplied with water, by no means of the best or purest, by two companies, which have been bought off by the corporation, which body obtained an Act during the last session of Parliament for supplying the whole town with water from Quellin Lake, about five miles from the town, on the Beddgelert-road. This water was analysed by Mr. Herapath, who pronounced it to be the purest water he had ever tasted. But for the opposition of some small landed proprietors, the new waterworks would be now almost completed. All propositions for a thorough system of drainage, too, have been met by popular clamour and objections to pay the requisite rates.

TRENT COLLEGE.

THE foundation-stone of this college has been laid, with the customary formalities, by the Duke of Devonshire, K.G., lord-lieutenant of Derbyshire, and Chancellor of the University of Cambridge, on a site which has been purchased for the purpose in the neighbourhood of Long Eaton, at a convenient distance from railway stations, midway between Nottingham and Derby. The proposed college is promoted by a public company, who intend to raise a capital of 20,000*l.*, to establish a school for providing, on moderate terms, a religious, classical, mathematical, and general education, in conformity with the doctrines of the Reformed Church of England.

The building is designed in the Tudor style of architecture, and covers a space of 250 ft. by 200 ft. The building itself will be of three stories, but the tower, which will have a view across the country in the direction of Trent Station, will be carried up an additional story. The front portion of the building is arranged for class-rooms, master's day-rooms, Board and visitors' room. The upper portion is set apart for dormitories, in conjunction with which are bath-rooms, laborstories, and store-rooms. The whole of the dormitories are approached by fire-proof staircases, and every provision has been made, by the introduction of fire-mains, for rendering the building free from the danger of fire. At right angles at each end of the building are the upper and lower schools, with dormitories over; and in the centre of the building, at the back, is placed the dining-hall, kitchen, stores, laundry, washhouse, &c. Close at hand is the infirmary. The large rooms and corridor will be heated by hot water. At the western angle of the school is placed the master's house, which has a supervision of the boys' department. Mr. Frederick Peck, of London, is the architect, and the builders are Messrs. Dennett, of Nottingham. The site purchased for the college is fifteen acres in extent, and the price was 112*l.* 10s. per acre.

CONDITION OF NEWCASTLE-UPON-TYNE.

THE unsanitary condition of the streets of Newcastle furnished a somewhat important topic for the after-luncheon speeches on the occasion of the laying of the foundation-stone of a new church in that town, on the 29th ult. Sir William Armstrong began by saying that "when the corporation had any money to spare he would be glad if they improved the streets in that district, about the state of which so much had been lately said;" and the Rev. Mr. Lintott followed by stating that, in the prosecution of his duties and otherwise, he "had got his feet so often wet by going along the streets, that he should have died had he been a poor man, unable to attend to his physical comforts!" The Rev. Mr. Maughan remarked "that the streets in Benwell had been longer unpaved than those in Elswick." To which Mr. Alderman Wilson, the vice-chairman of the Town Improvement Committee, replied, "that the streets should be paid for by the proprietors of the houses; and that, if the money were forthcoming, the corporation could do its part."

Some streets thirty years old are yet unpaved,—nearly 300 in all are yet in this condition,—and yet the corporation expects every house-proprietor in each street to unite at a given time, and advance one-half of the surveyor's estimated cost of the paving, &c., before they ought to begin this work of improvement. At this rate the paving must be in arrears of the new streets, and to overtake the older streets will be simply impossible. Could such a mode of obstruction and such a state of things be credited, with a death-rate the highest in England!

SCARBOROUGH CASTLE.

THIS castle occupies the whole of a bold rocky headland well known upon the Yorkshire coast, and which constitutes a lozenge-shaped peninsula, about 600 yards north and south by 330 yards east and west. On its north-west is the secluded inlet known locally as North Bay, or the North Sands; and to its south-west the bay and valley, within and about which are placed the harbour and town of Scarborough. Seaward, and towards North Bay, the scaur is precipitous, and about 300 ft. high, needing, therefore, no artificial defences. The south-western face, or that towards the town, has had its natural steep scarped artificially; and at the foot of this slope, though still far above the sea level, a broad and deep dry fosse has been excavated, the contents of which have been thrown out so as to form a ridge or counterscarp beyond it, known as the "Castle dykes," and thus to add steepness to the exterior slope or glacis. The defence on this side is completed by a curtain wall of about 400 yards in length, which crowns the scarp and extends from the keep to the commencement of the cliff. This curtain is of various ages, and in part Norman. It is about 20 ft. high, and strengthened by several mural drum towers of its own height and open at the gorge. Some of these have been rebuilt or altered in the Tudor period, and have carried single swivel guns mounted "*en barbette*." A hideous pile of red brick barracks of the last century has been built upon a prominent part of the wall.

The entrance to the castle is from the upper part of the town, along a narrow steep ridge, which touches the western or landward angle of the peninsula, and forms its neck. A barbican, with flanking towers, is built at the root of this ridge, and covers the steep approach. Within this the narrow causeway cresting the ridge, is cut through at its deepest, and in the cut is built a lofty pier, which appears to have carried a tower and a gate, from which probably bridges dropped either way to guard the causeway. These seem to have worked, as at Dover, between parapets spanning the bridge-pits, so as to steady the pier, and to protect laterally those using the bridges.

The causeway, from the bridges, ascended west, and close in front of the keep, and finally winding round, terminated at a gateway, now destroyed, which entered the inner ward close north of the keep. From this gate the curtain was continued a few yards northwards until it reached the "Castle Cliff," where such defence was unnecessary.

The summit of the peninsula, nearly flat, covers about 19 acres, and constitutes the "outer ward" of the castle.

The "inner ward" is an oval inclosure, about 200 yards north and south by 100 east and west, taken out of the western side of the inner ward. About half its curtain, with a deep fosse, defends it from this inner ward. The other half forms a part of the general outer wall of the place, and upon it is the keep. From near the point at which meet the outer curtain and that peculiar to the inner ward, springs a short curtain, which runs towards the gateway and drawbridge of the approach, and thus protects them, and connects them with the main works.

The keep is a tower of about 50 ft. square, measured above its plinth, and at this time about 80 ft. high. The west, and parts of its adjacent north and south sides, have been blown away by gunpowder, from the plinth upwards; but this latter shows the original dimensions, and still supports the basement floor.

The keep has this basement and three stories above it—four stages in all—and a bold battering plinth or base, 8 ft. to 10 ft. high, on the west and north sides, passing into nothing, as the ground rises on the east side, and altogether absent on the south or entrance side, where the ground is highest.

The east, the most perfect face, has the usual flanking pilaster strips, 10 ft. 6 in. broad and a foot projection, which rise unbroken to the summit, and no doubt formed the usual angular turrets, now removed. The angle at which the adjacent faces of the building meet is occupied by a bold round bead, 1 foot diameter, which is, in fact, a three-quarter column, but without base. In the centre of the face is a third pilaster, 8 ft. broad, and quite plain. These pilasters rise from the common plinth.

The north face seems to have resembled the east; but the pilaster covering its west end has vanished with the west wall.

Of the south face, the west end is gone; but the remainder is a plain surface, without pilasters or plinths. This face is occupied towards its west end by the entrance doorway, 2 ft. beyond which the exterior curtain-wall springs from, and is of the same date as, the keep.

The entrance was covered by a regular Norman barbican, as at Rochester, but on the ground-level. The building is gone, but its particulars may be inferred by the remains of its vault, seen in profile upon the keep-wall. It was a rectangular structure, about 30 ft. long, and perhaps 20 ft. broad, built against the western part of this face of the keep, and stopped by the curtain, and it contained a vaulted passage only. The outer entrance was protected by a large funnel-shaped machicolation shooting outwards in advance of the portal. Within this, the vault led on, until, on the right hand, in the keep-wall, was the inner doorway, 7 ft. opening, with a segmental arch, and in the 9 ft. 6 in. thickness of the wall a flight of steps landing upon the level of the first-floor. The vault of this passage was ribbed, and its interior has a full semi-circular arch. There does not seem to have been a portcullis, but above the segmental arch is an aperture, probably for the annoyance of those who might have forced the outer entrance.

The barbican ramparts were on the level of the second floor of the keep, and were reached by a small narrow door opening from a mural chamber of that floor. Close east of this is another small door, a little higher, the use of

which is only explicable on the supposition that it opened upon a hoard or "bretashe" in advance of the door. A little west and below these doors is a third and shorter one, which seems intended for the working of the "machicoule." Entering the keep thus at the first-floor level, the basement is seen to be filled up with earth. All of it that is seen is the top of a window recess in the west end of the north wall, which terminates outwards in a loop.

The interior of the keep is at present 32 ft. north and south by 28 ft. 6 in. east and west; but probably it was 32 ft. square, which would allow about 9 ft. for the thickness of the walls. This was divided by a cross wall running north and south, 4 ft. 6 in. thick. The keep has a basement and three floors, four stages in all, and the wall divided the three lower, and ceased at the level of the upper floor, which seems to have been one large chamber. The floors were all of timber, and the north and south walls have no offset. The east wall is narrowed by a foot at the second-floor level, to carry the beams.

The cross wall at the first floor seems to have been replaced by a bold round-headed arch, springing from two wall-piers. In the east wall is a round-headed fire-place of 7 ft. opening, with no hood, round backed, and with a vertical round vent. On each side of it is a recess of 6 ft. 9 in. opening, containing a two-light Norman window. There are two smaller openings in the north wall. In the south wall is a door leading into a mural chamber occupying the south-east angle, and the entrance doorway, with its round head. Close east of this, up a narrow doorway of 2 ft. 3 in. opening, is a steep stair in the wall, which turns at right angles into a mural chamber above the door.

At the second floor the cross wall was pierced by a small door towards its south end. This floor on the east face has a fireplace above, and like to that below, but with a segmental arch, while in the wall above it is a semicircular arch of relief. On either side is a recess with coupled Norman windows, the shutter rebates of which are pointed. In the north wall are two doors leading into mural chambers, and at its west end a double window, like the others. In the south wall are two doors, also leading into chambers, and over the entrance-door another coupled window. This was evidently the principal floor, though the one below might be the garrison hall.

The third, or uppermost floor, has two window recesses with coupled windows, in the north, east, and south walls. In none of these walls is there a fireplace.

There are no traces of a main staircase communicating with each stage; though this may have been in the north-west or south-west destroyed angles. Neither is there any mural gallery surrounding the building. The upper floors are inaccessible, and therefore the details of the mural chambers have not been examined.

The exterior of the keep is still, on three sides, tolerably perfect. The south or entrance side is plain, having no lateral pilasters or plinth, and only a narrow central pilaster, which commences by a bracket 12 ft. from the ground, and ceased at the level of the barbican rampart, with which it was connected. On this face there is the entrance-door, four small openings connected with the barbican, and two coupled Norman windows in the upper floor. The ground is highest on this side.

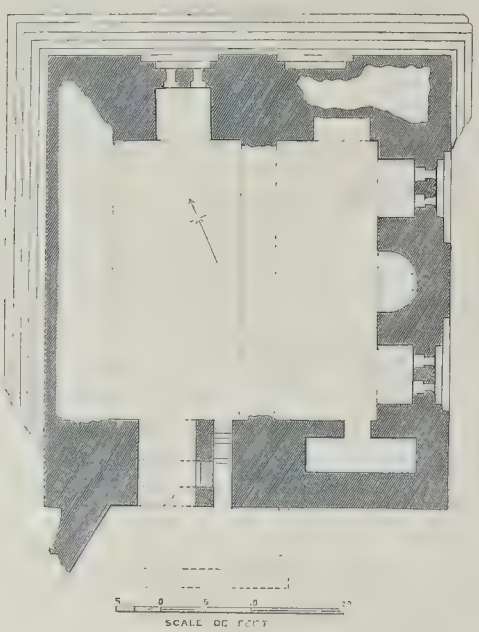
The plinth emerges from the sloping ground on the east front. The basement level has no openings. The first and second floors are marked each, by two round-headed recesses, about 7ft. broad and 1 foot deep. In each are two narrow Norman windows, having side columns, and in the centre a coupled column common to both. The caps are fluted, and the arches have a plain bead.

The upper floor has no recesses, but two pairs of small round-headed windows, with square jambs and arches. The windows composing each pair are placed about 1 foot apart.

The north side has a bold battery plinth, about 12 ft., high, above which, at 14 ft., is the loop of basement. On the first floor are two windows resembling those on the east side. The upper story exists only in part.

The material of the keep is a sandstone of a very deep red. The stones are about 2 ft. to 2 ft. 6 in. long, and 1 foot high, neatly squared, and laid with rather open joints.

The castle is generally attributed to William le Gros, Earl of Albemarle, from 1126 to 1179. It is certainly very late Norman work, and may be given to the middle of the twelfth century. The arrangements of the approach and the outer barbican are much later, and the latter seems to have been repaired or reconstructed in the later Perpendicular period. C.



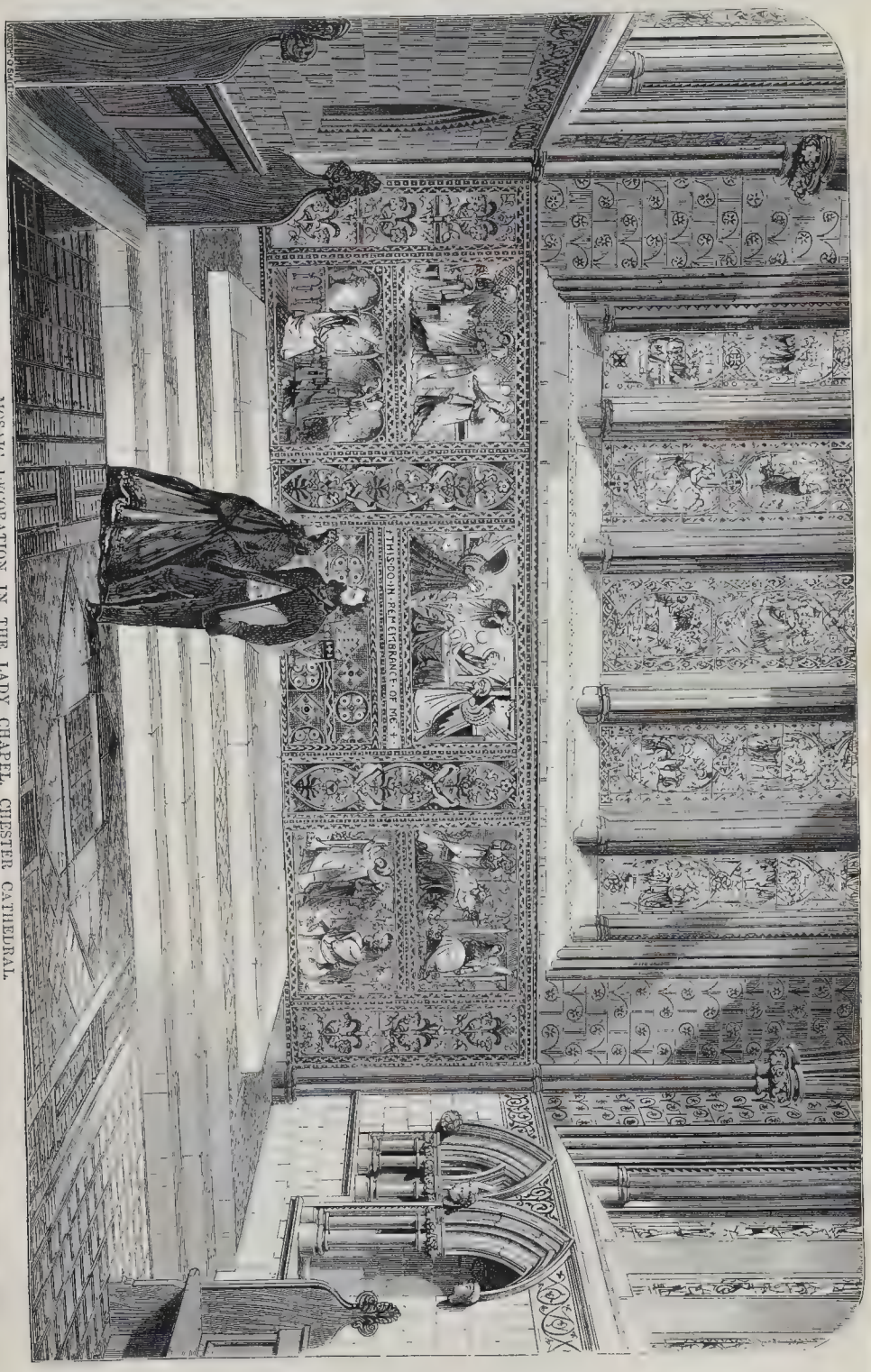
PLAN OF THE KEEP, SCARBOROUGH CASTLE.

THE LADY CHAPEL, CHESTER CATHEDRAL.

The Lady-chapel of Chester, built in the early part of the thirteenth century, is in many respects the most interesting and valuable portion of the cathedral. Its original beauty had been greatly marred by the addition, in the fifteenth century, of two side aisles, of debased architectural character; and the filling in of the windows with bad Perpendicular tracery. In the reign of Queen Elizabeth all the chromatic decoration was effaced by whitewash, and one of the large sculptured bosses, which represented the Virgin in Glory, was covered with plaster in the form of a Tudor rose. In the previous reign the chapel had been used as a consistory court, and was the scene of the trial and condemnation, by Bishop Cotes, of the Protestant martyr, George Marsh, who was burnt as a heretic, in Chester, in 1555.

No effort seems to have been made towards rescuing this beautiful chapel from its desecration, until about ten years ago; an offer was then made to the Dean and Chapter, by a benevolent lady, to provide the means for the chromatic decoration of the groined roof. The execution of the work was entrusted to Mr. Octavius Hudson (of Salisbury fame), who, upon removing the accumulated whitewash and plaster, discovered sufficient traces of the original colouring of the ribs and mouldings to enable him to restore exactly its pristine character. His knowledge of this branch of ancient art enabled him to complete the decoration by the introduction of medallions, elaborately executed, in the spaces between the ribs of the groining, so as to give a very rich effect to the entire roof. While this work was in progress, the Perpendicular tracery of the windows was removed, and the Early English work was restored, the side windows being done by Mr. Hussey, and the east windows by Mr. Scott. The east windows were filled with stained glass, by Wailes; and a beautiful pavement of mixed tiles and marble was designed and executed by Messrs. Simpson, of the Strand.

The east wall of the chapel below the window still remained in a rough state, and presented no traces of original sculpture or decoration, having merely a mean arcade of woodwork, painted to imitate stone. The task of designing a reredos, as a suitable finish to the work, was therefore entrusted to Mr. Blomfield. In the absence of any traces of architectural detail over the whole surface of this wall, he determined to rely entirely upon coloured decoration for the effect to be produced, and he decided on employing mosaic for this purpose, as the only material which can be safely trusted to retain its brilliancy unimpaired for many years. A design was according submitted by him to the Dean and Chapter, and unanimously adopted; and the work was subsequently carried out under his direction by Messrs. Heaton, Butler, & Bayne. It consists entirely of glass mosaic, and, as will be seen by the engraving, is divided into six panels. Five, representing, 1, The Salutation; 2, The Annunciation; 3, The Nativity; 4, The Adoration of the Magi; 5, The Flight into Egypt; and the sixth, which comes immediately behind the altar, being filled with heraldry and patternwork. Between each pair of panels is a broad band of decoration, consisting of conventional foliage, birds, &c. The idea of the architect in adopting this arrangement of subject and general treatment was to produce the same character of effect as would be seen in a very rich hanging or tapestry, but here in an indestructible material; at the same time to represent certain scenes appropriate to the building without stepping out of decorative into purely pictorial art. From what has been said, it will be seen that the real beauty of the work, namely, its colour, can only be properly appreciated in the building itself.



MOSAIC DECORATION IN THE LADY CHAPEL, CHESTER CATHEDRAL.

THE LADIES' SANITARY ASSOCIATION.

AN illustrated "Home Almanac" sheet for 1867, with attractive coloured and other engravings, and a mass of useful sanitary, social, and other matter, has been issued for the ensuing year from the office of the Ladies' Sanitary Association, 8, Pont-street, Belgrave-square, and also published by Partridge, of Paternoster-row. The Society are still adding useful little tracts to their former lists, such as "How to Rear Healthy Children;" "Fun for the Young,—Facts for the Old;" "Window Gardens;" "A Model Wife;" "Dress and its Cost;" and various others, which are sold at from 1d. to 2d. each, or from 8s. to 16s. per 100. The Home Almanac is only 2d. per copy. A tract titled "Suggestions to School Committees" has also been issued, from which it appears that "one thousand three hundred and fifty-eight parties of the poorest children in London have been sent into the parks for two or three hours twice in each week during the three or four summer months for the last five years;" and that the result is most encouraging. The committee of the Ladies' Sanitary Association therefore make some useful suggestions on this and other subjects connected with it to school committees, which we hope will lead to an extension of so healthful a practice amongst the poor little pale-faced children of the Ragged and other London schools.

SANITARY PROGRESS IN THE EAST OF LONDON.

Messrs. R. Rawlinson, J. T. Harrison, and J. T. Way, the commissioners appointed by Government for inquiry into the pollution of rivers, have held a public sitting at the offices of the commission, Victoria-street, Westminster, to inquire into the state of the River Lea and its tributaries. The East London Waterworks Company, the New River Company, and the Lea Trust were represented. Mr. Rawlinson, the senior commissioner, having produced the commission under which he and his colleagues had been appointed, said that their attention had been specially drawn to the River Lea by the Privy Council and by an association formed for inquiring into the water supply of the metropolis. He wished to state that the East London Waterworks Company were exceedingly anxious for an inquiry, and that they had made an application to the Government on the subject.

The secretary and the engineer accordingly presented themselves, and were examined. The secretary, in course of his examination, admitted that the directors had made no special inspection of the works with reference to the belief that the state of the water had something to do with the prevalence of cholera in the district; and the engineer admitted that the sewage of Luton, Hertford, and Norford, got into the water which was afterwards used for domestic purposes. The inquiry was adjourned after the examination of these witnesses.

The committee appointed by the District Board of Works to request permission of the East London Waterworks Company to inspect the condition of the reservoirs and means of supply, and to go over and inspect them accordingly and report, have now reported accordingly. The committee thus sum up their report:—

"Your committee find—That the source of the supply of the water of the East London Water-Works Company is the Lea and the Stort, and their tributaries; and having, as before stated, given the subject of reference their fullest consideration, your committee find from personal inspection that the water before it reaches the filtering beds is polluted in a most disgusting and abominable manner by drainage from land, overflow from cesspools, privies, factories, piggeries, &c., from the towns and places before mentioned.

Your committee are unanimously of opinion, that all practicable steps should be taken to enforce a supply of water free from any kind of pollution whatever."

Application is to be made to Parliament next session for a Bill to restrain all parties from any longer polluting the Lea; and already there are various schemes proposed for the drainage of the various towns on its borders. The *Chelmsford Chronicle*, in reference to these, says:—

"In addition to some of the smaller schemes proposed, there are no less than five large ones; and hence will be seen the necessity of some of the smaller districts waiting for a time, so as to put to the best advantage the larger mains which must be provided. The Metropolitan Board of Works are under an obligation to sewer North Woolwich. The West Ham Local Board of Health, who now drain into Bow Creek, will have to provide another outlet, and Mr. Marshall, the surveyor, recommends Barking Creek. Mr. Baily Denton has received orders from the owners of the Ham marshes to prepare a plan for thoroughly draining them, so as to supersede the Dagenham Commissioners, who now only drain the surface, so that they may be converted into building land, and he also proposes an outlet at Barking Creek. Then some of the promoters of the scheme for draining Leyton, Leytonstone, Walthamstow, and the parishes on the east side of the Lea, propose a main and outlet to the same creek; and the parishes on the west side of the Lea also see that that must be the natural outfall.

The Tottenham Board of Health will probably be willing to join with Mr. Denton and Mr. Marshall in their schemes; and if such a coalition take place, it is not at all unlikely that the Bill to be laid before Parliament will be carried, and that a large main sewer will be provided, which will be available for the whole of the locality; and when completed, only one staff of servants would be required, and a large amount of money will be saved to the ratepayers of every parish.

There are other schemes under contemplation for dealing with the sewage, and using it for the irrigation of the land; but no doubt this part of the question, together with the mode in which the expenses of the proposed works are to be met, will be dealt with at the forthcoming meetings, as well as the various questions arising in their details."

The Poplar District Board of Works appear to have resolved to put in action the new powers of the Sanitary Act of 1866 for the regulation of lodging-houses. They have had printed a series of regulations prepared by their clerk, Mr. John Layton, jun., as to registration, number of lodgers, ventilation, washing accommodation, privy accommodation and drainage, water supply, yards and areas, cleanliness, powers of entry, fevers, complaints, and penalties. This excellent Act will require great discretion in the carrying of it out as regards the question of cubic space and number of lodgers.

MEMORIAL OF THE LATE JOHN GIBSON, R.A.

A MARBLE bust of the sculptor Gibson, by Mr. Theed, has just been placed in the parish church of Conway. Gibson was born at Penarth, where his father was gardener, and was baptised in the parish church of Conway, on the 12th of June, 1790. His parents soon after moved into Conway, which is within half a mile of the spot where he was born, and the cottage where he lived as a boy still exists. There are two men several years older than he now living in Conway, who remember being at the parochial school with him, where, they say, he was a quick boy, and was always drawing on his slate between his lessons. At a later period his parents settled in Liverpool, and there his talent was soon noticed. At the suggestion of Mr. Henry Sandbach, of Hafodunos, a sum of 150*l.* was collected for defraying the cost of the bust, and placing it in Conway Church. The inscription under it is as follows:—"John Gibson, sculptor, born of humble parents, near Conway, 1790. Died at Rome, 1866. By the force of natural genius and unremitting industry, he became one of the first sculptors in Europe; member of the Royal Academy of Arts in London; of the Academy of St. Luke, in Rome; and of other distinguished foreign institutions. His works will perpetuate his fame. Here in his native place, a few loving friends have raised this memorial as a tribute of affectionate regard for the unpretending simplicity and truthfulness of his life."

LIGHT RAILWAYS.

AT the Institution of Civil Engineers, on the 27th ult., a paper on "Light Railways in Norway, India, and Queensland," by Mr. C. D. Fox, was read.

By the term "light railway," the author states that he had in view such as, either being branches from existing trunk lines, or being intended for districts requiring the development of their traffic, might be constructed in a substantial manner, but with every part only of sufficient strength to carry loads represented by the rule that no pair of wheels should have to bear more than 6 tons. This would enable these lines to take the rolling stock of all other railways of similar gauge, with the exception of the locomotives.

The railway system of Norway was, it appeared, being constructed on the light principle, with a gauge of 3 ft. 6 in., under the direction of M. Carl Pihl, the state engineer. Two lines had already been completed; the one, from Grundsett to Hamar, a distance of twenty-four English miles, at a cost of 3,000*l.* per mile, including rolling stock and stations; and the other, from Trondhjem to Storen, a distance of thirty English miles, at a cost of 6,000*l.* per mile, including also rolling stock and stations; but in the latter case the country was more difficult, the works generally were heavy, so that steep gradients and sharp curves were unavoidable. The details were given of the locomotive and carriage stock; and it was observed that these lines, which ran through thinly-populated districts, already more than paid their expenses; and that the results of their working had been so satisfactory, that this system was being extended.

In India, a line from the Arconum junction of the Madras Railway to the town of Conjeveram, nineteen miles in length, and on the same gauge of 3 ft. 6 in., has been at work for eighteen months. This had been constructed for 3,500*l.* per mile, including telegraph, stations, and rolling stock; and although the traffic did not require a greater working speed than from twelve to fifteen miles per hour, the trains had at times been run, with perfect safety, at upwards of forty miles per hour, including stoppages.

For the Government railways of the colony of Queensland it was decided, after much discussion, to adopt a gauge of 3 ft. 6 in. Of the Southern and Western Railway fifty miles had already been opened, while 124 miles were in course of construction, and 200 miles under survey. Some account was then given of the character of the permanent way, and it was stated that these lines might be constructed under difficult circumstances for between 11,000*l.* and 12,000*l.* a mile, and under ordinary circumstances for 6,000*l.* a mile, including stock and appliances of all kinds.

The Great Northern Railway of Queensland was then noticed; and in conclusion the author repeated that, in his opinion, the basis of the light railway system was—the reducing of the weight upon every,—even an engine,—wheel in the train to three tons, the limitation of the speed to twenty-five miles an hour, and the adaptation of every detail to this data. The importance of this system would, he believed, before long, be found to have much influence upon railway construction for branch lines, both in this and other countries, especially where the traffic was limited, and where high speeds were not demanded.

ARCHÆOLOGICAL DISCOVERIES.

A FURTHER examination of the Helperthorpe mound has been made with a curious result. Mr. Lovel has laid bare a cruciform structure, as perfect in many parts as the day the walls were built. This can only be compared to two long tanks of 21 ft. each, crossing each other at right angles, thus forming a cross, each limb of which is walled up at the end. The structure is formed of chalk, walled in clay, the walls being faced inwards and left rough outside, being wide at the bottom and about 1 ft. wide at the top, and have never been higher than now, nearly 2 ft. The spaces inclosed by these walls contain about 6 in., at the bottom, of a peculiarly black unctuous matter, not charcoal nor yet peat: analysis must determine what it is. The rest of the space is filled with hard beaten yellow clay quite to the top of the walls. The limbs of the cross are not graves and not flues; and from the narrowness of the walls no superstructure could ever have been there. The building stands in a circular hollow, at about the natural surface, and is covered with about 3 ft. of forced earth, which abounds in Roman pottery and various animal bones. Several antiquaries have visited the place, but no one has seen any similar construction, and the purpose for which it has been reared is not now known. There seems no question but that the "cross" is of Roman or post-Roman date, from the quantity of pottery about it. The building will be covered over, to await the inspection of archæologists. There are several other mounds on Sir Tatton Sykes's estate, which resemble the one opened.

The *Moniteur* publishes an account of a singular cavern just discovered by some workmen engaged in digging foundations in a park belonging to M. de Rivais-Mazères, and situated in the commune of Flac, near Lavaur, Tarn. The existence of this cavern had never been suspected by the inhabitants of Flac, and not the slightest tradition concerning it has remained. M. Grellet-Balguerie, an associate of the Société des Antiquaires de France, on hearing of this discovery, immediately set out for the place with a few friends, in order to ascertain the probable date and destination of this subterranean recess. Upon examination, they found it had been used as a fortified dwelling or place of refuge. It

might have been one of those selected by the Gauls in Julius Cæsar's time. It consists of three vaulted chambers cut out in a hard rock, and connected with each other by a labyrinth of narrow galleries, admitting not more than one man at a time. The entrance to the main gallery is extremely narrow and low, so that it can only be entered by creeping on one's hands and knees. At almost every step the galleries present re-entering angles, recesses for guards, and places where strong palisades or perhaps heavy doors of wood or stone must have existed. The art of defence seems to have here been carried to high perfection. Opposite the entrance gallery a sort of "bull's eye" or circular window is pierced, communicating with the first chamber. From this loophole the sentinel, lying on a stone bench, might watch the approach of an assailant and repel him, if necessary; there is, moreover, but one entrance to this chamber, and that is by the middle one. The plan of the cavern has been taken by the architect of Lavaur. Another cavern, it appears from the latest accounts, has been found under the Fontaine du Tiron, in the same commune, but has not yet been examined.

PARIS IMPROVEMENTS AND THEIR COST.

The Prefect of the Seine has published his annual report for 1866. From the 1st of October, 1865, to the 30th of September, 1866, there have been constructed, in Paris alone, 3,614 houses, or 263 more than in the previous year. The number of entire or partial demolitions is 2,256, of which 967 have been cleared away by expropriation, and 1,289 voluntarily demolished by their owners, to give place to more profitable constructions. This amount exceeds by 1,358 the number of demolitions in last year. The number of lodgings created by the new constructions is 20,311; the demolitions suppressed 16,315, leaving a balance of 3,796 new lodgings. In the first five arrondissements (Louvre, Bourse, Temple, Hôtel de Ville, Pantheon), the number of demolitions exceeds that of the new buildings: this is owing, in the first, to the disengagement of the new Opera-house and the Halles Centrales, and the prolongation of the Rue Tirechape as far as the Pont Neuf; in the second and third to the demolitions for the Rue Turbigo; in the fourth, to the formation of the site of the new Hôtel Dieu; and in the fifth, to the opening of various streets and the boulevards.

The municipal budget of 1867 amounts to 20,367,991 fr. 41 c. (814,719*l.* 13s. 1½d.), The sum allotted for departmental buildings is 88,200*l.*, thus divided:—Enlarging and isolating the Palais de Justice, 20,000*l.*; barracks for the gendarmes at Sceaux, 2,400*l.*; lunatic asylums, 65,800*l.** For road improvements there is a sum of 63,275*l.* 10s., among the items of which we notice,—new bridge over the Seine at Clichy, 13,720*l.*; the widening of the bridge over the Canal St. Denis, 1,200*l.*; and various drainage works and sanitary improvements to be effected at Asnières, Bry-sur-Marne, Choisy, and Vanves, at a cost of 14,820*l.* The ordnance survey (*cadastre*) figures for 1,507*l.* 13s. The census of Paris and the department of the Seine gave, in 1861,—

	Inhabitants.
Town of Paris	1,696,141
Arrondissement of St. Denis...	135,434
" " Sceaux.....	122,085
Total.....	1,953,660

That of this year, 1866, presents,—

	Inhabitants.
Town of Paris	1,825,274
Arrondissement of St. Denis...	178,359
" " Sceaux.....	147,283
Total.....	2,159,916

showing an increase of 197,256 inhabitants in five years.

In the nine arrondissements of Paris (1st, 2nd, 3rd, 4th, 5th, 6th, 9th, 10th, and 11th), there are 938,170 inhabitants, occupying a space of 4,645¼ acres. In the other eleven arrondissements we find 887,104 inhabitants spread over a territory of 14,677 acres. If these latter inhabitants were lodged in quarters in the same proportion as the first nine arrondissements above stated, the very ground that they occupy at present would contain nearly three millions. Hence it is deduced that Paris in its present limits can contain three millions and a half of population, with all the necessary conditions of health, salubrity, and accommodation. The public works mentioned are the Pont du Boulevard St. Germain, the Pont du Tuileries, and the Pont du Louvre; also, repairs to the Pont de Neuilly.

Steam traction has been permitted by decrees issued from time to time, tending towards the establishment of traction engines on common roads; one service is already established between Varenne, St. Hilaire, and Chelles.

The new *abattoirs* and cattle market established in the 18th arrondissement, at the north of the Grande et Petite Villette, will be opened on the 1st January, 1867, to the public; and the Abattoir of Montmartre will be closed at that period. The perimeter of the new construction is 4,375 yards, or as large as an ordinary town of the fourth class. The *abattoir* of Montmartre was commenced in 1808, and occupied 8½ acres of ground.

* To this are proposed to be added 40,416*l.* and 7,705*l.* 10s. available surplus funds, making in all for the lunatic asylums 192,261*l.* 10s. Surplus funds will also permit the raising of the sum of 20,000*l.* for the Palais de Justice to 24,760*l.*

ARCHITECTURAL MUSEUM BUILDING FUND.

We understand that the committee already see their way to nearly 1,000*l.*, or one-half of the intended outlay on the buildings in Bowling-street, Westminster. Several contributors have doubled the amount they were asked to give, and some have even offered further help if needed. The secretary says, "This will not be necessary if our members who have yet to send in their names will give as others have done. Many have yet to respond to our appeal, and among them are those whom I expected to find the earliest and most liberal contributors. If any such should see these lines, they will, I hope, consider them as an earnest and individual application for aid. Our new buildings must be ready by May next; but until a larger fund has been promised we shall not be justified in beginning them."

FYLDE WATERWORKS.

During the heavy rain of the 15th, 16th, and 18th of last month, the Company's large reservoir at Grizedale was severely tested. The water, we are told, rose to within 2 ft. 6 in. of the top of the embankment. The waste-weir is 30 ft. wide, over which the water flowed to a depth of 30 in.; in addition to which the water was discharged from the reservoir, through a pipe 30 in. in diameter, with a pressure of 66 ft. The drainage area of the reservoir is 1,100 acres, and the volume of water flowing off into the reservoir, and passing over the waste-weir, and through the discharge-pipe, when the flood was at its height, equalled fourteen million gallons per hour. No damage was done to the embankment or waste-weir, but some little injury occurred at the bottom of the bye-wash, where the flood watercourse joins the old brook some distance below the embankment. The reservoir was completed last summer, and had not been previously filled to the level of the waste-weir. The puddle trench was a most difficult work. Any credit that may be due belongs to Mr. Foster, C.E., of Manchester, the company's engineer; and to Mr. McGuire, of Accrington, the contractor. The Fylde waterworks are for the supply of Kirkham, Lytham, Blackpool, and Fleetwood.

A LODGING-HOUSE IN FRIBOURG.

There exists, according to the *Journal de Fribourg*, at Berne, a lodging and boarding house where the working-classes can be accommodated at moderate prices. This establishment, founded by the chief workmen, and other persons of the town, has been attended with such success, that it has been decided to enlarge it, and to transform it into a sort of special inn sufficient to suit all demands. For this purpose, a company, with a capital of 3,200*l.*, raised by shares, has been formed, and has purchased the Clef Inn, which is to be repaired, and opened for its new destination, on the 1st of May, 1867. Workmen will obtain their board and lodging at low prices, a reading-room and library, and a register of masters who are in want of men.

PARK LANE IMPROVEMENT.

THOROUGHFARE NORTH AND SOUTH.

Sir,—This important question has occupied public attention for a very considerable time, and many plans have been suggested, each more or less likely to secure public convenience. Of these plans, the Metropolitan Board of Works have proposed two; one, for the opening up of Hamilton-place,—abandoned on account of the enormous attendant expense; the other, for widening the south end of Park-lane, by the removal of the houses upon the west side, at a cost of upwards of 100,000*l.*, and for powers to raise which the Board are now applying to Parliament.

Having taken great interest in this matter, and matured a plan which I venture to think will attain the maximum accommodation at a minimum cost, I have thought it well to make this the subject of a communication to you.

First. I would propose that the park railings, from the commencement of the lane in Oxford-street to the north side of Stanhope-gate, should be set back so as to leave a roadway 70 ft. or 80 ft. wide in the clear up to that point.

Secondly. By cutting off a strip of the extreme north end of Apsley Gardens, situated at the rear of the houses in Piccadilly, a short curved road could be formed to connect Park-lane near Stanhope Gate, widened, as above described, with the road in the park, which follows the line of railing on the west side of those gardens, and ends at the south-west corner of Apsley House in Piccadilly. Thus a continuous line of road 70 ft. or 80 ft. wide would be thrown open from Oxford-street to Grosvenor-place. Railings would of course be erected on the west side of this proposed public road, to separate it from the park; and any of the park roads affected by the alteration, reconstructed and diverted as requisite.

Thirdly. Take down the present park-gates at the Piccadilly end of the proposed new road, and re-erect them in a position north-west of their present site.

The evidence given before the Select Committee of the House of Commons, on the Piccadilly and Park-lane Bill, in the year 1865, shows that in 1805 the leases granted to the tenants of the houses in Piccadilly, between Park-lane and the south-east angle of the park, provided for the formation of a "private way or passage to lead from the north end of Hamilton-place into her Majesty's park, called Hyde Park." This passage was accordingly made; but in the year 1826 the portion of the park up to which it had been formed was railed off, and became, on sufferance, a garden common to these lessees, and thenceforth bore its name of Apsley or Wellington Gardens. These privileged parties could clearly look for no compensation in respect of my proposed encroachment on the north slip of the gardens; but even should the improbable claim be made and substantiated, of a right of private way into the park, this difficulty could be at once obviated by the construction of a subway or a light bridge over the suggested public road.

The foregoing are the salient points of my proposal, and I would submit the following as the advantages to be gained by its adoption:—

First. The widening of Park-lane from Oxford-street to Stanhope-gate, must, I think, form a feature in any plan of improvement, and its importance is too evident to call for comment.

Secondly. In the plan decided upon by the Metropolitan Board, it is proposed to widen the south end of Park-lane by taking down the whole of the houses on the west side thereof, for which heavy compensation must be paid to the several owners; whereas my scheme would interfere with no private property, and could, consequently, be carried out at certainly one-tenth of the cost of the plan selected by the Board. The only, apparently, expensive portion of my proposal is, the removal and re-erection of the Piccadilly park gates; but even if the cost of this be put at so high a sum as 5,000*l.*, it would be but a trifle compared with the sum of 50,000*l.* claimed as compensation for the removal of Gloucester House,—and it should be remembered that this is but one of many similar claims which would arise.

Thirdly. It has been well ascertained that nine-tenths of the traffic coming down Park-lane takes a westerly direction, and that a greater portion of this westward traffic turns down Grosvenor-place; indeed, the necessity for providing additional accommodation for the traffic arises mainly from the erection of the Victoria

Railway Station, at Pimlico, and the consequent increase in the number of vehicles running between this station and Paddington, or the north, nearly all following the line of Park-lane and Grosvenor-place. It is therefore clear, that a continuous route for this traffic will be a great public convenience; and I would submit, that it will be effectually secured by the adoption of my plan, which makes the termination of Park-lane opposite, or nearly so, to Grosvenor-place, and gives to the majority of the traffic a westerly direction, leaving the eastern traffic to follow its present natural course.

Fourthly. Nearly the whole of the arguments brought to bear by the Metropolitan Board in support of their proposal; for opening up Hamilton-place, apply, with increased force to my scheme, which possesses the additional advantage of providing a road 70 ft. or 80 ft. wide, at the narrowest part, in lieu of their proposed width of 30 ft. Further, the difficulty of gradient existing in their plan does not appear in mine, because the ground, as it already exists, is of a sufficiently gradual incline.

Fifthly. It is almost impossible, without a drawing, to convey to the reader a proper notion of the proposal for altering the position of the present Piccadilly Park-gate structure; but I may state, without fear of contradiction that, viewed architecturally, a great improvement would be effected.

Lastly. I would remark that, although objection would undoubtedly be raised to the appropriation of any portion of a public park for the benefit of private interests, it is highly improbable that the public would regard otherwise than with satisfaction the sacrifice of merely an outside strip for the purpose of effecting so great a public benefit as would be derived from the adoption of this proposed line of thoroughfare.

H. SAXON SNELL.

THE GREAT BELL OF YORK MINSTER.

WITH reference to a statement in the *Builder* of the 1st instant—copied from a local journal—to the effect that "Great Peter" of York was struck with a "*wooden* hammer," allow me to say, there must have been a slip of the pen. The fact is, the hour of noon is struck upon the bell with a hammer of cast-iron, which a man works by means of a lever, somewhat after the fashion of a pump-handle.

Much has been said, on various occasions, respecting Great Peter, but as I have neither seen him nor heard his voice when fairly tested, I offer no opinion as to his constitution or capability in a musical point of view. A few words touching the bells in general of this magnificent cathedral or minster may, however, be interesting to some of your readers.

Great Peter is suspended in the north-west tower, which has no clock; his weight is 10 tons 15 cwt., and he proclaims the mid-day hour only. The south-west tower contains a clock, and a remarkably grand peal of twelve bells in the key of C, the weight of the tenor being 53½ cwt. Upon this noble bell the clock regularly strikes the hours, and—having heard it during the night, I may add—with fine effect.

THOMAS WALESBY.

A PROPER BUILDING FOR ARCHITECTS.

SIR, — I consider that if an Architectural Museum building be erected at a cost of only two or three thousand pounds, as proposed, the authorities will, in a few years, find that they have acted most foolishly. Our present Architectural House in Conduit-street is, to say the least, a great disgrace to our profession. How can architects expect companies or private individuals to spend money on architectural decorations, while we are satisfied to meet in such a stucco lumpus we do?

I think the building for an Architectural Museum ought to be part and parcel of our House. Let us have the finest specimens of the tenth, eleventh, twelfth, &c., century architecture inside the Museum; but do let the building itself be the best possible specimen of what the nineteenth century can do, and of what its first architect can do. Why not spend a large sum in building an Architectural House, which shall be the glory of the profession, and contain the Museum, the Institute, the Association, and what is now being so loudly called for—a large and good circulating library?

There are numbers of men who have made large fortunes by means of their profession, and do they grudge to give, say one thousand out of their ten, twenty, or thirty thousand a year, for the good of that art which they profess to love, and which has served them so well.

I should like to see forty or fifty thousand pounds spent as I have above stated, with an open and honest competition for the building; and I can assure you that I, in company with many other poor artists, would with joy pinch ourselves in order to give our mite towards this nineteenth-century monument.

If architects are not ready to sacrifice for art, how can they expect the outside and ignorant world to do so? If we are contented to live in wretched stucco lumps, why try to get our clients to build anything else? We may be sure that if we show our great love for art, there must and will be immediately a greater revival than there has yet been. Let us quit ourselves as men, and build a house worthy of our glorious profession and the nineteenth century. ADELPHI.

*** The green enthusiasm of our correspondent is delightful.

THE GRIEVANCES OF PROFESSIONAL ASSISTANTS.

SIR,—Of all journals I believe yours to have ever been the most ready to expose and put down injustice; and the Builders' Clerks' Benevolent Institution being now so prominently before the public, causes me to address you at this time in particular upon the subject of "reference," to the abuse of which I cannot but attribute most of the poverty that exists among so many professionals.

In an account of the night refuges, in the *Times*, twelve or eighteen months back, upon an inquiry as to who made use of them, it was found that a large proportion were foremen and clerks without available reference.

Being until lately a professional assistant, I have, necessarily, known many other assistants and clerks; many have got on successfully, some into business, but it is to the unfortunate I am going to call attention. In the two cases I know of, there were honesty, sobriety, industry, and thorough professional knowledge.

1st case. When desirous of quitting, with due notice, his situation, his reference was given with such a forgetfulness with regard to his useful qualities, that the employment sought was lost. Much coaxing was then used to induce him to stay, but being disgusted with such treatment, he quitted, and came into the greatest distress for nearly two years, from the want of a reference from last employer.

2nd case. This gentleman's honesty certainly went a long way towards turning him out, for there was here much cheating, in which it was considered his duty to assist, but declining to fall in with the ways of the place, nothing was right he did; continual fault-finding: he was turned away, and reference refused. He, however, an educated gentleman, having others depending on him, turned mechanic for a time, and finally worked his way up again.

A friend of mine, whose word can be depended on, lately told me of a reference being refused after five years' service, the employer saying "he would give more salary, but never a reference." After three months' fruitless endeavour to get other employment he emigrated to America.

Evils of this kind would be still more felt but for a class of employers who look out for these unfortunate gentlemen and engage them at 15*s.* per week. Yes, sir, I have seen a good assistant engaged for that, and, I believe, for a less sum. But, then, it is upon the understanding that the employer tell the whole truth of his assistant's qualifications at the end of a year or so.

What are the evils of all this? The more spirited, disgusted with England, emigrate to swell the numbers of a rival nation; the less so become poor useless creatures to depend on benevolence—others die; whilst some pay two or three guineas for a false reference, and can, if they will, become commercial rogues. This is what brings education into contempt: a man barely knowing how to read and write, earning 2*l.* per week, is frequently shown up against one who has spent money and years upon his education, and yet earns not, perhaps, 1*l.* per week—is honest, but has lost his reference.

As the custom of reference is at present, and the laws that regulate it, engineers' or architects' assistants, foremen, clerks, governesses, and domestic servants, are not one whit freer than serfs; for, as in the last case here named, the labour of a man, his knowledge, could produce him nothing unless he quitted the country, or returned like a slave to his master's oppression.

I am told that in the United States references are not required; I do not wish that to be the case here, but some alteration there must certainly be, or the rogues will rule the roost in every profession. R. F. C.

CLOCKS.

"NOT STRONG ENOUGH FOR THE PLACE."

SIR,—An article in last week's *Builder* respecting the proposed new clock at York Minster to strike upon the great bell, reminds me of many instances in which that useful servant of the public, the church clock, has been forced to perform duties beyond those for which it was originally constructed. I allude to those cases where a clock made to strike on a bell of 3 cwt. or 4 cwt. has been altered so as to strike the tenor, weighing, perhaps, ten times that weight.

Now, a big bell requires a big hammer, and a longer interval between strokes, and consequently a fly of greater span. The big hammer and long fly require a heavier striking-weight. A heavy striking-weight requires a powerful detent latch. This again must have a powerful dial-work to raise it.

When these conditions are not attended to, the little clock striking on a big bell will betray itself by the quickness or faintness of its strokes, or by the injury done by overstraining the dial-work. When a clockmaker is asked to make a clock strike the tenor which has only been accustomed to 3 cwt.-work, he ought to say, candidly, "You had better have a new clock, and I will allow you for the old one; it will pay both of us better: for if you prefer hearing the hour struck on the tenor, which certainly shows good taste, you will find that the clock you have at present is 'not strong enough for the place.'"

W. S.

SPAR.

SIR,—Perhaps some of your readers will kindly inform me through your medium if there is any known *inexpensive* process by which a "toughness," so to speak, may be imparted to "Spar" when melted, which toughness it will (even though in a small degree) retain when cooled. IGNORAMUS.

SYSTEM OF DRAINAGE IN USE AT WEST WORTHING.

SIR, — Your two anonymous correspondents on this subject answer themselves; but in case you should not have perceived this, and you should, consequently, suppose that I had not adhered to facts in the description of my system of drainage, which you did me the favour to publish in your number of 17th November, I beg to call to your notice that your correspondent, "A Lover of Fair Play," himself, shows my statement to be correct; that my system of drainage is in use at West Worthing, although I in no way participated in the arrangement of the sewers which lead to the filter.

I may add, that this system quite fulfils the object for which it was adopted, viz., that of enabling the parties responsible to get rid of the sewage without nuisance. The filter has often been raised and carried away in the day time, and no single person who has witnessed the operation, for the purpose of criticising it, has asserted that he could discover any disagreeable odour produced by it. The fluid part which passes through the filters does not contain more than twelve grains of organic matter in the gallon, and may therefore be allowed to flow at once into the sea if it is convenient thus to dispose of it. The calculations of cost are so simple that I cannot be mistaken with regard to them.

With respect to the remarks of "Sanitary Engineer," I have only to suggest to him that propounding a new idea and working it out may be two different things.

CHARLES E. AUSTIN.

*** Another correspondent asserts that the cost of the system is greater than has been stated, and considers that it has not been tried sufficiently to admit of a proper opinion being formed of it.—ED.

ARCHITECTS' AND ENGINEERS' ASSISTANTS.

SIR,—The architects' and engineers' assistants are a numerous and influential class of men, yet subject to great changes during their professional career, and up to this time have neither benevolent institution nor orphan schools. Is it not time these should be obtained?

AN ARCHITECT'S ASSISTANT.

THE HOLBORN VALLEY IMPROVEMENT.

AT a recent meeting of the Court of Common Council, Deputy Fry brought up a report from the Holborn Valley Improvement Committee, with plans for the proposed viaduct across Farringdon-road by Mr. Haywood, their architect, and recommending that a plan comprising the erection of a bridge with three arches should receive the sanction of the court. Plans had been submitted to the committee comprising a

one-arch, a two-arch, and a three-arch bridge, and there were objections and advantages connected with each of these descriptions. By the plan proposed there would be a clear width of footing, on each side of the bridge, of 17ft. 9 in.; and the width of the carriage-way would be 46 ft. The head-way at the centre of each arch would be 20 ft. 9 in., and at the sides 15 ft. 6 in., and the length of the bridge would be 116 ft. In order to give more light the bridge would be supported on columns, the top of which would be composed of polished red granite, and the bases of grey granite. The bridge would cost, perhaps, 5,000*l.* or 6,000*l.* more than the others.

A number of questions were put with reference to details of the proposed structure, but the greatest actual difficulty that appeared to be presented was, that the sides of the arches were only 15 ft. 6 in., whereas by the present regulations railway and other vans might be loaded to a height of 16 ft.

Deputy Fry said he did not believe any actual difficulty would ever arise in respect to this point, inasmuch as the carriage-way was wide enough to admit of the passage of seven vehicles, and it was not likely that a van laden to the height mentioned would be compelled to go close to the side. He believed, however, that when the plans were carried out the height of the sides of the arches could be easily raised so as to admit of the passing of such vehicles as those referred to.

The report was then agreed to.

RAILWAY BRIDGE IN ITALY.

One of the most important iron railway bridges in Italy, if not in Europe, is that of Mezzano-Corte on the line between Voghera and Padua. It is 903 yards long, and is composed of two platforms or roadways, the lower one carrying a double line of railway, and the upper one a carriageway, 39 ft. 4 in. wide, with foot-paths, to which access is given by two inclined approaches. These two immense stages rest upon nine piers and two abutments, all built upon iron caissons sunk, by the aid of compressed air, to the unprecedented depth of 72 ft. below the level of the lowest water of the river. The cost has been 400,000*l.* It was designed by M. Alfredo Cottran, a Neapolitan engineer, and was mounted and put together in 170 days, dating from the arrival of the materials on the spot, or at the rate of 49,947 kilogrammes of iron per working day, the total weight of the metal being 5,334,450 kilogrammes, or about 5,334½ tons.

PREPOSTEROUS TENDERS.

SEWERS FOR CHELSEA.

The following tenders have been received for the construction, in North-street, near Sloane-street, of about 155 ft. run of brick sewer, 3 ft. 9 in. by 2 ft. 6 in., and the construction, in Exeter-street, of a new invert to about 540 ft. of sewer, and other works, for the vestry of Chelsea, under the direction of Mr. Joseph Pattison:—

John Coker, jun.	£1,611 10 0
John Oliver	1,000 19 6
Edmund Reddin	852 0 0
W. Wigmore	580 0 0
Henry Whittick	575 0 0
John Neave	558 0 0
William Crockett	540 0 0
Flexman & Lacy	511 0 0
W. H. Goodair (accepted)	425 0 0

NEW MIDLAND STATION AND HOTEL.

A correspondent, "W. F. Stanley," writing to us to urge that the Law Courts ought to form one side of Lincoln's-inn-Fields (a question that cannot now be usefully re-opened), says:—I think we often miss good things by a little. I fancy an instance of this will be the new Midland Station and Hotel about to be erected in the Euston-road, within only a few doors of a corner position (to King's Cross) that would strike a casual observer as a good site for a hotel to face two roads, and also to have a fine perspective for architectural effect from the Gray's-inn and Pentonville roads. Perhaps our architects would not so much delight in the fashionable pretty littleness as they do were it not that their works are often only to be seen a few square yards at a time—at least, such must follow from the position of many public buildings. It is a great consideration that a bold *coup d'œil* should not be produced where the observer's neck might be endangered.

CHURCH-BUILDING NEWS.

Neath.—St. David's Church, which will shortly be opened, is advancing rapidly towards completion. The gas-fittings and other metal work, will be of ornate character. The nave will be lighted by three coronas in iron, decorated in Mediæval tints, and the stems will match the ironwork of the roof. The isles will have scroll brackets fixed to each of the carved caps of the pillars, whilst cresting in gas jets will be fixed along the screens. The chancel has several stained-glass windows; and it will be lighted after dark by a corona of ormolu brass, and lamps to match will be fixed in the lobbies. The gas-fittings are from designs by Mr. Norton, of London; and the whole of the work is being carried out by Messrs. Hale & Sons, of Bristol.

Penrhos Llygwy, Anglesey.—The parish church has been re-opened for divine service. The church consisted of a nave, 30 ft. 6 in. by 15 ft. a chancel, 22 ft. by 14 ft. 9 in., to which have been added a porch and robing-room; the former bell-turret on the western gable having been restored by means of new copings, gablets, crosses, &c. The nave is lighted by three two-lighted traceried square-headed windows, and one single lighted. The chancel, which is elevated above the nave one step, is lighted by an east window having cinque-foliated double lights, the upper compartment being a quatrefoil, which has been filled at the expense of the architects with stained glass, by Messrs. J. A. Forrest & Co., of Liverpool. This window, dating from the fifteenth century, having been remarked upon by antiquaries, and being of good workmanship, has been as completely restored as circumstances would allow. The stone of which it is worked is exceedingly hard, and of the same nature as the ancient arch between the nave and chancel, which almost defies the action of mallet and chisel. The arch has been secured from further outward thrust by buttresses on the north and south walls. The timbers of the roof have been remodelled and made ancient throughout; the old arch-collared principals in the chancel, which are about 2 ft. apart, having been preserved. New Carnarvonshire slating has been provided throughout, and the timbers cleaned, stained, and varnished. The internal fittings are entirely new, and stained and varnished throughout. The works were carried out by Mr. Joseph Hughes, builder, of Llansantffraid Glan Conway, from plans and under the direction of Messrs. Kennedy & Rogers, of Bangor, and Adelphi, London. The building will accommodate about 100; and the restoration has cost about 400*l.*

Hamer, near Rochdale.—All Saints' Church, Hamer, has been consecrated by the Bishop of Manchester. The site is the summit of a hill adjoining Foxholes. The style of the edifice is Early English. The churchyard is not to be a general burial-ground; it will be planted, but there are two vaults for the largest donors to the church, namely, Mr. J. S. Entwisle, who, besides presenting the land, has given 1,000*l.* towards the cost of the structure; and Mr. W. W. Schofield, who has subscribed 1,000*l.* There are sittings in the church for 651 persons, 354 free. Externally the church presents no very attractive general features.

Grimstone (*Leicestershire*).—St. John's Church, which has been undergoing restoration, was re-opened on the 16th ult. The works comprise, restoration of woodwork and new lead on nave roof; door and window restorations, internally and externally; the south transept, formerly used as a school, has been thrown to the church: the tower arch has been opened by the removal of a gallery; the chancel has had its flat ceiling removed, and the roof improved. The chancel benches are of oak, with carved poppy-heads. The altar-rail is also of oak, with foliated iron-work. The paving is of encaustic tiles, from Whetstone's works at Coalville. The benches in the nave and transept are of deal, varnished. The external repairs comprise a new front to south porch, rebuilding part of south transept, surface drainage of blue bricks, stopping up doorway in tower, made to accommodate ringers, at a risk of letting down the tower; new pinnacles and gargoyle to tower, &c. The windows have all been reglazed, and the church is heated by an apparatus made by Porritt, of Bolton. The ironwork is by Hart & Son, and the carving has been executed by Wales, of Leicester. Mr. Fast, of Melton, had the contract for the works, the whole being carried out from the designs and under the superintendence of Mr. R. W. Johnson, of Melton Mowbray and Leicester, architect. The outlay has been about 700*l.*; and the works at the chancel have been carried out at the expense of the Earl of Aylesford, the owner of the chief part of the soil.

Burton.—The chief stone of a new church has been laid at Winshill. The church is designed in the Early Decorated style of architecture, and consists of nave, 72 ft. long by 24 ft. wide; north and south aisles, each 12 ft. wide; and chancel, 30 ft. long by 21 ft. wide. The vestry and organ-chamber are on the north side of the chancel. The body of the church is divided into four bays, the arches of which are to be of Bath stone, splayed with an outer arch of Hollington and red Mansfield stone, and will be carried by square piers of Bath stone and alabaster, in bands, with a red Mansfield stone shaft on each face of pier, and carved caps and moulded bases. The tower is at the south-west corner of the church. The body of the church will be lighted by a circular traceried window, 15 ft. in diameter, at the west end, and by a three-lighted window in each bay of the north and south aisles, and the chancel by a large east window having seven compartments and enriched traceried head, and by two smaller windows on the south and one on the north side. The height from the floor to the ridge of the nave roof will be 54 ft., and from the floor to the top of the wall plate 29 ft. The height from the floor to the top of the wall plate in the aisles is to be 18 ft. 6 in., and from thence the roof slopes upwards almost to the height of the nave wall plate. The roofs will be covered with blue and red tiles, arranged in bands and patterns, with ornamental ridge cresting; the chancel having wrought-iron foliated cresting. The tower will be 65 ft. high, and the spire 75 ft., the total height, exclusive of vane, being 140 ft. The walls of the building will be of brick, faced externally with Hollington stone, and plastered internally. All dressings will be of Bath stone. The chancel walls will be faced internally with Bath stone. The church will provide accommodation for 500 adult persons. Mr. E. Holmes, of Birmingham and Burton-on-Trent, is the architect; and Mr. William Clarke and Mr. George Lilley are the builders.

Preston.—The chief stone of St. Saviour's church has been laid. The church is to be erected from a design by Mr. James Hibbert, of Preston. The style will be Gothic, of the First Pointed period, with some details of early geometrical character. The new edifice will be bounded on the west by Leeming-street, on the east by York-street, and on the south by Queen-street and a block of decayed buildings. It will consist of a nave, extending east and west, and a large aisle to the north, sufficiently capacious in width and height to admit of an unusually deep gallery. A gallery will also extend over the west end of the nave. The internal arcade separating the nave and aisle will be four bays in extent, the eastern bays forming the chancel and choir, whilst the sacrarium will extend beyond. A tower, in which will be the west entrance to the church, will stand near the south-west corner of the nave, but if the funds are not sufficiently large it will not at first be carried higher than the nave walls. The number proposed to be accommodated is 800, of which number 600 will be free. The wallings and dressings will be of Longridge stone, and the piers of the nave arcade will be polished red granite of slender diameter. The walls will be plastered inside, and the roof open and plastered between the rafters. The contractors are Messrs. Sparling & Lamb, of Preston. The cost of the proposed church is estimated at 4,500*l.*, and towards this sum upwards of 3,000*l.* have been raised.

Abbey Cwm-Hir.—The new church here has been opened. It stands a little to the northward of the old church, which has been entirely removed for its erection. The style of the new church is twelfth-century Gothic, and, like the old edifice, its patron saint is St. Mary. It comprises a nave, chancel, and north vestry, with south entrance-porch under the spirelet. The details and features of the building are of a Continental type, deeply splayed windows of one and two lights, having plated tracery, forming the chief characteristics of the nave, whilst each light is round in design. A four-light window lights up the west gable. The interior is arranged with open benches, having cut and moulded ends. The whole of the chancel windows are filled in with stained glass, furnished by Messrs. Heaton & Butler, of London. These windows comprise the following subjects:—"The Good Shepherd," "The Crucifixion," "The Resurrection," "I am the Light of the World," and "The Baptism and Agony in the Garden." The roof over the

chancel is wagon-headed, and broken into panels, which are stained and varnished. The nave roof is open timbered, and plastered between the rafters, which are likewise stained and varnished. The heads of the nave windows are filled with grisaille glass, whilst the lower portions contain cathedral-tinted glass in two colours. The west window is composed of three lights, with large circlet head, and is filled in with tracery and stained glass, manufactured by Messrs. Clayton & Bell, of London. The subjects of the lower lights are taken from the life of our Lord, and represent "The Nativity," "The Teaching in the Temple," "Healing the Sick," and "The Marriage Feast at Cana," whilst the circlets have medallion heads of the Twelve Apostles and the Virgin Mary. The spirelet on the south front rises to a height of 75 ft. It is much after the manner of those spirelets which are to be met with in Normandy, and is entirely supported upon dwarf shafts of black limestone, having carved caps and ornamental bases. The spire terminates with a carved finial and foliated cross. There is a peal of three bells, manufactured by Messrs. Naylor & Vicars, of Sheffield. The materials used in the external walling were obtained from a quarry on the estate, and are of pitched-faced coursed rubble work, of a light silver-grey tint, having bands and voussoir stones of arched heads of light-coloured red sandstone. The roofs are banded with green, grey, and blue slates, capped with a red tile cresting; whilst the chancel has an ornamental metal cresting, painted and gilt. The churchyard is enclosed with walls, which have an ornamental metal railing, with gates of corresponding design. The edifice is warmed by hot air, upon Kimmington's plan. The cost of the entire work exclusive of the stained glass and furnishing, will be about 2,000*l.*, the whole of which has been defrayed by Miss Phillips, who has also caused all the seats to be supplied with Bibles, Prayer-books, and hymn-books. Accommodation is provided for about 200 persons, all free. The original contractor for the church was Mr. James Porteous, of Welshpool; and the entire erections have been executed from the plans and under the immediate superintendence of Messrs. Poundley & D. Walker, of Kerry, Montgomeryshire, and Liverpool, architects.

Folkestone.—The contract for a new church to be erected in the Upper Sandgate-road, has been taken by Mr. Robert Baker, for 5,520*l.* The original contract was for 6,800*l.*, but of this 1,280*l.* were allowed for the spire, which is not to be erected at present. The church, which will be slightly larger than Christ Church, will seat 1,000 persons: it is to be built of Kentish rag, with Bath stone dressings, the side walls being of brick to allow of any ulterior enlargement. The style will be plain Early English, the interior rather decorative, the columns supporting the roof being of red Mansfield stone, with Bath stone dressings.

STAINED GLASS.

Folkesworth Church (*Hunts.*).—The east window of the chancel of this church has recently been filled with stained glass, by Mr. Wailes, of Newcastle. The window is in the Norman style, and of three lights, the leading design in their subjects being intended to represent Christ's victory over suffering and death. The two groups in the left-hand light show the sisters of Lazarus appealing to the Saviour, and the raising of their brother; above these, is an angel bearing a scroll, with the text, "I am the Resurrection and the Life." The two groups in the right-hand light show Jairus beseeching the Lord to save his child, and the raising of his daughter. Above them an angel bears a scroll, with the text, "Be not afraid, only believe." The central light has three groups –the Agony, the Resurrection, and the Ascension of Christ. A small circular window in the apex of the eastern gable is filled with the figure of the Agnus Dei. Beneath the larger window is the inscription, "To the glory of God, and in loving memory of Henry Freeman, Rector of this Parish. Born Feb. 14, 1805. Died Dec. 23, 1864."

St. Leonard's, Hythe, Kent. — A memorial window has recently been placed in the east lancet of the parish church of St. Leonard. It is by Messrs. O'Connor, of Berners-street, Oxford-street, and is richly painted on mosaic grounds. The subjects embrace the Nativity and Adoring Angels, the Presentation in the Temple, and our Lord in subjection to his Parents. It has been erected to the memory of the late Mr. and Mrs. Mackeson, by their son, Mr. H. B. Mackeson.

Sestabudie Church, India. — A twin-light window in this church has been filled with memorial glass, erected by Messrs. Hudson, Aiton, & Lee, contractors, to the engineers and men who died during the construction of the G. I. P. Railway, from 1859 till 1866. The illustrations are "Jesus wept" and "Lazarus, come forth." The artists were Messrs. Ballantine & Son, Edinburgh.

British Church, Riga (*Russia*).—One of the large south windows in this church has been filled with stained glass. The window has four upright lights and elaborate tracery. The subject is "The Adoration of the Magi and the Shepherds." In the base are the Evangelical emblems, and in the tracery the inscription "Glory to God in the Highest. On Earth Peace and Goodwill towards Men." The artists were Messrs. Ballantine & Son, by whom the large east window was formerly executed, the subject being the "Crucifixion," and the same artists are engaged on a series of subjects for the other windows illustrative of the life of our Saviour.

Books Received.

A Treatise on the Law and Practice of Benefit Building Societies, and Freehold Land Societies. By WILLIAM WHITTAKER BARRY, Barrister-at-Law. Cox, Wellington-street, Strand. 1866.

A Handy-Book of the Law relative to Benefit Building Societies. Second edition. By CHARLES EGAN, Barrister-at-Law. London: Tegg. 1867.

In the first of these two very useful books, a full account of the law and practice of Benefit Building Societies is given, together with an appendix of rules and forms, the whole forming a readable treatise about such societies; while the other gives the Acts or statutes appertaining thereto, important judicial decisions thereon, and practical comments defining the jurisdiction of the equity, the common law, the magistrates', and the county courts, in matters emanating from the operations of these prudential societies. This second edition of the latter work has considerable additions, an index, and a table of cases cited.

The Architectural Antiquities of the City of Wells. By J. H. PARKER, F.S.A. Oxford and London: Jas. Parker & Co. 1866.

Illustrations of the Architectural Antiquities of Wells, prepared under the direction of J. H. PARKER.

WELLS is a rich field of observation for the student of English Mediæval Domestic architecture, perhaps the richest he could find within a ring-fence; and this well-illustrated little book he will find an excellent guide and councillor when there. The groundwork of the book is a paper written for the Somersetshire Society, the members of which, desiring it should be enlarged and published, subscribed a sufficient sum to pay for the engravings required to illustrate it, so that the work is now purchasable at about the same price as if there were no engravings in it. For those who desire still further illustrations, the author has published fifteen photographs in a cover, including views showing the modern painted decorations of rooms in one of the old buildings now his own residence. The effect of these in the photographs, by the way, is not particularly happy.

At the end of his book Mr. Parker adds an interesting note on the change in the value of money. He considers that, in reading of the value of property at the time of the Reformation, or of donations during two or three previous centuries, we should view a shilling of that period as equal to a pound of the present time. From the fourteenth to the end of the fifteenth century there was no great change; but the gold of Peru in the sixteenth century made money abundant, and more of it had to be given in proportion for labour and other things. Not to speak of subsequent variations, paper money and a national debt in the eighteenth and nineteenth centuries again materially lessened the value of money, as the more recent influx of gold has further done.

"In the fifteenth century the ordinary wages of an unskilled day-labourer were one penny a day. The accounts of the chapter of Salisbury show that at the beginning of the reign of Elizabeth, in 1559, they were eightpence a day in that place, and this was rather below than above the average. They are now seldom less than twenty-pence a day.

The cost of buildings, of which the accounts are numerous and easily referred to, indicate the same proportion. The tower of Merton College, Oxford, built in 1448-50, cost 141*l.* 19*s.* 4½*d.* It could not now be built under 3,000*l.* Professor Rogers, in his valuable work on the History of Prices, reckons the proportionate value at one to twelve only; but the series of tables he has so diligently collected, show that in the fear of overstating his case, he has considerably understated it. If the real proportion is only one to twelve, or somewhere between that and one to twenty, it is in any case a matter for grave and serious consideration. It is probable that in another century ten shillings will buy no more than one shilling does now."

The deduction Mr. Parker makes is, that the Ecclesiastical Commissioners, in dealing with the permanent property of the Church or of public charities, should always bear this change in mind.

Miscellanea.

ART-MARKING OF LINEN.—Since the process of photographing upon silk and linen has been perfected in France, many persons have their portraits upon their linen instead of their names or initials. Washing, it is said, does not injure the portraits.

CROYDON BATHS.—Messrs. Hayward Brothers write: "We notice that you have had a paragraph in the *Builder* respecting the Croydon Baths. We shall be glad if you will mention that we were the contractors for the engineer's work; for although there has been great discussion at the Board as to the stability, &c., of the building, the engineering work was pronounced satisfactory."

MEMORIAL OF CARL MARIA VON WEBER.—We have before us a photograph taken from a panel put up in Hosternitz, near Dresden, *in memoriam* Weber. The original, a circular table, with name, stars, and lyre, is cast in brass, with gilding for relief. It was designed by Mr. R. Jähns, of Berlin, engineer, who has expressed a desire through Mr. Vale, of Liverpool, to see a similar tablet placed on the house in London where Weber resided, and where he composed "Oberon," his masterpiece. The house is No. 103, Great Portland-street. Mr. Jähns would be glad to bring the matter to the notice of the admirers of Weber in Germany, and if friends in England expressed a desire to co-operate, he would be glad to give all particulars as to cost, &c., of the tablet.

MANCHESTER ARCHITECTURAL ASSOCIATION.—In lieu of the ordinary general meeting, the members af this Association, on Wednesday, the 28th ult., paid a visit to Liverpool, and on their arrival at Lime-street, went direct to the new buildings in connexion with the Royal Exchange, where they were met by the members of the Liverpool Architectural Society, the two societies being received by Mr. Boult, who acted as guide, and conducted the party over the building. They afterwards visited the town-hall, dock offices, the new basins, and corn warehouses, now in course of erection; the new Opera House, and the Free Library and Museum. The members of the Manchester Association having been invited to finish the day at the ordinary general meeting of the Liverpool Society, proceeded to the Royal Institution, where the paper, by Mr. W. Pettit Griffith, reported in the *Builder* of the 1st inst., was read. It need scarcely be said that an agreeable day was spent.

THE WORCESTER DIOCESAN ARCHITECTURAL SOCIETY.—The annual meeting and *conversazione* of this society have been held, Lord Lyttelton in the chair. The society's report having been read, Canon Wood, in moving the adoption of the report, said he was glad of the opportunity of bearing testimony to the character of Mr. Noakes's work on "The Monastery and Cathedral of Worcester," which was an exceedingly valuable result of laborious and persevering research. With regard to the restoration of the cathedral, he was glad to find that all the main features of that great work had met with the unanimous approbation of the citizens and the public generally. The chairman, as a member of the cathedral restoration committee, informed the meeting that the plans of Mr. Scott for the re-arrangement and fitting of the choir had been fully considered and approved of by the committee, and would shortly be submitted for public inspection. He believed the committee could not see their way to a completion of the interior for a less sum than 15,000*l.*

Murray's Cash Tablet: not a Bad Notion. It is often difficult to take up change, whether small or large, from the hard and even-polished surfaces of counters at banks, money-order offices, railway ticket offices, shops, and other places. The "Cash tablet," a tray, with a stuffed bottom, renders this action easy.

Free Public Libraries and Reading-rooms.—A meeting, presided over by Mr. T. Hughes, M.P., has been held in the St. Thomas School-rooms, Waterloo-road, for the purpose of considering the necessity of establishing a free public library and reading-rooms in Lambeth. After several letters had been read by the secretary, Mr. W. M'Call, the chairman addressed the meeting, and a resolution, pledging the meeting to support the object for which it had been called, was agreed to; and a committee formed for the purpose of carrying this resolution into effect.

The Proposed New Town-hall and Gaol for Grantham.—The town council, having learnt that Mr. Drury's selected design for the new buildings would cost considerably more than the stipulated sum of 6,000*l.*, suggested that a meeting of the ratepayers should be called to consider the propriety of increasing the proposed sum. The meeting was accordingly held; but a resolution to limit the cost of the whole work to 6,000*l.* was carried by 35 to 28 or 29. Mr. Wm. Thompson, in the course of the discussion, said he had been confidentially informed that his design, "No. 10,009," was considered by the council the second best, and he thought he ought to have the second premium of 10*l.*, and read letters from builders to show that his design could be executed for the 6,000*l.*

Workmen's Dwellings in Edinburgh.—The annual meeting of the Edinburgh Workmen's Houses Improvement Company (Limited) has been held. The report stated that the houses built by the company had been fully occupied during the past year, and that the directors were now enabled to recommend payment of a dividend at the rate of 5 per cent., which they hoped to be able to continue in future, and at the same time to accumulate a small reserve fund. The report concluded by congratulating the shareholders that, by their exertions, 132 families in humble circumstances had been comfortably accommodated at a moderate rent; but at the same time the directors were of opinion that to carry out any great and complete improvement in the houses in Edinburgh for the working classes, the wretched dwelling-houses that are so numerous in the Old Town must be removed. If that improvement were to be effected, it would become a matter of serious consideration what steps ought to be taken to furnish proper dwellings for those whose houses were to be pulled down. The report was unanimously adopted.

Engineering and other Works at Chemnitz. The town of Chemnitz, in Saxony, is one of the most active and flourishing manufacturing places on the whole continent. It possesses numerous important engineering establishments, amongst which the one belonging to Mr. Hartmann takes the foremost rank. Mr. Hartmann first entered Chemnitz as a workman in 1837. His earliest attainments were some improvements in the manufacture of looms and of spinning machinery, but the works were gradually extended for the manufacture of other machinery, as locomotives, stationary engines, mill-work, water-wheels, and engineering tools of all descriptions. It has been particularly remarked of Mr. Hartmann's tools that they are exact and well-made copies of the best English machines of their kind, and it is principally to this selection of models for imitation that his great success in this branch of manufacture is due. The present extent of the works is nearly a million square feet; they employ 1,800 workmen, and have a total motive power of 150 horses. There are 260 lathes, 70 planing and shaping machines, 50 drilling and boring machines, 30 slotting machines, 6 steam hammers, and about 50 other different tools in operation. The present production of locomotives is about 50 a year, and this establishment has finished about 500 engines of this kind up till now. The machinery for spinning and weaving forms an equally important branch of the present manufacture of this establishment; next in rank are the tools for working metals and wood, most of the principal machines now working in the factory being Mr. Hartmann's own make. The iron used for casting in Chemnitz is mostly Scottish foundry iron, and is melted in the cupolas with English coke.

A Theatre at Middlesborough.—A new theatre (the Royal Albert) has been opened at Middlesborough. It was built by Councillor Imeson, at a cost of over 3,000*l.* The lessee is Mr. Wybert Rousby.

Tramways in the Metropolis.—The plans have been duly deposited at the various public offices for the six new lines of tramways, already described by us as intended, over the suburban parts of London, taking the omnibus routes to Camden Town, Holloway, Islington, Whitechapel, Kennington, Brixton, and Clapham.

Steam Rollers in Macadamization.—The First Commissioner of Works, we hear, has ordered a steam roller from Messrs. Areling & Porter for flattening the macadam on the roads of the Royal parks of London. It is of 12-horse power, weighs 20 tons, and has rollers 7 ft. in diameter by 3 ft. in breadth: the weight upon each foot of road will be 3 tons.

Fire on the Banks of the Thames.—A fire has occurred on the premises of the Board of Works at the Thames Embankment, at the back of Beaufort-buildings, in the Strand. The building was used as a storehouse for oil, naphtha, tar, and other materials employed in the construction of the works. The fire burnt itself out, without any damage to surrounding property.

New Railway Bills.—The notices of intended application to Parliament for railway purposes in the Session of 1867, are 171, as compared with 450 for the Session of 1866, 415 for 1865, 360 for 1864, and 280 for 1863. The plans and sections of new railways and other works, docks, piers, and portions of canals connected with railways, have just been deposited with the Board of Trade for 101 Bills as compared with 340 Bills deposited for the Session of 1866, showing a considerable falling off in the number of the notices, and also in the magnitude of works, as compared with those given and contemplated at this time last year.

Miss Glyn's Readings, St. James's Hall.—It is to Miss Glyn (Mrs. E. S. Dallas) that the present generation of playgoers owes its knowledge of Shakspeare's Cleopatra; and, if we remember rightly, Miss Glyn has not appeared on the London stage since she acted that part at Drury-lane,—a circumstance forgotten by some of the critics. It was natural, therefore, that she should include "Antony and Cleopatra" amongst the plays to be read by her in St. James's Hall, although it is not the best of plays for reading by an ordinary reader. It is too colloquial, and there are few long speeches to enable an ordinary reader often to reach an uninterrupted climax. Miss Glyn, however, is not an ordinary reader: she knew her power, and did not misjudge. It was an exquisite and truly delightful performance; and, if it were more completely our province than it is, it would be to us a work of pleasure to point out its beauties and dwell on the power displayed. We must content ourselves with expressing unqualified admiration. On (this) Friday evening Miss Glyn will read "King John." We may safely recommend those who love Shakspeare and fine reading not to miss it.

Drunkenness of Foundlings at Oxford.—At an inquest on four children of eight months old lying at the "Home of Compassion," in Oxford, it came out in the evidence of the Lady Superior, that since October, 1865, no less than seventeen or eighteen had died in it besides the four then lying dead. The average number on the books at one time was only twenty, although fifty could be accommodated. The infants were mostly in an extreme state of emaciation when admitted, but it did not appear that they were improperly treated afterwards. The institution was got up for the reception and fostering of foundlings of all ages up to eight. A discharged servant had said that the children were half starved, and beaten, but this was contradicted on oath by another servant. "Death from natural causes" was the verdict, with an addendum that the jury believed the children to be treated with care and kindness. It is a remarkable coincidence, that before the present foundling hospital was established on its ultimate principles, the same excessive rate of mortality took place among foundlings in connexion with that charity, to which the legislature voted large sums; so that the object in view, of saving their lives, was entirely frustrated. Out of 14,934, we see, from the *Post-mandatory Gazetteer*, no less than 10,389 died in early infancy.

Reduction in the Price of Copper.—The price of English copper was on Monday reduced by smelters 5*l.* per ton, making present official prices:—Best select, 84*l.* per ton, and tough ingot and cake, 81*l.* per ton. Messrs. Bolton & Sons' circular states that wire and tubing have been reduced—brass ¼*d.*, and copper ½*d.* per lb.

A Mortuary Chapel for Southwark.—It is to be hoped that the vestry of St. George-the-Martyr, Southwark, will succeed in their endeavour to build a mortuary chapel on the site of the old Lock Burial-ground, in the Dover-road. The *South London Chronicle* says,—"The vestry are so far sanguine as to have ordered plans for the chapel to be drawn."

The Telegraphs as a Branch of the Post-office System.—The late Government, it is asserted, had a Bill ready for presentation to Parliament for the purchase and working by Government of the telegraph lines of the three kingdoms, and it is to be hoped the present Government will carry out the intention. A uniform low rate of charge as regards all distances for a certain number of words would probably be the tariff chosen on the principle of the penny postage. The messages would be delivered like letters, by Post-office carriers. The details of the scheme were prepared by Mr. Scudamore, of the General Post Office. The telegraph companies' staffs would be transferred to the Post Office establishment. The commerce of the country would certainly be greatly promoted by such a system, and even if not carried on for profit to the Government, the indirect advantage to the national income would be immense.

The proposed new Nave at Bristol Cathedral.—The Dean has just published a letter to Mr. Cruger Miles, chairman of the committee for the restoration, in which he expresses himself as opposed to the rebuilding of the nave on the site of its original foundations, as advocated by Canon Norris. He objects to the full restoration on two grounds, pecuniary and æsthetic. Looking to the money side of the question, the Dean lays it down as a necessary preliminary to action that, whatever restoration be decided on, the funds requisite for it should be either received or guaranteed beforehand; and he considers that an endeavour to raise 30,000*l.* would simply have the effect of "indefinitely deferring works which it is of the greatest consequence should be commenced with the least possible delay." The Dean proposes what may be termed a compromise. His idea is that instead of incurring the large and doubtful expenditure involved in restoring a "full" nave, what may be described as a shortened nave, consisting of three bays, with a grand window in the western front, should be added to the present structure; and he contends that not only would this plan be far cheaper, but it would actually result in giving what would be a handsomer and better edifice, one more in keeping with all its adjuncts. There is not room for a proper nave without the removal of some existing buildings.

Building in Liverpool.—The population, especially in the suburbs, continues to spread and increase at an extraordinary rate, says the *Albion*. In connexion with new houses built within the borough during the present year, one important feature consists in the fact that the erection of buildings at a rental of less than 12*l.* a year, has been altogether abandoned by builders, the minimum being 12*l.* to 25*l.*, whereas in the three previous years a considerable number of houses at a rental of 12*l.* and under were erected. This circumstance conclusively proves the increasing value of land and houses in every part of the Parliamentary borough. It appears that down to the week ending Saturday last, plans for the erection of 1,497 houses, had been lodged and passed at the Borough Engineer's office, and the estimated number of houses actually built and in progress, and to be completed within the year, is about 1,136. By far the largest proportion of these new dwellings are in Everton and Kirkdale. The classified returns show that the new houses so erected have been mainly for the artisan and lower middle-class portions of the community, there being out of the entire number built during the year 963 dwellings at a rental of from 12*l.* to 25*l.* a year, 119 at a rental of from 25*l.* to 35*l.*, and only 54 at 35*l.* and upwards. Taking the generally received average as five per head in each family, the newly-erected dwellings provide accommodation within the borough for an increased population of 5,660.

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For rebuilding No. 97, New Bond-street, exclusive of joiner's work, glazing, painting, and decorating. Mr. John Thomas Wimperis, architect. Quantities supplied :—

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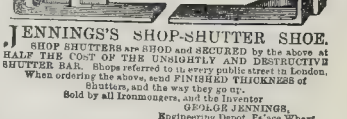
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The Builder.

VOL. XXIV.—No. 1246.

Competition versus *Co-operation.*

IT was dryly remarked by Sheridan, on an occasion when comments were somewhat freely passed on the manner in which the Prince Regent appropriated the main credit of the great events of 1814 or 1815, "Yes, but what he most prides himself upon is the late abundant harvest." Some of our contemporaries have received a very similar rebuke, the wit of which has been the more pungent from the fact that it emanates from a quarter so little to be suspected of any undue tendency to jocosity as the Statistical Society. The steady advance in material prosperity which has characterised the past thirty-three years has been so generally attributed to the results of legislation that many people have assumed the sequence to be both natural and undoubted. Mr. Dudley Baxter brings forward the incongruous fact that in America, where legislation has been active in exactly the opposite direction to the course which it has taken in the United Kingdom, the advance has been even greater than among ourselves. Free trade may have increased, or may have checked, the increase of national prosperity, but it cannot be argued that the increase in question has been the result of free-trade legislation in England, and of protective legislation in America. The necessary inference is, convinced as we are of the advantages of free trade, that we must look deeper than legislation in order to discover the true source of national welfare.

That source Mr. Baxter thinks he has discovered in the formation and use of railways. The suggestion is at least free from the objection that attaches to the theory of either the free trader or the protectionist: it is not confronted by hostile facts; for in each of the instances cited as the most remarkable proofs of material progress the growth of the railway system is conspicuous. But to attribute the advance in national wealth exclusively to railways is to put the part for the whole, and to fall into an error but little less illogical than that of the writers and speakers who discern in parliamentary action, or in external force brought to bear upon parliamentary action, the panacea for all national evils, and the source of all national welfare.

That man, it has been said, is a great national benefactor who makes two blades of grass grow where one grew before. No less is that man a benefactor who, diverting a portion of the soil from agriculture converts it into practicable roads. It is necessary to be well acquainted with the details of social life in other countries or in other times to appreciate how important an element in civilization, and how essential even to the due production and distribution of human food, is the maintenance of an efficient system of internal communication. A short residence in Sicily or in Calabria would bring this truth home to the mind with fuller force than any number of well-poised columns of double-leaded letter-press. If such be the importance of ordinary roads, it is obvious that the introduction of a mode of transport, in a sixth of the time and at a third of the cost as regards merchandise and passenger traffic, which at the same time has facilitated the exchange of correspondence in a far greater ratio, and which has been attended by the perfection of a telegraph system which places at the command of the public a more speedy and certain transmission of intelligence than the utmost efforts of the Government could formerly attain for its most important despatches, must have had a most powerful effect on the development of national wealth.

But the road, or the railway, necessary as each is to commercial activity, is not in itself a source of production. Free exchange of commodities, rapid transmission of intelligence, facilitate and stimulate production, but produce nothing themselves. A railway across the desert would be of little service were the termini in the desert itself, and unconnected with the main stream of European and Indian traffic. The most striking feature of the century has been the enormous increase of producing power—the service rendered to man by the steam-engine in its thousand modes of application; and the locomotive has but served to wait on the increased production of its elder brother, the stationary engine.

No greater public service can be rendered at the present moment than the demonstration which may be drawn from the statistics cited by Mr. Baxter, how little physical progress depends upon political causes. Slavery has been almost banished from the earth during the last ninety years, but mankind during that period of time have been slowly awakening to the fact, that a slave more potent than those of any Oriental tale of magic has been born for their service, and has been steadily, though slowly, acquiring his present gigantic proportions. Opinions may change, parties may contend, monarchies may rise and fall,—one power alone has been steadily on the increase, and that a power which tends, more and more, to place nature in subjection to mankind, to raise the position of man upon earth by performing, by mechanical means, the greater part of the drudgery of labour.

Violent and persistent efforts are now being made to turn the attention of the British workmen from that golden future which the steady development of the productive power of machinery opens to their legitimate expectations, and to lead them to seek, through the tedious and stormy steps of complex political experiment, an amelioration of condition which, under the influence of the associative instead of the competitive principle, might commence to-morrow. Let our fellow-labourers reflect for a moment on the progress made during the past quarter of a century under three of the most dissimilar forms of Government possible in civilized life. Let them see how little the centralized Imperialism of France, the mingled institutions of our own country, or the majority-rule of the American Republic, has affected the welfare of the respective countries. *Post hoc*, or *propter hoc*, under or in spite of political conditions the most dissimilar, the untiring toil of the steam-engine has created, in each case, an ever-increasing wealth for the citizen.

And yet what steam, what mechanical science has done, is little to what might have been the case. We do not speak of the columns cited by the statistician alone, but of that increase in the real well-being of the community,—that greatest happiness of the greatest number,—which must ever be the aim of him who would aspire to the fame of a true statesman, or of a mere teacher of mankind. Let us see for a moment what might have been done for our islands by only two of the many applications of the steam-engine to the service of man, had that application been directed by an enlightened foresight, and an unselfish patriotism.

The country visitor to London who peeps at the gilded splendours of the House of Lords may fail to recognise, if he have not his English history at his fingers' ends, what it is that forms the seat of the Lord Chancellor, and what was the profound national conviction symbolised by "the Woolsack." Still less can the visitor to Manchester or Leeds now realise the jealousy that was entertained among our forefathers when the import of "cotton wool" first began to excite the alarm of the farmers and sheep-owners of the day. Towards the close of the last century, the annual import of 170 tons of this vegetable commodity, while already affording the means of considerable industrial activity, gave little indication of that enormous supply from which, sixty years later, the steam looms of Lancashire were destined to clothe the world. Two hundred and eighty times that quantity, more than a thousand million of pounds weight, supply our present annual consumption, being just about ten times the weight of wool annually wrought into fabrics. Cotton cloth such as, at the earlier date, was saleable at the price of 6s. per yard, is now procurable at less than a twenty-fourth of that price. Such has been the stimulus to the cotton manufacture produced by the application of steam power under the direction of private enterprise.

The result has been without precedent. We may, however, be permitted to doubt whether we have reason very greatly to pride ourselves on the form which it has assumed. In what manner has the national wealth been increased by this enormous increase of productive power? The economist may point to a few newly-raised palatial residences, and will reply that 4,000,000 of people are supported by the cotton manufacture. He tells us, at the same time, that the annual returns of the trade amount to 85,000,000*l.* sterling. That is to say, that an invention which has enabled its possessors to clothe the world, and to produce that clothing at less than one halfpenny for what used to cost a shilling, has been so handled among us that its best praise is that it supports a fifth of the population of England at the munificent rate of 8s. 2d. per week per head. And out of this 8s. 2d., be it remembered, have to be deducted all the large fortunes,—the 60,000*l.* per annum of one manufacturer, the 50,000*l.* of another,—all interest on capital, all wear and tear of machinery, all depreciation of property. Out of this 8s. 2d. per head have to be paid all profits of manufacturers, all salaries of the higher order, all rent of the "hands" crowded into dense and unwholesome neighbourhoods to wait on the great Genius of the loom. Truly, the greatest happiness of the greatest number has been but little increased by the use we have made of the steam-loom and the spinning-jenny.

Had such a spirit of association for mutual welfare as underlay the idea of the old guilds, of the military orders, of that most ancient of existing brotherhoods which dates the building of the Temple of Solomon late among their traditions, directed the employment of steam manufacture to the fabrication of cotton goods, how different might have been the consequence. Had such an amazing economy been handled with prudence, what might have been the result? Had A, B, and C, instead of each rushing to undersell the other, and to pile up thousands in hot haste, when they might have leisurely accumulated hundreds of thousands for themselves and others, agreed on a common plan of action, what might not have been effected for the country? Had the price of cotton fabrics been gradually reduced to a fourth, instead of a twenty-fourth, of its former rate, and had the difference been devoted to the increase of the physical well-being of the operatives, to the

alleviation of the burdens of the nation, how different a tale should we now have to tell. If the demand had been proportionate to that created; if, instead of increasing 280-fold, it had increased but 46-fold, an annual net profit of twenty-three millions sterling would now be earned by the cotton manufacture. If the world paid the same sum annually for cotton as it does now, the profit on the manufacture would considerably exceed the whole revenue of the United Kingdom. Cotton, so handled, would have borne all the expenses of army, navy, and civil service, and paid interest on the whole national debt.

Let us look at a later service of the Genius of the boiler. Forty years ago, if a man wished to go at his own time and at his own pace into the country, he was obliged to post. Over good roads he might make some seven or eight miles per hour, and over cheap roads he might post at eighteen-pence per mile; turnpikes, however, having to be added. If greater speed was to be gained, he had to take four horses. For goods there were no means of speedy transit, and the cheapest transport, that by canal, was at the mercy of the canal proprietors, both as to time and as to price. The swiftest travelling in the world, that by one or two of the Shrewsbury coaches, attained, some thirty years ago, the exceptional velocity of sixteen miles per hour over one or two of the most level stages. The Quicksilver Mail, to Falmouth, made eleven miles per hour over all ground. Look at our present rates of speed on railways,—our present tariff of prices. If ever there was an invention that should have enriched those who carried it out, it was that of steam locomotion.

How have we reaped the harvest? How has unlimited competition enriched the nation in this respect? It is true that we *have* our railways, some 13,000 miles of iron road dividing the counties of the three kingdoms,—a mile of line, in England and Wales, for every six miles and a half of country. But at what cost to the proprietors, and, therefore, at what cost to the community? If we take the average interest of money at 5 per cent., the 4·46 per cent. annual profit now earned on the 426,000,000*l.* of capital embarked in railways represents a loss to the proprietors, if capitalized, of upwards of 40,000,000*l.* sterling.

But this is far from a fair statement of the case. Forty millions sterling represent but a part of the price which the railway proprietors of Great Britain have had to pay for the honour of constructing our communications, and the advance of four hundred and twenty-six millions of money. Sixteen years ago, the profits on railways did not exceed three and a half per cent., they have but slowly worked up to their present modest ratio.

The cause of this must be fresh in the memory of many to whom the names of Owen and of Arkwright are unfamiliar sounds. In 1845, the men who had been courageous enough to carry out the great experiment of steam locomotion had begun to reap a fair return for their venture. The great lines were paying 10 to 15 per cent. Then came the mania. Owners of a good property threw it in the mire. Owners of no property rushed to create or to invent one. Lines of railway were projected and grasped at by the public which the whole male population of the islands, if set to work on them by a *levée en masse*, could not have constructed within the appointed time. Parliament took the wave at the flow. Parliament then, and ever since, did all that legislation could effect to render good lines bankrupt, and to cause the construction of lines containing the elements of bankruptcy. We know the result. It was that of the old fable of the dog and his shadow. If we estimate the actual length of duplicate, competing, and unnecessary railways; the enormous cost of Parliamentary expenses; the enormous costs of land, owing to corruption, competition, and false legislation; the increased price of iron, of labour, and of all materials used in the construction of railways; the increased cost of working the existing lines from these causes,—we shall probably be far within the mark if we estimate the loss of railway proprietors as a body at two hundred millions sterling. True, it may be urged, almost every mile of railway may be hereafter useful. But let it be remembered that a sum of money spent fourteen years before it earns any return is economically lost. It may as well, while interest on money is the rule of commercial relations, be cast into the sea. On the whole, then, there is little room to doubt that the nineteen millions sterling which now are distributed as interest among the holders of railway capital might, with prudent management, have now been paying interest and profit on a well-employed and gradually-increasing total of from two hundred to two hundred and fifty millions sterling; or, otherwise regarded, the profit on railways might by this time have repaid the entire expense of their construction, and have been bringing in to the investors or to the State a free annual revenue of from fifteen to twenty millions.

In the above figures there is no exaggeration, no room for the exercise of the imagination. They are the simple results of the facts laid before the Statistical Society. That the four hundred and odd millions invested in railways have not, for some twenty years past, returned to the proprietors the bare average interest of money, is a fact. That the great results of the cotton trade afford to the producers the stipend of 1s. 2d. per head per diem is the product of a mere sum in reduction. It is true that, however little these persons have made the best of their property, others have greatly benefited by their exertion. Europe, India, Africa, America, as well as the United Kingdom, are the better for getting two shillings' worth of cotton goods for a halfpenny. Every man who takes a journey, every man who writes a letter, is the better off for the investment which has proved so unremunerative to the railway shareholders. It is in this way,—indirectly rather than directly,—that the great services of the steam-engine have been enjoyed by the community. It may be called a happy accident. It is out of the usual course of things. No man would lay out 100,000*l.* in a factory merely that the natives of Guinea might be supplied with waistcloths in return for one twenty-fourth of the number of elephants' tusks which they used formerly to have to pay. No one would have taken a London, Chatham, and Dover debenture with the view that his neighbour should be able more conveniently to visit the Paris Exhibition. We have referred to only two forms of our manifold industries. But the example is not exceptional. And if we see that the great sources of national wealth are, from the want of the true spirit of patriotic and of craftsmanlike association and of brotherhood, rendered only incidentally instead of directly contributary to our national wealth, we may well tremble at the efforts that are being made to spur our operative classes yet more rapidly in the road to ruin.

THE LATE DAVID ROBERTS, R.A.

We cheerfully resume what we have to say on the subject of Mr. Roberts's useful, laborious, and honourable life.* In the first place, we will give what is not to be found in Mr. Ballantine's memoir, a letter, hitherto unpublished, from the painter himself, "touching" the Masonic punch-bowl of Robert Burns, made by the hands of the poet's mason brother-in-law, Armour, from a well-selected piece of black Inverary marble:—

"Fitzroy-street, 23rd Nov., 1857.

I send you, enclosed, a cutting from the *Scotsman* newspaper relative to your interesting article on Burns's Punch Bowl. There is, however, one gap in the narrative which you may, in common with myself, still deem of some interest,—the *name of* 'the vintner publican,' who at one time prized the bowl so highly, but ultimately parted with it so easily. I think I can supply this deficiency.

In 1820 I was scene-painter in the Theatre Royal, Glasgow, under the management of Henry Mason, who married one of the Kembles. In the company was an actor called 'Jack Shaw,' a rather impulsive and eccentric character, a favourite with the audience from his skill in singing Scottish songs, particularly those of Burns. I have often heard him boast of the happy days when he kept the house alluded to and was proprietor of the celebrated punch-bowl, and of the many distinguished countrymen it brought to his house to fill and carouse over it. I do not remember that he ever stated why he lost the bowl, or rather the house (in the Strand, I always understood†) that contained it; but his own impulsive character, to say nothing of the vicissitudes of an actor's life (for with that of 'mine host' he coupled that of chorus-master of Covent Garden), was quite enough to account for his pledging the bowl, and afterwards selling the duplicate to Mr. Hastie. Poor Jack! He must have been in great straits before he relinquished this relic of our national poet.

David Roberts."

And here we may observe, by way of parenthesis or postscript, that the ample and well-proportioned punch-bowl of Robert Burns was bequeathed by Archibald Hastie (a saddler by trade), in November, 1857, to the trustees of the British Museum. Never more to haggis and haddock-fed recipients of these and other creature comforts of this earth will that silver-rimmed bowl of Inverary marble diffuse a fragrant steam of Scotland's drink; of whisky cautiously mixed with scalding Tweed or Thames, cunningly flavoured with thirst-provoking sugar, and like-cunningly intermingled with thirst-allaying lemon.

Of the nationality and clinging together of Scottish artists in London, we have a pleasing illustration in the volume before us. When (1831) Patrick Nasmyth died, in Herculesbuildings, Lambeth, twelve Scottish artists, resident in London, not only buried him, but erected a monument to his memory, still to be seen in Lambeth new churchyard. Their names merit preservation:—Anthony Stewart, John Wilson, Andrew Geddes, Andrew Robertson, Clarkson Stanfield, John Burnet, Robert Edmondstone, William Kidd, David Wilkie, James Stewart, Alexander Fraser, and David Roberts.

The father of Nasmyth, and the father as well of "the Scottish School of Landscape Painting," as Mr. Ballantine properly designates him, was sensibly affected by this touching tribute to the talents of his son, and wrote, as follows, to Roberts:—

"47, York-place, Edinburgh, Sept. 19, 1831.

My dear Friend,—Your most active and excellent assistance in doing everything in my absence, requisite in consequence of the lamented death of my eldest son Patrick, has placed me and my family under obligations which it is out of our power ever to repay. I am fully informed of the kind intentions of you and his artistic friends to put up a stone, as a memorial of how his great talents were appreciated by those best qualified to form a correct opinion, and shall be obliged by your allowing me and my family to contribute our share. I hope you will inform your friends of my high sense of their kindness; and with Mrs. Nasmyth and my family's kindest remembrances, and every wish for your health and prosperity, I remain, my dear friend, yours most sincerely,

Alex. Nasmyth."

There are few instances that we can call to mind where the graves of English artists have been "marked" by English artists, without aid from other sources. The grave of William Hilton, R.A., in the churchyard of the Savoy, in London, was thus marked, and properly, too, for Hilton upheld the English school of Historic Painting.

"What various ills,"—

"What various ills the scholar's life assail,
Toil, envy, want, the patron, and the gaol,"—

artists have suffered in a like manner with the scholar; but artists have found affluent friends, and such a friend Roberts found in Lord Northwick—a minor Sir George Beaumont of his day. Digest this acceptable letter:—

"Lord Northwick writes, under the cover of an enclosure, to Mr. Stanfield, to say how much he has been pleased with Mr. D. Roberts's admirable picture of 'Notre Dame de Rouen,' and that the oftener he has seen it the more gratification it has afforded him; and that he has found it more and more attractive every time he has visited the gallery. Indeed, he likes the picture so well, that he should be glad to have one painted for him of the same size (and if Mr. Roberts could vary it to his own satisfaction) of the same cathedral, for one of the exhibitions next year. He has also proposed that Mr. Stanfield should paint him a companion picture of the same size; and Lord N. proposes, if both accept the commission, that the two pictures be exhibited together next season.

Lord N. would be glad of the favour of a line from Mr. Roberts, and desires that he will name the price that he shall expect for his picture, which he begs may be proportioned to the time and labour he may feel inclined to bestow upon it, in order to make it a highly-finished production, and creditable to the talents Mr. Roberts has already evinced."

There is another letter from Lord Northwick to our painter of a like warm-hearted, open-pursed character:—

"And, therefore, that no more be said here,
We, unto it, refer the reader."*

That is, see Mr. Ballantine's acceptable quarto.

At a time when public statues engross the attention of most thinking and most *un*-thinking committees and sub-committees, let us see what deep-studying David of Edinburgh had to say on the subject. He is writing to his deserving and much cherished friend, D. R. Hay—a name (and now, *only* a name) known to our readers:—

"I am not at all surprised at the decision come to with regard to the Scott [Sir Walter] Monument. Those of the committee who stick to the good old fashion, and think that a monument cannot be a monument unless it contains some *dumbie* imitation of the person it is intended to commemorate, should look at the figure of Lord Melville on the top of his column which already graces your fair city. As to my own designs, I thought they might give an idea to others, and that was the reason I made them. I knew there would be a prejudice against employing a person like me, who had never been directly engaged in such work."

David Roberts's "journal," though slight, is interesting. We never laugh outright as we did years ago over note-making Sir David Wilkie's, who, when busy with his famous "Village Festival," made this entry in his diary:—

"Among other calls, had one from the tax-gatherer."

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* See p. 899, *ante*.

† The house, we are since assured, was in Adam-street, Adelphi, Strand. What number?

* *Hudibras*.

In a beautiful piece of typography like the volume we unwillingly close, we are sorry to note an editorial slip. The president of the Royal Academy of Arts, *after* Lawrence and *before* Eastlake, was not Martin Arthur Shee, as he is made to sign his Cavendish-square letter of 1837, but Martin Archer Shee. David Roberts's esteemed son-in-law, Mr. Henry Bicknell, is a collector of artists' autographs. How did this escape his "judging eye?"

We cannot part company with Mr. Ballantine's biography of his friend without recurring to an example of importance which all prolific painters would do well to copy. Roberts, as we have before now mentioned, like Claude, kept a kind of "*Liber veritatis*," or a book of pen-and-ink sketches of all his pictures, with measurements and prices, and names of purchasers. Reproductions of some of these are given in the Biography. With such a valuable volume for reference, it will be indeed difficult to palm off a counterfeit Roberts for—a true David.

ON THE PROBLEM OF PROVIDING DWELLINGS FOR THE POOR.

This subject was discussed at the meeting of the Royal Institute of British Architects, on Monday evening last, Professor Hayter Lewis, vice-president, in the chair.

Mr. Spencer Bell having been called upon, agreed with Professor Kerr, that in order to improve the dwellings of the poor, in a wide sense, the capital embarked must be so invested as to give a profitable return. Many persons might be induced to invest a few hundred pounds in the speculation if they could depend upon getting 5 or 6 per cent., who could not afford to give 25*l.* as a donation to assist the object in view. The persons who dogmatised on this subject appeared to set out with the idea that the working-man must have a sitting-room, scullery, kitchen, and two or three bed-rooms. This, in his opinion, was more than the poor man was accustomed to,—was more than in many cases was wanted,—and was more than he could afford to pay for. Indeed, it was a question whether he would like so much accommodation, even at a rent which he could afford to pay. If, on the other hand, the rent charged was less than the accommodation cost, then the poor man became the recipient of public charity, and this he did not like. So far, therefore, he agreed with Professor Kerr; but with regard to the plan suggested by that gentleman, he could not say that it solved the problem,—how best to improve the dwellings of the poor. The single room, on a scale of 20 ft. by 17 ft., would give as much floor surface as a three-roomed house. Indeed, for that matter, there were dwellings built by Mr. Burges which occupied even less surface. Professor Kerr argued that a saving would be effected on the score of fireplaces and partitions omitted; but if the bearings were reduced (as might be done if the space were subdivided into rooms) a saving would be effected in the scantling of timbers, which might be set off against the fireplaces and partitions. Then, with regard to ground-rent, it must be remembered that this item just made the difference between the building paying and not paying. Mr. Kerr calculated upon getting between 8 and 9 per cent. out of his building, but it should be remembered that ground-rent would be equivalent to 2 per cent. His own experience as the director of a society for improving the dwellings of the poor convinced him that ground-rent was a very heavy item in the consideration of the present question. The society to which he referred found that the best thing to do was to buy small houses in blocks, repair them, fix closets and water-service, and attend to ventilation. Moreover, these were the sort of houses which the working classes liked to come to. They did not like those great establishments where there was a porter or superintendent to regulate their actions, and to see that they got home by a certain hour of the night. The experiment of taking small houses and repairing them showed that 8 or 9 per cent. could be obtained on the investment. None of the model or special buildings had paid more than 2 or 3 per cent., and such a return would never offer sufficient inducements to the public to invest largely in that description of property. Moreover, in a sanitary point of view, there were many advantages in the system of taking small houses and repairing them. The officers of the Board of Health, who were formerly constantly complaining of the manner in which these small houses were kept, were now quite satisfied with them, while the moral condition of the tenants occupying them was sensibly ameliorated. He would be glad if Professor Kerr could point out any ground in either the parish of St. Pancras or that of Marylebone, which could be made available for improving the dwellings of the poor, as it would be at once taken by the societies with which he (Mr. Spencer Bell) was connected. In the West-End parishes, however, great difficulty was experienced in getting such sites, as the principal landowners were opposed to anything in the shape of model lodging-houses on their property. On the Portland estate, for instance, no ground could be procured for such a purpose.

Mr. Chatfield Clarke thought that there were two objections to the principle laid down by Professor Kerr. His theory was, in the first place, erroneous as to what should be done for the labouring classes. He considered it a fallacious argument to hold, that because the poor lived in one room, more accommodation ought not to be provided for them. His own opinion was in a contrary direction. No person who understood the feelings of the poor on this subject could be ignorant of the great objections which they entertained to the single-room system, on account of bringing up a family in it. In his opinion, they ought to aim at giving the poor an idea of what their position ought to be. So much for the sentimental portion of the question. The calculation put forward about the beds of the poor was also fallacious, because it was impossible to tell in the dwellings of the poor how many individuals slept in one room. Indeed, it had been asserted in the *Builder* that three and four persons often slept under one cover,—the man and his wife, and perhaps an infant, at the top, and two or three children at the foot. This fact overset the argument about the number of single beds to be found in the dwellings of the poor in the parish of St. George, Hanover-square. Then, with regard to the plan submitted, he (Mr. Clarke) had made a calculation in reference to it, and he found the area to be 887 ft. superficial. He took this at 4d. per foot per annum, making 14*l.* 16s. for the yearly ground-rent. He had cubed up the building, and he found it to contain 22,144 ft., which he had estimated at 6d. per foot cube. This might be considered by some gentlemen too high an estimate; but looking at the large amount of galleries back and front, the eave-gutters, and palisades, he was of opinion that 6d. per foot was a moderate estimate. This would bring out the cost of the building at 553*l.* 12s. The opinion of Mr. Alderman Waterlow was that the cost of the structure would be about 500*l.*; but, taking it at 553*l.* 12s., as cubed up, and estimating the return at 6 per cent., the amount would be 33*l.* 4s. The rental therefore ought to be 48*l.* The receipts, according to Professor Kerr's scale of rental, would be 16s. 6d. per week, or 42*l.* 18s. per annum. Now, he ventured to assert, that in the experience of gentlemen present, it had been found that the taxes on a house in the metropolis amounted to a third of the rental, not, of course, the rack rental, but the assessment. Taking the taxes, therefore, at a third of the rental assessed (16*l.*), and adding insurance, 10s. 6d. per annum, repairs at 7 per cent. (3*l.*), and allowance for rooms unlet, commission on collecting rent, &c. (2*l.* 3s.), the total out-goings would be 15*l.* 13s. 6d. These added to the ground-rent (14*l.* 16s.) would make 30*l.* 9s. 6d. to be deducted from the gross rental, 42*l.* 18s., leaving a balance of 12*l.* 9s. 6d., which would yield just 2¼ per cent. on the outlay. This would give a very small rate of interest indeed, but it was all that could be got out of the building according to the calculation he had made. If that calculation were erroneous, he would be very glad to be corrected. If, however, the calculation were even an approximate one, the proposed view of improving the dwellings of the poor was based upon error. He regretted that Mr. Alderman Waterlow was not present that evening, as he had paid great attention to the subject, and had worked it out in a satisfactory manner as far as it went; but his buildings were open to objection on the score of the passages being tortuous and badly planned. The construction, too, was scarcely sufficiently substantial, and he feared that it would require repair in a few years. Still, Mr. Waterlow was entitled to much credit for his exertions because he had endeavoured to solve the problem, and had carried out his scheme so far successfully. The view which he (Mr. Clarke) held was, that they should not buy the freehold, but endeavour to obtain substantial property on leases of forty or fifty years, at low ground-rents, and then clean, drain, fix water-closets, and lay on water-supply. A sinking fund should also be established out of which to replace the sums paid in the way of premium. This plan had the advantage of not requiring much capital, while it would supply comfortable homes for the poor, and not in the great blocks of buildings, to which they had an objection. One of the chief objections to blocks was that the children often got contaminated by mixture with others, and this was an evil to which respectable mothers had naturally great repugnance. He would not take isolated dwellings, but where a dozen or two dozen could be taken in a court, alley, or small street he would endeavour to obtain them. He would not give the poor that with which they could put up, namely, the minimum of accommodation; for he would aim at improving their social condition; and how, he asked, could this be done if they slept, ate, worked, and smoked in the same room? The poor were not so fond of air as they ought to be, and in the Peabody buildings they had pasted up all the useful ventilating places devised for their health and comfort by Mr. Darbishire. In his opinion, however well-meaning the suggestions of Professor Kerr no doubt were, he had not solved the problem,—how to improve the dwellings of the poor.

Mr. E. Nash expressed his gratification at the circumstance that the subject had been brought under the notice of the architectural body, who were, after all, the best persons to determine what should be done. In his opinion, the question, and the only question, was one of expense. There was no difficulty in designing plans of cottages. He had built some cottages for a benevolent lady on her own freehold land at Penge, but on the question of cost he was bound to admit that he had solved nothing. In planning those dwellings, he had followed the design of Mr. Roberts, making a few alterations, which, in his opinion, were improvements. There were twelve cottages, four with three rooms each, and eight with two rooms; and, taking the average of the whole, they cost 200*l.* each. This was not the figure at which they wished to arrive in considering the question mooted by Professor Kerr; but he thought they were indebted to him for his attempt to solve the problem in so sanguine a fashion. In considering the matter, he was persuaded that the problem resolved itself into one of expense only, and that there was in reality nothing else to solve.

Mr. Seddon having called attention to the plans of Mr. Burges, which lay on the table, Mr. Chappel (assistant to that gentleman) observed that the buildings had been erected in a very substantial manner, and as yet had not required any repair. The two-room dwellings were let at 5s. 6d., and the single rooms at 3s. per week; and there were two large rooms let at 6s. The rooms were occupied by persons who had been in the building from the commencement. It was found that tenants objected to single rooms, because they were too small, and because the rent was too high. The size of these rooms was 10 ft. by 10 ft. The under portion of the building was let as a school at 50 guineas a year, and there was a shop now let at 13s. per week, but which, at one time, produced 16s. The gross rental had produced about 4½ per cent. upon the whole building, including ground-rent.

The Chairman asked what class of tenants inhabited the rooms.

Mr. Chappel replied that two or three were tailors, others carmen and the like, whose earnings might be taken to range between 21s. and 25s. per week, and that they had all families of four or five children.

Professor Kerr.—How many rooms do you allow to a family of four or five children?

Mr. Chappel.—Two rooms.

In reply to further questions, Mr. Chappel said there were two cupboards in each dwelling, and that the corner one was used for coals. There were also water-closets on the landing to each floor. The total cost was 2,500*l.* In his opinion the tenants would like to have larger rooms, but they would not wish to pay more for them.

Mr. Hansard pointed out that heretofore whatever exertions had been made in the direction of improving the dwellings of the poor, the habitations of the lowest class had not been touched. He had had much experience among the dwellings of the class to whom he referred in Bethnal-green. Here the very poor lived in houses which had originally been built for

weavers 150 and 200 years ago. The inhabitants were now small dealers (costermongers), jobbing cabinet-makers, and the classes which political economists called "criminal." The rents varied from 1s. 6d. to 2s. 6d. per week. This, he submitted, was the class whose condition they ought to alleviate. There were, however, great difficulties in the way. He had tried to introduce some of the necessary appliances which Mr. Clarke had advocated, and during the recent outbreak of cholera had put taps and ball-cocks to the cisterns or water-barrels, but in a fortnight there was not a cock or a ball to be seen, as they had been carried off and sold. The doors, too, were frequently taken off their hinges to be converted into firewood. It was all very well to put those appliances in model lodging-houses, where there was a superintendent to look after the property, and prevent depredations, but in the very poor dwellings to which he referred there was nothing to prevent the work of demolition; and even if the depredators were discovered, they were beyond the reach of punishment. Here the rooms were all single, and generally about 10 ft. by 12 ft., but having been occupied originally by weavers, they had large windows, which let in air and light. The tenants of those rooms would all jump at the prospect of getting two rooms instead of one, but they could not afford to pay rent for them. He was not one of those who considered that the people could not be improved in their way of living. On the contrary, he thought they were susceptible of great improvement, and were ready to avail themselves of any assistance that might be offered; but he held that the work of improvement was slow, and that we could not expect anything very great to be done in our own generation. The very lowest classes of the people were not all the blackguards they were believed to be, but they were very easily led. With regard to open staircases in blocks of buildings, he was aware that the tenants had a great objection to the gregarious intermixture of their children, and he thought there was a great deal in the objection. He did not agree with Mr. Chatfield Clarke, in his estimate of the cost of the building, as proposed by Professor Kerr. He considered that at prime cost, it would come out at 90*l.* per room, including the staircase, and he based this calculation upon an estimate of 3½d. or 4d. per cube foot instead of 6d.

Mr. T. Roger Smith thought they ought to feel indebted to Professor Kerr for drawing attention to accommodation for the poor who were below the class who were housed in the model dwellings. In the buildings erected by Mr. Peabody, Miss Coutts, and others, good accommodation was provided for a superior class of artisans, while the very poor were not reached at all. He ventured to think that to provide accommodation for the latter class in one room would be open to grave objection; but, at the same time, he was bound to admit that the error had been so much on the side of providing accommodation in excess of the wants of the poor that it was a matter for congratulation that the present plan had been brought under the notice of the public and of the profession. A large number of cases might be met by providing one and two rooms; and he thought the true solution of the difficulty would be found in providing two rooms, and three rooms, and, in some few cases, one room. The data supplied with reference to the parish of St. George, Hanover-square, were, in his opinion, open to this objection, that whereas Mr. Kerr had furnished certain statistics as to a given number of poor families who were visited, he had left the meeting to infer that those persons had all the accommodation they required, and that they had as many beds as comfort and decency demanded. With regard to the plan on the wall, he regretted that the Professor had not gone more into detail, as the gist of the whole question, after all, lay in the cost, which could only be got at in detail. He (Mr. Smith) had himself cubed it up, and, calculating the cost at 4½d. per foot, it would amount to 98*l.* per room. He might be wrong as to the exact amount, but, at all events, he undertook to say that Professor Kerr's estimate ought to be increased by 25 per cent. At the present price of labour and materials in the metropolis he could not see how the work could be done for less than 98*l.* per room; but he regretted that Professor Kerr had not given them more details to meet the objection so often made that the estimates of architects were not reliable. If the depth of the proposed building were reduced, and the space divided into two rooms instead of one, a better arrangement might be effected; but he quite agreed with Professor Kerr that all unnecessary appliances, such as taps, boilers, &c., should be dispensed with as much as possible, as they often met with very rough usage, and when injured there was an objection to pay for their repair.

Mr. Hayward (Hon. Sec.) thought it but fair to remind the meeting that when Professor Kerr brought the subject forward on the last night of the meeting, he distinctly stated that his plan was by no means perfect, but that he had ventured to submit a plan because he considered that every one who undertook to deal with the subject was bound to show some plan. He had hoped, however, that in the interval which had elapsed a revised plan would have been produced. At the same time he thought Professor Kerr deserved great credit for having boldly grappled with the question, and for having put himself forward against the array of philanthropic societies and individuals who had for some years past been attempting to solve the problem, but who had not done so as successfully as could be desired. He agreed with Professor Kerr in thinking that, however laudable and praiseworthy those efforts had been, the persons engaged in the movement had aimed too highly; and by viewing the matter from a charitable point of view had constructed dwellings in the shape of model lodging-houses, which many of the poorer classes objected to reside in. He did not see why such buildings should be on any fixed plan. The plan of Professor Kerr was open to grave objections; because, in his opinion, it was not desirable to encourage families to live in single rooms. The same floor-space divided into two or three rooms would, he thought, be better. He would also supply one or two of the appliances which Professor Kerr deemed to be too expensive, because he thought the people ought to be educated to their use. Professor Kerr would not give a sink, for instance, because he thought it would be illused, but he would supply something else of a simpler description, which could be easily repaired. Now, he (Mr. Hayward) would not build any dwelling for the poor without a sink; and he would also provide further conveniences, because he thought they ought to educate the poor in their use, and thus, by degrees, improve their social position and elevate their moral tone. With regard to the difficulty of getting sites in the metropolis, any one who would visit the east end of the town would find that there were many miles of small streets with houses so wretched and dilapidated that one would suppose it would be well worth while to pull them down and build improved dwellings on the site. He did not, for instance, see why a company could not take a lot of small houses of two stories each and convert them into decent and wholesome dwellings of four stories each. It would not be necessary to go to the suburbs to look for sites when houses such as those which he had described could be obtained. If they could but hit upon a plan to provide single and double rooms in the same building, a great portion of the difficulty they sought to remove might be got rid of; but he feared that the very plan of the model lodging-house had, to some extent, defeated its own end.

Mr. Passmore Edwards deprecated what Professor Kerr had said as to the sentimental or charitable portion of the question; and contended at some length that had it not been for the so-called sentimental element little or nothing would have been done towards meeting the evil the existence of which they all deplored.

Mr. Robinson (secretary to the Operative House Building Company) was glad to find that the question had at length been taken up by the right parties, namely, the architects; because, after all, it resolved itself into the cost of materials and construction — the cheapest materials, and the least costly mode of using them. If improved dwellings would not pay, it would be idle to expect to find millions of money invested in them, and a large expenditure of that kind was precisely what was wanted. Philanthropists had been at work for the last twenty years, and practically nothing had been done but to touch the very fringe of the evil. He had given great attention to the subject, and he found that it was impossible to take the buildings erected by the philanthropic societies as safe guides; firstly, because, by the constitution of those bodies, they could not divide more than 5 per cent.; and, secondly, because they mixed up baths and washhouses and other objects with their blocks of buildings. Most of the rooms in the block dwellings were let under the market value; but even then they paid between 4 and 5 per cent. With regard to cost, Mr. Alderman Waterlow had expended 30,000*l.* on 202 dwellings, which was at the rate of 147*l.* each, and the average return on his expenditure was 8 per cent. He thought that something might be done by the substitution of other and cheaper materials for those now in use. Mr. Chadwick had, for instance, recommended at the late Social Science Congress that concrete should be used (as was done in France), as also iron. With regard to providing for the lower classes, we knew that the poor would never cease out of the land, and, as money could not be made out of them, he thought that the efforts of philanthropy should then step in to help them. The artisan who was earning good wages, and in constant work, did not expect or require the intervention of charity. He was willing to pay a fair rent in return for decent accommodation, but what was wanted was decent provision for the classes below the superior working community or skilled artisans, whose dwellings were now the reverse of what was to be desired.

Professor Kerr, in reply, said that he was called upon to answer three questions. The first was, whether the dogmatic plan suited the poor; secondly, if this were not so, what other principle ought to be adopted; and, thirdly, as an experiment, and only as such, how far could the plan which he had suggested be of any value? With regard to the dogmatic plan, he did not use the word in an offensive sense, but merely in a scientific sense, as a scientific man might be allowed to use it. For twenty or twenty-five years, the attempt to improve the dwellings of the poor had gone forward in one direction only, and it was not to be wondered at that it had overreached its purpose. The question was whether the crisis had not now occurred, and he and many others were of opinion that it had. Still, though the dogmatic model was not defended, he owned he was surprised to find the chief organ of the profession defending it in its entirety, and declaring that if it had not been that he (Professor Kerr) had brought the subject forward, they would not have done more than have dismissed his plan with a dozen lines of disapproval. His definition of poor had been objected to as regarded the existence of a class. He had picked out the class which occupied one room because their earnings were small, and he asked whether such a class ought not to be assisted. It was true that the model lodging-houses, by providing for the upper class, had left more room for the lower; but so vast was the increase of population in the metropolis, that all the philanthropists had done was but a drop in the bucket of what remained to be done. Contrasting his statistics with those in the *Builder*, it would be seen, he said, that, while in St. George's, Hanover-square, the poor had 1⅝ bed per family, the poor in the parish of St. Margaret, Westminster, had but 1½ bed per family, which proved the truth of the position he had advanced, namely, that the poor in St. Margaret's, Westminster, were worse off than the poor in St. George's, Hanover-square. He held that his calculations, based upon house-to-house visitation in the latter parish, were correct, and that the poor labourer, honest, contented, and willing to pay his way, was satisfied with one room. He did not say it was a matter of credit to him that he was so, or of discredit, but he maintained that it was a fact, and that he was entitled to use it as a fact. But if gentlemen were dissatisfied with his statistics they could easily procure others for themselves. If they would but do so, they would find that taking the various classes of people who occupied one room on account of the smallness of the family, the proportion would be 50 per cent. of the labouring poor. If this were true, or approximately true, his argument was a sound one, and his statistics could not in the main be impeached. He was happy to find it had been admitted that the existing model lodging-houses did not house the poor. He contended that the poor must be allowed to live in their own way. It would, no doubt, be desirable to elevate their condition in a proper manner, but he deprecated forcing upon them trifles which had no bearing upon the problem to be solved. As an illustration of the uselessness of providing the poor with appearances which they did not want, he might mention an anecdote which he had heard that day. The late Lord Palmerston (who was not a very sentimental sort of person) when visiting some property of his, in company with Professor Donaldson, suggested that there ought to be cupboards here and closets there, and so

forth, when one of the women, addressing the noble lord, said, "True, your honour, but we have nothing to put in them." This shrewd observation showed that appliances were of little use unless there were possessions to correspond. It was, he thought, a question whether the large funds given by Mr. Peabody, Miss Coutts, and others, were not misdirected. Those benevolent persons gave their money for an object, but they took no responsibility as to the manner in which it was to be laid out. They looked to those who professed to understand the subject to dispense the funds to the utmost advantage; and if these funds were misdirected a serious social responsibility would rest upon those who so misdirected them. With regard to the second question involved in his plan, he did not think he ought to be denounced because he had advocated single rooms. He did not wish to see families "pigging together" in single rooms. He did not wish to restrict the accommodation of the poor, or to set up the domestic customs of the Chinese in England; but, on the contrary, he wished to give them the maximum of accommodation without, what Mr. Beresford Hope well remarked on the last evening of meeting, "taxing their pockets too much for it." Moreover, it should be remembered that his single room was merely a principle. It was a single room in its most refined sense, embracing the utmost accommodation at the smallest charge. It was not a room in a house, but a house in a room. He recommended it not for its defects, but for its simplicity, and if it could do what was wanted, it looked like a solution of the problem in one particular direction, and in one only; for he had always held that the subject must be considered in detail. He had no objection to suites of rooms, but he would not confine the dwellings of the poor to suites only; but he held that, if single rooms were built, the principle he had suggested would be more popular with the class whose case he wished to meet, than suites of rooms. Moreover, it should be remembered that it was the radical essence of his plan that the single room might easily be converted into two rooms, or even into three. The writer in the *Builder* who had commented upon his plan (and who was evidently thoroughly acquainted with the subject), had said that single rooms should be provided, and this was all he wanted. He would like to know how many underlettings there were in the rooms in the model lodging-houses. He had understood from Mr. Alderman Waterlow that there was a great deal.

Mr. Allen (who stated that he was the designer and builder of some of Mr. Alderman Waterlow's houses) said that underletting was the exception, and not the rule. The alderman was, he added, now building dwellings with two rooms.

Professor Kerr said he was given to understand that underletting prevailed to a considerable extent. He submitted that the question was, whether it was desirable to house the poor on their own terms. The poor man could not afford to pay 4s. out of 20s. per week, which would be equivalent to 20 per cent. of his income; whereas it had been held that the proportion of rent ought not to exceed 10 per cent. of income.

The speaker was proceeding to answer in detail other objections taken to his plan, when

The Chairman suggested that the hour beyond which debate was not allowed had already been exceeded, and that, as many other gentlemen desired to take part in the discussion, it would be better to adjourn it to a future date to be announced,—possibly to the next evening of meeting, unless other business had been arranged for the occasion.

MUNICIPAL MANAGEMENT AND PUBLIC WORKS, PARIS.

STEAM ROLLERS ON ROADS.

MR. R. R. ARNTZ, surveyor to the Westminster Board of Works, has recently visited Paris for the purpose of obtaining information as to the working of the steam rollers there used in making and re-coating macadamized roads (to which we long ago called attention), and as to other matters connected with the management of the city in the department of public works. Having the advantage of a good introduction to M. Belgrand, the eminent engineer-in-chief of "Ponts et Chaussées," charged with the execution and care of the water and drainage works for the city of Paris, he was well received by that gentleman, and has been enabled to lay before the Board some notes and observations, which our readers will find interesting:—

Municipal Management.

The city of Paris is divided into twenty districts or "*arrondissements.*" Each *arrondissement* has a "*Mairie,*" but the jurisdiction of the Mayor is limited to marriages, the verification of deaths, presiding over the commission of health for the *arrondissement*, and such like matters. He is not charged with the care of the public ways, of the sewers, of the water works; nor, in fact, with any operations requiring expenditure.

All great undertakings and every work requiring expenditure, and consequently a vote of the municipal council, are centralized at the "Hôtel-de-Ville," in the hands of the Prefect of the Seine, who is also Mayor of Paris.

The municipal administration is divided into six departments, under six directors, as follows, viz.:—

1. The direction of municipal affairs.
2. „ „ public ways.
3. „ „ public architectural works.
4. „ „ public works (not architectural).
5. „ „ accounts.
6. „ „ the chest ("*La Caisse*") for great works.

The Director of Municipal Affairs manages all the property of the city, such as colleges, schools, markets, &c.; but he is not charged with the execution of any works.

The Director of Public Ways has charge "*of the plan of Paris,*" and superintends the erection of all private houses and buildings. He directs the formation of all new streets, and purchases all property required for the purpose, but he does not execute any works of construction. He has a considerable staff of officers under his orders, and especially of architects, whose duty it is to examine the plans submitted for private houses and buildings, and to see that the same are carried out as sanctioned.

The Director of Architectural Works is charged with the construction and maintenance of all the municipal edifices; such as churches, colleges, schools, barracks, &c. His department is of great importance; and he has under his orders a large staff of architects-in-chief and of district architects, who have again under them numerous inspectors and other inferior officers.

The Director of Public Works is charged with the construction and maintenance of sewers, waterworks, public promenades and plantations, street paving, &c.; also with cleansing, lighting, and watering the streets, and with cleansing the sewers and cesspools.

The director is an inspector-general of Ponts et Chaussées, and has under his orders five engineers-in-chief.

Two engineers-in-chief have charge of the street-paving and surface cleansing.

Two engineers-in-chief have charge of the sewers and waterworks, including the cleansing of sewers, emptying cesspools, and laying water mains; they also control the laying of gas mains.

One engineer-in-chief has charge of the parks of the Bois-de-Boulogne and of Vincennes, and generally of all ornamental plantations and works of embellishment, including the organization of fêtes, &c. &c. He has also charge of the whole of the public lighting.

The five chief engineers have under their orders twelve ordinary engineers and four other officers, who rank as ordinary engineers. There is also a large staff of subordinate officers.

All proposals of the directors leading to expenditure are transmitted by the prefect to a committee of the municipal council for examination and report to the council. The council approve or reject the proposal. If they approve, the prefect, as mayor of Paris, makes an order authorising the execution of the works, and the matter passes into the hands of the officers. All important proposals appear, however, to be laid before the prefect in the first instance, and to be carefully considered by him previously to their being forwarded to a committee of the municipal council.

The duty discharged by *the Director for Accounts* appears to be that of an accountant's department, with some additional powers.

The Director of the Chest or "Caisse" for large Works appears to exercise some special powers for raising money for these purposes, probably with a view to spreading their cost over a term of years.

The funds required for municipal purposes are obtained through the octroi duties, and not, as in London, by assessment upon the annual value of occupied premises.

Centralization, thus carried to its utmost practicable limits has, no doubt, many advantages; but there are some obvious drawbacks, and a close acquaintance with the working of the system would probably develope disadvantages rather than advantages.

Sewers.

M. Belgrand furnished me with a plan showing the main drainage of the city, and with a set of sections showing the construction of the sewers and the manner of laying the water mains. He also made special arrangements that enabled me to visit the principal sewers, and such of the branch sewers and other works, as were necessary to afford a knowledge of the whole scheme of drainage, flushing, &c.

The sewers are constructed upon the general principle of main lines and branches. The whole fall into, or will eventually fall into, one "*Grand Collector*" line, with a point of discharge below the city. The Seine, at Paris, is not a tidal river, and the sewage so discharged will not, therefore, return upon the city. The branch sewers are constructed of greater height than in London; the principle of the French engineers being, that as they must sometimes be entered by workmen, they should be of sufficient height to enable this to be done without inconvenience; while, in London, it has been considered that sufficient facilities for the occasional access required are afforded by sewers of a smaller section. Apart from the question of cost, the French plan would appear to be the more reasonable. Water mains and telegraph wires are laid in the sewers, but gas mains are carefully excluded.

The branch sewers are cleansed by hand labour as in London; but for the main lines there is a most ingenious contrivance for flushing, by means of a board secured in some cases in front of a boat, and in others, in front of a wagon running upon rails laid down at the edges of the sunk water-courses, which are formed in all the principal sewers.

In the use made of the sewers, there are two material differences between the Paris and London systems. In London it is compulsory upon the inhabitants to discharge the soil drainage into the sewers, and it is an offence to sweep the mud from the surface of the streets into the gully drains. In Paris, on the contrary, it is forbidden to discharge night-soil by the house-drains, and every provision is made for washing the surface deposit of the streets into the sewers.

From the absence of night-soil, the sewage is much less offensive in Paris than in London; but the presence of the cesspool, with which every house is furnished, is frequently perceptible even in the streets. Experiments are, however, now being made with a view to the removal of this very serious evil.

The practice of cleansing the streets by means of the sewers immensely facilitates the operation, but it involves considerable cost in flushing the sewers and in dredging the bed of the river. The cartage of slop is, however, entirely saved.

Street Paving, Asphalted Ways, and Macadamized Roads.

A large proportion of the streets of Paris is paved with squared "setts," in so nearly the manner adopted in London as not to require observation.

On the Boulevards, and in most cases where the carriage-ways are of sufficient width, there are broad paved wings and macadamized centres. The arrangement has its advantages, but is open to objection on account of the difficulty of keeping the macadamized and paved surfaces fair with each other.

Asphalte is used to a considerable extent for crossings, and in many instances for the whole surface of carriage-ways. It appears, however, to be slippery in wet weather, and to be too noiseless for the safety of foot passengers.

Macadamised roads are in use to a very large extent, and it is to the making and re-coating these that the steam rollers, upon the working of which the Board has desired to be specially informed, are applied.

Before entering upon the subject of the steam rollers, it may be advisable to give some account of the manner in which macadamized roads have hitherto been maintained in the Westminster district; and it must be borne in mind that the

following description applies to *maintenance* only, and not to the formation of new roads, the operations being totally distinct, and requiring entirely different treatment.

Until within about the last seven or eight years, it was the custom in Westminster, as it still is in some parts of London, to permit the Macadamized roads to become very much worn before any repair was attempted, and then the surface was loosened, and a thick coating of new material was laid on; very little attention being paid, either to the regulation of the loosened surface previously to spreading the new material, or to the inconvenience to traffic from the depth of the coating.

About seven or eight years since some improvement was made. The roads were not suffered to go into such bad condition before the work of repair was commenced, and more pains were bestowed upon the regulation of the loosened surface previously to spreading the new material.

Further improvements were made from time to time, and about three years since the use of a horse-roller was adopted for the purpose of aiding the traffic in setting in the new metalling.

The present system of re-coating Macadamized roads in the Westminster district is as follows, viz.:—

The road to be repaired is first loosened, and the section reformed. The traffic is then suffered to run upon the surface so prepared until it is again partially consolidated, when the work of re-coating is commenced. This is done in very thin layers, and the horse-roller is brought into operation. Care is taken to leave "*rests*" of unbroken surface at frequently-recurring intervals, and water is freely used for the purpose of setting in the stones. In this way much of the inconvenience of the former system is avoided, and the roads are well formed and perfectly consolidated.

The public is now desirous that the roads shall be consolidated by means of rolling alone, and it remains to be determined whether this can be accomplished in London as it undoubtedly is in Paris.

Until within the last few years, the system pursued in Paris was very much the same as that which formerly obtained in Westminster; but, some years since, a different plan was adopted, and the newly-coated roads were covered with sand, and rolled with a heavy horse-roller. The large number of horses required for the roller interfered, however, with its usefulness, and it was to obviate this difficulty that the steam-rollers were introduced.

There is a material difference in the principle upon which Macadamized roads are formed in Paris and in London. In London, the use of any material to "*bind*" the stones is carefully avoided; while, in Paris, sand is freely used for the purpose.

In London, it is considered essential that the road should be made by forcing the stones together in such a manner as to form a solid mass of themselves; while, in Paris, the road is considered well made when the spaces between the stones are so perfectly filled with sand that the whole surface presents a uniform and "*mosaic*" appearance.

The traffic of Paris is not, however, to be compared with that of London; and roads that are fully equal to the requirements of the former city would be totally unequal to those of the latter.

I witnessed on two occasions the performance of the steam-rollers. On the first occasion, the road had been previously sanded and watered; but on the second occasion, it was, at my request, neither sanded nor watered; my object being to ascertain whether the stones would, under such circumstances, be crushed by the rollers, and whether they would be forced together as a solid mass, or simply placed as they were laid.

The trial upon the sanded and watered road was satisfactory and was conclusive as to the value of the machine for roads of this description.

The second trial was also satisfactory and conclusive as to the absence of any crushing effect upon the stones, which were not, however, forced together as a solid mass; a certain amount of lateral motion being, as I anticipated, necessary to the production of that effect.

On the whole, I am of opinion that the steam-rollers are a valuable invention, and that they could be used with advantage upon the Macadamized roads of London.

In Paris the work is executed at night, and this would probably have to be the case in London.

I am indebted to M. Vaissière, engineer-in-chief for public ways, for a large amount of valuable information connected with the subject of roads, and especially for numerous copies of contracts and schedules of prices, as well as for specimens of the different stones used for macadamized roads.*

Street Cleansing.

Hard core, such as oyster-shells, and refuse of a similar nature, is taken up by hand-labour, and removed in carts; but all other surface deposit is swept into the sewers, water being used in large quantities to facilitate the operation. The difference of traffic, climate, and the comparative absence of coal-smoke, may account, to some extent, for the superior cleanliness of the streets of Paris, as compared with those of London; but, notwithstanding these, which may be called natural advantages, London could without difficulty be at least as well kept as Paris in this respect, if the authorities had at their command an equally abundant supply of water, and could remove the sweepings by means of the sewers.

Many of the principal streets of Paris can be and are washed and watered upon "*the hose and jet*" principle, and in all the streets water is made to flow freely down the side kennels, from which the footways and carriageways are effectually cleansed with great rapidity.

The free use of water for public purposes is much needed in London; and I beg respectfully to advise the Board to represent strongly to the Metropolitan Board of Works, who are now considering the question of "metropolitan water supply," that in any future scheme a separate service for public purposes, and at the command of the authorities, should be a fundamental element.

Street-sweeping is performed, partly by hand-labour, and partly by carts fitted with revolving brushes set diagonally. The carts do not remove the sweepings, but draw them to the side-kennels, from which they are washed into the sewers, as before described

Water Supply.

The administration has charge of the water-works, and supplies water for all public purposes, including the public fountains; but there is a company which, under an arrangement with the city, takes the water from the street mains, and delivers it to the inhabitants when desired. This company collects the water-rents, and pays over the amount to the city, receiving a certain rate of profit as compensation for their trouble and capital employed.

The present supply is not, however, considered satisfactory; and the City has works in progress, which, when completed, will afford an abundant supply of pure water taken directly from its source.

Gas.

There were formerly several gas companies, but they have been consolidated, and the whole city of Paris is now lighted by one company. The company has several stations within the limits of the fortifications of the city. One of the largest, that of La Villette, I was enabled to visit. The works are very extensive, and the residuary products are utilised upon the premises.

The company has "*a concession*" for fifty years, at the end of which time their works, mains, &c., become the property of the city; the mains and pipes beneath the public ways without compensation; the works at a valuation, to be made by experts.

By the terms of the "concession" it is provided that the gas shall be "*perfectly purified*," and have an illuminating power of a given standard. The test for purity and the manner of making the experiments for this and for illuminating power are described in a set of "*practical instructions*" issued for the purpose.

The test for purity,—that of paper prepared with acetate of lead,—is against the presence of sulphuretted hydrogen, but there does not appear to be any test against the presence of ammonia, nor against sulphur, otherwise than in the form of sulphuretted hydrogen.

The standard for illuminating power is the carcel-lamp, burning 42 "*grammes*" of pure colza oil per hour. The manipulation of the photometer appears to be simplified, and the experiment to be less liable to error by the use of the carcel lamp as a standard rather than the spermaceti candle, which is the English standard; but there may be practical objections to the carcel lamp with which I am not acquainted.

After the 1st of January, 1872, and after payment of a dividend of 10 per cent. to the shareholders (provision being first made for a sinking fund and for a reserve fund), the profits of the company are to be divided between the company and the city in equal moieties. This arrangement, by giving the company a continuing interest in further profits, is calculated to act as a check upon the extravagant expenditure that might otherwise be anticipated after the highest rate of dividend had been attained.

The charge for lighting the public lamps is "at per burner" for burners of stated consumption and with flames of a given size.

The company light and extinguish the lamps. "Governors" are not used, but the lights are re-adjusted from time to time during the night, as may be required to meet the variations of pressure upon the mains. Lighting-rods are used by the lamplighters. The lamp-posts are painted periodically, and are washed every month.

Private consumers may claim to burn by meter, and all meters are required to be verified by the administration of the city.

Provision is made for such possible cases as the discovery of improvements in the manufacture of gas having the effect of diminishing materially the cost of production; of the discovery of means of lighting otherwise than by gas; and for numerous other contingencies.

A brief allusion to the Morgue and to the Abattoirs concludes the report.

* It is also due to Messrs. Gelerat & Company, the contractors for steam-rollers, that I should acknowledge the ready kindness with which they afforded me facilities for witnessing the performance of the rollers.—A.

A TEAR ON A WATERMAN'S MONUMENT.

Robert Coombes was a champion sculler, a man of pluck, honesty, and skill; and, after his death, other men who loved pluck, honesty, and skill subscribed for a monument to him, and this has been erected near his grave, in the Brompton Cemetery. It is of Portland stone, about 8 ft. in height, 6 ft. 6 in. long, and 3 ft. 6 in. wide, and the description of it runs thus:—

On the top slab is the representation of a wherry, bottom upwards, over which is thrown a coat and badge, and by the sides are broken sculls. On the edge of the ledge is the inscription, the lines by Dibdin:—

"Fare thee well, my trim-built wherry,
Oars, coat, and badge, farewell."

At either end, "R. Coombes." This slab is supported by four figures, cut out of the solid stonework, one at each corner. The figures represent four champions:—1st. Robert Coombes, in his rowing costume, holding a broken scull; 2nd. Tom Cole, of Chelsea, wearing Doggett's coat and badge, with the peculiar pine-apple button; 3rd. James Messenger, of Kingston, with the coat and badge of the Thames National Regatta; 4th, Henry Kelley, of Putney, an athlete, in rowing costume. Each figure stands on an octagon dwarf pedestal. On the panel nearest the Fulham-road is the inscription—"Sacred to the memory of Robert Coombes, champion sculler of the Thames and Tyne, who departed this life February 25, 1860, aged 52 years, and was buried near this spot." On the Earles-court side—"This monument was erected, by public subscription, by the warm friends and admirers of Robert Coombes, champion sculler of the Thames and Tyne. Committee: John Barrett, Andrew Wentzell, Fred. Chandler, Nat. Rolls, Charles Maxwell."

The newspapers have described this monument as "a splendid piece of carving!" We should not like to be by when the "intelligent foreigner," of whom we often hear, went down with this eulogy in his hand to see what English people thought a piece of splendid carving. Flight would be our only resource. The thing is so entirely bad and vulgar, so ugly as a whole, so execrable in the details, that any explanation would be out of the question. The managers of the cemetery should surely exercise some control to prevent outrage of public taste. It is deeply to be regretted that money and good intentions have here been wasted.

THICKNESSING WALLS: METROPOLITAN BUILDING ACT.

In a case recently mentioned in our columns (p. 892), a builder, having erected some houses with walls of sufficient thickness for three stories, ultimately put rooms in the roof, making a fourth story, and thus rendered the wall of ground-story insufficient in thickness. The district surveyor objecting, the builder added to it 4½ inches of brickwork in Portland cement, with iron bond; drawing bricks occasionally to form bond. The district surveyor thought this was not a wall properly bonded together according to the Act, and took the case before the magistrate. Witnesses on the

part of the builder proved that the work was well bonded, and the magistrate dismissed the summons.

The superintending architect, Mr. Vulliamy, has addressed a circular letter to the district surveyors, expressing a hope that this case will not be taken as a precedent, pointing out that it was exceptional,—a special question of fact,—and urging the district surveyors to get builders to do work properly, and in compliance with the Act.

We are much disposed to think that in a similar case, all a district surveyor can do is to insist on the thicknessing being done in the best possible way, and bonded, as far as practicable, to the wall already up. It does not seem likely that any magistrate would either prevent a man utilizing his roof, on second thoughts, or compel him to take down and rebuild the wall of his house to make it of the necessary thickness if the builder gave evidence that he had by other means brought it to the thickness required by the Act, and that it was fairly sound. Mr. Vulliamy, by the tone of his letter, evidently sees the difficulty, and would probably agree with us in thinking that it would not be at all advisable for district surveyors to be constantly taking matters before the magistrates on questions that had been previously decided adversely, and so experiencing renewed defeat.

"LIGHT—MORE LIGHT!"

Two remarkable papers of architectural optics, one of useful truth and one of pure error, come together in the last *Builder* (p. 920); and in clearing the ground of the latter, we shall make the utility of the former more plain.

Mr. Tarn does not indicate the part of Sir J. Herschel's treatise, from which he supposed his extraordinary conclusions might be drawn;* but it is plain he can only have started from some place where that philosopher considers the relative illuminating effects *on a horizontal surface*, of an identical source of light, at different altitudes, or by equal portions from various parts of a uniformly bright sky. If this page be spread on a level table, and lighted by any single luminary, say a candle, of course its illumination will be as the sine of that luminary's altitude above it, or cosine of its "zenith distance;" and so, if we call the effect of a square foot of skylight overhead 1,000, that of a square foot of the same brightness and equally distant, but 30° from the zenith, will be, as Mr. Tarn says, 866; or at 45°, 707; at 30° of altitude, 500; and in the horizon or plane of the table, *zero*. Let the table travel through a tunnel whose axis points to open sky (which very few railway tunnels do at either end), and we may grant it will receive, when under a shaft, all possible light therefrom, and none from the tunnel-entrance. Now, let it be a turn-up table, and just turn it to face the entrance; lo! our cosines are reversed,—the horizontal sky is worth everything, and the zenith worth nothing.

Jurisprudence then, you see, can take no account of how much of the light that a given space receives, or is entitled to, is suited to a surface of this or that direction, but must simply estimate all that reaches the point, or all that a small globe would receive there. Now a globe exposed to the entire sky, but with the sun and its surrounding glare abstracted, will doubtless be twice as much illuminated on its top as on any horizontally facing point, or would be so over an earth wholly of black velvet, —this merely depending on the fact that the whole sky (whatever the law of its variation) must give twice the light that a symmetrically-cut half of it gives. But when Mr. Tarn integrates on to the result that the portion within 45° of the zenith, being but 293 parts in 1,000, yields as much light as the other 707 parts, the simplest experiments with screens, a tub and a cask-head or two, will enable any one to find how wholly the learned integrator is "at sea;" the sky he describes being literally that of fishes in a deep sea, and no approach even to his downward gradation from light to dark being ever seen elsewhere but in the rarest combinations of fog and thunderstorm.

In our common English overcast condition of sky, the value of every part is sensibly uniform, and by experiment the lower half, or 30° from the horizon, will never, I believe, be found to give *less* light than the upper half, or 60° from the zenith, supposing the sun's place either invisible or just on the circle dividing them. But a more important fact is, that in clear weather, or with a sky proper, and the same proviso, the lower 30° will always give you very *considerably more* than the upper 60°. This fact, and the upward deepening of colour, known to every painter, I suppose, who ever limned away from South Kensington, or before the present lustrum, depends on, and is a testimony to, a cardinal point of modern discovery, that the light we call sky is simply that reflected from all the particles of air lying in any line of sight that meets no other body. The barometer proves that vertically over us we have to look through as much air or other matter as is equivalent to a little more than five miles of what we breathe at the sea level. Whatever height this may expand to then, which is quite unknown, if we suppose it compressed into these five miles, we should look horizontally through as many miles (of that same density) as are a mean proportional between five and the earth's diameter. This is above 190, so that the horizontal line must encounter above 38 times more air than the vertical; and if the air particles only reflected without absorbing light, the horizontal sky would be 38 times brighter than the zenith. It is not so many, but is, I believe, *several* times brighter, even at the sea level and in our climate. What has greatly surprised me, it is not only visually but chemically more active. It has not simply, as we might have supposed, the same amount of blue as the zenith, only neutralized by the additional orange; for we now see some undoctored photographs with a delicate deepening upwards, proving the zenith to be the point of least photographic action, and therefore yielding even the least *blue* rays, though still less of any other kind.

Absorption alone prevents the brightest sky, being quite so low as the horizon, here or perhaps in any climate, unless we go to a considerable elevation. Yet it is often as low as 5° in the clear days even of London.

Our surveyors, then, cannot improve on their common rule, that the light obstructed from a window is simply as the area of sky hidden, for with our commonest condition of sky this is strictly true. It must be remembered that if any refinement were to be introduced for the varying values of the parts of the sky, it must be directly contrary to Mr. Tarn's, and allow most value to the lower parts. With only 45° from the zenith left open, a window, instead of retaining 500 parts of the natural 1,000, or any *more* than the 293 of their present rule, has in all clear weather decidedly *less*, and in no other case more.

This connects itself plainly with Sir David Brewster's suggestions, who has shown undoubtedly that the only way to get the *utmost possible* light through a given aperture involves covering it with ground glass flush with or beyond the outer wall face. And this would have been stumbled upon by our classic shammers of the last half-century, if one had ever, in a single instance, brought to that noble art a decent instalment of even the brains necessary to sham well! To think that their precious Parthenons and National Galleries might all the while have had any amount of real window, with no visible windows at all!—and the light helped by the very means of concealment.

But coming to the practical suggestion for narrow streets, the law will not allow us in London to place sashes in the outer plane of the wall, even were the arrangement structurally simple, or capable of being made sightly within or without. Now, observe that the effect is not, after all, an introduction of any more light into the room, but simply depends on the diffusion through it, of that portion which, coming from near the zenith, is now all concentrated on the inner sill, window-seat, or portion of floor adjoining it, or which, coming from the ends of the street, is now spent on the "reveals," frames, and inner jambs or shutter-fronts. All the latter portions can be saved as well by merely a proper treatment of these surfaces themselves, splaying them slightly inwards, not many degrees, but alike through the whole thickness of wall, outside the glass as well as within, and then making them reflective; a dead white being only *half* as good as metallic reflexion, for the former sends off the light in all directions equally, but the latter wholly into the room. Now, as all this would have to be done equally, whether the outer ground glazing be present or not, the latter, we see, is only really required for the zenith light. Suppose the width of sky, whose light is practically wasted on the sills, or window seat, to be 15° from the zenith outward. Then we can intercept all this by much less ground-glass than what would fill the whole aperture; by the upper fourth part only of what would cover it, if we place this as a hood or pent-house, projecting from the window-head. But this would, if horizontal, disperse only half its light inwards, half outwards, and more would fall into the street than into the house. Inclined 15° downwards, at which angle it requires the least breadth to intercept the above supposed light, it would still only utilize about half. Incline it more steeply, and when as steep as 60° it will be found to send the great majority of its light into the room. Of course, the steeper its slope the greater depth of it is required to hide from the sill the proposed amount of sky. Still, it is evident how a third or less of the ground-glass employed in Sir David Brewster's plan would thus produce *very nearly* all the effect of that plan, without obstructing the view from within. It would be additional, indeed, to the sash glazing, instead of being a substitute for it; but equally additional are the hideous "Patent Reflectors," which I conceive these ground-glass hoods would perfectly supersede. It must be remembered, however, that to get their full effect it would always be necessary to make the soffite and upper parts of the jambs reflective, and each as far as possible an unbroken plane; and reflectiveness will even make a great difference in the few inches surface of the upper parts of the sash and its bars.

The experiment in the mausoleum, whose darkness was reduced by a handkerchief over the window, is the more instructive if we remember that the whole amount of light entering must have been very materially lessened, namely, by all that the cambric either absorbed or reflected outward, the latter far more than ground-glass would do—indeed, as much, probably, as opalescent glass, which is quite unfit for these uses, to judge by its vivid whiteness viewed from without. Yet the light, with all this reduction, was so much better distributed as to enable the visitors to see, and conveyed the idea of more having entered.

EDWARD L. GARBETT.

* The paper was written without any knowledge of Sir David Brewster's address.—ED.

ARCHITECTURAL UNION COMPANY.

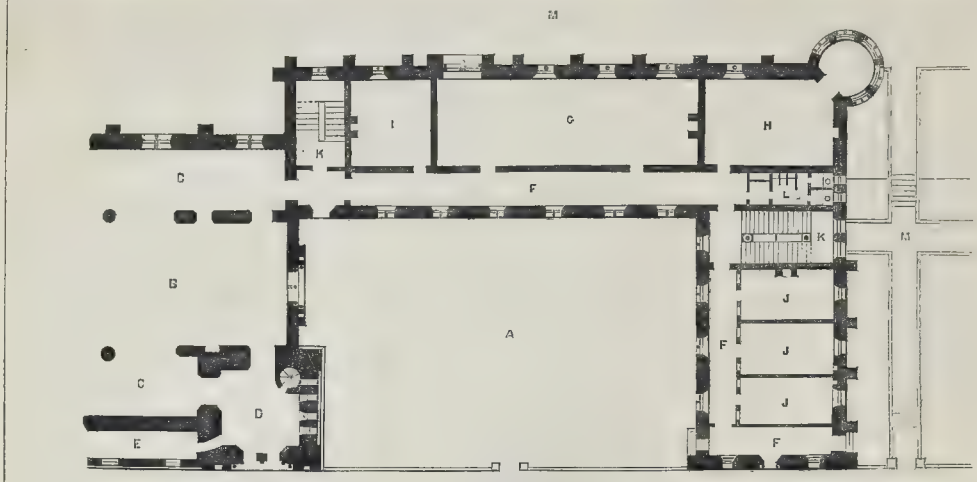
AT the last annual meeting of the shareholders, Mr. D. Brandon in the chair, a dividend at the rate of 5 per cent., free of income-tax, was declared. Mr. Mair, Mr. C. C. Nelson, Mr. C. Mayhew, and others took part in the proceedings, and congratulated the shareholders on the position of the company. The directors, we understand, have voted the sum of 25*l.* from the dividends arising from the Donation Fund, to the Architectural Museum new building fund.

THE ROYAL ACADEMY.

THE *Athenæum*, strange to say, is recommending the council to adopt the alphabetical arrangement which obtains at the French Gallery, Pall Mall. "There the works of each artist are grouped in successive numbers, the painters' names being in alphabetical order, and the numbers of the pictures—as they appear on the walls—not necessarily, as with us, in sequential order. By this arrangement the visitor sees at a glance to the catalogue the whole of each contributor's works, and can readily learn who sends, and who does not do so."

What can our esteemed contemporary be thinking of in offering such advice? It is not merely not a good system that is recommended, but one perfectly abominable. The only possible excuse for it is its applicability to a collection in which pictures may be shifted and substituted as sales take place, or fresh ones arrive. Imagine a visitor bent, as thousands annually are, on going regularly through the Academy collection, picture by picture, and having to turn from leaf to leaf to find the corresponding number in the catalogue. It could not be done: the labour would daunt the stoutest. Nor under such an arrangement there, could a picture of which the seeker knew the name and number, be found. Our contemporary is so often listened to, that we deem it necessary at once to make a protest against the plan proposed.

The president, when lately distributing the



GROUND PLAN.

ST. VINCENT'S PRESBYTERY, CORK, IRELAND.

medals won by the pupils, expressed the desire of the Academy to promote the study of architecture, and at the same time the regret and astonishment they had felt that the prize offered to architectural pupils had not for three years obtained a competitor. He hoped in the coming year for a more encouraging result. Sir Francis Grant then delivered to the students the first discourse since his election as president. He urged the students to cultivate high tone of mind and gentlemanly feeling, as sureties of success in after-life. There was for all of them one special cause for congratulation. They knew that notice had been received to quit the premises in which they were now assembled; but they had obtained another site equally good, where they would be able to provide exhibition-rooms double in extent of the present. It was not intended that the Academy should in consequence receive an inferior class of works. The high quality of the exhibition would be maintained, yet he hoped that every picture accepted on its merits might obtain a place.

OFFICERS OF HEALTH AND THE NEW BUILDING ACT.

At the ordinary general meeting of the Metropolitan Association of Medical Officers of Health, held on Saturday evening last,

Dr. Liddle called attention to the bill proposed to be introduced into Parliament by the Board of Works to regulate the construction and use of buildings and the formation of streets and drains in the metropolis, and pointed out what he considered numerous defects in it which required to be remedied, in order to render the measure beneficial in a sanitary point of view.

Mr. Rendle concurred as to the necessity for some alteration in the proposed Bill, and moved a resolution to the effect,—

"That the proposed Metropolitan Building and Management Act now prepared by the Metropolitan Board of Works be referred to the General Purposes Committee, for the purpose, amongst others, of forming a deputation to the Metropolitan Board of Works, with the view of urging extensive additions and alterations, so that the Act may be made to include as much as possible regulations for the promotion of public convenience so far as a building Act can be expected to provide for it."

Dr. Lankester seconded the resolution. He said that sanitary legislation, so far as it had proceeded up to the present time, had been a perfect mockery. No attempt had been made to make the authorities responsible for sanitary defects. Even the Sanitary Act of 1866, from which so much had been expected, would prove a dead letter. It was too permissive in its provisions, and until more imperative powers were obtained from the Legislature to enforce sanitary regulations no good could be done.

Dr. Orton supported the resolution, and said that defective buildings had been a fruitful source of disease in the district of Hackney, with which he was connected. During the recent visitation of cholera those houses which had no accommodation in the rear and were badly ventilated were the principal haunts of the disease.

The resolution was unanimously adopted.

ST. VINCENT'S, CORK.

The Roman Catholic Church of St. Vincent, in Cork, was commenced about ten years ago from the designs of Sir J. Benson. The walls of the nave and chancel alone were erected under his superintendence, and the building remained for some time in an unfinished condition. At length Mr. G. Goldie was called in, who altered the interior, and added the altars, screens, stalls, and other fittings. The altars and screens are of Caen stone, richly sculptured, and adorned with mosaics and shafts of Irish marble. The stalls are of solid oak, elaborately carved, and inlaid with other woods of a more valuable description; they are supplied with misereres. The east window is filled with glass by Wailes.

This church is now being completed by the addition of one bay to the west of the nave, 18 ft. deep; a large square tower, 140 ft. high, at the south-west angle; west front, two deeply-recessed porches, and a sacristy, 40 ft. by 24 ft., with a chapter-room over of the same dimensions and a *sanctus* bell turret at the angle, the base of which forms a porch. In addition to the completion of the church, a presbytery of large dimensions is being erected. This building, with the west front of the church, forms three sides of a square on the south side. It is two stories high, but owing to the rapid fall in ground the north elevation is three stories above the basement. This elevation overlooks a charming and romantic valley; and, as it is seen for many miles round, the architect has made it his chief front, and all the principal apartments are arranged in it. The basement will contain a large corridor or cloister, 80 ft. by 22 ft., lighted by large three-light windows, with geometrical tracery in the heads. Internally it is vaulted, and supplied with stone seats in the deeply-recessed window splays. Opening out of this is the refectory, 30 ft. square, the roof of which is of massive timber, supported upon a cylindrical column in the centre, with the dining-table arranged round it. Above the large cloister is the library, 60 ft. by 22 ft., and a parlour, 22 ft. by 18 ft., and over the refectory is the community-room, 30 ft. square. At the north-west angle is a circular turret bracketed out and forming a large bow window to the community-room, and two chambers above. This turret is capped with a tall conical roof rising above the surrounding buildings. Over the library and community-room are two stories of bed-chambers. The kitchens and offices are in the west wing. The principal entrance for strangers is at the south end of the same wing; this entrance communicates with the chief staircase, which is of stone. There is another entrance, for the clergy, at the east end of the north wing, on the south side, where the building joins on to the church, and an entrance from the aisle of the church; these two latter entrances communicate with a large staircase of stone, supported upon pointed arches, and columns of red marble. There are large visiting parlours, porter's room, &c. in the west wing; and a tribune, communicating with the house at the west end of the north aisle of the church. The materials used are the native red sandstone, with grey limestone dressings. Mr. Barry McMullen, of Cork, is the builder. Our view represents the Tower, west front, and a portion of the new presbytery.

REFERENCES.

A. Fore Court.
B. Nave.
C. Aisles.
D. The Tower.
E. Passage communicating with Sacristy.
F. Corridors.
G. Library.
H. Community Room.
I. Parlour.
J. Parlours.
K. Staircase.
L. Lavatories, Urinals, and W.C.
M. Terraces.



ST. VINCENT'S, CORK: CHURCH AND PRESBYTERY.—MR. G. GOLDIE, ARCHITECT.

OLD LONDON: ITS STREETS AND THOROUGHFARES.*

Now let us return to our maps and views. In the drawing of Van Wyngerde may be noticed a palatial building on the east side of the High-street, Southwark; that is Suffolk House, the residence of the Charles Brandon, Duke of Suffolk, who married the Queen Dowager of France, sister of King Henry VIII. Opposite is the Church of St. George, and further on, near the bridge, is the grand church of St. Saviour's, or St. Mary Overie. A monastery was founded here in very early times, and the present church was rebuilt in the fourteenth century. In this church lies buried the poet Gower, and here William Shakspeare buried his brother Edmund, "a player."

Now, turning westward near the river, we find a high-roofed hall; that is Winchester House, once the residence of the Bishop of Winchester, now the Vinegar-yard of Mr. Potts. Then in Vischer's fine view you will see the Globe, the Bear-garden, and the Swan. The first of them is the theatre, where the wondrous plays of Shakspeare were acted: rude-looking structures they are, only partly roofed, and it is difficult to imagine how room was found to represent the plays and hold an audience. In the days of good Queen Bess, I fear that bear-baiting was a more attractive amusement than the drama.

Now, again, we will turn to notice his beautiful view of Old London Bridge. A most picturesque object it is. A bridge constructed of wood existed here in very early times, but being burnt, it was resolved in 1173 to build it in stone,—a work which it took thirty-three years to accomplish. The architect was Peter of Colechurch. In the sixteenth century the bridge was crowded with buildings, leaving a narrow street in the centre.

Approaching from Southwark we pass under the Castellated Gate Tower, surmounted by human heads stuck on poles. Then we see a singular building called Nonsuch House, formed of wood much ornamented. In the centre of the bridge, the Chapel of St. Thomas, a picturesque structure, projects on one of the great Sterlings. The whole roadway of the bridge is lined with shops. In one of these, in the sixteenth century, lived a wealthy clothworker, named William Hewet. He had an only daughter, who one day slipping from the arms of her nurse, fell into the surging river. An apprentice of the clothworker, named Osborn, saw the child fall, jumped into the river, and was fortunate enough to save her. You may imagine what followed in after-time. The worthy cloth-worker was grateful, the daughter was handsome, and so was her dowry. Young Osborn married her, was afterwards Lord Mayor, and the descendants of the apprentice and the daughter of the cloth-worker became Dukes of Leeds.

Looking eastwards from the bridge, we notice Billingsgate, a small harbour surrounded by gabled houses and an octagon tower. Then a little further on is the Custom House, with, apparently, a very limited business. Then there is the Tower.

Now, I propose to take boat at the foot of the bridge, and by water to view the pleasant palaces, and castles, and convents, which in those days adorned the banks of Father Thames. Many of these were surrounded by pleasant gardens, whose trees were reflected in the clear flowing stream, which was crowded with wherries and pleasure-barges, trimmed with gay coverings—for the river in those days was the great highway between the City and Westminster.

Hither passed the royal barges, with banners spread aloft, and here also the Lord Mayor and great City companies went in procession in their state barges,—a glorious spectacle, which was shadowed even in our own days, until a too close economy caused these state barges to be sold; and thus we lost the most picturesqe pageant which remained to us.

I will take as my principal guide the view by Vischer; and to render this more intelligible, I have, with the aid of my son, prepared a drawing on a larger scale, which shows more clearly the various buildings I shall allude to.

The first building of importance past the bridge is Fishmongers' Hall; then we see a large structure called Cole Harbour, a corruption of Coln or Cologne Harbour, belonging to the Rhenish merchants; and the site of Poultney Inn, once the residence of the great Duke of Exeter. Next is the Steleyard, or Stele-ale, an exchange for German merchants. Then, passing Dowgate, the Three Cranes, Queenhithe, and other wharfs, we come to Baynard's Castle. This was originally a Norman fortress, often used as a royal residence, and it was here that Richard III. had himself crowned. Then we pass the great monastery of the Blackfriars; and on the other side of the Flete Ditch is Bridewell, at that time a royal palace of great extent. Here King Henry VIII. resided with Queen Katherine, pending the trial of divorce. Next is Dorset House, the residence of the Earls of Dorset; and in the garden of this house, nigh the river, was built, in 1670, the Duke's Theatre. Adjoining is the sanctuary of Whitefriars, the Alsatia so well described in the "Fortunes of Nigel." The hall of the convent was made into the Whitefriars Theatre.

Now we arrive at the Temple buildings, then as now pleasantly situated in a garden; as Spenser says:—

> "Those bricky towers
> The which on Thames' broad aged back doe ride,
> Where now the studious lawyers have their bowers."

Then we see Essex House, where Queen Elizabeth's favourite resided, and whence he attempted the rebellion which cost him his life. Passing Arundel House, we reach Somerset House, the palace designed by John of Padua for the Protector Somerset, built on the site of the Bishop of Worcester's and other houses; it could have been scarcely completed before he lost his head. King Edward gave this palace to the Princess Elizabeth, and Queen Anne of Denmark also resided here.

The next palace is that of the Savoy, the residence of the great Plantagenet Dukes of Lancaster; here the poet Chaucer lived, and was married, and wrote his poems. The mob under Wat Tyler having a special hatred to John of Gaunt, despoiled and burnt it; being rebuilt, it, in later times, became a prison; some parts of it still remain. Then we pass Worcester House, now Beaufort-buildings, and Salisbury House, now Cecil-street.

The next palace has a special interest for us; it is Durham House, once the residence of the bishops of that see, and afterwards of the ambitious Dudley, Earl of Northumberland.

Few of you probably remember that the house of the Society of Arts stands on the grounds, if not on the site, of old Durham House, where poor Lady Jane Grey was married to Lord Guildford Dudley, where she lived,—and whence in a few short months she was taken to the Tower, there soon to lose her head, poor lady! Afterwards Sir Walter Raleigh resided here, by grant of Queen Elizabeth. Aubrey mentions a turret overlooking the Thames, in which Raleigh loved to sit and write. Then it came into possession of Robert, Earl of Salisbury, who took down the stables next the Strand, and built there a new exchange, called Britain's Burse; and about 1770, the brothers Adams built the terrace (the Adelphi), and the house of this society was completed in 1774.

Now we pass on to York House, formerly belonging to the Bishops of Norwich, afterwards to the Archbishops of York; then to Sir Nicholas Bacon; and lastly, in the time of James I., to George Villiers, Duke of Buckingham, whose possession is recorded in George-street, Villiers-street, Duke-street, Of-alley, and Buckingham-street. All that remains is the beautiful water-gate of Inigo Jones.

Next is Northumberland House and garden, on the site of what was once the Abbey of St. Mary of Roncesvalles. It was once called Suffolk House, and came to the Northumberland family by marriage.

We pass Scotland-yard, where was formerly a palace of the kings of Scotland, and then we arrive at the palace of Whitehall, anciently the residence of the Archbishops of York. It was rebuilt and splendidly furnished by Cardinal Wolsey, and from him it came to King Henry VIII., who made it his royal palace, henceforth to be called Whitehall. It continued to be the residence of our sovereigns till 1688, and was destroyed by fire in 1697.

The engraved plan of Whitehall Palace will be found interesting.

Having at last reached the Palace of Westminster, we will land at the Stayres, and enter Palace-yard by an arched gateway. Here was a tower of stone, containing a clock, with a great bell. Whether this is the one alluded to by old Stowe, which "sowered all the drinke in the towne," I do not know. Near this also stood a fountain, which at coronations and great triumphs was made to run with wine out of divers spouts. In the court now called New Palace-yard, the wool staple was held.

I will not attempt a description of the palace or the abbey adjoining, but refer you to the illustrations. The chapel of Henry VII. was then in its full beauty, and the towers and other parts of the abbey had not been contaminated (I grieve to use this word) by Sir Christopher Wren.

We will pass under the gates of Holbein, up King-street to the Tilt-yard, the site of the present Horse Guards. On the left is the Cock-pit, on which now stands the Treasury. Then we proceed to Charing Cross, where stood the most beautiful of the crosses erected to Queen Eleanor.

Before us we see the Royal Mews, where were kept the hawks of the king. It was afterwards adapted for stabling, and the word mews has since been transferred accordingly.

Looking again northward and westward, we are now again in the country, even up to the period of Faithorne's map. We turn to the left and pass up an avenue called Pall-mall to St. James's Palace. The name of Pall-mall is derived from a game played with wooden mallets and balls, greatly resembling our modern game of croquet. Turning again we see a country lane, called the Haymarket; and continuing our route, we reach a building called the gaming-house, and opposite to it is a road running westward, described as "from Knightsbridge unto Pikadilly Hall," and in the Aggas map called "the waye to Reddinge." Proceeding, according to this latter map, across fields where women are laying out linen to bleach, we reach the long acre field, and see the convent garden, enclosed by walls extending from St. Martin's-lane to Drury-lane. Referring, however, to the Faithorne map, we find this space now covered with houses, except a small area, called the Piazza, but which is now Covent Garden. Adjoining is Bedford House and garden, built by the Earl of Bedford, on the remains of the old monastery.

Now we enter the Strand, the high road between the City and Westminster.

On the south side are the various mansions of the nobility bordering the Thames. On the north side there are yet but few houses, as will be seen by referring to the Aggas map.

Opposite the Savoy is the mansion of Lord Burleigh, afterwards called Exeter House, and in after years turned into Exeter Change, a kind of bazaar below, and a manageric on the first floor. We pass Wych-street, formerly Old-wyche, meaning "old farm," where is Drury House, and we reach the block of houses called Butchers'-row, frequented originally by free-trade butchers, in opposition to the City protectionists—a mass of tumble-down houses with projecting fronts, long since removed.

We next come to Temple-bar—not a gateway, but a bar, made to rise and fall, marking the entrance to the City boundary. Beside it is the "Devil Tavern," in which Will Shakspeare and his friend Ben Jonson often caroused.

Entering Fleet-street, the houses are more closely built: their gabled fronts, mounted with carved barge-boarding and timber framing, present a varied and picturesque effect. On the left is Chancery-lane, where the Archway of Sir Thomas Lovell had been recently erected, forming an entrance to the Lincoln's Inn, on the site of an old monastery of Blackfriars.

On the south side of Fleet-street lies the Temple, with its ancient church. At the end of Shoe-lane stands the Conduit, erected about 1478, with the figures of angels; and before each are bells, on which are struck by machinery the hours of the day and night. On the right, further on, is the Church of St. Bridget, now called St. Bride's. We cross a bridge over the Fleet river, and pass the great palace of Bridewell. Then, mounting the hill, we enter the City beneath the arch of Lud-gate, and behold again, in all its grandeur, the Cathedral of St. Paul. At the north-western corner is the famous Paul's Cross, whence the most celebrated preachers were accustomed to address the citizens, and where fair ladies sometimes did penance. Thus old Hollinshed tells us of Jane Shore:—"Here, in her penance, she went, in countenance and pace demure, so womanlie, that albeit she were out of all araie, save her kirtle onlie, yet went she so faire and lovelie, that many good folke that hated her living, yet pitied they more her penance than rejoiced therein, when they considered that the Protector procured it more for corrupt intent than

* See p. 917, *ante*.

any virtuous affection." The cross was pulled down by order of Parliament in 1643. The engraved view gives a good idea of the place.

The Church of St. Paul was probably the largest in Europe. The spire was quite the highest, but was destroyed by fire in 1561. At this time the old church had been much injured, parts were in bad condition, and parts much abused by throngs of idlers; nevertheless it had glorious reliques. There was a fine tomb of William, Bishop of London in the Conqueror's time; and another of John of Gaunt and his wife Blanche of Castille; and the altars still glistened with gold and precious stones. On the southern side was a cloister in which was depicted the "Dance of Death."

Our old dramatists drew many of their characters from Old St. Paul's. Here Shakspeare found *Pistol* and *Bardolph*; here Jonson met *Bobadil*, "a Paul's man," *Master Stephen*, and *Fastidious Brisk*. But I must not detain you. Let us again look into Chepe. It is Midsummer Eve: the picturesque perspective of gabled houses, the sculptured cross, and the fountains are dimly shadowed in the twilight. The galleries of the houses and the windows are filled with groups of figures gaily dressed. Presently is heard the sound of trumpets, and a vast flood of light is seen approaching. It is the Festival of the Marching Watch. Onward comes the vast procession,—700 men bearing cressets, and with each a man also to serve it; besides which are 250 constables, each with his cresset, about 1,000 cressets in all. Mingled with these come 2,000 of the marching watch, some on horseback, some on foot; demi-lances, on great horses; gunners with their harquebusses and wheel-locks; archers in white coats, with bows bent and sheafs of arrows by their side; pikemen in bright corslets, and bellmen with aprons of mail. Following these came the constables of the watch, each in bright harness flaming from beneath his scarlet jornet, and with golden chains. Then came the waits of the City, and morris-dancers footing it to their notes; and then the mayor himself, on horseback, his sword-bearer, his henchman, his harnessed footmen, his giants, and his pageants; then the sheriffs in like order. Onward sweeps the mighty cavalcade amidst the assembled multitude lining the broad avenue of the Chepe; and so has passed one of the most picturesque pageants of the olden time.

Thus I have endeavoured to picture to you old London as it existed in the sixteenth and early part of the seventeenth centuries.

Sad changes were soon to come upon the old City. Firstly, the great plague, which in 1665 carried off about 70,000 victims, about one-fourth of the whole population; grass grew in the streets, which became silent and deserted; and in 1666 occurred that awful calamity the fire, which almost entirely destroyed the City. Evelyn, in his diary, gives a trustworthy account of it, from which I will read an extract:—

"Sept. 2nd.—This fatal night, about ten, began the deplorable fire neere Fish-street in London.

* * * * *

"Sept 4th.—The burning still rages, and it has now gotten as far as the Inner Temple; all Fleet-streete, the Old Bailey, Ludgate-hill, Warwick-lane, Newgate, Paules Chaine, Watling-streete, now flaming, and most of it reduc'd to ashes; the stones of Paules flew like granados, ye melting lead running down the streetes in a streme, and the very pavements glowing with fiery rednesse, so as no horse nor man was able to tread on them, and the demolition had stopp'd all the passages, so that no help could be applied. The eastern wind still more impetuously driving the flames forward. Nothing but ye almighty power of God was able to stop them, for vain was ye help of man."

This was the end of old London.

J. Gregory Crace.

In closing the discussion that followed the reading of this paper at the Society of Arts,—

Mr. G. G. Scott, who was in the chair, said Mr. Crace had rightly remarked that old London came to an end at the Great Fire of 1666. Happily, however, though it did in a certain sense come to an end, it left many interesting relics behind it. Time did not admit of Mr. Crace calling their attention to all the numerous relics of old London which still existed. Amongst these were some to which his attention had been more particularly called as an architect, and those he would briefly pass in review. Within the last few years some parts of the old Roman walls of London had been laid bare, and most interesting they were found to be; but, as he had not seen them himself, he would not speak further of them. Then they came to the Tower of London, built on the site of the ancient Roman citadel, and in itself containing probably the largest keep in Great Britain, built by the Conqueror himself and the great architect of the day, Bishop Gundulph. That keep, though much damaged by the enlargement of the windows and other alterations, was still most interesting, and still retained its beautiful chapel. A more perfect representation of a small and beautiful church of the Early Norman period could scarcely be found anywhere. It had lately been partially restored, and was a perfect model of a church, on a minute scale, of that period. Then the Tower contained numerous other remains. The old gateways and numberless other portions were of the highest historical and antiquarian interest, many of them rendered sacred by inscriptions carved upon their walls by great and often good men immured within its dungeons. Then he would mention the remains of St. Bartholomew's Church, in Smithfield, the work of Rahere, the jester, its "first canon, and first prior." That church, he believed, was begun about the year 1107; the whole of the choir remained, and it was now undergoing restoration. He had no doubt a great many persons had lived in London for years without having seen this church. Some remains of the monastic buildings still existed, but he remembered the time when more of the ancient accompaniments of the church were standing (including the walls, to a certain height, of the chapter-house), but they were destroyed by a fire among surrounding buildings in the year 1830, and the remains of the cloister had been subsequently taken down. Not far from thence were the remains of the gateway of the old monastery of St. John of Jerusalem, the outline of which was familiar to them from its forming the embellishment of the cover of the *Gentleman's Magazine*. Then there was that most beautiful monument, the Temple Church, the round part of which he would say was one of the most beautiful remains of the period of Fitz Stephen, and of the great transition from Norman to Gothic architecture. The choir was a most beautiful remnant of fully developed Early Pointed architecture. The exterior had been recently brought out to view by Mr. St. Aubyn, the architect to the Inner Temple, and the north side was particularly interesting. The internal beauties of that church, as restored some years back, were probably known to most present. Then there was the old church of Austin Friars, which narrowly escaped destruction by fire, and had been recently restored. Then they came to old Ely Chapel—the chapel of the London palace of the old Bishops of Ely—a most beautiful chapel, though dreadfully mutilated, of the date of about 1290. Then there was St. Helen's Chapel, Bishopsgate, and a number of old churches not so famous for their architecture as for the monuments they contained, many of which, if not of high antiquity, were of great interest. Amongst the secular buildings, they had the great Guildhall, the roof of which, destroyed in the Great Fire, had been recently restored very much in its ancient form. Then there was the charming old hall of Sir John Crosby's house in Bishopsgate, a beautiful specimen of the architecture of the fifteenth century. There had been till recently the remains of Gerard's Hall, but they were destroyed, ruthlessly he was afraid, not many years ago. He would mention one interesting little piece of antiquity which he had accidentally met with. In the construction of the railway at Farringdon-street the excavation had been bare, on what seemed to be the site of one of the wharfs on the Fleet, a kiln for burning the encaustic tiles which decorated the floors of ancient churches, and by the side of it was discovered a heap of spoilt tiles just as they had been thrown aside and left there. They had no remnants remaining of old London Bridge, but many present no doubt remembered it well. He went over it at the time of its demolition to make room for the new bridge, and he made a sketch of a curious little chapel in one of the piers. Beyond the bridge they came to the noble Church of St. Mary Overy, better known as St. Saviour's, a most noble early English church on a grand scale. The Lady Chapel and the choir were carefully restored thirty odd years ago by the late Mr. Gwilt, who was most anxious to restore the nave also, but, unfortunately, the roof was a little decayed. The parish employed a surveyor, who cared nothing about antiquities. The roof was taken down, and the nave, after being exposed to the ravages of several winters, was ruthlessly swept away, and there was erected on its site—perhaps considering what it had supplanted—the most wretched structure that ever disgraced London. Then passing along the south side of the Thames they came to old Lambeth Palace, one of the most magnificent of the few remains of the many Episcopal palaces which existed all over the country in olden times. It retained its beautiful Early English chapel and the hall of the fourteenth century, besides many other highly interesting portions. Last of all, though not exhausting the list, he came to Westminster Abbey, than which a more glorious monument of the architecture of the middle ages could not possibly be found. Externally, as they were aware, this structure had been very much damaged by decay and reparation. It had been refaced and restored till almost every vestige of the ancient work was gone; but internally it challenged for beauty every church he had ever seen in Europe. Looking at it from an antiquarian point of view, it contained considerable remains of the church and monastic buildings built in the late years of Edward the Confessor. Within the last few months there had been discovered, while removing portions of the pavement, the bases of several pillars of the Confessor's Church; and extensive remains of the same age existed in many of the other buildings of the Abbey. Then, again, they had considerable remains in the Norman chapel of St. Catherine, and the church itself was the most glorious specimen of the most highly developed architecture of the thirteenth century to be found in this country. One of the speakers had called attention to the Chapter House, the interior of which had, until lately, been almost hidden, but was now more thrown open to view, and an inquiry was made respecting the paintings there. He (the chairman) would say, that in his opinion these paintings ought not to be touched with any idea of attempting to restore them, and, if their decayed state detracted from the artistic effect of the building when restored, the fact that what remained was authentic and untouched would amply compensate for any loss of that kind. With regard to the interior of the Chapter House, he thought there was but little wanting really to enable them to restore it perfectly to its old form. He did not mean by *restoring*, the scraping it over and making it look new; all he should do was to restore those parts which had been ruthlessly destroyed, or from other causes lost. Everything now in its place he would leave untouched. Externally the same rule could not be applied, for it had utterly perished, and there was hardly a piece the size of his hand which retained its ancient form; therefore, they must make the exterior practically a new building. Internally, he hoped a large proportion would be the true Chapter House which was erected by Henry III., in 1553. Westminster Hall might be mentioned as one of the most magnificent banqueting-halls ever erected. It was first built by Rufus, and brought to its present state by Richard II. The Chapel of St. Stephen had, unfortunately, passed away. It was cased round with wainscoting when used as the House of Commons, and at that time they could see nothing of the internal architecture or decoration; but when this casing was swept away by the fire it seemed like a phœnix rising out of the ashes, for then its beauties came out most gloriously. Antiquaries present were aware that copies of the exquisite paintings which covered every part of its walls, made by John Carter some sixty or seventy years back, were published by the Society of Antiquaries. Those paintings came out to view after the fire, and were as clear as those around the room in which they were assembled. But in an evil day it was determined that that chapel should be taken down, though he and many others strongly protested against it. Happily the crypt beneath remained, and that had been very beautifully decorated by Mr. Crace under Mr. Barry, the architect. The only other antiquity of importance connected with the Palace of Westminster remaining was the beautiful cloister of Henry VII.'s time, which was the cloister of the canons of St. Stephen. It was a cloister of two stories, and an apsidal chapel projected into the courtyard from the western side on each story. He would allude once again to that great but lost structure of the Middle Ages, Old St. Paul's. Those who were interested in that magnificent building would do well to consult the description given of it in Dugdale's book, as well as the numerous views of it such as those now exhibited by Mr. Crace. He believed he was correct in saying it was in its day the largest and loftiest cathedral in Europe. Its steeple overtopped those of Strasburg, Vienna, or Antwerp, and its beauty was proportioned to its magnificent extent. The nave and transept were early Norman, of the character of Durham, Ely, and Peterborough, and other great Norman cathedrals. Its choir was, in character and date, like that of Westminster Abbey, though without its apsidal termination, and its eastern chapels. On the whole, it was one of the proudest monuments of Mediæval art. There had arisen in place of it a magnificent building; but they could not but regret that they had lost so glorious a structure connecting them with bygone ages.

THE DWELLINGS TO BE PROVIDED FOR THE POOR.

Sir,—As a regular reader of your periodical, I was much struck with Mr. Kerr's inadequate proposal for the working classes, and most cordially agree with your remarks as to the comfort being kept up for the working man's wife; viz., the great boon oven and boiler are to the wife to cook and make the most of the food by the advantages an oven affords, is invaluable.

As one who has lived in the Metropolitan Buildings some years ago, upon two occasions, I can speak as to the comfort of them; but the rents are high, and persons who can afford to pay for a house get into them, to the exclusion of the strictly-speaking working man.

I have made several attempts to get into the Palmerston and Peabody buildings, but there are always more applications than can be accommodated. Were there as many of the class of buildings again there would be plenty apply; but what is most needed is a reduction in the rents: say, what is now 5s. 6d. let it be about 4s., and the working man like myself will be too glad to avail himself, not to have to go a long journey home after his day's work.

Alderman Waterlow's are an improvement; but even there, although they pay, it is still high rents, comparatively.

Let any one visit Miss Burdett Coutts's, now finishing, and there you must take a suite of rooms,—say at 12s. or 13s.,—and sub-let, having two families on the same floor, and every sound heard from each family, which is not always agreeable. Or take another instance, in North-street, Whitechapel: houses lately erected and let out in tenements, where are fifty or sixty adults and children in one double house, with four water-closets for accommodation; no play-ground save the street; no back-doors to houses,—promoting ague and rheumatics,—and the rents high, with but little comfort. Could some of your promoters of industrial dwellings live in some of these, they would be led to say something can be done for the comfort of the working classes, and at a lower rent.

If Alderman Waterlow's scheme can be made to pay, as it does, 6 per cent. yearly, would not a scheme for the many? But the houses must not be too long a distance from the metropolitan centre, where so many have to labour and return to their homes, and also the working part of their family.

Paterfamilias.

Sir,—When I read the statement by Professor Kerr, published in the *Builder*, I could not help wishing myself an A.R.I.B.A., with the educational acquirements of its members, that I might express my opinions on some of the propositions there made; and so strong is my feeling that I cannot refrain from addressing you on the subject, knowing that you will use your discretion as to whether the publishing this letter may aid the cause; and if in my remarks I speak somewhat egotistically, it is because I know my own case and believe it to be no exception,

but only one of thousands among the poor. I am a journeyman, and as such, perhaps, would be reckoned by Professor Kerr above the class he is considering, but bad health places me considerably below the mechanics' class in the wages table; in fact, compels me to live in one room, and so places me in the class directly interested in this question. Professor Kerr proposes to increase the number of one-room tenements. Doubtless, in a town like London, there will always be a demand for such; nay, worse, for half and quarter rooms, I fear, or the lowest form of shelter that can be obtained; and if it is a mere question of shelter only, why not stick up a lot of rooms any how, so you get them up; but if it is a question of better dwellings, give us, by all that is healthy, more than one room. I have a wife and two young children, and all other things being the same, should regard it as a great blessing if I could get two rooms for the rent (3s. 9d. weekly) which I now pay for one. Now to the kind of room proposed. Such a room would not meet the demand for single rooms generally: the rent is too high; and the rooms would be absurdly large for a single person, either male or female; so such a room can only be supposed to meet the wants of small families; and where are its advantages in this respect? It would require an immense quantity of firing to keep it warm in cold weather; it would not save work in cleaning; for one of the greatest domestic difficulties of a poor man's wife is struggling to keep one room tidy, when there are three or four persons living in it; and a large room scantily furnished has a most wretched and comfortless appearance. Again, as to economy in construction: it seems, as far as the details were explained, to be the intention to build them in rows, one room deep and four or five rooms high, with balconies front and back, which balconies, though they would be useful in many ways, would keep out the light more than is desirable in London. Supposing stairs in front balcony, with door opening into room and door on to back balcony, so that no passage would be required, and a regular party wall between each pile of rooms, each room would require 18 ft. of front and the same of back wall, with one party-wall 20 ft. Now, instead of this arrangement, suppose each tenement were made 26 ft. deep by 13 ft. wide, this would give nearly the same area as 20 ft. by 17 ft., and a partition across would divide it into two good rooms 13 ft. by 13 ft.; this would require 14 ft. front wall, same of back wall, and 26 ft. of party-wall; and assuming the party-wall to be as expensive as the external, there would be 2 ft. × height and thickness of wall, with a shorter span for timbers against Mr. Kerr's arrangement, as also a narrower frontage, which is sometimes a great advantage in town building. Again, Mr. Kerr proposes to provide one common W. C. He does not say for how many tenements; and excuses the proposition by saying that "the poor did not regard many things as indelicate which persons in affluent circumstances viewed with natural repugnance."

Sir, this is a great mistake. It is true circumstances sometimes prevent our being quite so fastidious as are our wealthy neighbours, but no tongue can tell what feelings of delicacy the poor have to stifle in these matters. Nay, more, what inconvenience and, perhaps, positive injury they suffer. And I have heard men who, from their language and manners, would not be set down as particularly sensitive, complain of the annoyance of a single accommodation for a house full of lodgers. I would lay it down as a rule that one W.C. should not, under any circumstances, serve for more than two families.

Again, Mr. Kerr would "do away with all such complicated and expensive matters as cooking-ranges: the poor would rather cook in their own way than be liable to pay for apparatus which they might injure in using." I never yet knew the poor man's wife who (except she had one) did not wish for a good cooking-stove, especially the oven; and I do not see that they need be either complicated or expensive, though there is, perhaps, much room for improvement in this matter. To conclude, Sir, I would give up the most moderate wants, in the shape of a home, of the poor family to be *two rooms communicating*, in one of which is a good cooking-stove, water and a sink on the same floor, and a W.C. used by not more than two families at most. Any arrangement which gives less than this, may provide shelter, but it will not improve the dwellings of the poor. W. J. D.

ECCLESIASTICAL FIXTURES.

Sir,—Is a kitchen range in a vicarage-house a fixture, and to be valued, and paid for by an incoming vicar, where the incoming vicar agrees to take the fixtures at a valuation? X. Y. Z.

*** In Burn's "Ecc. Law," p. 304, 8th ed., it is stated that,—"If an incumbent enter upon a parsonage-house, in which there are hangings, *crates*, iron backs to chimneys, and such like, not put there by the last incumbent, but which have gone from successor to successor, the executor of the last incumbent shall not have them, but it seemeth that they shall continue in the nature of heirlooms; but if the incumbent fixed them there only for his own convenience, it seemeth that they shall be deemed as furniture or household goods, and shall go to his executor."

CHURCH DECORATION.

Sir,—In a recent number of the *Builder* was an account of the decoration, &c., of the Church of All Saints, Bristol. This is one of the many cases that have occurred lately of buildings being handed over to the decorator without the intervention of an architect; and a most mischievous thing it is.

I lately saw the church named. It is an old one, of the Perpendicular period. I was disgusted to find that the aisles had flat plaster ceilings with plaster drawing-room centre-flowers and cornices to match! This is the work so interestingly described as being painted "*a soft blue with centres etched in gold*,"—the regular house decorator's style. Why, sir, if the people connected with the building had possessed a grain of taste or sense the frightful plaster-work would have been all knocked down instead of being painted and gilt. There are several recent specimens in London, I am sorry to say, of the decorators' namby-pamby work,—cream-colour, thin grey's, and "gold etchings." The negative scheme of colour of these seem is all wrong. Ancient colour-decoration, whether Classical or Gothic, was *positive*. To know what Gothic decoration really is they should run down and look at Pugin's church at Cheadle; and for Classical work study Zahn's Pompeii. The sooner they get rid of their miserable "warm whites" and other weak, watery, insipid compounds the better. But how long, sir, is the so-called "decorator" to usurp the rightful functions of the architect? Decoration is essentially the architect's business, and architects must see that their knowledge is perfect in this direction. Let the public know that it is their vocation, and so drive the empirical "house-painter, upholsterer, and decorator" (as they frequently describe themselves) out of the field. P. E. M.

ILLUMINATED CLOCKS.

Sir,—It seems rather surprising that Governmental and municipal authorities have not recognised the advisability of nightly illuminating all clocks on public buildings for general convenience. There are several instances in the metropolis of clock illumination by private persons,—perhaps the most effective being that of Dent's, facing Trafalgar-square.

The cyclopean eyes of the clock-tower at Westminster,—the most conspicuous in London,—close at midnight, and are, therefore, useless after that hour. Surely the indication of time, by gas or otherwise, during the hours of night, would prove useful, and, occasionally, of much importance. C. B. S.

PUBLIC WORKS DEPARTMENT, INDIA.

The following letter, dated Calcutta, 8th November, 1866, speaks for itself. The communication referred to was signed "W. B. Macrone, Assistant Secretary to the Government of India, P. W. Department," or we should not have used the expression. We willingly, however, enable Mr. Macrone to explain:—

Sir,—In your issue of the 4th August, 1866, page 583, you state as follows:—"We have received from the Assistant Secretary to the Government of India (P. W. Department), a long reply, in print, to a letter in our issue of the 21st October, 1865." As this statement is likely to lead to the belief that my reply was communicated to you officially, I beg you will state in your columns that it was sent to you privately by me without any reference to the position I then held in the Department.

It is very necessary that you should do this at once, as otherwise my letter may appear to be published with an authority to which it has no pretence whatever.

The letter has not "been published elsewhere." W. B. Macrone.

FIREPROOF ROOMS.

Sir,—That fireproof safes, for the protection of every conceivable kind of valuable property, should have occupied the inventive genius of a number of eminent manufacturers and patentees, is exceedingly laudable, so far as it has gone, and has been attended with important results in a variety of instances. But, sir, I consider that the fireproof safe is destined for something still more important; and I proceed to ask,—could not each floor of our dwellings, with the exception of the parlours and underground kitchens, be provided with such an ark of safety? Why not?

Iron frames and doors might open from small fireproof rooms (the windows fronting the street), and which rooms could ordinarily be used as bedrooms, studies, store-rooms, pantries, &c., according to circumstances, and in these the inmates of a house on fire would be secure until the arrival of the fire-escape, or other means of rescue. A haven of this kind, it appears to me, is a desideratum "devoutly to be wished." The doors must be constructed to fly open by touching a spring, and upon which the children of the household could be trained to act. My fireproof rooms, commencing at the first floor, would, of course, require to be supported on an iron girder, from side-wall to side-wall, or by a short one transversely from side to front, and thus be rendered capable of remaining intact from first-floor to attic, amidst surrounding ruin. William Johnson.

IMPORTANT TO ROAD-MAKERS, CONTRACTORS, AND BUILDERS.

At the Marylebone Police Court, Dec. 15th, before Mr. Mansfield, magistrate, Mr. W. P. Kellond, builder, Kilburn, was summoned, with the authority of the vestry of Paddington, on the complaint of their sanitary inspector and inspector of nuisances, Mr. W. H. Sullivan, "for having permitted to be deposited, opposite Elgin-terrace, in the parish of Paddington, and in the construction of a new roadway (and within 500 yards from certain inhabited dwelling-houses), garbage, refuse, and other noisome and offensive matter, contrary to the 5th of George IV., chap. 126." The inspector, who conducted the case, having been sworn, stated that not only were the substances mentioned in the summons a portion of the composition of the new roadway, but others of a more objectionable nature, such as decayed parts of fish, game, sardine-boxes, and various other matters of a decomposing nature had also been introduced. The magistrate inquired if the new roads in the parish were not made under certain restrictions. The inspector stated such was the case, and that all substances of a hard and "*non*"-decomposing nature were permitted by the vestry regulations, as also were pickings from various dust-yards in the parish; and remarked, that his duty was not to supervise the construction of the formation of new roads, but simply to deal with the offence as to its effect on the public health. He then called the medical officer of health for the parish, Dr. J. Burdon Sanderson, who, upon being sworn, stated that he visited the locality on the 8th inst. with the inspector, and that everything he (the inspector) stated was perfectly correct. The medical officer of health further mentioned, that the new roads in the parish had been for years constructed of some portion of offensive materials, particularly in the pickings from the dust-yards, but not in such quantities as in the present case; he could safely say that the health of the inhabitants suffered from the formation of new roads from the materials described. There being no defence, the magistrate at once granted, with the usual costs, an order for the immediate removal of the existing offensive substances, and further prohibited the defendant from again using such objectionable materials in the construction or formation of new roads in the parish of Paddington. Other summonses were then heard of a similar character, in each of which the magistrate decided and ordered as in the above case.

THE RECENT BANK COMPETITION, PLYMOUTH.

Messrs. Hine & Norman present their compliments to the Editor of the *Builder*, and request permission to give their unqualified denial to the statement of a "Competitor," in the *Builder* of Dec. 8, that they were called in by the directors of the Three Towns Banking Company to assist them in their selection of the premiated designs. They were consulted as to some details of their own design, but their opinion was neither asked nor given as to any other designs sent in.

*** The writer of the letter referred to, on being appealed to, reiterates his assertion, and forwards a statement in support of it; but after Messrs. Hine & Norman's note, we cannot avoid believing that he has misjudged circumstances.

A CLERK FOR ATHERTON LOCAL BOARD.

The Local Government Board for the district of Atherton, in the county of Lancaster, requiring the services of a gentleman competent to fulfil the duties of clerk to the Board, advertised as follows:—

"He will be required to reside within the district. His duties will be to keep the books and accounts of the Board, according to a system similar to that adopted by the Poor-law unions, and approved by the district auditor; to examine and check the weekly accounts of the surveyor and collector; attend personally at every meeting of the Board and committees; take the minutes of every such meeting; write out the rates-books of the Board (there being at present two General District Rates made per annum); prepare all demand notes, receipts, &c., for the collector, and all contracts, agreements, notices, forms, &c., required by the Board; conduct all correspondence; and otherwise perform all the duties of the said office, carrying out the spirit of the 'standing orders' of the Board, the Local Government Acts, and the other incorporated Acts relating to the powers and business of local boards.

The salary to be allowed has been fixed after the rate of 40*l.* per annum: no additional remuneration whatever will be paid for extra services of any description rendered to the Board."

There were nine candidates, and Mr. George Dickinson, who further offered, "for an additional 20*l.* per year, to prepare plans, sections, and estimates that may be required in carrying out the provisions of the Local Government Act; or otherwise, for a percentage on the estimated cost of works for the plans, &c., made," was elected.

CAUTION TO BUILDERS.

Charlton v. *Rigby*. This was an action (Court of Common Pleas) to recover damages for personal injuries.

The plaintiff was a watchmaker, carrying on his business in the Harrow-road, and earning about 7*l.* a week. The defendant was a builder, in Portman-street, Portman-square. On the 11th of April last the plaintiff was passing by the hoarding in front of Saville House, Leicester-square, and at that moment a door in the hoarding swung to and knocked the plaintiff down. Subsequent examination showed that three of the plaintiff's ribs were broken and his foot was a good deal hurt. He was for a fortnight unable to attend at all to his business, and was still unwell, and unable to work so well as he could before the accident.

The negligence alleged was the not placing a stone against the door to prevent it swinging to, the custom being that the stone should be so placed.

The defence was that the hoarding belonged to the owner of the property, and had been erected by order of the architect; and a man in his employ was placed as gatekeeper. The hoarding was not necessary for the work which the defendant was doing. It, however, appeared that the defendant had put the boarding back nearer to the building in accordance with the directions of the Local Board of Works, and that this alteration rendered it necessary that the door should open outwards instead of

inwards. It also appeared that the defendant had for some time taken a licence for the hoarding from the local authorities.

In addition to these statements, it was said that the stone was in fact placed against the door; that this stone had on all other occasions been found sufficient, and that it was likely that it should be, for its weight was 50lb. The 11th of April, however, happened to have been extremely windy, and this unusual circumstance caused the accident.

His lordship directed the jury that before they could make the defendant liable they must be satisfied that the accident had been caused by the negligence of himself or his servants.

The jury found for the plaintiff, damages 75*l*.

SHOP FRONTS: CAUTION TO BUILDERS.

In rebuilding the Silver Lion public house at Penny Fields, Poplar, the builder, Mr. John Hearle, of No. 6, Arlington-place, St. George's East, who had given notice that he was about to make an alteration of the building, placed the end of the bressummer over Silver Lion-court, in front of the street, beyond the centre line of the party wall, contrary to the 1st Rule of the 15th Section of the Act, and fixed the pilaster and other woodwork of the shop-front nearer than 4½ inches from the line of junction of the adjoining premises, contrary to the 3rd Rule of the 20th Section of the Act, and not having amended the irregularity complained of, a summons was taken out by the District Surveyor of Stratford-le-Bow and Poplar, and the case was heard before Mr. Partridge at the Thames Police Court on the 13th inst. The defendant, having attended by his solicitor, Mr. Stoddart, excused himself by stating that part of the works complained of by the District Surveyor had been amended, and that the rest was not necessary. The magistrate, on referring to the different sections of the Act, determined that each of the requisitions contained in the notice to amend was proper and ought to be observed, and that he should make an order to comply with the requisitions of the notice in fourteen days. The order was accordingly made, and the defendant adjudged to pay the cost of the proceedings forthwith.

MORTUARY CHAPELS.

Liverpool.—The foundation-stone has been laid of a mortuary chapel which Mr. Hutchison has presented to the Roman Catholic body. The site is in Collingwood-street, in a neighbourhood densely inhabited, and principally by the poor Irish, amongst whom the system of "waking" the dead is very prevalent. The building will consist of two distinct sections built in the form of a half-octagon. The interior section will be the mortuary proper, having a separate entrance from the street. This section will be 37 ft. by 28 ft., with cells or recesses for 21 coffins. It will be inclosed by the chapel, which will have a uniform width of 19 ft. Mr. Hutchison, who is a member of the Church of England, pointed out the great evils which result from the detention of dead bodies in the same rooms with the living, as was at present in many cases a necessity, at least for a time, and the greater evil often arising from the delay in the interment, owing to the friends keeping the body for a Sunday "wake."

Lewisham. — The first stone of a Roman Catholic mortuary chapel has been laid in Brockley Cemetery, Lewisham. The chapel is the gift of Mr. Stuart Knill, of Blackheath, and will be entirely erected of stone, inside and out.

FROM SCOTLAND.

Edinburgh.—The City Improvement Bill has been approved in the City council, by a majority of 22 to 16, in spite of an acknowledged endeavour to "burke" it.——The Edinburgh and Leith Gas Company, according to the *Scotsman*, are entering into an arrangement with the proprietor of property at East Norton-place, between the High School, on the Calton-hill, and Jock's Lodge, and near to Holyrood Palace and the King's Park, for the erection of a gas work. The writer in the *Scotsman* speaks indignantly, of course, at the prospect of an abominable nuisance like this being thrust into so close a proximity to one of the more populous parts of the city.

CHURCH-BUILDING NEWS.

Stoke D'Abernon.—The church of this village has been re-opened. It has now been restored from floor to roof, under the superintendence of Mr. Hesketh, whose plans were carried out by Mr. Carruthers, of Beigate. Abont 16 ft. have been added to the length of the church. The roof is of stained deal. The old round depressed arch which used to separate the nave from the chancel, has been replaced by another arch. In the chauntry adjoining the chancel, built by Sir John Norbery in 1487, are collected all the old monuments of the Vincent families. Messrs Ward & Hughes have supplied the stained glass for the five lancet windows on the south side. The windows are the gifts of ladies, members of the congregation, except the centre one, which was given by servants and others in the neighbourhod.

Wellington.—All Saints' Church has been re-opened, after reseating on the free pew system, and undergoing other alterations, painting, &c. The cost has been 1,300*l*., and the alterations were carried out by Mr. S. P. Smith, of Shrewsbury.

Buckingham.—The new chancel of the parish church has been consecrated. The Duke of Buckingham gave 2,000*l*. for the chancel, in addition to 400*l*. for general restorations. Mr. Hubbard, M.P., provided the necessary funds for a chancel aisle, which is to contain the vestry, and for a better receptacle for the organ. The aisle has cost 1,000*l*., in addition to which Mr. Hubbard has given several hundred pounds. It is intended to restore the nave, by throwing the galleries back clear of the pillars, and completing them with pointed arches and clustered pillars, so as to harmonize with the Early English style of the structure; it is also contemplated to renovate the exterior in uniformity with what has been already done, the whole of the southern and a portion of the northern side having been renewed with Bath stone dressing, the buttresses being founded on the rock, and the parapets adorned with floriated carving, by Mr. Palmer, of London. The high pews still exist in the body of the church, and it is determined to replace them with new oaken seats as soon as possible. A groined roof of wood instead of stone, the raising of the tower, and the casing of the spire, are also contemplated, 6,000*l*. being required to effect these restorations and other improvements. Mr. Scott has been the architect, Mr. Hannaford the clerk of the works, and Mr. H. Saunders builder for the whole of the works alluded to. Four stained glass windows have been prepared for insertion in the church, by Messrs. Clayton & Bell, of London, and the interior will be warmed with Gurney's stoves.

King's Sutton.—The chancel of the church has been restored and re-opened. Mr. Scott was the architect employed, and Messrs. Franklin, of Deddington, were the builders.

Newcastle-upon-Tyne. — The foundation-stone of St. Stephen's Church, Scotswood-road, has been laid by Sir W. G. Armstrong, C.B. The church will for the present consist of a chancel, 34 ft. 6 in. by 26 ft.; a nave, 82 ft. 3 in. by 29 ft.; and a south aisle, 82 ft. 9 in. by 18 ft. 7 in.; with a vestry and south porch. There will be accommodation for 650 persons, 500 in free sittings. Provision is made for building arches into the north wall of the nave, for the addition of a north aisle, when such an enlargement is required; and this will give nearly 300 additional free sittings. In connexion with it there will be a tower and spire nearly 200 ft. in height. For the present a bell will be hung in a temporary framework. The nave will be separated from the aisle by five pointed arches. There will be five three-light windows in the temporary north wall of the nave, and five similar windows in the south wall of the aisle. The great east window, placed well up in the eastern wall, will be of five lights, the central one running up to the enclosing arch, and the side lights being grouped two and two under sub-arches, with sexfoiled cusped circles in the heads. The roofs throughout the church will be of lofty pitch, and will internally have boarded ceilings of polygonal form, which will be covered with felt on the exterior for warmth, and ornamented internally with moulded ribs and bands of decorative painting. The seats in the nave and aisle will be uniform open benches. The church will be lighted at night by rows of gas jets placed at the level of the springing of the arched roofs, and will be warmed by hot-water circulation. The architect is Mr. R. J. Johnson, of the firm of Austin & Johnson; and the contractors are—For masons' work, Mr. Walter Scott; carpenters' and joiners' works, Mr. Joseph White; slaters' work, Mr. Sanderson; plumbers' work, Mr. H. Watson; plasterers' work, Messrs. W. B. Wilkinson & Co.; heating, &c., Messrs. W. H. Walker & Sons; painters' work, Messrs. Wilson & Romanis. The entire cost of the building will be about 5,500*l*.

Newport.—The chancel of the parish church has been opened, according to the *Shrewsbury Chronicle*. The portion eastward of the vestry, on one side, and south chancel aisle on the other, which was erected some years back, in a style quite unworthy of the church, has been rebuilt in local red stone, inside and out, the dressings being of Hollington stone. A large five-light traceried window occupies the east gable, which is provided with stone coping and cross. The whole of the chancel has also received a new open-timbered roof, covered with Staffordshire tiles; the gutters and parapets have been relaid, and the building drained and made secure and weather-proof. The works have been carried out by Mr. J. F. Cobb, of Newport, under the direction of the architect, Mr. E. Haycock, of Shrewsbury, at a cost of 550*l*.

Stamford.—St. Michael's Church, after being closed five months, for alterations and repairs, has been re-opened. The ceiling and chancel have been decorated by Mr. Lee, of Lutterworth. The pews have been lowered 6 in., and the backs made to slant instead of being straight. The gas has been re-arranged, some attention paid to the east window, and several other improvements have been effected. The total outlay is about 400*l*.

Lutterworth.—Ashby Parva Church has been re-opened for public worship. The old church was an unsightly building, especially the chancel. The Rev. A. B. Wrey, the present rector, determined upon building a new chancel and restoring the church, and consulted an architect, who produced a plan for the chancel and a considerable alteration and addition to the church; but, as funds sufficient could not be raised, a modified plan was adopted for the restoration. The contract for building the chancel was taken by Messrs. J. Law & Son, of Lutterworth, in 1865, and the woodwork was commenced at Easter last. The chancel, which is entirely new, is built of Stoney Stanton granite, in random courses, and pointed with grey mortar. The dressings are of Bath stone from the Coombe Down Quarries. The east window consists of three lights, with tracery head. The other chancel windows consist of a single light, except the south-west, on which is a reproduction, and is divided into four lights. The roof is covered with Staffordshire brown tiles, and an ornamental ridge of the same material, the east gable being furnished with a cross. There is a small vestry on the south side of the chancel, connected by an arch, and separated from the chancel by a curtain. The interior is stuccoed, all angles being of stone. The roof is open-timbered. The seats or stalls, the lectern, and other fittings, are in wainscot oak. The pavements are of Maw's tiles, laid in pattern, and interspersed with encaustic tiles. The nave has undergone a restoration, the tower-arch has been opened, and the interior of the tower put into order. There is a new wood ceiling, and also a new west window. The roof to the nave is copied from the old one. The windows throughout are filled with Lavers & Barraud's cathedral glass, having a green tint, except the west window, which is the gift of Mr. J. G. Simons, of Ullesthorpe, in memory of his father. This window is also by Lavers & Barraud. A great quantity of soil has been removed from the north side of the church, and the walk placed opposite to the porch. The church may be said to have been partly disinterred, the earth having been a considerable distance up the walls, rendering the church very damp. The tower is to be restored as soon as funds can be raised. The cost of the works already done is over 800*l*., and a considerable sum is yet required for completing the work. Mr. Austyn was the architect employed; and the builders were Messrs. Lawson.

Books Received.

VARIORUM.

The Art-Union of London issues as usual its capital little Almanac, to which all subscribers are entitled. In the calendar, the meetings of all the London Societies, throughout the season, are noted,—a special feature that makes the little book particularly useful. —— Letts's "Diaries" are of all sizes and shapes to suit all requirements.——"The Illustrated Farmer and Gardener's Almanac" (Layton, Fleet-street) is full of information, including a very good chapter of "Memoranda and data useful in the construction and arrangement of farm buildings," and a descriptive list of new and rare plants fully illustrated.——A paper "On the Floral Decoration of Churches at Christmas," by Messrs. W. & G. Audsley, illustrated, in the December number

of *Nature and Art* (Day), will be found useful by many at this season. The number is a double one, and contains *inter alia* an interesting paper "On Holbein in Germany," with two portraits. The numbers for the year, bound, make a very handsome volume.——The Christmas number of "London Society," with its red, white, and blue cover, includes many amusing stories and a whole heap of illustrations, some of them very funny. —— "Christian Society" (Groombridge) is intended for graver readers, and will please those for whom it is intended.——"Gutch's Literary and Scientific Register and Almanac, 1867," is a cyclopædia in pocket-book compass.——"The Poetical Works of Lord Byron" for half-a-crown! published, too, by Mr. Murray, so that it really includes all the poet's works, which is not the case with editions published by others, Mr. Murray retaining the copyright of various pieces. Moreover, the paper is excellent, and the type clear and good; so that, though small, the letterpress is readable with ease.——We cannot let pass the last number for the year of the *Art Journal* without a word or two of commendation and congratulation. Its editor, Mr. S. C. Hall, energetic as ever, has arranged, as our readers have heard, to publish with his journal next year an Illustrated Catalogue of the Paris Exhibition; the dedication of which has been accepted by the Emperor of the French, under, as we learn, peculiarly gratifying circumstances. It is to contain 2,000 of the best works in art-manufacture exhibited.——"Strikes and Locks-out; or the Law of Combination." By a barrister. London: Tegg, 1867. There has been but too much need of late for this sort of information: it cannot but be useful both to masters and to workmen. Besides the Law of Combination, with various cases cited, it contains a summary of the law of arbitrations of disputes between workmen and employers. The whole subject is included within the compass of a small volume or thick pamphlet, quite within the reach of individual workmen, and indispensable to all concerned.——"Facts respecting Street Railways; being a Series of Official Reports." London: King, 34, Parliament-street. In this compilation, Messrs. Noble & Co., with the view, apparently, of insuring a favourable consideration of the subject of street railways in Parliament before the projected Bill is brought in, have collected a series of reports from various towns in America where street tramways are in use, showing their advantages and their general utility and freeness from objectionable qualities. The reports are decidedly and strongly in favour of their use when the rails, as proposed for London, are so formed and laid down as not to interfere with ordinary traffic.——Among the many educational works issued, from time to time, by Messrs. Longman & Co., we may instance, as now before us, part second, of "The Standard Grammatical Spelling-book, of Stevens and Hole's School Series," in four parts, by Henry Combes and Edwin Hines, authors of many educational works. This seems to be an excellent book of its kind.

Miscellanea.

SALTAIRE, YORKSHIRE. — The contractors for the erection of 160 additional dwellings, at Saltaire, are making a rapid approach towards their completion. They are at the extreme west of the other buildings, a portion of them abutting upon the Bingley road. We may add that the excavators have already begun to prepare for the foundation of the projected new Wesleyan Chapel in the same neighbourhood.

INDIAN TRAMWAY COMPANY.—The fifth ordinary general meeting of the proprietors of this company has been held, at the offices, in Moorgate-street,—Sir Macdonald Stephenson in the chair. The report of the directors, which was taken as read, stated that the Board had opened negotiations with the authorities for the purpose of extending their present line, and also with a view to the adoption of further lines. The chairman said the railway, although nineteen miles in length, had been constructed at 3,000*l.* a mile, with 200*l.* for general charges and 700*l.* for rolling stock—in all 3,900*l.* a mile. The traffic receipts for the year had amounted to 14,551*l.*, and the expenditure to 3,021*l.*, which was about 58 per cent. on the receipts, leaving 11,530*l.* profit on the working. Of the capital of 40,000*l.* nearly 10,000*l.* remained unexpended.

KEBLE MEMORIAL.—We hear that the diocese of Toronto has unanimously decided to combine their contributions with those of the college scheme for this memorial. Various plans for raising a local memorial to Mr. Keble had been discussed, but the Oxford college was considered the best. The amount of this fund already reaches the sum of 31,000*l.*

THE APPOINTMENTS AT THE INSTITUTE OF ARCHITECTS.—For the office of assistant secretary there were twenty-four candidates; for that of librarian, twelve; and (oddly enough) for the post of clerk, six. Mr. Clifton West was elected librarian; Mr. Köhler, clerk. From the candidates for the assistant secretaryship the following six gentlemen were selected to meet the Council:—Messrs. Dolman, C. L. Eastlake, Edward Hall, Snell, Tarbuck, and Warren. Ultimately Mr. Eastlake was elected.

SUBMARINE CABLES.—Apart from the great Atlantic Cable, 54 submarine cables, 6,811 miles long in all, with 11,020½ miles of insulated wire have been laid in various parts of the world, the insulated wires for which were manufactured by the Gutta Percha Company of London. A great many cables of short lengths not included in these are also at work, and other cables with wires insulated by the same company have been laid by Felton & Gueleume, of Cologne, during the last eight years, to the extent of over 1,000 miles.

A DISCOVERY IN CHICHESTER CATHEDRAL.—We are informed that in digging the foundations for the reredos, upon the spot where the old Communion-table stood, and just in front of the apse of the original Norman cathedral, a piece of Roman pavement has been found. It was at a depth of about 4 ft. below the level of the floor, and the part uncovered was some yards in extent. It was composed of red tesseller commonly used. Some specimens have been placed among the other relics in the Lady Chapel.

THE MANCHESTER FREE LIBRARIES. — The fourteenth annual report to the city council on the working of these libraries for 1865-6 has been printed. From this report it appears that the total number of volumes on the shelves of the several local lending libraries is now 77,744, exclusive of 38,426 in the reference library. The number of volumes daily issued at the reference library averaged 285, besides 180 specifications of patents. The number daily issued from the lending libraries averaged 291 at Campfield, 370 at Hulme, 151 at Ancoats, and 251 at Rochdale road. The Chorlton and Ardwick branch was only opened in October last, but the daily average of volumes lent is already 330.

"THIS COMES HOPPING."—A wonderful tale is told from Kansas, U.S., concerning a plague of grasshoppers, the numbers actually darkening immense tracts of country as would a total eclipse of the sun, and destroying every vestige of vegetation along their route. The creatures took three weeks to pass Lauenworth, in a stream about twelve miles wide and 300 miles long! They got on the railroad track of the Union Pacific road in such numbers as to cause the wheels to slip on the rails, and the freight train at Wyandotte was detained several hours beyond its time by the impossibility of penetrating the massive crowd of the insects. Could chemistry do nothing in such a case?

SOCIETY OF ENGINEERS.—The annual dinner of this society took place last evening at the Bridge House Hotel, London Bridge. The company numbered about 100 gentlemen. Among them were Mr. W. H. Le Feuvre, president of the society, who occupied the chair; Mr. B. Latham, vice-president; Mr. A. Williams, hon. secretary; Messrs. R. M. Christie, N. P. Stephenson, R. M. Ordish, J. Aird, F. W. Bryant, C. J. Light, W. Adams, J. Hendry, P. F. Nursey, L. Obrick, T. Cargill, R. Brass, H. Dircks, F. E. Haughton, W. Craven, G. W. Stevenson, W. Clarke, and J. Lacy. The society was instituted in 1854, for the purpose of affording persons connected with the engineering profession opportunities of discussing questions affecting their interests. The society holds two meetings every month, and at these meetings either papers are read or persons having difficult works on hands submit plans and explanations, and discussions take place thereon, to the mutual advantage, it is hoped, of all taking part. The present strength of the society is 360 members, but it appears that a large number of candidates are waiting to be balloted for at the next meeting.

THE PORTLAND BREAKWATER.—As the Portland breakwater is now completed, many of the buildings formerly used by those engaged in the construction of that great national undertaking will be rendered vacant, and it is proposed on the part of the Admiralty that some of these should be surveyed, with the view of ascertaining if any of them can be converted into sick quarters for the reception of patients belonging to her Majesty's ships when stationed in the Roads.

DOVER AND THE SEA.—For some time past gradual encroachments of the sea have been made towards the cliffs crowned by Dover Castle, and the recent gales have at length threatened to destroy a large Government fort known as Guildford Battery, and to cut off from the town a large amount of valuable property, including the terrace of 50 residences called East Cliff, with a larger number of houses in the rear. The sea is making way into the roadway opposite the battery, has already laid bare the water and gas pipes and public sewers, and has approached within a few feet of the most exposed houses. At the extreme end there is an old jetty, and there is nothing to prevent a rather heavier sea than usual carrying away the jetty, and with it the 100 and more houses which lie between the jetty and the battery.

STATISTICS OF THE "P. AND O. COMPANY."—The *Times* says this great company, representing the largest and most important firm of carriers between England and India, now possesses a fleet of steamships equal to the navy of a second or third rate state. It owns no fewer than 53 excellent steamers of large tonnage and commensurate power, besides a squadron of auxiliary tugs and sailing transports. It has regular stations at almost every important seaport in the Eastern hemisphere. It carries upon an average about 16,000 first-class and 3,000 second-class passengers every year over a route of many thousand miles. It pays every year upwards of half a million sterling for coals, and keeps about 100,000 tons of this fuel constantly in stock. It feeds as well as carries its passengers, and its expenditure of stores in a single year comprised 15,000,000 lb. weight of provisions, 1,500,000 bottles of wine, beer, and spirits, and 180,000 head of cattle and poultry. These figures will appear prodigious, but the fact is, that upwards of 10,000 persons are victualled daily on board the company's vessels. Every now and then, in great national emergencies, the company performs transport service for the Government. During the Crimean war the Peninsular and Oriental steamers carried 60,000 men and 15,000 horses to their destination, and the same vessels, at the time of the Indian Mutiny, carried regiment after regiment to the East with rapid and timely despatch.

NEW BLACKFRIARS BRIDGE. — The Bridge House Estates Committee of the Corporation of London, upon whom devolves the duty of supervising the erection of the new bridge at Blackfriars, inspected the works the other day, and appear to be satisfied with the progress that is being made. It is said that probably by the end of next year, or the beginning of 1868, the bridge will be so far advanced towards completion as to carry the ordinary traffic. Beginning from the Surrey side, the abutment has been constructed up to the course from which the arch will spring, and is ready for the ironwork. The first and second piers from the south side are nearly up to the half-tide level, and by January next the first pier will be sufficiently advanced to admit of the superstructure of the first arch being raised. That arch will have a span of 155 ft., and be composed of nine ribs of wrought iron. In the case of the third pier from the Surrey side, which is the least forward, the caissons are ready to be lowered, and for the fourth pier, or that nearest the city side, four caissons are in progress of being sunk, and the contractors hope to raise the superstructure of iron in three or four months from this time. On the north or City side the abutment is up to the level of the course from which the arch will spring, and the ironwork is in a very forward state. Large quantities of the wrought iron are being sent up from Wednesbury, from the foundry of Messrs. Lloyds, Foster, & Co., and, for the ornamental work, columns of red granite, quarried in the Isle of Mull, are being polished in Glasgow, preparatory to being forwarded to London. The scene here at night, with the enormous scaffoldings, and the temporary bridge, is one of the sights of London.

Non-freezing Wet-Meters. — Glycerine is said to be not only the most economical, but also in every respect the most suitable for filling gas-meters, to keep them from freezing. It is frequently used in the United States for this purpose.

The Architectural Drawings for Paris.—"The Garrison Chapel at Woolwich," described in our notice of the drawings at South Kensington as the work of Mr. M. D. Wyatt, is the joint production of that gentleman and his brother, Mr. Thomas H. Wyatt. The drawing being sent in the name of Mr. M. D. Wyatt alone, led to the mis-statement. The architect of the Town-hall at Dumbarton is Mr. Leiper, not Leisser, as printed. The drawings are now all ready for exhibition, and those that are to go to Paris are marked.

The Porcelain Works at Worcester. — A considerable addition has just been made to these works in the shape of a new set of enamel kilns, twelve in number, with a chimney stack. The furnace-room is 60 ft. by 40 ft., adjoining which is the receiving-room, 60 ft. by 14 ft. These are fitted with iron girders, and supported by iron columns, with a brick arch between each girder. The stack rises from the centre of the principal building. The depth of its foundation is 7 ft., 2 ft. 8 in. of which is concrete. The base of the stack is 15 ft. square; it is carried in a square for 30 ft., then in an octagon shape, finally in a circular form, to a height of 171 ft., the battering being 1 in. to 5 ft. 40 ft. of the shaft are 10 in. thick, being composed of double bricks, while the remainder of the stack is of single bricks, 13 in. by 5½ in., with a groove in the centre. The stack is screwed down with eight iron pins, and there are iron rings and supports every 12 ft. The cornice is made of brick, and the whole is surmounted by an iron cap of over 2 tons weight, made at Messrs. Hardy & Padmore's foundry. It was erected from the inside by means of ropes and pulleys. The whole work has been carried out by Mr. E. Taylor, builder. The architect was Mr. Scrivener, of Hanley, Staffordshire. This is said to be the highest chimney built upon this plan; the only other construction upon the same principle, in fact, being at Backley Moreton, North Wales, which was planned by the same architect twelve years since, but is only 160 ft. in height. The stack at the old works, which was 2 ft. 4 in. out of the perpendicular, has been put upright by Mr. Taylor, under the superintendence of the same architect.

The Restoration of Bath Abbey Church.—A public meeting has been held in the Council Chamber, Bath, for the purpose of receiving a report from the committee who superintend the restoration of the Abbey, and also the treasurer's accounts. The chair was occupied by the Earl of Cork and Orrery, Lord-Lieutenant of the county. The committee's report stated that Mr. G. Gilbert Scott's report was made in 1860, and in the year 1864 it was resolved to enter upon the work. The roofs, clerestory, east, west, and transept windows were taken in the first contract for 5,389*l.* 14s., but extra work, &c., make a total of 5,425*l.* 3s. 6d., of which the whole has been raised within 138*l.* 2s., and the greater part expended; the residue, about 900*l.*, being reserved for the completion of the work. Last year the work of substituting in the nave a stone groining for the plaster ceiling was commenced. Two-fifths of the ceiling have been finished; but to liquidate the debt incurred for this work, and finish the ceilings, 3,705*l.* are required, while a further sum of 5,000*l.* will be necessary to fit the edifice for public worship. Several of the windows had been adopted by individuals, who undertook to repair the stone work, and insert painted glass. Of these, three are now in their places, and two more, by Messrs. Clayton & Bell, are promised shortly: one in the nave, five in the choir, and two in the south transept remain unappropriated. A design was prepared some time ago for glass for the west window. A few contributions have been received, sufficient to pay the cost of two compartments, which have been ordered. The Freemasons have made great progress with the restoration of the west front. The work in the transepts is also being continued, and is approaching completion. The report was adopted, and an appropriate resolution passed, the meeting pledging itself to renewed and increased efforts, and urging upon the citizens of Bath and residents in the vicinity to co-operate. Donations amounting to 200*l.* were at once subscribed.

Inexplosive Gunpowder.—On the 15th inst. some rather badly-managed experiments were made in the Crystal Palace grounds to test the qualities of a new description of gunpowder, which had been invented by Herr J. A. Neumeyer & Co., of Zaucha, Saxony. The experiments were so far satisfactory that they demonstrate the truth of the non-explosive character of the gunpowder when in the open air; and that when pent up in air-tight cylinders, whether in blasting holes or in firearms, it acts as ordinary gunpowder, shattering the rock or projecting the bullet, as the case may be.

Accident on the Metropolitan Railway.—A serious accident, attended with the death of three persons, occurred to a train near the Aldersgate station of the Metropolitan Railway on Wednesday afternoon. It appears that a broad-gauge train from Kensington was approaching Aldersgate station at fourteen minutes to one o'clock, when an immense iron girder which was being put up across the line in connexion with the works for the Smithfield meat market, fell and crushed a second-class carriage, killing some of the occupants on the spot and injuring others. The carriage in question was the last of the train. The cause of the falling of the girder, and the consequent injury to the train, is believed to have been the giving way of the rope or chain of the gearing. The girder was not fixed: it had only been raised to its platform a very short time before the accident. Mr. Kelk is the contractor for the works.

Painted Windows for St. Paul's Cathedral. A correspondent of the *Oxford Journal* speaks thus of the large painted window for the choir of St. Paul's, in London, which has been for some time past in course of preparation at Munich, and was expected to be ready early in this month. "The subjects depicted are from the life of St. Paul. The cartoons were designed by Schnorr, and Professor Strähuber is the artist, who was asked by Schnorr himself to carry his designs into effect. Inspector Von Ainmiller was requested in like manner to take in hand the architectural accessories. The window is intended for the principal place in the middle of the choir. The window is divided into two parts. The upper and principal part represents the 'Vision' seen by the Apostle, and in the lower portion Ananias is seen coming to St. Paul when blind. To the right and left, the donor (Thos. Brown, esq.) and his wife are represented in a kneeling posture, and beneath are their coats of arms and other decorations. The composition and the architectural portion—chiefly from *motives* by the English architect, Penrose, who superintends the works of restoration — are thoroughly excellent. Besides the six other windows which are ordered for the choir of St. Paul's, the Royal establishment is also executing a large window for the Town House of the City of Edinburgh, and two smaller chapel windows in the Greco-Russ style for Count Golowin, the former Minister of Instruction at St. Petersburg."

Fire Extinction.—A reprint of a paper read before the Huddersfield Literary and Scientific Society, in October last, by Mr. D. Dawson has been issued, in which the gaseous products of combustion itself are suggested as a means of extinguishing fires; not the products of the fire itself, which are generally, one would think, abundant enough in a fire of any magnitude, but of some other fire such as that of a steam boiler furnace, conducted by fitting fixed arrangements to the burning apartment or premises. The idea does not look like a very promising or effectual one, although it might be much more cheaply applied than the carbonic gases scientifically generated. An experiment, however, at Milnsbridge, on Messrs. Dawson & Co.'s own premises, which have been fitted up with their fire-extinguishing apparatus, applied to each floor, would appear to have been quite successful in the extinguishing of a fire which was boldly and sensationally got up in an upper room of the premises. After allowing the fire to get full hold of the apartment, the smoke, or at least, carbonic and nitrogenous gas, from the boiler furnace on the premises, was conducted by a pipe from a cooling chamber, into which it was sent by a jet of steam through a cone, till it filled the apartment set fire to, when it extinguished the flames in less than one minute, leaving no vestige of burning, "except the blackened roof and sides of the building, and the charred wood and shavings in the room." So says the *Huddersfield Examiner*.

A Manchester Professorship of Engineering.—It has been decided to raise a sum of 10,000*l.* for the endowment of a chair of engineering at Owen's College, Manchester. Towards this fund 6,000*l.* were promised at a meeting held at the townhall, under the presidency of Dr. Fairbairn.

Amputating by Steam.—It is stated that at a large military hospital established in Breslau, on the Oder, in Silesia, by orders of the Prussian Government, a circular saw, worked by steam, is to be used for the purpose of amputating such limbs of wounded soldiers as the surgeon shall direct to be taken off!

Drinking Fountains.—It is proposed to erect four drinking-fountains at Bournemouth, in convenient positions. By the agency chiefly of Admiral Sulivan, the visitors and residents of the town have been canvassed for subscriptions, and already a sufficient sum has been procured for the erection of two fountains, one at the top of Poole-hill, and the other at the top of Holdenhurst-road. Messrs. Creeke & Parken are the architects; Mr. Joy, the builder; Mr. Horner, the mason. They will be in the Gothic style, and composed of carved Portland stone, with canopy supported by four coloured marble columns, and the waste water will be available for cattle and dogs.

Mr. Tom Taylor on Art Education. — Mr. Taylor delivered an addsess at the Lambeth School of Art, on the occasion of the annual distribution of gold and silver medals, certificates, and prizes to the students. In these times, he remarked, more than in the days of old, the lower classes were almost wholly deprived of every opportunity of art education, except such as were specially put in their way. The growth of London was so rapid that, if it were not for excursion trains and the parks, the artisans of this huge city might pass their whole lives without ever seeing the green grass or smelling the sweet breath of the country. The ugliness of our modern suburbs, the sordidness of so many of the phases of the nineteenth century life, the universal haste to be rich at any cost of mental cultivation—these and other influences of the same description exercised a deteriorating effect upon the national life. Proof of this might be found, if proof were needed, in the general ignorance of art which was manifested in the workmen's exhibitions that had recently been held throughout the country. To remedy this was an object of special importance in these times.

St. Luke's, Caterham Valley. — The new district church of St. Luke, Caterham, has been consecrated. It stands in the valley of the Bourne, between Croydon and Godstone. The site, with land for endowment, and for a parsonage-house, were presented by Mr. G. H. Drew. The church is a simple Gothic structure, built of bricks, in the style of the thirteenth century, and capable of holding 200 persons. The sittings are to be free. The interior, consisting of a nave, chancel, and organ-chamber, with vestry, is unpretending in appearance. The chancel is decorated by Messrs. Lavers & Barraud, who also furnished and designed the windows, of which there are seven of coloured glass, illustrating the parables and passages in the life of our Lord. A reredos, from the design of the architect, Mr. R. W. Drew, adds greatly to the beauty of the chancel. The church was built by the contributions of about 200 persons, and material was also given by some neighbours. An organ with four stops has been presented to the church by the Misses Westall; it was built by Mr. Nicholson, of Lincoln. The division of nave and chancel is marked externally by a bell-turret. The chancel is divided from the nave by a low wall of chalk. The chancel roof is open, the rafters stained. The walls of the chancel are decorated, and legends are illuminated under the wall-plate. The sanctuary walls, to the height of about 5 ft. are coloured green, with a diaper of red and gold. The east window (given by Dr. Westall) is of three lights, the centre containing the Crucifixion. The north light contains the Visit of the Three Kings to our Lord; the south, the Three Marys visiting the Sepulchre. In the tracery above is the symbol of the Holy Trinity. The window on the north side of the chancel, by Dr. Carpenter, of Croydon, represents the Annunciation and Purification of the Virgin Mary. Near the pulpit is our Lord teaching. This was the gift of Messrs. Lavers & Barraud. The windows on the south side (four in number) are filled with stained glass.

The Builder.

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The Revelations of Early Christian Art.

It has been doubted whether it is possible to live in foreign cities and write aught, save news, for an English public. Absentees unwittingly fall into arrears in the currency of thought, tastes, and modes of expression. The protracted residence of Madame D'Arblay in France made a most marked difference in her style of composition. The change was so great that it is difficult to realise that the hazy pen that edited Dr. Burney's memoirs could be the same that created such an unparalleled sensation in literary circles but a few years before. The same influence was not without effect upon the writings of the chief poetess of the day, the late Mrs. Elizabeth Barrett Browning, which, the longer she lived in Italy, became more and more tinged with reflections of the foreign literature and circumstances with which she was surrounded; or, at all events, more estranged from her original manner. We have to notice this alien expression in the style of a work just published by the accomplished son of another of our celebrated poetesses, Mrs. Felicia Hemans.* Doubtless the long residence of Mr. Hemans in southern climes has been of inestimable service, if not of indispensable need, in the execution of the task he has performed, but it has not taken place without leaving an imprint of the fact upon his mode of expression. Long, entangled sentences, knotted with associations of idea, frequently obscure his meaning, as his opening passage instances; while a statement that has been verified at the expense of much research, or a subtle speculation, or an idea full of suggestions, is cramped into a parenthesis which is often enclosed in another. This peculiarity should not be allowed to prejudice the minds of readers against a work which is in reality of great interest, and which could have been executed only by dint of laborious effort. Research is a process wherein much time may be spent, and where the results are frequently negative. Exploration of ancient remains, too, is another undertaking which is often rewarded with scarcely more than negative results. A writer, therefore, whose work depends upon research and exploration, shows us but a part of his labours when his book is published. For every statement he is able to make he may have scrutinized a score of records, written in cramped characters, with faint ink, in a dead language, which did not furnish him with further information; for every monument he may have found bearing upon his subject, he may have examined a dozen fruitlessly. We must give Mr. Hemans credit for many such tedious investigations in channels that are closed save to erudition of a first-class order; and also make allowances for typographical errors which, with the character of the type, proclaim that his work has been printed by foreign hands.

Our author sets out with the intention of writing a history of early Christianity as handed down by early art. But specimens of ancient art not being sufficiently numerous for this purpose, he insensibly drifts into the use of the authority of ancient literature for his statements, and also avails himself largely of contemporary literature as well as of contemporary ceremonies. Thus biographies of the early pontiffs and Christian emperors, accounts of the origin of the monastic orders and of the Gothic and Greek wars, with a condensation of the principal events of the seventh, eighth, and ninth centuries, form a large part of the framework on which he spreads his canvas. A work on art without a single illustration is like a garden with no flowers in it. We feel that something is wanting. The organ of sight is kept in constant excitement, or hunger, without any concession to its necessities. Following so closely, too, upon the copiously illustrated works of Mrs. Jameson and Lady Eastlake upon sacred art, the loss is felt still more acutely, as every excellence achieved elevates our standard. Pursuing the historical thread of the work before us, however, we lose sight of this deficiency.

The result of Mr. Hemans's researches among the monuments and muniments of early Christianity upon his own mind is the conviction that, in the first years after the Crucifixion, the supreme and certain object of every gathering of the followers of the new faith was participation in the Eucharistic rite; and that the oftener we allow the celebration of this sacrament to drop out of our church services the farther we depart from the original motive for congregating together. According to this view, the Eucharistic rite should be the first essential in every service, instead of a periodical celebration: all worship, as well as teaching and ceremonial, should revolve round this mystic centre. But he is not quite clear as to his precedents. At page 43 he thinks the rite was of daily recurrence; later he states that it was not so, but in the second century was certainly held thrice a week, and always on the Sunday. Somewhat paradoxically, though he would rebuild the ritual of the church from this point, he would incorporate sentiments that he informs us have no expression in art till centuries have intervened, on the grounds that they have been entertained by the good and wise. Without going further into the particular convictions with which our author's mind has become imbued in the prosecution of his work amidst the gorgeous influence of Rome, we will confine ourselves more especially to the art-works to which he calls attention as illustrative of his theme. Unfortunately the objects that relate to the stay of the Apostles in Rome are deemed spurious, even the site of the martyrdom of St. Peter being contested by rival claims.

We must go back to that distant time when the Apostles have slowly and sadly turned their faces from Jerusalem, and are spreading themselves abroad preaching the new religion to which the stupendous seal has just been affixed. Two of them are in Rome. These are SS. Peter and Paul. Ciceroni show an impress left by the hand of St. Peter in the wall above the staircase in the Mamertine prisons, and another made by his knees in the church of San Francesca Romana; and, with still more daring flight of imagination, a foot-print of the Saviour. Mr. Hemans disclaims these, especially the latter, which he calls "an awkward attempt, quite unsuccessful in art." He directs us to look for more legitimate memorials of the Apostles in the two churches between which these relics were divided; and as these are the work of much later ages, we realize that association of idea is, in fact, all that Rome possesses of this period. The first early Christian architectural relic to which Mr. Hemans draws attention belongs to the third century,—this is the miniature basilica restored by Crescimbini, in the last century, from the effects of an inundation of the Tiber, which had rendered it inaccessible. It is believed to be the place of Christian worship consecrated by Pope Dionysius, between the years 261 and 272, within the confines of a Pagan temple. We now find it below a basilica first built with the remains of this edifice, in the eighth century, and rebuilt in the twelfth. It is a small, low, dark crypt, having sixteen arched niches around the walls. Mr. Hemans gives its measurement as 34 palms in length, and 17 palms in width. He describes it as having a flat stone roof immediately resting on the capitals of six columns, which display the rudest form of imitative Corinthian. The columns mark the boundaries of a narrow nave, with two aisles. At the end of one aisle there is a stone sedile; at the end of the other, a recess that may have served for a credence-table; and on the column nearest the altar, our author notes that he saw the remnant of an iron rod, for drawing curtains before the sacred table, "according to the early usage, that removed from public gaze all save particular passages in the Eucharistic sacrifice." The date of these fittings, however, Mr. Hemans can scarcely insist on. The arched recesses are only of sufficient height to allow of kneeling with the face turned to the wall. The only other noticeable feature in this interesting fabric is a small chamber behind the altar, now closed, which Crescimbini accounted for as having served for the sinking of veils or handkerchiefs from above upon the relics that were probably deposited here, as in the oratories and crypts of a later period. On Ash Wednesday only is there any public rite performed here, when, our author warns, there are such tasteless ornaments displayed, that its grave, simple character is injuriously affected. There is another crypt, which was used as an oratory in the early days of Christianity, under SS. Cosmo and Damiano, on the Forum. This is a "low-roofed cell, like a sepulchre," with a vaulting of stuccoed brick, and walls partly built of travertine, and the rest of brick. A third crypt occupies the site of the house of the Aquila and Prisca whom St. Paul mentions as his fellow labourers in Christ; where, however, the only object connected with these early times by reputation is a large Doric capital, which St. Peter is supposed to have used for the baptism of the tent-makers just mentioned, and other converts. Thus and always we find, that in art, as in nature, there has been continuity at work, rather than catastrophe.

The earliest objects associated with Christianity present no evidences of a new birth in art. Some centuries supervene before the departures from Pagan types are so remarkable as to constitute a new style. We have further evidence of this. Not only were the first churches adaptations of the basilica, but the first monasteries were planned upon the same principle as the antique Roman mansion. Fleury draws attention to this resemblance: "The church, which stands foremost so as to allow free access to seculars, occupies the place of that outer hall the ancients designated *atrium*, from which was entered a court surrounded by covered galleries, known as the *peristyle*, precisely corresponding to the cloisters we enter from our churches; whence we pass into other compartments, the chapter-house answering to the *exhedra*, the refectory to the triclinium of the ancients; and the garden, usually at the back of the edifice, is placed also like that of the antique residence." After contemplating this progression founded on continuity, there will be many who will accept the development theory as applied to architecture. But when applied to

* A History of Ancient Christianity and Sacred Art in Italy. By Charles I. Hemans. Williams & Norgate, Henrietta-street, Covent Garden, London, and South Frederick-street, Edinburgh; Goodban, Florence; Piale, Rome. 1866.

human thought, investigations into these early times only puzzle us. The sentiment of Cassiodorus, which Mr. Hemans properly remarks should be written in letters of gold, seems to have reversed the march of centuries. He wrote in the name of Theodoric, to whom he was Statesecretary: "Since the Deity has permitted that more than one religion should exist, we dare not take upon ourselves the task of prescribing any one in particular, remembering that we have read that man ought to serve God voluntarily, and not by command of those who use force." This advanced thinker belonged to the fifth and sixth centuries, and was gathered to his fathers before the pontificate of Gregory I. raised the papacy to the position it maintained in the succeeding centuries. The continuity of progress has scarcely been maintained since this utterance.

We have mentioned these early remains particularly because they are not often visited by the architectural student; and, in this instance, they have been examined with a special object in view.

For the same reasons we will follow Mr. Hemans's steps through the catacombs. These he has looked at from three points of view:—first, by visiting them; then by examining such of their contents as have been removed to museums; and, also, through the medium of Rossi's great work on the subject, the first volume of which gives 1,374 examples. Even here, continuity in art is the most noticeable fact. There is no triumphant expression of the new doctrines in the early monuments in these subterranean depositaries; nor even any rendering of certain subjects which are now the most frequent of its phases, such as the Annunciation, the Last Supper, the Entombment, the Resurrection, and the Ascension. Feasts, or suppers, are, indeed, sometimes indicated in which the bread bears the mark of the Cross, but this is the *cœna funebris* of the Romans. Mr. Hemans is candid upon all these points, but scarcely sufficiently exegetical for practical purposes. The absence of any break is conclusively shown in the sculptures and paintings in the catacombs in which Pagan deities are mixed up with figures representing Christians, as in a banquet, quoted by Mr. Hemans, at which Irene and Agape wait upon the guests. The names of these two figures are written near them, so that there can be no incorrect interpretation here. The symbol representing the Trinity does not occur till what our author indefinitely calls "a comparatively late period;" nor does the now popular presentment of the Virgin and Child appear till the fourth century. It was not, indeed, till 431 years had elapsed that the Council of Ephesus elevated the Virgin to the pedestal she has since occupied in art by the famous declaration that she was not merely the Mother of Humanity, but of Deity in Christ. Neither is there any indication of prayers for the dead having been one of the recognised rites, nor of the doctrine of purgatory. But in all these matters sacred art, like sacred literature, is capable of being interpreted in different ways; and Mr. Hemans can see, for one, though no treatment of these subjects, a nucleus of feeling in some epitaphs which might naturally expand into ardent professions. He goes into the question of occupation of the catacombs by the early Christians as places of long-continued refuge; and thinks the evidence points to the conclusion that though they may have occasionally served as hiding-places for distinguished persons upon whom some price was set by persecuting authorities, they were not thronged with numerous inhabitants, as some legends would lead us to infer. There are no traces of such domestic residence. He also broaches the question of identity of these sepulchral corridors and chambers with Pagan *arenaria*; and follows Marchi in denying that the former could have possibly been, in any case, a continuance or enlargement of the latter, as the general scheme and dimensions differ so materially. But the fact that sepulchral chambers and passages were common to Pagan and Christians in the very heart of the civilized world, as well as to the semi-barbarous Scandinavians on its confines, has a deep meaning for anthropologists. The tendency of the uninformed human mind to exaggerate is seen in the computation of the number and extent of the Roman catacombs. The early writers, copying one another, mention sixty. De Rossi only finds forty-two, of which number only twenty-six are of great extent; and three of these are known to be of formation subsequent to the conversion of Constantine. The fourth century saw the transition from Paganism to Christianity still in course of progress. For a hundred and fifty-two temples in Rome looked down from antiquity upon but forty churches, and a hundred and eighty-three wayside chapels. Sacrifices were still offered in the former; mystic dances and songs enlivened the streets at Pagan festivals; crowds of devotees thronged to the temple of Æsculapius, and hung upon its walls offerings in thanksgiving for the recovery that often attended this exercise; the temple of Janus, with his threefold person, as Janus Geminus, Janus Father, and Janus Quirinus, was still open; and the rites of Cybele, "the Virgin mother of all the Gods," performed with an uproar that horrified St. Augustine, who wrote pithily:—"Miserable buffoons chanted before her car indecent verses such as it would be unbecoming, I do not say for the mother of the gods, but for the mother of any person respectable in quality, to hear." Another festival, the influence of which was not to be expunged from the new faith, was still in great popular favour. This was the Saturnalia, then named the Calends of January, and now known as the Carnival. One step, however, had been made. The oracles were dumb. And here we must quote Mr. Hemans to show his comprehensive charity and capacities for believing all things. He says,—"Whatever the degree of imposture and illusion, priestcraft or phantasm, mixed up with such agencies of olden idolatry, the idea of some supernatural element in the oracle-system scarcely deserves the contemptuous rejection it has often met with; but may be conjecturally admitted, when we consider how little we know of the spirit-world that surrounds us, and how unfathomable the mystery of the realities, perhaps removed but by a dim veil from our cognisance." There was, moreover, a stride made in architecture. The new plan carried out in the rebuilding of the Ostian basilica reversed many of the arrangements of the former structure: most notably, the supreme change from the west to the east in the performance of ceremonies. At St. Peter's and the Lateran, it will be remembered, the celebrants still face the west; but from the rebuilding of the third great basilica of this period the choir has occupied the east end all over Christendom. Mr. Hemans thus describes the new structure:—

"In this building's design the leading idea seems taken from the antique basilicæ, with the adjunct of a transverse nave, giving to the whole a form like the letter T; central to which compartment was the 'confessional,' or apostolic shrine; the nave and four aisles being divided by columns, twenty in each file, in part the spoils from classic monuments,—perhaps (though this is uncertain) from Hadrian's Museum,—but, for the rest, different in scale, material, and in the orders of the capitals and basements; the architectonic plan so strangely defective that even the intervening spaces were unequal. Instead of the architrave was preferred the surmounting arch—one step of progress since the building of St Peter's; and above this arcade rose a very lofty attic, quite bare, till at a later period adorned with fresco portraits of the popes in chronologic order."

He, reverberatingly, mentions the basilica over and over again as the source whence the general plan of Christian edifices was taken. Of the numerous buildings erected by Constantine on his profession there is but one still standing in anything like its integrity; and this is the mausoleum of his daughter. His churches or basilicæ were built so hurriedly that they nearly all fell into ruin soon after his death. In the ancient St. Peter's there was, our author agrees, "but a barbaric attempt, though indeed imposing and venerable, in which was manifest rather the ruin of an ancient than the birth of a new style." Concerning this see early art brings clearly before us that St. Peter and St. Paul were considered co-founders of it of equal spiritual rank. In the catacomb of SS. Nereus and Achillus, in a group of the Saviour and his Apostles, these two are represented sitting while all the others are standing. In a fresco on the wall of a subterranean vault, supposed to be the oratory of St. Sylvester, the Saviour is represented between the same two apostles. Among other numerous instances they occur as medallions, facing each other, on a bronze in the Vatican Museum, taken from the Callixtan catacombs; and they appear on some of the glasses found in these sepulchres. Concerning this parity St. Ambrose wrote,—"It is indeed uncertain which of these can be preferred to the other; and I must deem them equal in merit as they were equal in martyrdom." St. Peter, however, as years roll on, gradually emerges from this equality and takes precedence of the impassioned Paul. As centuries pass over each other, art, reflective in the highest degree, shows how his successors altogether discarded his simple mode of life, wrought no more at tent-making, but gradually made footing in the company of kings. Mr. Hemans mentions, with characteristic richness and warmth of expression, the work of art which first indicates the high temporal rank assumed by the pontiffs:—

"In another mosaic, ordered by Leo III., was for the first time introduced royalty by the side of sanctity,—the image of a king associated with apostles,—curious evidence of that new position now formed for the papacy among secular potentates,—Charlemagne with diadem, jewelled mantle, and sword, together with the Pope in sacred vestments, and the chief apostles, now appearing in the church of S. Susanna, where, through the Vandalism of modern restorers, the historic art-work was destroyed in the year 1600."

It will be seen that the revelations of ancient art are historical, not doctrinal. They make us acquainted with nothing more of the habits of the early Christians than does the younger Pliny in his letter to Trajan. They "assemble on determined days at dawn of morning, to recite alternately hymns to Christ as God, binding themselves by oath not to commit crimes; not to defile themselves by frauds or adulteries; not to violate trust or deny deposits confided to them; after which they separate to convene again, in order to partake of promiscuous and innocent food." But the history of the false interpretations put upon the sacred story in different generations; of the absorption of many of the classic customs into Christian practice; of the gradual creation of a new style of architecture; of the supreme position eventually attained by the Papacy in the Middle Ages; in fine, of the literature, art, and politics of Christianity, has been told fervidly and feelingly by Mr. Hemans.

DESTRUCTION OF HAMPSTEAD HEATH.

Few things better repay examination, or more fully arrest the attention, than ancient maps. In these records of the past we can detect much that the limner quite unconsciously set down. We obtain indications of the taste of his age, of the social conditions and habits of thought of his day. Perhaps the spare corners of the sheet may be adorned with groups that preserve, with a truth the more incontrovertible in as much as the testimony of the draughtsman was spontaneous, the costume, the armour, or the heraldry of the day. With delineations, more or less accurate, of ancient boundaries, we find generally those conventional exhibitions of the nature and character of the country which have been displaced by our modern chorography. In such works as an ordnance map every line has a distinct value, and positively represents some natural object. Every incident of detail is accurately placed, and where, for the sake of distinctness of representation, exaggeration of scale is resorted to, as in the case of the width of roads, such distortion is not left to the caprice of private judgment, but is in accordance with theory and with rule. The contour lines of the large maps give definite information as to level. The shading of those on a smaller scale conveys similar information with less minuteness, but not with less attention to truth. A wood is not now represented by rows or sprinklings of sturdy cabbage-headed little trees, nor do we adorn the blank spaces of the hydrographer with imaginary marine monsters, or with the beauties of the court of Neptune. A marked and important change in accuracy of habit, and in the facility of applying correct delineation to the representation of nature is evinced by the improvement which the present century has effected in our maps. Nor, in referring to the minute elegance of our own draughtsmen, should we omit to pay due regard to the excellence of those physical charts, or rather quasi bird's-eye views, which find favour on the Continent, plans which so represent the features of a country as to enable the student to grasp its natural character with a truth and distinctness that maps covered with names, and constructed for the purpose of consultation by means of scale and dividers, can but feebly aid him to attain.

Of any series of plans that can be consulted there is none more worthy of attention than that of the maps of London. Mr. Crace tells us that there is no known plan or reliable view of London earlier than the sixteenth century. It is not, however, necessary to go back very far,—the difference between the London of our grandfathers and that of our day is enough to fill the imagination. Many of us can well remember when the immense Bayswater district was not,—as any part of the town; when the pioneers of the London and Birmingham Railway had their quarters at the Eyre Arms,

with hardly a house standing north-west of the Regent's Canal; when the present site of Eaton-square, known as the Five Fields, was lonely, and unsafe for foot-passengers after dusk. If we look at a map of the year 1760, we shall find London still more modest in its dimensions. The New-road to Islington ran wholly through fields, and the open country came down to the then healthy and airy site of the Foundling Hospital. London then, if we take its rate of increase since 1800 as our guide, contained less than half a million of inhabitants.* Its present growth demands a yearly revision of its map.

In this rapid and portentous growth of a metropolis, now covering 122 square miles, the jealous attention of those permanently interested in the welfare of the home of a sixth part of the inhabitants of England has been, from time to time, wisely directed to the preservation of those great breathing-spaces,—architectural lungs, as it were,—which are daily becoming of more vital importance. Hyde Park, we remember, has been so far held sacred, that the most novel, and one of the most beautiful structures of the century was cleared away from the site that was only lent for the Great Exhibition. Even the formation of a new road, or a new drive, through the Park is matter of diplomacy; and it is well that such should be the case, for, westward of Park and Gardens, cooping in and eating into Holland Park, girdled and regirdled with hideous lines of railway viaduct, horrid with shrieking engines, and veiled in clouds not only of steam but of smoke, London is closing in beyond Kensington, and speeding, almost as fast as a snail can crawl, down the western roads. We do well to secure the aid to purifying the atmosphere of London that is afforded by the parks, for the country air is now sadly de-ozonized before it reaches the elms and pines of Kensington.

But in another direction, towering over the sea of city life, as Mont Martre looks down upon Paris, lies a spot which of all others is precious to the health and dear to the memory of the Londoner. Within easy reach of groaning omnibus, or toiling cab, or sturdy and brisk pedestrian, is a region of heath and of sand, shaded in parts by ancient pines, and gladdened by the pure breath of the country. The sun, as far as we are acquainted with that luminary in England, looks down with but little obstruction on Hampstead Heath. The winds bound to its service at one step from Stanmore Common, leaving free beneath them the whole valley that pours its rainfall into the turbid torrent of the Brent. The late caroneer at Jack Straw's Castle need no longer fear being stopped on his return to London by the boon companion who had applauded all his allusions to the decay of old English spirit by the repeated cry of "Them's my sentiments, sir; them's my sentiments, to a T;" but the name of the Vale of Health is still retained and still deserved. No greater calamity, of a physical character, can befall London than the covering of Hampstead Heath with buildings.

This calamity is not only imminent, but actual. After our wonted English habit, classical, no doubt, from and since the times of Ethelred the Unready, we have taken no steps to avert a great evil until it is bodily at our doors. We have been content with the dim belief that some legal impediment, unintelligible to any but the lawyers, but providentially invincible for an existing lifetime, existed to keep the sacred heath from the clutch of the builder; and perhaps the most patriotic and practical among us have prayed for the lengthened life of Sir Thomas Wilson. We have been content that the proprietor of the spot should be compelled vicariously to suffer, in purse, at least, for the health and amusement of the citizens of London, using the term in its widest, not in its technical sense; and, if we are honest, we must confess to a more or less open chuckle of satisfaction at the announcement, so often repeated, that the Wilson Building Bill has been again lost for the present session.

At last the cry of "wolf" is real. The builder is actually at work. An Irish invasion, not of riflemen but of hod-bearers, has established itself on the very glacis of the fortress of Jack Straw. "The first house," we are told by one who dates from the Grange, Hampstead Heath, "is in course of erection by the lord of the manor, at the flag-staff, the very point which commands the most magnificent of our views. Brickmaking is to be extended over a considerable portion of the heath, and the rest is to be covered with cottages and huts; in fact, another Agar or Kensal Town is to occupy this splendid site." The residents on the heath, very naturally, if somewhat tardily, convinced of the urgency of the danger, have been with deputations from Hampstead, Marylebone, Islington, and St. Pancras vestries, to urge the interference of the Metropolitan Board of Works, and, as far as appears from their statement, the effort has been made in vain. They now appeal to the public to raise their voice in favour of the carrying out of the recommendation of the House of Commons Committee in 1858 for concluding some equitable arrangement with the proprietors by which this most important site shall be kept free as a lung of London.

It is not easy to exaggerate the importance of this object. Every single individual resident in London, or partially resident in London, has a direct personal interest in the matter. No question of cost should be allowed to interfere, no sum that could be demanded, under the sanction of a Parliamentary power to grant a good title, would be worth consideration in comparison to the great injury to the health of the metropolis, and to the atmosphere breathed by the metropolitan population, that would be incurred by the loss of this most precious open space. Its conversion into a smoke-producing, deoxygenating crater, wafting a fresh canopy of foul vapour over the oppressed city whenever that which now is the purest and healthiest of our local winds may blow, would be felt, consciously or unconsciously, by every pedestrian in our streets, by every one who sleeps beneath a London roof. That the rate of mortality would be sensibly increased by the misfortune is, of course, only an opinion, but it is an opinion which naturally results from our statistical knowledge. And it must be remembered that an increased rate of mortality is not the only, nor perhaps the worst, evil that is produced by every fresh augmentation of the poisonous character of the atmosphere of a crowded city. There is much that makes life undesirable, without very materially shortening its duration. Head-ache, nausea, lassitude, indisposition to exertion, loss of appetite, nervous depression, aversion to business, disposition to dawdle and to fritter away life,—these and the like evils may be almost regarded as *functions* of atmospheric impurity. The effect of the loss of Hampstead Heath on the discomfort of the people of London would be greater than any possible statistical returns can enable us to measure.

What is every one's business, it is said, is no one's business. We trust in the present case it is not so. It may be the duty of the immediate residents and neighbours of the Heath to come forward in the first instance, to labour at effecting a nucleus of organization, to set the example of subscription. It is for the press, in all its ramifications; and, if there be a distinction, it is eminently for the scientific press, to give publicity to the danger, to place those who would resist it in ready and free communication. It is for the Government to avert this blow to the seat of the Legislature, of the executive, and of the Courts of Law; and to aid, and by gentle pressure, if need be, to force, the Government to do so, is the duty of every man who has the wit to see coming evil, the pluck to strive to avert it, and the confidence that he is not a mere insignificant and useless unit among the mass of animal consumers of oxygen.

* "Maitland," according to Pennant, "gives the total at the time of his publication, 1750, to have been 725,351. The increase of London since his days gives a probability that the enumeration is not much exaggerated." The only authorities, at this time, as to population were the parish clerks.

ART IN ITALY.

THE two committees for promoting the representation of Italy at the Paris Exhibition seem to prosecute their task with zeal and intelligence. On the motion of one of the councillors, Signor Salvagnoli, the Florentine Council have passed a resolution to frank to Paris and back twelve capable artisans, who shall be required to draw up their reports after the instructive tour, with the stimulant of two 500-franc prizes for the best such essays, as in a former case. The individuals to be thus favoured must be chosen and voted for by ballot out of an aggregate, twelve to be presented by each of the communal councils from the same industrious class; and it is desired that the elect twelve should represent severally the industries of leather, cotton and silk manufacture, of weaving, glass and wax-works, and metallurgy. For the expenses the council voted 10,000 francs, inclusive of the 1,000 for prizes,—not indeed enough to provide any luxuries of travel to those honest workmen. Another interposition of Prince Umberto has been in form of a proclamation, setting forth the importance to national honour and interest of the undertaking now so earnestly promoted, and dwelling upon the theme in a tone that has won general approbation from the Italian press.

In insisting upon the necessity that the arts of peace should now be especially cultivated, and social improvement aimed at by the nation, this document seems to bear a certain political character, and appreciates public circumstances aright. Another notification lately put forth by the chief committee, takes a review of the beneficial results to this country from the first great London Exhibition in 1851: the impulse therein given to the cultivation of cotton and to steel manufacture, the introduction secured for mosaics of Venetian glass and for Tuscan wood-carving in England, and the export trade opened for certain Italian wines, formerly scarcely known abroad. At the last Dublin Exhibition it is stated in this report, the articles of Italian produce sold brought the price of more than half a million francs; and another good consequence to this country from its successful concurrence in England, was the founding of the first Italian Industrial Museum, which thence originated. The municipality of Florence has been applied to by the same committee for pecuniary aid towards the promotion of objects so interesting to the national cause, but instead of at once voting a subvention, those magistrates appointed a board of councillors, to deliberate as to the extent to which they could co-operate or make sacrifices.

On the 16th of November was inaugurated the usual winter course of public lectures on belles lettres, philosophy, and science, at the Florentine Accademia, the opening address being made to a large audience by Donati, professor of astronomy. Interesting was the announcement with which the learned professor wound up his discourse on that morning, of the authoritative decision to found a new observatory, much ampler and worthier of the Italian capital than that Florence now possesses, the costs having been undertaken by the provincial council. And we see that that body has since voted 30,000 francs towards the new building, which is, we understand, to rise on some suitable eminence beyond the city walls. The other course of public lectures, alike kept up throughout the winter, at the Royal Museum, commenced about the same time, and now comprises the usual range of sciences, astronomy, physics, geology, botany, and metallurgy, but the chairs of chemistry and mining are vacant this season.

On the 25th of November was opened the annual Exhibition of Painting and Sculpture by the Florence "Society for the Encouragement of Fine Art." Four halls were filled with pictures, two with statues and busts on the premises of this Institution. We cannot say that our impressions have been generally favourable, or that this display has seemed, on the whole, worthier than in former years, when we have had occasion to report on the exhibitions of the same Society. It is noticeable, however, that several names among those of highest mark fail to appear among concurrents whose works are now brought forward. In the sculpture-rooms we do not find a single production from any of the studies most celebrated in this city: nothing by Dupré, or Fedi, or Santorelli, or Powers. A statue in gesso, above life-size, of Garibaldi seated on a rock in his island home, absorbed in serious and severe meditation, by Signor Pagliacetta (said to be his very first work), is full of individuality and truthful; indeed, the most striking among the aggregate. The boy "Giotto," sketching upon the ground, by Monti, is a pleasing figure; and a love-scene, apparently "Francesca da Rimini," by Cerri, of statuette proportions, is highly dramatic, but with the effect of painting rather than sculpture. Among the pictures are some good landscapes, and interesting specimens of the *genre* class; also not a few, sufficiently effective, from the suggestive sphere of Italian Mediæval or Cinque-cento annals. Of Dante and Petrarch we see quite enough, if not too much, both on canvas and in marble. Among the *genre* pieces are two, strikingly dramatic, by Rapisordi, who fails not to maintain his high reputation in this walk, and here presents a scene of love-declaration and another, its

contrary, styled "The Disillusionment of Love." The "Duomo of Milan," by Canella, is the best among numerous treatments of architectural exteriors and interiors. Such few sacred subjects as appear must be placed at the bottom of the list, — deplorable proofs of Italy's decline in the art-presentment of the religious Among novelties of the studio *not* at this exhibition, we may mention two ideal busts by Mr. Powers,—Faith and Hope, to be accompanied by the inseparable Charity, both expressive, and marked by a tender loveliness which this artist knows well how to give to his female subjects; also by another American, Mr. Ball, a statue, heroic size, of the tragedian Forrest, in the part of *Coriolanus*, ordered by some admirers at New York to be placed in a public hall at Philadelphia,—as to effect, a fine specimen of muscular humanity in classic disguise, but *not* an ancient Roman hero. More satisfactory is the same artist's sketch for a monument to the President Lincoln, with a slave crouching, yet looking up with a gleam of hope on his negro-face, at his protector's feet, and the last words from the Act of Emancipation inscribed on the basement as worthiest record of the illustrious victim.

The memorial of the annexation of Venice, placed in the Orcagna Loggia, consists of a St. Mark's Lion, in low relief, of dark grey stone, with the epigraph thus to be read, *Anglicé*,—"A record to posterity that on the 27th October, 1866, the Venetians, uniting themselves by unanimous vote, in this first comitia of liberty, to the Italian Kingdom, thereby secured its independence." Near this is hung a stone shield with the azure cross of Milan, and another inscription, referring to the gallant expulsion of the Austrians, in '48, as, "the signal for the first war of independence." But both these objects, however venerable from the patriot point of view, are too materially insignificant to add a feature at all noticeable to those grand arcades on Florence's most historic piazza. At the Pietra Dura (or Tuscan Mosaic) establishment is being prepared a magnificent table for Paris, with doves in the centre and various floral devices round the disc. Nothing more is said about the preparatory exhibition in this city of art works that pass muster before committees for the display at the French capital,—a project that came from the literary, not the artistic world.

Before the year closes Florence will have cast off the cincture of her old walls in at least the entire northern and north-western extent; and will have seen arise into partial completeness an ample new quarter of streets for the wealthier classes on the formerly unbuilt level between the Pinti and San Gallo gates, besides considerable enlarging, since this year opened, of the more fashionable quarter at the Lung' Arno extremity towards the Cascine. In style these new buildings show the prevalent modern Italian, with a good deal of stone facing and cornice-work, arched on triangular pediments to windows, and a general avoiding of monotony by adopting for each house in the street-line a different, or at least not uniform, design; but, except only in the Corsi palace, no attempt at the *grandios* or anything to impose by dimensions. An extramural road now being made beyond the Porta Romana, striking off along the high ground past Poggio Imperiale, promises to afford, perhaps, the pleasantest promenade in Florence.

ON STRIKES.

At the last meeting of the Statistical Society, Col. Sykes, M.P., presiding, a paper was read on "Combination and Strikes, with reference to Wages and the Conditions of Labour," by Mr. Jacob Waley, M.A. The following is an outline of the essay, which was attentively listened to by a crowded meeting of members. Mr. Waley first discussed the question whether strikes were in any case economically justifiable. He said that question must be answered in the negative if, in the nature of things, and under the operation of irreversible, economical laws, the labourer was incapable of obtaining, by means of a strike, any important advantages which could not more readily and beneficially be obtained by less violent means. This was a matter upon which the greatest possible differences of opinion still prevailed. So much of capital as was paid in wages was the fund to be divided amongst workmen. Its proportion to their number determined the rate of wages. Capital was attracted to a prosperous, and repelled from a declining trade; and the interest of the workman was therefore bound up with that of his trade. Capital and labour at variance were like two heads on the same stem, in perpetual conflict, notwithstanding their having common sensation. In a declining trade, a strike, by augmenting its disadvantages, might cause its ruin. Notwithstanding strikes, there was prodigious activity in the London building trades which could not be transferred to a foreign soil; and, in spite of them, coal, iron, pottery, and cotton industries flourished. In fluctuating trades, where there must be a large margin of uncertainty in the division of returns between profits and wages, a strike may advance the latter, perhaps permanently. It was difficult to say how far wages rose naturally with prosperity; and it would be well if employers would prove by examples that they did so. Reviewing certain strikes, and deducing inferences, Mr. Waley questioned the received mode of computing the losses of the workmen during a strike by adding the amount actually expended to the loss of wages. The money expended took the place of part of the wages which would have been earned. The contributors took upon themselves the loss represented by their contributions; the balance of the loss of wages fell upon the workmen on strike; but the aggregate of the workmen's loss was equal to the amount of wages which would have been earned, and no more. Having shown that historians of the strikes of the engineers, the Preston operatives, and the London builders, considered that the balance of advantage, consequent as well as immediate, was on the side of the men; Mr. Waley remarked that there were more solid and cogent reasons for preserving the integrity of the standard working-day than for abridging its duration. He saw no objection, but rather the reverse, to workmen directing their efforts to a reasonable and moderate reduction in the hours of labour instead of to a rise of wages. Referring to apprenticeship restrictions, he said it must appear strange that, after legal requirements had been removed, others should be voluntarily imposed; and they must have a pernicious effect in preventing the transfer of labour and in hindering the workman from bettering himself. On the whole, although apprenticeship might be sound as a practice, it was questionable whether it could afford a reasonable ground for combined workmen to make a stand upon against the masters, who, finding capital and running risk, must mainly control organization and industry. Whilst conceding that the power which combination conferred upon the workman was essential to his protection, it must be earnestly desired that that power should rarely be called into active exertion, that its effect should be felt rather in promoting peaceful solutions and averting contests than in provoking them or determining their issue. That in some districts strikes were so chronic, must arise from some serious unsoundness in the relations of employer and workman. Discussing remedies, he passed over courts of conciliation as inapplicable to a free bargain, and referred to the successful experiment at Methley Colliery, dividing profits above 10 per cent. with workmen, shareholders, and customers, which Messrs. Briggs found more profitable to themselves than their former plan of working. Messrs. Fox, Wood, & Co., of the Newport Rolling Mills, Middlesboro, had introduced a similar scheme, without making a joint stock company. These schemes did not go as far as ordinary co-operation, which might ultimately affect materially the organization of labour. Meanwhile, candour, good temper, and understanding of true relations must be relied upon. On the whole, he thought the following conclusions might be accepted as being in accordance with the facts:—The single workman is, when alone, no match for his employer. His weakness naturally leads to his combining with others having the same interest with himself. This combination may be legitimate though not confined to the workmen under one master, but much more extensive in its scope. The workmen of a trade may fairly combine for upholding common trade interests against a master or any number of masters. A strike, or the fear of a strike, is the last resort of workmen for enforcing a more favourable bargain with employers. Without the assistance of an extensive organisation by which funds could be collected from workmen in employment, and applied for the maintenance of workmen on strike, it would hardly be possible that a strike could be conducted to a favourable issue. Hence the connexion between trades unions and strikes. A strike for a rise of wages, or a reduction in the hours of labour, if made when the condition of trade renders such a demand reasonable, if not resorted to until peaceable means have failed, if carried on without violence or intimidation, is not necessarily to be condemned on economical or other grounds; but, as it is sure to inflict great loss and distress, and to impede the production of the wealth on which both employers and workmen must live, it should be regarded as a great calamity; it should not be undertaken without careful consideration of the circumstances of the trade, nor while there is a chance that the dispute may be amicably settled by peaceable means. Employers must consent to abandon the autocratic view of the position of the chiefs of industry; they must be forbearing and conciliatory in their relations with their workmen; they must recognise in the trades union a power co-ordinate with themselves, and consent to regard it as representing the workman in those matters on which the workman has a right to be heard,—such as his hours of labour and the salubrity of the factory in which he works. On the other hand, they are not bound to admit of the interposition of the society as to any matters not immediately connected with the remuneration, health, and comfort of the workman. Workmen, both individually and when connected in trade societies, must bear in mind that they have a common interest with their employers as well as a separate interest. Both are interested in the augmentation of the trade resources which form the fund to be shared between them, and it is only when the apportionment takes place that there is room for variance. Trade unions must avoid meddling and officious interference, as those whose means keep industry going, and who run the risks attendant on industrial undertakings, must be left to control and discipline industry. Unions must cease to assume that there is an antagonism between them and the masters, and must bear in mind that they are doing their constituents incalculable mischief when they hinder the growth and impair the prosperity of the trade to which they belong. They must keep to their own function, that is, the protection of trade interests and the due administration of their common funds. Their action for political objects can only be fatal to their efficiency for the purposes for which they were formed. Above all, they must respect the freedom of others, whether masters or workmen. Only when they abstain from coercion, rely on the free and voluntary support of their members, and forbear to interfere with the liberty of others, can they expect to win respect or support from enlightened opinions. In the ensuing discussion the views of Mr. Waley were generally endorsed.

PRESERVATION OF FRESCO PAINTINGS.

The substances employed, says the *Dingler's Polytechnisches* Journal, for the preservation of fresco paintings, should satisfy the twofold condition of protecting them from the effects of the atmosphere, and of giving them transparency, so that they may have a warmer aspect. Soluble glass has been proposed, and even in a certain measure employed, for this purpose. But M. Kaulbach, of Munich, whose opinion in this matter has certainly much weight, has pronounced against the use of glass for ancient as well as new frescoes; and M. Vobl, after having made some experiments, completely agrees with him. If we consider attentively the composition, the properties, and the reactions of soluble glass upon a substance containing lime, we observe that this glass, being a combination of silicic acid, with an alcali (soda or potash), exerts a powerful alcaline reaction, and is decomposed, in contact with the calcareous salts, so as to form a silicate of lime, leaving a certain quantity of alcali at liberty, which afterwards combines with the carbonic acid of the air.

If, then, a fresco painting be coated with silicate of potash, this alcali becomes free, attracts the carbonic acid of the atmosphere, and forms a salt, which, even in a neutral state, is deliquescent, and renders the wall damp. After a lapse, however, of some time, this salt having absorbed a fresh quantity of carbonic acid, is changed into the bicarbonate of potash, which no longer absorbs the humidity of the air, effloresces in minute crystals, and separates from the wall. The thin coating of silicate of lime, with an excess of acid, soon crystallises and scales off,

taking with it a portion of the colour. If the soluble glass has been prepared with soda, the same reactions take place, except that in very dry and warm days, especially in summer, the carbonate of soda effloresces in a remarkable manner, and covers the wall with a white crystalline mass, like mould, which in falling off detaches the colour and gradually destroys the painting. It is only at first that the water-glass consolidates the frescoes; afterwards its tendency is, more and more, to destroy the painting. The successive effects can be observed in the church of Saint-Gereon at Cologne. In several cases, when sulphuret of arsenic or different oxides of copper enter into the composition of the colours employed, the alkali of the water-glass can alter and even destroy the colours. The process which, in most cases, has been employed by preference, and which not only consolidates but preserves the fresco paintings, and renders them more transparent, brilliant, and warm, consists in the employment of a solution of a neutral soap of wax in alcohol, or of wax in benzine. The first of these solutions allows a brilliant polish to be given to the walls; the colours are well brought out and become solid and durable. The only inconvenience arising from this treatment is, that in damp edifices the layer of varnish soon takes a yellow hue, darkens the lighter tints of the painting, and varies on different points the shade of the colours. This process was known for a very long period in Italy, especially at Herculaneum and Pompeii. For many years M. Vohl has attempted, with much success, to employ for the same use a solution of pure paraffine in benzine, or in Canada oil. One of these volatile oils is saturated with the paraffine, and the solution is spread over the fresco. When the dissolvent has evaporated a brilliant polish is given to the painting by rubbing it moderately with a brush or a fine cloth. This method is more economical than the employment of wax or of wax soap, and the coating does not turn brown. M. Hohe, professor at the academy of Bonn, has tried it, with much advantage, since the year 1861, especially upon the frescoes of the church of Schwarzrheindorf, near Beuel.

THE ROYAL ARMS OF ENGLAND.

ROYAL AND NATIONAL HERALDRY OF ENGLAND.

AT the meeting of the Architectural Association, held at the House, in Conduit-street, on Friday evening, the 7th inst., Mr. R. Phené Spiers, Vice-President, in the chair,—

The Rev. C. Boutell called attention to the royal and national heraldry of England, and commented upon its importance in connexion with architecture. He observed that the authorities for heraldry were ancient rolls of arms,—records written many centuries since, proved by internal and external evidence, ancient seals, which latter were regarded as valuable aids to the study of heraldry, and in olden times were considered of great importance in a legal sense, and monuments and architectural remains. A good deal of heraldry was invented before good heraldry was known, and it was attributed to people who flourished and died in earlier periods. The earliest seal known was that of Prince John, before his accession to the throne. The next example was the first great seal of Richard Cœur de Lion, and then came his second great seal, showing the three lions as they appeared in the royal arms in our own day. The golden lion on a red ground was the lion of England. It appeared upon the great seals of Henry III. and Richard I. The French of that time not being disposed to be complimentary to us, called our lion a leopard. They could not understand a lion in any form except as a lion rampant, with its paws up ready to spring upon its prey. They drew a lion in a different position, and called him a "leopard," or *leon leopardé*, because he had his feet on the ground. The first important department of heraldry was called "differencing." In the reign of Henry III. it became necessary to distinguish his arms from those of his son Edward I., who was the first to use a riband, or label, with points. This he put over the shield displaying the royal arms. The earliest distinguishing label was invented by the first Earl of Lancaster, who took the same kind of label as his elder brother, but inscribed it with the *fleur de lys*, to show that he had married a member of the royal family of France. Further distinctions subsequently became necessary as the branches of the house expanded. The younger brother of Edward III. (John of Eltham) had for his arms three lions, with the border of France. This insignia was to be seen on his tomb in Westminster Abbey, where it still remains in as fine preservation as if sculptured but yesterday. Edward III. claiming to be King of France as well as of England, assumed the royal arms of both countries in equal proportions. These combinations might be observed in Westminster Abbey, attached to the hammer-beams of Westminster-hall, and also over the doorway of the hall, outside. Coming to the middle of the fourteenth century, the Prince of Wales, in order to distinguish his arms from those of the crown, put a white label of three points over the national shield. This first Prince of Wales (the Black Prince) had two shields, which he described in his will as his shield of war and his shield of peace. The latter was a black shield, with three white ostrich feathers on it, and it was still to be seen on his monument in the cathedral of Canterbury. The origin of a plume of ostrich feathers as the insignia of the Prince of Wales was involved in obscurity. The earliest record of it was an engraving on a piece of plate belonging to Queen Philippa, the mother of the Black Prince. The latter assumed the ostrich feather on his seal and upon several of his shields. The King of France, not highly approving of the use of his arms by the King of England, made an alteration in his shield, by reducing the number of *fleurs de lys* to three. The arms of the Prince of Wales's eldest son were similar to those of Edward II.; but on the centre point of the white label of three points was the red cross of St. George, and this was the shield of the infant son of our own Prince of Wales at this moment. Mr. Boutell next traced the manner in which the arms of Scotland and of Ireland came to be quartered with those of England, and how the arms of Hanover were subsequently added. An illustration was, he said, still to be found over a shop-door in a court on the right-hand side of Ludgate-hill. It was, he remarked, somewhat singular, that although the title of the heir to the Crown was derived from Wales, the arms of the principality were not borne by the Prince of Wales. This was an extraordinary circumstance, which heralds were wholly unable to explain. He suggested that the royal arms were susceptible of a useful alteration, by omitting as the fourth quartering a repetition of the first (the three lions) and substituting the arms of the colonies or of the principality. The quartering then would be England with her three lions, Scotland with her lion rampant, Ireland with her golden harp, and, lastly, the arms of Wales. The colonies might subsequently be represented by a small shield, or, in heraldic language, a pretence, affixed to the centre of the shield, as was done in the case of Hanover when that country was a possession of England. The rev. gentleman next referred to the flags of the three countries, pointing out how the Union Jack had been dexterously formed out of a combination of the St. George's Cross of England, the Irish Cross, and the St. Andrew's Cross of Scotland. He also pointed out the manner in which modern heralds, following in the line of precedent, had distinguished the younger branches of the Royal family of England. Thus the Prince of Wales had a silver label of three points; the Princess Royal a label with a St. George's Cross on the dexter and sinister point and a rose in the centre; the Prince Alfred two anchors and a St. George's Cross; the Princess Alice, the Ermine spots and a rose in the centre; the Prince Arthur, two *fleurs de lys* and a St. George's Cross in the centre; the Princess Helena, two roses and a St. George's Cross in the centre; the Prince Leopold, two hearts and a St. George's Cross in the centre; the Princess Louisa, two cantons and a rose in the centre; and the Princess Beatrice two roses and a heart in the centre. The insignia of the Duke of Cambridge consisted of a label of three points, with two hearts on each, and a St. George's Cross in the centre. He also called attention to a drawing of a curious slab of marble found at Venice, with the face downwards, bearing the armorial insignia of Henry of Lancaster, afterwards King Henry IV., which was brought to this country by one of the Howard family, who fancied it was intended for the Norfolks, with whom he was connected; whereas it belonged to the bitter enemy of that house. In conclusion, he recommended the student of architecture to make heraldry subservient to ornamental design, taking care that the heraldry was true, and that the architecture, like the heraldry, proclaimed its own tale and time.

THE STUDY OF INDIAN ARCHITECTURE.

MR. FERGUSSON read a paper on this subject at the Society of Arts, on the 19th inst., and went over some of the points that have been treated of at different times in our pages. He showed how little Indian architecture is known in England, the value of the remains, and the importance of preserving them. In conclusion, he said,—

I consider the study of Indian architecture important because it affords the readiest and most direct means of ascertaining the ethnological relations of the different races inhabiting India. It points out more clearly than can be done by other means how they succeeded each other, where they settled, how they mixed, or when they were absorbed.

In the next place, I consider it important, because it affords the best picture of the religious faiths of the country, showing how and when they arose, how they became corrupted, and when and by what steps they sank to their present level.

It is also, I believe, important because in a country which has no written histories it affords almost the only means that exist for steadying any conclusion we may arrive at, and is a measure of the greatness or decay of the dynasties that ruled that country in ancient times.

These considerations refer wholly to India, and to the importance of the study as bearing on Indian questions only; but I consider it as important, also, because of its bearings on architectural art in our own country. First, because by widening the base of our observations and extending our views to a style wholly different from our own, we are able to look at architecture from a new and outside point of view, and by doing this to master principles which are wholly hidden from those whose study is confined to one style so mixed up with adventitious associations as our local styles inevitably are.

It is also important because architecture in India is still a living art. We can see there, at the present day, buildings as important in size as our mediæval cathedrals, erected by master masons on precisely the same principle and in the same manner that guided our mediæval masons to such glorious results.

It also is, I conceive, important as offering many suggestions which, if adopted in a modified form, might tend considerably to the improvement of our own architectural designs.

Lastly, I consider the study worthy of attention from the light it may be expected to throw on some of our own archæological problems."

In the discussion that followed,—

Mr. Henry Cole, C.B., remarked that, if anything were wanting to convince Englishmen how much there was in India of which they were ignorant, it was the able paper they had heard this evening. He thought it hardly too much to say that there were scarcely half a dozen architects in this country who could pass even a preliminary examination in Indian architecture; and yet here was the great fact before them that there was an architecture, whether beautiful or ugly did not affect the question, which might be said to be the history of a people living in a state of considerable civilization even 500 years before the Christian era. That the architects of this country should know very little about Indian architecture was not surprising when they recollected that even within the memory of members not older than himself, they knew very little about Gothic architecture. Fifty years ago nobody knew anything about Gothic architecture; and he remembered being sent to look at the new church of St. Luke's, Chelsea, as something wonderful and novel; and yet they knew how great a revival there had been in that branch of art. If such had been the case with Gothic architecture, he thought that eventually they might hope to have some knowledge, at least, of the architecture of India. Not more than 100 years ago, Horace Walpole built that structure which was then thought to be excellent Gothic, at Strawberry-hill; and scarcely fifty years had elapsed since Wyatt, in Durham Cathedral, exercised his taste in what he considered to be Gothic; and yet, at the present time, there was not an architect's pupil who would not consider himself disgraced if he had produced such work. He therefore did not despair of seeing Indian architecture studied in this country; but he wished to be understood that he did not desire to see it copied. While upon this subject, he might mention that visitors to Paris next year would see a building in con-

nexion with the Exhibition there, the design of which was somewhat in the form of a Mohammedan temple, suggested by Mr. Hope's book on architecture. In the English department of that Exhibition it had been found necessary to erect a building to contain several boilers, which were, in the first place, to be exhibited as specimens of manufacture, and also to be used to drive the machinery. Of course, in connexion with the boilers there must be chimneys, and it was desired to have them ornamental; the building must also be extremely airy, so as to make it as cool as possible. Looking over Mr. Hope's work on architecture, they found a representation of a mosque of which Syeed Oosman was said to have been the builder, and this gave them, in addition to extremely ornamental forms, like chimneys, colonnades, which afforded open spaces for the public to inspect the boilers in. It was most remarkable how much influence the display of Indian productions shown in the Exhibition of 1851, had had upon our taste, especially in the manufacture of carpets and other fabrics. Mr. Peter Graham, a competent witness, was present, and could testify to this. Instead of flaring patterns in perspective, they had decorous flat patterns, on which they could place furniture without feelings of discomfort, and it was the fact that a large trade had since been established in Masulipatam carpets. The same influence, he believed, would ultimately be exerted by the architecture as by the manufactures of India. He also remembered that in the Exhibition of 1851, whilst they had these beautiful patterns designed by the benighted people of India, there were beside them some most abominable imitations of European patterns. Indeed, there was nothing so bad as when an Indian attempted to copy European art; and he confessed he had some fear lest the schools of design in Calcutta, Madras, and Bombay, instead of leading the natives to advance in their own styles of art, would create a hybrid style, the most detestable ever seen. In his opinion, we had a great deal more to learn from the Indians than we could hope to teach them in the designing of patterns, and he protested against schools of art in India, which should corrupt native talent and taste. Mr. Fergusson had alluded to the importance of having some kind of systematic mode of collecting information on the architecture of India. He was quite sure, supposing they none of them cared at all about art, they must nevertheless feel an interest in the millions of human beings who were at present subjects of Queen Victoria, and must long to know something about this remarkable people. He would ask how that rude cross and cromlech, shown in a diagram on the walls, could have got into the place where it was described to have been found? It was a veritable duplicate of Kit's Cotty-house in Kent, and yet it was in the midst of a dense jungle. Let them try and penetrate the history of such things as these. Mr. Fergusson had suggested that they should go on systematically obtaining photographic representations of objects of art in India. He (Mr. Cole) hoped some plan would be arranged by which we might be able to have in this country a systematic collection of photographs of Indian buildings; there were already skilful photographers high up the hills in India, who were in possession of thousands of these photographs, and he hoped we should soon see them in this country. He was enabled to state that it was intended that in the Indian court of the Paris Exhibition, Indian architecture should be represented. In addition to photographs, he would suggest casts. Only the difficulty of cost, which Englishmen very soon overcame, stood in the way of procuring casts of all the typical buildings of India. The public money had been already employed in obtaining casts of the finest objects in Italy, Spain, and France. We had recently imported into this country, at a cost of between 2,000*l.* and 3,000*l.*, a cast of the beautiful gate of the convent of Santiago, in Spain; and if we were to have these casts from Spain, it would be well to have them from India also. If the Society would, at a future time, again take up an idea they once had, and hold a complete Indian exhibition, embracing a proper representation of architecture, coupled, perhaps, with a complete colonial exhibition, he believed a most interesting and valuable display would result. On the previous occasion, in the year 1852, there was great difficulty in providing a building for the exhibition, but that difficulty would in a year or two be removed. There would then be in existence a building, the great Central Hall, which would be sufficiently large to accommodate an exhibition of this kind, besides a good many other things.

Colonel Scott, R.E., asked Mr. Fergusson to what extent he considered the architecture of any one of these races of India had influenced the architecture of the race that succeeded it, and whether in the architecture of the present day any purer system was followed, or whether what was styled by Mr. Cole a hybrid character of architecture now prevailed in India?

Mr. Fergusson replied, the styles in India had changed like those in this country, but each was a complete indication of the race of people to which it belonged. Each style differed from the preceding one, but was entirely without foreign admixture; and when they were familiar with the whole, the ethnology of the people was distinctly to be traced in the different styles. Where European influences prevailed architecturally, as in Lucknow and Hyderabad, the style had become corrupt and bad to the last degree.

Mr. J. Crawfurd said he would not attempt any criticism of the interesting paper read by Mr. Fergusson. Indeed he was not competent to do so; for Mr. Fergusson certainly was the best-informed man in the country on the subject he had brought before them. There were some points, however, on which he entirely differed from him. For instance, the Aryan theory he utterly disputed. Mr. Fergusson would have it that India was chiefly peopled from abroad, but that he (Mr. Crawfurd) did not believe. He believed that Nature made India a fertile country, and peopled it just as every other portion of the world was peopled. That there had been invasions of India in different ages there could be no doubt, and the invading tribes soon became merged in the native population. Mr. Cole had argued that we knew nothing of India except through the price currents of the markets; but he (Mr. Crawfurd) entirely dissented from this, and contended that we knew a great deal about India. Mr. Cole had, perhaps, not made it his study, but many persons had devoted the best part of their lives to the subject, and ought to know something about it, if they did not. The architecture of India was certainly wonderful and curious, though he thought not very beautiful or graceful; and he contended that we were a more advanced people in this respect than those of India. He was not for imitating Indian architecture; but in many respects they might well imitate our architecture, and, for his part, he believed they would improve in proportion as they imitated it. Very much remained to be done in the way of improving domestic architecture in India. Their temples were large and gorgeous, but they had, in fact, no domestic architecture, and their dwellings were mere huts. All that had been done in the way of architecture had been bestowed upon their false gods; and he knew of no Indian architecture except that which was of a religious character.

Mr. Peter Graham said, Mr. Cole having appealed to him with regard to the influence exerted upon the manufactures of this country by the Indian department of the Exhibition of 1851, he had no hesitation in stating he entirely concurred in the views of that gentleman. Followed up as that was by the exhibition at Marlborough House, for which he believed they were mainly indebted to the personal exertions of Mr. Cole, a great and beneficial influence had been exercised upon the taste not only of manufacturers, but the public at large. He believed he was warranted in saying that in the choicest specimens of ornamentation of the *cinque-cento* period there might be traced an influence derived from eastern objects of art that had been seen by the artists of that period. This could be discerned most distinctly; and he thought they could not do better than study those works—he did not mean as copyists—but as affording suggestions by which taste in the manufactures of this country might be improved.

Mr. Robert Rawlinson, C.B., said that when he looked at the numerous photographic representations of these buildings on the walls of the room, and while listening to the eloquent remarks of Mr. Fergusson with regard to them, he could not but ask himself the question—what was the purpose and utility of such large structures as these? And when they were called on to admire them as beautiful pieces of construction, they could only do so by considering the kind of people who constructed them, the climate in which they were placed, and the purposes they were applied to. He must express his opinion that architects even at the present day did not sufficiently consider what were the purposes for which their buildings were required. Huge public buildings were erected, and subsequently certain "dodges" had to be resorted to to make them habitable. That was especially the case in the Treasury-buildings, where all sorts of contrivances were resorted to to produce ventilation; and looking at the outside of the houses in London generally, they could not but notice all kinds of hideous appliances employed to induce the smoke to go up the chimneys. As a sanitary engineer, he felt that before they went to the study of Indian architecture they should learn to perfect their architecture at home, and make it really useful. Looking at the representation of the great Dravidian Temple, he had no hesitation in saying, in a sanitary point of view, it was an abomination, though possibly it might have architectural merits. It could not be lighted as it should be, nor could it be sufficiently ventilated. At the same time many valuable lessons might be learned from the East, especially their mode of making and arranging tiles, of using mortar, and of construction generally. The employing architects and engineers, and allowing them to send out articles from this country for use in India, was an enormous waste of the public money. He knew that many things sent out from this country to India served no better purpose than affording a good commission to the parties who gave the orders for them. In waterworks construction it was evident that the Hindoos were in advance of us. There were reservoirs in India 2,000 years old, and we might learn a lesson from them in this respect. A water supply, however, was about to be provided for Calcutta by a conduit fourteen or fifteen miles in length, from the Hooghly into the city. It would hardly be believed that that conduit was to consist of cast-iron pipes, sent from this country, to be laid in a marshy subsoil full of salts, where it could only last about twenty years. If that conduit had been built of Hindoo bricks, by Hindoo workmen, it would have been executed at half the cost, and might have lasted 2,000 years. He happened to know that in India there was a vast deal to be done in the way of building, of various kinds, for years to come. There was an army to be maintained at less cost of life than was the case at present, and several millions of money were to be spent in providing adequate barrack accommodation and improving the military stations of the country. He did not think it was a wise step to turn attention to these disused temples for hints as to the best mode of construction, but he did think the works should be constructed of native materials and by native labour, though upon the best plans that modern civilization could suggest.

Mr. J. Beavington Atkinson said the subject introduced this evening suggested one or two inquiries. The first was, how far the Mohammedan architecture, of which there were such beautiful examples in the room, could strictly be called Hindoo. The date of that architecture was 1200 of our era. They were perfectly well acquainted with it in other portions of Asia, and also in some parts of Europe. They knew what it was in Cairo and Constantinople, and also in Spain. The Mohammedan architecture which they found in India was, he ventured to say, except in some minute details, that which was known as Arabian architecture, planted in a new soil. They had the glorious dome and pointed arch peculiar to that architecture, which gave it a significant character wherever it was seen. Then, with regard to the ethnology of architecture, that was a very vague and conjectural term; and he ventured to ask whether, in order to get at anything like the origin of Indian architecture, they must not go back to a date far anterior to that of the oldest building represented by these photographs. If he had rightly read the works of Mr. Fergusson, he believed the earliest building of which they had a record was something like 250 years before Christ; whereas Thebes and Memphis were supposed to have been founded 2,000 years before Christ, and Rome 750 years; whilst the great period of the Greeks was, he believed, nearly contemporaneous with some of the photographs exhibited. Therefore, he would ask Mr. Fergusson how much further it was possible to go back in chronology in order to arrive at the ethnography of the arts of India, and whether, between the Eastern and Western architectures, there could be traced any correspondence as to the details. As to the exact merits and position of Indian architecture, it would be presumption in him to offer an opinion. One criterion of merit

in architecture was the relative perfection of the figures employed in decoration. Supposing these buildings to be contemporaneous, or nearly so, with the Greek temples, their artistic position would be somewhat indicated by the drawing and modelling of the figures in these façades as compared with the great Grecian works of art.

Mr. Philip Palmer remarked that the late Sir Joseph Paxton, in his plan of the Exhibition building in Hyde Park, illustrated the principle of building by the multiplication of parts; but, if he understood Mr. Rawlinson rightly, he appeared to think that a building of that form could not be well lighted and ventilated. They could hardly expect glass to be used in such structures in India; but it had been shown that in this country it was possible to erect buildings on that principle, and at the same time to secure thorough lighting and ventilation.

Mr. Fergusson, in reply upon the discussion, said Mr. Rawlinson laboured under a mistake in the views he had expressed relative to the square form of temple he referred to. It was impossible within the limits of a paper to point out all the details, but there were no separate apartments in the building, as Mr. Rawlinson had supposed; but the building, of which the plan was given on p. 74, was, in fact, a vast porch, standing on fifty-six pillars, and was perfectly open, the ventilation being of course admirable. The Dravidian Temple belonged to a different style of architecture and a different age altogether. He had endeavoured to make it clear that he by no means wished these productions to be copied. All he said was that there were principles in these buildings which were worthy of the study of architects, and it was by going to foreign styles, where they were not hampered by association, that they could most clearly understand what the true principles of architecture were. With regard to the remarks of Mr. Crawfurd, as to the absence of domestic architecture in India, that gentleman must surely be aware of the existence of numerous large and beautiful palaces which, in point of form and ornamentation, were equal to anything in Europe. In reply to the question of Mr. Atkinson, as to how far Mohammedan architecture was Hindoo, and why he had applied the term Mohammedan to it, he would refer to the circumstance that when the Mohammedans went to Constantinople they did not take with them the architects of Cairo, Syria, Spain, or Persia, but they literally copied the church of St. Sophia, which they found there, in the works which they erected in that city. Wherever the Mohammedans went, they introduced no style of their own, but employed the native people to build their mosques for them; and this accounted for the fact that some of the most beautiful Mohammedan buildings in India were purely Hindoo from first to last. With regard to the ethnography of the buildings, he could not in India get beyond 250 years before Christ; but, as far as general knowledge on the subject went, from the building of the first pyramid in Egypt down to the present day in India, and down to the thirteenth century in Europe, there was not a single building which did not more or less mark the ethnography of the people who built it. What gave the architecture greater interest was the fact that they could trace this ethnological relation not only in India but also in Africa and China, and other parts of the world. Indian architecture itself formed but a small branch of this subject, though a pleasing and important one, because, from the want of inter-communication, they retained their peculiar idiosyncrasies to a larger extent and more distinctly than any other people he knew.

OPENING OF THE NEW RAILWAY BRIDGE AT BATTERSEA.

THE bridge which spans the Thames from Battersea to Pimlico has been opened for traffic. According to the plans of Sir Charles Fox, the new structure has four river spans of 175 ft. each, and two land openings at each end of 70 ft. The river openings are segmental in shape, and the ribs of wrought iron have a rise of 17 ft. The three piers in the river have each at the level of the springing of the ribs a thickness of 12½ ft., and the two abutments are 20 ft. thick each at that level, so that the total length of the whole bridge is about 310 yards. The width of the bridge at rails level is 110 ft., wide enough for eight lines of rails, and this width is carried by seven main ribs to each span. The abutments have been carried down to a depth of over 15 ft. below low-water mark, with brickwork in cement, and the excavations for the abutments, owing to the great width of the bridge and form of ribs, had to be 125 ft. long and 48 ft. wide. The piers are supported by brickwork in cylinders, four in number, being sunk to a depth of 45½ ft. below high-water mark. Each is 21 ft. in diameter, and made of cast-iron in lengths of 8 ft.; each length composed of eight segments. The length of each pier at the level of the cylinders is 130 ft. The weight of iron in the superstructure and cylinders, &c., is estimated at about 3,000 tons. 100,000 cubic feet of stone have been used; 16,000 cubic feet of brickwork, and about 300,000 cubic feet of timber. Each of the cylinders has been weighted with a load of 1,000 tons to test the foundations, and at low-water mark cast-iron girders are fixed between them and the existing pier. The parapet on the east side of the old bridge has been removed, and placed on the new one. The new bridge is about 52 ft. wider than Westminster Bridge.

FROM SCOTLAND.

Greenock.—The sugar refinery of Messrs. Dawson, Martin, & Co., Greenock, in which a valuable stock of sugar was stored, has been burned down, the damage done being estimated at 25,000*l.*, which is covered by insurance. It is thought that the catastrophe was occasioned by an escape of gas in the fifth story.

Alloa.—Some time ago the Commissioners of the burgh of Alloa accepted from Mr. William Kerr, Helensburgh, a contract to construct new waterworks, at a cost of 2,500*l.*, with the view of bringing a more plentiful supply of pure water to the town. It was expected that by this time the works would have been far advanced towards completion, but a difference of opinion has arisen as to the weight of pipes to be used, and there is not much appearance of the civic rulers and the contractors effecting an amicable adjustment of their dispute.

THE TRADES MOVEMENT.

Birmingham.—The master builders have collectively issued a notice,—affecting alike the journeymen stonemasons, bricklayers, carpenters and joiners, painters and glaziers, plumbers, plasterers, and labourers,—stating that, after the 1st of May, they intend to enforce a new code of regulations instead of the rules now in force. The masters have not only agreed among themselves what the hours of labour are to be, but they declare that henceforth they intend to let piecework, take apprentices, and use any machinery or implements they require, so as to manage their own business in their own way.

Carlisle.—The masons have now been eight months on strike, with as little prospect of success as ever; the masters having got their contracts sufficiently forward to secure their work for the winter.

THE METROPOLITAN MEAT AND POULTRY MARKETS, SMITHFIELD.

MANY of our readers must have observed the labyrinth of hoarding which, for a considerable time past, has changed the appearance of Smithfield and its surroundings; and some may have been led to suppose, by the premature notices of the daily press, that these were connected with the proposed meat-markets. Such, however, is not the case, the works at present in progress being the extensive excavations for the railway depôt (scene of a recent sad accident), which will occupy the basement of the market buildings, and will have to be nearly completed before the market can be proceeded with. Much delay has already taken place on account of these railway operations, but they are now being pushed forward with more energy; and it is to be hoped that no further cause of delay may arise to prevent the corporation carrying out this very desirable work with all expedition. With the aid of the City architect, Mr. Horace Jones, we are enabled to present our readers thus early with the accompanying view of the exterior of the proposed building, and a section of the interior of the roadway which intersects it, from which its large extent and character may be judged of.

The suitableness of its arrangements will be best understood by the following description.

As we have already indicated, the market buildings will be constructed over the joint depôt of the Metropolitan and Great Western Railways, on the north side of old Smithfield market-place. The block of the buildings will be oblong, the greater length extending from east to west. The south front will be in the line of Long-lane and King-street, and a road will be formed in a line with the north front, to join Farringdon-road. A roadway, 50 ft. wide in the clear, will also pass transversely through the centre of the market-building, connecting Smithfield with the important thoroughfares of St. John-street and Cow Cross-street to the north.

The proposed building will be 631 ft. from east to west, and 246 ft. wide; the area enclosed will therefore be 155,226 ft. super., or somewhat more than three acres and a half.

The general plan shows a central avenue, 25 ft. wide, running east and west throughout the length of the building, with lateral passages branching off it. The shops, for the most part, front to these side passages, which, with the central avenue, are intended for foot-passengers only. Each shop consists of a front part, with stout open oak framing next the passages and adjoining shops. This portion of the shop is open above, and here the meat will be exposed during the hours of sale. At night the stock will be carried into the back part of the shop, which can be enclosed by open sliding shutters. The remaining sides are formed of oak framing, filled in with slate panelling. Stairs conduct to a room above, which may be occupied either as a counting-room or retiring-room for the principal. A room of this sort has been much desiderated by the various parties consulted as to the details of arrangements. On the same floor are provided water-closets and washhand-basins. Over this room is a platform roof, between which and the main roof of markets there is ample space for ventilation (over the whole area of the building).

These shops occupy a space 30 ft. by 15 ft. The front shop, back shop, and room over the latter are each about 15 ft. by 15 ft.

At the four corners of the market are the refreshment-rooms, which are on the first floor. The towers forming the angle of the building,—where not occupied by the accumulators required for working the hoists,—are appropriated as bars for frequenters of the market.

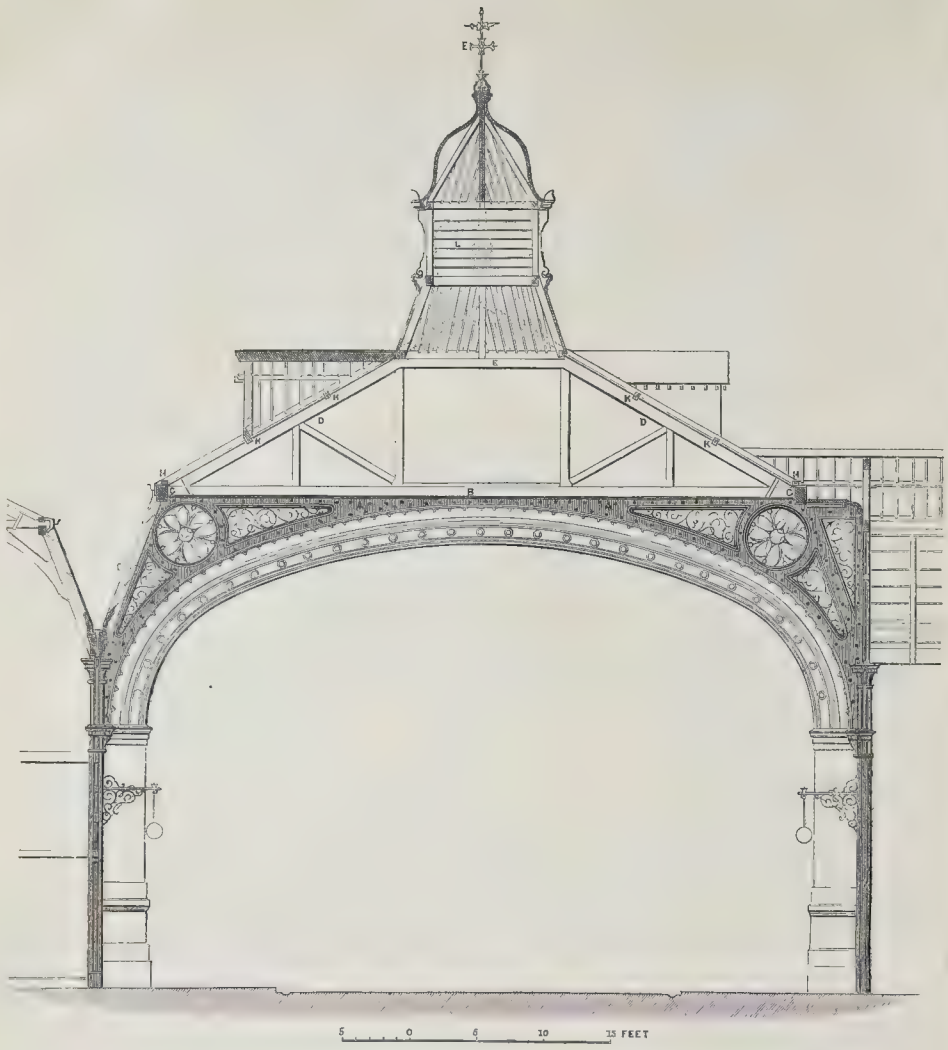
On either side of the gateways at the external ends of the central avenue, public urinals and water-closets are provided on the first floor.

The position of the buildings, with reference to the railways, affords great facilities for the direct transfer of the meat from the railway-wagons to the market by means of hoists, which are provided at various points as conveniently situated as possible for ready communication with the shops. A staircase communicating with the railway below is placed in the covered roadway; special ventilation being provided over these hoists with a view to prevent any effluvia from the railway-station entering the market.

The general arrangement of the architect's design has been necessarily accommodated to the somewhat peculiar circumstances. The whole area of the market and roadway being carried on a system of brick arching, wrought-iron girders and columns, rendered it impossible, or at least inadvisable, to construct any central feature, such as a tower or dome, which might have been desirable. This difficulty has been met by the importance given to the four towers hereafter described, the frontispiece of covered roadway, and the louvre which is placed at the intersection of the main roofs.

The style adopted is Italian, treated with some slight feeling of Renaissance or Cinque-cento. The enclosing walls present a series of arcaded recesses, with Doric pilasters, which are fluted in the upper two-thirds and raised on pedestals; the entablature being returned and ornamented over the pilasters, and finished with ornamental vases. The height of the main portion of the front elevation is 31 ft. 6 in. The heads of the arches between the pilasters are filled in with light open ironwork. In the recess of the arches are windows filled with ironwork of plainer design.

The principal feature in the longer fronts is the roadway, the frontispiece of which has an arch of cast iron, abutting on clustered pilasters, surmounted by large sitting statues. The elevations are terminated, as we have said, by towers at the angles, 90 ft. high, square on the lower half, with coupled pilasters at angles, and octagonal



THE METROPOLITAN MEAT AND POULTRY MARKETS.—*Section of Main Roadway.*

above, finished with domical roofs. The offset from the octagon to the square is managed by introducing griffins (the City supporters), holding shields charged with the arms of the City. The end elevations have the gateways leading to the central avenue as their principal feature. These gateways, the openings of which are 26 ft. 9 in. by 19 ft., are flanked by coupled pilasters, with an elliptical arch filled in with the arms of the City, and an enriched pediment over the openings. The cast-iron gates for these are 20 ft. high by 19 ft. wide, very elaborate. The twelve side entrances to passage which occur in the longer fronts, are completely filled with the same sort of ironwork.

Internally one of the principal architectural effects will be the roadway, of which we may hereafter give a view, with its wrought-iron curved principals, louvred roof for light, the oak framing of the side shops ornamented with light iron scroll-work, and the iron gates of avenue which occur in the centre.

The central avenue depends principally for its architectural appearance on the screen of oak framing filled in with cast-iron scroll-work, which is carried up to the spring of roof timbers, and the dressing of the curved principals, and promises to be effective.

The arrangements for lighting and ventilation are of so much importance in a work of this kind that it is satisfactory to hear that much attention has been bestowed on them.

The roofs of the market, which run east and west, and are in nine bays in the breadth, are an adaptation of the mansard roof, the lower portion filled in with glass louvres, contrived with the view of admitting light and air without the direct rays of the sun. There are also louvred dormers in the upper portion of roof.

The markets and roadway will be lighted with gas, with handsome pendant globe-light in the central avenue, and large scroll brackets in the roadway. Messrs. Browne & Robinson are the contractors for the works, at a sum of 134,460*l*. The whole building, it is expected, will be finished in fifteen or eighteen months.

REFERENCES.

A. Curved wrought-iron girders, 12 in. by 7 in. by ½ in.
B. Tie beams, 10 in. by 7 in.
C. Lower principal rafters, 12 in. by 7 in.; intermediates, 12 in. by 4 in.
D. Upper principal rafters, 11 in. by 7 in. to 10 in. by 7 in.; common rafters, 4 in. by 2 in.
E. Straining beam, 10 in. by 7 in.
F. Pitching plate, 5 in. by 4½ in.
G. Curb plate, 14 in. by 10 in. with wrought-iron flitch, at entrance to central avenue.
H. Pole plate, 5 in. by 5 in.
K. Purlins, 10 in. by 6 in. trussed with wrought-iron rods.
L. Glass louvres.



THE METROPOLITAN MEAT AND POULTRY MARKETS, SMITHFIELD.—MR. HORACE JONES, ARCHITECT.

THE LATE CALAMITOUS PIT EXPLOSIONS.

AN army of 500 hard-working and most useful fellow men have been slain, at almost one blow, by artillery of a far more tremendous description than any yet invented for warlike purposes, and it is doubtful whether so many Englishmen have been slain so nearly simultaneously in this country since the last civil war.

In many cases, defective ventilation has been the but too obvious cause of colliery explosions, but there is something remarkable about the late succession of pit accidents. First, of explosions, there have been a succession of these in different places within a few weeks. Only two days before the Barnsley accident an explosion took place at Bolton, when between fifty and sixty persons were seriously injured, many of them probably fatally. Then at Barnsley there have been no less than nine or ten explosions in all, the first and second of which committed such havoc amongst the pit men and their gallant would-be deliverers. The first explosion at Barnsley, had scarcely time to horrify the public when the Hanley explosion took place. Thus in Lancashire, in Yorkshire, and in Staffordshire, almost simultaneously, pit explosions have been taking place. Moreover, in South Durham, sinkings of the ground above coalpits have about the same time occurred, houses have fallen, and roads have sunk in, while a valley has appeared on the top of a hill, and in many fields great yawning chasms have been sunk in the ground, and whole fields have disappeared. Such changes have not occurred in one part of Durham alone, but in various parts, so that several roads, much land, and many houses have been destroyed; and although these changes have been traced through the colliery districts, they are now ascribed to a slight earthquake acting readily on a surface made unsound by coal workings beneath. And that slight earthquakes have repeatedly occurred in this country since the Londoners were lately startled by the new sensation, there seems to be little doubt. But we are not quite done with the list of casualties. We have instanced four counties, not merely adjoining ones, in which they have occurred, and to these we must add another, for an alarming subsidence of the ground has occurred at Newton, near Stourbridge, in Worcestershire, also above a colliery.

In the accident at Barnsley, the explosions were preceded by furious blasts of the explosive fire-damp as it escaped from its ancient prison walls into the workings. It then took fire and exploded. A blasting operation in the completion of a ventilating shaft, however, appears to have had something to do with the first explosion. In the case at Hanley the exciting cause of the explosion of the fire-damp has been discovered to have been the unprotected safety-lamp of a blacksmith at the bottom of the pit shaft. Of course, this does not account for the rush or escape and accummulation of the fire-damp itself at the time. Apart from earthquakes, which affect the state of the atmosphere, the fall of the barometer of late has been supposed to indicate an atmospheric cause capable of accounting for the simultaneous escape of fire-damp in mines.

We are glad to find that funds are rapidly flowing in for behoof of the surviving sufferers and the widows and families of the killed. The most complete safeguards should, surely, be insisted on in mines.

INSTITUTE OF ARCHITECTS OF IRELAND.

A MEETING of this body took place on the 20th inst., at the rooms, Great Brunswick-street, Mr. J. J. M'Curdy, fellow, in the chair. Amongst those present were Messrs. Landhem Lymes, F. V. Clarendon, J. H. Owen, J. Lanyon, W. N. Welland, W. Gillespie, E. Trevor, Owen C. D. Astley, F. Franklin, T. Drew, W. Fogarty, T. N. Deane, &c. Mr. Thomas Drew, to whom the "Fitzgerald medal" had been awarded for some drawings of St. Audeon's Church, Corn-market, read a report, giving a description of the drawings and history of the church. He remarked on the exceptional position which the church of St. Audeon occupied amongst the churches in Dublin. Of a large number of abbey churches there were no remains, and of the parish churches left, St. Bride's and St. Werburg's retained some of the masonry of the ancient churches only; the cathedrals of St. Patrick and Christ Church retained some beautiful examples of early Gothic architecture, but only one parish church, that of St. Audeon, presented it in such a condition as to tell of its departed glories. The plan of the church was an exceptional type of Mediæval architecture. It was double aisled, of eight bays in length, with no distinctive chancel, and the aisle being nearly in width with that of the nave. St. Audeon who had been chancellor to Dagobert, finally became Bishop of Rouen, in which city the lecturer believed there still existed some relics of him. When he visited the church of St. Audeon, at Rouen, he failed, however, to discover that its patron saint had ever been in any way connected with his old acquaintance in Corn-market, Dublin.

THE POULTRY MARKET.

A SMALL pamphlet has been issued by Mr. G. K. Geyelin, C.E., of Belgrave House, Argyle-square, author of a work on poultry breeding, in which he proposes for the improvement of the anomalous and unsatisfactory English system of selling poultry, to form an association of poultry breeders, with the following among other objects:—1. To establish the Dutch or drawback auction system in selling wholesale the produce of poultry farms. 2. To receive consignments of live and dead stock, in large or small lots, for daily sales, and of choice breeding stock for a weekly sale; the produce of sale, less the usual commission, to be remitted the same day to the consigner. 3. To promote the sale of dead poultry by weight. 4. To become a medium of intercommunication between poultry breeders in this and foreign countries, and to promote poultry breeding generally. The association, he adds, could also contract with hotels and public institutions for the supply of poultry, eggs, &c. Premises centrally situated for a wholesale poultry market could, he remarks, be found in London; therefore it depends on the breeders and the public themselves whether they continue to submit to the present unfair system of selling.

SCHOOLS OF ART.

The Lincoln School.—The annual exhibition of the productions of the students of this school attracted a large number of visitors. The walls of the school-room were crowded with the works of the past year, and the more delicate studies in outline were placed on tables down the centre of the room. The improvement upon the last exhibition, according to the *Lincolnshire Chronicle*, was strongly marked—more especially in the advanced stages of painting from nature. The distribution of prizes took place in the school on the second day of the exhibition before a large company. The Mayor presided. The Rev. J. S. Gibney read the report of the committee, which congratulated the meeting on the continued satisfactory state of the school. Mr. Taylor, the master, then read his report, which says,—"The working of the school during the past year is the most satisfactory of any since its opening. The number of students in attendance is higher, the number who have executed a good year's work is much greater, and the number of prizes and distinctions awarded by the Department of Science and Art is also greater. The students for the year are,—Special class, 19; general, 30; school, 23; evening class, 104; pupil teachers, 34; total, 210. A change has been made by the Department of Science and Art in the method of awarding prizes. The advanced stage of painting and design can no longer compete for the local medal or prize as hitherto, but can only enter into national competition, the selection for which competition is made in London from the works sent up from each school; and, after the awards are made, they are exhibited at South Kensington, and in one of the larger towns of the kingdom. The results obtained by Lincoln are,—18 works were selected for national competition, one of which obtained a national prize; 27 third-grade or medal prizes; 19 second-grade prizes for time drawing; 43 certificates for the same; and 7 honourable mentions. Comparing these results with other schools we find that about 60 schools out of the whole number of 100 have been unsuccessful in the national competition. In the third grade or medal prizes only three schools are higher than Lincoln, viz., Glasgow, Edinburgh, and West London. The average awarded to each school is less than 7: Lincoln has 27. In the second grade 10 schools are higher than Lincoln, viz., four of the London schools, the two Liverpool schools, Bristol, Dublin, Exeter, and Newcastle-on-Tyne. The average of students successful in this grade for each school is about 24: Lincoln, 51. Three schools send up more sets of satisfactory works than Lincoln, viz., Birmingham, with 1,009 students, sends up 293 sets; Glasgow, with 771, sends up 149 sets; West London, with 528, sends up 142 sets; Lincoln, with 210, sends up 110 sets; so that even here, in proportion to the number of students, Lincoln is by far the highest. And the average for each school is 33: Lincoln 110."

The Carlisle School.—The annual meeting of subscribers to this school has been held in the school-room, Finkle-street. The mayor presided, and Mr. Potter, M.P., distributed the prizes. The hon. secretary read the report, which stated that during the past year the number of students was quite as large as that of previous years, and they believe that the school is steadily gaining ground, and hope extending its influence and usefulness to all classes of the community. The number of students at present on the books, continues the report, is especially encouraging, and your committee have every confidence, from the attention and abilities of the master, Mr. Lees, that this number will be maintained. The result of the examination of the works of the students has been very satisfactory, although the number of prizes and certificates awarded has not equalled that of some of the previous years. This may be accounted for by the new minutes issued by the Science and Art Department, in which they determined to lessen the number of prizes by raising the standard to be attained by the successful drawings. Fifteen works have been sent to London during the past year for examination, of which five obtained prizes, nine passed as satisfactory, and on which results have been paid; of these, from their excellence, seven were selected for national competition, one of which obtained a bronze medal, the highest award given by the Department for this class of work, and of which there were only fifty-one awarded throughout the United Kingdom. At the annual examination of the students themselves, seventy-five passed in the second grade; of these nine obtained prizes or certificates in freehand, two in perspective, and four in model drawing. The fees paid by the students, which are partially regulated by the Department, are so low, according to the report, as altogether to preclude the possibility of the school ever being self-supporting.

Proposed Banbury School.—A preliminary meeting for the purpose of considering the propriety of establishing a School of Art for Banbury has been held in the Council Chamber, Town Hall. It appeared that about 130*l.* a year would be sufficient to begin the school, including 100*l.* salary of master, 16*l.* rent of premises, and the expense of models. The Government Department of Art would send down a Certificated Master, if 100*l.* a year salary could be guaranteed. If the promoters could get a class of fifty artisans, and another of young ladies at a higher figure, the school might be made self-supporting. It was unanimously resolved "that it is the opinion of this meeting that it is desirable to establish in this town a School of Art, in connexion with the Department of Science and Art;" and a committee to carry out the object of the meeting was appointed. A list is to be made of persons willing to guarantee 100*l.*, the master's salary, and subscriptions will be received towards the expense of examples and fittings.

A School for Maidstone.—A committee has been formed in Maidstone for the purpose of establishing a School of Art in connexion with the Government School at South Kensington. An efficient instructor, who holds certificates from the Department of Science and Art at South Kensington has been engaged, and the project has already been warmly taken up. That a certain number of students may enrol themselves before a commencement is made, names are being sent in to the hon. secretary, the Rev. H. Collis, St. Philip's Parsonage, with whom the project originated.

The Penzance School.—The presentation of prizes to the pupils who were successful at the annual examination in March last has just been made by the mayor. The great success of

several of the pupils, and the position they have obtained in Schools of Art at Macclesfield, Halifax, and elsewhere; the perseverance of the master, Mr. Geoffroi; the recent redecoration of the room; and apparently an increasing interest in art, have tended, according to the local *Telegraph*, to popularise the school; and it was crammed on this occasion with persons anxious to see the students receive their rewards. A resolution was unanimously passed pledging those present to increased exertions for the cause of art generally, and this school particularly.

DWELLINGS FOR THE POOR: STATISTICS.

Sir,—After the discussion which has now taken place upon the argument which I recently laid before the Institute of Architects, I think I may say that the most important question at issue stands as follows:—I point out that, amongst the poorer classes of working people, single-room lodgings are at present the rule; and this is admitted to be a fact. I then further allege that this fact is not altogether due to their poverty, but in a great measure to the circumstance that a large proportion of them are actually so situated, as regards the small number of persons per family, that single-room lodgings are sufficient: and this is disputed. I thereupon appeal to statistics.

At the Institute I took the returns of a certain inquiry in St. George's, Hanover-square, in 1842. The dwellings of about 1,500 families of the poor were visited; and amongst these the single-room lodgings proved to be 63½ per cent., the two-room lodgings, 28 per cent., and the three-room lodgings, 8½ per cent. It was also found that the possessors of only one bed were 43 per cent.; of two beds, 44 per cent.; and of three beds and more, 13 per cent. On these data I endeavoured to construct a table which, by means of subdivided classification, should bring about an approximate estimate of the per centages actually requiring one, two, and three rooms respectively, according to the numbers in family. I commenced proceedings by patiently trying the effect of several kinds of allowances, which I thought, at first sight, ought to be made in one direction and another, by way of corrections of these returns, under a vague impression that, as they stood (representing, I imagined, a *deficiency* of rooms and deficiency of beds), they could scarcely be a perfect criterion for my purpose (which involved the idea of *sufficiency*, although at a minimum, in both); but I found these corrections at the best had very little influence upon ultimate results; as any one may prove for himself by experiments upon my tabulation. I then reflected more carefully upon the returns as they stood, and upon the particular character of the locality from which they were obtained; and I could not help thinking that, after all, as matter of fact, the reasons for making allowances in one direction, and those for doing the same in precisely the contrary direction, were very much of equal weight; and that, in a word, the sort of people who would be likely to be the subject of such an inquiry in such a place as the parish of St. George's, Hanover-square, were by no means likely to be other than a reasonably fair sample of the badly-lodged poor,—the class between the well-to-do artisans above and the pauperized and depraved below. I therefore decided to accept the returns as I found them.

In constructing the following table, let it be first observed that I had to work to the exact totals of the 63½, 28, and 8½ per cent. in one direction (horizontally) as regards number of rooms, and the 43, 44, and 13 per cent. in the other direction (vertically) as regards number of beds. Accordingly I divided the 63½ per cent. of single rooms into 35 supposed to be occupied by families requiring but one bed (people without children, old people, and single women); 15 by such as required a bed for very young children in addition; 10½ by families requiring two beds for adults (or adolescents); and three by those requiring still a children's bed besides these two. In like manner I divided the 28 per cent. of two-room lodgings into 8 for one bed, 10 for one bed with one other for children, 6½ for two beds, 2 for two, and another for children, and 1½ for three beds. Lastly, the 8½ per cent. of three-room lodgings I appropriated at the rate of 2 for two beds, 2 for two and a children's bed, and 4½ for three beds. This appropriation had, of course, been governed all the while by the necessity that the cases of one bed should add up to 43, those of two beds (children's beds included) to 44, and those of three beds (children included) to 13. My table then stood as follows:—

	One Bed. 43	One Bed and Children } Two Beds. 44		Two Beds and Children } Three Beds. 13		Totals per cent.
One Room.....	35	15	10½	3	0	63½
Two Rooms	8	10	6½	2	1½	28
Three Rooms ...	0	0	2	2	4½	8½
	68 requiring one Bedroom.	34 requiring two Bedrooms.		8 requiring three bedrooms.		

The result is, no doubt, surprising enough; namely, that 58 per cent. of the poor (35 + 15 + 8) can be decently lodged in single rooms, by reason of the small number in family; that 34 per cent. more require only two rooms; and that only 8 per cent. need three rooms: and I must be allowed to say that if this be actually true, the difficulty of providing dwellings for the poor, at the lowest possible rent, becomes a much smaller difficulty than we have been accustomed to suppose; and further, that such a simplification of a great problem ought to be welcomed if really founded on fact.

This calculation, however, cannot be given dictatorially; it can only be offered for investigation: and indeed, so unexpected must be these results to many persons, that I am most anxious to encourage all inquirers to make experiments by appropriations of their own; although I certainly must confess so much confidence in my own reckoning as to think it will be found that no results can possibly be brought out very wide of what I have given.

Evidence in support of the reasonableness of the above calculation happens to be furnished accidentally by the statistics obtained (as stated in the *Builder*'s review of my lecture) from the parishes of St. Margaret and St. John, Westminster. The number of beds in these statistics are about 1½ per family; in the St. George's statistics they are about 1¾ per family; and this comparison, I think, corresponds exactly with the view I have taken of the St. George's poor as a fair sample of the lowest respectable class; the St. Margaret's and St. John's poor being undoubtedly of a somewhat inferior order, comprehending a considerable proportion of the pauperized and depraved.

I have recently, however, tested my results by a process based on altogether different data. The census of the United Kingdom gives us, as respects the ages of the population, the following facts:—Under ten years of age, 27 per cent.; between ten and twenty years, 21 per cent.; between twenty and fifty years, 37 per cent.; over fifty years, 15 per cent.

Let me designate these four divisions respectively by the terms,—1st, *Childhood*; 2nd, *Youth* (unmarried); 3rd, *Prime of Life* (possessing children, chiefly in childhood, some in youth); and, 4th, *Age* (possessing children, chiefly in youth). I propose to sub-classify these divisions, and to appropriate in detail the two divisions of childhood and youth to the parentage of the other two divisions, whereby to arrive at a classification of *homes*, as regards requisite scale of (minimum) accommodation. I have to premise that some of the youth under twenty will obviously have left the parental homes (as single-men lodgers, &c., and women servants); that some of those above twenty will be in the same case; that lodging-houses ought not to be included in the reckoning; that single men have not to be considered at all, but that single women have; in short, that it is the home-keepers alone that we have to deal with. Let me, then, at once set forth the following table:—

		Ages.				Homes.		
		Age.	Prime.	Youth.	Childhood.	One Room.	Two Rooms	Three Rooms.
Childhood (27 per cent.)		—	—	—	27	—	—	—
Youth (21 per cent.)	Left home	—	—	4	—	—	—	—
	With parents widowed	—	—	4	—	—	—	—
	With parents married	—	—	13	—	—	—	—
Prime of life (37 per cent.)	Married couples and families	—	17	8	13	4	3	1½
	Ditto without children	—	5	—	—	2½	—	—
	Widowed and families	—	5	2	4	3	2	—
	Single women alone	—	2	—	—	2	—	—
	Ditto in pairs	—	3	—	—	1½	—	—
	Left home	—	5	—	—	—	—	—
Age (15 per cent.)	Married couples and families	3	—	5	5	½	½	½
	Ditto without children	5	—	—	—	2½	—	—
	Widowed and families	3	—	2	5	2	1	—
	Single women alone	2	—	—	—	2	—	—
	Ditto in pairs	2	—	—	—	1	—	—
	Totals	15	37	17	27	21	6½	2
	Equal to, per cent.					71	22	7

As a little explanation of this table may be necessary, let me point out that the 37 per cent. of people from 20 to 50 years of age I divide into 17 in married couples with families, and 5 the same without families, 5 widowed with families, 2 single women alone and 3 in pairs, and 5 as having left home as servants and lodgers and thus gone out of the account; that the 15 per cent. over 50 years of age I divide into 3, 5, 3, 2, and 2, in like manner; that the 27 per cent. of children under 10 I appropriate as 13 and 4 to parents in the prime of life, and 5 and 5 to those in age; and that of the 21 per cent. of youth between 10 and 20 I consider 4 to have left home (and thus gone out of the account), 8 and 2 to belong to the younger class of parents, and 5 and 2 to the older class. I then assign to each subdivision of home-keepers such proportions of one, two, and three room lodgings as seem reasonable; for example, taking the principal class, that of married couples in the prime of life, with families, there being 17 persons (8½ couples) with 13 children young and 8 growing up, I assign to 4 of these couples one room, to 3 two rooms, and to 1½ three rooms; and so on with the other classes. The figures finally resulting as totals of homes in the form of 21, 6½, and 2, are, of course, equivalent respectively to 71, 22, and 7 per cent.; so that, large as the 58 per cent. appeared for single rooms, when resulting from the St. George's statistics, I fear it must be said that we should have some difficulty in keeping to so low a figure in this fresh calculation.

I therefore cannot do otherwise than again urge upon those who are interested in the important problem of providing better homes for the humble, either to dispute or to admit my proposition, that a large half of the poor do not require as matter of fact anything more expensive or more complex than single rooms; and I submit that if this cannot be disputed, we are led into a new and easy way of solving a large part of the problem, namely, the devising of plans whereby to build new dwellings and alter old ones, so as to give to the poor, in the utmost possible refinement of the single-room system, something that shall be as simple as their other necessities, and as cheap as their other purchases.

Robert Kerr.

SAVE CROSBY HALL.

I have just read the excellent article on "Old London," and amongst the many buildings in the City you mention "Crosby Hall." I think, as it is now advertised for sale, the Corporation ought to buy it, and open it as a Free City Library, Young Men's Institute, or anything by which it will be preserved; it might then be restored, and we should thus retain an excellent specimen of ancient architecture. Too many old buildings are now being destroyed, and I think it is quite time something should be done to preserve them.

An Architect.

LIGHTING DARK APARTMENTS.

Sir David Brewster writes as follows: — I beg to thank you for your notice of my address to the Royal Society of Edinburgh, on the lighting of dark apartments, and your correspondent, Mr. Garbett, for his kind appreciation of the method I proposed. His suggestion for diminishing the quantity of ground glass, though ingenious, will not, I think, be applicable in practice.

1. It would obstruct the view from other windows.

2. It would prevent light from falling freely on windows below it.

3. When covered with snow, it would obstruct the light altogether.

4. When wet with rain, the glass would cease to throw light into the apartment.

5. When covered with dust, it would be equally ineffective.

6. It would not receive, and use, as the vertical window does, the light from the walls and other objects before, above, and below it.

7. It does not furnish, as the vertical window flush with the wall does, any additional space to the apartment.

Allerly, Melrose.

A PROPER BUILDING FOR ARCHITECTS.

Sir,—You say truly, "The green enthusiasm of our correspondent is delightful." Yes, it is delightful as the spring time, when all nature is gay in her brightest livery of green—when the birds sing most joyously and the sun shines most brightly; it is then the seed is sown which is to be gathered in autumn. Ay, there it is; in the green spring we sow, in the sear and yellow autumn we reap; the chill winds and damp fogs of winter will soon strip off the green garment, and white frost and snow will take its place.

"Keep true to the dream of thy youth," says the sage; and who takes his advice but a few green ones. What folly to suppose that a body of architects would build for themselves a notable specimen of their art; far better let such things be done by other associations who will pay for them. Why, an architectural museum should be a specimen of *what to avoid*; so that members of the profession might be enabled to say, "This is the sort of thing you should *not* do." "The cobbler's wife is always slipshod," and the jeweller should never wear trinkets. Don't you see, verdant youth, that it is to avoid being "shoppy" that the Architects' House is a "stucco lump," a specimen of the modesty and good sense of the profession. It is only a green enthusiast like Pugin (and he was not a *regular* member of the profession) who would think of building for himself a house in the way he would have others do. How many architects have built for themselves a specimen of good architecture? A few painters and sculptors have done so; but then, you see, they adorned their halls with the works of their compeers, and not with their own; and what architect would be so foolish as to employ another to design for him what he himself could do so much better.

Scripsit.

BUILDERS' CLERKS' GRIEVANCES.

Sir,—With regard to your correspondent "R. F. C.," on the subject of reference, much could be said; and I must to a great extent, and fearlessly so, give my adhesion to the sentiments there expressed as to the great want of generous feeling exercised by some employers in matters of such vital importance.

A builder's clerk's health and reference are his capital. The former is too often injured by constant unreasonable and unessonable hours of sedentary duties, and this in cases without remuneration.

Confinement of so close a nature too often leads to excesses when relaxation takes place; punctual attendance, energetic, precise, and correct habits, in time give way to slothfulness and don't-care principles. Home he knows little of; with exhausted energies he seeks a rest of slight repose. If health give way, dependence on his employer follows; and it is this dependence that retards the upward progress of many an educated worthy man. An advance of 2s. or 3s. per week offered by another employer ofttimes is sufficient inducement for a clerk to resign one interest for the other. Under any circumstances removal does not engender (as a rule) good feeling, and much can be implied when giving a reference that may not be actually stated. Absence from business, inattention, and carelessness, without assigning ill-health or overwork as perhaps being the primary cause, are sufficient to annul an engagement.

Clerks are ofttimes the cause of the grievances they complain of, and to obtain position will offer their services at inadequate salaries,—to obtain favour will, as a custom, exceed the stipulated hours of duty. Until, as a body, we really feel in heart that we can conscientiously render our best services and obtain respect from our employers more by respecting and not by fearing them, there always will be grievances, sorrow, and destitution amongst the builders' clerks.

Peto.

LABOUR AND TAXES.

Sir,—Before the working classes are actively blamed as the cause of driving capital out of the country, let us investigate the increase of the taxation, rates, and rents, and through that the increase in price to the consumer of food, clothing, &c. And do you consider the food of the foreign workman equal in cost or quality to the English working man's? Again, I learn, to increase their wages many foreign working men work on Sunday—so wrote an engineer to the *Manchester Weekly Times* some few months ago. In this matter of trade let everything bearing thereon be thoroughly investigated, and then I have not the least doubt, whatever may be inconsistent in much of the Trade Union rules, this of driving the trade away from England is not one of the inconsistencies or errors. Let the increase in wages be compared or contrasted with the increase of all these items named by me, and then see how much the working classes are in pocket by the increase of their wages. It strikes me as too true a fact in our industrial progress, that the *more we labour the more we may*.

T. D.

BUILDERS' ACTIONS.

Hardman v. *Chadwick.*—*Chadwick* v. *Hardman*.—These actions (Northern Circuit, Manchester, December 6) arose out of a dispute between Mr. Hardman, a contractor, and Messrs. Chadwick, the owners of large paper-mills at Broughton, near Manchester, owing to the fall of a chimney 70 yards high, which Mr. Hardman had agreed to build for Messrs. Chadwick on ground excavated by them. The main question in the cases was whether the chimney fell through the negligence of the contractor or through the fault of Messrs. Chadwick in having it built in an improper place and on insecure foundations, the place chosen being near some reservoirs and a well 200 yards deep, and the soil being sandy and quick. An architect was appointed by Mr. Chadwick to superintend the building of the chimney, and he from time to time gave Hardman certificates of his work being properly done. During the building of the chimney, however, some water was pumped out of the neighbouring well, and when the chimney was within a few feet of completion it began to lean over on the side next the well, and it was discovered that the slabs of stone on which it was built had sunk between 2 in. and 3 in. Before long it fell altogether, and Messrs. Chadwick refused to pay Hardman the full price of his contract, alleging that the chimney had fallen in consequence of the bad building.

The second action was brought by Messrs. Chadwick against Hardman for not building the chimney in a workmanlike manner, according to his contract.

The jury returned a verdict for Mr. Hardman in both actions.

CASES UNDER THE METROPOLITAN BUILDING ACT.

Pipes for Hot Water.—At the Greenwich Police Court Mr. Z. D. Berry, of the Albion Works, Pimlico, attended to a summons, at the instance of Mr. Badger, jun., deputy district surveyor, charged with an infringement of the Metropolitan Building Act.

Mr. Badger stated the complaint was that pipes had been put in a new church at Sydenham for the purpose of heating the building by means of hot water, and that such pipes were placed within 2 in. of the woodwork, the 21st section of the Act, rule 4, declaring it unlawful to place pipes for the purpose named within 3 in. of any woodwork or other combustible material.

Mr. Traill said no doubt the object of the Act was to guard against fire; but to suppose that woodwork would take fire from the heat of the hot-water pipes was preposterous. The effect of such heat upon the wood would be to dry it up and make it less lasting; but that there was danger from fire was absurd. He did not believe even gunpowder would become ignited by such means.

Mr. Berry said he had been engaged at the offices of the Metropolitan Board of Works, Spring-gardens, carrying out a similar system of heating, under the superintendence of the Board's surveyor, Mr. Vulliamy, and there the pipes were actually on the woodwork. The most delicate substance could not take fire from the heated water-pipes, not even a lucifer match; and if the section of the Act referred to was strictly enforced, it would be simply impossible to have the luxury of heated pipes in a gentleman's bath-room.

Mr. Badger said his only desire in bringing the case before the magistrate was to shield himself from responsibility.

Mr. Traill said the surveyor had done no more than the Act required him to do in the performance of his duty; but under the circumstances that the Metropolitan Board of Works, by their own architect, had allowed pipes to be laid in their own offices at a distance of not even 2 in. from woodwork, he thought the present summons might be dismissed on payment of 2s., cost of summons.

*** Gradually each distinct enactment of the Act is being set aside, so that builders do not know what will be required, and district surveyors that they can enforce. Mr. Traill appears to have forgotten that buildings *have* been set on fire by hot water under pressure. We have ourselves lighted a common brimstone match on pipes full of water from a close boiler.

Wooden Buildings.—David Shimmins was summoned to Clerkenwell Police Court at suit of the district surveyor of South Islington for erecting a building in forecourt of a house in Ball's Pond-road without giving notice; also for inclosing the said building with timber and woodwork, contrary to preliminary rule 1, 1st schedule. Fined 3s. (district surveyor advising that fine should be small), and ordered to pay 7s. costs in first case, and to amend the irregularity in second. Refusing to pay the fine, the magistrate committed him. It was, however, ultimately paid.

METROPOLITAN BOARD OF WORKS.

At the last weekly meeting of the Board the report from the committee of the whole Board on the supply of gas to the metropolis was considered. The report recommended, amongst other things, that the price should be 3s. 6d. per 1,000 ft., and should be of a definite illuminating power and purity. Mr. Collinson moved as an amendment to the adoption of the report, "That this Board are of opinion that the maximum price of gas should be fixed at 3s. per 1,000 cubic feet." In doing so he compared the supply of gas at Manchester and other places with that of London, much to the disadvantage of the latter city. The amendment having been put, was lost by a majority of 3. Mr. Brushfield then moved as an amendment, "That the subject be referred back to the committee, in order that they might arrive at a more thorough understanding of the matter." This amendment not being seconded, the original motion was carried.

Mr. Collinson moved, "That in consequence of the great delay which has taken place in the making the purchase and necessary arrangements for providing the Finsbury and Southwark parks for the use and recreation of the public, a special committee of fifteen members be appointed for the purpose of carrying out the directions of the Board in laying out and enclosing the said parks, in order that they be prepared ready for the use of the public in the spring of next year." The motion was lost by a majority of 15 to 12.

In answer to Mr. Doulton, the chairman said an injunction had been applied for to the Master of the Rolls to restrain certain parties from building on Hampstead-heath, and he thought that it would not be well for the Board to take the question into consideration pending that inquiry. Mr. Silas Taylor then moved, "That the chairman be requested to seek an interview with Sir Thomas M. Wilson, and ascertain whether he is prepared to negotiate for a sale of his interests in Hampstead-heath and adjoining lands to the public use, and if so, upon what terms; and that the result of such interview be communicated to the Works and General Purposes Committee for their consideration, and report to the Board." After considerable discussion, the motion was agreed to with slight alterations.

THE MASTER BUILDERS OF EDINBURGH AND THE PAROCHIAL BOARD.

A special meeting of the City Parochial Board was recently held in the Council Chamber for the purpose of considering a communication received from the Association of Employers in the Building Trades of Edinburgh, in reference to the specifications which had been issued for the proposed contract for building the new poorhouse at Craiglockhart. There was a large attendance of members.

Along with the letter, the inspector had received a report of a Committee of the Builders' Association, with an intimation that a deputation would wait upon the Board to give them any information which they might require.

Some discussion took place as to whether the Board ought to read the report of the committee and receive the deputation, or come at once to a resolution upon the letter which had been received, without hearing the deputation or reading the report of the committee. In the course of this discussion,

Mr. Stott said the two leading architects in the town had called upon him, and stated that the Board would do quite wrong if they altered the conditions of their contract. One of these gentlemen told him that there was nothing like cohesion among the members of the Association of Employers in the Building Trades, and that the resolution at which they had arrived would not bind three of them. He had no doubt that they would get parties to tender. He complained that the builders had not come forward sooner to object to these general clauses in the contract, as the subject had been long under consideration in the Board. Mr. Stott was of opinion that they should, without hearing the deputation, at once resolve to adhere to the conditions of the specification; and he moved accordingly.

Mr. David Lewis maintained that the association of employers were unwarranted in the step which they had taken, as that association had been formed for the very purpose of protesting against and protecting employers from combination on the part of the workmen; and the employers with strange inconsistency, were now turning their association into a combination, and making a virtual strike to concuss the Board.

The Chairman, and other members who took part in the discussion, were of opinion that, before coming to any decision, the Board ought to read the report of the committee, and receive the deputation. This having been agreed to, the report was read, and the deputation, which consisted of three or four members of the building trades, headed by Mr. Forbes, and accompanied by Mr. Nisbet, the law agent of the association, were introduced.

Mr. Forbes, on the part of the deputation, stated that what they complained of was, that the specifications were so vague and uncertain

as not to give security in estimating. In reply to questions, Mr. Forbes stated that there were present thirty or forty members of the building trade in Edinburgh when the report was adopted, and that, unless a strike clause were inserted in the specification, they would not estimate, because the feeling on the part of the workmen was such that it would not be safe for them to tender for the work without a clause protecting them in the event of a strike. They had for the last five years been contending for the removal of the objectionable general conditions in specifications, and the same effort was to be made throughout Scotland and England.

After the deputation withdrew, the following motion was unanimously adopted :—

"That the Board, having considered the communication from the Building Trades' Association, and heard the deputation, and seeing that schedules have been applied for by first-class tradesmen in various parts of the country, resolve to decline to entertain any proposals to alter those plans and specifications for the new Poorhouse as adjusted at the last meeting of the Board, seeing that these specifications contain the usual terms in building contracts."

It was reported that at the meeting of the Board it was agreed to ask Messrs. W. Beattie & Sons to tender for the works. The two senior partners of that firm are brothers of Mr. George Beattie, the senior of the firm of Messrs. G. Beattie & Son, architects to the parochial Board.

Another meeting of the Board was afterwards held, however, at which the following resolution was adopted :—

"That the tenders lodged be not opened or disposed of till the finance committee report that it had succeeded in raising the necessary funds, and that the same shall be at the disposal of the board on or before a given date; and recommits the consideration of the terms of the specification to the law committee, to reconsider the same, and report such alterations thereon as will secure a sufficient competition for the work."

There were several tenders given in, but only two from Edinburgh, offering for the whole works.

The law committee, after seeing a deputation of the Association, agreed to recommend the following concessions to the Board :—

"1. That the Board should guarantee the quantities and the measurements.
2. That specimen walls should be built in connexion with the rubble work.
3. That David Bryce, Esq., R.S.A., whom failing, John Lessells, Esq., architect, be appointed arbiters, whom both failing, an arbiter to be appointed by the Sheriff of Mid-Lothian.
4. That an allowance of time should be made for bad weather, and for strikes on the part of the workmen.
5. That the sum to be retained should be 10 per cent., but that personal security would be required, and no interest allowed on the amount retained.
6. That the clause giving power to the architect to discharge workmen, should be struck out.
7. That quarrying should be restricted to three fields.
8. That the Board should insure the works.
9. That the Board should make roads before the work commences, as indicated by the architect: and,
10. That the Board should provide an office for the clerk of works."

The Association agreed to accept these alterations, and the Board adopted them.

GIFT PULPIT IN LINCOLN MINSTER.

At the cost of 600*l.*, the friends of the Rev. Edward Trollope (who has given much time to the Lincoln Diocesan Architectural Society) have obtained and presented a pulpit to the Dean and Chapter of Lincoln. It was designed by Mr. Scott, and executed by Messrs. Thompson & Ruddell, of Peterborough; the carving being by Mr. Jay. The following description of the pulpit has reached us :—

In plan it is sexagonal. On a moulded base of Caen stone stands a massive circular pillar, whose shaft is composed of veined dark grey marble, round which are ranged six other smaller pillars, with red marble shafts, whose moulded bases, capitals, and abaci are of Caen stone, and these support an entablature of the same material, consisting of six moulded and cusped arches, terminating in carved pendants on each face. The remainder of the pulpit is composed of carved oak. On the lower band is a dedicatory inscription. At the angles of this band are brackets, on which are severally carved the foliage of the ivy, rose, maple, vine, thorn, and oak. Upon these stand statuettes, the special gifts of Chancellor Massingberd, Alfred Tennyson (the poet laureate), Professor Conington, J. L. Fytche, Anthony Trollope (the author), and the Rev. Wm. Smyth. The first of these (on the western side) represents John the Baptist; the second is that of St. Matthew, the third, St. Mark; the fourth, St. Luke; the fifth, St. John; and the sixth, St. Paul. Above each of these statuettes rises a carved canopy, and between them are four panels, whose frames are enriched with the ball-flower ornament. Within them are alti-relievi subjects, illustrating the holy office of preaching the word of God. The pulpit is finished with a cornice enriched with a wreath composed of the stem, leaves, tendrils, and fruit of the vine, indicative of the hoped-for fruitfulness of Christian exhortation. An oak staircase, appropriately carved, gives access to the pulpit: on either side is an iron hand-rail, consisting of four standards, from the top of which flow foliated branches, coloured; these support brass rails, terminating above in enamelled pomels, the work of Messrs. Skidmore, of Birmingham. Above the pulpit is a carved oak canopy, of a spirelike character, enriched with niches, statuettes, pinnacles, and carvings, the finial of which is 35 ft. above the pavement level. Slender shafts, similar to those of the adjacent stalls, alone connect the canopy with the pulpit below; but it is at present uncertain if these will be allowed to remain. Underneath, but above the future occupants of the pulpit, a series of moulded ribs spring from the six pendants at its edge, and are again gathered up in the centre around a boss, on which is carved a stag couchant and an oak branch, together with a small suspended shield, bearing "vert within a border argent, three bucks trippant," impaling "sable, a chevron or between three crescents argent," for Trollope and Palmer. Without, the lower part of the canopy consists of six cusped and crocketed gablets, which are further enriched by foliated finials and pinnacles. Between each of these gablets niches rise from pendants below, and surmounted by highly-enriched canopies terminating in pinnacles. The niches are filled with small statuettes of apostles. From this lower portion of the pulpit canopy rise four richly-carved canopies, with slender pinnacles between them, forming a cluster, from the midst of which rises a dominant pinnacle, constituting a third and culminating stage. This pinnacle, square in plan, is supported by slender angle pillars, and surmounted by crocketed pediments, between which are little angle pinnacles; from the midst of these rises a spirelet enriched with crockets, and terminating in a foliated finial. Beneath the canopies of the intermediate stage are four statuettes of SS. Peter, James, Andrew, and Jude, two of which are special gifts, that of St. Peter having been presented by the Lincoln Diocesan Architectural Society, and that of St. Andrew by the Yorkshire Architectural Society.

THE HOMELESS BOYS OF LONDON.

On the 14th of February last, an invitation was given to the boys accustomed to sleep in the casual wards of London, and other nightly haunts, to come to supper at the Refuge, and nearly 200 accepted the invitation. During the evening Lord Shaftesbury, who presided, having questioned the boys as to their mode of life, asked them if they would be willing to go on board a ship if such were provided for them, and the hands of nearly all the poor and destitute guests were held up as an answer to the inquiry. The result is, that her Majesty's ship *Chichester* has been granted as a training school, and was opened last week by Lord Shaftesbury and a number of sympathisers. The chairman remarked, in the course of his address, that it had been said that the children of the poor should have recourse to industrial and certified schools. Where were the industrial and certified schools? After all the inquiries they were able to make, they were not able to find more than two for the population of 3,000,000 souls in the metropolis; 400 boys could be received on board the *Chichester*, and 200 could be sent away every year to recruit the number of our active seamen. The ship will lie at Greenhithe.

COMMUNICATION BETWEEN PASSENGERS AND RAILWAY GUARDS.

THE INSTITUTION OF CIVIL ENGINEERS.

On December 11, Mr. C. Hutton Gregory, vice-president, in the chair, the paper read was "On the Best Means of Communicating between the Passengers, Guards, and Drivers of Trains in Motion," by Mr. W. H. Preece. The author believed the almost unanimous conclusion, both in England and France, was, that if the problem was to be solved at all it must be by the aid of electricity. There was no force so ductile, so simply generated, and so easily manipulated.

The history of the trial of electrical appliances, from their first proposal in 1842 to the present time, was briefly narrated, and a description was given of the system, applied by the author, on the Midland, the Great Northern, and the London and South-Western Railways. The essential principle of this system was the extension of a single insulated wire throughout the whole train, which was maintained in a state of electrical equilibrium by having the similar poles of every battery in each van and engine attached to it, while their opposite poles were connected with the earth; so that when this equilibrium was disturbed, by placing the wire to earth through the framework, wheels, and rails in any carriage or van, the current from each battery acted upon the bell in its own van, and upon a signal on the engine. Its peculiarity consisted in this, that the commutators in each compartment of every carriage were protected, from the mischievous and idle, by being covered with glass, which had been found experimentally to be the best material for the purpose, as any opaque substance excited inquisitiveness, and therefore interference. The coupling used was an ordinary brass hook and galvanized iron eye, maintained in good contact by the pressure of a stout spring. It was divided into two parts, not only to provide for the reversal of the carriages, but to enhance the security of the couplings, from failure in electrical connexion, as experience had shown that a single coupling was not to be depended on. The author used the ordinary description of trembling bells, which continued to ring as long as the current was maintained, and which were equally applicable for any code of signals that might be determined upon. They were, however, specially constructed to prevent any emission of sound arising from the oscillation of the train. It was originally contemplated to provide an external visible semaphore, as well as an external electrical signal; but this had latterly been abandoned. In the system at present in practical work, there was free intercommunication between guard and guard, between the guards and the driver, and between the passengers and the guards. It had been found that no bell, however loud, could be heard upon the engine. The driver was therefore provided with a signal, which attracted his attention by a red disc by day, and a red light by night.

In conclusion it was stated, that the experience gained from the working of this system showed, that whatever difficulty existed in establishing a system of communication between the passengers and guard, was merely a mechanical one, and that any danger or inconvenience from placing such a convenience in the hands of the passengers was purely chimerical.

The discussion upon this subject, which was commenced, was adjourned until Tuesday, the 8th January, 1867.

SANITARY PROGRESS.

Nottingham.—The report of the sanitary committee of the town of Nottingham, for the year ending September 30th, 1866, has been issued in a printed form. The total number of deaths for the year was 2,007, or slightly under 24 deaths to 1,000 living persons. The chief causes of deaths were phthisis and bronchitis, and there was very little fever. Mr. Tarbotton, C.E., the corporation surveyor, has had constructed a new form of ashpits and privies combined, whereby the night-soil is covered in strata by the ashes from domestic fires, or by dust and earth, while rain is excluded and ventilation improved. Old ashpits and privies have been altered, and new ones built on this principle. Plans are given with the report.

Islington.—The report of the Sanitary and Diseases Prevention Committee appointed by the vestry on the 27th of July last has been read to the vestry by the clerk, Mr. John Layton, and printed for the vestry. It shows what measures were taken by the committee, and at what cost, for the prevention of the spread of cholera; and we have reason to know that these measures were successful. To the committee's report is appended that of Dr. Ballard, the medical officer of health, to whom the committee rightly acknowledge their obligations.

Reading.—The Reading local Board of Health have appointed Mr. Lawson, of London, engineer, in connexion with the proposed sewerage works of that town.

THE BOOLE MEMORIAL, AT CORK.

A memorial of the late Dr. Boole has been erected in the Queen's College, Cork, in which he filled the chair of mathematics. The memorial is in the form of a stained-glass window placed at the gable end of the examination-hall—a Gothic apartment. The design displays as in a series of tableaux, the leaders of science from the days when Grecian philosophers and Egyptian sages were laying broadly its foundation, down to modern times. The window consists of ten large compartments, each of which records some victory personified in the men by whom the triumph was achieved. The central compartment at the base contains the figure of Dr. Boole seated, bending thoughtfully over a volume in which he is writing. On either side stand Euclid and Aristotle, the grouping of these three figures indicating the character of Dr. Boole's principal work, "The Laws of Thought." The adjoining compartment on the one side is occupied by the forms of Pascal and Leibnitz and Descartes—representing modern metaphysicians and mathematicians. On the other side are

Bacon, Newton, and Napier. In the two remaining compartments of the tier—there being five in the breadth of the window—Hipparchus, Galileo, and Copernicus grouped together, represent astronomy; while Ptolemy and Strabo, with a third figure, indicate geography. The second tier contains five compartments, similar in size to those at the base of the window. The centre is filled with a representation of Fame seated, distributing wreaths of bay. This figure occupies the centre of the window, with a profusion of golden drapery as the prevailing feature. In the next compartment on one side Vasco de Gama, Columbus, and another recal the daring adventurers who explored unknown seas, and gave impulse to navigation. On the other side Hippocrates, Galen, and Harvey represent medicine. The extreme compartment at one side is filled by paintings of Archimedes and Phidias, grouping with two other figures, to indicate architecture, statuary, and mechanics; and in the last division King David, St. Augustine, and the proto-martyr Stephen are associated together, suggesting the conception of music and religion. The head of the window is filled in with the royal arms, St. George's cross, the Irish harp, and other devices. The inscription runs in a single line along the bottom of the window, so arranged that Dr. Boole's name comes immediately under his likeness. Blue forms the prevailing tint, but in the drapery green, yellow, purple, red, and graver hues are introduced.

NEW CHURCHES IN WALES.

St. Catherine's, Pontypridd.—On the 13th ultimo the foundation-stone of this church was laid by Miss Thomas, of Llwyn Madoc, in the presence of the Lord Bishop of Llandaff. The church will consist of nave, chancel, north and south aisles, and tower and spire. The north aisle is not comprised in the first contract. It will be constructed of Newbridge stone, with Bath stone dressings, and lined internally with red brick, banded in patterns of blue. The nave, which is 71 ft. 6 in. long, 24 ft. 9 in. wide, and 53 ft. high to the ridge, is separated from the aisles by arcades of five bays, supported by circular columns, over which is a clerestory of circular windows, with geometric plate tracery. In the west wall is a lofty four-light traceried window of noble proportions, and underneath is the western doorway, richly moulded, with banded shafts, carved caps, and moulded bases. The aisles are lighted with double and single light windows, with circles in the heads. The chancel is 35 ft. long by 22 ft. wide and 43 ft. high, opening from the nave by a lofty arch of brick and stone in consecutive rims, the subarch supported on coupled dwarf columns, the space over the arch being richly diapered with a cross enclosed in a circle, and other devices, the alpha and omega occupying the spandrels. The east window is of three lights, traceried. The vestry forms a transeptal projection from the south aisle of the chancel, with large circular window in the gable. The tower projects from the south aisle. It is of four stages, and 76 ft. high, and carries a spire 160 ft. to the vane. The tower forms the principal entrance to the church, through a richly-moulded archway, over which is a statue of the patron saint, in a canopied niche. Mr. Norton is the architect, and Mr. W. Morgan the builder. The cost will be about 4,000*l.*

Eglwys Oen Duw (the Church of the Lamb of God), Llwyn Madoc, Radnorshire.—This church, which has been erected from the designs of Mr. John Norton, at the sole cost of Miss Thomas, of Llwyn Madoc, was opened in November. It is built in the Early Pointed style, and is rectangular on plan, consisting of nave, 45 ft. by 17 ft. 10 in.; chancel, 25 ft. by 14 ft.; vestry, and south porch. The roofs are open throughout, and covered with blue and red Tunstall tiles. The stone for walling was from the Penybank quarry, with window and other dressings from the Lyde quarries, near Hereford. The crosses, cills, and copings are of Forest of Dean stone. The church internally is lined with Godwin's red bricks, diapered with glazed and encaustic tiles. The floor-tiles were also made by Godwin. A square timber bell-cot, covered with oak shingle, 70 ft. in height, rises from a double chancel arch. It contains a peal of four bells, by Warner, the gift of Mr. C. Thomas, of Cranmers. The pulpit stands in the grained space underneath, and is composed of rich ironwork by Leaver, of Maidenhead. An elaborately carved font, by Farmer, in Caen, red Mansfield, and Forest of Dean stone, stands in the porch entrance. The accommodation is for 120, and the cost about 2,000*l.* The builder was Mr. Mason, of Hereford.

Minera (North Wales).—The parish church of Minera has been re-opened after rebuilding, which has been completed, except the spire, by Mr. John Roberts, of Chester, as contractor, from a design by Messrs. Kennedy & Rogers, of London and Bangor, architects. The building, which is late Decorated in style, is a Greek cross on the plan, each of the arms being 20 ft. 9 in. by 18 ft. internally, the intersection of the cross consequently being 18 ft. by 18 ft., the length from north to south and east to west being respectively 59 ft. 6 in. There are, therefore, a chancel, north and south transepts, and a nave, with a detached tower in the angle formed by the south wall of the nave, and the west wall of the south transept. In the lower stage of the tower the outer entrance is placed. The chancel is lighted by a large east window of four lights, with arched head filled with tracery. This window has been filled with stained glass, by Mr. A. Gibbs, of London, at the cost of the Rev. R. O. Burton, as a memorial of his late father. Another window, with a segmental head, and having three lights, has been placed in the south wall of the chancel, opposite to which is a recess for a harmonium. The north transept is lighted by two windows—one in the north gable of three lights and one two lights in the west wall. The three-lighted window is filled with stained glass by the same artist as that in the east window, at the expense of the Minera Mining Company. The south transept has three windows—one in the south gable of a similar number of lights, and opposite to that in the north, and one each of two lights in the east and west walls. In the west wall is the entrance to the church from the inner porch which is lighted on both sides by a series of four small arch-headed windows. The roof at the intersection of the cross, as there are not any arches, has been framed to relieve the effect of the omission of this feature, and springs from carved clustered angle corbels of varied design. The remaining part of the nave forming the lower limb of the cross, is lighted by a west window in three lights without tracery, and one each of two lights in the north and south walls. The tower, which is 62 ft. high to the top of the four angle pinnacles, and finished so as to receive a spire, has three stories. Buttresses in two stages have been placed to all the external angles of the four limbs of the cross. The walls are of zigzag random rubble work, with stone dressings procured from the neighbouring quarries. The roofs which are divided into bays by principals resting on stone corbels, hereafter to be carved at the expense of several members of the congregation, are covered with Carnarvonshire slating, banded in two colours, and ridging of a similar material. The timbers and fittings inside are stained and varnished, the floors of the passages being of tiles. The church will accommodate about 350 persons, and has cost about 2,000*l.*

CHURCH-BUILDING NEWS.

Cambridge.—St. Matthew's Church, Barnwell, has been consecrated. The edifice is cruciform in plan, and consists of a nave and transepts, with a fully developed chancel, terminated by a semicircular apse. The angles of the walls at the junction of the nave and transepts, are splayed, so that the body of the church is in the form of a regular octagon, the roof of which is carried up to the height of about 40 ft., and terminated with an octangular clerestory or lantern with glazed quarry lights, above the heads of which there are eight trap-doors for ventilation, in addition to two more in the ceiling of the lantern; the whole of these doors are arranged in such a manner as to be readily opened from the organ-chamber at one time, by iron wheels, rods, and cranks. The vestry is built on the south-east side of the octagon, with a furnace-room below entered from the outside; and above it is the organ-chamber, access to which is obtained by a turret staircase from the lobby between the chancel and vestry. The walls are constructed of Cambridge white bricks, and are faced fair on both sides; the dressings, &c., are of red bricks from Haverhill, while the outer facing of the plinth is formed of Staffordshire blue bricks. The roofs are covered with Bangor purple slates, the great surface of which is relieved by the introduction of Welsh green slates, arranged in suitable patterns. There are no pillars nor other obstructions inside the building. The seats in the nave and transepts are of deal, fixed to cast-iron standards, while those in the chancel are framed, with bench-ends, and have moulded oak capping. Internally, all the timbers of the roof are exposed to view, and covered with wrought boarding and stained; the plates and tie-beams are illuminated with appropriate texts, and some of the rafters and other timbers and boarding in nave, transept, and lantern, have coloured patterns stencilled thereon; the chancel roof is more elaborately decorated, having blue ground to the whole of the boarding between the rafters, and studded with white stars as far as the commencement of the apse, while around the apse another feature (from ancient examples) has been introduced, viz., upon the blue ground are gold stars with mirrored centres to the larger ones, and at the apex of the rafters are gold rays, alternately straight and flowing, with the monogram I.H.C. illuminated thereon. All the staining and decorating were done by Mr. Leach. The church is to be lighted up by a large wrought-iron ornamental corona of about eighty burners, designed by the architect for the purpose, and which is being made by Messrs. Brawn & Downing, of Birmingham. The first contract was taken by Messrs. Bullock; the second contract by Mr. Mills, who has not yet completed his work. The lectern, pulpit, and prayer-desk of oak, and the sedilia of deal, were made by Messrs. Rattee & Kett. The glazing was done by Mr. Whybrow; and the ironwork to lantern, &c., by Messrs. Shallow & Coleman, who are making the hot-water apparatus, and work incidental thereto. The church will accommodate about 600 persons, the sittings are all free, and the total cost of the work (including site) will be under 2,000*l.* The architect is Mr. R. R. Rowe.

Books Received.

Useful Information for Engineers. Third Series. By William Fairbairn, C.E., F.R.S, &c. London: Longman & Co. 1866.

This is a very readable and interesting volume of Dr. Fairbairn's "Useful Information for Engineers." It comprises a miscellaneous series of lectures on the applied sciences, and on other kindred subjects, together with treatises on the comparative merits of the Paris and London International Exhibitions, on roofs, on the Atlantic cable, and on the effect of impact on girders. Some of these lectures had already been delivered and published in the Transactions of various societies and institutions.

VARIORUM.

"Blackwood's Shilling Scribbling Diary" has the advantage over that issued by other publishers, that it is interleaved with blotting-paper for a shilling. Blackwood's No. 4 is a well-bound Diary for the same sum.——"The Railway Almanack for 1867" contains, besides the calendar, an official list of the chairmen and executive officers of the independent lines of railway in the United Kingdom; with Government, postal, stock and stamp, public offices, and banking directories. It is a very useful sheet.——"The New Zealand Handbook," published by Stanford, is intended to afford information to all who may be looking for a new home. Proceeding from agents, its object is to induce emigration to New Zealand; but it seems, nevertheless, written in a fair spirit.——"Deane's Illustrated Almanack," though manifestly a business advertiser, includes a variety of quaint and amusing reading.——The January number of "Routledge's Magazine for Boys" contains the commencement of a new tale by the authoress of "East Lynne." How to make a Microscope for a Penny, and the Rev. J. G. Wood's paper on the Waves and their Inmates (both in this magazine), will please the boys by setting them to work.——A cheap volume giving the proceedings of the British Archæological Association for the Advancement of Science, at Nottingham, will be welcomed by many; and this has been published under the editorship of Wm. Tindal Robertson, M.D. (Forman, Nottingham; Hardwicke, London). It gives a very fair notion of the doings of the week.——The new number of the "Transactions of the Institution of Engineers in Scotland" consists of a paper by Mr. John Price "On the

Comparative Merits of the Rules of Lloyd's and the Liverpool Underwriters for the construction of Iron Ships." The essay is practically valuable.——"The Draytons and the Davenants; a Story of the Civil Wars," by the author of the "Chronicles of the Schönberg-Cotta Family" (Nelson & Son, Paternoster-row), should be called *the* story of the Civil Wars, showing the beginning of the quarrel, and ending with the "Petitions from the army for justice on the King." The fortunes and feelings of two families are mixed up with the progress of the events, and the story, from the Parliament point of view, is charmingly told, and holds the interest of the reader from the beginning to the end. The book can scarcely fail to be very popular.——"The British Almanac," with the "Companion to the Almanac," 1867 (Knight & Co.), maintains its place as head of the calendars, giving information of every sort needed in the library, the study, and the counting-house. Commercial Panics, the National Portrait Exhibition of 1866, Atlantic Telegraph Cables, and Mural Records of Pedestrian Tourists,—in other words, vagrant scribblings on walls,—are amongst the subjects that head interesting papers in the "Companion." It contains also the usual account of architectural works and public improvements.

Miscellanea.

Testimonial to Dr. Aldis.—On Wednesday in last week a testimonial, consisting of a silver goblet and salver, with a purse of 100 sovereigns, was presented to Dr. Aldis, by Frederick J. Farre, M.D., Censor of the Royal College of Physicians, and Senior Physician to St. Bartholomew's Hospital, on behalf of Dr. Aldis's professional friends and neighbours, as well as of several philanthropic noblemen and gentlemen. It was given with reference to Dr. Aldis's services as a sanitary officer, no less than as physician to a long string of public charitable institutions.

A new Light for Photographic Purposes.—A new light is proposed as a substitute for the magnesium light. It is thus described:—Nitrate of potash in powder, and well dried, 24 gms.; flour of sulphur, 7 ditto; red sulphuret of arsenic, 7 ditto. These three ingredients, being well ground together, the mixture, on being ignited, will yield a most powerful photogenic light; but 200 gms. of the compound are necessary to make the light last half a minute. The cost of the mixture is not more than 80 centimes per kilo., which would last two minutes and a half, while light from magnesium wire costs about 1s. per minute.

Stone-cutting Machine, Tyne Harbour Works.—For some time past machinery has been rather extensively used in the slate quarries of Wales, in cutting the rough material into slabs. These machines, the invention of Mr. George Hunter, of Carnarvon, have answered their purpose so well that their use is being gradually extended to quarrying purposes generally, and they promise to prove of much value to the engineer. The Tyne Harbour Commissioners have apparently come to the same conclusion, for they have had the machine, which we find illustrated by the *Engineer* journal, fitted up for their use, and it has answered their purpose so well that they have ordered another of colossal dimensions. The Newcastle machine is of the normal type, which consists essentially of two saw-blades mounted on a transverse shaft; and a traversing bed, much resembling that of a planing machine in its action, on which the block of stone or slate to be cut is fixed. The Newcastle machine is fitted with two 7-ft. blades of ⅜-in. steel plate. The tools are set with a twist to right and left alternately; they cut 1½ in. wide, at the rate of about 3½ in. per minute. There are forty-four sets of tools, at a 6-in. pitch, in each blade, moving at the rate of 44 ft. per minute. The shaft is 12½ in. diameter, of cast iron, and 9 ft. long between standards. The stone is magnesian lime, and the rough blocks, as placed on the table, weigh up to seven or eight tons. The estimated horse-power consumed is between two and three. The second machine, now in course of construction, will be a two-bladed saw, each saw 13 ft. diameter. Each blade will carry sixty-eight tool-holders, the tools set singly and in pairs alternately. The larger number of the saws employed for cutting slate in North Wales have two blades, but several have been mounted with three and four blades, with 16 ft. between the standards.

Tunnelling Machinery.—Mr. Dering's tunnelling machine, now in the York-road, Lambeth, is small and compact. It is worked by means of compressed air; and the drill, when fixed in its socket, has both a forward and a revolving motion. The point of hardened steel is driven like a battering-ram against the surface of the rock with extreme force and rapidity, until a hole is made of sufficient depth for blasting. When once the hole is rounded, a depth of 6 in. is scooped out of granite in five minutes. Pulverization is assisted by a continuous jet of water directed into the hole, and the hole itself may be driven not only horizontally but at any angle. Its working, however, seems very expensive.

The Late Mr. Parkin Jeffcock.—At a recent meeting of the Society of Engineers, the circumstance was referred to that the late Mr. Parkin Jeffcock, whose noble conduct in endeavouring to save life at the recent colliery explosion had cost him his own, was an old member of the society. The following resolution was ultimately passed: "The Society of Engineers receives with sincere regret the announcement of the loss of one of its early members, in the person of Mr. Parkin Jeffcock, who met his death in the noble and laudable endeavour to save life at the recent fatal explosion at the Oaks Colliery, Barnsley; and the Society hereby begs to express its sympathy with Mr. Jeffcock's relatives and friends under their bereavement."

Government School of Science, Dublin.—The annual prizes and certificates to the students who had passed successfully the examinations for the session 1865-6, have been distributed by the Lord-Lieutenant, in the lecture-hall of the Museum, Stephen's-green, in the presence of a large and fashionable assemblage. The most distinguished of the students for the past year, it is said, was Mr. Frank Clowes, of London, who obtained the first prize (5*l.*) in geology, the first prize (5*l.*) in physical science, the first prize (5*l.*) in practical chemistry, and the second (2*l.*) in general chemistry. His Excellency expressed his gratification at the talent and research which had been evidenced both by the variety of the prizes and the large number of the competitors.

The London Water Supply.—At a meeting of the Inventors' Institute, held at No. 4, Martin's-place, Trafalgar-square, a paper, prepared by Mr. R. Hassard, C.E., on the future water supply of London, was read by Mr. Hemans. In this paper the scheme already noticed in our columns for the supply of the metropolis with pure water from the lake districts of Westmoreland and Cumberland, was again brought forward. A discussion ensued, during which it was declared by Mr. S. C. Homersham that there are 30 ft. or 40 ft. of mud at the bottom of Ulswater. In reply, Mr. Hassard stated that the water of Ulswater is of the most brilliant and pellucid description, and free from mud. In reply to an objection made to the open tunnel, Mr. Hassard stated that the tunnel could be covered if necessary, but he thought the water would be improved by the tunnel being open, running water having the power to purify itself in the open air.

Armour-plated Vessels.—In a lecture delivered at the Plymouth Mechanics' Institute, a few days ago, Mr. Reed, the chief constructor of the navy, said that the unfair and perpetual depreciation of our ships had caused a loss of public confidence; but it was not true that English ships were inferior. The *Warrior*, in spite of some imperfections, was a magnificent ship, well adapted for performing ocean service in the interests of commerce. The *Achilles* was splendid as regards some of the most important qualities of a man-of-war, but she, too, of course, had her drawbacks, the greatest of which was her extreme length, and consequent unhandiness under steam; and the *Bellerophon*, for this reason, on account of her thicker armour and having heavier guns, was preferable to her as an engine of war, although costing 100,000*l.* less. These ships were not failures nor anything resembling failures. He said we ought to build some ships upon the turret principle, neither purely on the American plan nor purely on Captain Coles's, but embracing the best points of both; to carry armour 15 in. or 16 in. thick, and 20-ton guns; and to steam at fifteen knots. The ship which he described as "by far the most powerful iron-clad yet built in this country" is not one of her Majesty's fleet, but a ship called the *Fatikh*, built for the Sultan, and subsequently purchased by the Prussian Government.

St. Nicholas's Steeple, Newcastle-upon-Tyne.—The committee of management for the long-required restoration of this steeple have at length resolved to advertise for tenders on Mr. G. G. Scott's specification. The subscriptions now amount to 2,264*l.*

Opening of the New Vestry-hall of St. Luke's.—The new hall, erected in the City-road, for the members of the Vestry and Guardian Boards of St. Luke, has been formally opened by a banquet given by Mr. Churchwarden Wilson, in the Vestry-hall. About 120 gentlemen were present.

The New Infirmary, Macclesfield.—10,000*l.* being now subscribed towards the building fund, immediate steps are to be taken to obtain the requisite plans and designs for the proposed infirmary. The architect is Mr. Stephens, and a sub-committee has been formed to consider the designs, and to visit other infirmaries.

Prison: Cork.—At a meeting of the commissioners of the county of Cork gaol, held on Friday, the 21st of December, Mr. James Newstead, builder, of Fermoy, was appointed contractor for the works connected with the alteration of the prison, to suit the requirements of the system, under Mr. William Atkins, architect.

New Museum of Science and Art.—It is stated that the Government have consented to propose in the coming session a vote of 20,000*l.* for a museum of science and art for the East-end of London. The consent of the trustees of certain poor lands in Bethnal-green to sell a portion for the site of a museum has, it is said, been obtained.

The Late Mr. Charles Reeves, Surveyor of the Police and County Courts.—Mr. Reeves, whose death occurred on the 6th inst., was the architect, in conjunction with his partner, Mr. Butcher, of many of the county courts, both in London and the chief towns of England, as well as of many of the metropolitan police stations. Substantiality is their chief characteristic.

Want of Lunatic Asylums.—The *Lancet* says that the three large asylums for the county of Middlesex are full, and that extended accommodation for the insane poor, not, however, from any abnormal excess of cases, is urgently required all over England. The subject is now under the serious consideration of the Commissioners in Lunacy, who will advise the Home Office.

Archæological Remains on Dartmoor.—Some fresh Celtic remains have been recently discovered on Dartmoor. The foundations of an aboriginal village of some fifty dwellings have been uncovered, and slabs of stone have been found having depressions on their surfaces—believed to have been intended for making castings in metal. The high land of Dartmoor seems to be a promising field for the discovery of rock carvings.

Danish Sculpture.—We are informed that the Danish sculptor, Prof. Jerichau, is at present in Rome engaged in executing in marble three groups, all of which are destined for England. The first, the bridal gift of the large landowners of Denmark to the Princess of Wales, and a cast of which is at Marlborough House, represents Adam awakening and finding for the first time Eve by his side; the second, Women surprised while Bathing, has been ordered by the Princess of Wales; and the third, a Huntsman attacked by a Panther whose Cub he has taken, by Sir Francis Goldsmid. A cast of this work of art was exhibited in the Exhibition of 1851.—*Athenæum.*

TENDERS

For addition to a warehouse, Love-lane, Cit, for Messrs. Baggallay, Westall, & Spence. Mr. Herbert Ford, architect. Quantities by Mr. J. W. Dennison:—

Newman & Mann	£5,965 0 0
Browne & Robinson	5,960 0 0
Adamson & Son	5,940 0 0
Brass	5,857 0 0
Ashby & Horner	5,810 0 0
Henshaw (accepted)	5,795 0 0

For two houses, at Addiscombe. Mr. H. W. Broadbridge, architect. Quantities not supplied:—

Fenton	£1,370 0 0
Dover	1,000 0 0
Hargreaves	875 0 0
Surridge	853 0 0
Ward	850 0 0
Standen	825 0 0
Vickery	800 0 0
Collier	736 0 0
Randell & George	620 0 0
Rensleef	600 0 0

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